

A Dawn Special Report

CLIMATE CHANGE & CLIMATE RESILIENCE



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We believe that without environmental sustainability, economic stability and social cohesion cannot be achieved. Therefore, we are continuously preparing our people to face the challenges of the impending climate change; adopting cutting-edge technologies that help us reduce carbon emissions, carbon capture & storage and have set our foot on the path to renewable energy solutions. Above all, we have rolled out ESG strategy 2025 that helps us measure & control our impact on environment thus contributing towards sustaining the planet.

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INTEGRATING CLIMATE INTO EVERY ASPECT OF THE NATIONAL DEVELOPMENT AGENDA IS THE ONLY WAY FORWARD IF PAKISTAN IS TO SURVIVE THE IMPACTS OF CLIMATE CHANGE, WRITES ALI TAUQEEER SHEIKH.

CLIMATE Justice is a global and domestic imperative. It stands at the intersection of environmental sustainability, economic development and social equity. As we move forward, the imperative for climate action has never been more pressing. The challenge lies not just in addressing climate change, but in ensuring that our response is equitable, sustainable and inclusive. We in Pakistan need to acknowledge the barriers to climate action that impede progress and add to the mounting costs of loss and damage. For us, the search for global climate justice must begin at home.

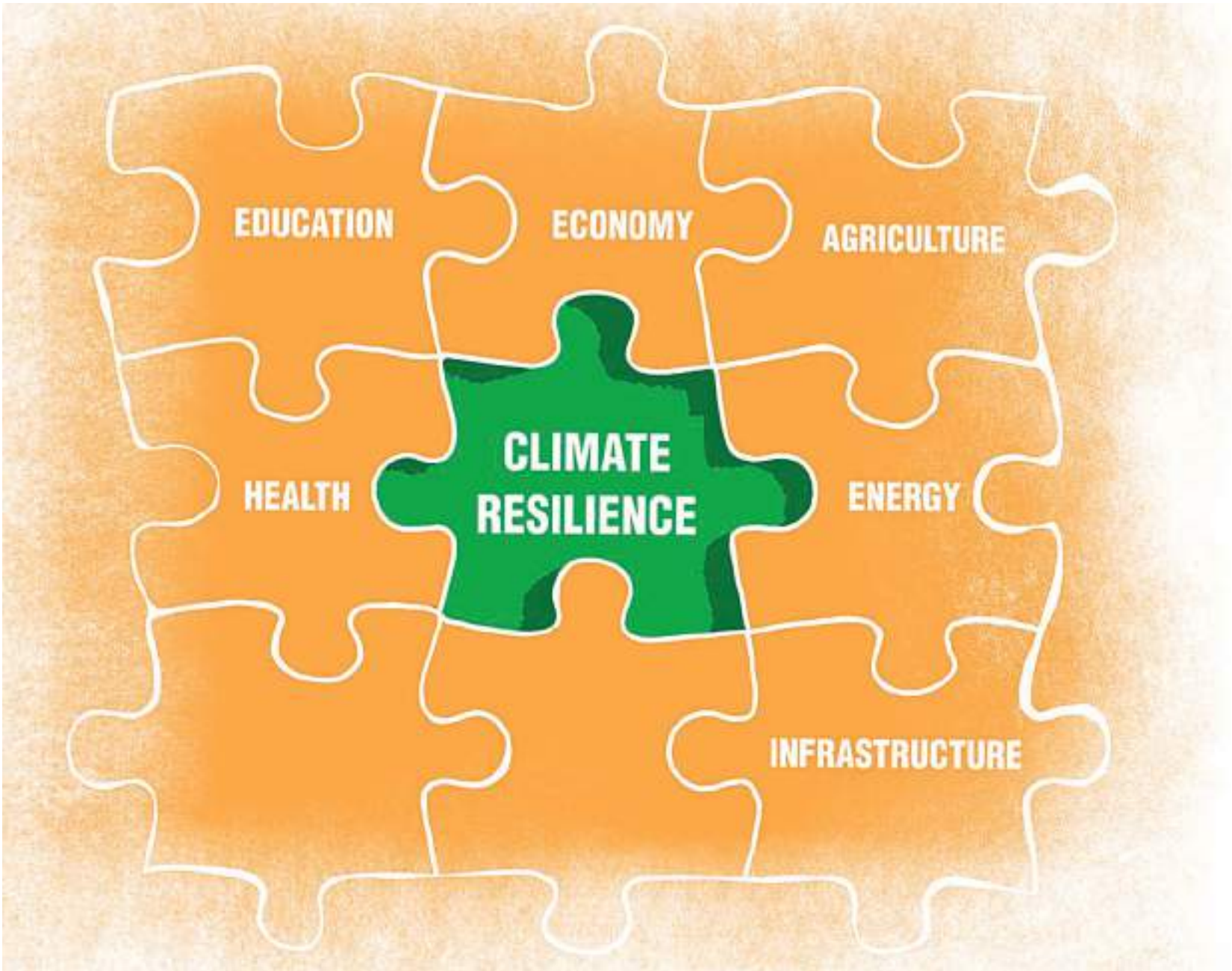
BARRIERS TO CLIMATE ACTION

Pakistan’s path to climate resilience faces multiple interconnected barriers that must be addressed systematically. These obstacles create a complex web of vulnerabilities requiring coordinated intervention strategies. Understanding these barriers, their interactions, and potential solutions is crucial for developing climate resilience strategies.

Economic Barriers: The economic landscape presents fundamental challenges. At its core lies a deep-rooted official aversion to reforms, manifesting in multiple ways. The country’s engagement with international financial institutions is driven by the balance of payment imperatives. It has primarily focused on seeking grants or borrowing for ‘reforms’ rather than seeking finances to directly create jobs, increase productivity, or economic diversification. This approach is problematic. The resulting mounting debt consumes a significant portion of government revenues, constraining fiscal space and limiting investment in crucial climate adaptation and mitigation efforts, and severely limiting investment in resilience infrastructure.

Economic diversification has remained insufficient, creating additional vulnerabilities. The economy depends heavily on climate-sensitive sectors such as agriculture and textiles. The manufacturing sector’s contribution has declined since 2000, indicating a failure to transition toward higher-value, climate-resilient industries.

Growth and innovation challenges further compound these difficulties. Pakistan’s GDP growth



INTEGRATE OR FAIL

consistently lags behind regional peers, with research and development spending stagnating at 0.24pc of GDP compared to India’s 0.7pc and Bangladesh’s 0.6pc. The country’s innovation capacity ranks 99th out of 132 countries in the Global Innovation Index, severely limiting its ability to develop and implement climate-smart technologies. While coal still accounts for 13pc of the energy-mix despite its climate implications, investment in renewable energy represents only 2.5pc of GDP, significantly below the regional average of 4.7pc. The renewable energy sector has attracted only \$3.5 billion in investment since 2015, representing merely 5pc of its potential.

Demographic Pressures: Population dynamics create significant challenges for climate resilience. Pakistan’s population grows at 2.4pc annually, far exceeding the regional average of 1.1pc. Current projections indicate that the population will reach 338 million by 2050, placing immense pressure on already strained resources. This growth has severe implications for climate vulnerability, as evidenced by the dramatic decline in per capita water availability.

Urbanization Patterns: The urban population grows at 3.3pc annually, largely through unplanned expansion that consumes agricultural land. Infrastructure struggles to keep pace, with barely half of the urban residents having access to clean drinking water, proper sanitation, or municipal waste collection. Stormwater drainage systems in major cities cannot handle increasing rainfall volumes, resulting in increased incidence of urban flooding. Because of high population growth rate and depressed economic growth, the per capita carbon emissions in Pakistan are declining. The movement towards urban areas is however increasing pressure on already crumbling poor infrastructure.

Population distribution across climate-vulnerable areas presents additional challenges. Coastal districts, including Karachi, have seen population density increase over the past two decades. The proportion of population living in flood-prone areas has risen to 28pc, while those in water-stressed regions now exceed 35pc. This demographic pressure dilutes economic growth benefits.

Environmental Degradation: Environmental deterioration poses perhaps the most direct barrier to climate resilience. Diminishing forest cover is reducing natural carbon sinks and increasing vulnerability to floods and landslides. Decreasing mangrove forests in the Indus Delta are leaving coastal communities exposed to rising sea levels and storm surges. Wetland degradation affects natural water storage areas, compromising both water security and flood protection. Water regulation services have been particularly affected, with degraded watersheds in the Hindu Kush-Karakoram region, reducing its capacity to withstand climate stresses.

Addressing Pakistan’s climate challenges requires a comprehensive approach. There are seven bridges representing the essential pathways Pakistan must cross to build climate resilience.

As Pakistan approaches its centennial in 2047, the nation faces a critical juncture addressing the interlinked challenges of climate vulnerability and poverty. As demonstrated by a recent World Bank assessment, 55-60pc of climate-vulnerable districts have poverty rates significantly above the national average. Understanding this complex relationship requires precise vulnerability mapping across Pakistan. The 2022 floods starkly illustrated the prevailing disparity, with 84pc of the affected households falling in the bottom two income quintiles. Looking ahead, climate projections portray a worrisome picture, threatening agricultural productivity and millions of livelihoods. Pakistan must chart a course where poverty reduction and environmental protection become mutually reinforcing goals. This demands integrating climate resilience into every aspect of national development planning, including climate-resilient agriculture, infrastructure, clean energy access,

and ecosystem restoration.

The vision, the first of the seven bridges to cross, must focus on creating a society where every Pakistani has the tools and resources to withstand climate shocks, regardless of economic status. This requires addressing the current challenge of donor coordination, where multiple projects worth billions suffer from fragmentation and misalignment. This vision requires immediate action, sustained commitment, and the understanding that investments in climate resilience today will determine Pakistan’s prosperity for generations to come.

The second bridge entails empowering local governments. Effective climate action hinges on robust local governance structures. The institutional framework, shaped by the 18th Amendment, places significant environmental responsibilities on provincial and local governments. However, current administrative barriers and information gaps limit vulnerable communities’ access to National Finance Awards for locally-led development. This requires establishing last-mile delivery mechanisms where local governments can spearhead their direct participation in adaptation planning and resource allocation. Community engagement through local governments is crucial for effective climate governance.

Traditional top-down approaches often fail to incorporate local knowledge and needs. Local governments can bridge this gap by developing and implementing climate initiatives, including community-based early warning systems and adaptation measures.

Strengthening local governance requires a two-pronged approach. First, financial devolution must match responsibilities. Cities like Karachi, Faisalabad, Lahore, Islamabad and Peshawar could follow Cape Town’s model of raising climate finance through green bonds for climate resilience projects and reduce dependence on provincial transfers. Second, vertical integration requires strengthened legal frameworks and coordination among federal, provincial and local governments to prevent fragmentation. This can enable efficient resource allocation through a networked governance approach.

The third bridge to cross relates to the management of the Indus Basin. For Pakistan, climate change manifests primarily as a water challenge, with the Indus Basin serving as both life-giver and threat multiplier. The basin, supporting over 215 million people and 80pc of Pakistan’s agriculture, faces unprecedented stress from three interconnected challenges: climate change, geopolitical tensions and mounting demand.

The transboundary nature of the Indus creates significant complexity. The Indus Water Treaty, long considered a model of hydro-diplomacy, faces its most serious threat since inception through India’s recent attempts to review or potentially exit the treaty. Additionally, Afghanistan’s water resource development, as demonstrated by its construction of the Qash Tepa Canal to divert water on Amu Darya, has set a precedent that could affect Kabul River flows that contribute approximately 15pc of the basin’s water. While Article 6 of the Indus Water Treaty provides for cooperation on emergent issues, the treaty’s potential collapse could have catastrophic implications for regional stability and water security. Climate change further complicates these dynamics, as glacial melt in the Hindu Kush-Karakoram region accelerates, with projections suggesting a 36pc reduction in glacier mass by 2100.

The water-food-energy nexus demands an integrated approach. Agriculture currently consumes 93pc of Pakistan’s water resources, while contributing 20pc of national greenhouse gas (GHG) emissions. Smart irrigation technologies, solar-powered systems, and conservation agriculture techniques could transform traditional farming methods, particularly in water-stressed regions. These climate-smart practices, though currently limited in adoption, have shown promising results in pilot projects by reducing

water consumption while maintaining productivity and increasing farm incomes.

Pakistan’s plans to double its hydropower capacity to 20,000MW by 2030 must balance energy needs with environmental considerations. Success requires a paradigm shift, and the framework must be supported by robust institutions capable of handling complexity, uncertainty and change.

Moving on, the fourth bridge is accessing international climate finance. Pakistan faces a serious climate finance gap, requiring an estimated \$348 billion for climate action by 2030, while currently accessing less than \$1 billion annually in international climate finance.

The pathway to international climate finance encounters immediate institutional barriers. No Pakistani government institution presently holds direct access accreditation with the relevant global funds, significantly constraining the country’s ability to access international resources effectively. Further, Pakistan needs to diversify climate finance beyond traditional grants and concessional loans through distinct financing mechanisms available from major development partners. These include direct budget support, policy-based finance, equity investments, insurance mechanisms, risk-sharing arrangements, pre-arranged finance, contingent credit, and performance-based programs.

Risk financing represents a particular focus area, incorporating contingency funds, insurance schemes

Addressing Pakistan’s climate challenges requires a comprehensive approach. In practical terms, there are seven vital bridges representing the essential pathways Pakistan must cross to build climate resilience.

and catastrophe bonds. Tracking and targeting mechanisms must ensure equitable distribution of climate finance, as current flows often bypass the most vulnerable regions and communities.

The fifth bridge is about engaging the private sector. This engagement represents a critical component of Pakistan’s climate finance architecture, requiring effective mobilization of domestic resources and private investments to complement international finance. Current budget allocations for climate-smart projects remain minimal, while fossil fuel subsidies exceed support for renewable energy and green technologies. Restructuring these fiscal priorities through climate-responsive budgeting and targeted climate taxes could release significant resources for climate action.

The State Bank’s green banking guidelines provide a foundation but require expansion into a comprehensive green finance ecosystem. Carbon pricing mechanisms, successfully implemented

in some other countries, could generate an estimated \$2-3 billion annually while incentivizing emission reductions. Green bonds and climate insurance products could expand the resource base, though current market mechanisms remain underdeveloped, with green finance representing less than 2pc of total banking sector assets.

Creating an enabling environment requires developing bankable frameworks in key sectors, improving public-private partnership (PPP) structures, and strengthening institutional capacity at regulatory, sectoral and corporate levels.

The sixth bridge is research and data infrastructure. Pakistan’s journey towards climate resilience is severely hampered by critical gaps in scientific capacity and evidence-based policymaking. Current research spending stands at a mere 0.3pc of GDP, with climate-specific research probably receiving less than 5pc of this allocation. Pakistani institutions currently have minimal participation in major international research projects. Institutional limitations create data gaps. Addressing the matter requires a multi-faceted approach.

In all, Pakistan needs an overarching framework needed to coordinate all its efforts, ensure quality standards, and bridge the science-policy gap. However, its effectiveness will depend on political support, adequate resources, and meaningful collaboration.

The final bridge to cross on our way to climate resilience is about mainstreaming climate change. Integration of climate justice principles requires systematic mainstreaming across all sectors of Pakistan’s governance. Every ministry needs to embed climate considerations into their planning and operations, starting with the Planning Commission’s project approval documents. This comprehensive approach must extend to infrastructure development, prioritizing climate-resilient designs, and agricultural policies that promote climate-smart practices across Pakistan. Urban development particularly demands attention, as the cities will require green building codes and thermal resilience measures.

Pakistan has a robust climate policy framework anchored by three key instruments: the National Climate Change Policy (NCCP), National Adaptation Plan (NAP), and the Nationally Determined Contributions (NDCs) that outline Pakistan’s sovereign commitments under the Paris Agreement. However, significant gaps remain in embedding this framework within sectoral policies.

Despite a cursory acknowledgment of Pakistan’s climate vulnerabilities, the current policies require strengthening to systematically address sector-specific climate risks. This is particularly evident in key sectors where policies released after the 2021 NDC lack specific provisions for climate adaptation or mitigation measures.

Pakistan’s development trajectory presents some challenges and many opportunities. Pakistan’s rapidly growing population, high energy consumption, and development ambitions mean its future GHG emissions could become significant without measures to reduce emissions growth. Currently, 47pc of the nation’s total emissions come from agriculture, forestry and other land-use, while energy accounts for 41pc. While reducing emissions can help Pakistan lower productivity costs, emission reductions offer critical benefits through improved air quality and reduced health emergencies.

The imperative is clear: Pakistan must take decisive action to integrate climate considerations while pursuing its development goals. This approach will protect Pakistan’s environment and secure its economic future and the wellbeing of its people. Together, we must reclaim our right to a healthy environment and help Pakistan breathe.

The writer represents Pakistan on the International Board of Fund for Responding to Loss and Damage.



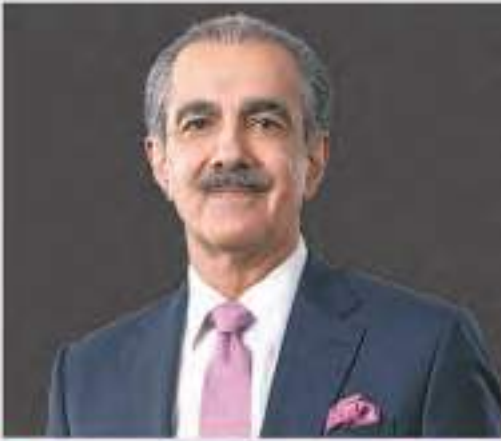
Bank Alfalah's Contribution to a Sustainable Way Forward

Bank Alfalah is at the forefront in reflecting its purpose that extends beyond financial success

Under the visionary leadership of His Excellency **Sheikh Nahayan Mubarak Al Nahayan**, Chairman of Bank Alfalah and the Board of Directors, who graciously approved the donation of **\$10 million** in response to the devastating floods that hit Pakistan in 2022, the Bank embarked on a **two-pronged strategy** to redevelop communities in a **sustainable, equitable, and financially inclusive** manner. This initiative addressed the immediate needs of the affected communities and is now providing a comprehensive framework for long-term rehabilitation.

To date, Bank Alfalah has disbursed a total of **PKR-2.1 billion** through this program, positioning itself as one of the largest corporate contributors to fostering a sustainable future for flood-impacted communities.

Over the last two years, the Bank has joined forces with **25 esteemed partners**, receiving the Bank's disbursement to address critical sectors such as health and emergency care, affordable housing, accessible education, and sustainable livelihoods.



Atif Bajwa, President and CEO of Bank Alfalah, commented, "With the gracious support of the Chairman and the Board of Directors, we worked with the most reliable and trusted names in Pakistan to extend support to the most vulnerable communities impacted by floods since 2022. We intensified our joint efforts and reached communities for relief and rebuilding phase with a medium to long-term plan to support them for a sustainable way forward. In a disaster of unprecedented proportions, we must always come together to provide continuous support to those impacted through our collective contribution."

Phase-I Rescue and Relief

Since 2022, the Bank has partnered with reliable and trusted non-governmental organisations (NGOs) across Pakistan. These partnerships facilitated the rescue of and assistance to flood-impacted communities in hard-hit areas.



9,400 Seeds and Fertiliser Bags



30,000 Winter Kits



42,932 Ration Bags and 9.6 Million Meals



7,000 Water Filters



436 Medical Camps



2,077+ Tents

PKR 345 Million

Phase I & II
Collectively Impacted Over
1,113,000
People

Phase-II Rehabilitation and Rebuilding

The Bank embarked on phase-2 in the second half of 2023 and followed it through in 2024 focusing on rehabilitation and rebuilding lives. This phase encompassed several key areas: sustainable housing, healthcare, education, and livelihood support.

PKR 1,815 Million

PKR 633.5 Million



Healthcare

PKR 376.8 Million



Sustainable Housing and Reviving Livelihood

PKR 305 Million



Education Support

PKR 250 Million



Interest Free Loan

PKR 250 Million



Revive and Rise (Subsidised Loans)



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PAKISTAN MUST WORK TOWARDS DEVELOPING INNOVATIVE HOME-GROWN SOLUTIONS DRIVEN BY A PROACTIVE MULTI-SECTORAL APPROACH. SHERRY REHMAN SETS OUT HER VISION.

FROM POLICY TO ACTIONS THE 2047 ALTERNATIVE

THE future is never quite what we expect it to be, but climate trends have redefined our lives as unpredictable, volatile and often red in tooth and claw. Yet if one thing is certain for all of us in Pakistan, it is the reality of extreme weather and “global boiling”. It cannot be wished away or denied. It cannot also be left to policies on paper which tick the right boxes. If legacy media like *Dawn* is finally ready to put our capacity to ‘Breathe’ front and centre, then we are at least on the journey to making both public and policymakers understand the compelling gravity of this existential metatrend.

Because Pakistan’s climate trendlines are linked to global trendlines, despite our tiny carbon footprint, our natural and climate capital has gone from green to red. Our monster monsoon in 2022 made us the ground zero of climate-induced catastrophe, with a clear link to rising global warming and growing emissions.

Since then the world has seen a horrific series of hellscapes unfold in apocalyptic reels on social media. What went on in Pakistan in 2022 did not stay in Pakistan. Obviously what went on in Los Angeles last month will not stay in Los Angeles either. That is the intrinsic nature of this beast. To plan ahead for 2047, Pakistan should not just learn from the present, but also model all plans on possible futures that rely on business as usual (BAU) models of climate action. What would happen in a BAU scenario and what would happen with accelerated action. While climate justice dictates that we identify the world’s biggest emitters as the culprits, the fact that our house is burning necessitates a clear rethink of what we need to do to put out the fire.

THE BUSINESS AS USUAL SCENARIO: 2047

In the different futures ahead of us, the fear of parched earth, the melted glacier, the desertified delta, and the scorched mountain need to be kept in mind to drive action and to make difficult choices. If one truth is established in our climate reality, it is that Pakistan is a poster-child for the scale and level of the triple planetary crisis that brings climate change, biodiversity loss and pollution into a graphic everyday reality for most of our population. It is almost as if on a bad day, we are fighting on all fronts, especially given the level of resilience needed to survive the millennium.

We will have to move forward with creative home-grown climate financing, which is not unavailable if the regulatory climate and enabling ecosystems create a taxonomy of incentives. Most of our solutions will have to be local.

BAU means Pakistan will be unprepared and under-resourced for the extremes in weather and water volatility that climate stress may bring to our doorstep. Policymakers already know that Pakistan’s relationship with the climate crisis is defined by extreme vulnerability. They also mostly realise that the responses needed are equally beset by gaps in knowledge, capacity, coordination and access to international resources.

Given the global pace of inaction, with rising GHG emissions, and the Paris goal of keeping 1.5°C alive dead in the water, rising temperatures will put Pakistan at risk in more ways than one. Given a projected temperature spike of 2.5-3°C by 2047, the most catastrophic impacts will be prolonged heatwaves and water shortages. With our glaciers melting at unprecedented rates, the country will risk losing 60pc of our water resources, especially since the Indus River System is largely glacial fed. This will not only impact the availability of the water in the basin, but also lead to higher sea ingress and desertification of the already-stressed lower riparian delta areas.

At the same time, with population growth at the current rate, the BAU scenario will lead to a 40pc surge in the demand for water. This will likely be the worst catastrophe, leading to serial instability and shortages for livestock and agriculture, not to mention the pressure on rapidly growing urban centres for safe drinking water.

The competition between riparians may well spiral into conflict because scarcity will trigger a series of downstream disasters on agriculture, pastoral lands for livestock, migrations, drinking water shortages and energy generation. Given that crop yields could decline by up to 50pc, food security will also define the frontline of Pakistan’s climate vulnerability.

Ultimately, climate change is as much about the planet as it is about people. Under the BAU, or pessimistic scenario, poverty could therefore shoot up by 30pc, forcing up to 21 million more people into a cycle of serial deprivations. Given that we have 40pc of Pakistan’s demographic under the poverty line already, this will turn Pakistan’s future into the red zone of climate impacted dystopia.

Because poverty levels and access to social entitlements have a direct bearing on how communities survive climate induced impacts and bring resilience to rebuilding their lives, the impacts may well set large swathes of a growing population totally off all indices for progress, sweeping them backwards into hardscrabble subsistence including the low bar of crucial nutrition deficits. The fallout of climate stress is well known to be inequitable, so women and children, especially under the age of five, will feel the shocks not just disproportionately, but disastrously. For a country where stunting in children under the age of five has already reached crisis proportions at a staggering 40pc, due to malnutrition, the ability of families to change this toxic reality will be hugely compromised. Any resilience indicator will also testify to the fact that if literacy is impacted, which is currently the case in arid and flooded climate



hotspots, especially in terms of transportation to schools for girls, the fragility of households with 26 million children out of schools will not just put them on the frontlines of destitution and zero social mobility, but also the country on a perilous tipping point of losing all chances of building human capital for a huge demographic of 50-60pc under a median 30 years of age by 2047. Projections at the current population rate suggest a surge in working-age population migrating to seek opportunities in urban areas, which will further be under stress for better infrastructure, municipal services and housing.

In the strategic drift scenario, where cities grow without robust solid waste management, with growing plastic-choked landfills and waterways, a series of climate events can easily place all in-migrants in under-serviced and poor areas in foetid squatter settlements, breeding further unsanitary crowding and health crises. The need for transport, sustained energy supplies, quality public healthcare, digital connectivity and clean water will only grow as a young, restless demographic starts seeking entitlements while jobs will only likely grow in sunrise sectors, such as technology, media and entrepreneurship. The social impacts could well result in Pakistan’s young ‘bulge’ demographic morph into a volatile mix of radicalised cohorts possibly finding shelter in criminality and violence.

Without active disaster risk preparedness, including early warning systems, women in rural areas will suffer the invisible rigours of exclusion, unmet health needs and predation, as they did in all conflict and climate displacements, especially 2022, where 650,000 women were in different stages of pregnancy without any prospect of immediate healthcare or emergency services. Even with optimal health services, it is important to remember that no country, especially Pakistan, has been designed for the volatility that monsoon and flooding, or heatwaves can now bring to a planet off its balance.

If urgent plans to combat heat acceleration, water and food stress are not met, the worst case scenarios will also have a domino and amplification effect. Without much more scaled up disaster risk reduction plans in place for each province, and each district, one big climate event could push development gains of a decade within ten days. At current rates of BAU, without transformational investments in agriculture, energy and water usage, sectoral GDP in both agriculture and industry could decline by 17pc by 2047. For perspective, the 2022 flood caused an 8pc drop in GDP, while a 9pc impact would be enough to completely undo hard fought gains on poverty reduction. The annual economic output could see a cut of 18pc due to climate risks, such as heatwaves and floods. Air pollution, Pakistan’s serial killer, impacting many of our cities with unbreathable air quality, would have its own economic impacts on the GDP by 4pc. These are big numbers with amplified downstream impacts on growth, resources and human health.

At the macro level, where the exogenous shock of climate events married with high debt liabilities forces crippling rents on the poorest, the costs of inaction and slow reform can spiral to a quantum

level. While no prognostications can be final, it is worth looking at a broader view of climate stress, in which projected annual climate related damages could reach \$ 20 billion per year. This is a big number, which could set the country off path in terms of climate, development and economic goals of middle power resilience. According to the World Bank, which estimates Pakistan need at a staggering \$348 billion to stay on a trajectory of sustainable health just by 2030, it is clear that financial and debt distress could well add yet another layer of stress on a country in deep public and energy sector malaise. Some estimates suggest that by mid-century the level of climate shock Pakistan could face could be as high as \$1.3 trillion.

THE ACTION ALTERNATIVE

None of the above needs to be inevitable, let alone imminent. Before anything, Pakistan needs to declare a climate emergency, not as a point to panic about, but as a serious whole-of-country call to action. Pakistani cities in the south now regularly hit 50°C every summer, with some, like Dadu and Jacobabad, touching 53°C, making them the hottest places on the planet. This is neither understood nor absorbed at any level as a big ticket red alert, because of the cognitive disconnect our public sector has with climate action. For perspective, the United Kingdom declares a climate emergency when its cities hit 40°C. This needs to change. The crisis is real, and it is existential. All departments across the country have to start aligning their budgets and public investments with climate tags and climate-proofed investment plans, if the urgency is understood. Pakistan needs actions instead of just announcements.

Second, any vision for Pakistan at 2047 should be based on the sober reality that between stated plans and actual action, especially in a dramatically varied mountain to delta terrain like Pakistan, there is often too many an unaffordable slip between paper and outcome. Moving past the burning mountain and the cracked soil will not only need pro-active multisectoral coordination throughout the year, but also provincial alignments in order to bridge the horizontal and vertical fissures in policy action. At all levels, and especially so for climate delivery, a high level war will have to be declared on the silo-turf entrenchment that has embedded itself like a hookworm in our institutional ecosystem, because it kills both innovation in the private sector and real outcomes in the public sector.

Example: coordination barriers block key intersectoral actions, especially when institutional conflicts arise. Yet even for carbon neutrality, despite the fact that integrated responses are the only way some targets will be realised in a coordinated net zero platform with the private sector, the latter remain out of the public policy loop without a framework for climate-smart manufacturing, decarbonisation incentives, climate taxonomy, supply chain reporting benchmarks, and even policy alignment for a looming barrier of

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COOLING THE EARTH BY 1°C



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GLOBAL SOUTH HAS TO HOLD THE GLOBAL NORTH ACCOUNTABLE WHILE BUILDING SELF-RELIANCE THROUGH INNOVATIVE FINANCING AND RESILIENCE-BUILDING STRATEGIES, STRESSES JUSTICE SYED MANSOOR ALI SHAH.

CLIMATE JUSTICE IS INEVITABLE

ACCORDING to the *Global Climate Risk Index*, Pakistan ranks as the fifth most climate-vulnerable country in the world. It also faces significant disaster risk, ranking 23rd out of 194 countries as per the 2024 Inform Risk Index. Dubbed the ‘climate catastrophe of the decade’, the devastating 2022 floods in Pakistan affected 33 million people, including 16 million children and rural women, causing unprecedented destruction. The total damages were estimated at Rs3.2 trillion (\$14.9 billion), with losses amounting to Rs3.3 trillion (\$15.2 billion), and recovery needs at Rs3.5 trillion (\$16.3 billion). In *Province of Sindh v. Sartaj Haider*, the Supreme Court of Pakistan held that “a climate resilient adaptation plan including a detailed mechanism for utilization of financial support coming to Pakistan from the loss and damage fund, is the need of the hour.”

ENVIRONMENTAL JUSTICE

Constitutional courts in Pakistan have historically played a pivotal role in advancing environmental justice. The landmark *Shehla Zia* case of 1994 was a trailblazer, as the Supreme Court recognised the right to a healthy and clean environment under Article 9 of the Constitution for the first time. The case underscored that environmental justice is a matter of fairness, equality and human dignity, stressing that marginalized communities disproportionately bear the brunt of environmental degradation. Subsequent decisions, such as *Syed Mansoor Ali Shah v. Government of Punjab*, where the Lahore High Court formed the Lahore Clean Air Commission, highlight the judiciary’s continued intervention to mitigate air pollution and its associated risks. These rulings demonstrate the courts’ commitment to ensuring an equitable distribution of environmental burdens and benefits.

CLIMATE JUSTICE

While environmental justice primarily targets polluters, climate justice introduces a broader, more complex framework that intertwines global climate challenges with human rights, intergenerational equity, and social justice. The *Asghar Leghari v. Federation of Pakistan* case marked a turning point, as the Lahore High Court held that combating climate change was a government obligation under the constitutional right to life. The decision urged courts to adopt a climate justice lens to address the rights of vulnerable populations and ensure equitable sharing of climate burdens and benefits. The ruling integrated constitutional principles of democracy, equality and social justice with international doctrines like sustainable development and intergenerational equity. Since *Leghari*, the judiciary has issued numerous progressive rulings on issues ranging from disaster preparedness, health, food security, urban planning, human displacement to industrial licensing, pushing Pakistan towards greater climate resilience.

ADAPTIVE JURISPRUDENCE

In *D.G. Cement v. Government of Punjab*, the Supreme Court directed that a cement company should not enlarge or enhance the capacity of its existing cement plant in an environmentally fragile zone called ‘Negative Areas.’ When there was an unsanctioned use of residential properties for commercial use by a local development authority, the Supreme Court intervened in the case of *Raja Zahoor Ahmed v. Capital Development Authority* and directed all the urban planners to prioritize the climate factor in their development approaches to address the triple planetary crisis of climate change, air pollution and loss of biodiversity. The court has also gone one step ahead in adjudicating disputes involving customs and taxation through a climate lens. In *Collector of Customs v. Wassefullah*, the Supreme Court noted that the exemption on the import of HEVs was logically issued for protection against climate change and a step forward towards the implementation and compliance of Pakistan Environmental Protection Act (PEPA), 1997. Very recently, the Supreme Court introduced the principle of “environmental constitutionalism” and “Islamic environmentalism” in a case related to the stone crushing plants operating in the province of Khyber Pakhtunkhwa. It directed the Federal Government to shut down stone crushing plants for failing to meet the National Environmental Quality Standards and their contribution to air pollution.

CLIMATE FINANCE

A holistic analysis of this strand of adaptive jurisprudence suggests that it has been largely directional where the courts are directing the State to take remedial steps for climate resilience. While this entire exercise is appreciated, the debate and discussion at the recent COP-29 in Baku brought a fresh perspective to this debate. While Pakistan must take steps to build out its own climate financing infrastructure, climate justice also demands that those primarily responsible for climate change, namely the global North, pay off their ‘ecological debt.’ To address these challenges and achieve meaningful adaptation or to succeed in a claim for loss and damage caused due to climate change, climate finance becomes an indispensable lifeline. For a country like Pakistan, which is highly vulnerable to climate change, the availability of robust financial resources is critical for building resilience and protecting its people. Climate finance refers to local, national or transnational financing drawn from public, private and alternative sources of financing that seeks to support adaptation actions that will address climate change. Its origins trace back to the 1992 United Nations Framework Convention on Climate Change (UNFCCC), which established the principle of “common but differentiated responsibilities and respective capabilities.” This principle acknowledges that while all nations share a common responsibility to combat climate change, developed nations bear a greater burden due to their historical contributions to greenhouse gas emissions.

Climate finance supports adaptive measures like flood defences, drought-resistant crops, sustainable urban infrastructure, and community-based disaster response systems. It ensures that individuals can live lives marked by dignity and security, with access to basic needs, such as clean water, safe shelter, and reliable food supplies. In essence, climate finance is not just an economic necessity — it is a moral imperative. It ensures that the most vulnerable, who have contributed the least to global emissions, have the resources to adapt, survive, and thrive in a changing world. For Pakistan, climate finance is not merely a tool for policy — it is the foundation of hope for a future where every citizen can live with dignity, security, and the promise of a better tomorrow.

Ensuring climate finance is therefore the most pivotal part of climate justice. Climate finance is actually our lifeline that can help us strengthen our infrastructure, agriculture, water management, health, displacement and migration, economic inequality, and disaster resilience. It must be mobilised on an unprecedented scale and be accessible in a timely manner to those who need it the most. Without climate finance, our right to life (Article 9) and our right to human



dignity (Article 14) are under threat. Therefore, climate finance in countries from the global south like Pakistan is fundamentally a human rights issue — as it is essential to preserving human life, human dignity. If climate finance continues to fall short, the gap between developed and developing nations may grow, leading to what some term “climate apartheid,” where wealthy nations protect themselves from climate impacts while poorer countries are left to bear the brunt.

LEGAL FRAMEWORK

The legal framework of Climate Finance includes (but is not limited to) the UNFCCC, Kyoto Protocol and the Paris Agreement. Pakistan has an existing legal framework to tackle the issue of climate change. The Pakistan Climate Change Act, 2017, provides for the establishment of the climate change authority to prepare suitable adaptation, and mitigation projects for submission to international and local institutions for funding, including the Clean Development Mechanism, Global Environmental Facility, Green Climate Fund and Adaptation Fund.

Similarly, it envisages the establishment of a Pakistan Climate Change Fund to be managed by the aforesaid authority and the funds shall be utilized for financial assistance to suitable adaptation projects. Thus, what are the mechanisms for a country such as Pakistan to access these funds, and what is the current state in regards to the availability of funds? While both the international and national legal framework provide for climate finance, a feasible architecture which provides a detailed mechanism about who and how to approach is missing. This is coupled by bureaucratic hurdles as developing countries have to navigate through complex application processes requiring detailed project proposals, cost-benefit analyses, and alignment with donor priorities. Stringent eligibility criteria, inequitable distribution, power imbalance and slow disbursement rates are some additional challenges in actualizing the true spirit of climate finance.

REGIONAL PERSPECTIVES: SAARC

From a regional perspective, the countries composing the South Asian Association for Regional Cooperation (SAARC) are amongst some of the most vulnerable to climate change and disasters. They rely heavily on climate finance to build resilience against and rebuild following climate disasters, though each country’s approach is uniquely shaped by its socio-political circumstances. While most rely on international donors, like the Green Climate Fund (GCF), Global Environment Facility (GEF), and Adaptation Fund (AF), others have supplemented this funding with unique approaches of their own. A few are highlighted below:

Bangladesh: Bangladesh has recently made significant strides in its climate financing. In 2023, it launched the Bangladesh Climate and Development Platform (BCDP), a partnership between international financial institutions, bilateral donors, and private sectors with the Government of Bangladesh to launch a domestic climate change fund; the first of its kind in Asia. It has also adopted a Climate Fiscal Framework to restructure its national budget to address climate-change related needs.

By establishing a clear judicial understanding that climate finance is tied to the right to life, health, and a sustainable environment, courts can push for stronger legal obligations from both domestic governments and international entities.

India: India is also a global leader in climate financing, relying on both domestic and international sources. Between 2021-22, 83 per cent of its financing for climate change mitigation came from domestic sources, with the remaining 17pc coming from international funds. Of the domestic contributions, 66pc came from the private sector, mainly sector-specific financial institutions (i.e.: public financial institutions focused on the power sector). India has also established the National Adaptation Fund on Climate Change (NAFCC) to support adaptation activities in vulnerable sectors. Globally, India has accessed billions from the GCF. **Maldives:** In 2023, the Maldives launched a climate-focused integrated financing strategy which seeks to rely on both public and private sector financing. Its Integrated National Financing Framework (INFF) treats all finance as climate finance and takes a cross-sectoral approach. **Nepal:** Nepal’s government has established the Climate Change Financing Framework (CCFF) which offers the government guidelines to help align its budget with climate change strategies. For instance, in fiscal year 2016-17, Nepal allocated about 19pc of its national budget to climate change financing. Further, other countries also provide Nepal funding through bilateral agencies and international organizations, such as the World Bank, Asian Development Bank (ADB) and International Financial Corporation (IFC). **Sri Lanka:** Sri Lanka has taken a unique approach of climate financing through government-owned companies: the first, the Sri Lanka Climate Fund (SLCF) which is a government-owned company that provides funding to projects that go towards building a low-carbon economy; the second is the DFCC bank which finances private sector renewable energy and energy efficiency initiatives.

CLIMATE SCIENCE

To facilitate the allocation of funds under the umbrella of climate finance, the incorporation of climate science becomes a necessity. Climate science provides critical data on the severity, frequency, and location of climate impacts (e.g., floods, droughts, rising sea levels). This data helps identify the regions and sectors most vulnerable to climate change. It informs the design of adaptation measures, such as coastal defences, water management systems, or climate-resilient crops, ensuring they are tailored to specific regional risks.

ISLAMIC CLIMATE FINANCE

Islamic finance offers a complementary framework to climate finance, grounded in ethical principles and innovative instruments like green *sukuk*. By integrating Islamic finance into climate strategies, particularly in Muslim-majority and climate-vulnerable countries like Pakistan, there is significant potential to mobilize resources and enhance the impact of global climate initiatives.

WAY FORWARD

For Pakistan and other Global South countries, the key lies in adopting a dual approach: holding the Global North accountable while building self-reliance through innovative financing and resilience-building strategies. A collective, well-coordinated effort across vulnerable nations can amplify their voice and secure a fairer share of climate financing to address their pressing adaptation and loss-and-damage needs. Courts in the Global South have a transformative role to play. While judicial interventions cannot entirely resolve Pakistan’s adaptation or loss and damage challenges, they can amplify urgency, foster accountability, and open pathways to meaningful climate justice.

Courts can be a powerful driver to (i) compel the government to act decisively, (ii) create public pressure to fast-track adaptation projects, (iii) mobilize global attention toward the plight of vulnerable communities, and (iv) by positioning themselves as protectors of constitutional and environmental rights, Pakistan’s courts can ensure that the voices of its most vulnerable citizens are heard and acted upon.

The judicial approach includes recognizing climate finance as a fundamental right. The obligations of the Global North need to be viewed as “Climate Debt”. Climate justice focuses on climate finance and more so on ‘Reparative Justice’ which focuses on compensating communities or individuals for harm caused by environmental degradation, including climate change, recognizing these as rights violations.

Lastly, judicial oversight of climate financing by virtue of courts demanding greater transparency and efficiency from government agencies responsible for applying for, utilizing, or managing international climate fund can mandate the government to prepare comprehensive, bankable adaptation and loss/damage projects. By establishing a clear judicial understanding that climate finance is tied to the right to life, health, and a sustainable environment, courts can push for stronger legal obligations from both domestic governments and international entities.

The writer is Senior Puisne Judge, Supreme Court of Pakistan.

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SOUTH ASIAN NATIONS MUST ASSUME LEADERSHIP POSITIONS IN SHAPING THEIR OWN CLIMATE RESILIENCE INITIATIVES AND POLICIES, WRITES MOHAMED YAHYA.



A BLUEPRINT FOR FORGING A SOUTH ASIAN CLIMATE ACTION

As the industrialized world grapples with fulfilling its commitments to fund the climate-related losses and damages they have caused, South Asian nations must take proactive leadership in shaping their own climate resilience and drive innovative solutions. Climate change knows no borders. While South Asian nations sometimes stand divided, they are all confronted with the same challenge. As temperatures rise, climate-induced disasters are becoming more frequent and intense, inflicting immense and disproportionate costs on the lives of all people, especially the poorest. Sea-level rise, glacial melt, heatwaves, droughts and disastrous floods compound existing vulnerabilities, further compromising livelihoods and food security, and access to water and other basic services. At the same time, the region continues to grapple with significant pollution challenges, from domestic sources, underscoring the need for cross-border collaboration to deal with environmental challenges.

Meanwhile the world’s biggest polluters remain reluctant to accept responsibility for the damage they have caused. In 2023, industrialized nations pledged just \$700 million of the \$400 billion that lower-income countries estimate they need by 2030 less than 0.2pc. Much of the climate finance the industrialised world has extended takes the form of loans. This further increases the debt burden for many South Asian nations, particularly Pakistan. Trapped in a web of debt, climate vulnerability, and under-investment in human development, they strive to adapt to the changing climate and its social, economic and humanitarian impacts. They need to overcome these enormous challenges if they want to achieve sustainable development and improve the living standards of their peoples.

Every dollar allocated to debt repayment is a dollar denied to building hospitals and schools, improving access to essential services, and adapting to the impacts of climate change. These issues are critical not only to human development, but also to future economic growth and prosperity of the entire region. Without alternative sources of finance, many of the South Asian countries will not be able to achieve the 17 Sustainable Development Goals (SDGs) by their 2030 deadline.

SUSPENDING THE DEBT

In the face of the SDG financing gap, we need to consider new options. A standstill on governments’ external debt repayments until 2030 could provide a solution. In Pakistan, it would free up an estimated \$108 billion, providing fiscal breathing room that would enable the country to focus on meeting the SDGs deadline. It would help lift people out of poverty; reduce maternal, newborn and child mortality, improve enrollment in schools; and improve climate resilience. Even a simple break on interest payments could help.

In September, countries around the world agreed to the United Nations’ ‘Pact for the Future’. This document contains important commitments on access to finance; effective action on debt; and substantially increasing the lending capacity of multilateral development banks. It also aims at accelerating global action on climate change by emphasizing cooperative efforts to achieve the SDGs and the Paris Agreement that aims to reduce global greenhouse gas emissions and adapt to climate change. The Pact for the Future provides a unique opportunity to align global priorities with the needs of vulnerable nations. It calls on mobilising resources comprehensively to galvanise progress towards achieving the SDGs in the six years we have left.

WHAT SOUTH ASIA CAN DO FOR ITSELF

While the world needs to continue pressing rich nations to deliver climate justice, it is time for South Asian countries to ask not only what the world can do for them, but also what they can do for themselves through collective action as a region.

Just last year, Bangladesh, India, Nepal, Pakistan, and Sri Lanka went through a record-breaking heatwave, causing widespread disruptions and casualties. Floods resulting from melting Himalayan glaciers also affected the region. Every year, climate change is increasing the frequency, duration, and intensity of extreme weather events. We still have in mind the devastating floods that hit Pakistan in 2022, affecting at least 33 million people. As UN Secretary

General António Guterres said at the time, the Pakistani people faced a monsoon on steroids — the relentless impact of epochal levels of rain and flooding. The climate catastrophe killed nearly 2,000 people with many more injured. Millions were left homeless, schools and health facilities were destroyed, livelihoods shattered, critical infrastructure wiped out, and people’s hopes and dreams washed away. Last year again, the monsoon season in South Asia caused severe flooding in Bangladesh, India, Nepal and Pakistan.

South Asia also needs to turn the tide of environmental degradation. Every winter, the toxic smog that chokes people in Lahore also envelopes New Delhi. People, including children, are forced to breathe the deadly polluted air unleashed by farmers burning agricultural waste, coal power plants, and exhaust gases. This year again, air pollution levels broke records on both sides of the border in November, with an unprecedented intensification of the subcontinent’s annual smog wave. The air pollution was even visible from space — Nasa satellite imaging showed a continuous cloud of smog stretching from eastern and northern Pakistan, to northwestern India.

The Air Quality Index (AQI) in Lahore was 12 times above the level the World Health Organization (WHO) considers satisfactory for breathing. On Nov 7 last year, readings showed that the city briefly became the most polluted in the world. Ten days later, it was New Delhi’s turn — with an AQI 15 times the level considered satisfactory for breathing, it also became one of the most polluted cities in the world. In both countries, toxic particles created a regional public health crisis. Many people on both sides of the borders were hospitalized after suffering respiratory conditions that could be life-threatening, and particularly affected young children.

Today, both countries must urgently work on reducing emissions from agricultural, industrial and transportation activities, and promote clean and renewable energies. The consequences of the climate and environmental challenges which South Asian nations face can only be lifted via cross-border collaboration. It is time for South Asian governments and the region’s private sector leaders to come together and accelerate efforts toward building climate resilience, transitioning to low-carbon economies, protecting and restoring the environment, and transforming food systems for a sustainable future.

INTERNATIONAL YEAR OF GLACIERS’ PRESERVATION

South Asian nations share environmental challenges; they also share environmental assets — natural resources and ecosystems that support human life and are essential for economic development. Think of the high peaks of South Asia, which stretch across several nations. They work as ‘water towers’ for the subcontinent and the rivers that flow downstream. The governments of these nations are custodians of the future of billions of people across the region. Their

Failure is not an option. South Asia must lead. The need is urgent and the time is short, but the rewards will be great. The United Nations will support Pakistan and South Asia every step of the way.

role is crucial if we do not want to find ourselves in an unknown range of climate impact in a few decades, where we could be looking at no ice left in the high mountains. Imagine South Asia without its glaciers! The only remaining source of water would be precipitations — mainly the rains which the monsoon brings, bearing in mind that its patterns have become increasingly unreliable over the past years. At the COP29 climate conference last year, discussions begun among South Asian mountain nations on building an alliance along the lines of the Small Island Developing States (SIDs). This will help them raise global awareness on the unique impacts which climate change inflicts on high mountains.

The United Nations General Assembly has proclaimed 2025 as the International Year of Glaciers’ Preservation to raise awareness on the vital role glaciers, snow, and ice play in the climate system and water cycle, as well as the far-reaching impacts of rapid glacial melt. This marks a crucial milestone in global efforts to protect these essential water towers that provide freshwater to over two billion people worldwide. Numerous activities and events during the year will seek to raise global awareness and inspire action in South Asia and around the world to address the urgent challenges posed by accelerated glacier melting.

The Government of Pakistan has established itself as an important voice in global climate diplomacy, having successfully advocated for the creation of a global climate ‘Loss and Damage Fund’ at the COP27 Climate Conference two years ago. This fund was created to respond to the loss and damage which affect climate-vulnerable developing countries. It is meant to cover both the economic and non-economic loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events. The Fund must now be fully funded and accessible to those it was set up to serve. As UN Secretary General António Guterres recently said, “Climate finance is not a hand-out. It is an investment against the devastation that unchecked climate chaos will inflict on us all.”

A ‘LIVING INDUS’

Pakistan can continue leading by working to foster regional collaboration to reduce the impact of environmental degradation and extreme weather events. It must also focus on the country’s environmental, economic and cultural backbone — the Indus River Basin. It has sustained life in the region for over 5,000 years, from the civilizations of Harappa and Mohenjo Daro, to the present day. Today, nine of Pakistan’s 10 biggest cities are located within its reach, and millions of lives and livelihoods depend on its waters. But the Indus Basin is facing devastating challenges due to unsustainable population growth, rapid urbanization and industrialization, environmental degradation, the unregulated utilization of resources, inefficient water use, and poverty, all of which are aggravated by climate change. If we cannot keep global warming under the 1.5°C limit, the troubling scenario of a total glacial melt may turn into reality in the next 40 years. Pakistan would be left to manage an Indus whose waters would only be fed by unpredictable monsoon rains. Whether we can preserve the source of all sustenance to Pakistan will determine the country’s fate.

This is why the Government of Pakistan has earned global praise for its ‘Living Indus’ initiative, which was selected as one of the world’s ‘Restoration Flagship’ programmes by the UN Environment Programme (UNEP) last year. This ambitious initiative, which the UN has supported from the start, aims at protecting and restoring the ecological health of the Indus River Basin. It includes 25 interventions aiming to reduce environmental degradation, improve climate change mitigation, accelerate climate action, and sustain livelihoods.

By prioritizing the Indus River System, the Government of Pakistan has sent a strong signal to the world. It has also sent a signal to the communities who live along its banks, and whom I have had the privilege of meeting during my first year in Pakistan. Those who live at the foot of the Himalayan glaciers that provide the water from which life and civilization have sprung. Those who cultivate fields in the vast plains which the Indus irrigates, turning sand into arable land, and creating livelihoods. Those who protect the mangroves of the Indus Delta, which provides people and marine life with oxygen.



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TRANSLATING POLICIES INTO CLIMATE RESILIENCE

UNDER the leadership of Prime Minister Shehbaz Sharif, the Ministry of Climate Change and Environmental Coordination is steadfast in steering Pakistan towards a climate-resilient future by integrating climate action across the nation’s most vulnerable sectors. With a focus on agriculture, water resources, low-carbon development, renewable energy, carbon markets, climate finance, green technology, urban infrastructure, and ecosystems, the ministry’s overarching goal is to mainstream climate change into Pakistan’s economic and social frameworks. This vision is intrinsically linked to sustainable development and green economic growth, aligning closely with the 5E framework of Pakistan’s Planning Commission: Exports, Equity, E-Pakistan, Environment and Energy. Additionally, initiatives like URAAN Pakistan exemplify strategic approaches to fostering innovation, resilience, and sustainable growth.

Despite contributing less than 1pc to global GHG emissions, Pakistan remains one of the most climate-vulnerable nations, experiencing devastating impacts from floods, heatwaves and droughts. These extreme weather events have taken a toll on agriculture, water resources and urban infrastructure.

Recognizing these vulnerabilities, the government has focused on implementing robust environmental policies, including the National Climate Change Policy (2021), Nationally Determined Contribution (NDC 2021), National Adaptation Plan (NAP 2023), and the Upscaled Green Pakistan Programme, among others. The revision of the Electric Vehicle (EV) Policy, the National Clean Air Policy (2023), and the Single-use Plastics Prohibition Regulations (2023) exemplify a focus on implementation to overcome historic challenges of policy execution.

Pakistan is a strong advocate of multilateralism and climate justice, guided by the principles of equity, Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC), and climate justice, as outlined in the United Nations Framework Convention on Climate Change (UNFCCC). On the global stage, Pakistan played a pivotal role in the establishment of the Loss and Damage Fund during COP-27 and COP-28, ensuring the concerns of climate-vulnerable nations are addressed. Support for the Vanuatu-led plea at the International Court of Justice (ICJ) further underscores Pakistan’s commitment to recognizing climate rights as fundamental human rights.

Domestically, the government took a landmark step by introducing Article 9A in 2024, enshrining the right to a clean and healthy environment as a constitutional guarantee. This move reflects Pakistan’s dedication to ensuring environmental justice and safeguarding the rights of future generations.

Pakistan is actively engaging with the Shanghai Cooperation Organization (SCO) on environmental initiatives. Key efforts include the SCO Environmental Protection Agreement and participation in the SCO Green Belt Programme (2024-2026), focusing on climate action, green development, and sustainable infrastructure under the SCO Green Agenda.

To enhance ecosystem preservation, Pakistan has joined the International Mangrove Center and signed the Mangrove Sustainability Initiative. The country has also strengthened its climate adaptation and mitigation measures through partnerships with global organizations, such as the International Rescue Committee (IRC), Global Green Growth Institute (GGGI), UNICEF, Aga Khan University, and Acumen Fund.

Pakistan has further demonstrated leadership in global climate governance by serving as vice-president of the Bureau of UN Climate Conference of Parties (COP), and actively participating in key UNFCCC committees, including the Warsaw International Mechanism for Loss and Damage (WIM ExCom) and the Supervisory Body under Article 6 of the Paris Agreement. Hosting the Asian Forum of Parliamentarians on Population and Development (AFPPD) resulted in the Islamabad Declaration, which emphasizes gender-responsive policies in climate action and the green economy.

The Government of Pakistan is translating its climate policies into action through impactful project interventions and mobilizing climate finance from domestic and international sources. The Ministry of Climate Change and Environmental Coordination has developed a comprehensive portfolio of projects that address both adaptation and mitigation priorities. Through the Public Sector Development Programme (PSDP), the government has initiated key climate-related projects aimed at building resilience and promoting

sustainability. These include initiatives focusing on water quality monitoring, urban climate resilience, ecosystem restoration under the Green Pakistan Programme, and regulatory measures for genetically modified organisms (GMOs).

On the international front, Pakistan has secured significant financing from the Green Climate Fund (GCF) for transformative projects such as Recharge Pakistan, Green BRT Karachi, and climate-resilient agriculture. Additionally, several projects are in the pipeline, seeking further funding to expand these efforts. Beyond the GCF, Pakistan has mobilized resources through the Global Environment Facility (GEF) and the Adaptation Fund, ensuring continuous support for climate adaptation and mitigation initiatives. Bilateral partnerships are also being pursued to enhance resource mobilization and support sustainable development goals. These concerted efforts reflect the government’s commitment to implementing climate action through tangible and impactful interventions.

The GCF-funded project, Transforming the Indus Basin with Climate Resilient Agriculture and Water Management, has made significant progress. By expanding climate-related early warning systems to 2.6 million hectares, training 47,286 farmers in climate-resilient agriculture, and raising awareness among five million rural residents through radio campaigns, the project has effectively enhanced resilience in Punjab and Sindh. Additionally, 307,359 individuals (31pc women) have benefited from climate-resilient livelihoods, showcasing impactful progress towards achieving its objectives.

The Upscaling of Green Pakistan Programme, initiated in 2016, has planted and regenerated 2.213 billion plants with an 80pc survival rate, established 109 Protected Areas, and created 1.42 million green jobs nationwide. Administered by the Ministry of Climate Change and Environmental Coordination with 50pc cost-sharing from provinces, the programme has gained international recognition from the World Economic Forum and UN Forestry Champion for Asia-Pacific. The revised phase (2024-28) focuses on biodiversity conservation, carbon financing (projected 148 Mt carbon credits), standardized forest assessments, and expanded public engagement, solidifying Pakistan’s

Pakistan’s commitment to combating climate change and advancing climate justice is evident through its comprehensive policies and institutional reforms. By prioritising sustainable development and equitable growth, Pakistan aims at mitigating the impacts of climate change, and ensuring that its most vulnerable communities are protected.

role in global climate action.

The National Adaptation Plan (NAP), finalized in August 2023, is being implemented by developing a series of projects targeting vulnerable sectors identified within the NAP. These projects focus on natural capital, urban sector development, agriculture, and Gender, Youth, and Social Inclusion, addressing critical areas such as livelihoods in hot and arid regions, forest services, urban green spaces, low-income housing, rainwater management, climate-smart agriculture, pesticide reduction, and plant genetic conservation.

The GLOF-II Project, led by the Ministry of Climate Change in collaboration with UNDP and funded by the Green Climate Fund (\$36.96 million), addresses the rising threat of Glacial Lake Outburst Floods (GLOFs) in northern Pakistan due to climate change. Covering 24 valleys across 18 districts in Gilgit-Baltistan and Khyber Pakhtunkhwa, the project enhances climate resilience through Early Warning Systems (293 installed), rehabilitation of 210 irrigation schemes, construction of 355 gabion walls, stabilization of 692 hectares of slopes, and establishment of 31 safe havens. It also promotes community engagement via 978 sensitization sessions, disaster management centers, and demonstrations of indigenous practices, benefitting over 696,000 people equally across genders.

Steps are being taken to implement the National Hazardous Waste Management Policy, 2022, which ensures the Environmentally Sound Management of hazardous waste in Pakistan. The policy focuses on reducing waste generation, improving infrastructure, governance, and public-private partnerships. An action plan has been developed, with most actions assigned to provincial governments, reflecting the devolved nature of environmental management.

The Single-Use Plastics (Prohibition) Regulations, 2023 are being implemented at the federal level by the Ministry of Climate Change & Environmental Coordination. Phase-wise bans target plastic bags, cutlery, and crockery within two years, and by July 2028, single-use beverage containers must include 50pc recycled plastic. Enforcement teams conducted 1,500 inspections, confiscating 3,300 kg of polyethylene bags and issuing 281 challans with fines totaling Rs3.1 million. Public awareness campaigns and school initiatives emphasize reducing plastic pollution and promoting sustainable alternatives.

In a landmark initiative, Pakistan unveiled its first-ever National Carbon Market Policy in December 2024, marking a significant milestone in the country’s commitment to combating climate change. This forward-looking policy is a testament to Pakistan’s dedication to the objectives of the Paris Agreement and serves as a strategic foundation for transitioning to a low-carbon, climate-resilient economy.

Pakistan is making concerted efforts to mobilize both public and private finance, including international climate finance, through key initiatives such as the National Climate Finance Strategy, Green Taxonomy, and Carbon Markets Policy. These initiatives aim to attract and leverage financial resources. To bolster national climate governance, the government has established the Pakistan Climate Change Authority, enabling a more coordinated approach to addressing climate challenges. Other institutional advancements include the appointment of an Executive Director for the Global Change Impact Study Centre (GCISC) and the creation of a dedicated Climate Finance Wing in the Ministry to enhance resource mobilization.

The government has demonstrated its commitment to international climate agreements through significant actions such as compliance with the Montreal Protocol, achieving a 67.5pc reduction in Hydrochlorofluorocarbons (HCFCs) by January 2025. Additionally, the submission of the Biennial Transparency Report (BTR) to the UNFCCC Secretariat in December 2024 underscores its dedication to transparent reporting. The government has also revised its Land Degradation Neutrality (LDN) targets, aligning them with the Kunming-Montreal Global Biodiversity Framework (GBF).

Pakistan’s commitment to combating climate change and advancing climate justice is evident through its comprehensive policies, global leadership, and institutional reforms. By prioritizing sustainable development and equitable growth, Pakistan aims to not only mitigate the impacts of climate change but also ensure that its most vulnerable communities are protected. The government’s efforts reflect an unwavering resolve to secure a sustainable and resilient future for present and future generations.

The writer is Coordinator to Prime Minister on Climate Change & Environmental Coordination.



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FIGHTING OFF SMOG

THE looming threat of smog has cast a long shadow over Punjab for the last about six years, particularly during winter months. As temperatures drop, cities like Lahore find themselves enveloped in a thick blanket of pollution, with the Air Quality Index (AQI) frequently soaring to alarming levels. Recognizing the urgency and gravity of the situation, the government of Punjab has taken a proactive and multi-faceted sectoral approach to fight off smog, and to improve air quality, setting an example for environmental governance in the region.

Led by Chief Minster Maryam Nawaz, Punjab envisions a clean, green and climate-resilient province which prioritises environmental protection as well as climate change mitigation and adaptation.

This vision is driven by a mission focused on several key pillars. First, sustainable development is paramount, balancing economic progress with environmental health to ensure a thriving future for generations to come. Second, proactive measures are emphasized, anticipating and preventing environmental challenges rather than simply reacting to crises. Third, citizen engagement is crucial, empowering individuals to actively participate in environmental protection through awareness campaigns, education, and accessible reporting systems. Fourth, technological advancement is key, leveraging technology to monitor pollution, enforce regulations, and develop innovative solutions. Fifth, strong inter-departmental coordination is essential for a cohesive and effective approach to environmental management. Finally, continuous improvement is a priority, regularly reviewing and updating policies and strategies based on the latest scientific understanding and best practices.

Punjab's fight against smog is built upon a foundation of robust policies. The government has developed and implemented comprehensive policy frameworks, such as the CM Climate Resilient Punjab Vision and Clean Air and Smog Mitigation Action Plan 2024. The Punjab Clean Air Policy and Action Plan 2023 provided a targeted strategy for reducing emissions from key sectors, while promoting sustainable development practices. To address critical pollution events, the Health Advisory System for Critical Air Pollution Events (HAS-CAPEs) 2022 provided a technical mechanism for identifying pollution spikes, issuing timely health advisories, and implementing emergency measures to safeguard public health. Further strengthening the regulatory framework, the Smog Control and Prevention Rules 2023 and the Smog Mitigation and Action Plan 2024 define clear procedures, new interventions and actions to curb emissions across various sectors.

The provincial Environmental Protection Agency (EPA) is playing a crucial role in enforcing these policies and ensuring compliance



with environmental laws. Industries and brick kilns, major contributors to air pollution, are being digitally mapped for the first time, and regularly inspected to monitor emissions and enforce compliance. Industries are required to install modern emission control systems (ECS) to minimize their environmental impact. Specialized squads have been deployed to suppress fugitive dust on construction sites, a significant contributor to smog, particularly in urban areas. To further bolster enforcement efforts, a new Environment Protection Force is being launched.

Under the government's zero-tolerance policy, the EPA has demolished over 1,500 industrial units operating in violation of environmental laws, sending a strong message to all concerned. Over 1,605 units have been sealed for breaching environmental standards, and 2,667 first information reports (FIRs) have been lodged against those responsible for polluting the environment. These stringent enforcement actions, coupled with the imposition of a cumulative fine exceeding Rs200 million, underscore the EPA's determination to hold polluters accountable and protect the environment and public health.

Further, the government has imposed a ban on single-use plastics and polythene bags thinner than 75 microns. As part of a province-wide crackdown, 73 tonnes of banned plastic materials have been confiscated, and 25 FIRs have been filed against the violators. In addition, a fine of Rs2.8 million has been levied.

The Punjab government is fostering an environment conducive to the development of green business. Beyond enforcement, the

wgovernment is investing in institutional capacity-building and promoting green investments to ensure sustainable improvements in air quality. The EPA has been upgraded and restructured to enhance its monitoring, enforcement, and response capabilities. A centralised Smog War Room has been established to enable real-time monitoring of pollution levels, coordinate smog mitigation activities, and facilitate swift decision-making during critical pollution events.

Recognizing the power of technology, the government is monitoring pollution sources, analyzing data, and engaging people in smog mitigation efforts. Another flagship initiative is the Green Punjab App that empowers people to report black smoke emissions, illegal dumping, and other environmental hazards directly to the authorities. A dedicated Smog Helpline (1373) provides another avenue for the public to register pollution-related complaints and to seek information. Industries are digitally mapped and monitored through the Eco-Watch App, enhancing transparency and accountability. Mobile monitoring units equipped with cameras and drones are deployed to detect and address pollution hotspots in real-time, providing valuable data for targeted interventions. To improve air quality monitoring, 30 new Air Quality Monitoring Systems have been installed across Punjab.

The government is actively educating citizens about the causes and consequences of smog, emphasizing individual and collective responsibility in mitigating this environmental challenge. Daily updates on social media platforms and public awareness initiatives keep

the public informed about air quality levels and provide guidance on protective measures. Educational resources, such as the 'ABC of Climate' book and climate-focused short stories aim at instilling environmental consciousness in younger generations. The publication of the State of Environment Report, which assesses air, water and soil quality, provides critical insights to both policymakers and the public. People are actively encouraged to adopt environment-friendly practices.

Punjab is implementing innovative solutions and targeted interventions to address specific sources of pollution and achieve tangible improvements in air quality. For the first time, Mist Sprinkler Systems have been made mandatory for construction sites to suppress fugitive dust. Research by the EPA Lab indicates a 41.25pc reduction in Particulate Matter in Punjab, demonstrating the effectiveness of these interventions.

The government is distributing 5,000 subsidized Happy Seeders to farmers to address stubble burning, a major cause of winter smog. These machines allow farmers to sow crops directly into the soil without the need to burn crop residue. In areas with severe AQI levels, the government is implementing Green Lockdowns, restricting vehicular movement and industrial activities to curb pollution and protect public health.

Recognizing the importance of engaging youth in environmental action, the CM Climate Leadership Programme provides 2,000 paid internships to graduates, fostering environmental leadership and building capacity for future generations. These internships provide valuable experience in environmental management, research, and advocacy.

The government's proactive and multi-pronged approach to combating smog and air pollution reflects a strong commitment to environmental stewardship and public health, driven by the leadership's vision of a clean and green Punjab. This vision emphasizes not only the immediate need to address pressing environmental challenges, like smog, but also the long-term goal of creating a sustainable and healthy environment for all.

By implementing strong policies, enforcing regulations, embracing technological innovations, fostering public awareness, and investing in green initiatives, Punjab is making significant strides in realizing this vision and tackling the environmental crisis. While challenges remain, these efforts offer hope for cleaner air and a healthier future for the people of Punjab.

If sustained and strengthened, Punjab's initiatives have the potential to serve as a model for air quality management in the region, demonstrating that collective action and proactive governance can overcome even the most formidable environmental challenges and pave the way for a truly clean and green Punjab.

1The writer is Punjab Senior Minister.

ONLY A DATA DRIVEN APPROACH WILL PROVIDE THE CLARITY THAT IS REQUIRED TO MAKE THE TARGETED INTERVENTIONS NECESSARY TO BUILD CLIMATE RESILIENCE IN PAKISTAN, ARGUES ABDUL SATTAR BABAR.

CRITICALITY OF RESEARCH DATA

CLIMATE change is no longer a distant threat; it is a reality reshaping lives, economies and ecosystems at an unprecedented pace. Beyond the buzzword, climate change is a long-term change in temperature and weather patterns due to both natural and human activities. Over the course of years, climate change is intensifying vulnerabilities worldwide. From rising sea levels to devastating wildfires and extreme weather events, the impacts are cascading, disrupting food and economic security, water availability, and public health. For Pakistan, the stakes are even higher, with Pakistanis being most affected and most concerned about climate change. According to Ipsos Global Trends (IGT) 2024, Pakistan is ranked among the top five countries most vulnerable to climate change.

For decades now, Pakistan has been caught in a relentless cycle of floods, heatwaves and glacial melt. These challenges compound existing socioeconomic problems, exacerbating poverty, displacing communities, and creating long-term economic instability. To face these challenges head-on, understanding the root causes and impacts is essential, much like any essential diagnostic for treating illnesses. Data — reliable, actionable, and comprehensive — can serve as that one essential tool in this fight. By shedding light on who contributes to climate change and who suffers the most, data helps policymakers, businesses and communities take informed, targeted actions. The fight against climate change is not just about measurement, it is about enabling meaningful action.

In today's world, data is not just a collection of numbers; it is the lifeblood of decision-making. In the context of climate action, data provides the foundation for prioritising interventions, crafting policies, and evaluating their impact. Whether tracking carbon emissions, gauging public attitudes, or analysing the effectiveness of renewable energy programmes, data offers the clarity needed to address complex issues. Data-driven insights have already reshaped how global and national agencies approach climate challenges. The UNFCCC uses extensive datasets to assess global emission trends and monitor compliance with international agreements like the Paris Accord.

In Pakistan, reports from the Ministry of Climate Change (MoCC) and the National Disaster Management Authority (NDMA) highlight how climate data informs flood risk assessments and emergency preparedness strategies. These datasets enable targeted interventions that save lives and reduce economic losses, and fight climate change. By grounding decisions in robust evidence, data not only clarifies the present landscape but also illuminates the path forward toward a sustainable and climate-resilient future.

Globally, the urgency to combat climate change has never been greater. Countries are adopting aggressive strategies to transition to renewable energy, reduce emissions, and promote sustainable consumption. EVs, for instance, have become a cornerstone of global efforts to decarbonize transportation. Interestingly, IGT report reveals

that Pakistan stands out in its enthusiasm for EV adoption, signalling a unique opportunity to align government policies and private sector initiatives to meet this demand. This enthusiasm reflects a broader trend: Pakistanis are aware of environmental challenges, willing to act, and ready to embrace climate-sustainable practices. However, systemic support is crucial to turning these intentions into impactful actions.

Considering Pakistanis' concern about climate change — highlighted by an Ipsos study indicating that more than half of the population perceives it as a serious concern — meaningful actions at all levels become critical to translating this awareness into sustained and effective outcomes. Now, more than ever, comprehensive systemic support is needed to capitalize on this momentum and address the urgent challenges posed by climate change.

For making such systemic policy adjustments and crafting effective strategies to mitigate climate change in Pakistan, it is critical to first understand where Pakistanis stand in their fight against climate change, their population dynamics, behavioral tendencies, and public perceptions. A study identified distinct segments among Pakistanis based on their level of concern for the environment and their willingness to act or intention to reduce their environmental impact. The survey population was divided into five key groups:

Activists (12%): These individuals are the torchbearers of change. Predominantly urbanites, women, and adults aged 36-45, the activists are highly motivated individuals who willingly pay a premium for sustainable products. They actively refuse to support companies that neglect sustainability and make personal sacrifices to accelerate change.

Pragmatists (22%): This group consists of educated individuals who take practical, meaningful actions, such as recycling and using energy-efficient appliances. While they are supportive of sustainability efforts, their focus remains on manageable, home-based solutions.

Conflicted Contributors (25%): Economic pressures shape this group, predominantly men and young adults aged 26-35. Although they recognize the urgency of climate issues, financial constraints limit their ability to make significant lifestyle changes. They are open to small compromises, such as reducing energy consumption and limiting single-use plastics.

Busy Bystanders (13%): Sceptical about the severity of climate change, this group, characterized by business owners, and landlords aged 45-55 and less-educated individuals, prioritizes economic growth over environmental concerns. While they express nominal support for ethical consumption, their actions often fall short of meaningful engagement.

Designated Denialists (28%): Believing that climate change is exaggerated or the government's sole responsibility, this group — predominantly males, skilled labourers aged 26-35 — shows minimal involvement in sustainability efforts.

Understanding these segments provides actionable insights for

crafting targeted engagement strategies. Activists, with their passion and proactive mindset, can serve as catalysts for broader societal change by leading awareness campaigns and championing eco-friendly practices. Empowering them with platforms and tools to influence their communities can amplify their impact. Pragmatists, with their focus on practical solutions, can be engaged through incentives such as subsidies for energy-efficient appliances and access to green technologies, turning their homes into models of sustainable living.

For Conflicted Contributors, addressing economic barriers is key — programmes offering affordable sustainable alternatives and showcasing cost-saving benefits can motivate incremental shifts in behaviour. Busy Bystanders can be approached by reframing climate resilience as an opportunity for financial stability and job creation, aligning their priorities with sustainability goals. Finally, Designated Denialists can be drawn into the conversation through relatable, tangible benefits, like improved health and reduced living costs.

The journey toward climate resilience begins with individual actions, as individuals are both the most affected by and contributors to climate change. Individuals can adopt practical and impactful measures to mitigate climate change, like taking part in tree-planting drives and advocate for preserving green spaces to directly combat carbon emissions. People can use energy-efficient appliances, low-energy lightbulbs, and solar solutions while adopting water-saving practices, like fixing leaks. Proper waste segregation can be a big help, alongside avoiding single-use plastics, and focussing on reusing and recycling materials. Sustainable lifestyles, including sustainable mobility, and volunteerism related to environmental initiatives are also among the essentials.

Beyond individual actions, the fight against climate change requires a collective effort, with clearly defined roles for all stakeholders, including government officials and functionaries, private-sector corporate social responsibility (CSR) initiatives, non-governmental organisations (NGOs) as well as the mainstream media.

Climate resilience is not just a choice; it is a collective responsibility and an urgent imperative. For Pakistan, the journey begins with recognising the challenges we face and leveraging data-driven insights as the foundation for meaningful change. Starting by leveraging data as a tool for tailored impactful action and by fostering collaboration among stakeholders, empowering communities, and prioritizing informed, decisive action, Pakistan can transform its vulnerabilities into strengths. This is not merely about addressing the immediate threats, but about building a sustainable and resilient future for generations to come.

By such united efforts, we can mitigate the impacts of climate change, and also create a thriving, climate-resilient Pakistan that serves as a beacon of hope and progress for the world.

The writer is CEO and MD of IPSOS in Pakistan.



“

Our Vision is Clear

A Climate-Resilient,
and Smog-less
Punjab! ”

The Chief Minister Punjab

We are taking a holistic approach to managing
CLIMATE RESILIENCE IN PUNJAB
focusing on three key dimensions:
Adaptation, Mitigation, and Cross-Cutting actions.

Adaptation		Mitigation		Cross-Cutting	
Action to bear the climate shocks		Actions to reduce the GHG emissions		Adaptation & Mitigation synergies	
Water Resources	Biodiversity & Ecosystems	Energy	Industry	Forestry & Green Spaces	Climate-integrated Planning
Climate-induced Disaster Management	Health & Climate Justice	Transport	Waste & Wastewater	Agriculture & Livestock	Climate Financing



We have taken a proactive sector-wise approach to manage air pollution:
**EARLY PLANNING, STRICT ENFORCEMENT,
AND TARGETED MEASURES TO SLASH AQI LEVELS.**

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- Provision of 8200 E-bikes to the eligible students
- Fuel Quality Inspection
- Establishment of VICS stations & ensuring compliance
- Deployment of Portable Automobile Emission Analyzers
- Establishment of charging stations & parking depots
- Initiation of buy-back policy

- Establishment of a network of Air Quality Monitoring Stations
- Realtime Surveillance of Industries through CCTVs & Drones
- Fog Cannon for Dust Mitigation
- Green Punjab and Eco Watch Android App & Smog Helpline
- Camera-Mounted Mobile Monitoring unit
- Source Apportionment Study
- Smog Tower: Symbolic Commitment

DATA & TECHNOLOGY

- Provision of 5,000 Super Seeders on 60% Subsidy
- Crop Residue Management Initiatives

AGRICULTURE

- Zero Tolerance Policy on Single-Use Plastics
- Anti-Single-use Plastic Campaign and a Ban on Single-use Plastics across Punjab
- Establishment of Plastic Management Cell
- Establishment of Material Recovery Facilities and Landfills in Punjab

WASTE

- Mandatory Mist Systems for Dust Suppression in Construction Sector
- E-Mapping and tagging of Brick Kilns in Punjab
- Conversion of Brick Kilns to Zig Zag Technologies
- E-Mapping of industries for credible data
- Crackdown against Tire Pyrolysis Plants and polluting industries
- Strict enforcement in industries for installation of Emission Control Systems
- Loans and credit programs for SMEs industries

INDUSTRY

- Green Credit Program
- Punjab Smog & Climate Observatory
- Environmental Monitoring Center (Green Building)
- Environmental Policy and Technology Center
- Environmental Protection Force & Anti-Smog Squads
- Smog war room
- Restructuring of EPD & EPA

INSTITUTIONAL AND GOVERNANCE

ENERGY

- CM Solarization Program
- Solarization of 36 DHQ Hospitals and public institutes in Punjab
- Establishment of biogas plants
- Solarization of 400 Small Industrial Units up

- CM Punjab Climate Leadership Development Internship Program
- Integration of smog awareness into curriculum.
- Massive awareness and engagement campaign
- Dharti Ma Play and Detox Campaign

EDUCATION & AWARENESS



URBAN PLANNING

- CM Punjab SDG Program
- CM's Plant for Punjab initiative
- Green Master Plan of Lahore
- Land use plans of all districts of Punjab
- Agroforestry and Sustainable Farming

ABAN MARKER KABRAJI HIGHLIGHTS THE REASONS WHY THE LIVING INDUS PROGRAMME CAN SERVE AS A MODEL FOR GLOBAL EFFORTS TO RESTORE ECOSYSTEMS AND COMBAT CLIMATE CHANGE.



THE INDUS BASIN

A MODEL FOR GLOBAL ACTION

THE Government of Pakistan has made a landmark commitment to restoring the ecological health of the Indus Basin through its groundbreaking initiative, the Living Indus Programme. With the Indus River at the heart of Pakistan’s economy, ecology, and culture, this ambitious programme aims at securing the future of the country’s most vital water resource, addressing the mounting environmental challenges that threaten its survival. In collaboration with the United Nations, Pakistan has taken the helm in reviving one of the world’s most crucial river systems, ensuring sustainable water usage, climate resilience and ecosystem restoration. This effort is not just a national priority, but a model for global environmental restoration efforts.

THE INDUS BASIN CRISIS

The Indus River, which sustains approximately 90pc of Pakistan’s population and irrigates over 80pc of its arable land, is facing an unprecedented crisis. Over-extraction, pollution, climate change, urbanization, and population growth are straining the river and its basin. The once-thriving ecosystem, vital for agriculture and the livelihoods of millions, is in danger of irreversible degradation. With climate change exacerbating water scarcity, biodiversity loss and pollution, the need for an immediate intervention has never been more urgent.

Pakistan is at the forefront of addressing this environmental crisis through the Living Indus Programme, a comprehensive and innovative initiative focussed on reversing the damage to the Indus Basin and ensuring its sustainability for generations to come. Through this programme, the government is demonstrating a commitment to environmental restoration that goes beyond national borders, aligning with global frameworks and creating a path for international cooperation in climate action.

A COMPREHENSIVE APPROACH

The Living Indus Programme integrates 25 community-driven, green interventions aimed at tackling the interconnected issues of climate change, water scarcity, biodiversity loss, and pollution. These interventions encompass a wide array of nature-based solutions, global best practices, and locally adaptable strategies that aim at restoring the health of the Indus Basin, while enhancing its resilience to future environmental threats. With these interventions, the government is setting a global standard for innovative and sustainable environmental solutions.

Recognizing its significance, the United Nations Environment Assembly (UNEA) officially recognized the Living Indus Programme as a World Restoration Flagship in February 2024. This prestigious recognition places Pakistan at the global forefront of environmental restoration, signalling the nation’s leadership in the fight against climate change and its commitment to achieving the United Nations Sustainable Development Goals (SDGs).

GOVERNANCE AND STAKEHOLDER ENGAGEMENT

A key feature of the Living Indus Programme is its emphasis on strong governance and multi-sectoral collaboration. The government, through the Ministry of Climate Change and Environmental Coordination (MoCC&EC), has created a dynamic framework for the successful implementation of the programme’s interventions. This includes a strategic focus on engaging all relevant stakeholders — provincial governments, civil society organizations, the private sector, and international partners — in the design and implementation of interventions. Through extensive consultations and workshops, a comprehensive “living menu” of actions has been developed, incorporating input from diverse stakeholders to ensure that the programme’s goals reflect Pakistan’s national priorities and address the specific challenges faced by different regions of the country. This participatory approach is helping to build ownership and support for the programme at all levels of government and across society. As a result of this collaborative effort, the government has identified eight priority interventions that focus on climate resilience, sustainable water use, pollution control, reforestation, and community-driven conservation. These initiatives are seen as urgent priorities for the government, and detailed implementation plans are currently under development, ensuring that these interventions will be rolled out in the coming months and years.

SINDH, PUNJAB LEAD THE WAY

In Pakistan, environmental challenges and opportunities vary significantly across provinces, and the Living Indus Programme recognizes the need for tailored, localized solutions. In Sindh and Punjab, two of the most important provinces in the Indus Basin, efforts have been underway to align their respective Annual Development Programmes (ADPs) with the objectives of the Living Indus Programme.

In Sindh, the provincial government has mapped out key projects within the Agriculture, Irrigation, and Forest departments that can integrate Living Indus priorities, such as climate-resilient agriculture, wetland restoration, afforestation, and sustainable urban development. Similarly, Punjab has undertaken a comprehensive review of its water resource management, pollution control, and land restoration projects to ensure that these efforts align with the programme’s objectives.

This alignment of provincial development strategies with the national Living Indus framework represents a model of intergovernmental collaboration that can drive sustainable development while enhancing the resilience of ecosystems across Pakistan.

One of the greatest threats to the health of the Indus Basin is pollution, which is severely degrading water quality and biodiversity. The Living Indus Programme places a strong emphasis on pollution mitigation through initiatives such as the Integrated Solid Waste Management (ISWM) policy for Sahiwal. By promoting community-driven waste management practices, such as waste segregation, recycling, and safe disposal, the programme aims to reduce pollution levels while creating economic opportunities for local communities.

The programme has also undertaken a comprehensive plastic waste assessment, analysing Pakistan’s capacity to manage plastic pollution. This assessment will serve as the foundation for the development of a National Circular Economy Policy, which will help Pakistan transition towards more sustainable and resource-efficient practices at the national level. Through these initiatives, Pakistan is taking significant steps towards reducing its environmental footprint and moving towards a circular economy model.

KNOWLEDGE AND DATA CENTRALIZATION

To ensure that the Living Indus Programme is driven by sound data and research, the government has launched a comprehensive knowledge platform, www.livingindus.com, which will soon transition to www.livingindus.org.pk. This digital platform will serve as a one-stop resource hub for researchers, policymakers, and the public, providing access

to key data, research publications, case studies, and real-time progress updates on the programme’s interventions.

The platform will feature GIS-based mapping tools, which will track restoration sites, biodiversity trends, and climate indicators across the Indus Basin. Additionally, it will include interactive dashboards to monitor the progress of interventions and multimedia resources to raise awareness about the importance of environmental restoration and climate resilience. This centralized data repository is crucial for making informed decisions, guiding policy formulation, and engaging communities in Pakistan’s efforts to combat climate change and environmental degradation.

GLOBAL AWARENESS AND SUPPORT

In addition to its digital platform, the Living Indus Programme has leveraged the power of social media to engage stakeholders and raise awareness about the importance of restoring the Indus Basin. By maintaining an active presence on platforms such as Twitter, Facebook, LinkedIn, and YouTube, the programme reaches a wide audience, including policymakers, academics, civil society, and the general public.

Through social media campaigns, the programme promotes its objectives, mobilizes support from international donors, and encourages collaboration between governments, businesses, and local communities. Partnerships with global financial institutions and UN agencies are helping to bring in much-needed investment and resources for Pakistan’s climate resilience efforts, ensuring that the Living Indus Programme receives the attention and support it deserves on the international stage.

SECURING SUSTAINABLE FUNDING

Securing sustainable funding for the Living Indus Programme is essential for its long-term success. The government has set ambitious targets to raise \$11-17 billion over the next 10-15 years to support the programme’s interventions in governance, ecosystem restoration, climate resilience, and community development. To achieve this, Pakistan is exploring diverse funding sources, including climate finance mechanisms, international financial institutions, and corporate social responsibility (CSR) initiatives.

Key international organizations, such as the Green Climate Fund (GCF), the World Bank, and the Asian Development Bank (ADB), are being engaged to secure long-term financial support. Additionally, Pakistan is exploring innovative financial tools such as green and blue bonds, debt-for-nature swaps, and carbon trading to ensure that the programme is financially sustainable and able to deliver lasting impact.

NATIONAL AND GLOBAL GOALS

The Living Indus Programme is fully aligned with Pakistan’s National Adaptation Plan (NAP), which focuses on building resilience to climate change through sustainable water use, reforestation, pollution control, and biodiversity conservation. By integrating these actions into the programme’s framework, the government is ensuring that the Living Indus Programme supports the country’s broader climate goals and aligns with global climate action commitments.

This alignment is key to ensuring that Pakistan’s climate resilience efforts are coherent and impactful, enabling the nation to address the challenges posed by climate change while safeguarding the ecological integrity of the Indus Basin.

A CALL FOR COLLECTIVE ACTION

The Living Indus Programme is a testament to Pakistan’s leadership in environmental restoration and climate resilience. Through this initiative, the government is not only addressing the urgent environmental challenges of the Indus Basin but also providing a model for global efforts to combat climate change and restore ecosystems. By fostering collaboration among stakeholders, mobilizing financial resources, and leveraging global expertise, the programme aims to create a resilient, sustainable future for the Indus Basin and its people.

The Living Indus Programme serves as a powerful call to action for Pakistan and other vulnerable nations to protect critical water resources and safeguard ecosystems for future generations. Through innovation, collaboration, and a commitment to sustainable development, the Government of Pakistan is ensuring that the Indus Basin will continue to support the people of Pakistan for generations to come.

The writer is Senior Advisor on Climate Change and Biodiversity to the UNDCO in the Asia Pacific.

The UNEA has officially recognised the Living Indus Programme as a World Restoration Flagship, placing Pakistan at the global forefront of environmental restoration, signalling the nation’s leadership in the fight against climate change.



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FROM PAKISTAN FOR PAKISTAN

SMOOTH HYDRATION



CARBONATED & STILL BOTTLE ALSO AVAILABLE IN GLASS NATIONWIDE



PAKISTAN MUST DEVELOP A BOLD AND PROACTIVE POLITICAL CONSENSUS IF IT IS TO SUSTAIN AND DELIVER THE TRANSFORMATIVE CHANGES DEMANDED BY THE CLIMATE CRISIS, ARGUES AISHA KHAN

As the world moves on its collision course with nature, humankind is about to witness a period like none other in the history of its existence. Standing at the crossroads of survival and extinction, humanity faces its darkest dilemma. Should it continue to exploit, degrade and destroy nature in its quest for development and perish in the process, or should it seize this moment to make a new pact with the future to live in peace, harmony, justice and equity to ensure the survival of the human race?

Climate Stabilization: The fire lighted by Homo sapiens 300,000 years ago has moved from the hearth to the atmosphere with large scale combustion of coal, oil and natural gas now threatening the climatic regime that supports life on earth. To keep the planet livable, countries must deliver on 40pc GHG emissions cut in their NDCs by 2030 and achieve the goal of net zero emissions by 2050. Anything short of that will jeopardize the delicate planetary balance and unleash chaos and catastrophe at a scale never witnessed before by humanity.

Historical Context: Fifty-two years ago, the Stockholm Convention recognized the threat of chemicals that remain in the environment long enough to get widely distributed geographically with harmful effect on human and wildlife. Two decades later, world leaders gathered at the Earth Summit in Rio in 1992 to discuss the interlinked challenges of climate change, land and biodiversity, resulting in three separate global agreements; the Convention on Biological Diversity (CBD), the United Nations Framework Convention on Climate Change (UNFCCC), and the United Nations Convention to Combat Desertification (UNCCD). The concept behind these agreements was to ensure that action on land, climate and biodiversity always work together to restore the Earth's balance with nature.



future can trigger turf wars between host and migrant communities over scarce resources.

Health, Poverty And Productivity: With 40pc rate of stunting, 18 million facing acute food security and 40pc living below the poverty line, the climate challenge in Pakistan is fast becoming a threat multiplier, pushing millions deeper into an intergenerational poverty trap. The impact of heat, disease, and reduced employment opportunity will lower productivity and increase poverty by 8.4pc by 2050 under a pessimistic scenario.

Science, Technology And Innovation: Living in a world driven by technology that uses science for informed decision-making and innovation to open new frontiers, Pakistan's laggard pace has made it fall behind in the race. As the world embarks on a new age of machine learning for scaling economies, late-comer countries will lose the competitive edge to remain relevant in the job market.

Population, Human Capital And Gender: The benefits of the direct correlation between population size, human capital and role of gender in society have not been optimized by Pakistan. Its resilience to climate change is challenged by demographic pressure, low investment in human capital and limited access and opportunity for women in society.

Governance, Capacity And Resources: The institutional arrangement in Pakistan after the 18th Amendment to the Constitution has devolved powers to the provinces. However, the climate governance mechanism for coordination remains nebulous and weak, hindering progress. Beyond capacity, finance and improved coordination, the provinces also need support to develop Provincially Determined Contributions (PDCs) with GHG inventories and mitigation plans to help Pakistan meet its NDC 3.0 targets.

Legislative And Judicial Oversight: Climate change is now recognized as a human rights issue that requires a more proactive role by

AT THE TIPPING POINT

The main objective of the UNFCCC multilateral environmental agreement was “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.” The 1997 Kyoto Protocol and the Paris Agreement built on the convention. The Conference of Parties (COP) convened under the UNFCCC serves as the supreme decision-making body of the climate change process with the UN Environment Programme (UNEP) at the core of climate action, and the Intergovernmental Panel on Climate Change (IPCC) as the most important source of scientific, technical and socioeconomic information on climate change for UNFCCC.

COP Negotiations: The year 2024 was a triple COP year that provided the world with a unique opportunity for galvanizing global action to control the climate crisis. However, all three COPs fell short of expectation and failed to build critical momentum to address the triple planetary crisis. COP29 (UNFCCC) held in Baku, Azerbaijan, was unable to get a \$1.3 trillion commitment for the New Collective Quantified Goal to meet the demands of developing nations. The \$300bn agreement left participants dissatisfied with the outcome and disillusioned with the multilateral system.

COP16, (UNCCD) held in Riyadh, Saudi Arabia, could not bring all negotiators to agree on its proposal of creating the first legally binding treaty for action on drought, land degradation and desertification. Ending in disappointment, COP16 (CBD) held in Cali, Colombia, failed to meet finance agreement, with developed countries lagging behind on their commitment to provide \$20 billion annually in international biodiversity financing by 2025.

According to the IPCC, without stricter policies, the world is on track for a temperature rise between 2.1°C and 3.6°C by 2050. The dire consequences can result in sea level rise of up to 100cm, a nine-fold increase in drought frequency, and 30pc increase in extreme weather events.

Tackling Climate Challenges: As we enter the era of shock and distress, with more than half the global population struggling to cope with a crisis that is not of their making, it is time to accept disorder as the new order. It is also time to read the writing on the wall and recognize that when survival is at stake, self-preservation takes precedence over morality. The global order that held for the first 30 years after the Cold War is fraying, sending political shockwaves across continents. Every nation will feel the heat of change and the need to realign with the emerging political demands of domestic and foreign policy imperatives.

From Global To Local: Living in an economically connected world makes it impossible to divorce country circumstance from developments in other parts of the world. The last year saw scores of elections with majority results showing rejection for incumbency and a vote for change. The preference for right-wing politicians selling exclusive narratives with inward focus, signals the beginning of a new era in politics. Pakistan, too, will need to reconfigure its strategy to cope with the new disorderly order. As a country with a large population, stark disparities in income, a bulging youth cohort, shrinking resources, a struggling economy, heavy debt burdens and high on the vulnerability index, Pakistan will have to quickly reach a safe level of macro fiscal stability to cope with climate shocks.

National Circumstance: Pakistan is a signatory to the Paris Agreement and therefore bound by the terms and conditions of the treaty. It is also a low-emitter country that is routinely high on the vulnerability index. While some

vulnerabilities can be attributed to factors other than climate change, the fact that global warming is aggravating and accelerating the crisis is irrefutable.

Currently, Pakistan is going through one of the most turbulent periods in its history. The new trend of populism in politics is deepening political divide and polarizing society along radical lines, making the country brittle, the populace angry, and governance difficult. The downward trajectory of the economy is adding to the volatile mix with climate change compounding the crisis at all levels. As a non-traditional threat climate change hits at the very heart of human security shaking the foundation on which life is built. Addressing this challenge will require a complete review of the governance approach and resetting the agenda to address priority issues.

Water Availability: Water remains the fundamental building block for resilience. It poses the gravest risk to human and national security in Pakistan. Straddling a strategic geographical location places the country in an arc of vulnerability. The topographic range that stretches from the cryosphere to the coast makes the task of coping with climate more challenging. Living in a conflicted neighborhood as a lower riparian with a single river system that draws its water from transboundary snow and ice melt, and relies on irrigated agriculture further compounds the problem.

The Himalaya, Karakoram and Hindukush mountains are a common source of water for five countries in South Asia (Bhutan, Nepal, India, Pakistan and Afghanistan). Climate-triggered disruption in the cyclic flow of river waters can result in disaster; with too much resulting in floods, and too little causing drought.

Cryosphere Balance: The cryosphere provides melt water for over two billion people who depend on glacier-fed rivers for water, agriculture and hydropower. Its global impact extends beyond mountain and polar regions to sea level rise. The Third Pole glaciers cover 100,000sqkm, containing 30,000-47000 cubic km of ice. Pakistan occupies a vast cryospheric space with the largest and densest glaciers making it an important part of the Third Pole. This winter the Hindukush-Himalaya (HKH) region saw record low snow- fall, threatening water supply across South Asia.

Regional Dynamics: Water is a shared resource and therefore must be viewed as a global common. Every country in the region is an upper or lower riparian state with an interconnected mountain system that serves as a source of melt water for 270 million people directly. Even under an optimistic climate change scenario, all regional countries will have to do more with less water in future which makes starting a conversation on hydro-solidarity an urgent topic in climate diplomacy. The geopolitics of water will soon overtake oil and energy as a fundamental resource, making water functions a vital economic enabler that can trigger volatility in commodity markets, drive inflation and disrupt global supply chains.

The future resilience of Pakistan pivots around water. Both surface and ground water are under acute stress and require investments to ensure availability and improve efficiency. The availability of water is not just an environmental concern but a force capable of fundamentally reshaping economic power and geopolitical dynamics making it a central piece in the climate puzzle.

Food and Agriculture: Half of the world's food production is at risk of failure by 2050 due to the global water crisis. Hunger is on the rise in Pakistan. The agriculture sector that accounts for 21pc of the GDP and employs over 60pc of

the population is under threat from climate change. The mismatch between cropping patterns and water efficiency combined with reduced soil fertility is indicative of need for change. Currently, four major crops account for 80pc water, and contribute less than 5pc to the GDP. A shift towards resilience will require catalyzing growth in the rural economy, adopting regenerative practices in agriculture and boosting productivity and exports.

Energy Transition: Energy remains the single largest drain on the country's economy. The current mix is high on fossils fuels with an estimated transition cost of \$101bn by 2030 contingent on external finance. The power intensive private sector needs to take more responsibility for increasing efficiency and lowering emissions. Pakistan's energy challenge is related more to cost and less to GHG emissions making transitioning to renewables both cost effective and good for the environment.

Disaster Risks: Sitting on the frontline of climate-induced hydrometeorological disasters, Pakistan has paid a high cost for its minimal GHG contribution. Between floods triggered by accelerated melting and drastic changes in precipitation patterns, the brunt borne by Pakistan has reversed hard earned gains in development and significantly undermined its capacity to meet SDGs targets. The floods of 2022 that affected 33 million people and inflicted loss and damage worth \$30million also had a destabilizing dimension resulting from large scale displacement of people that in

As we enter the era of shock and distress, with more than half the global population struggling to cope with a crisis that is not of their making, it is time to accept disorder as the new order. It is also time to read the writing on the wall and recognise that when survival is at stake, self-preservation takes precedence over morality.

the legislature and oversight by the judiciary to ensure constitutional compliance for a rule-based society. Both need to step up their role as custodians of law and justice.

One South Asia: South Asia is a landmass connected by land, air and water where disruption in one ecosystem will derail the ecological balance of the entire region. Siloed efforts will therefore not yield desired results, and building resilience will require collective action and sustained engagement. Regional climate collaboration is not just about the ecology and the environment, it is an investment in humanity and the preservation of an ancient culture and civilization that has profound historical relevance.

The dysfunctional relationship history between Pakistan and India has held the region hostage for over seven decades. However, under a fast-changing landscape, historical strategies will need to be reviewed to accommodate the looming climate crisis. This shift is not going to be easy, but political constraints can be overcome through muted cooperation and tacit understanding to address each issue separately, while remaining flexible to tap segmented cooperative opportunities as they arise. In a dynamic world, stagnant positions and conventional strategies that lack foresight, agility and nimbleness to adapt will be outpaced by countries who think big, bold and beyond ideological boundaries to embrace new partnerships for economic growth and political outreach.

The year 2025 offers South Asia a unique opportunity to utilize the “year of glacier preservation” by lobbying together to make the cryosphere a part of the global stock to stabilize the Third Pole with the ultimate ambition of hosting a South Asia Region (SAR) COP to develop a climate resilience roadmap for South Asia.

Pathway To Resilience: In a world marked by shifting alliances, climate crisis, growing interdependence and exciting and alarming breakthroughs in technology, cooperation has never been more important or more challenging.

Climate resilience does not take place in isolation. It is a combination of factors that require graduated adaptation to a constantly evolving world order. If resilience is the capacity to absorb shocks and bounce back, then Pakistan's current status is fragile. Pakistan has not kept pace with social, economic and technological developments, thereby eroding its overall capacity to cope with crises including climate.

The demand for external finance may provide brief respite, but is not the answer to the polycrisis. The long-term solution lies in Pakistan's ability to develop a bold political consensus for transformative change to reimagine a new future with a pivot shift in governance, economy, domestic and foreign policy and social power dynamics. Currently, some of the structural factors hindering resilience include high debt burdens, limited fiscal space, weak investments and low productivity. Climate change and geopolitical tensions are amplifying these risks.

To achieve resilience, Pakistan needs political stability, economic recovery, boosting investments in health, education, women, and, above all, by aligning policies with emerging geopolitical trends to anticipate, plan and position the country for leveraging current and future opportunities. Every fraction of increase in Fahrenheit is taking us one step closer to the dreaded tipping point. With time running out, Pakistan must build on the three pillars of peace, stability and economic growth to plot its pathway to resilience.

The writer is Chief Executive of Civil Society Coalition for Climate Change, and can be reached at: aisha@csccc.org.pk.



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IMPACT

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TO ACCESS CLIMATE FINANCE, PAKISTAN WILL HAVE TO UNDERGO A PARADIGM SHIFT THAT PRIORITISES INNOVATION, REFORMS AND PRIVATE-SECTOR ENGAGEMENT, ARGUES AYESHA KHAN.

THE catastrophic floods of 2022, which submerged a third of Pakistan and caused \$30 billion in economic losses, laid bare the harsh reality of climate change in emerging markets. The disaster displaced 33 million people, wiped out 10pc of GDP, and devastated millions of acres of farmland, triggering soaring food insecurity and inflation. Pakistan's already fragile economy was pushed to the brink as its farms flooded, its infrastructure crumbled and the public sector struggled to respond to crisis calls from every direction.

Admittedly, this was the country's biggest climate catastrophe, and it required massive relief and rehabilitation efforts from a cash-strapped government that did not have the resources to respond. And, yet, this was not a crisis created by those who were suffering its consequences.

Even though Pakistan accounts for less than one per cent of global emissions, it has already sustained climate related damages of billions of dollars and is expected to lose over 6pc of its GDP annually due to climate-related damages, like floods, heatwaves and reduced agricultural productivity. As United Nations Secretary-General António Guterres bluntly put it: "Pakistan is a double victim — of climate chaos and of an outdated, unjust global financial system that blocks middle-income countries from accessing the resources they need for adaptation and resilience."

Pakistan requires an estimated \$40-50 billion annually for meeting its climate adaptation and mitigation needs. Yet, despite being one of the most climate-vulnerable countries in the world, it only receives \$1.5-2 billion annually from international climate funds, multilateral development banks, and bilateral sources combined. Key sources include the Green Climate Fund (GCF), the Global Environment Facility (GEF), and the World Bank's climate investment funds.

In the case of GCF, which remains the largest climate fund in the world, Pakistan has only secured \$250 million to date, contrasting sharply with India's \$782 million and Bangladesh's \$441



high-quality, commercially viable projects with robust IRRs and realistic risk/return profiles.

Financial Innovation: Utilise blended finance models and other innovative financial mechanisms to de-risk investments, attract private capital to higher-risk but impactful projects, and expand access to finance for smallholder farmers and early-stage innovators. Instruments such as sovereign green bonds can be used to offer alternative ways to mobilize funds while aligning incentives with sustainability goals. At the same time, parametric insurance and catastrophe bonds could provide financial buffers against climate disasters, reducing the strain on public finances. Fintech-driven solutions, including digital lending for smallholder farmers and carbon credit markets, can further expand access to climate finance. However, for these innovations to succeed, Pakistan must develop a stronger regulatory framework, deepen capital markets, and enhance institutional capacity to scale investable climate projects.

Impact-Focused Grant: Acting as a catalyst for further private sector engagement and unlocking the potential for transformative solutions. This includes results-based financing, including carbon credits and impact bonds, concessional loans with forgiveness clauses, quasi-equity with no/low expected returns, and debt swaps for climate goals.

The Right Investment: Pakistan has struggled to develop stable, high-quality institutions and mechanisms that are specifically dedicated to climate finance, which makes it difficult to effectively access, manage and implement climate funds. The lack of institutional capacity and technical expertise results in limitations on project development, and a low base of high-quality, bankable climate project proposals that meet international standards and funding requirements. Better coordination is needed between various government departments, as well as between federal and provincial levels, to present a unified approach to climate finance. Lack of clarity on key priorities and stakeholders can further delay funding decisions. In addition, frequent changes in government and policy directions can also create further uncertainty for

CRACKING THE CODE OF CLIMATE FINANCE

million, highlighting a significant mismatch that threatens to undermine its resilience against future shocks.

While the much-discussed Loss and Damage Fund offered a glimmer of hope for vulnerable nations, the complex mechanics of accessing climate finance — from project preparation to implementation — remain a significant hurdle for frontier markets, like Pakistan.

Trillions of dollars in climate finance are theoretically available, with multilateral banks, sovereign funds, and private investors pledging record amounts towards mitigation and adaptation. The global green finance market crossed \$1.5 trillion in 2023, and institutions, such as the International Monetary Fund (IMF) and the World Bank, along with various other climate funds, have ramped up commitments. Yet, for emerging markets like Pakistan, accessing these funds remains a struggle.

Complex approval and accreditation processes, stringent credit ratings, and high borrowing costs often mean that even climate focused capital flows disproportionately to lower-risk, higher-return projects in more developed economies compared to going where it is most needed.

Meanwhile, billions in pledged funds sit unused, stalled by operational inefficiencies and a lack of viable financial instruments tailored to the needs of climate-vulnerable nations. Without structural reforms to unlock these funds, climate finance risks becoming more about commitments than impact.

As the world continues to suffer from the consequences of climate change, there is increasing acknowledgement, echoed at the last half-a-dozen UNFCCC annual climate meetings, that more needs to be done to support vulnerable countries, like Pakistan. Practitioners are aware that systems take time to shift, but as various stakeholders wait to see what the most recent change in US climate policy can predict for climate finance, it is also abundantly clear that we just do not have the time.

Even today, Pakistan continues to grapple with record temperatures against a backdrop of rolling economic crises, and urgent questions remain about how to respond to these threats when traditional funding markets invariably remain out of reach.

The data paint a stark picture. Since June 2023, each consecutive month has broken global temperature records dating back to 1850, with the past decade (2014-24) marking the warmest period in recorded history. During this period, Pakistan has also consistently ranked among the world's ten most climate-vulnerable nations with devastating consequences on the ground. Temperatures in major cities regularly surpass 45°C, with unpredictable rainfall, droughts, landslides, and devastating extreme weather events severely impacting agricultural yields and water tables.

The economic implications of Pakistan's climate vulnerability are particularly acute in its agricultural sector, which underpins both food security, employment and export earnings. Contributing 24pc to GDP, the sector provides critical inputs to manufacturing and textile, that in turn account for 75pc of export revenues.

Further, almost half the labour force is employed in agriculture and a vast majority of

rural households entirely depend on it for their livelihoods. As such, the impact of climate on agriculture is well worth discussing in some detail, as climate shocks to the sector send shockwaves through the entire economy, compounding existing fragilities and deepening instability. And what makes things much worse is that the system is already stretched extremely thin.

As context, Pakistan's agricultural sector is not only fragmented, but also deeply inefficient. Farming remains largely reliant on outdated techniques, exposing producers to unpredictable weather, disease outbreaks, and price volatility. These structural weaknesses have left Pakistan's agricultural productivity trailing global standards — output per hectare for key commodities, such as wheat, cotton and rice, is 30-50pc lower than the world average. For smallholder farmers, who cultivate 90pc of farms and half the country's arable land, productivity is even more constrained, lagging by an additional 30pc. It is no surprise then that even though Pakistan ranks as the world's eighth-largest wheat producer, its yield of 2.9 tonnes per hectare stands in sharp contrast to that of Ireland, which is the 60th largest producer, having a yield 72% higher.

The structural inefficiencies plaguing the agricultural sector create a vicious cycle of vulnerability for its farmers. The fragmented value chain compounds these challenges. Multiple intermediaries — from commission agents to wholesalers — extract margins at each step, driving up consumer prices while depressing farmer income. Accordingly, Pakistani rice farmers capture just 35pc of retail prices, compared to 65pc for their counterparts in India and Bangladesh.

In short, deep-rooted market distortions, limited access to weather advisory services, and outdated farming techniques have eroded productivity.

Low yields, high post-harvest losses, and razor-thin margins create a self-reinforcing 'poverty trap', where farmers lack the capital to invest in modern farming and climate adaptation, leaving them ever more exposed to weather shocks. Decades of underinvestment in capacity-building and systemic resilience have only compounded this fragility — turning agriculture into a sector entirely unprepared for escalating climate threats.

This not only affects farmer income, but cuts across to increasing food insecurity in a context where 90 million people are already food-insecure and 38pc of children under five years of age are stunted. Also affected are areas like water shortage, rural to urban migration, current account imbalances, and the socio-economic fabric.

Clearly, Pakistan and other climate-vulnerable agrarian economies need to urgently invest in climate adaptation solutions to build resilience at a macro level. Given the limitations of available funding, it is also abundantly clear that there needs to be a real focus on project development. Private-sector investments in climate-focused agribusinesses present a commercially viable opportunity to address adaptation challenges, and do not require navigating potentially complex public-sector processes to get started. However, securing funding that aligns with the long-term nature of climate projects is essential.

Given the scale of the problem, Pakistan needs to develop a multi stakeholder approach with private and public sector engagement. Accordingly, keeping the agriculture sector in mind, but extending to a broader focus on financial solutions, a few recommendations seem appropriate:

Bankable Projects: Efforts should be made to come up with projects that may attract investment, and leverage climate finance efficiently. Even if unlimited funding were to become available (and it is not going to be the case), we need to develop

international donors and investors, potentially limiting long-term commitments.

Developing and attracting specialized knowledge in climate finance, technology, and policy is crucial. We can learn from other developing countries, like Bangladesh and Chile, that are highly vulnerable to climate change have developed regulatory roadmaps and mechanisms for building capacity for national climate resilient development.

At this point, Pakistan urgently needs to foster a vibrant climate ecosystem by connecting early-stage innovators with established players, facilitating knowledge sharing, engaging experienced climate investors with corporates and experts to provide technical support and enable technology transfer to local climate solutions. The focus should be on collaboration, and mentorship to drive innovation and scale impactful solutions.

Additionally, offering technical assistance to help public institutions integrate climate risk considerations into development planning and policymaking can enhance the ability of government agencies to develop robust, climate-resilient projects that meet international funding standards for grant-based loans and concessional financing.

Private-Sector Engagement: With fiscal constraints and rising debt levels, Pakistan cannot afford to rely solely on public funds to finance its climate response. Private sector engagement is critical to mobilising large-scale investment in climate resilience and low-carbon development. Creating an enabling regulatory environment — through targeted incentives such as tax breaks for green investments and mandatory climate risk disclosures — would help attract capital to climate-related projects. Blended finance models and public-private partnerships can further de-risk investments, ensuring both financial returns and equitable climate action. Beyond funding, private sector participation brings technological innovation, efficiency, and expertise, fostering solutions that are both economically viable and sustainable.

A paradigm shift is needed — one that prioritizes financial innovation, institutional reform, and private-sector engagement. Pakistan must urgently build a pipeline of bankable, climate-resilient projects that can attract both concessional and commercial capital, particularly in the agriculture sector.

At the same time, global financial institutions also need to reform their frameworks to ensure that climate-vulnerable nations can access financing on equitable terms. Without real reform, the gap between climate pledges and disbursements will keep increasing, turning climate finance into little more than an empty promises at annual COP gatherings.

Pakistan's ability to navigate this crisis will entirely depend on bold policy reform, strategic long-term investment in climate adaptation, and a multi-stakeholder approach that brings together the public and private sector. Indeed, the scale of the challenge is immense- but the cost of doing nothing is far worse.

The writer is the Regional Managing Director, Acumen.

Pakistan requires an estimated \$40-50 billion annually for meeting its climate adaptation and mitigation needs. But it currently receives only \$1.5-2 billion from international climate funds. In the words of UN chief, Pakistan is a victim as much of climate chaos as of an unjust global financial system that blocks middle-income countries from accessing the resources they need for adaptation and resilience.

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WITH GREEN PRACTICES IN THEIR OPERATIONS AND LENDING PRACTICES, BANKS HAVE ADOPTED A PROACTIVE APPROACH TO TAKE PAKISTAN OUT OF THE RED ZONE, WRITES FARHAN BOKHARI.

MOVING THE NEEDLE FROM RED TO GREEN

FACING the fallout from abrupt climate change has forced Pakistan to carefully assess the challenges versus the opportunities as a key pivot to securing its future. It is a vital journey accompanied by the pressure upon a variety of stakeholders to help the country achieve the Sustainable Development Goal (SDG) target. Public and private banks are among those who have come together to build new structures in the fight against the adverse fallout from climate change.

In the words of Zafar Masud, the chairman of Pakistan Banks' Association (PBA), global climate "is not confined to any boundaries", noting the interdependence of the international community facing a collective fallout from this threat.

The response to the challenge from the banks has included a range of initiatives focused on energy conservation, and support for renewable energy, and a general push to lift Pakistan's green economy.

Internally within banks, there has been a fast-paced conversion towards online solutions for fulfilling the needs of customers, in a step towards eliminating the use of paper-based processes. Similarly, the fast-paced expansion of the use of information technology across banks has laid a strong foundation for electronic networking in the workplace for times to come.

Other timely changes, such as the introduction of 'green practices' among criteria for loans to new ventures, have forced prospective new borrowers to reshape their projects. This is in sharp contrast to the days when prospective customers negotiating loans from banks for new ventures, exclusively focused on their balance sheets as a basis for negotiations.

The changed focus by Pakistani banks from yesteryear is broadly in sync with climate change-driven new national initiatives. It is also worth noting that the tilt of banks increasingly towards going green ultimately contributes to promoting Pakistan's international commitments.

With Pakistan's interest rates now almost halved from almost two years ago, there are growing opportunities for fresh lending initiatives to help individual consumers affordably face the fallout from climate change.

Interventions in agriculture and related areas are set to lay the ground for lifting Pakistan's food security — a key element in the nation's march toward progress. To this goal, Pakistani banks

have begun integrating green finance practices in their lending portfolios to attract fresh large-sized investments in the critical field of agriculture. By turning towards climate-resilient farming practices, banks are increasingly venturing in an area that offers vast opportunities for corporate investors and small farmers alike.

One example that stands out in this area for corporate customers is the Green Corporate Initiative (GCI), a collaborative venture between banks and the Special Investment Facilitation Cell (SIFC) that is set to attract corporate investments in farming projects across at least 50,000 acres of prospective farmland in the Cholistan region. The eventual target aims at turning uncultivated barren land into fertile and productive farmland, marking a unique event in Pakistan's history.

A significant benefit from this initiative will come in the shape of the introduction of modern technologies, such as state of the art and efficient irrigation systems, cultivation with the use of modern, high-yielding seeds, and the use of solar power for energy generation purposes. Once in place, the project will stand out as an example for others to emulate in different regions of Pakistan. The push to expand corporate investments in agriculture also carries the potential benefit of generating larger financial commitments for research at agricultural research institutions, in areas like the development of new climate-resilient seeds and additional key inputs.

Financial institutions and corporate investors are being encouraged by the build, operate and transfer (BOT) model that suits investors and banks alike as their risk is mitigated and returns are carefully structured. Other banks have started green office initiatives, integrating environmental and social factors in their operations.

Additionally, in a move to reach out to small farmers, banks have joined hands with the Prime Minister's Youth Business and Agriculture Loan Scheme, which is designed to convert 1.2 million tube wells across Pakistan to run on solar power. In the first phase, the programme aims at converting 100,000 tube wells that currently run on fossil fuels.

The reduction in running costs of these tube wells will allow farmers to utilize their savings for other agricultural inputs. The plan will reduce the existing carbon footprint across Pakistan, as the conversion of these tube wells will cut down carbon emissions by at least five million metric tons annually.

The financing terms facilitated through banks under this initiative include a subsidized interest rate of zero per cent annually for end users among farmers, with repayments made over periods of up to five years. Through this and other initiatives, Pakistan hopes to eventually succeed in reducing its rural poverty and consolidate its future economic growth.

Meanwhile, the journey to tackle climate change has turned the attention of banks towards a larger involvement with the promotion of EV financing aimed at making two-wheelers and three-wheelers more affordable for the public.

This is a critical area for the future as its expansion will improve Pakistan's overall atmospheric conditions, and help meet the country's national goals as defined in the first draft of the national electric vehicle policy, which targets zero emission by 2060. It is a journey whose first step has been taken, with banks stepping ahead to finance two-wheelers and three-wheelers. The subsequent journey of targeting for the future assembly and eventual manufacturing of four-wheel EVs in Pakistan will receive a strong impetus from the current focus on smaller vehicles.

More importantly, this initiative has marked an important step towards the creation of sustainable businesses that will help improve climatic conditions. At the same time, the expansion of EV production in Pakistan also creates investment opportunities for entrepreneurs while creating employment opportunities for young, qualified professionals, trained in areas ranging from related technologies to the business aspects of such ventures.

Though the journey ahead will be challenging at the very least, it is always the first step towards a larger goal that must be appreciated for its ground-breaking magnitude. Pakistan's banks have already taken more than just the first step in the right direction.

These initiatives are instrumental in laying the groundwork for similar efforts by other stakeholders across Pakistan's private sector. Opportunities to successfully meet the challenge of climate change can be created through financially profitable and sustainable models. Banks in Pakistan are doing just that.

The writer is an Islamabad-based writer currently associated with Pakistan Banks' Association (PBA). He writes regularly on economic and developmental issues.






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Forest & Climate Change Department:

- 10 Billion Tree Tsunami**: Restored 350,000 hectares of degraded forests, sequestering 143 million tons of CO₂ annually.
- Billion Trees Plus: Targets 16.7% protected area of KP's geographical area, enhancing biodiversity and carbon sinks.
- Carbon Credits: KP's forests offer 13 million tons of annual carbon credit potential.
- Climate Change Policy 2017: First provincial policy, updated in 2022, with 11 meetings held by the Provincial Climate Change Policy Implementation Committee (PCCPIC).



National Determined Contribution

- 625 billion rupees allocated for 417 developmental projects in sectors (Agriculture, Climate Change, Forestry, Environment & Wildlife, Energy, Irrigation, Local Govt., Public Health Engg. Departments and Provincial Disaster Management Authority) (2017-24)
- Agriculture**
- To promote climate-smart agriculture. E-subsidy system for farmers, providing climate-resilient seeds and fertilizers to flood-affected communities.



Energy Department:

- 7,500 MW hydropower capacities operational, with 1,500 MW under construction.
- Solarization: Over 7,000 schools, mosques, and health facilities solarized, with plans to solarize 130,000 houses.



Tourism Department:

- **Eco-tourism initiatives:** Developed community-based accommodations in 7 districts, promoting sustainable tourism.
- **Green infrastructure:** Waste management and renewable energy solutions at tourist hotspots.



Irrigation Department:

- Chashma Right Bank Canal: Provides 1,187 million acre-feet of water, benefiting 286,140 acres of farmland.
- Warsak Canal Remodeling: Enhances irrigation efficiency in Peshawar and Nowshera.



Public Health Department:

- Solar-powered water filtration: Provides clean water to 94,730 people in Havelian and 201,249 people in Mansehra.
- Air quality monitoring: Installed in urban centers to combat climate-induced health risks.



Private Sector Engagement:

- Public-Private Partnerships (PPPs): Attracted PKR 100 billion in private investments for green projects.
- D.I. Khan Economic Zone: A 3,000-acre SEZ integrating agriculture and industry for sustainable growth.



Community Involvement

- 41 awareness workshops conducted in 8 valleys across 5 districts, educating communities on climate change impacts.
- Glacial outburst flood mitigation: Debates and awareness campaigns in Peshawar, Swat, and Chitral.
- Industry collaboration: Partnerships with brick kilns, marble associations, and chambers of commerce to promote green technologies.

Peshawar Bus Rapid Transport Service- Peshawar

- Peshawar BRT Buses: 220
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FUTURE PLEDGE

- Achieve net-zero carbon emissions by 2030 through renewable energy and reforestation.
- Build climate-resilient infrastructure to protect communities from natural disasters.
- Enhance regional and global collaboration** for sustainable development and climate financing.

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THE PRIVATE SECTOR HAS A CRUCIAL ROLE TO PLAY IN EMBEDDING RESILIENCE, BUT IT CANNOT DO MUCH WITHOUT SUPPORT FROM OTHER SECTORS, ARGUE [NAZISH SHEIKHA](#), [SAMEEN AKHUND](#) AND [SAFIA HUSSAIN](#).

TARGETING THE NET ZERO EQUATION

RISING global temperatures are causing more frequent extreme weather events and environmental disasters. The European Union (EU) Copernicus Climate Change Service reported that between February 2023 and January 2024, global temperatures surpassed 1.52°C for the first time, marking a critical milestone beyond the 2015 Paris Agreement’s goal. The United Nations Environment Programme (UNEP) Emissions Gap Report 2022 showed that while global emissions growth was slowing, current levels were still far from aligning with the Paris Agreement’s target of limiting warming to below 2°C by the century’s end.

The private sector’s role is instrumental in reducing emissions, finding innovative solutions and also providing financing. Furthermore, it is important to understand that climate change has become an existential risk for economic growth in almost every country as it requires economies to become resilient to uncertainty.

Pakistan’s case is no different. Under the present scenario, the predicted temperature rise will increase the chances of more heatwaves and higher levels of precipitation, with the sea level rising by 40cm until 2080, and all this will likely cause severe damage to the infrastructure. Pakistan’s temperature is expected to rise 2-4°C between now and the end of the century. Rising temperatures have an impact on the earth’s geophysical systems that manage the weather and climate, which are destabilising many of its ecosystems, resulting in both slow onset and fast onset events.

To prevent these impacts, there is a need to work at the root cause, which is reducing the level of carbon emissions, but there is a need to manage the impact of climate change. Providing costly solutions and training to farmers requires support, and companies sourcing from these farmers invest to ensure continued productivity. This example is a very simplistic approach to a complicated problem that often involves multiple impacts which have ripples up and down the value chain. Hence, for climate action which results in resilient economies, it is important for actors to work together both at global and local levels in climate mitigation, adaptation and financing.

EMISSION REDUCTION

Pakistan’s commitments related to the Nationally Determined Contributions (NDC) under the Paris Agreement mandate national emission reductions, aligning with global climate goals. This requires substantial adjustments in business operations, such as energy consumption and supply chain management, often necessitating investments in new technologies. Implementation of the Paris Agreement requires economic and social transformation, based on the best available science. However, as a first step, there is a need to quantify GHG emissions. For the corporate sector, the standard method of measuring and quantifying GHG emissions divide emissions into three types: scope 1 emissions in operations, scope 2 indirect emissions from purchasing electricity or heating, and scope 3 that covers emissions from the whole value chain — from raw material, production and transportation to customer use and product end of life.

Following this step, it is advised that companies develop an emissions reduction plan. The plan includes setting science-based targets. The Science-Based Targets Initiative (SBTi) provides a framework to set and disclose validated short-term, long-term, and net-zero targets. A handful of Pakistani companies belonging to the textile sector have registered to meet SBTi targets in all the three criteria. Companies in general use the following pathways for reducing emissions:

- * By focussing on improving the energy efficiencies in equipment used in operations, and lighting and cooling in buildings, to reduce scope 1 emissions. Additionally, by ensuring there is a system in place for energy management leads to measuring and monitoring systems for efficiency. Common examples include lighting and cooling or heating options. Leading companies are now using technology driven by artificial intelligence (AI) to determine the optimum efficiency for systems to adjust electricity use as per the need.
- * Reducing GHG emissions can be achieved through renewable energy, either by purchasing it or through self-generation. Many manufacturing facilities in Pakistan are now self-generating energy via solar, wind and biomass waste. Although there is still some reliance on grid electricity, its high costs have encouraged facilities to shift towards self-generation. On the other hand, it is important that the grid also modernises to reduce emissions.
- * While it is crucial for organisations to reduce scope 1 and 2 emissions, the corporate sector must also be accountable for scope 3 emissions. For instance, a refrigerator manufacturer should not only focus on reducing emissions from the production process, but to also design energy-efficient refrigerators using refrigerants with lower GHG emissions, thus addressing scope 3 emissions. A common method to document and identify areas for improvement is the lifecycle assessment of a product. The assessment quantifies the GHG emissions at all stages of development and when this information is available, better products can be designed. Research by the Carbon Disclosure Project (CDP) has identified that scope 3 emissions are, on average, 11 times higher than direct (scope 1) emissions, and account for over 70pc of total emissions.
- * Pakistan’s bulk goods transport sector remains largely informal, and often uses fuel that has been brought through the informal economy and is unregulated. This is an important source of carbon emissions. Here, the businesses can only deal with third party contractors that are certified to be using fuel and vehicles that are more efficient.

A Paris Agreement aim is “making finance flows consistent with low GHG emissions and a climate-resilient pathway”. While financial institutions have few scope 1 and scope 2 emissions, financed emissions account for scope 3 emissions. According to the CDP, financed emissions account for 700 times more than a financial institution’s directly generated emissions. At present, both lenders and investors are also setting targets for reducing the portfolio emissions, and even commercial lending requires businesses to submit emission reduction plans.

As countries set GHG emission targets in their NDCs and aim at net-zero emissions, accountability through GHG quantification and reporting becomes crucial. Many importing companies now report GHG emissions per product. EU legislation under the Green New Deal emphasises transparency and accountability.

In Pakistan, exporting textile companies must share their Emission Reduction Plan and SBTi commitments. Additionally, the Securities and Exchange Commission of Pakistan (SECP) has approved aligning annual reports with International Financial Reporting Standards (IFRS) guidelines, requiring companies to disclose GHG emissions and the process for determining and managing climate risks and opportunities.



UNDERSTANDING THE RISKS

In Pakistan, climate change poses multiple threats to businesses, from physical to transition risks. Transition risks are particularly acute as global policies shift towards sustainability. Pakistani businesses, especially those exporting to European markets, are increasingly required to commit to net-zero targets to remain competitive. This shift is driven by stringent environmental regulations and the growing preference for businesses to move towards renewable energy sources.

Financial risks are intricately linked to these physical and transition challenges. Businesses must secure funding for large-scale investments in adaptation and mitigation strategies, which could strain their financial resources. Additionally, the insurance sector in Pakistan faces the brunt of increased claims due to climate-related disasters, potentially leading to higher premiums for businesses. For instance, insurance companies in Los Angeles a few months before the recent forest fires, had withdrawn fire damage coverage for properties in wildfire-prone areas to reduce their exposure, demonstrating a global trend of insurers reassessing risk exposure, and leaving properties without financial protection against climate-induced events.

In Pakistan, social and reputational risks tied to climate change are critical for companies in international value chains. As global awareness increases, scrutiny on businesses’ environmental and social responsibilities grows. Pakistani exporters, especially to regions with strict regulations like the EU, must meet complex due diligence from buyers who prioritise high labour and environmental standards. To effectively manage these evolving risks, Pakistani companies must align climate-related risks into the risk management processes.

A study conducted by the Pakistan Business Council (PBC) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in 2024 highlighted that even that even though most companies recognise climate change as a top risk, efforts to address the risks are still fragmented. There is still a lack of understanding of climate-related risks at the department levels, and linking the risks

While large companies have started decarbonising, smaller businesses must also be encouraged to meet NDC commitments. Large enterprises can encourage small and medium enterprises (SMEs) to go green within supply chains, and government support through financial incentives and streamlined policies can help these businesses meet environmental regulations.

to a financial business case and then aligning the risks to business continuity planning is not always efficient enough.

However, SECP’s requirements related to the IFRS and global reporting requirements will perhaps kick-start this change. Companies should engage in the capacity building of employees. This will support companies in identifying the safety measures required, making investments in infrastructure to combat hazards, and enabling transparent communication with stakeholders.

BUILDING RESILIENCE

As climate risks increase, building economic resilience is crucial. Global discussions show that organisations with women in decision-making roles for sustainability and climate perform better. In Climate2Equal initiative, a pilot project aimed at engaging businesses, the PBC and the International Finance Corporation (IFC) collaborated to integrate gender-inclusive climate action into their business operations and supply chain by making commitments and pledges. As part of the peer-learning initiative, companies have demonstrated substantial work in areas, such as recruiting women in green jobs, internal and external awareness, capacity-building, and data-collection related to gender-inclusive climate action.

This initiative involved companies from various sectors who pledged to hiring more women in those roles identified as green jobs. Artistic Milliners, MG Apparel, Naveena Exports Limited and Packages Group also conducted training sessions to enable women with the knowledge and skills to contribute to climate action.

In terms of external awareness, companies aligned the activities to their business model. Bank Al Falah, added a module on climate change in the financial literacy session being imparted to women, while National Foods developed a children’s reading book focussed on climate literacy. A few companies have started to track and monitor how their operations impact women in the local communities they operate in as well. Artistic Milliners conducted climate literacy session when interacting with women working on cotton farms. The Dawood Foundation imparted both internal and external trainings on air quality using an all-women team.

Additionally, several companies have begun tracking the impact of their operations on women in the communities where they operate. This data is crucial as it adds a much-needed gender lens and can help understand how women as consumers and suppliers are impacted. While these initiatives are only a starting point, it gives an indication on how diversity can be innovative and develop more solutions to climate change.

CLIMATE FINANCE

Climate finance in Pakistan is a major concern, especially compared to Bangladesh. Pakistan has received less than \$500 million in international mitigation and adaptation finance, while annual needs are \$7-14 billion until 2050. Bangladesh has access to larger amounts, showing stronger engagement with global mechanisms like the Green Climate Fund. Recently, Pakistan’s Ministry of Climate Change launched the National Climate Finance Strategy to better utilise these financing pathways.

Furthermore, the recently launched Pakistan Carbon Credit Policy establishes a comprehensive framework for carbon trading to incentivise emission reductions and integrate Pakistani businesses into the global carbon market. One notable initiative is the Delta Blue Carbon Project in Sindh. This project is not only the world’s largest mangrove restoration effort, but also a significant endeavour in climate change mitigation. To fully leverage the carbon credit market and climate finance, Pakistan needs strong government support.

CLIMATE ACTION

Pakistan’s private sector recognises climate change as an existential risk. While large companies have started decarbonising, smaller businesses must also be encouraged to meet NDC commitments. Large enterprises can encourage small and medium enterprises (SMEs) to go green within supply chains, and government support through financial incentives and streamlined policies can help these businesses meet environmental regulations.

As the race to reduce carbon emissions to tackle climate change intensifies, it is becoming apparent that the private sector has a crucial role to play in reducing the economy’s environmental impact (mitigation) and preparing for climate change effects (adaptation). It is only the dual approach that will help build economic resilience.

The writers are associated with the Centre of Excellence in Responsible Business, Pakistan Business Council.



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AKZONOBEL

AS the fifth most vulnerable nation to climate change, it's time we reimagine Pakistan's future through the lens of sustainability. Given their use case across entire industries, paints and coatings play a role in this green transition.

At over 39 per cent of the global energy-related carbon emissions, buildings are one of the largest contributors to climate change. As urbanisation increases, climate emergency demands a swift transition to green buildings which reduce carbon emissions from the built environment, preserve precious natural resources and improve the quality of life for people who live and work in them. -

AkzoNobel, the maker of Dulux paints and coatings, is focused on ensuring that the pioneering solutions, paints and coatings we supply, continue to protect what matters most – both now and in the future. Our solutions harness energy, reflect heat, protect surfaces for longer, and come with stain-resistance and anti-bacterial properties. While helping industries cut their energy consumption, increase efficiency, lower waste and improve safety; we're also increasing the resilience of buildings and the wellbeing of people in them.

Countries like Singapore are already adopting cool paints that reflect the sun's infrared energy and counteract the heat island effect. For instance, our Dulux Weathershield range of 'cool' paints with KeepCool™ technology keeps exterior surface temperatures up to 5°C cooler and results in up to 15pc power savings annually as less air-conditioning is required in the first place. Large scale adoption of such 'cool' innovations are increasingly relevant in Pakistan as summers are hotter than before.

At the end, it's only by committed leadership, innovation and collaboration, will we be able to achieve our ambitions of painting a more sustainable future for Pakistan.

BANK ALFALAH

BANK Alfalah has disbursed approximately Rs2.1 billion over two years to support flood-affected communities in Pakistan following the devastating 2022 floods. The Bank adopted a two-pronged approach: immediate relief and long-term rehabilitation, led by Chairman His Excellency Sheikh Nahayan Mabararak Al Nahayan and the Board's gracious funding of \$10 million, which impacted around 10 million people in Pakistan. **Key Interventions:**

- **Healthcare:** Funded Rs633.5 million for initiatives like establishing medical camps, mobile health services, and eye care programmes through partnerships with Aga Khan Foundation, Patient Aid Foundation, Indus Hospital, LRBT, ChildLife Foundation and so on.
- **Sustainable Housing:** Disbursed Rs376.8 million for constructing over 1,066 houses and supporting livelihood initiatives through partnerships with Akhuwat, Karachi Relief Trust, and Bait-us-Salam.
- **Education:** Invested Rs305 million in rebuilding schools, supporting students, and establishing educational centres in partnership with The Citizen Foundation, Deaf Reach, and other sustainability partners.
- **Livelihood Support:** Offered interest-free loans through Akhuwat Islamic Microfinance to construct 1,382 houses and launched the 'Revive & Rise' programme with subsidised loans for small businesses, benefiting over 700 individuals.

Bank Alfalah's commitment extends beyond financial assistance. The Bank has partnered with over 25 esteemed organisations to ensure sustainable and impactful recovery for flood-affected communities across Pakistan.

BASF

PAKISTAN faces a critical juncture in addressing climate change and driving sustainable industrial growth. As the fifth most vulnerable country to climate change, it grapples with challenges like extreme weather events, water scarcity, and rising carbon emissions. For industries, these challenges compound with inefficient energy use, reliance on outdated technologies, and global pressure to meet stringent environmental standards like the EU's Carbon Border Adjustment Mechanism (CBAM).

This is where BASF, a global leader in sustainable solutions with its mission 'to create chemistry for a sustainable future', steps in. By leveraging its innovative product portfolio and expertise, BASF can support industries in their transition to more sustainable practices while maintaining competitiveness.

As an example for the agricultural business, BASF supports farmers to tackle the most pressing climate challenges with a portfolio of solutions such as crop protection and digital farming technologies designed to increase high-quality yield, make farm management easier and mitigate agriculture's environmental impacts. For manufacturing, the BASF portfolio contains Low PCF products with significantly reduced product carbon footprint compared to corresponding goods usually made from fossil-based raw materials.

BASF's Sustainable Solution Steering methodology categorises the company's portfolio according to the sustainability contribution of the products and provides customers with the transparency to choose according to their requirements. This can improve the sustainability performance of their own operations, aligning with global green goals. Through local partnerships and knowledge-sharing initiatives, BASF further empowers businesses to adopt circular economy practices, reduce waste, and achieve decarbonisation.

Pakistan's green transformation is not just a necessity — it's an opportunity to create resilient industries and a sustainable future. BASF stands as a committed partner in this journey, offering tailored solutions to help Pakistan's industries thrive in a greener tomorrow. By aligning with Pakistan's climate priorities, BASF can support in catalysing change, driving innovation and sustainability for generations to come.

BAYER

TO secure Pakistan's future in the face of growing climate change impacts, it is imperative to adopt a multi-stakeholder approach to tackling climate and sustainability challenges, with corporations and the private sector playing an active part.

At Bayer, we're committed to exactly this. With our core businesses in agriculture and healthcare, we focus on driving sustainable development and generating positive social impact. Our mission 'Health for All, Hunger for None', places sustainability at its core, and climate change considerations are embedded in the company's overall business strategy.

For example, globally, we have committed to reducing our own greenhouse gas emissions (Scope 1 & 2) and

greenhouse gas emissions along our value chain (Scope 3) – goals that were confirmed by the Science Based Targets initiative (SBTi).

Subsequently, we implemented renewable energy generation across Bayer Pakistan's Crop Science division to improve energy efficiency and reduce emissions. We also work on community engagement initiatives to increase the resilience of communities against climate change impacts. In Pakistan, following the devastating monsoon floods of 2022, Bayer stepped in to support 600 flood-affected farmers with interest-free microloans to enable them to rebuild their livelihoods.

Bayer's R&D efforts remain focused on providing products and solutions for regenerative agriculture that minimise climate change impacts on crops (drought-resistant seed varieties), and protect and maximise yields (advanced crop protection products and high-yielding hybrid maize seeds that have been used in Pakistan with great success for several decades).

It is with this clear focus on addressing the most pressing climate-related challenges that we intend to move toward a future where 'Health for All, Hunger for None' truly becomes a reality.

BYD

AS the world confronts the pressing challenges of climate change, Build Your Dreams (BYD) stands at the forefront of bringing transformative change for a sustainable future by being a leading organisation in reducing the global carbon footprint. With a mission to 'Cool the Earth by 1°C', BYD is revolutionising transportation by championing carbon-emission-free vehicles.

Globally, BYD has been at the forefront of developing innovative solutions to reduce greenhouse gas emissions – the pressing cause for adverse effects on world climate today. In Pakistan particularly, where the transportation sector alone contributes a staggering 40 million metric tons of CO2 annually, BYD's innovative approach is reshaping the automotive landscape and paving the way for a cleaner, greener tomorrow.

BYD's commitment to sustainability goes beyond its products. From the zero-carbon industrial park at the Company's headquarter in Pingshan district to participation in global accords that call for adoption of vehicles with 100 per cent zero emissions by 2040. BYD's efforts reflect a dedication to mitigating the effects of climate change and leaving a safer planet for the generations to come. These efforts align seamlessly with Pakistan's urgent need to tackle environmental issues like smog and air pollution, which have profound consequences on public health and quality of life. In recent years, these issues have grown manifold as major metropolitan cities in the country constantly rank alarmingly low on the Air Quality Index, beginning to

While BYD's climate initiatives in Pakistan are just beginning, its global sustainability efforts offer a great insight into the future. From expanding electric mobility to investing in renewable energy, from electrification of public transport globally to developing advanced battery technology, BYD's vehicles, powered by clean energy, can help combat the heavy reliance on fossil fuels that exacerbates pollution levels in urban centers like Lahore and Karachi.

BYD's partnership with Dawn to support the *Breath Pakistan* initiative further underscore the commitment of the company to raising awareness about climate change and promoting a green transition. Through this collaboration, BYD aims to spark meaningful conversations about sustainable mobility and inspire collective action towards a healthier environment.

As Pakistan seeks sustainable solutions to its environmental challenges, BYD's vision of a cleaner, greener world positions it as a catalyst for change. Together, BYD aspires to build a future where innovation and responsibility pave the way for a better tomorrow.

CNERGYICO

CLIMATE change is a global challenge that disproportionately affects Pakistan. The country ranks 5th in vulnerability according to the Global Climate Risk Index, despite contributing less than 1per cent to global emissions. This unfair paradox underscores the need for collective action. The Breathe Pakistan campaign is a commendable step towards uniting voices from various sectors to combat this crisis.

Cnergycico is proud to be a part of this important initiative. We believe awareness is the cornerstone of progress, and through Breathe Pakistan, we aim to elevate the discourse on climate resilience. Cnergycico has long championed environmental stewardship, actively engaging in initiatives that contribute to sustainable development. Our commitment extends beyond corporate social responsibility to integrate climate action into our core business strategies.

For instance, in Balochistan and Karachi, our tree plantation drives have helped sequester carbon and enhance local biodiversity. At sea, our operation of Pakistan's only Single Point Mooring (SPM) adheres to stringent environmental protocols to prevent pollution, supporting a coral reef that houses a thriving marine ecosystem beneath our facility.

Moreover, we are proactive in modernising our operations to mitigate environmental impact. Our refinery upgrade plans aim to produce environmentally friendlier Euro-V fuels and to convert furnace oil into value added products.

We believe in the power of collective action — locally and globally — to foster sustainable environments. By aligning with initiatives like Breathe Pakistan, Cnergycico reinforces its commitment to climate action. Through collective action, we can turn the tide on climate change, ensuring a healthier planet for future generations.

ENGLISH BISCUIT MANUFACTURERS

ENGLISH Biscuit Manufacturers (EBM), Pakistan's largest food FMCG company, has partnered with the *Dawn* media group for the Breathe Pakistan Initiative, leading the conversation about the global climate crisis. This partnership marks another significant milestone in EBM's unwavering commitment towards sustainability and creating a greener future for Pakistan.

The numbers and predictions are harrowing for a climate vulnerable country like Pakistan. Despite contributing only 1 per cent to global carbon emissions, Pakistan is ranked 5th most climate vulnerable country. We grapple with erratic precipitation patterns, droughts, and extreme climatic conditions, causing our average temperature to rise by 0.5°C over the past 50 years. This seems like a small number, but the consequences of it are enormous.

“It's not just about raising awareness. It's about engaging key stakeholders to spark policy changes, sustainable practices, and stronger environmental regulations that can lower industry emissions across the country” says Mr Shahzain Munir, Executive Director of EBM. “Addressing the urgent climate challenges requires

a united front, collaboration is not just an option, it is a necessity; it's what our country needs from us” he adds.

Under its #NourishTheWorld initiative, EBM has embedded circularity and sustainability into its foundations, aligning business growth with environmental responsibility. EBM has transitioned to 85pc eco-friendly packaging; installed Effluent Treatment Plants (ETPs) company-wide to recycle water and reduce energy use and is employing solar farms made from recycled bricks at its manufacturing facilities, generating 1.8MW of clean energy.

In addition to generating clean energy, EBM is leading the charge in upcycling and waste management through different partnerships and championed the creation of two roads made entirely from multi-layered plastic waste, simultaneously offsetting carbon, keeping MLPs out of landfill, and turning waste into products that uplift local communities.

EBM's partnership with Breathe Pakistan highlights the critical role large-scale private companies play in collaborating with the public sector to mitigate and slow the adverse effects of climate change.

INVEREX

MUHAMMAD Zakir Ali, the driving force behind Inverex Solar Energy, has not only redefined renewable energy in Pakistan, but has also played a significant role in fostering a cleaner, greener, and more sustainable future. His leadership and vision have turned Inverex into a pioneering brand that stands at the forefront of Pakistan's transition towards clean energy.

One of Zakir Ali's most notable initiatives is his relentless focus on promoting clean energy solutions accessible to every corner of Pakistan.

Under his guidance, Inverex introduced cutting-edge products like hybrid solar inverters, lithium-ion batteries, and solar panels tailored to meet the diverse needs of residential, commercial, and industrial sectors. By providing affordable and reliable solutions, Zakir Ali has made renewable energy not just a luxury but a necessity for the people of Pakistan. His efforts have directly contributed to reducing the country's dependence on fossil fuels and lowering its carbon footprint.

Beyond technology, Zakir Ali has been an active advocate of environmental awareness. Through initiatives such as solar-powered charging booths and eco-friendly branding campaigns at major cricket tournaments, he has effectively merged the concepts of sustainability and national pride. Inverex's projects serve as a model for how businesses can align profitability with environmental responsibility.

His commitment to Pakistan extends far beyond clean energy. Zakir Ali has worked tirelessly to uplift the nation's image on global platforms, leveraging cricket as a tool for unity and inspiration. Through Inverex's sponsorship of events like the Pakistan Super League and international series, he has highlighted the importance of renewable energy while promoting Pakistan's love for cricket.

The 'Breath Pakistan initiative' is another testament to his dedication. Recognising the urgent need to address air pollution and environmental degradation, Zakir Ali launched programmes to plant trees, promote clean energy usage, and educate communities about sustainable living practices. These efforts have significantly contributed to improving air quality and raising awareness about the importance of protecting the environment for future generations.

Muhammad Zakir Ali's journey exemplifies how a visionary leader can align business growth with national progress.

By combining technological innovation with a deep sense of social responsibility, he has set a benchmark for how organisations can play an active role in shaping a cleaner and better Pakistan. His work continues to inspire hope and progress, one solar panel and one initiative at a time.

JUBILEE LIFE INSURANCE

PAKISTAN faces growing climate challenges, with rising temperatures, erratic weather, and shrinking natural resources threatening its ecosystems and communities. Despite contributing only 0.9 per cent to global emissions, the country remains highly vulnerable, requiring urgent action. Recognising the fact that bringing about a holistic change requires collective efforts from across the board, Jubilee Life Insurance is stepping up its efforts towards sustainability with a strong commitment to climate action.

Jubilee Life has set an ambitious target to achieve net zero greenhouse gas (GHG) emissions by 2030. This goal is being supported by innovative strategies aimed at reducing the organisation's environmental impact. The company has embraced digitalisation to minimise paper use, implemented energy-efficient solutions like LED lighting, and adopted eco-friendly refrigerants to lower its carbon footprint. The company is also exploring solar energy solutions and undertaking a variety of initiatives including tree plantation drives to offset emissions further.

Beyond operational measures, Jubilee Life is fostering a culture of sustainability among its employees and stakeholders through awareness campaigns and training programmes. The company actively promotes hybrid and electric vehicle adoption and explores flexible work-from-home policies to adopt a greener approach towards its day-to-day operations.

Aligned with Pakistan's national climate goals, Jubilee Life's initiatives demonstrate how businesses can lead the way toward a greener future. By championing environmental responsibility and sustainable practices, the organisation exemplifies the role of corporations in driving meaningful change. Together with its partners and other members of society, through innovation and collective action, Jubilee Life aims to pave the way for a more sustainable Pakistan — one where every breath counts.

KARANDAAZ PAKISTAN

KARANDAAZ Pakistan, a not-for-profit organisation, is championing the cause of financial inclusion and sustainable development in Pakistan. Supported by the UK's Foreign, Commonwealth, and Development Office (FCDO) and the Bill & Melinda Gates Foundation, Karandaz is leveraging innovation and technology to address some of the most critical challenges of our time, including climate change.

Karandaz delivers its green financing agenda through a two-tiered approach. The first tier focuses on scaling established technologies that directly impact clean energy and energy efficiency. Karandaz has supported SMEs in generating 20MWs of clean energy across the textile, SME, and household sectors and financed the production of 1,927 energy-efficient power distribution transformers for Discos (Gepeco, Mepco, and Pesco), saving 7,742MWh of electricity annually. The company has also committed to constructing Pakistan's first LEED or BREEAM-certified green building in Karachi and launching the country's first-of-its-kind Green Real Estate Investment Trust (Green REIT), specifically designed to encourage small investors to contribute to sustainable real estate projects. To date, Karandaz has committed approximately Rs3 billion under this vertical.

The second tier, driven by the Greenfin Innovation programme launched in 2021, supports groundbreaking solutions that address critical climate challenges. This initiative focuses on three key thematic areas: efficient water

management and conservation in industrial, agricultural, and domestic sectors, efficient plastic waste management, and clean air. Karandaz is fostering innovations that promise long-term impact, with Rs200 million allocated to 11 innovative projects under this programme.

In addition to financing, Karandaz is actively addressing knowledge gaps in the climate change agenda. The company has commissioned several independent studies, including Climate Smart Low-Income Housing in Pakistan, Renewable Energy: Opportunities and Challenges in Pakistan, and the upcoming Carbon Credits Trading: Exploring Landscape and Regime in Pakistan. These research initiatives are guiding stakeholders toward sustainable decision-making and policy formulation.

Karandaz, through its wholly-owned subsidiary Parwaaz, has also issued Pakistan's first private-sector Green Bond. This milestone initiative mobilises private capital for renewable energy, sustainable agriculture, and clean transportation projects, directly contributing to Pakistan's Nationally Determined Contributions (NDCs). The bond framework aligns with the Green Bond Principles (GBP) of the International Capital Market Association (ICMA) and guidelines set by SECP, and it is governed by an independently validated framework that has secured a satisfactory opinion from the Pakistan Environment Trust.

Karandaz Pakistan remains committed to creating a sustainable and resilient future for Pakistan. By combining financial innovation with impactful climate initiatives, Karandaz is paving the way for a greener tomorrow.

OGDCL

CLIMATE change is real. It must be our response to this looming threat. The ravages of climate change are no more distant either. We have witnessed them during the last two decades in the form of repeated floods, heatwaves and smog-laden cities where it is hard to breathe. We can't continue to ignore it, as we have done in the past, and let this phenomenon endanger our very existence. How the changing climate imperils our existence can be realised by looking at the statistics of the factors which sustain us.

The World Bank Group's Country Climate and Development Report (CCDR) for Pakistan notes that the floods and heatwave of year 2022 have caused more than 1,700 deaths and displaced more than 8 million people. The damage to infrastructure, assets, crops, and livestock has also been massive, with more than \$30 billion in damages and economic losses. The report concludes that the combined risks of extreme climate-related events, environmental degradation, and air pollution are projected to reduce Pakistan's GDP by at least 18 to 20 per cent by 2050.

According to estimates from the WHO Global Health Observatory, about 200 deaths per 100,000 populations are attributable to environmental factors in Pakistan. Pakistan's annual burden of disease due to outdoor air pollution accounts for 22,000 premature adult deaths and 163,432 disability-adjusted life years lost. The indoor pollution accounts for 40 million cases of acute respiratory infections and 28,000 deaths/year.

This scary scenario calls for a robust response to salvage our future. Being the largest E&P organisation in oil and gas in the country, OGDCL has always taken the lead in initiatives that have critical importance in social and economic wellbeing of the society. As the nation's leading energy provider, we have a unique responsibility to address the critical issues of climate change, social development and economic stability in a way that fosters sustainability.

The environmental challenges reinforce the urgency for all sectors, especially energy, to accelerate transition to low carbon future, providing an opportunity for innovation and growth. At OGDCL, we are deeply committed to this transition while recognising the importance of balancing energy security and economic development.

Our Strategy is clear: enhance energy efficiency, adopt cutting-edge technologies to reduce emissions, explore carbon capture and storage technologies and renewable energy investments. In 2024, we took significant steps to identify emission sources, develop our GHG inventory, set emission reduction targets in coming years and explore low-carbon energy solutions to expand our portfolio.

Protecting the environment is at the core of our operations. Recognising the ecological diversity and vulnerability of Pakistan's natural resources, we have made significant strides to measure our environmental impacts, energy and water use, waste generation and minimise our effects on biodiversity in our areas of operations. Our ESG strategy, 2025, includes significant initiatives to pursue a flaring reduction programme and methane leak detection systems which are expected to yield substantial improvement, reducing GHG emissions across our operations. Furthermore, we actively restore ecosystems through reforestation projects and collaborate with industry partners to promote responsible environmental practices in the E&P sector.

Our commitment to Corporate Social Responsibility is deeply embedded in our mission to contribute to Pakistan's sustainable development. We believe in creating shared value for the communities where we work. In 2024, we invested in a range of community development projects, focusing on improving access to quality education, healthcare services, clean water and infrastructure project that positively impacted the lives of communities across Pakistan, especially around our fields.

Our partnerships with local organisations drive economic development, empower local businesses and provide vital services to underserved populations. We remain dedicated to making a positive and lasting impact on society through responsible corporate citizenship.

We believe that environmental degradation and subsequent perilous climate change can be averted by adopting a holistic approach whereby every segment of society must be included in the effort to alleviate poverty which would ultimately lead to a sustainable future.

PAKISTAN BEVERAGES LIMITED

SUSTAINABILITY is about meeting our world's present needs without compromising the future, encompassing environmental protection, social justice, and economic development. Pakistan's environmental concerns continue to rise at an alarming rate, with the country producing 3.9 million metric tonnes of plastic waste annually, which is expected to rise to 6.12 million by 2050. The lack of a unified waste-management system contributes to growing pollution, particularly in cities like Karachi, where air quality and waste management are major issues. This is where Pakistan Beverage Limited (PBL) comes in as it stands out for its commitment to sustainability.

PBL has pioneered several initiatives, focusing on resource efficiency and reducing its environmental footprint. The company has reduced its water usage by 16 per cent in 2024, installed an Effluent Treatment Plant (ETP) to treat wastewater, and recycled over 600 million liters. PBL also uses this treated water to irrigate parks throughout the city of Karachi, thereby contributing to the water table that has been affected by its operations. Additionally, PBL has launched a 1.5MW solar project and has introduced 2,500 energy-efficient R290 coolers to reduce emissions.

A leader in promoting circular economy, PBL became the first Pakistani bottler to produce 100pc RPET bottles. With every single bottle made of recycled

THE CLIMATE CHANGE CORPORATE DIRECTORY

plastic, Pakistan Beverage Limited is bringing about a meaningful change to our environment. Through partnerships with organisations like WWF, PBL promotes recycling and sustainability through programmes such as the Plastic Recovery Bank (PRB) and Stars of the Planet, inspiring young minds to innovate for a cleaner future.

PBL's efforts have garnered international recognition, with awards for quality, sustainability, and food safety. With its continued focus on environmental stewardship, PBL is setting an example for the beverage industry, proving that sustainability can drive both business success and environmental change.

PAKISTAN CABLES LTD

BEYOND countering global climatic challenges, adhering to sustainability has proven to fuel business success, benefitting the bottom line. Becoming a sustainability leader requires big changes, but the effort is worth it — in both environmental and economic terms.

Pakistan Cables Ltd. is the country's premier and most trusted cable manufacturer in Pakistan since 1953. As Pakistan's first and the oldest cable manufacturer listed on the Pakistan Stock Exchange in 1955 and later established a global presence in the 1990s, it has continued to set benchmark practices in the industry. For over 70 years, it is providing end-to-end solutions to its customers by offering a versatile product portfolio of wires and cables, aluminium sections for architectural applications, copper rod, PVC compound and wiring accessories.

Greener product solutions: Pakistan Cables is the exclusive manufacturer of the ACCC conductors in Pakistan, which is a revolutionary technology for efficient transmission system in Pakistan. Pakistan Cables Limited introduced ACCC Conductor in Pakistan in collaboration with CTC Global, USA.SCS Global Services (SCS) verified that ACCC Conductor reduces CO₂ emissions associated with transmission line losses up to 31 per cent compared to conventional steel reinforced ACSR conductors. Being at the fore front promoting greener products to customers, to the best of our knowledge, Pakistan Cables is also the first cable manufacturer in Pakistan to provide KEMA certified Low Smoke Zero Halogen (LSZH) Power Cables, which are fire-retardant cables that reduce emissions in case of fire.

Sustainable operational excellence: Adhering to environment-friendly practices across its value chain has been a cornerstone of the company's core strategy. In 2023, Pakistan Cables became the country's first building material company to have its science-based emission reduction targets validated and approved by SBTi. It was also among Pakistan's first 5 companies at the time to do so. The Science Based Targets initiative (SBTi) drives ambitious climate action in the private sector by enabling organisations to set science-based emissions reduction targets. The Company's science-based emission reduction targets are part of its long-term vision to develop its net zero strategy and is actively working to establish long term science-based net zero targets that are aligned with SBTi's net zero criterion.

Earlier in 2021, Pakistan Cables became one of the 26 Pakistani companies and the only building materials company that signed the pledge for Business Ambition 1.5°C ahead of COP26. As ISO 14001 certified company, complying to environmental regulation and adding value over the years in the arena has been a fulfilling journey. Reusing its wooden cable drums, using biodegradable packaging material for some of its product lines, using tote bags over paper-based bags, reusing and reducing usage of plastics were some of the earliest practices incorporated.

Today, the new manufacturing facility established at Nooriabad, Sindh is nearing completion. Set to transform the industry and equipped with latest technology, the Pakistan Cables factory at Nooriabad is also driving the company's sustainability agenda by incorporating key initiatives within the manufacturing processes. Water treatment plan and 2MW on-grid solar power plant were successfully commissioned during FY 2023-24. The Nooriabad factory also happens to be home to Pakistan's first and largest Miyawaki based urban forest on an industrial estate. The Pakistan Cables urban forest is spread across 3 acres of land with approximately 50,000 trees – all of which are native species. The forest was established to showcase the Company's commitment to foster environmental conservation and advocate climate change by taking action. The Company has collaborated with partners such as the World Wide Fund for Nature (WWF – Pakistan), Clifton Urban Forest among others to lend support to green initiatives.

It is a member of the Amir S. Chinoy Group (ASC). The ASC Group has been at the forefront of Pakistan's industrial development for over 70 years. Today, the ASC Group includes two other listed companies, International Industries Ltd., International Steels Ltd. In 2024, Chinoy Engineering & Construction (Pvt.) Ltd. was established to explore business opportunities in construction projects kicking off with Reko Diq Copper Gold Mines, Balochistan to design and construct a Permanent Accommodation Camp.

As a signatory of the United Nations Global Compact, all CSR related activities are aligned with the UN's Global SDGs. Pakistan Cables exemplifies how sustainability and continued innovation together can drive operational excellence. Through strategic integration of environment-friendly product-line, signing up for zero carbon emissions and adopting sustainable practices, the Company has strengthened its position as a market leader in cable manufacturing, shaping a sustainable future for Pakistan and inspiring others to follow.

SINDH PEOPLE’S HOUSING FOR FLOOD AFFECTEES

PAKISTAN’S 2022 floods were a stark reminder of climate change’s devastation impacts, displacing millions and being declared a ‘climate catastrophe’ by UN Secretary-General António Guterres.

With over 15 million displaced and 2 million houses destroyed, the Government of Sindh turned this crisis into something to benefit thousands of shelterless families. Under Chairman Bilawal Bhutto Zardari’s leadership, the Sindh People’s Housing for Flood Affectedes (SPHF) emerged as the world’s largest housing initiative benefiting over 15 million people.

The Government of Sindh, led by Chief Minister Murad Ali Shah, initiated the project with \$227 million in funding, along with \$500 million from the World Bank. It has since secured \$2 billion from the World Bank and the Asian Development Bank (ADB).

The successful execution of this large-scale project was driven by a tech-powered approach with a state-of-the-art management information system, enabling real-time construction tracking and monitoring. With transparency at its core, all funds are directly disbursed to beneficiaries' bank accounts, ensuring accountability and expanding financial inclusion with 1,000,000 accounts opened. This innovative system not only eliminated intermediaries but also empowered beneficiaries to take charge of building their own houses — catalysing economic independence and social transformation.

While SPHF’s impact on housing rehabilitation has been unprecedented with 350,000 houses completed and 900,000 under construction, its impact reaches far beyond housing. In a historic step

THE 2047 ALTERNATIVE

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carbon border adjustment tariffs from the European Union.

Given that Pakistan's Nationally Determined Contributions (NDCs) are as ambitious as some developed countries, they can easily be fulfilled if the private sector is involved in strategic planning. Involving the transport, energy, power and petroleum sectors is key. Yet even for the electric vehicle (EV) transition from the old combustion engine, coordination between local industry, importers and a slew of federal ministries remains unfocused and adrift, which can easily be changed. Just fixing the transition ecosystem for electricity driven vehicles, like two- and three-wheelers, will dramatically transform the emissions and local pollution crisis. Blue skies will come right back.

By the same argument, on renewable energy, the private sector and consumer is ahead of the government. Pakistani communities have led the way in transitioning to solar energy in what is known as the great solar rush, where one-third of Pakistan's installed capacity worth of solar panels has been imported from China in just one year to give people affordable, sustained, low-cost electricity. It is now the policy regulator which must catch up to manage the unintended consequences of too much electricity in the system.

On policy, the vision of a green Pakistan and its ambitions already exists on paper, while all the provinces have well-designed climate policies that tick all the right boxes. What the country needs to resolve most urgently and radically is its relationship with water, as much as with species, nature, land and air. With a polluted coastline and a river that has been its lifeline for a century, the water scarcity risk of 2025 needs to be taken seriously. As does the fact that the Indus River Basin and its aquifers are fast depleting, while the Indus River itself has become toxic with man-made effluent and the debris of human consumption. It is now the second most polluted river in the world.

Again, while UN agencies rush to assist Recharge Plans, the harsh truth is that none of them can have transformational impact. Because Pakistan's water crisis is past incremental actions, a Blue Pakistan Policy needs to be actionalised along with Green Pakistan one. One sector cannot revive or breathe without the other. Green and Blue Pakistans need to align their visions in our terrain for an alternate future of water and food insecurity. Building early warning systems, water telemetry to reduce competition, and changing water consumption habits per capita will be key to life in 2047 if Pakistan is to retain the advantage of one of the largest man-made irrigation systems in the world. Right now, we may be the fifth most climate-vulnerable country in the world, but we are also in the list of the 10 highest consumers of water per capita in the world. This view of water as an infinite resource needs to change.

Further, the country needs to decolonise even its most local climate responses. In almost every federal office, civil servants and policy communities expect well-meaning international agencies to suggest responses and even projects, with no clearly defined asks to move assistance in the right direction. This makes for a crippling intellectual dependence on multilateral agencies, who in their best intentions welcome home-grown plans that are owned by policy elites as well as communities, but rarely even get project asks from the relevant departments.

In the context of drying up foreign aid pools, priorities need to be set by country agendas, on an order-of-business scale of needs that unlock local potential as

towards gender equality, 800,000 women are gaining historic economic empowerment and securing land ownership rights. 2,100,000 people have been financially included. An estimated 1,000,000 jobs have been created according to the International Labour Organisation, ensuring greater financial and social stability.

SPHF is now expanding into WASH (Water, Sanitation, and Hygiene), in the pilot phase equipping 3,000 villages with facilities to benefit 264,000 households. Additionally, drone technology and digital mapping are being used to assess settlements, identify infrastructure, and determine needs for developing climate-resilient settlements. Initially piloted in six locations, the initiative will scale up to 60,000 settlements across Sindh.

The SPHF programme stands as a global benchmark for disaster recovery, driven by innovation, transparency, inclusivity, and empowerment. The Government of Sindh is committed to setting a new standard of climate adaptive transformation beyond housing to include WASH and livelihood transformation for the communities.

UNILEVER PAKISTAN

AS the world becomes increasingly multipolar, one challenge remains universal – climate change. Over the past two decades, Unilever Pakistan has continuously evolved its sustainability strategy to address this urgent global priority. Today, the company focuses on four key areas that matter most: climate, nature, plastics, and livelihoods. Of these, three directly address the critical needs of the environment.

In Pakistan, Unilever Pakistan has achieved a remarkable 93 per cent reduction in its carbon footprint since 2015. This milestone was made possible by transitioning to renewable energy sources, with 91pc of its factories now powered by solar and biomass. The company generates 12MW of solar energy, hosting the largest solar power plant in Unilever's network.

Beyond its own operations, Unilever Pakistan is also working to build the resilience of communities impacted by climate change. The urgency of such initiatives was highlighted by the devastating floods of 2022, which displaced 33 million people, inflicted \$30 billion in economic losses, and pushed 9 million into poverty. In response, Unilever Pakistan adopted two villages in Thatta and D.G. Khan, constructing climate-resilient houses and providing access to clean water, sanitation, renewable energy, education, and vocational trainings.

To tackle plastic waste, Unilever Pakistan has already achieved the target for collecting and processing more plastic than it sells. Lifebuoy and Sunsilk now use 25pc post-consumer recycled plastic in their bottles, while all shampoo packaging is 100pc recyclable. Refill pouches for Lifebuoy and Tresemmé have reduced plastic use by 82pc, demonstrating innovation at scale.

Beyond its own walls, Unilever Pakistan is leading advocacy efforts and calling for policies that support business action and create a level playing field. Collaborating with the Overseas Chamber of Commerce and Industry, it organised Pakistan's first ever Climate Conference to drive collective action.

By embedding sustainability into its business strategy, Unilever Pakistan is transforming Pakistan's climate challenges into opportunities for shared progress, setting a powerful example of public-private collaboration.

much as global green financing. This means we need to stop waiting for someone to tell us what to do, or which international imperative to guide our path. That era is over; at least for now, and in times of global fragmentation, whatever national response we need to muster to an accelerated climate polycrisis must be redesigned for local environments, topographies and development contexts as adaptation that is fit-for-purpose.

Adaptation and resilience, therefore, need to emerge as key priorities for surviving the century, because the heat impacts of climate change are too ferocious and fast for us to wait for big emitters to switch off GHG emissions. In this policy, we need to add Adaptive Social Protection as a core institutional peg in our disaster risk reduction wheel. This will cater to targeted protection for vulnerable communities for enabling resilience as a lifesaving set of changes to work and social habits. Resilience should become the new development and planning filter for all spending decisions, but not just for infrastructure. It should be aligned and embedded into all planning for climate resilient crops, water and cryosphere conservation, disaster risk reduction and management systems, reforestation cover, urban sanitation, air and land pollution, as well as energy transition in affordable steps. The global trajectory for emissions is clearly set for extreme weather, and to face that, our population must be enabled to develop anti-fragility strategies for the coming unpredictability.

In building local resilience, innovation must be encouraged at the incubator level where start-ups across the country are working with local low-cost solutions for plastic as well as air pollution, but find little support to patent or scale up any products or processes needed. For example, even if crop burning in the Punjab continues to be impacted by Indian wind patterns and toxicity, alternatives will have to incentivise farmers as opposed to penalising them. And incentives will once again need coordinated investments in research and development (R&D), which is the only path to change in a science-led transformation in a knowledge-based future.

Also, given the Darwinian nature of international climate finance, which often serves the fittest not the most fragile, country capacities need to be built up for projects to be accepted, raise equity and reach financial close. Financing and governance capacity both will be a bottleneck for surviving mid-century climate trauma for all frontline states that seek to scramble out of the heat-induced hole of recurring extreme weather. To avoid plunging into multisectoral distress, significant interventions will be needed in a cluster of smart development outcomes for the most reduced estimated outlay of \$ 3.8 billion annually, according to the World Bank, if the country moves with speed and coordinated agility to align vision with executive actions.

Regaining space, or money owed as part of a loss-and-damage bargain will not be achieved by routinised responses, so it is important that Pakistan seek financial and technical support by leveraging bold and clear asks. To accompany the reporting update that makes up a country's NDCs path to carbon neutrality, in COP29 Pakistan put forward a new big idea. That was seeking Internationally Determined Contributions (IDCs) from the global community which has been adept at avoiding commitments that transfer resources for resilience to the developing countries.

Pledges and promises since 2019 have missed their mark by billions of dollars, and today the countries most damaged by fossil fuel emissions are told that despite their low carbon footprint, they must come out of their institutional sloth and present bankable projects to the market, or bring more debt to bear on overburdened economies. This must change if we are lead on climate

justice at multilateral forums.

Expecting the carbon trade to change the game is not going to be easy, although Pakistan's natural capital is already being unlocked and monetised by Sindh in one of the largest mangrove restoration projects. Pakistan will have to move forward with creative home-grown climate financing, which is not unavailable if the regulatory climate and enabling ecosystems create a taxonomy of incentives. Most of our solutions to survive the future will have to be local, because no one is coming. The action alternative is entirely in our hands.

The writer is a Senator who has formerly been the Federal Minister for Climate Change Environmental Coordination.

CLIMATE ACTION

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At the same time, Pakistan can deepen its climate change credibility through accelerating implementation of the National Adaptation Plan (NAP), which requires robust investment. Its goal is to foster social, economic, and environmental resilience in the face of climate change. It provides excellent paths to deal with critical issues such as the water-agricultural nexus, the renewable natural capital, the need to invest in human capital, and the reduction of communities' exposure to growing climate hazards.

UNROLLING THE SOLUTIONS

The solutions to climate change are already being unrolled. UN agencies in Pakistan are actively working with the government, civil society and local communities to combat climate change. We help develop sustainable environmental policies; prevent natural disasters and mitigate their impact; build climate-resilient infrastructure and water systems; and deliver humanitarian and recovery assistance to affected communities. We promote efficient, sustainable agricultural and fishing practices, and the development of food systems that can meet the needs of the most vulnerable populations before, during and in the aftermath of disaster.

We help restore ecosystems and biodiversity, conserve natural resources and promote their sustainable use, harvest and conserve water, reverse deforestation, revive wetlands, and protect biodiversity. We support environmental sustainability in the industry, integrated waste management, the development of clean sustainable energies, the improvement of air quality, and the reduction of plastic pollution. We educate and mobilize people — in particular youth — on the need to protect the environment and take climate action.

Climate change is a national, regional and global emergency; so are the solutions. In a region where there are plenty of differences and disagreements, climate action has the power to foster meaningful cooperation.

South Asian nations are among the most climate-vulnerable countries globally, yet they possess significant potential to become global leaders in driving regional self-help environmental initiatives, such as reducing air pollution, promoting conservation, and fostering community adaptation. This will give each government in the region the chance to reap benefits such as clean and cheap renewable energies that support sustainable development.

Failure is not an option. South Asia must lead. The need is urgent, the time is short, but the rewards will be great. The United Nations will support Pakistan and South Asia every step of the way. We will never give up.

The writer is the UN's Resident & Humanitarian Coordinator in Pakistan.





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