

**PAKISTAN: ON THE FRONT LINE OF CLIMATE CHANGE**

Resource Journal for Journalists

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by



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to the urgency of climate change,  
vow to act with compassion and determination!

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## P R O L O G U E

In 2014, I was in Layyah in South Punjab on a multi-media and bi-lingual investigative reporting assignment when I got a call from my editor. “There’s a climate conference coming up. Could you do another story on climate change from there?” It had taken my producer and I months to find the story we were in Layyah for, get legal clearance and permissions, track down the subjects of our assignment and get their consent. Now I just had one day to plan and film a story about climate change.

Most reporters in Pakistan will understand my dilemma – the environment and climate change is not a beat on its own, it is one of many we are assigned to cover, either as a result of events or disasters, or on slow news days. The few reporters who have made the environment or climate their specialization are either free-lancers or those who work for the magazine sections of the print media.

In the hierarchy of reporters, beats such as politics, assemblies, courts, and the foreign office rank higher. These are beats closest to power centres and powerful people. But climate change is a beat of the poor farmer, the rural woman, the child who will grow up to face water and food shortages. Climate change is lower down in the reporting hierarchy because it is too far removed from the centres of power, from the urgency of now, even though the shocks of rising heat levels and melting glaciers reverberate from the deserts of Thar to the Red Zone in Islamabad.



Just as climate activists and countries are speaking of adaptation to combat climate change, media organisations across the world are adapting content and newsroom structures to improve global warming coverage. The New York Times, for example, has a separate newsletter for climate stories and commentary. But despite extreme weather events, a growing interest among young people, and a climate change ministry, Pakistani newsrooms have still not removed the 'after-thought' label from the environment beat.

A study on the media coverage of the August 2022 floods found that of the three mainstream news outlets being monitored, only one attributed climate change as a reason in just 21% of its stories. Conducted by the Centre for Excellence in Journalism (CEJ) and the Institute for Research, Advocacy and Development (IRADA), the study found that while it is true that newsrooms are understaffed and under-resourced, the erratic spread and context of the coverage showed that professional criterion were not applied strategically in the reporting on the 2022 floods. The problem therefore is not just the importance given to climate change as a beat, but a lack of understanding of the issues at all levels in the media hierarchy.

In my years as director of the CEJ, I have found that climate change training workshops are among the centre's most popular programmes with hundreds of applications from reporters across the country. We are incredibly fortunate to be partnering with GIZ to expand our reach and design of such programmes, jointly tackling the poor coverage

of global warming issues. One of the outputs is this resource book, which elegantly connects global initiatives in the climate movement with local developments. Authored by Rina Saeed Khan and edited by Farahnaz Zahidi, 'Pakistan: On the Frontline of Climate Change' provides journalists an overview of the impact, governance and legal structures, and tips to improve climate change journalism in an easy-to-understand format.

I believe this resource will serve as a primer not just for working journalists, but media students, professors, and instructors.

**Amber Rahim Shamsi**

Director

Centre for Excellence in Journalism

IBA University

## F O R E W O R D

As the Cluster Coordinator Energy and Climate Change Cluster of GIZ Pakistan, it is an honor for me to introduce this essential resource book on climate change for journalists. The German government is deeply committed to supporting Pakistan's efforts in combating climate change and achieving sustainable development goals.

The story of climate change is complex, multifaceted, and constantly evolving. It encompasses science, politics, economics, social justice, and human resilience. It's a story that unfolds not just in grand international summits, but also in the lives of everyday people facing floods, droughts, and rising sea levels.

Journalists have a critical responsibility to navigate this complexity, cut through the noise, and deliver accurate, engaging, and impactful reporting. This book equips you with the tools to do just that. You'll find:

**Scientific literacy:** Demystifying the science behind climate change, global action, and separating fact from fiction.

**Understanding Impacts:** Understanding impacts of climate change on various sectors in Pakistan, relating disasters to climate change.

**Reporting strategies:** Crafting compelling narratives, finding diverse voices, and utilizing multimedia tools to reach wider audiences.

**Solutions journalism:** Highlighting positive actions, showcasing what can be done, and empowering your audience.

But knowledge is not enough. We must also cultivate empathy, courage, and a sense of urgency. This is not just a story to report on, it's a story we are all living and shaping. Your voice matters. Your stories matter. They can inform, inspire, and mobilize change.

This book is your guide on this journey. Use it, share it, and most importantly, use your voice to tell the climate story with depth, clarity, and conviction. The future of our planet depends on it.

I commend the authors, editors, and contributors for their dedication in creating this invaluable resource. I trust that it will serve as a beacon of knowledge and inspiration for journalists across Pakistan, empowering them to become agents of change in the fight against climate change.

Together, let us harness the power of journalism to build a more sustainable, resilient, and equitable future for Pakistan and beyond.

**Stoyanka Stich**

Cluster Coordinator

Energy and Climate Change Cluster

GIZ Pakistan

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## Introduction

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Climate change has become a big challenge for the whole world including Pakistan. The catastrophic floods of 2022 brought global warming into sharp focus in the country and there is an urgency to act and adapt to a changing climate. It is, then, a need of the times that it is reported on more than ever before by the media.

This resource book aims to inform journalists and students of journalism, as well as seekers of knowledge in general, about climate change, a global phenomenon that is under-reported by the media in Pakistan.

This book will teach journalists and students the basics of climate change by giving them a thorough understanding of the key topics and providing them with reliable data and information. Environmental journalism is gaining traction, and it will become an important branch of

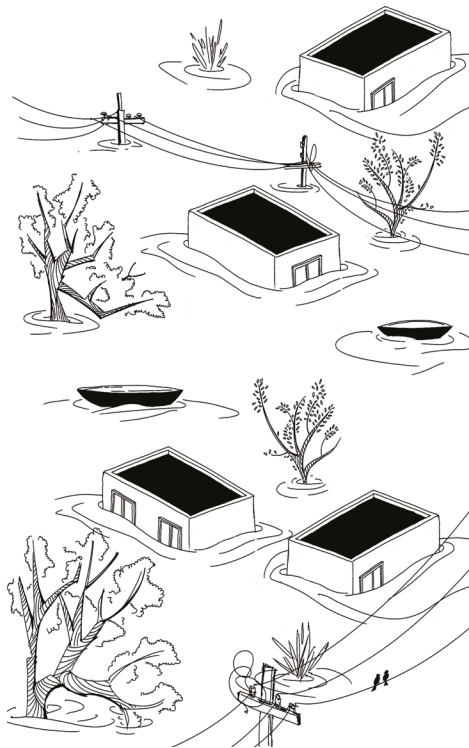
[journalism in Pakistan](#) in the future (Manzoor & Ali, 2021).

In this resource book, there are chapters on the science behind climate change, the kinds of impacts that a warmer world will bring, the status of international climate talks, and Pakistan's current scenario as a highly vulnerable country. Thus, while the book will give a global context, it is the Pakistani reader who is the main addressee.

For journalists, there is a section on how to tailor a story for their target audience. To tell the story of climate change well, one needs to understand the science behind it, as well as global politics, economics, and more. Joining the dots in the coming times, it is important to use different angles to cover this subject as climate change is relevant to business, the economy, health, the weather, and agriculture.

In today's age, journalists can find many new angles for their reporting and merge climate change with existing topics. Take for example looking at how mango production in Pakistan decreased in the summer of 2022 due to climate change impacts and how rice production that same year was affected by massive flooding in the country's south. While the peg remains climate change, the coverage touches upon food insecurity and poverty alleviation.

The key to effective communication is to tell interesting and compelling stories that people want to read, grounded in facts and wherever possible to offer solutions. In this book, storytelling for climate change is the key.



## Climate change: Biggest challenge of the 21st century

Across the world, climate change is now recognized as a fundamental problem. The head of the United Nations (UN), Secretary General [Antonio Guterres](#), has warned that the world is “sleepwalking to climate catastrophe” (United Nations, 2022).

According to him, the scientific implications of climate change are clear, and so is the math: “To have a chance of avoiding global warming’s most ruinous impacts, the world must cut greenhouse gas pollution nearly in half by 2030 and erase its carbon footprint entirely by mid-century”. That would mean cutting down on greenhouse gases from industrial and other human activity (including the burning of fossil fuels like coal, oil, and gas), and from destroying forests.

[Pakistan](#) is not contributing much to the Earth’s warming, as it is responsible for less than 1% of

the world’s planet-warming gases according to European Union data (Emissions Database for Global Atmospheric Research, 2022). Yet, it is the eighth most vulnerable nation to the climate crisis, according to the [Global Climate Risk Index](#) (Eckstein et al., 2018).



## Pakistan amongst top-10 countries affected by climate change

The annual Global Climate Risk Index brought out by the non-governmental organization [Germanwatch](#) analyses and ranks to what extent countries and regions have been affected by the impacts of climate related extreme weather events (storms, floods, heatwaves etc.).

Pakistan currently ranks 8th in the 2021 Germanwatch report under “The Long-Term Climate Risk Index (CRI): The 10 countries most affected from 2000 to 2019 (annual averages)”. The report states “countries like Haiti, the Philippines and Pakistan, that are recurrently affected by catastrophes, continuously rank among the most affected countries both in the long-term index and in the index for each respective year”.

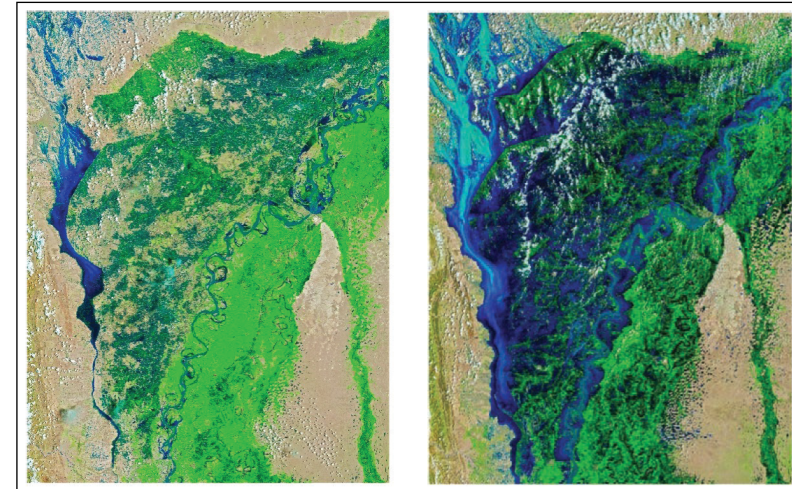
In 2010, Pakistan had ranked the number 1 most affected country in the world due to the massive floods in the Indus River

System, which is considered to be Pakistan’s lifeline. The Germanwatch annual report is released every year at the UN Climate Change Conferences held in November/December (Germanwatch, 2021).

According to the Global Climate Risk Index annual report for 2020, Pakistan has lost 0.53 percent per unit GDP, suffered economic losses worth US\$ 3792 million and witnessed 152 extreme weather events from 1999 to 2018 (Eckstein et al., 2018).

Pakistan is today paying a hefty price, not only with lives but destroyed schools, homes, and infrastructure. In 2022, the link between climate change and flooding became even more apparent with the massive summer floods, caused by record-breaking monsoon rainfall.

The science linking climate change and more intense



Source: NASA Earth Observatory images by Joshua Stevens, using Landsat data from the US Geological Survey and VIIRS data from NASA EOSDIS LANCE, GIBS/Worldview, and the Joint Polar Satellite System.<sup>3</sup>

monsoons is quite simple. Global warming is making air and sea temperatures rise, leading to more evaporation. Warmer air can hold more moisture, making monsoon rainfall more intense. Scientists from the [Potsdam Institute for Climate Impact Research](#) predict that the average rainfall during the Subcontinent’s monsoon season will increase due to climate change (Katzenberger et al., 2021).

According to Pakistan’s federal Ministry of Climate Change figures, the flooding in 2022 has affected 33 million people in 84 districts and wreaked havoc in Pakistan. Around 1700 people have lost their lives, with 436 bridges destroyed and 13,115 km of roads damaged.

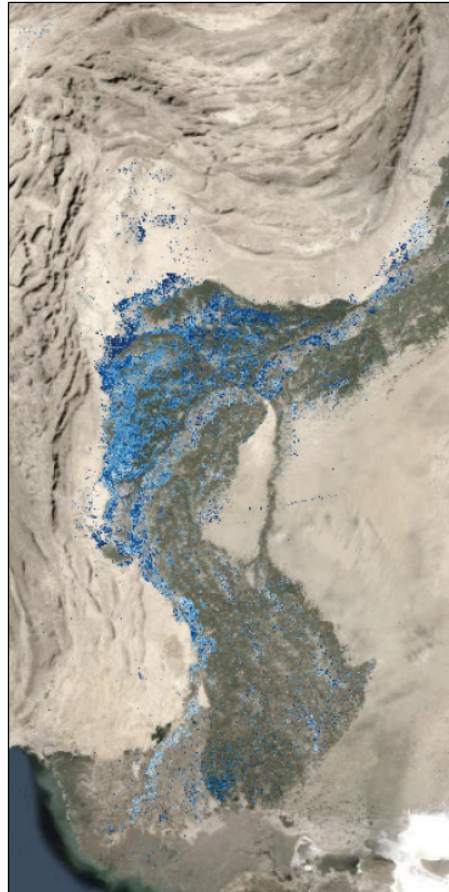
The Post-Disaster Needs Assessment of the 2022 Pakistan Floods, estimated total damages to exceed US\$ 14.9 billion, and total economic losses to reach about US\$ 15.2 billion. Estimated needs for rehabilitation and reconstruction in a resilient way are at least US\$ 16.3 billion, not including much-needed new investments beyond the affected assets, to support Pakistan’s adaptation to climate change and overall resilience of the country to future climate shocks. The report was prepared under the leadership of the federal Ministry of Planning, Development & Special Initiatives and supported by the [UNDP](#) (United Nations Development Programme, 2022).

## Pakistan: One big flood plain

[UN scientists](#) tell us that in the topsy-turvy world of climate change, rainy seasons will get rainier while dry seasons will tend to become drier; floods and droughts will become more frequent (Khan, 2013)

Pakistan is situated on a large floodplain called the Indus Basin and floods have been occurring here since before the Indus Valley civilization, which dates to 5000 years ago. There are old folk songs and poems about floodwaters.

However, climate change is changing the pattern of floods and droughts, according to climate expert Adil Najam, Professor at Boston University. In his view, "Climate change means extremes - we don't know what will happen and when, so preparation is difficult." At the Islamabad Security Dialogue held in April 2022, he said: "The most urgent and existential threat to humans is the current climate crisis".



Source: Ipsos Risk Analytics/World Bank, September 2022.

## Distracted leadership, weak governance

While the country continues to suffer from devastating floods and droughts, experts point out that the term "climate change" is neither widely recognized nor understood in Pakistan

A recent analysis of "Media Portrayal Of Climate Change In Pakistan: 2010-2019" found: "Most of the news stories appear when some disaster comes in the country and people face its consequences. In normal circumstances, very few news appears on media regarding the issue of climate change. Media organizations should enhance the coverage of climate related issues in their outlets." (Javed et al., 2020).

Pakistan is one of the world's few countries to have a dedicated federal Ministry of Climate Change that became active in 2015. The Ministry of Climate Change and Environmental Coordination (as it is now called)

has powers over the multi-lateral environmental agreements signed by Pakistan. Since the 1970s Pakistan has ratified over two dozen international environmental agreements including the UN Framework Convention on Climate Change (UNFCCC). Global climate policy is now handled by the Ministry of Climate Change and Environmental Coordination, and to implement the policy, the Federal Climate Change Act 2016 has been passed.



## Global action under Paris Agreement

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In Paris in December 2015, alongside 196 countries, Pakistan pledged to limit the global average temperature increase to below 2° Celsius, which is sometimes called “the guardrail” that may protect us from extreme danger. [The Paris Agreement](#) is a legally binding international treaty on climate change signed under the UNFCCC (United Nations, 2023).

The goal is to limit global warming to well below 2°, preferably to 1.5° Celsius, compared to pre-industrial levels.

To meet this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid-century.

Climate expert and former Chair of the Higher Education Commission in Pakistan, Tariq

Banuri, stated in an interview conducted in 2021, “There is a time limit; there is this sense of driving down a road where there is this looming precipice, after which you have a collapse of civilisation. With climate change we have a short window in which to act.”

The earth is now almost 1.2° C warmer compared to pre-industrial levels and the clock is ticking.

## Distracted leadership, weak governance

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## Controlling carbon emissions in Pakistan

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Pakistan's overall stand at these global negotiations is that it is more worried about the impact of climate change (hence the need for adaptation) than what it can contribute towards mitigation.

The country's negligible carbon emissions may not make much difference at the global level, but Pakistan needs to act as a responsible state. In addition, local emissions in big cities like Lahore, Karachi and Peshawar are now resulting in heavy air pollution, which is dangerous for citizens' health.

In the past decade, air quality has deteriorated to hazardous levels in all the major cities of Pakistan. So far neither the provincial governments nor the federal government has devised any suitable plan to reduce emissions at the local level. Instead, growing urban sprawl has led to increased smog in winters. Lahore during

the winter months is one of the most polluted cities in the world.

The World Bank estimates that air pollution shortens the average Pakistani's life by 4.3 years. In South Asia, the health of around 12 million children is at risk, as they are exposed to air pollution that is six times the safe limit, according to a recent [UNICEF](#) report. In Pakistan, one in 10 deaths in children under the age of five is caused by air pollution (UNICEF, 2021).

It is in Pakistan's own interest to reduce its emissions by shifting to renewable energy. According to the Government of Pakistan's updated [climate action plan](#), it aims to shift to 60% renewable energy and 30% electric vehicles by 2030 and ban imported coal and sequester carbon through initiatives such as tree plantation if it is given international assistance (Mako & Nabi, 2022).

## Why climate journalism is the next big thing

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These are the stories of a greener future that should be told by journalists. As the UN's Climate Communications Guidelines state: "Explaining the scale of the climate crisis is important, but it can seem overwhelming, leading people to lose interest and tune out... 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." (United Nations, 2020)

CHAPTER  
01

Science behind  
Climate Change and  
Global Action



## What is Climate Change?

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Climate change refers to long-term shifts in temperatures and weather patterns. Changes can include warmer average temperatures but they can also include extreme weather events like cyclones, droughts, and floods.

There has been an increase in extreme weather events in the past two decades due to climate change.

The [2022 report](#) from the UN World Meteorological Organization (WMO) shows that the last eight years have been the warmest on record, fueled by ever-rising greenhouse gas concentrations. The Earth is now in a period of rapid climate change. Our climate is changing and it is having serious impacts on our health and livelihoods (World Meteorological Organization, 2022).

The global increase in temperature is causing ice to melt. Ice losses from Antarctica and Greenland are worse than expected. The increase in sea levels because of this is already displacing people. The rise in ocean temperatures and salinity is causing coral destruction.

[Pakistan](#) today is one of the most vulnerable countries to the impacts of climate change. These impacts are primarily in the form of intense flooding, drastic change in rainfall patterns, melting Himalayan glaciers, increasing cases of vector-borne diseases such as dengue, and an overall increase in the frequency and intensity of climate-induced natural disasters (Government of Pakistan, 2021).

## What causes climate change?

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All the greenhouse gases (GHG) being produced by factories, power plants and cars around the world are getting trapped in our atmosphere, and the world is getting warmer.

### The rapid climate change we are now witnessing is caused by humans using oil, gas, and coal.

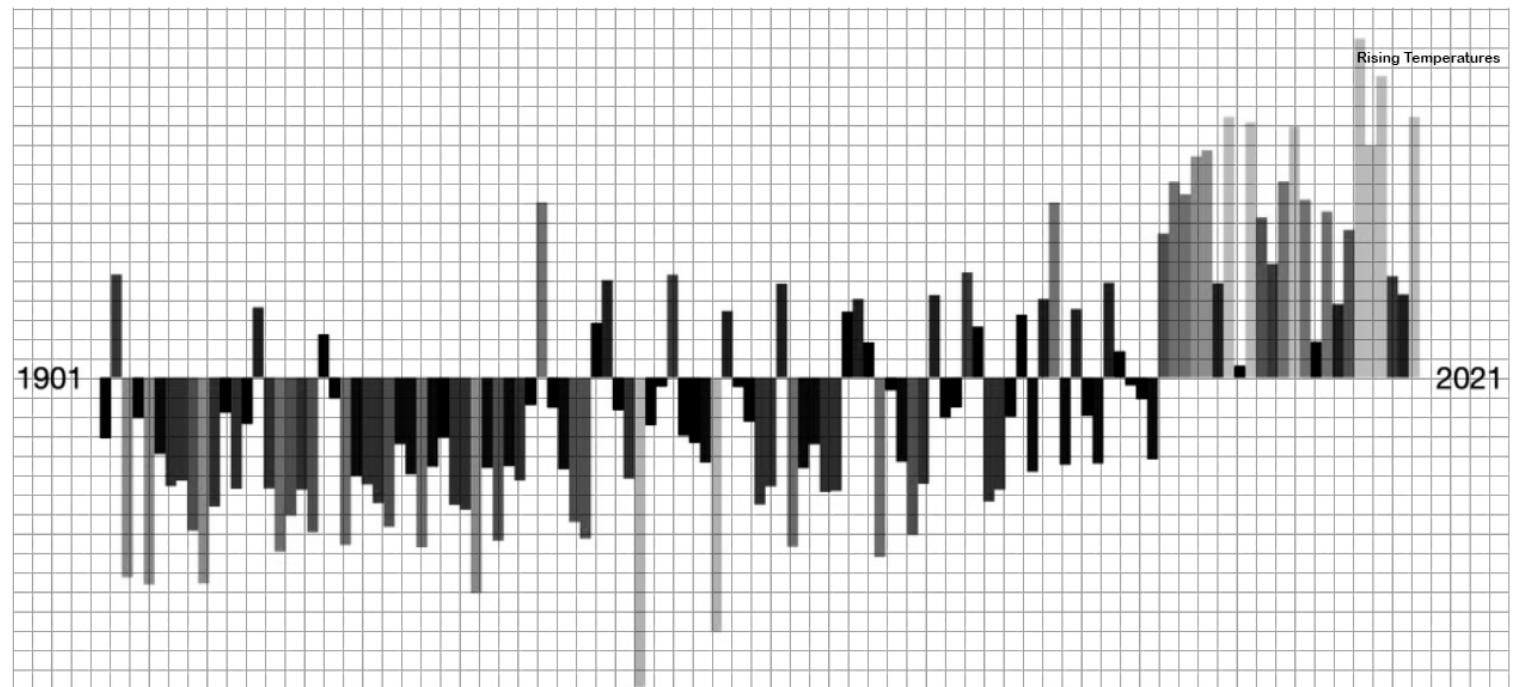
These are called fossil fuels since they come from decomposing plants and animals, which once lived millions of years ago. Fossil fuels are found in the Earth's crust and contain carbon and hydrogen, which can be burned for energy.

When these fossil fuels burn, they release greenhouse gases – mostly

carbon dioxide (CO<sub>2</sub>). These gases trap the sun's heat and cause the Earth's temperature to rise.

This chart shows warming in Pakistan over the past 120 years, with graphs below line showing cooler years and above showing warmer years. As a result of

human-caused climate change, the trend towards hotter temperatures can clearly be seen in recent decades.



## Trapped greenhouse gasses

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The sun is our major source of energy, which controls the temperature, precipitation, pressure, winds, and humidity of the Earth system.

If the concentration of greenhouse gases increases or decreases, the balance of the Earth system gets disturbed. Due to human activities, the concentration of greenhouse gases is increasing in the atmosphere.

**The amount of carbon dioxide (CO<sub>2</sub>) in the atmosphere in May 2023 averaged 424.0 ppm (parts per million) - up from 270-280 ppm**



during the Industrial Revolution. Before we started to burn coal the CO<sub>2</sub> in the atmosphere was about 280 ppm. It is projected to reach 450 ppm by 2030. This will cause more than 2°C increase in global temperature long before the end of this century (Center for Science Education, 2023).

Carbon dioxide and most of the other greenhouse gases come from industrial and other human activity, including the cutting of forests.

Every time we use energy (unless it is from a renewable source, like wind or solar power) we are adding to the Earth's emissions of greenhouse gases - and energy use is projected on present trends to grow by 50% between 2005 and 2030.

The emissions of just 15 of the largest economies in the world

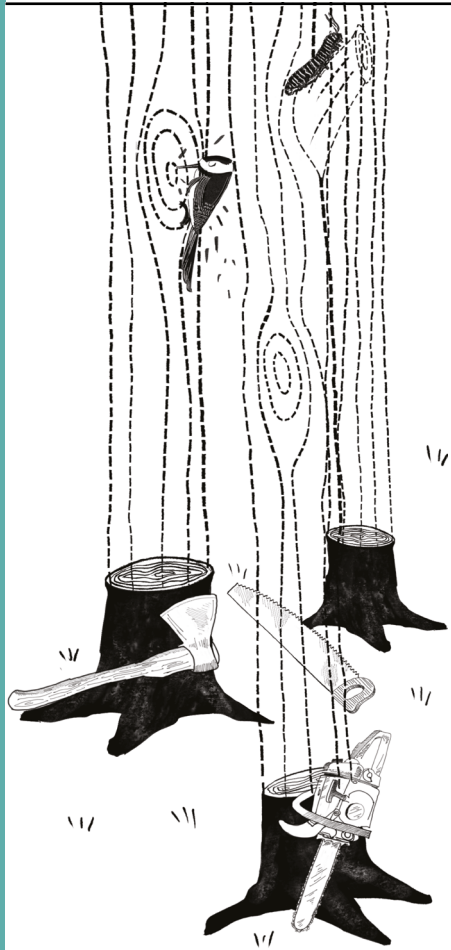
(including European Union, USA, Japan etc.) are more than 90% of the total emissions produced by the world. The rich, industrialized countries are in fact historically responsible for climate change.

Currently, the [five biggest emitters of carbon dioxide](#) are China, US, India, Russia, and Japan. Pakistan only contributes 0.9% to global greenhouse gas emissions and in 2022 ranked near the bottom of the list of countries contributing to carbon emissions (World Population Review, 2022).



## Emissions from Deforestation

Emissions from Deforestation: Forests are a crucial component to get rid of some of our carbon emissions. However, forest removal is happening everywhere, with forests being cleared for soya beans, pasture and mostly palm oil. We are causing deforestation without knowing it by using many products that have palm oil in them. Deforestation is accelerating. A third of global emissions are caused by deforestation. According to a 2020 report by the World Wildlife Fund (WWF-Pakistan), with only 5.7% of land, or around 4.54 million hectares under forest cover, Pakistan's deforestation rate is the second highest in Asia, after Afghanistan (Shahid, 2020).

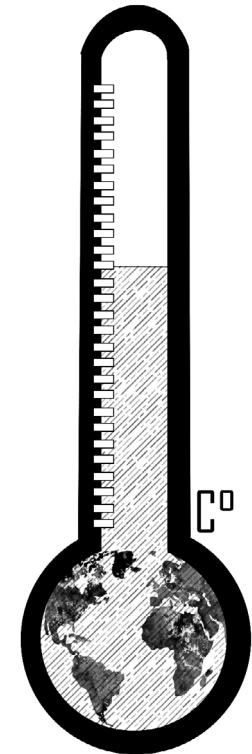


## Limiting global warming to 1.5°C

Greenhouse gas emissions from human activities have already heated the planet by about 1.2°C since pre-industrial times so the window to cut emissions is rapidly closing.

In 2018, the UN's Intergovernmental Panel on Climate Change (IPCC) brought out a special report saying the world must reset its goal to limit global warming to 1.5°C from 2°C.

The IPCC has now rung the alarm bell, saying that global warming is likely to reach 1.5°C by 2030. Impacts are widespread: intense hurricanes, wildfires, flooding, droughts, and heat waves. With further warming some regions could become uninhabitable, as farmlands turn into desert while in other regions extreme rainfall will cause historic flooding.



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## IPCC: Global scientists who inform the world

The Intergovernmental Panel on Climate Change (IPCC) is the UN's body for assessing the science related to climate change. Around 2,500 scientists from around the world, including some scientists from Pakistan, are members of this panel. The IPCC's work is vitally important: it is not only the scientists who agree with it, but the governments of the world as well, so its reports are incredibly significant statements. The IPCC prepares comprehensive Assessment Reports every six years about the state of scientific and technical knowledge on climate change, its impacts and future risks, and options for reducing the rate at which climate change is taking place. It also produces Special Reports on

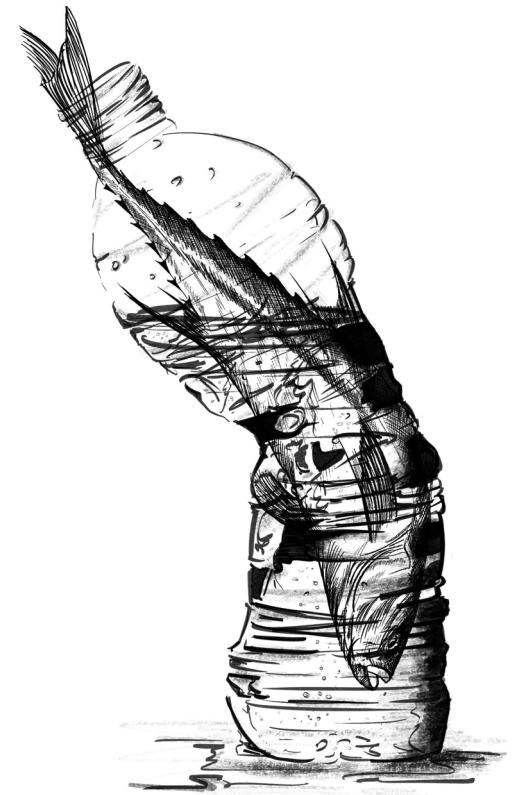
topics agreed to by its member governments. The IPCC's Sixth Assessment Report was released in 2022.

The IPCC scientists in their February 2022 report on "[Impacts, Adaptation and Vulnerability](#)" have described climate change as a threat to "human wellbeing and health of the planet" (IPCC, 2022).

They have delivered a stark warning about the impact of climate change on people and the planet, saying that ecosystem collapse, species extinction, deadly heat-waves and floods are among the "dangerous and widespread disruptions" the world will face over the next two decades due to global warming.

According to this report, human-induced climate change is causing dangerous and widespread disruption in nature and affecting billions of lives all over the world, despite efforts to reduce the risks, with people and ecosystems least able to cope being hardest hit.

The UN scientists are clear that global carbon emissions need to peak soon and then drastically come down if we want to avoid the worst consequences of climate change. Pakistan, like most countries of the world, is a signatory to the UN Framework Convention on Climate Change (UNFCCC).





## UNFCCC: Intergovernmental efforts to tackle climate change

The UNFCCC entered into force on 21 March 1994.

Today, it has near-universal membership. The objective of the Convention is to stabilize greenhouse gas concentrations “at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system”. The 198 countries that have ratified the Convention are called Parties to the Convention and they are obliged to reduce greenhouse gas emissions, to cooperate on research and technology and to encourage protection of forests. The [Convention](#) is based on the principle of “common but differentiated responsibilities and respective capabilities” by taking into account countries’ respective development priorities, goals, and special circumstances, in

order to reduce greenhouse gas emissions (UNFCCC, 2022).

Since they are the source of most past and current greenhouse gas emissions, industrialized countries are expected to do the most to cut emissions on home ground. Industrialized nations also agreed under the Convention to support climate change activities in developing countries by providing financial support for action on climate change – above and beyond any financial assistance they already provide to these countries. Pakistan signed the Convention in June 1992 and ratified it two years later in June 1994. Pakistani diplomat, the late Jamsheed Marker, who was then Pakistan’s ambassador to the UN, is credited for putting the word Framework in the Convention.

## Annual UN Climate Change Conferences

The Conference of the Parties (COP) is the supreme decision making body of the UNFCCC and meets annually. Countries that have joined the UNFCCC are referred to as “Parties.” All states that are Parties to the Convention are represented at the COP, where they review the implementation of the Convention and any other legal instruments that the COP adopts and take decisions

necessary to promote the effective implementation of the Convention. In November 2022, COP took place in Egypt, and was referred to as COP27 (meaning the 27th meeting). More recently, COP28 was held from November 30 to December 12 at Dubai, United Arab Emirates. At the COPs, Pakistan is a member of the G-77 group of developing countries plus China.



## Long awaited Paris Agreement

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Under the UNFCCC, the Paris Agreement was finally reached amongst member countries in 2015. It is a legally binding international treaty on climate change in which the world agreed to limit global warming to well below 2°C and to pursue efforts to limit warming to 1.5°C.

To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid-century.

Each country indicates what they are willing to do in terms of cutting their emissions or absorbing them in carbon sinks like forests in their 'Nationally Determined Contributions' document that is submitted to the UNFCCC. Then all the climate pledges are put together.

## What is Pakistan doing to meet its climate targets?

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As a responsible state that has signed onto the Paris Agreement, Pakistan has submitted [its nationally determined contributions](#) (NDC) document that it intends to achieve in order to cut carbon emissions.

Under the Paris Agreement, "Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions". Pakistan has submitted its NDC in 2016 and updated it in 2021.

In this document Pakistan has shown a resolve to convert its 30% transportation into electrical as part of a policy to shift to clean energy and cutting off its 60% dependence on fossil fuel on the way to adopting renewable energy resources (Government of Pakistan, 2021).

Pakistan intends to achieve this in 30 years. However, bridging the determined intention and the practical shift has become difficult since the country is now going through serious economic hardships, compounded by extreme weather events (particularly floods) that have inflicted huge economic losses on the country.

## Pakistan and the NDC Partnership

To support developing countries and emerging economies in achieving their climate goals, The Federal Ministry for Economic Cooperation and Development (BMZ) and Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMU), together with other partners, launched the global NDC Partnership in 2016. From 2016 to 2020, the Deutsche Gesellschaft für Internationale

Zusammenarbeit GmbH (GIZ) supported selected members of the NDC Partnership in their efforts to implement their NDCs and to make them more ambitious. For example, Pakistan's Ministry of Climate Change was strengthened. In order to further advance climate action and climate finance, Germany will continue to support the NDC Partnership from 2021.

## Emissions gap

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There is still a huge gap between what needs to be done globally and what is volunteered.

The UNFCCC reported in W2022 that nations' current pledges to control GHG emissions (NDCs) would, even if fully achieved, fail to keep average global temperature rise within 2°C as agreed by all countries in the Paris Agreement.

Even the aspirational goal of keeping warming within 1.5°C above pre-Industrial Age levels would not be met. Instead, it estimated a rise of 2.4-2.6°C by 2100. The [UNFCCC](#) calculated that developing countries would need US\$ 5.6 trillion up to 2030 to fulfill even current NDCs (UNFCCC, 2022).

The UN Environment

Programme (UNEP) launched its detailed [Emissions Gap Report](#) as well in 2022, which concluded that there is currently no "credible pathway" to 1.5°C. The current Emissions Gap Report 2023 finds that the world is heading for a temperature rise far above the Paris Agreement goals unless countries deliver more than they have promised (UNEP, 2022).

At the Glasgow UN Climate Conference held in November 2021, nations had agreed to return to the COP in 2022 to revise their national targets in line with the 1.5°C goal and to step up action to limit global warming to stave off the worst effects of climate change.

At COP27, held in Egypt in 2022, there was no further progress on

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working towards the 1.5°C goal. UN Secretary General Antonio Guterres said in his concluding statement at COP27, “We need to drastically reduce emissions now – and this is an issue this COP did not address.” Despite his urging to countries to “cooperate or perish”, in the end the cooperation was just not there.

In Dubai in 2023, nearly every country agreed to “transition away from fossil fuels”, the [main driver](#) of climate change for the first time in the COP’s history (Carbon Brief, 2021).

The commitment was included in the first Global Stocktake of how countries can accelerate action to meet the goals of the [Paris Agreement](#) (Carbon Brief, 2015). However, many countries left Dubai frustrated at the lack of a

clear call for a fossil-fuel “[phase-out](#)” this decade (Carbon Brief, 2023).

Countries most impacted by climate change are the least responsible for global carbon emissions both currently and historically. Vulnerable countries led by Pakistan did manage to push through an agreement on a Loss and Damage Fund at COP27 in Egypt (Haque, 2022).

Vulnerable countries say rich nations have a duty to pay these costs because their historical emissions are mostly responsible for global warming. In 2022 Pakistan held the rotating presidency of the ‘G77 plus China’ negotiating bloc, the largest grouping of developing countries at the UN. Pakistan’s negotiators played an important

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role in COP27 to push for the establishment of the Loss and Damage fund.

At the very beginning of COP28 held in Dubai in 2023, the creation of the Loss and Damage Fund was announced. The host country UAE and Germany both pledged \$100m (£79m) to the Loss and Damage startup fund, which by the end of COP28 amassed pledges amounting to \$792 million.

## Loss and Damage: Compensation for poor countries

Loss and damage normally refers to the destructive impacts of climate change that cannot be avoided either by mitigation or adaptation. At the UN climate conference held in Egypt in 2022, a global fund for loss and damage was finally agreed upon in the final hours of the negotiations. At the climate conference held in Dubai in 2023, the Loss and Damage Fund was announced on the first day of the conference. This was seen as a hard-won victory by developing countries, with the hope that rich, polluting countries will finally provide financial support for some of the destruction that

is already under way due to climate change. The new Fund will be hosted at the World Bank for four years and will be run by an independent Board. Pakistan's representative will be on the Loss and Damage Fund Board along with representatives from 13 other countries.

Governments, businesses, and individuals will have to make substantial changes if they are to meet the 1.5°C goal. The operationalisation of the Loss and Damage Fund was seen as a major breakthrough at COP28 (Harvey & Lakhani, 2023).

## Green Climate Fund: Promise of \$100 Billion

The Green Climate Fund was established in 2010 within the framework of the UNFCCC to assist developing countries in adaptation and mitigation practices to counter climate change. This includes projects designed to cut emissions and support vulnerable communities cope with climate impacts. Pakistan has received US\$131 million for projects in scaling up Glacial Lake Outburst Flood (GLOF) risk reduction in Northern Pakistan and for a Green BRT (rapid bus transit system) in Karachi. More recently the Green Climate Fund has granted Pakistan US\$68 million for the Recharge Pakistan project. WWF-Pakistan will implement the project along

with the Ministry of Climate Change and Ministry of Water Resources. The project will rely on nature-based solutions in Sindh, Balochistan and Khyber Pakhtunkwa provinces to restore the Indus Basin and fortify Pakistan's resilience.

At COP28 in 2023, the United States pledged **\$3 billion** to the Green Climate Fund.<sup>1</sup> The fund, with more than \$20 billion in pledges, is the largest international fund dedicated to supporting climate action in developing countries. But going forth, these pledges represent a fraction of roughly \$250 billion that developing countries would need annually by 2030 to adapt to a warmer world (Bose & Volcovici, 2023).

1 Bose, N., & Volcovici, V. (2023, December). US pledges \$3 billion for Green Climate Fund at COP28. Retrieved from <https://www.reuters.com/sustainability/sustainable-finance-reporting/us-announce-3-blnto-green-climate-fund-sources-familiar-with-matter-2023-12-02/>.

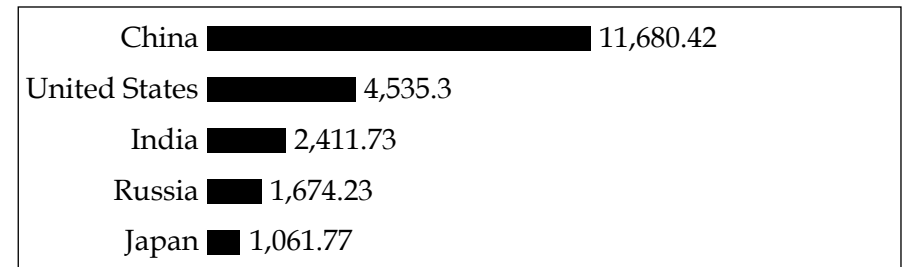
CHAPTER  
02

# Climate Change

Impacts on Pakistan?



## Impacts of Climate Change on Pakistan



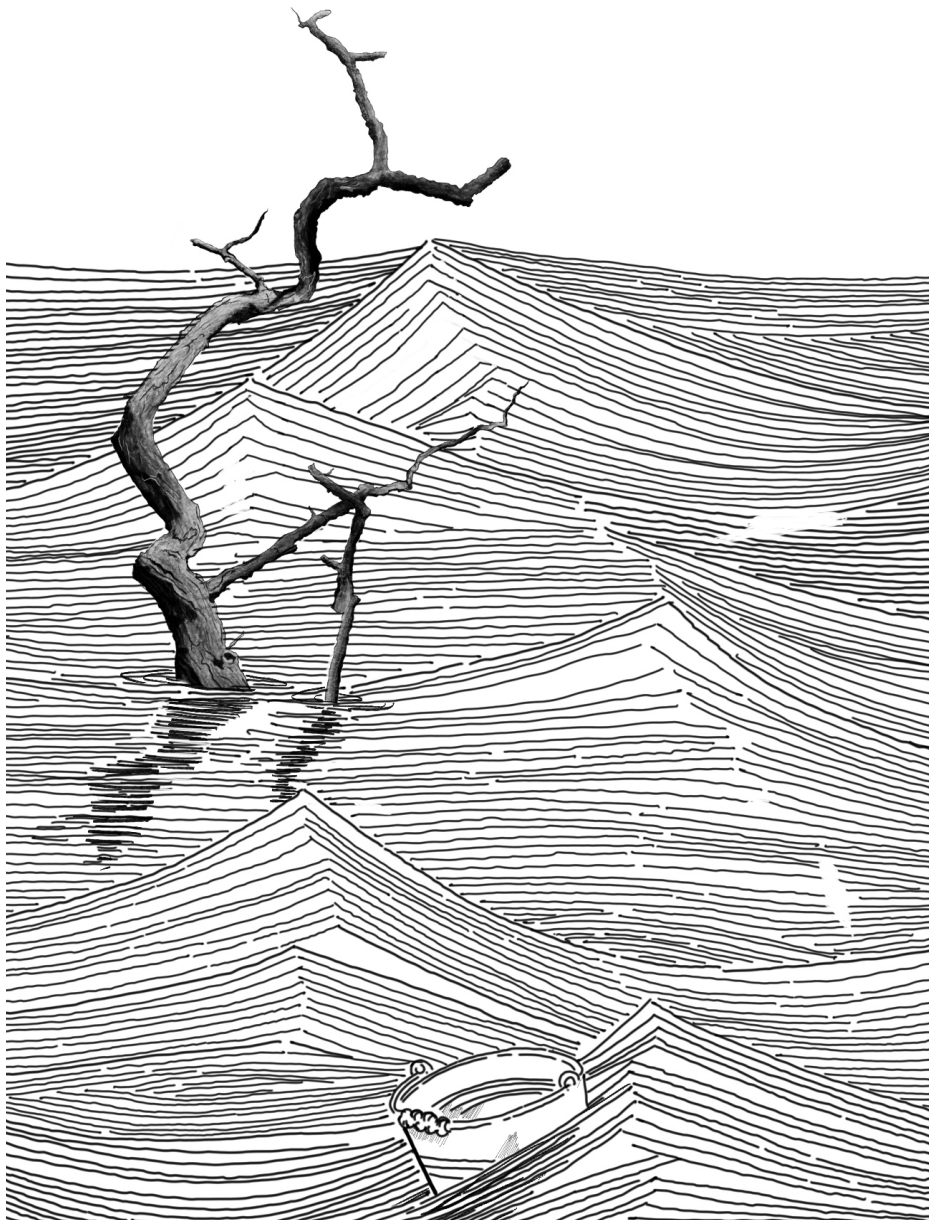
Source: worldpopulationreview.com - \*theconversation.com

Pakistan's unique geography, which stretches from glacier covered mountains in the north to the Indus River delta of the coast, makes it stand out not only as an extremely diverse country, but also one that is increasingly vulnerable to the impacts of climate change.

The country's mainly agrarian economy now faces larger risks from variability in monsoon rains, floods, and extended droughts.

Farmers say they are being affected by the impacts of climate change. They say there is no credible policy on part of the government to provide information to farmers in the context of weather updates, early warning systems, low-cost adaptation strategies and provision of heat-tolerant, or drought-resistant seeds (Jalil, 2020).





## Recent impacts and challenges for Pakistan

1. 152 extreme events in last two decades (2002-2022).
2. 300% increase in GLOF (Glacier Lake Outburst Floods) in just one year from 2021-2022.
3. High intensity heat-wave persistence has increased to 41 days per year.
4. Pakistan now has hottest cities in the world for three years straight. (summer temperatures touching 53.7 degrees Celsius)
5. Absolute water scarcity predicted by 2025.
6. Food insecurity to rise from 40% to 60% by 2050.
7. Sea-level along the coast may rise by 2 to 3 feet by 2100 threatening the existence of Thatta, Badin and Karachi.
8. Three-fold increase in climate induced migration from 0.7 million people to 2 million people by 2050. (2022 data from Federal Ministry of Climate Change and Environmental Coordination)





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According to Pakistan's former federal Minister for Climate Change, Sherry Rahman, the massive flooding of 2022 crossed the devastation of the 2010 floods. The flooding affected over 33 million people, destroyed 1.7 million homes, and killed more than 1,700 people. She said these "monster monsoon floods" have washed away 45% of the country's cropland, mainly in the southern Sindh province.

The floods of 2022 hit almost all the four provinces. In Khyber Pakhtunkhwa, the most affected areas were the districts of Tank, Karak, Nowshera, Swabi, Mardan, Chitral and Dir. In South Punjab, Dera Ghazi Khan, and Rajanpur were affected. In Balochistan, at least 10 districts – Quetta, Nasirabad, Jaffarabad, Sohbatpur, Jhal Magsi, Bolan

(Kachhi) Khuzdar, Lasbela, Qila Saifullah and Qila Abdullah – were particularly hit hard by the floods that ruined crops and destroyed thousands of houses. In Sindh the districts of Khairpur, Larkana and Dadu remained affected as the floodwaters took months to recede.

Climate scientist Moetasim Ashfaq who works at the Oak Ridge National Laboratory in the US points out "that climate change alone cannot transform a disaster into a catastrophe".

In his view, there is a lack of pre-disaster planning, inadequate early warning systems, deforestation of riparian areas, informal settlements in floodplains, colonial-era barrages for water management, inefficient urban drainage systems, and an

insufficient number of reservoirs on the Indus River System, exposing millions of Pakistanis

to extreme elements of climate change (Khan, 2022).

## Climate change likely increased heavy rain that led to Pakistan flooding

Human-caused climate change likely increased the intense rainfall that flooded large parts of Pakistan in 2022, according to a rapid attribution analysis by an international team of leading climate scientists as part of the World Weather Attribution group. Extreme rainfall in the region has increased 50-75% and some climate models suggest this increase could be entirely due to human-caused climate change. Pakistan received more than three times its usual rainfall

in August 2022, making it the wettest August since 1961. The two southern provinces, Sindh and Balochistan, experienced their wettest August ever recorded, receiving seven to eight times their usual monthly totals respectively. The Indus River, which runs the length of the country, burst its banks across thousands of square kilometres (km), while the intense local rainfall also led to urban flash floods, landslides, and glacial lake outburst floods.





## Too little or too much water

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Pakistan's problem is that it either has too much water in the form of floods or too little water in the form of droughts. The Chief Executive of the World Wildlife Fund-Pakistan Hammad Naqi predicts that in the long-term future, the country will be hit by a water crisis because of [how water resources are being used](#). "Pakistan has gone from being water surplus to water stressed, and soon there will be water scarcity. We have to change the way we grow certain crops. For example, we cannot afford to grow sugar cane in large areas when we don't have enough water" (Khan, 2017).

### Demise of the Indus Delta

It has been estimated that in the last few decades, nearly 1.5 million people have migrated from the coastline due to a lack of freshwater in the Indus and the intrusion of seawater into the delta. Sea-level rise poses an immediate threat to some of the poorest communities in Pakistan and requires urgent action. The 1050 km coastal belt in Sindh and Balochistan is home to some 1.25 million people. The Indus River Delta region supports the lives of an additional 2.2 million poor people. A study by WWF-Pakistan shows that seawater intrusion in the past 30 years has encroached over 1 km inland.

## Living Indus Initiative

The Indus River is Pakistan's lifeline: 90 percent of Pakistan's people and more than three quarters of its economy resides in the Indus Basin. The key component of the Government of Pakistan's "[Living Indus Initiative](#)" (launched in 2023) is the USD 78 million 'Recharge Pakistan' adaptation project. This project is funded by grants from the Green Climate Fund (USD 68 million) plus USAID (USD 5 million) and the Coca Cola Foundation (USD 5 million). WWF-Pakistan will implement the project along with the Ministry of Climate Change and Ministry of Water Resources. The project will invest in ecological restoration in Sindh, Balochistan and Khyber Pakhtunkhwa provinces to revive the Indus Basin.<sup>2</sup>

2 Green Climate Fund. (2023). FP207: Recharge Pakistan: Building Pakistan's resilience to climate change through Ecosystem-based Adaptation (EbA) and Green Infrastructure for integrated flood risk management. Retrieved from [https://files.worldwildlife.org/wwfmsprod/files/Publication/file/2q2sveapms\\_Funding\\_Proposal\\_Recharge\\_Pakistan\\_GCF.pdf](https://files.worldwildlife.org/wwfmsprod/files/Publication/file/2q2sveapms_Funding_Proposal_Recharge_Pakistan_GCF.pdf)

According to WWF-Pakistan, the country needs good management of water and efficiency of delivering this water without excessive losses. Since more than 95% of its fresh water comes from the Indus River System and is used in agriculture, farmers must be taught to use water more efficiently and to introduce climate resilient crops. In China, farmers have learnt to reduce water use in agriculture while increasing productivity through appropriate research. Pakistan, too, has to develop, plan, and implement policies that save water.

Hammad Naqi of WWF-Pakistan says we must also plant trees in catchment areas and have disaster preparedness right down to the district level. The country should also strengthen institutions so that there is improved research on the topic that can inform policy (Khan, n.d.).

## Attack of Locusts

Climate change, says the Food and Agricultural Organisation's senior locust forecaster Keith Cressman, is altering the dynamics of pest control and reproduction. He says that if this trend of increased frequency of cyclones in the Indian Ocean continues, then it will translate into an increase in locust swarms. In 2020, there were widespread locust attacks from Kenya to Pakistan, considered the worst in the last three decades. Locust swarms, which can have up to 40-80 million

individuals and spread over 100 square km, first entered Pakistan through Iran in June 2019. They managed to breed in Pakistan's Balochistan province and then swept across the country's southern agricultural belt. Farmers in Pakistan complained of losing up to 50% of their cotton crop. The National Disaster Management Authority (NDMA) had to procure thousands of liters of insecticide to control these locust swarms (Khan,2022a).



Source: Photograph by Sarwar Panhwar from Hyderabad of his farm showing Desert Locust.



## Adapting to climate impacts

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Since the intensity and frequency of climate change impacts have increased in the country, adaptation to these impacts has become an imperative step for the government to ensure national development. The country needs enhanced capacity and funding to address the challenge of climate change.

The “Adaptation Gap Report” launched by the UN in 2021, suggests that areas in greatest need of investment are agriculture and infrastructure, followed by water and disaster risk management. Health programmes are also drastically underfunded. The more recent Adaptation Gap Report 2023 finds that “progress on climate adaptation is slowing when it should be accelerating to catch up with rising climate

change impacts”. It states: “In 2023, temperature records toppled, while storms, floods, droughts and heatwaves caused devastation”. UNEP’s Adaptation Gap Report 2023: Underfinanced. Underprepared – Inadequate investment and planning on climate adaptation leaves world exposed stated that progress on climate adaptation is slowing when it should be accelerating to catch up with these rising climate change impacts. This [recent report](#) – which looked at progress in planning, financing and implementing adaptation actions – found that the adaptation finance needs of developing countries are 10-18 times as big as international public finance flows. This is over 50 per cent higher than the previous range estimate.<sup>3</sup>

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3 <sup>3</sup>United Nations Environment Programme. (2021, October 31). Adaptation Gap Report 2021. UNEP - UN Environment Programme. Retrieved from <https://www.unep.org/resources/adaptation-gap-report-2021>

## Climate change impacts on health

The extensive flooding in the south of Pakistan in 2022 resulted in an increase in Hepatitis A and E, diarrhea, typhoid, cholera, and bacterial food poisoning. The crop damages led to malnutrition and in the long-term will result in stunting in children.

Extreme heat causes increased heat exhaustion and heat stroke, and results in increased mortality. The persistent air pollution in large cities of Pakistan also leads to asthma and lung diseases. Due to the excessive rainfall during the 2022 monsoon season, there was an excessive breeding of mosquitoes and rise in Dengue virus cases all over the country and particularly in Sindh (Ebrahim & Zahidi, 2022).

The [National Climate Change Policy \(NCCP\)](#) was formed after several-months’-long consultations with all the four provinces of Punjab, Sindh, Balochistan and Khyber Pakhtunkhwa and the two territories of Azad Kashmir and Gilgit-Baltistan a decade ago. The NCCP was approved by Pakistan’s cabinet in March 2012, ratified in September the same year, and launched in February 2013 (Ministry of Climate Change Pakistan, 2021).

In April 2012, the Government of Pakistan had also elevated the issue of climate change to a cabinet-level portfolio by creating the Ministry of Climate Change to oversee the research and implementation of projects to mitigate and adapt to the effects of climate change and reduce risks to the country.

## NCCP (2012): Important climate change threats to Pakistan

1. Considerable increase in the frequency and intensity of extreme weather events, coupled with erratic monsoon rains causing frequent and intense floods and droughts.

2. Projected recession of the Hindu Kush-Karakoram-Himalayan (HKH) glaciers due to global warming and carbon soot deposits from trans-boundary pollution sources, threatening water inflows into the Indus River System (IRS).

3. Increased siltation of major dams caused by more frequent and intense floods.

4. Rising temperatures resulting in enhanced heat and water-stressed conditions, particularly in arid and semi-arid regions, leading to reduced agricultural productivity.

5. Further decrease in the already scanty forest cover.

6. Increased intrusion of saline water in the Indus delta, adversely affecting coastal agriculture, mangroves, and the breeding grounds of fish.

7. Threat to coastal areas due to projected sea level rise and increased cyclonic activity due to higher sea surface temperatures.

8. Increased stress between upper riparian and lower riparian regions in relation to sharing of water resources.

9. Increased health risks and climate change induced migration.

The goal of the NCCP was to ensure that climate change is mainstreamed in the vulnerable sectors of the economy and to steer Pakistan towards climate resilient development (Ministry of Climate Change Pakistan, 2021).

## Climate Change Act 2017

In 2016, Pakistan's parliament passed a climate change bill to establish a policy-making Climate Change Council, along with a Climate Change Authority (Khan, 2017a).

The Pakistan Climate Change Council is a decision-making body chaired by either the prime minister or a person nominated by him/her. The government-appointed federal and provincial ministers, chief ministers and chief secretaries are members of the council; other members are scientists and researchers, representatives of business and industry, and from non-governmental organizations concerned with climate change. The first Climate Change Council meeting was convened on October 18th, 2022. On 20th November

2023, the second meeting of the Pakistan Climate Change Council was held.

The Climate Change Authority was to be an autonomous government department, housed in Islamabad and led by scientists, academics, industrialists, agriculturalists and serving and retired government servants, with a chairperson appointed by the prime minister.

It was to formulate adaptation and mitigation policies and projects designed to meet Pakistan's obligations under international climate accords like the Paris Agreement. The Authority is yet to become operational.<sup>4</sup>

Pakistan's National Adaptation Plan was initiated in 2021. The

<sup>4</sup> Call for creation of "climate change authority." The Express Tribune. Retrieved from <https://tribune.com.pk/story/2391762/call-for-creation-of-climate-change-authority>.

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plan <sup>5</sup> was unveiled <sup>6</sup> on 26 July 2023, by then-climate change minister Sherry Rehman.<sup>7</sup> The National Adaptation Plan calls for a climate-resilient Pakistan in which the capacity of local communities to protect themselves and their environment is enhanced by providing green jobs, sustainable infrastructure, technology and effective coordination between the government, private sector and civil society.

Improving climate adaptation and resilience in Pakistan  
This is a project funded by the Federal Ministry for Economic Cooperation and Development (BMZ) which supports the entire planning cycle of climate change adaptation measures, from the preparation of climate risk assessments to the piloting of financing approaches and instruments at the local level, focusing on the most vulnerable groups. It supports the Pakistani government in improving the conditions for accessing international climate finance for climate adaptation and resilience as well as climate risk management measures.<sup>8</sup>

<sup>8</sup> The Deutsche Gesellschaft für Internationale Zusammenarbeit. (2022, May). Pakistan-German Climate and Energy Initiative. [www.giz.de](https://www.giz.de). Retrieved from <https://www.giz.de/en/worldwide/109200.html>

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<sup>5</sup> Ministry of Climate Change Pakistan. (2023). *National Adaptation Plan, Pakistan 2023*. Retrieved from [https://unfccc.int/sites/default/files/resource/National\\_Adaptation\\_Plan\\_Pakistan.pdf](https://unfccc.int/sites/default/files/resource/National_Adaptation_Plan_Pakistan.pdf)

<sup>6</sup> Siddiqui, Z. ul A. (2023, July 26). Pakistan's first-ever climate change plan unveiled. *The Express Tribune*. Retrieved from <https://tribune.com.pk/story/2427999/pakistans-first-ever-climate-change-plan-unveiled>

<sup>7</sup> Emrahim, Z. (2023, November 22). Pakistan has a plan for adapting to climate change - will it work? *The Third Pole*. Retrieved from <https://www.thethirdpole.net/en/climate/pakistan-national-adapation-plan-will-it-work/>

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## 2022: A year of worth mentioning climate disasters

The year 2022 was full of climate disasters in Pakistan, with heavy wildfires in April/May and June and glacier lake outburst floods or GLOFs in the north in April and May, just before the massive floods hit the country's south in August.

Forests cover just 4.8% of Pakistan,<sup>9</sup> and fire is the biggest driver of forest loss in the country: Global Forest Watch estimates that between 2001 and 2021, Pakistan lost 5,460 hectares of tree cover due to fires and 4,290 hectares from all other drivers.<sup>10</sup> From 2018 to 2021, about 14 GLOFs occurred in Pakistan, but that spiked to 75 in 2022, according to UNDP.<sup>11</sup>

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<sup>9</sup> FAO. (2002). An overview of forest products statistics in South and Southeast Asia. [www.fao.org](http://www.fao.org). Retrieved from <https://www.fao.org/3/ac778e/AC778E15.htm>

<sup>10</sup> Global Forest Watch. (2023). Tree Cover Loss In Pakistan. Retrieved from <https://www.globalforestwatch.org>

<sup>11</sup> Reuters. (2023, December 10). 2m face Glacial flooding in Pakistan. *The Express Tribune*. Retrieved from <https://tribune.com.pk/story/2449512/2m-face-glacial-flooding-in-pakistan>

## Heat-waves led to wildfires

The [World Weather Attribution](https://www.worldweatherattribution.org/), a collection of mostly volunteer scientists from around the world who do real-time studies of extreme weather, found that a nasty heat-wave in the region earlier in the summer before the 2022 floods was made 30 times more likely because of climate change. The severe and prolonged heat-wave hit India and Pakistan in March/April 2022 and lasted until the monsoon rains arrived in July. The tinderbox conditions resulted in wildfires raging across forested regions of Punjab, Kashmir, Khyber Pakhtunkhwa and Balochistan for days. Besides causing a number of casualties, the fires destroyed trees and wildlife, and could have exacerbated flash flooding in some regions.<sup>12</sup>



<sup>12</sup>World Weather Attribution. (2023). Heatwave – World Weather Attribution. *World Weather Attribution*. Retrieved from <https://www.worldweatherattribution.org/analysis/heatwave/>



## Reducing Emissions from Deforestation and Forest Degradation (REDD+)

The sustainable management of forests and the enhancement of forests in developing countries is a concept adopted by the Parties to the UNFCCC as a forest-based climate change mitigation approach. The Government of Pakistan is a party to the UNFCCC and therefore, the Ministry of Climate Change has been assigned to implement

REDD+ activities in Pakistan in collaboration with the government forest departments to mitigate climate change through reducing carbon emissions from the forestry sector. While addressing forest degradation and deforestation, these activities also contribute to improved livelihoods, income generation, and employment.<sup>13</sup>

<sup>13</sup> UNFCCC. (2020). What is REDD+? *United Nations Climate Change*. Retrieved from <https://unfccc.int/topics/land-use/workstreams/redd/what-is-redd>



## Pakistan's retreating glaciers

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With almost 7,253 glaciers located in its high mountain ranges, Pakistan has more glaciers than anywhere else on Earth outside the polar regions. Pakistan's north is also home to three large mountain ranges: the Himalayan, Karakoram, and Hindu Kush mountains.

A [study](#) published in the journal *Science Advances* states that climate change is "eating away Himalayan glaciers at a dramatic rate"<sup>14</sup>. The Himalayan glaciers supply around 800 million people with water for irrigation, hydropower, and drinking. But they have been losing almost half a meter of ice each year since the start of this century according to the Columbia University researchers who brought out

the study. This could potentially threaten water supplies across parts of Asia (*Science Daily*, 2019).

As the ice melts, it forms large glacial lakes, which can threaten local communities with GLOFs. In Pakistan it is estimated that there are over 3000 lakes as a result of melting glaciers in Gilgit Baltistan and Khyber Pakhtunkhwa of which 36 are considered hazardous (vulnerable to sudden bursting).

However, in Pakistan around 120 glaciers in the country's north are also stable, or even growing rapidly, in a phenomenon called the "Karakoram Anomaly". A team of researchers from Britain's Newcastle University attributed the anomaly to a summer

"vortex" of cold air over the Karakoram mountain range. They said this is causing some glaciers in the region to grow.

A 2019 [report](#) on the Hindu-Kush-Himalayan region from the International Centre for Integrated Mountain Development (ICIMOD) in Nepal concurred that the Karakoram and western Himalaya areas were experiencing increasing variability and a higher probability of snowfall. But Researcher Philippus Wester from ICIMOD, who spearheaded the report, said that while some glaciers in Pakistan are stable and a few are even gaining ice, they will nonetheless all start to melt in time as the planet gets hotter with global warming (Wester et al., 2019).

Helping villagers cope with glacial floods. The international Green Climate Fund has granted US\$37 million to a project entitled Scaling-up of GLOF risk reduction in Northern Pakistan (2018-2022). The project is being implemented by the United Nations Development Programme and Pakistan's Ministry of Climate Change and Environmental Coordination in selected valleys of Gilgit Baltistan and Chitral. The project has set up early warning systems and automated weather stations to mitigate the impact of GLOFs. It has also focused on building small-scale risk reduction infrastructure and helping local communities cope with glacial floods (UNDP, 2018).

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14 Science Daily. (2019, June 19). Melting of Himalayan glaciers has doubled in recent years: Fast-paced warming is consistently affecting huge region, says new study. *ScienceDaily*. Retrieved from <https://www.sciencedaily.com/releases/2019/06/190619142538.htm>

## 10 Billion Tree Tsunami Project

Forests help prevent flooding, stabilise rainfall, provide cool spaces, absorb heat-trapping carbon dioxide emissions, and protect biodiversity. With US\$46 million in funding, the Government of Pakistan's "Ten Billion Tree Tsunami Programme, Phase-I"<sup>15</sup> project aimed to scale up the success of an earlier Billion Tree Tsunami in Pakistan's Khyber Pakhtunkhwa province, where the government has been planting trees since 2014. The 10 Billion Tree project was a four-year (2019-2023) project

implemented across Pakistan by the Ministry of Climate Change along with provincial and territorial forest and wildlife departments (Ministry of Climate Change Pakistan, 2024). The overall objective of Ten Billion Tree project was to revive forest and wildlife resources in Pakistan and to improve the conservation of existing protected areas. However political changes<sup>16</sup> in the country impacted the pace of this project and it is now at a standstill.

15 Ministry of Climate Change Pakistan. (2024). Ministry of Climate Change. Retrieved from [mocc.gov.pk: https://mocc.gov.pk/ProjectDetail/M2QzOWJmMjUtZTU3MC00NmFKLWE4YmMtZDFhMmRlOGU2NGRh](https://mocc.gov.pk/ProjectDetail/M2QzOWJmMjUtZTU3MC00NmFKLWE4YmMtZDFhMmRlOGU2NGRh)

16 Pakistan Press International. (2022, February 14). Billion tree plantation programme slows down. The Express Tribune. Retrieved from <https://tribune.com.pk/story/2343368/billion-tree-plantation-programme-slows-down>

## Green Buses in Karachi

The Green Climate Fund has given US\$49 million to the Government of Pakistan to make a zero-emissions bus rapid transit (BRT) system that is safe and accessible to all in Karachi, the only megacity in the world without a proper public mass transit system. This project aims to establish a 30 km, fully segregated bus rapid transit (BRT) system operated with the world's first bio-methane hybrid bus fleet. The project includes innovative features such as a dedicated biogas plant covering 100% of the fuel demand and the last mile connectivity via bikes and electric cabs and includes flood proofing of the road. The federal government completed Phase I of Green

Line BRT in Karachi in December 2021, and made it operational from Surjani Town to Namaish Chowrangi. Public response to the Green Line has overwhelmingly been in favour of the bus service, as commuters prefer it over the unsafe local buses.<sup>17</sup>

In January 2022, the Green Line bus service became fully operational. This is a need for the world's 12th largest city Karachi, Pakistan's largest city with a population of over 20 million. In December 2023, it was reported in the news that the Sindh government is planning to induct 180 electric buses on the feeder routes of the Bus Rapid Transit Service in Karachi which would be powered by solar energy.<sup>18</sup>

17 Green Climate Fund. (2018, October 20). FP085: Green BRT Karachi. Green Climate Fund. <https://www.greenclimate.fund/project/fp085>

18 GEO News Correspondent. (2023, December 9). Karachi to get 180 solar-powered electric buses. Retrieved from [www.geo.tv: https://www.geo.tv/latest/522276-karachi-to-get-180-solar-powered-electric-buses](https://www.geo.tv/latest/522276-karachi-to-get-180-solar-powered-electric-buses)

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CHAPTER  
**03**

How to Write a  
**Climate Story?**



# Important resources for climate journalist

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## Climate Tracker

One of the most popular platforms for global warming news, climate change current news.<sup>19</sup>

19 Climate Tracker. Retrieved from <https://climatetracker.org/>

## Climate Visuals

The world's only evidence-based and impact focused climate photography resource.<sup>20</sup>

20 Climate Visuals. Retrieved from <https://climatevisuals.org/>

## Covering Climate Now

Resources, briefings, and tips to help report all angles of the climate story.<sup>21</sup>

21 Covering Climate Now. Retrieved from <https://coveringclimatenow.org/>



## SciDev.Net

Bringing science & development together through news & analysis.<sup>22</sup>

22 SciDev.Net. Retrieved from <https://www.scidev.net/global/>

## Media Climate Network

The MediaClimate project looks into global climate change coverage in approximately twenty countries including Pakistan.<sup>23</sup>

23 Media Climate Network. Retrieved from <https://mediacclimate.net/>

## Oxford Climate Journalism Network

The Oxford Climate Journalism Network (OCJN) works with a global community of reporters and editors across platforms and beats.<sup>24</sup>

24 The Oxford Climate Journalism Network. Retrieved from <https://reutersinstitute.politics.ox.ac.uk/oxford-climate-journalism-network>

## Local Whatsapp Groups for Journalists

Union of Climate Change Journalists, Reclaim Green Islamabad, Eco Journalist Cohort, ClimateAction-Pakistan, ClimateAction-Islamabad, ClimateAction-Karachi.

## Networking with journalists around the world

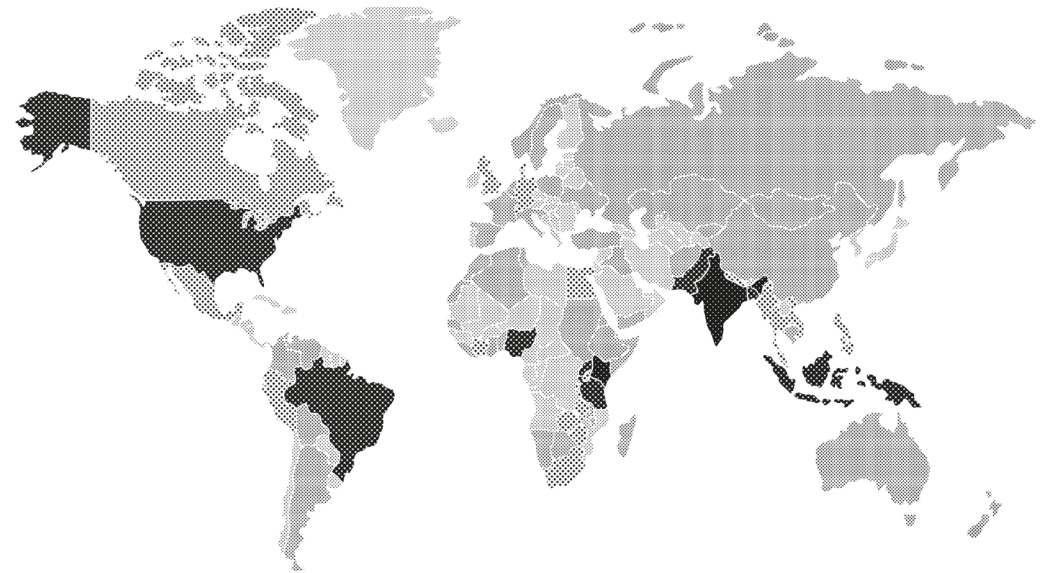
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[Earth Journalism Network](#) (EJN) enables journalists from developing countries to cover the environment more effectively.

EJN is a global network with around 14,000 members from 180 countries

To improve the quantity and quality of environmental reporting, they offer workshops and training materials and offer Fellowship programmes and small reporting grants. They have established regional networks of environmental journalists and they also support local news production.<sup>25</sup>

<sup>25</sup> Earth Journalism Network. (n.d.). Retrieved from <https://earthjournalism.net/>



## Why is climate change journalism important?

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Climate change journalism can protect people and promote sustainable development if it is accurate, timely and relevant. Strengthening the media's capacity to cover climate change can help countries to plan and implement domestic policies that work on the ground, while also meeting their international obligations.

Journalists can warn of extreme climatic events, explain complex policies, highlight coping strategies that work and act as watchdogs. They can inform vulnerable communities of climate change impacts and how they can adapt to them, and can promote mitigation activities that limit the amount of warming. They can promote the necessary actions from consumers, businesses and governments to build green economies.

Climate journalists can also bridge the gap between the scientists and policymakers by translating the science into less complicated language that can be used by policymakers.

## Lack of training and capacity in Pakistan

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Pakistan has had a mushroom growth of privately owned TV channels and newspapers. The largest circulation newspapers are in Urdu as are the most popular TV channels. There is no dedicated local English language TV channel, while there are around half a dozen English language national dailies.

There is still limited coverage of climate change however. The Pakistani media is still not aware of what is happening at the global level although the 2022 floods focused their attention on the changing climate. The media space is also taken over by political power games, corruption and economic issues.

The reporting on climate tends to focus on disasters and "breaking news" and is event driven. Journalists who cover

environment also cover crime, courts etc. and do not have time for in depth stories. Most stick to reporting on events and don't cross check information that is given to them.

There is an urgent need to effectively engage the media, not only through various capacity building efforts targeting journalists, but also through organisations learning how to communicate their messages better.



Climate scientists leading research. The Global Change Impact Studies Centre (GCISC) is a dedicated research institute for climate change studies based in Islamabad, Pakistan. The Centre is mandated for national level research, capacity building, policy analysis, information dissemination and assistance to national planners and policymakers on issues related to past and projected future climatic changes in the country. Researchers study climate impacts on various sectors of the country such as water, food, agriculture, energy, forestry, health, and ecology, and suggest appropriate adaptation and mitigation measures.<sup>26</sup>

<sup>26</sup> Global Climate-Change Impact Studies Centre. (2020). Global Change Impact Studies Centre. Retrieved from <http://www.gcisc.org.pk/>

[UNESCO](#) tells us that coverage of climate change means several things. At the local level, it can save lives, formulate plans, change policy and empower people to make informed choices. Through informed reporting, journalists can shine a light on activities that people are already undertaking to prepare for climate change.<sup>27</sup>

On an international level, journalism can also bring regional stories to global audiences and help encourage rich countries, their citizens and the companies based there, to act in solidarity with climate-vulnerable communities.

<sup>27</sup> Quiñones, L. (2022b, October 3). Five ways media and journalists can support climate action while tackling misinformation. UN News. Retrieved from <https://news.un.org/en/story/2022/10/1129162>

## Writing a climate story in Pakistan

Journalists in Pakistan are usually not subject specialists and are expected to cover a number of beats, and it's very difficult for them to cover technical subjects. They need training and access to reliable data and information.

According to Salim Bokhari, former Chief Editor, *The Nation*: "The lack of training is not limited to reporters, as editors in major newsrooms are also not able to grasp the issue comprehensively. The news editors do not give climate change stories their due display since they are also not aware of the importance of the subject". Arsalan Rafiq Bhatti, Bureau Chief, Punjab News Network says: "If the media hasn't understood the problem how will it explain it to someone else?".

Journalists should always start

with the very basic climate science first instead of with climate policy or technology etc. The long overdue emphasis should be on adaptation, which is especially urgent for Pakistan. Journalists must also remember to simplify technical terms, so that readers can fully understand them.



## Tips for journalists covering climate change in Pakistan

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**1** Climate change is a broad topic with a lot of information. Reporting on climate change isn't easy, but it can be done in a lot of different ways. There are climate stories to tell on many beats, from agriculture to health to disasters. For example: Agriculture in Pakistan has taken a hit in recent years due locust attacks and heat-waves. The rise in dengue cases can also be linked to climate change.<sup>28</sup>

**2** A basic understanding of climate change and climate science is essential for climate change coverage. Climate change reporters have a multitude of resources to draw upon, like peer-reviewed articles (reviewed by experts in the same field prior to publication) and the UN's Intergovernmental Panel on Climate Change, whose comprehensive assessments are written by leading scientists. The Global Change Impact Studies Centre in Pakistan also brings out updated scientific research on climate change in the country.

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28 Ebrahim, Z., & Zahidi, F. (2022, September 23). Dengue surges in waterlogged Pakistan in wake of floods. The Third Pole. Retrieved from <https://www.thethirdpole.net/en/climate/dengue-surges-in-waterlogged-pakistan-in-wake-of-floods/>

**3** Go the field where possible so you can listen to people talk about their lives. Every day, people are impacted by climate change in the cities, towns and villages of Pakistan. Note down how their lives are changing and what they have to say. Their voices are important and a source of good quotes for your stories.

**4** Go to seminars and meetings on climate change (which are held regularly in big cities of Islamabad, Lahore and Karachi). If you can, try to attend large international or national-level conferences. Learning what experts and policy makers have to say about climate change is key to better understanding of climate issues in Pakistan.

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29 Khan, R. S. (2020, May 28). Pakistan's solution to the locust invasion? Turn the pests into chicken feed. Scroll.in. Retrieved from <https://scroll.in/article/963175/pakistans-solution-to-the-locust-invasion-is-to-turn-the-pests-into-chicken-feed>

**5** Not every story about climate change needs to be a gloomy tale full of statistics. Try to tell positive stories, which can offer solutions.

For example: A story on locust attacks can offer solutions like a proposal to collect the locusts and turn them into chicken feed!<sup>29</sup>

**6** Covering climate change is as much about building relationships as it is about visiting affected places or interviewing a top scientist. Reach out to new sources. Work with other journalists and scientists. Follow them on Twitter and Facebook. Networking is important. Join climate journalist groups on WhatsApp so you can stay updated. Use social media (Twitter mainly) to find out what people are saying about climate change in Pakistan and to share your own stories.

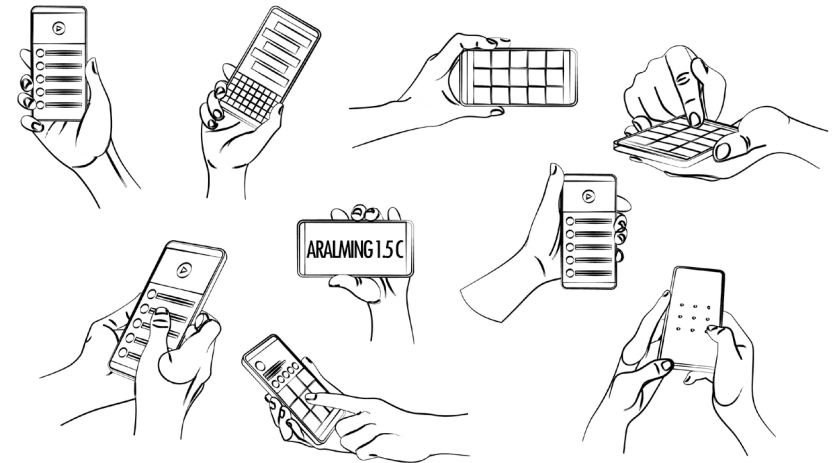
Matthew Swaine, course director, MA International Journalism, Cardiff University, UK (2021)

“If we want people to engage with our reports then we need to put people at the front and centre. If we want our stories to have impact then we need to put people at the heart of our reporting. Understanding how to tell stories is key and the most important component here is how we put people at the centre of the stories we tell. Reporting on how environmental change impacts on people’s lives is vital. Showing the positive change that some people are making is likely to have far more impact. So look for change makers and people doing things that are genuinely innovative. It could be smaller community-led projects that might show a better way to organise ourselves and face the problems that lie ahead”.



Source: Matthew Swaine X formerly Twitter account profile picture. <https://twitter.com/MattSwaine>

## Rise Of social media



A BBC media action team that completed a survey amongst focus groups in Pakistan back in 2012 found that participants identified television, radio and mobile messages as their most common sources of information around climate variability.

Today, with smart phones widely available in Pakistan,

Facebook, Twitter, TikTok videos and forwarded WhatsApp messages (especially in WhatsApp group with large members) have become the fast ways in which to communicate climate variability, especially during disasters like floods.

Some stories can become “viral” and can be shared

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widely on social media, reaching large audiences quickly thanks to smart phones. According to the Dawn newspaper, the Pakistan Telecommunications Authority (PTA) in its annual report for 2021 said that the number of broadband subscribers across the country has also exceeded 100 million.<sup>30</sup>

Thanks to rise of social media we now have citizen journalists who can report from any smart phone and help in raising awareness about climate change impacts. Citizen journalists can provide us with different aspects of an issue which a journalist may not have time to cover because of tight deadlines or the lack of resources to go to the location,

especially during a climate disaster like the recent flooding in Pakistan.

Yet, news must be reported in accordance with the standards of the journalistic practice process if it is to be trustworthy. This will mean more collaboration between citizen journalists and media houses in the future. Media and communication have real potential to support people to reduce the impact of changes in climate on their lives.

## Video journalists engaging new audiences

Video journalism in the form of V-logs and TikToks are an evolving new form of communication in Pakistan. Training of video journalists can be helpful as they are the ones who can stay on in a disaster and report on the hardships people face. TikTok is a new way of engaging with audiences and TikTok “stars” in Pakistan attract huge audiences. They can be enlisted to communicate relevant information on climate impacts that adversely affect people’s lives. However, journalists who report for regular media outlets point out that the V-loggers and TikTokers are not always trustworthy sources of information, as they have no checks on them.

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<sup>30</sup> Ali, K. (2022, February 28). Smartphones outnumber 2G sets in Pakistan. DAWN.COM. Retrieved from

## Tips from BBC Pakistan Report on “How the people of Pakistan live with climate change and what communication can do”

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### **1** Introduce a new way of talking about climate change:

Lack of information makes it difficult for people to respond to changes in climate. Currently, not many people in Pakistan understand the term climate change. But many experience its impacts. Communication can make climate change more understandable and tangible by framing the issue so that it feels relevant to people’s lives. Communication can play an important role in providing practical information and guidance on how people can remain healthy, and how they can cope with the different impacts such as lack of crops, food and water.

### **2** Identify individual actions:

Many people are unsure about what they can do to combat change. Although people were willing to take individual action, many thought the government should support them more. There is a role for communication to support audiences in identifying which actions individuals and communities can take and which need to be initiated at a government or organisational level.

### **3** Encourage a belief that people can do something:

People in Pakistan are very worried about the impact that changes in climate and resources have on their lives and their livelihoods now. However, fatalism and the tendency to ascribe some of the changes to God meant that many people, particularly the most vulnerable, did not feel they could act. Communication that is trustworthy and is framed in people’s own experiences can build confidence and promote belief in their ability to act.

## Barriers to effective climate journalism

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The 2011 Climate Change Media Partnership policy brief on “Why the media matters in a warming world: A guide for policymakers in the global South” found that surveys amongst journalists across the global South reveal that many face similar barriers to reporting on climate change: a lack of training, unsupportive editors, and limited access to information and interviewees including local scientists and officials.

Journalists struggle to convince their editors that such stories are worthwhile. This is due to a misconception that climate change is only about science or the environment, rather than politics and national security, people’s health and livelihoods, or business and the economy.

Many editors also see climate change as an international story. So they do not prioritise local reporting, instead using stories from Western news agencies or reprinting press releases without adding any local context or information.

But while climate change is indeed a global phenomenon, its impacts, and many of its solutions, are local. Even where there is a will to report local stories, journalists often struggle to access relevant information from domestic policymakers.

Policymakers can help break down the barriers to climate change reporting in ways that bring co-benefits.

## Guidelines for climate change journalists

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(This collection from the Earth Journalism Network is based on training presentations to journalists from around the world, and especially the global South).

1. Know your audience. When you sit down to write a story there is only one person that matters. It is the reader or listener or viewer. Be familiar with their level of knowledge about climate change.

2. Understand the basics. If you don’t have a thorough understanding of the key topics, your audience never will. You need to understand the kinds of impacts that a warmer world could bring. If you don’t know these things know you can train yourself with online searches.

3. Team up. To tell the story of climate change well you need to understand the science, the politics, the economics and more. But no one can excel in all of these aspects. So team up with other journalists like political reporters and business reporters.

4. At the same time, you can specialise. Pick a specific subtopic and immerse yourself in it. Aim to be your country’s leading journalist on that subject. It could be energy or adaptation in the agriculture sector, or health impacts of climate change.

5. Stay focused. Remember that a story will only ever say one big thing, so don’t try to cram in too many details. Also, don’t lose track of the big picture.



6. Drop the jargon. You may need to understand what UNFCCC means but your reader/listener/viewer almost certainly does not. If your interviewees use jargon, be ready to ask them to simplify their language. Ask them how they would explain their views to their grandparent or an 18-year old.

7. So K.I.S.S. every sentence – Keep It Short and Simple. Use short words, short sentences and short paragraphs, and remember that no one will ever complain because you have made something too easy to understand.

8. Get connected to share knowledge and learn from colleagues. Join networks of journalists, like the Earth Journalism Network or one of the many associations of environment

or science journalists.

9. Be positive. A focus on solutions (which tend to be new) instead of problems (which tend to be old) will help you to convince editors that your story is worthwhile.

10. Remember that climate change itself does not need to be the story – it is the context in which so many other stories will unfold. You don't even need to mention the climate to tell a good climate change story.

11. Be visual: many climate and environment stories are complex, but they are often also photogenic, or can be illustrated with engaging human stories. Use all the resources you have to bring the story to life – headlines, photos, graphs, maps.

12. Humanise, Humanise, Humanise. People care about their health, their wealth and the future of their children. Climate change is relevant to all three of these things, so try to think in those terms when you are working out how to tell your story, both to your editor and your audience.

13. Quote varied voices. Climate change affects everyone and everyone can respond to it in a different way. Think about both gender and generation. Climate change will affect men and women in different ways. By speaking to many different kinds of people about climate change you will get a richer understanding of it.

14. Localise the global. International meetings, foreign scientific research and extreme

climatic events in other countries can be localised and made relevant to your own audiences. Keep on top of the climate-change story by reading the work of other journalists who are covering it well (you will find some great international stories at IPS, Reuters AlertNet, The Guardian, New York Times and the BBC).

15. Do justice to press releases. Too often journalists will copy-and-paste a press release and just add their name in the byline. A press release is not a story. It is just information that contains the seeds of a story that you must nurture yourself.



Sample of a climate story that went viral in 2020 (widely shared on social media locally and globally). This story on out-of-work labourers finding green jobs planting trees in Pakistan during the pandemic became popular because it was positive, focused on solutions, had a 'feel-good' factor and global appeal.

[As a 'green stimulus' Pakistan sets virus-idled to work planting trees.](#)<sup>31</sup>

By Rina Saeed Khan

ISLAMABAD (Thomson Reuters Foundation) - When construction worker Abdul Rahman lost his job to Pakistan's coronavirus lockdown, his choices looked stark: resort to begging on the streets or let his family go hungry.

But the government has now given him a better option: Join tens of thousands of other out-of-work labourers in planting billions of trees across the country to deal with climate change threats.

31 Khan, R. S. (2020a, April 29). As a "green stimulus" Pakistan sets virus-idled to work planting trees. Reuters. As a "green stimulus" Pakistan sets virus-idled to work planting trees. Retrieved from <https://www.reuters.com/article/us-health-coronavirus-pakistan-trees-fea-idUSKCN22A369/>

Since Pakistan locked down starting March 23 to try to stem the spread of COVID-19, unemployed day labourers have been given new jobs as "jungle workers", planting saplings as part of the country's 10 Billion Tree Tsunami programme.

Such "green stimulus" efforts are an example of how funds that aim to help families and keep the economy running during pandemic shutdowns could also help nations prepare for the next big threat: climate change.



## Reporting on climate change and health

While climate change can have diverse direct and indirect effects on human health, there are also many false assumptions about these links. Journalists need to understand what researchers are sure about and where they have doubts. They also need to be skilled at explaining risk and uncertainty, and placing the links between climate change and health into a wider context of other health priorities.

Questions to ask: What does climate change mean for existing health threats? What new health threats could climate change pose? How certain are scientists about these threats? What other factors are at play?<sup>32</sup>

32 Shanahan, M., Shubert, W., Scherer, C., & Corcoran, T. (2013). Climate change in Africa: a guidebook for journalists. UNESCO. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000225451>

## Tips for communicating on climate change

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# 1

### Check your sources

When sharing facts and figures, make sure they come from a reliable source, which is science-based and objective.

# 3

### Beware of greenwashing

(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.

# 5

### Tell a story - make it real.

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.

# 7

### 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.

# 2

### 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.

# 4

### Use trusted messengers

Breaking down the science behind climate change is complex, but the right messengers can get the audience engaged. Consider respected scientists, studies conducted by reputable research institutions or universities and medical doctors, all of which are widely trusted.

# 6

### 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.

# 8

### Avoid stereotypes

Poorer countries and underserved communities 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.

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# 9

**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.

# 10

**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.

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# 11

**Make it relevant.**

Frame the issue in a way that will resonate with your local audience, by linking it to shared values like nature, community, and religion for instance.

# 12

**Engage youth.**

Featuring voices of youth will make your content more relatable to young people and get more youth involved in demanding change.

These guidelines were produced by the United Nations Department of Global Communications, in consultation with United Nations Climate Change (UNFCCC), the United Nations Environment Programme (UNEP), and the World Meteorological Organization (WMO).<sup>33</sup>

<sup>33</sup> United Nations. (n.d.). Communicating on Climate Change. United Nations. Retrieved from <https://www.un.org/en/climatechange/communicating-climate-change?>

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CHAPTER  
**04**

Ways to Raise Awareness about  
**Climate Change?**



## Why raising awareness about climate change is important

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According to the UN Environment Programme (UNEP), “As growing climate change impacts are experienced across the globe, the message that greenhouse gas emissions must fall is unambiguous. Yet the [‘Emissions Gap Report 2022: The Closing Window – Climate crisis calls for rapid transformation of societies’](#) finds that the international community is falling far short of the Paris goals, with no credible pathway to 1.5°C in place. Only an urgent system-wide transformation can avoid climate disaster”.<sup>34</sup>

UNEP says to get on track to limiting global warming to 1.5°C, we would need to cut 45% off current greenhouse gas emissions by 2030. For 2°C, we would need to cut 30%. The report notes: “A stepwise approach is no longer

an option. We need system-wide transformation”.

To transition towards a carbon neutral world, everyone must play their role – businesses, governments, NGOs, communities and individuals. Inger Anderson, the Executive Director of UNEP says: “We must try. Every fraction of a degree matters: to vulnerable communities, to species and ecosystems, and to every one of us. Most importantly, we will still be setting up a carbon-neutral future: one that will allow us to bring down temperature overshoots and deliver other benefits, like clean air”.

<sup>34</sup> UNEP. (2022b). Emissions Gap Report 2022. UNEP - UN Environment Programme. Retrieved from <https://www.unep.org/resources/emissions-gap-report-2022>

# What can an individual do?

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Although major changes need to come from governments and businesses (especially the fossil fuel industry) in order to cut emissions and move towards a low carbon pathway, small changes in our lives can help limit our impact on the climate, and this way we can contribute to reducing the impacts of climate change on this world.

## 1 Consider how you travel

Each time you get on a plane you increase your carbon footprint. The commercial aviation industry is responsible for 2-3% of emissions annually. In Europe, citizens are already opting to take trains instead of flights to limit their carbon footprints. Skip the long travel for work; use zoom or other video conferencing options instead.

## 2 Walk, cycle or take public transport

It is estimated that petrol vehicles alone contribute about 70 to 75% of poor-quality air in an urban city like Karachi. The future of cars is electric but they are not widely available or affordable as yet in Pakistan. Car pool for school pickups and drops whenever possible. Walking or using public transport is the best alternative. In European cities, citizens are turning to bicycles to get around in large numbers. In cities like Lahore and Islamabad, cycling and pedestrian paths need to be reintroduced.

## 3 Buy energy efficient products wherever possible

Most people in Pakistan have already switched to light saving bulbs in their homes and energy efficient electrical heaters/air conditioning/fans as electricity prices keep on increasing. With gas shortages looming in the country, it is better to also shift to energy efficient electric geysers. Reduce electricity use at home and at the office – turn off lights and appliances when you don't need them. Consider investing in solar panels on your rooftop as they are getting cheaper in the local and international markets.

## 4 Insulate homes

This is more expensive to do when the house is already built, so it should be taken into consideration when making a new house or building. Homeowners can also consider investing in insulated roofs, which can protect from excessive heat in the summers. Painting roofs with white reflective paint is another option to keep houses cool in the summers.



## **5** Rainwater harvesting

As rainfall patterns are getting more erratic due to climate change, consider investing in an inexpensive rainwater harvesting system on your rooftop to store rainwater, which can be used later in the garden, or for cleaning.

## **6** Eat less meat and dairy

Eating more vegetables, fruits, whole grains, legumes, nuts and seeds, and less meat and dairy, can significantly lower your environmental impact and improve your health. Producing plant-based foods generally results in fewer greenhouse gas emissions and requires less energy, land and water.

## **7** Cut consumption and waste

Reduce, re-use and recycle wherever possible. Buy less clothes; try to re-use them. Don't accept or use plastic bags. Buy or make re useable cloth bags. Try to shop from sustainable companies who are mindful of the environment. Be aware of your waste. The Government of Pakistan estimates that 87,000 tons of solid waste is generated per week, mostly from major metropolitan areas. Most of it is dumped or burnt. Do not burn your garbage.

## Role of civil society in advocating for climate change

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In the past few years, civil society groups that are working on climate change issues in Pakistan have become very active. NGOs can teach people about alternative livelihoods and how to safeguard health and prepare for disasters. Media can help amplify the success of these interventions and promote their uptake.

The [Civil Society Coalition for Climate Change in Pakistan](#) came into being shortly before the Paris Climate Summit was held in 2015 (COP21). The idea for establishing the networking platform was born in the lead up to the conference, due to the efforts of the French Embassy in bringing stakeholders together to work towards an “Agenda of Solutions.”<sup>35</sup>

The success of the all-stakeholder Pre-COP21 dialogue held

in Lahore in October 2015 highlighted the value of collaborative approaches, motivating civil society to carry the momentum forward and initiate the process of setting up a Civil Society Coalition for Climate Change.

The coalition is dedicated to highlighting the subject of climate change in Pakistan and influencing policymaking at the regional, national and sub-national levels through research, knowledge sharing, and advocacy. The coalition approach was adopted to enhance civil society capacity for effective engagement with policy makers. Founding members include renowned NGOs and think tanks like the Sustainable Development Policy Institute (SDPI) and Strengthening Participatory Organisation (SPO).

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35 The Civil Society Coalition for Climate Change. (2020). CSCCC | Civil Society Coalition for Climate Change. Retrieved from <https://www.cscce.org.pk/>

## Raising awareness of the climate risks to Health

The World Health Organisation (WHO) effectively uses advocacy campaigns, publications and policy briefs and provides multimedia products, which raise the prominence of health issues on the climate agenda and stimulates appropriate health protection by decision-makers. WHO says a better understanding of the risks and effects of climate change on health will motivate and facilitate both behavioral change and societal support for the actions needed to reduce greenhouse gas emissions.

[Sustainable Development Policy Institute](#) (SDPI) is a think tank based in Islamabad with a focus on research on climate change. SDPI has organized a number of seminars/talks on climate change open to the public and its experts actively participate in the UN Climate Change Conferences each year.<sup>36</sup>

[World Wide Fund for Nature-Pakistan](#) (WWF-Pakistan), with its headquarters in Lahore, is one of the oldest environmental NGOs in the country. It is working on several climate adaptation projects in the country like saving forests and biodiversity, restoring degraded lands, planting trees and introducing alternative energy.<sup>37</sup>

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36 Sustainable Development Policy Institute. (2023). Home. Sdpi.org. Retrieved from <https://sdpi.org/>

37 WWF Pakistan. (2019). Recharge Pakistan. Wwfpack.org. Retrieved from <https://www.wwfpack.org/>

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[UNDP-Pakistan](#) is supporting projects across Pakistan to respond to the growing threat of climate change; to mainstream environmental concerns into national development planning processes; and to expand access to environmental and energy services for the poor.<sup>38</sup>

The [Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH](#) (GIZ) has maintained a country office in Islamabad since 1990 and on behalf of The Federal Ministry for Economic Cooperation and Development (BMZ), GIZ's current activities have a focus on climate and energy. By promoting financing options and advising on technical

implementation, the German government supports the use of renewable energies and energy efficiency in Pakistan.<sup>39</sup>

Other important NGOs working in renewable energy are the [Rural Support Programmes Network](#)<sup>40</sup> (biogas and wind power) –and the [Aga Khan Rural Support Programme](#)<sup>41</sup> (micro-hydel plants in the mountains)

These programmes involve community-based organisations to implement their projects on the ground.

[The International Union for the Conservation of Nature](#) (IUCN)-Pakistan is also very active in

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the country with an office that was established back in 1985. At present, their programmes in Pakistan focus on biodiversity conservation, particularly in the country's coastal and forest areas, and addressing ongoing challenges to ecosystems, especially in the face of climate change impacts.<sup>42</sup>

[Oxfam](#) has also been working in Pakistan since 1973. Oxfam-Pakistan works with local groups, media, academia, private sector, think tanks and the government, to improve livelihoods, provide humanitarian aid, create safer communities and promote economic and gender justice. They have been pushing for safer

worker conditions, fairer trade and wages for the poor, in order to build their resilience to climate change.<sup>43</sup>

Other notable NGOs working on climate change across Pakistan:

[Trust for Conservation of Coastal Resources](#): This is the first ever conservation organization established by indigenous women of fishing communities in Pakistan. TCCR is committed to finding solutions to the increasing threat of climate change with participation of local communities.<sup>44</sup>

[SHEHRI](#)-Citizens for a Better Environment: This NGO was

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38 UNDP Pakistan. (2024). Floor Recovery Programme. UNDP. Retrieved from <https://www.undp.org/pakistan>

39 GIZ. (2022). Pakistan. [www.giz.de](http://www.giz.de). Retrieved from <https://www.giz.de/en/worldwide/362.html>

40 National Rural Support Programme. (2024). National Rural Support Programme. [nrsp.org.pk](http://nrsp.org.pk). Retrieved from <https://nrsp.org.pk/>

41 Aga Khan Rural Support Programme Pakistan. (2018). AKRSP | Pakistan. [akrsp.org.pk](http://akrsp.org.pk/). Retrieved from <http://akrsp.org.pk/>

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42 IUCN Pakistan. (n.d.). Pakistan | IUCN. [www.iucn.org](http://www.iucn.org). Retrieved from <https://www.iucn.org/our-work/region/asia/countries/pakistan>

43 OXFAM International. (2024). Oxfam Pakistan. Oxfam International. Retrieved from <https://www.oxfam.org/en/search?keys=pakistan>

44 Trust for Conservation of Coastal Resources. (n.d.). ABOUT TRUST FOR CONSERVATION OF COASTAL RESOURCES. Trust for Conservation of Coastal Resources (TCCR). Retrieved from <https://tccrpk.weebly.com/about-us.html>

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formed in 1988 in Karachi by a group of concerned citizens to provide a platform to effectively voice their concerns in determining their future and taking action in arresting the deterioration in their living environment. They now work on raising awareness about climate change.<sup>45</sup>

[South Asian Agriculture Conservation Network](#) (SACAN) Foundation: This foundation was established in 2008 with the aim to combat resource degradation caused by conservative agricultural practices. They now work on climate smart agriculture.<sup>46</sup>

[Taraqee Foundation](#): A Quetta

based NGO working for poverty alleviation since 1994. They are currently working on providing relief to flood affected areas of Balochistan.<sup>47</sup>

[Khwendokor](#): This NGO was registered in KP in 1993 and set up in response to an urgent need expressed by women for a forum to address their issues; it has developed into a sisterhood, guiding women to take practical steps for the betterment of themselves and their families. It is now working on raising awareness about climate change.<sup>48</sup>

[THARDEEP](#) Rural Development Programme: This NGO works with poor and vulnerable

segments of society particularly women in the most deprived and remote areas of Sindh. Amongst other activities, TRDP works on food security and nutrition improvement and disaster preparedness, management, and water & sanitation.<sup>49</sup>

[HANDS](#): Founded in 1979, HANDS has evolved into one of the largest NGOs of the country. They have disaster management expertise and a network of 35 branches across the country, with access to more than 29 million people in 59 districts of Pakistan.<sup>50</sup>

[Baanhn Beli](#): A pioneering NGO registered in Sindh in 1987, to

strengthen existing community-based organizations which would allow girls and women participation in activities that promote better health, education and access to basic services. Currently working on flood relief in Sindh.<sup>51</sup>

[Indus Earth Trust](#): NGO working in the area of sustainable development. Established in 2000 to aid neglected coastal communities in Sindh and Balochistan. IET works mainly in six districts of Sindh and Balochistan adversely impacted by climate change. This area has a population of 3 million. They have also expanded their work to

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45 Shehri. (n.d.). Climate Change | Shehri-Citizens For A Better Environment. Shehri.org. Retrieved from <https://shehri.org/climate-change.html>

46 South Asian Conservation Agriculture Network. (2021, October 7). SACAN - South Asian Conservation Agriculture Network. Sacanasia. Retrieved from <https://sacanasia.org/>

47 Taraqee Foundation. (2023). Taraqee Foundation. [www.taraqee.pk](http://www.taraqee.pk). Retrieved from <https://www.taraqee.pk/>

48 Khwendokor. (2024). Welcome to KK. Khwendokor.org. Retrieved from <https://khwendokor.org/>

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49 Thardeep Rural Development Programme. (2023). THARDEEP RURAL DEVELOPMENT PROGRAMME – TRDP. Thardeep Rural Development Programme. Retrieved from <https://thardeep.org/>

50 HANDS. (2020, October 22). Non Profit Organization In Pakistan | Top 10 NGOs in Pakistan. HANDS. Retrieved from <https://hands.org.pk/about-us/>

51 Baanhn Beli. (2024). About Us - Baanhn Beli. Baanhn Beli. Retrieved from <https://baanhnbeli.org.pk/about-us/>

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include urban 'katchi abadis' in Karachi.<sup>52</sup>

#### Strengthening Participatory

Organization: NGO registered in 1994, which is trying to improve the wellbeing of communities and citizens of Pakistan by creating their awareness of basic rights and ensuring their access to those rights. SPO is working on flood response in all the four provinces of Pakistan.<sup>53</sup>

#### SUNGI Development Foundation:

Based in Abbotabad, Sungi is a leading rights' based national organization working extensively in both development and humanitarian sectors since

1989. Sungi works with local communities to raise awareness about climate change and water issues.<sup>54</sup>

#### Mountain and Glacier Protection

Organisation: The MGPO works in the north of Pakistan to build resilient communities with social, economic and environmental adaptive capacities working for a fair future through inclusive approaches. The NGO empowers communities to develop and implement need based and demand driven projects with gender sensitive approaches. Their focus is on climate change adaptation in impacted mountain communities.<sup>55</sup>

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52 Indus Earth Trust. (2024). About Us. Indus Earth Trust. Retrieved from <https://www.indusearthtrust.org/>

53 Strengthening Participatory Organization. (2020). SPO Website – Strengthening Participatory Organization. Retrieved from SPOPK. <https://spopk.org/>

54 Sungi Development Foundation. (2022, March 18). Home - Sungi Development Foundation. Sungi Development Foundation. Retrieved from <https://sungi.org/>

55 Mountain and Glacier Protection Organization. (2020). Mountain & Glacier Protection Organization |. Retrieved from MGPO. <https://mgpo.org/>

## Role of financial intermediaries

The role of intermediaries in catalyzing climate finance is gaining recognition in global policy space. Intermediaries play a critical role in shaping climate change policy and implementing it, and building capacities of developing countries to achieve climate finance readiness, i.e. planning, accessing, innovating, delivering, and monitoring climate finance activities. Pakistan's National Disaster Risk Management Fund (NDRMF) is a non-banking financial intermediary with a corporate

not-for-profit structure set up in line with the objectives of the Paris Agreement on Climate Change. The NDRMF provides a common mechanism to pool various contributions from international development partners for funding disaster risk and reduction initiatives. The NDRMF is based in Islamabad and recently provided climate finance to support flood relief activities in Sindh and also supported Pakistan's official delegation to attend COP28 in Dubai.<sup>56</sup>

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56 National Disaster Risk Management Fund. (n.d.). NDRMF. NDRMF - National Disaster & Risk Management Fund. Retrieved from <https://ndrmf.pk/>

## Government research institutions working on climate change

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The following are some of the important government research institutions working on climate change in Pakistan.

1. [Pakistan Meteorological Department](#) (PMD): Established in 1947, PMD is a scientific and service department, and functions under the Aviation Division of the Cabinet Secretariat. It researches, collects, and broadcasts scientific information on a range of topics ranging from early warnings of droughts, floods, tropical cyclones, tsunamis and seismic activities, weather data for agricultural community and research for renewable energy resources; and advisory services in the fields of planning and development. PMD is one of the primary organizations in the country in producing data directly supporting climate change

efforts at the local scale. PMD is also a member of the World Meteorological Organization.<sup>57</sup>

2. [Global Change Impact Studies Centre](#): GCISC is an autonomous and dedicated institution working on climate change impacts in the country. Established in 2002, its function encompasses areas of research, capacity building, information dissemination and assistance to national planners and policy makers. Amongst other research initiatives, GCISC is engaged in studying the impact of climate change on glaciers in the Himalayan-Hindu Kush region.<sup>58</sup>

3. [Pakistan Agricultural Research Council](#): PARC is an autonomous body with the mandate to provide science-based solutions to the agriculture sector. It is administered through a board of

governors which is headed by the Minister for National Food Security and Research. PARC is a prime research and policy organization in the agriculture sector.<sup>59</sup>

4. [Pakistan Council of Research in Water Resources](#): The PCRWR is an apex autonomous body established with the objective to conduct, organize, coordinate, and promote research in all aspects of water resources. Since its inception, PCRWR has played its role as a national research organization by undertaking and promoting research in irrigation, drainage, surface and groundwater management, groundwater recharge, watershed management, desertification control, rainwater harvesting, water quality assessment and

monitoring, and development of innovative water resource management.<sup>60</sup>

5. [Water and Power Development Authority](#): Established in 1958, WAPDA is a semi- autonomous body that handles the water and power sector. In 2007, it was bifurcated into two separate entities: WAPDA and the Pakistan Electric Power Company. The former is responsible for all aspects of water and hydropower development including irrigation, drainage and water supply, flood management, prevention of water logging and salinity, and inland navigation; whereas the latter handles thermal power generation, transmission, distribution, and billing.<sup>61</sup>

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57 Pakistan Meteorological Department. (2023). Pakistan Meteorological Department. Retrieved from <https://www.pmd.gov.pk/en/>

58 Global Climate-Change Impact Studies Centre. (2020). Global Change Impact Studies Centre. Retrieved from <http://www.gcisc.org.pk/>

59 PARC. (2022). PAKISTAN AGRICULTURAL RESEARCH COUNCIL. Retrieved from <http://www.parc.gov.pk/>

60 Pakistan Council of Research in Water Resources. (2020). Pakistan Council of Research in Water Resources. Retrieved from <https://pcrwr.gov.pk/>

61 Water and Power Development Authority. (2024). Wapda. Retrieved from <https://www.wapda.gov.pk/>

## High-level Senate Standing Committee on Climate Change

In 2019, the Pakistan Senate formed a high level committee on climate change, which now meets regularly to discuss climate issues challenges the country is facing from wildfires to floods. The committee currently has 10 members who are all senators. The meetings of the committee are covered by national media and urgent issues are highlighted during the proceedings and solutions pinpointed. The primary purpose of the senate standing committees is to consider and recommend actions and propose policies in the functional areas under their jurisdiction (in this case climate change).



## Religion and climate change

With an estimated population of 1.9 billion (wisevoter, 2023), Muslims make up around 25% of the world's population and they will need to be part of the conversation and the solution to the global climate crisis.

Exceedingly, more and more faith-based organizations and scholars are highlighting the importance of environment-friendly life choices, and the consequences of misuse of the blessings of nature.<sup>62</sup>

Faced with the deepening climate crisis, Muslim eco-activists and scientists have released an Islamic Declaration on Global Climate Change.<sup>63</sup> This declaration arose out of a symposium held in Istanbul shortly before the

Paris climate summit in 2015. The declaration reconciles climate science with relevant Quranic wisdom. Each person is called to be a "caretaker or steward (khalifah)" in the new epoch given that the current rate of climate change cannot be sustained and we are in danger of ending life as we know it on Earth.

The declaration concludes with a call for all Muslims: "wherever they may be... to tackle habits, mindsets, and the root causes of climate change, environmental degradation, and the loss of biodiversity in their particular spheres of influence, following the example of the Prophet Muhammad (peace and blessings be upon him) and

<sup>62</sup> 6 climate lessons from the Qur'an and hadith. Islamic Relief UK. Retrieved from <https://www.islamic-relief.org.uk/6-climate-lessons-from-the-quran-and-hadith-2/>

<sup>63</sup> Australian Religious Response to Climate Change. (n.d.). Islamic Declaration on Global Climate Change. ARRC. Retrieved from [https://www.arrcc.org.au/islamic\\_declaration](https://www.arrcc.org.au/islamic_declaration)



Seyyed Hossein Nasr, Iranian philosopher, theologian and Islamic Scholar

Seyyed Hossein Nasr writes in his book "Man and Nature: The Spiritual Crisis of Modern Man" that the ecological crisis our planet is suffering is symptomatic of a larger spiritual crisis of humanity. "The spiritual man, although outwardly dominated by nature, inwardly rules over things, most of all because he has conquered his own inner nature. Might one not add that today, when man boasts most about conquering nature, the reverse process has taken place, namely an apparent and outward conquest of nature combined with complete lack of asceticism, spiritual discipline, and self-negation, which therefore makes man more than ever a prisoner of his own passions and natural inclinations". (Book based on essays first published in 1967).

Source: <https://sahilbadruddin.com/seyyed-hossein-nasr-on-role-of-thinking-in-islam-past-present-and-future/>

bring about a resolution to the challenges that now face us". Taking action on climate change is clearly an Islamic obligation.

The declaration concludes with a call for all Muslims: "wherever they may be... to tackle habits, mindsets, and the root causes of climate change, environmental degradation, and the loss of biodiversity in their particular spheres of influence, following the example of the Prophet Muhammad (peace and blessings be upon him) and bring about a resolution to the challenges that now face us". Taking action on climate change is clearly an Islamic obligation.

The Catholic Pope Francis had hoped to attend COP28 in Dubai in 2023, but had to cancel due to

lung inflammation. Instead he sent a message to the delegates in which he stated: "the gap between the opulent few and the masses of the poor has never been so abysmal". He said it was necessary to move ahead with greater energy efficiency, renewable energy, the "elimination of fossil fuels" and a change of a wasteful lifestyle. He concluded: "The climate, run amok, is crying out to us to halt this illusion of omnipotence. Let us once more recognise our limits, with humility and courage, as the sole path to a life of authentic fulfillment". Pope Francis has made protection of the environment a main part of the social teaching of his 10-year-old papacy (Abnett et al., 2023).<sup>64</sup>

<sup>64</sup> <https://www.reuters.com/business/environment/find-breakthrough-pope-francis-sends-message-un-climate-summit-2023-12-02/>

## Climate change in school curriculums

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The Ministry of Climate Change in Pakistan has plans to introduce the subject of climate change in educational institutions with an aim to raise awareness amongst the younger generation about this looming danger to our civilization on Earth.<sup>65</sup>

Since climate change is posing grave threats to the natural environment and food security of Pakistan, the Ministry aims to take the provinces into confidence and convince them to introduce climate change as a subject from the school to university level.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) has also declared that “Education is an essential element of the global

response to climate change. It helps people understand and address the impact of global warming, increases climate literacy among young people, encourages changes in their attitudes and behavior and helps them adapt to climate change related trends.”

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<sup>65</sup> The News International. (2024). Govt to introduce climate change as subject in curriculum. Retrieved from <https://www.thenews.com.pk/print/830403-govt-to-introduce-climate-change-as-subject-in-curriculum>

## Climate action by civil society in Pakistan

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In September 2019, there were large climate marches across Pakistan led by ClimateActionPK, a loose coalition of environmental lawyers, journalists, academics, climate experts, student leaders and non-governmental organisation (NGO) activists.

Thousands of students in school uniform and youngsters marched in Pakistan’s main cities heeding the calls of teen activist Greta Thunberg to take part in the global climate protests. The activists demanded the government take urgent action to tackle the climate crisis and prevent an environmental catastrophe.

Environmentalists, politicians and celebrities also joined the students as they took to the streets in more than 32 cities across Pakistan with major rallies in Islamabad, Lahore, Karachi,

Quetta, Peshawar and Gilgit. Globally, more than 4,500 strikes were planned across 150 countries to demand world leaders to limit the harmful effects of man-made climate change. This was before the COVID-19 pandemic struck in 2020.

‘If not us, then who? If not now, then when?’ read a placard, carried by a student outside Islamabad press club. ‘You are never too small to make a difference’ read another sign. Ultimately, these climate marches are about the wellbeing of the youth of this country. Pakistan might not have greatly contributed to climate change globally, but it needs to do much more to protect its citizens – and the youngsters need to take over this movement. After all they are the ones who will inherit a very different and dangerous world if temperatures continue to rise.



Greta Thunberg, Swedish environmental activist

World's leading climate campaigner. 21 years old Greta Thunberg from Sweden is today one of the world's best known climate campaigners. She led large protests outside the Glasgow climate conference in 2021, telling young protesters that world leaders had met at "26 COPs, they have had decades of blah, blah, blah - and where has that got us?". Thunberg became well known after she protested outside the Swedish parliament in 2018, when she was 15 years old. She held a sign saying "School Strike for Climate", to pressure the government to meet carbon emissions targets. Her small campaign had a global effect, inspiring thousands of young people across the world to organise their own strikes. She is the founder of the youth-led and organised global climate strike movement called "Fridays for Future".<sup>66</sup>

<sup>66</sup> Fridays For Future. (2023). Fridays For Future. Retrieved from <https://fridaysforfuture.org/>

Source: <https://www.behance.net/gallery/103123747/GRETA-THUNBERG>

## Legislation in Pakistan to address climate change

The establishment of Pakistan's first ever Ministry of Environment (now called the Ministry for Climate Change and Environmental Coordination) and Environment Protection Agencies, all happened after the 1972 United Nations Conference on the Environment was held in Stockholm.

This was the first global conference to make the environment a major issue. Pakistan participated in this conference where a series of principles for sound management of the environment including the Stockholm Declaration and Action Plan for the Human Environment were adopted.<sup>67</sup>

All multilateral environmental agreements and environmental conventions since 1972 have also been inspired by this Declaration. Pakistan has signed almost all of

them, but their implementation in the country has remained weak.

According to climate expert Ali Tauqeer Sheikh, "Since words like 'environment' or 'climate change' are not used in the Constitution (of Pakistan), several judgements have enriched Article 9, which deals with the right to life and associated rights in other articles, including right to property, privacy, dignity and self-respect — aspects threatened by the recent floods. By enlarging the definition of the right to life, the concept of human rights has been enlarged to include issues pertaining to quality of life, well-being and a healthy and safe physical environment".

The Asghar Leghari case (2015) was the most famous one in which a local farmer sued the national government for failure to implement the 2012 National

<sup>67</sup> United Nations. (2022a). United Nations Conference on the Environment, Stockholm 1972. Retrieved from <https://www.un.org/en/conferences/environment/stockholm1972>

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Climate Change Policy by filing a petition in the Lahore High Court. Justice Mansoor Ali Shah then Chief Justice of the Lahore High Court, addressed the need for the integrity of ecosystems, groundwater and forest resources.

He ruled on September 4th 2015 that: “Climate change is a defining challenge of our time and has led to dramatic alterations in our planet’s climate system. For Pakistan, these climatic variations have primarily resulted in heavy floods and droughts, raising serious concerns regarding water and food security. On a legal and constitutional plane this is clarion call for the protection of fundamental rights of the citizens of Pakistan, in particular, the vulnerable and weak segments of the society who are unable to approach this court.”

The court directed several government ministries to each

nominate “a climate change focal person” to help ensure the implementation of the policy. The court also created a Climate Change Commission with representatives of key ministries, NGOs, and technical experts. The Climate Change Commission was asked to act as a link between the federal and provincial governments and the Council of Common Interests to ensure that the climate policy was taken forward.

More recently, Justice Athar Minallah’s groundbreaking ruling in the Islamabad High Court regarding the protection of the Margallah Hills National Park (2022) has underlined the need for climate adaptation, resiliency and sustainability to keep in step with our constitutional values of social and economic justice.

Likewise, Justice Jawad Hasan from the Lahore High Court has

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made important judgements on urban forests, food waste and biodiversity in Murree to protect mountain ecosystems, based on internationally recognised norms (2021).

As a last resort to curb smog in the city, the Lahore High Court ordered on December 14, 2022, the closure of all markets and restaurants in Lahore by 10pm on weekdays and to seal any schools that opened on Fridays. The directives were issued by Justice Shahid Karim as the court took up public interest petitions on issues relating to the environment.

The LHC had earlier directed the provincial government to keep schools in Lahore closed for three days a week, after an environmental emergency was imposed in the city due to hazardous levels of smog in the winter of 2022. The court observed that there had been a reduction in

smog to some extent following the court directives.

The superior courts have set up several commissions led by Dr Parvez Hassan, an eminent environmental lawyer, to lead the process of bringing key stakeholders together and to build consensus and capacities. Showing eagerness for climate action, the judiciary has begun to constitute standing committees for implementation.

According to Ali Tauqeer Sheikh, “Regrettably, the development has been uneven. These decisions have not always seeped into lower courts. Environmental tribunals have not always functioned effectively, as the governmental commitment to climate justice has remained sub-optimal”.

## White smoke instead of black smoke from brick kilns

Civil society campaigning for cleaner air in Lahore has long been advocating for the reduction of polluting black smoke from brick kilns dotted across the Punjab. Emissions from conventional brick kilns in Punjab, along with vehicular and other industrial emissions, have contributed to the hazardous smog that blankets the province each winter season. A sectoral emission inventory of smog in Punjab conducted for a report prepared by the Food and Agricultural Organisation in 2019, showed that the major portion of total air pollutant emissions come from the transport sector which holds 43% share, followed by 25% from industrial sector and 20% from agriculture.

Converting brick kilns to zigzag was considered low hanging fruit for the Government of Pakistan. In Jan 2022, the federal Environmental Protection Agency announced that almost all of the 11,000 brick kilns in Punjab province had converted to zigzag technology, which has helped reduce air pollution in the province by about 15%. “The zigzag stacking technique uses less coal; spoons instead of spades and the coal is burnt efficiently emitting white smoke (from the vaporized moisture inside the bricks) instead of black smoke” explains engineer Asad Mahmood, the Technical Manager at the Government of Pakistan’s National Energy Efficiency and Conservation Authority (NEECA) which was behind the effort to introduce this new technology.

## Council of Islamic Ideology and climate change

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According to the incumbent President of Pakistan, Dr Arif Alvi, the Council of Islamic Ideology has a crucial role in creating public awareness about important social issues such as cleanliness, inheritance, malnutrition, environment, water conservation, and clean and green Pakistan. The President underscored that Islam is a complete code of life and the Imam, who speaks to his community from the pulpit every Friday, needs to also give guidance on these important social issues. Islam emphasizes the protection of environment and the pulpit can be used to motivate people to play their role in realizing a clean and green Pakistan. The Council is starting to work on some of these issues in collaboration with Ministry of Climate Change and Ministry of Human Rights.<sup>68</sup>

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<sup>68</sup> Council of Islamic Ideology. (n.d.). Council Of Islamic Ideology. Retrieved from. <https://cii.gov.pk/>

## Conclusion

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Climate change is not the only environmental problem facing the planet right now. It is just one of the many symptoms of a bigger challenge, which is the unsustainable way we are living on Earth and managing our natural resources by cutting trees, polluting the air, and killing wildlife.

The world currently faces multiple converging crises – loss of biodiversity, shortages of water and food, population growth, poverty, pandemics, and wars. Climate change will act as a catalyst and exacerbate these problems, as well as make them harder to solve.

Civil society organizations, the government, and the media, have so far failed in creating mass awareness about climate change in Pakistan. In fact, Pakistan's

media has confined the subject of climate change to event-oriented coverage. In-depth coverage and follow-up journalism on the subject has been ignored till now.

In Pakistan there has also been a dearth of scientific data on climate change such as peer-reviewed articles (reviewed by experts in the same field prior to publication) which generally provide the most reliable information. This is beginning to change with new research, such as the recent World Weather attribution study on how extreme rainfall resulted in increased flooding in Pakistan.<sup>69</sup>

The key challenges for journalists are to understand the real-life implications of new research for media audiences, and to explain to these audiences how the new information is relevant to them.

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<sup>69</sup> World Weather Attribution. (2022, September 14). Climate change likely increased extreme monsoon rainfall, flooding highly vulnerable communities in Pakistan – Retrieved from <https://www.worldweatherattribution.org/climate-change-likely-increased-extreme-monsoon-rainfall-flooding-highly-vulnerable-communities-in-pakistan/>



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Given all the devastating climate impacts that the country is reeling from, there is now increased interest in climate change. This resource book will help raise awareness and provide updated information on this topic.

Improved reporting of climate change in both local languages and in English is important. This will help make stories more relevant and reliable for different audiences in Pakistan.

In addition to providing information, media can also provide platforms for dialogue between governments, civil society organisations, and citizens.

The window for action is closing fast. Climate change is also happening much faster than scientists expected ten or even five years ago and the decisions we do (or don't) take in the next few years could have effects far into the future.

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## Which level of global warming is more likely?

The future level of global warming depends on a number of factors. The most important is the amount of emissions produced in the coming years. During the Glasgow COP26 summit in 2021, countries agreed to meet in 2022 to pledge further major carbon cuts with the aim of keeping temperature rises within 1.5° C above pre-industrial levels. No further action on this issue was taken at COP27 in Egypt in 2022. In COP28 in Dubai in 2023, all 195 UN member nations committed to transition away from fossil fuels.<sup>70</sup> However, the text does not call for the immediate phase-out of fossil fuels, as requested by nations most vulnerable to climate disasters.<sup>71</sup>

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70 Nevitt, M. (2023, December 18). Assessing COP 28: The New Global Climate Deal in Dubai. Just Security Retrieved from <https://www.justsecurity.org/90710/assessing-cop-28-the-new-global-climate-deal-in-dubai/>

71 Politico. (2023, October 16). EU countries

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If global temperatures rise by more than 1.5°C, UN scientists say the Earth is likely to experience severe effects such as millions more people being exposed to extreme heat, a likely scenario in Pakistan. If no interventions are taken, global average temperatures could rise by up to 4°C by 2100 (Carrington, 2013).<sup>72</sup>

A glimmer of hope has been seen with the most recent COP28 held in Dubai, when the parties recommitted to delivering the Paris Agreement goals and limiting the global average temperature increase to 1.5 Celsius. It was agreed upon to accelerate emission reductions towards net zero by 2050. This includes transitioning away from fossil fuels and reducing global emissions by 43% by 2030 (European Commission,

2023). This has been hailed as the beginning of the end of fossil fuels. However, only time will tell whether these pledges will translate into reality or not.

This decade is extremely important for the world to act urgently. The UN has called it the 'Decade of Action' for accelerating sustainable solutions to all the world's biggest challenges including climate change.

The naturalist Sir David Attenborough who was recently named Champion of the Earth by the UN, said: "The scientific evidence is that if we have not taken dramatic action within the next decade, we could face irreversible damage to the natural world and the collapse of our societies. We are running out of

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72 <https://www.theguardian.com/environment/2013/dec/31/planet-will-warm-4c-2100-climate>



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time, but there is still hope”.<sup>73</sup>

If our civilization is to survive on this planet, then massive carbon emissions cuts have to happen in the coming decades. To stay below this threshold of 1.5°C requires us to half carbon emissions by 2030 and become zero carbon by 2050.

Electricity production is currently 25% of total energy used in the world that needs to move to renewables including hydro, solar, wind. Solar power is now the cheapest power in 60 countries of the world. Reducing the current carbon dioxide already in the air is crucial. Reforesting and rewilding (restoring ecosystems) is also important.

At COP28, a milestone plan to

ramp up renewable energy and transition away from coal, oil and gas was decided upon. The new deal also had the parties agree upon tripling the amount of renewable energy, like wind and solar power, installed around the world by 2030, and to slash emissions of methane (Plumer & Bearak, 2023).

However, all this has to happen much faster than it is happening now, and significant investments are needed to support the global transition to a low-carbon, climate resilient future. Financial instruments play a critical role in creating incentives and in triggering financial flows towards these investments.

Governments around the world are now putting various financial instruments in place to drive

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73 UNEP. (2022b, April 21). Sir David Attenborough, UN Champion of the Earth - Lifetime Achievement. UNEP. Retrieved from <https://www.unep.org/news-and-stories/video/sir-david-attenborough-un-champion-earth-lifetime-achievement>

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climate change mitigation, backed by funding from a variety of sources like the Green Climate Fund, multi-lateral development banks like the World Bank and Asian Development Bank and private sector sources like national and international foundations and NGOs.

The largest source of potential private finance for climate change adaptation measures comes from investment and financial lending operations like Green Bonds. For a debt-ridden country like Pakistan, the government can also consider issuing Nature Performance Bond (NPB). This can support short-term economic recovery and can lead to debt-restructuring, since the NPB structure offers a way to obtain debt relief.

## Green Bonds to the rescue

Green bonds were created to fund projects that contribute to reducing the impacts of climate change. A green bond is effectively a ‘use-of-proceeds’ bond in which the proceeds are earmarked for green projects, but are backed by the issuer’s entire balance sheet. Pakistan, through its Water and Power Development Authority (WAPDA), issued a US\$500 million green bond in May 2021. The proceeds will be used for renewable energy and climate change adaptation to finance or refinance hydropower or wind energy projects, and projects relating to technologies to control and prevent floods.

The global green bond issuance, as per the Bloomberg report, crossed \$500 billion in 2023 showing the immense potential to explore the untapped market for green and ESG Sukuk (Shariah-compliant instruments backed by a specific pool of assets or real economic activity) in Pakistan.<sup>74</sup>

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74 Siddiqui, A. A., & Javed, S. T. (2023, November 27). Potential for green, ESG Sukuk. The Express Tribune. Retrieved from <https://tribune.com.pk/story/2448074/potential-for-green-esg-sukuk>

## Nature Performance Bond for debt relief

Nature performance bond (NPB) is a sustainability-linked financing instrument that links debt payments to predetermined nature-based targets. The NPB will be floated in the international capital markets with potential subscribers being private investors. It will be structured in a manner so as to ensure full payment of coupon to the investors while any debt relief, subject to meeting the performance targets, may be borne by the development partners through grant/credit relief to the issuer, i.e., the Government of Pakistan. This 'pay-for-performance' instrument incentivises the issuer to achieve positive outcomes through an improvement in debt terms. Nature performance bonds do not impose any restriction on the use of proceeds, thereby allowing the Government of Pakistan to utilise the funds for any economic purpose, but tied to delivering the outcomes.<sup>75</sup> Following the colossal floods of 2022, NBPs can be leveraged, according to experts (Zaman, 2023).

<sup>75</sup> Wijeweera, K. R., & Ali, K. (2022). Financing Climate Action in Pakistan: Solutions and Way Forward. UNDP. Retrieved from <https://www.undp.org/pakistan/publications/financing-climate-action-pakistan-solutions-and-way-forward>  
United Nations. (n.d.). *Communicating on Climate Change*. United Nations. Retrieved from <https://www.un.org/en/climatechange/communicating-climate-change/>

## A greener, healthier world

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We should now be planning for a very different world with a focus on sustainable, greener lives. Around the world, individuals are proving that through innovation, cooperation and mobilization, solutions to climate change not only exist, but also provide new means of earning livelihoods. Highlighting these success stories demonstrates what is possible. According to the UN's Climate communication guidelines: "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". That's the story that journalists should be telling; we can do it, and it would mean a healthier and more secure world.<sup>76</sup>

<sup>76</sup> United Nations. (n.d.). *Communicating on Climate Change*. United Nations. Retrieved from <https://www.un.org/en/climatechange/communicating-climate-change/>

# Glossary of Climate Change Terms

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**Adaptation:** Activities undertaken as well as individual and collective behavioral changes aiming to reduce vulnerability and build resilience of biological and human systems to the effects of global warming.

**Afforestation:** The establishment of a forest through tree planting or seeding on land that has lacked forest cover for a very long time or has never been forested.

**Biodiversity:** The variety of life in all its forms, levels and combinations; includes ecosystem diversity, species diversity, and genetic diversity.

**Biome:** A climatic and geographically defined area of ecologically similar communities of plants, animals, and soil organisms, often referred to as ecosystems.

**Biomass:** Made of material that comes from living organisms, such as plants and animals. The most common biomass materials used for energy are plants, wood, and waste. Biomass can be burned directly to produce energy or can be converted into biofuels.

**Carbon dioxide:** A gas with the chemical formula CO<sub>2</sub>; the most abundant greenhouse gas emitted from fossil fuels.

**Carbon markets:** Trading systems in which carbon credits are sold and bought. Companies or individuals use carbon markets to compensate for their greenhouse gas emissions by purchasing carbon credits from entities that remove or reduce greenhouse gas emissions.

**Carbon sink:** A carbon sink is anything that absorbs more carbon from the atmosphere than it releases – for example, plants, the ocean, and soil.

**Chlorofluorocarbons:** Chlorofluorocarbons (CFCs) are gases composed of the elements carbon, chlorine, and fluorine. CFCs are usually used in solvents, refrigerants, and aerosol sprays.

**Climate:** The composite or generally prevailing weather conditions of a region, as temperature, air pressure, humidity, precipitation, sunshine, cloudiness, and winds, throughout the year, averaged over a series of years.

**Climate change:** The long-term change in the earth's climate, especially due to an increase in the average atmospheric temperature, considered to be caused mainly by the emissions of greenhouse gases from human activities. Interchangeably, some use the term 'global warming' instead.

**COP:** Conference of Parties signatory to the United Nations Framework Convention on Climate Change.

**Cryosphere:** Parts of the Earth where most of the water is in a frozen form.

**Cyclone:** Intense low pressure weather systems; mid-latitude cyclones are atmospheric circulations that rotate clockwise in the Southern Hemisphere and anti-clockwise in the Northern Hemisphere and are generally associated with strong winds, unsettled conditions, cloudiness and rainfall.

**Deforestation:** The conversion of forested areas to non-forest land for agriculture, urban use, development, or wasteland.

**Desertification:** The degradation of land in arid, semi-arid and dry sub-humid areas resulting from various climatic variations, but primarily from human activities.

**Drought:** An acute water shortage relative to availability, supply and

demand in a particular region. An extended period of months or years when a region notes a deficiency in its water supply.

**Ecosystem:** Whole complex of relationships between species among themselves and with the inert medium in which they operate. The ecosystem includes the biota and habitat.

**El Niño:** A warm water current which periodically flows southwards along the coast of Ecuador and Peru in South America, replacing the usually cold northwards flowing current; occurs once every five to seven years, usually during the Christmas season; the opposite phase is called a La Niña.

**Emissions:** Substances such as gases or particles discharged into the atmosphere as a result of natural processes of human activities, including those from chimneys, elevated point sources, and tailpipes of motor vehicles.

**GLOF:** Glacier Lake Outburst Flood is a sudden release of water from a lake fed by glacier melt that has formed at the side, in front, within, beneath, or on the surface of a glacier.

**GHG:** Greenhouse gases in the earth's atmosphere that trap heat. During the day, the sun shines through the atmosphere, warming the Earth's surface. At night, Earth's surface cools, releasing heat back into the air. But some of the heat is trapped by the greenhouse gases in the atmosphere.

**Methane:** Also a greenhouse gas. Its presence in the atmosphere affects the earth's temperature and climate system. Methane is emitted from a variety of anthropogenic (human-influenced) and natural sources.

**Mitigation:** Activities undertaken as well as individual and collective behavioral changes aiming to limit human contributions to greenhouse gas emissions and global warming.

**NDCs:** Nationally Determined Contributions which are at the heart of the Paris Agreement and the achievement of its long-term goals. NDCs embody efforts by each country to reduce national emissions and

adapt to the impacts of climate change.

**NDMA:** The National Disaster Management Authority is an autonomous agency created at the federal level in 2005 for dealing with the entire spectrum of disasters and their management in Pakistan.

**NDMRF:** Pakistan's National Disaster Risk Management Fund is a government owned, not-for-profit company. The Fund is established as a non-banking financial intermediary with a corporate structure, whose aim is to provide funding through matching grants of up to 70% for interventions to be carried out by UN Agencies, international and/or national NGOs as well as Public Sector Entities.

**Non-Government Organization (NGO):** A not-for-profit or community based organization.

**NCCP:** National Climate Change Policy which was first approved by the Government of Pakistan in 2012.

**Ppm:** Concentrations of these greenhouse gases are measured in parts per million (ppm).

**Reforestation:** The direct human conversion of non-forested land to forested land through planting, seeding or promotion of natural seed sources, on land that was once forested but no longer so.

**Renewable energy:** Any source of energy that can be used without depleting its reserves. These sources include sunlight (solar energy) and other sources such as, wind, wave, biomass, geothermal and hydro energy.

**Sequestration:** The removal of carbon dioxide from the Earth's atmosphere and storage in a sink as when trees absorb CO<sub>2</sub> in photosynthesis and store it in their tissues.

**Sustainable development:** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Tipping points:** Points of no return; a critical threshold that, when crossed, leads to large and often irreversible changes in the climate system. Tipping points examples include the meltdown of the ice in Greenland and Antarctica; climate-induced dieback of the Amazon forest (the process by which it loses its biomass density); release of methane from the melting permafrost in the Arctic.

**Unabated:** The unabated burning of fossil fuels is when as a result of the burning, carbon dioxide or other greenhouse gas emissions are released directly into the atmosphere, in turn adding to global warming. The opposite of this is abated burning of fossil fuels.

**UNEP:** United Nations Environment Programme established in 1972, works to encourage sustainable development through sound environmental practices everywhere.

**UNESCO:** The United Nations Educational, Scientific and Cultural Organization. It contributes to peace and security by promoting international cooperation in education, sciences, culture, communication and information.

**UNFCCC:** The United Nations Framework Convention on Climate Change established an international environmental treaty to combat "dangerous human interference with the climate system", in part by stabilizing greenhouse gas concentrations in the atmosphere.

**Weather:** The hourly or daily change in atmospheric conditions which over a longer period constitutes the climate of a region.

**WMO:** World Meteorological Organization is an intergovernmental organization with a membership of 193 Member States and Territories. WMO is the specialised agency of the United Nations for meteorology (weather and climate), operational hydrology and related geophysical sciences.

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