



From Fragility to Resilience: Enhancing Sustainable Development

Edited by:

Uzma Tariq Haroon | Sarah Siddiq Aneel | Tayyaba Hanif



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**From Fragility to Resilience:
Enhancing Sustainable Development**

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Preface

The world is living through a moment of profound disruption. Climate extremes, geopolitical rivalries, unsustainable debt burdens, and technological transformations are reshaping societies everywhere. A pandemic in one corner of the world can bring global supply chains to a halt; a war in Europe can push millions in Asia and Africa towards hunger; and a flood in Pakistan can alter the trajectory of international climate negotiations. These events remind us that fragility respects no borders. It is shared, and so too must be the responsibility for building resilience.

And yet, fragility is not destiny.

Across the globe, we see individuals, communities, and nations rise above adversity with determination and imagination. The people of Pakistan have demonstrated this resilience repeatedly, whether during natural disasters, economic hardship, or moments of political uncertainty. This anthology, *From Fragility to Resilience: Enhancing Sustainable Development*, is both a testament to these capacities and a reminder that resilience must be intentionally cultivated if it is to endure.

What gives this volume special significance is the calibre of voices it brings together. The writings and reflections of Pakistan's Acting President, parliamentarians, ministers, and climate leaders signals that resilience has entered the highest levels of political discourse. Senator Sherry Rehman's insistence on climate justice, the Climate Change Coordinator to the Prime Minister's articulation of a national resilience framework, and the Acting President's vision of inclusive growth are not just speeches; they are markers of political resolve. Their presence affirms that leadership in Pakistan recognises the scale of the challenge and is prepared to act with candour and foresight.

But political resolve alone is not enough. The chapters that follow bring together insights from policymakers, academics, practitioners, and international experts, offering a candid assessment of the choices before

us. They show that resilience is not built by finance and infrastructure alone. It requires fairness in opportunity, trust in governance, and the empowerment of ordinary citizens. It requires investment in education, social protection, and the agency of farmers, workers, women, and youth. It requires a new global governance system; one that moves beyond rhetoric towards genuine burden-sharing, where the global financial system no longer stifles development ambitions but supports them.

Back home, there is a lot to learn from Pakistan's experiences. The 2022 floods, which displaced millions and caused damages worth more than USD30 billion, demonstrated that climate risks are not abstract projections but lived realities. More than half of public expenditure is consumed by debt servicing, illustrating the broader dilemma faced by many in the Global South: aspirations for sustainable development constrained by inequities in the global financial system. And yet, Pakistan has also shown what is possible. From social protection programmes that reached millions, to community-led adaptation, to early adoption of renewable energy solutions, the seeds of resilience are already visible.

The structure of this anthology reflects this multidimensional challenge. It begins with reflections on leadership and vision, before moving into urgent priorities such as climate action, debt relief, and agricultural adaptation. It then turns to questions of governance and accountability, before examining opportunities for systemic transformation in food systems, industry, and digital innovation. The final chapters focus on finance, law, and compliance: the frameworks without which ambition cannot translate into reality. Together, these contributions offer both depth and direction: a mirror of present fragilities, and a map for building resilience that is inclusive, just, and sustainable.

The Sustainable Development Policy Institute is honoured to curate this dialogue at its 27th Annual Sustainable Development Conference. This anthology is intended not only as a resource for policymakers in Pakistan but also as a contribution to the wider global conversation on resilience. If it encourages deeper dialogue, strengthens partnerships, and inspires action, whether South-South or North-South, then it will have achieved its purpose: to help shape a future where fragility does not define us, but resilience does.

Finally, I would like to sincerely thank SDPI's Sustainable Development Conference Unit, skilfully led by Ms Uzma T. Haroon; without their

dedicated efforts and teamwork, the successful organisation of the 27th SDC and the compilation of this anthology would not have been possible.

A handwritten signature in black ink, appearing to read 'Dr. Abid Qaiyum Suleri', written in a cursive style with a long horizontal stroke extending to the right.

Dr Abid Qaiyum Suleri
Executive Director
Sustainable Development Policy Institute



Framing the Path: Vision and Leadership for Resilience

Crossroads of Change: From Fragility to Resilience

Dr Abid Qaiyum Suleri

Building Forward Together

Syed Yousaf Raza Gilani

Pakistan's Vision for Climate Justice, Equity and Sustainability

Romina Khurshid Alam

Resilience for an Unseen Future: Investing in Economic Stability and Human Capital

Senator Dr Musadik Masood Malik

Driving Transformative Climate Action: From Rhetoric to Results

Senator Sherry Rehman

Policy Synthesis and Institutional Context

Curated by Sarah Siddiq Aneel

Crossroads of Change: From Fragility to Resilience*

*Dr Abid Qaiyum Suleri***

H.E. Syed Yousaf Raza Gilani, Acting President & Chairman Senate, Islamic Republic of Pakistan; Ms Romina Khurshid Alam, Coordinator to the Prime Minister, Ministry of Climate Change and Environmental Coordination, Government of Pakistan; Ambassador Shafqat Kakakhel, Chairperson SDPI Board of Governors; Honourable Guests, Distinguished Speakers, Ladies and Gentlemen.

It's a cliché to state that the world in general and Pakistan in particular are at a crossroads. Human beings, societies, states, and the global human civilisation have always confronted choices that are not just different from each other but could often be opposite and contradictory to each other. We define our future not by the obstacles we face but by the paths we choose.

The choices are certainly never easy to make. Those confronting us now, however, are way more seminal in charting the future course of our lives than any other choice we have made in recent decades. But, before we talk about the choices, let's first have a look at how we have arrived at this crossroads.

We, human beings, indeed, have been through hell and back over the last four years or so. When a global pandemic hit us in the early part of 2020, many parts of global life came to a grinding halt: road and air transport,

* Welcome Address and Introductory Note delivered on 4 November 2024 at the Inaugural Plenary of the Sustainable Development Policy Institute's Twenty-seventh Sustainable Development Conference titled 'From Fragility to Resilience: Enhancing Sustainable Development' in Islamabad, Pakistan.

** **Dr Abid Qaiyum Suleri** is Executive Director of the Sustainable Development Policy Institute [SDPI], Pakistan.

education and industrial production, tourism and sports—so on and so forth. Health systems even in the most advanced states were tested to their limits. Many of them, in fact, buckled under pressure. There were widespread fears that COVID-19 might wipe vast chunks of humanity out of existence forever.

Then came the war in Ukraine, which challenged Western European governments' belief in strengthening trade and economic ties with Russia so that both sides mutually work together to sustain peace in the region. While that war, still has the potential to spread to other parts of Eastern Europe, it has already pitted Russia and NATO against each other in a seemingly intractable contest of attrition. Most importantly, the war has disrupted international energy supply chains, forcing a reversal in the deployment of renewable energy in many places and raising the prices of oil and gas across the globe to unprecedented levels. The world economy is, consequently, suffering really badly, with countries like Pakistan under severe pressure due to the costly energy imports.

And that's not all. Nature has bared its reddened teeth and claws many times in many countries as a result of the ever-worsening crisis of climate change. In the last three years in Pakistan alone, we have seen devastating floods, scorching heat waves, and destructive disasters caused by the bursting of glacial lakes. We have also witnessed smog in winters that has given Lahore the dubious distinction of being one of the most polluted cities in the whole world, and in many parts of the country, agricultural productivity is on the decline as our river flows suffer a terminal decline due to changing weather patterns and human interventions in their natural course.

In essence, we have seen what a doomsday looks like, what it means to be on the brink of an imminent extinction and what living on the brink of a mega disaster—or a series of mega disasters—entails.

Just after we had congratulated ourselves on overcoming the COVID and on retrieving the world economy from its deadly clutches, we got out of that frying pan and landed ourselves in a fire that has been moulding in the Middle East for the last seven decades. The Israeli wrath on Gaza last year has brought back fears of a war between civilisations that Samuel P Huntington warned about in the 1990s. As Israel carries out daily attacks in Gaza, conducts air raids in Lebanon, and inflicts surgical strikes within Iran, many countries in the region, including Pakistan, are waiting with

bated breath for what this war could bring for them. Already, it is hurting oil and gas supplies and diverting scarce international financial resources to war efforts.

If I stop my remarks here, that will defeat the purpose of our gathering today. We are not here to mourn how and why we landed ourselves in the troubles I mentioned above. We are not here to complain and grieve. We are not here to wring our hands out of despair and frustration.

On the contrary, we are here to celebrate the resilience of the human spirit in the face of adversity. We are here to highlight how our fragility is impermanent and how we come out of every fragile situation stronger than ever before. We are here to find and promote hope—not spread doom and gloom.

And I am not saying all this because of any political correctness—or because I want you to feel good and happy about your lives. I am saying this because I have evidence that the world has already taken a turn for the better, even when smog continues to smother us, and Israel keeps on raining death and destruction in Gaza and Lebanon.

We have observed that humanity emerged from COVID-19 with renewed strength through innovation, collective resolve, and courage. This resilience—this ability to endure and adapt—lies at the heart of our journey from fragility to resilience.

As conventional energy systems reveal their vulnerabilities amidst the Ukraine war, the world had to return to coal and nuclear power in the short run, but it is persistently pursuing renewable energy with even greater resolve, making resilience the foundation of our economic future.

The impacts of climate change, ranging from the devastating floods of 2022 in Pakistan to the flash floods that one observed in Spain the day before yesterday, which took 250 precious lives, are not isolated—they are calls to action. They demand that we transform our response to nature, moving from reaction to resilience, from survival to sustainability.

Likewise, while it seems that global institutions like the United Nations and the World Bank are straining under geopolitical conflict, the 'Pact for the Future' signed in New York on 22 September 2024 is a renewed resolve to improve the multilateral governance system, promote peacebuilding, prioritise dialogue over division, channelising climate finance, and invest in stability over strife.

Zooming in, we, the people of Pakistan, have shown resilience amidst all sorts of vulnerabilities.

Pakistan's successful response to COVID is globally recognised. More recently, after the 2022 floods, Pakistanis did not sit idly by, waiting for international aid. Most of them have rebuilt their lives on their own—except, of course, those who lost their lives to the flood—using their own assets, abilities, and expertise. This resilience, born of necessity, is now driving our journey towards sustainable recovery. When we invest in local empowerment and community-led initiatives, we create the very backbone of resilience.

Also, imagine how our economy averted a default and is now on a path of stability despite the fact that global supply chains remain disrupted, global energy prices remain high, and we are in a vicious cycle of debt and climate vulnerabilities.

Instead of succumbing to high energy tariffs, our people are embracing renewable energy solutions: millions of Pakistanis are resorting to solar energy to run their tube wells, light their homes, and keep their shops and home-based workshops humming with activity—and all that through their own resources.

In the social sphere, too, our women are carving out new places and spaces for themselves despite all the restrictions they suffer from. Today, they can be seen working successfully in many fields—from politics to businesses and from computers to aviation. They are not restricted to merely health and education, perceived to be their traditional haunts, and are trying to conquer the whole world lying before them. Their hunt for new spaces is proof that resilience is as much about expanding opportunity as it is about withstanding hardship.

Citizenry, in general, also has become more aware and more assertive about its rights and powers. Thanks to the almost universal availability of social media and information technology, people are now holding their elected representatives and government officials to account like never before; they are highlighting the lack of social services and other amenities through whatever ways and means they can employ—street agitations, engagements with those in power, and social media campaigns. Most importantly, they can be seen everywhere taking their destinies in their own hands— and making them better regardless of whether they

have any support from any external source or not. This surge in civic engagement is an invaluable pillar of our national resilience.

So, while political, economic and social disasters are hitting and hurting us repeatedly, hope also springs eternal. While wars, weather and withering institutions of good governance are hampering and threatening the forward march of human civilisations, individuals and groups, especially those who have been on the sidelines of global order for long, are making their presence felt—by improving their own lives as well as the life around them.

It is these stories of quiet resilience, of everyday courage, that we are here to celebrate.

This conference, therefore, is not a gathering of despair. It is a forum of hope and opportunity. It is our chance to highlight and strengthen these initiatives, to learn from each other, and to leave with a renewed sense of purpose. My sincere hope is that each of you leaves this four-day event inspired by the resilience we see all around us and determined to turn every fragile moment into a foundation for strength.

Ladies and Gentlemen, on another note, it gives me great pleasure to share that more than 60 officers of the 36th Senior Management Course batch of the Islamabad campus are attending today's event. They represent diverse service groups, including the Pakistan Administrative Service, Police Service of Pakistan, Pakistan Customs, Inland Revenue Service, Trade and Commerce, Secretariat Group, Audit and Accounts, Postal Group, Gilgit-Baltistan Service, Meteorological Office, National Assembly Secretariat, National Savings, and the Senate Secretariat. I have interacted with them at the National Institute of Management and can vouch for their commitment to creating a sustainable and resilient future for Pakistan.

I would also like to highlight that some officers in this batch have had the honour of serving directly with our esteemed Chief Guest, the Acting President of Pakistan.

In closing, let me express my deepest gratitude to Excellency Syed Yousaf Raza Gilani Sahib, Acting President & Chairman Senate, Islamic Republic of Pakistan and Romina Khurshid Sahiba for their patronage and encouragement.

To our 300+ distinguished speakers, including the 60 international guests joining us in-person and online in 51 sessions, plenaries and fireside chats, thank you for enriching this dialogue with your expertise. And to the team at SDPI that organised this conference and Sustainability Investment Expo (SIE), thank you for creating these invaluable platforms for learning, sharing, and envisioning a more resilient future. I always take pride in being one of you.

Thank you all for being here today. Let us carry forward the spirit of resilience, not just as a response to adversity but as a proactive commitment to building a stronger, sustainable world.

Thank you.

Building Forward Together*

*Syed Yousaf Raza Gilani***

Ms Romina Khurshid Alam, Coordinator to the Prime Minister at the Ministry of Climate Change and Environmental Coordination; Ambassador Shafqat Kakakhel, Chairperson, Board of Governors, SDPI; Dr Abid Qaiyum Suleri, Executive Director, SDPI; Ms Uzma Haroon, Director SDC Unit, SDPI; Speakers, Experts and Participants, Distinguished Guests, and Ladies and Gentlemen, Assalam-o-Alaikum and Warm Greetings!

I deem it a great pleasure and honour to address the Twenty-seventh Sustainable Development Conference organised by the Sustainable Development Policy Institute in collaboration with the Ministry of Climate Change and Environmental Coordination. I also like to commend and appreciate the Second Edition of the Sustainability Investment Expo 2024 being held alongside this Conference.

I am confident that the SI Expo will serve as a platform for showcasing cutting-edge technologies, fostering collaborations, and attracting investments to drive climate resilience. I extend my sincere acknowledgement to the organisers for exhibiting great synergy in arranging these esteemed forums that stands as a testament to our unwavering collective resolve to transition from fragility to resilience to foster a sustainable future for Pakistan and the world.

The conference theme '*From Fragility to Resilience: Enhancing Sustainable Development*' is very relevant and pertinent. It reminds us of

* Keynote Address delivered on 4 November 2024 at the Inaugural Plenary of the Sustainable Development Policy Institute's Twenty-seventh Sustainable Development Conference titled '*From Fragility to Resilience: Enhancing Sustainable Development*' in Islamabad, Pakistan

** *Honourable Syed Yousaf Raza Gilani*, then-Acting President and Chairman Senate, Islamic Republic of Pakistan.

the critical importance of transforming vulnerabilities into strengths and leveraging innovations to drive adaptability, growth and development.

The vulnerabilities we confront in the form of climate change, economic instability and social inequities, pose common challenges and opportunities. The clock is ticking and we have a race against time. Our deliberations here, therefore, should not be merely academic. They should be a clearer call for action for our survival and prosperity.

Pakistan is no stranger to these challenges. Our nation has been significantly impacted by climate change. This can be gauged from the Global Climate Risk Index, in which Pakistan is ranked as the fifth most vulnerable country to climate change.

Yet, amidst difficulties, we have made commendable strides towards improving climate governance and sustainable development.

Our national climate and sustainable development policies outline comprehensive and interconnected strategies that address resilience, mitigation, poverty alleviation, social equity and inclusion, women's empowerment, agriculture, water resource management, and energy efficiency, among other key areas.

Pakistan has linked its development agenda beyond 2025 with the Sustainable Development Goals (SDGs) at every level to demonstrate its commitment to achieving sustainable outcomes that enhance human well-being. The '5 E's Framework,' developed by the Ministry of Planning, Development and Special Initiatives, defines Pakistan's short- to medium-term strategy for driving economic growth, advancing social development, and ensuring environmental sustainability. It focuses on five key pillars: export and enterprise-led growth, environmental sustainability, energy and food security, e-governance, and equity.

Moreover, key initiatives have been taken over the past few years, aiming for energy security, environmental protection, sustainable development, social equity and mitigation of climate change. The Benazir Income Support Programme (BISP) has provided financial assistance to millions of vulnerable families. Additionally, our economic reforms have focused on promoting inclusive growth and reducing poverty.

Actions speak louder than words.

Our Parliament holds the distinct honour of being the first in the world to go green by converting its energy system to solar power. Further legislative efforts such as establishment of Standing Committees on Climate Change in both houses of Parliament and integration of SDGs into the National Development Agenda, demonstrates Pakistan's holistic approach to environmental change.

Ladies and Gentlemen, the range of initiatives undertaken by Pakistan reflect a multidimensional approach to climate governance and sustainable development. However, relentless efforts are still required to achieve the SDGs by 2030 for reducing poverty, addressing gender disparity, ensuring provision of education, health, clean drinking water and development of infrastructure and conserving our environment.

While we are celebrating our progress, we must remain vigilant. The path from fragility to resilience requires us to embrace innovative solutions and responsible citizenry.

Technology will play a crucial role in this transformation. By harnessing advancements in Artificial Intelligence (AI) and blockchain, we can drive innovation and efficiency across various sectors enhancing food systems, strengthening governance, and ensuring social protection for all citizens.

We also need to foster a culture of responsible citizenship by promoting environmental awareness and encouraging sustainable practices at the individual and community levels. Education and public awareness campaigns are crucial in this regard. In tandem, there is a dire need to further strengthen governance frameworks to ensure transparency, accountability and inclusivity. Economic reforms should focus on creating a conducive environment for sustainable businesses and investments.

Moreover, in order to ensure food security, it is imperative to develop resilient food systems that can withstand climate shocks and ensure food for all. Social protection programmes should also be expanded to cover marginalised communities and provide them with the necessary support to thrive. Our progress and prosperity as a nation also depends on the crucial prerequisite of women empowerment by providing them with equal opportunities, in education, employment and leadership. Gender equality is not only a moral imperative but also a key driver of sustainable development.

I urge each of you here today—academics, policymakers, civil society representatives—to engage in meaningful dialogue and share your insights on how we can collectively mitigate these complexities. Let us explore, how we can further empower women as key stakeholders in sustainable development, recognising that gender equality is not just a moral imperative, but an economic necessity.

As the great environmentalist Wangari Muta Maathai once said, *'We owe it to ourselves and to the next generation to conserve the environment so that we can bequeath our children a sustainable world that benefits all.'* This sentiment should resonate deeply as we envision a future where resilience is woven into the fabric of our society.

Let us commit ourselves to turning challenges into opportunities. Let us inspire one another through our shared vision of a sustainable Pakistan. A nation where every individual has access to clean air, safe water and equitable opportunities for growth. Together, we can illuminate the path towards resilience and ensure future generations inherit a thriving planet.

Thank you for your attention, your commitment and your passion for sustainable development. Let us move forward with determination and hope.

Pakistan Zindabad!

Pakistan's Vision for Climate Justice, Equity and Sustainability*

*Romina Khurshid Alam***

A Very Good Morning, Syed Yousaf Raza Gilani, Acting President and Chairman of the Senate of Pakistan, Respected Colleagues, Ambassador Shafqat Kakakhel, Distinguished Chairperson of Board of Governors, SDPI; Dr Abid Qaiyum Suleri, Executive Director of SDPI, Distinguished Guests, Ladies and Gentlemen and our Media Team as well.

It is an honour for me to address you all today at this significant gathering organised by the Sustainable Development Policy Institute, in knowledge partnership with the Ministry of Climate Change and Environmental Coordination.

This conference is a testament of SDPI's dedication to addressing the multifaceted challenges facing Pakistan and our world. The theme '*From Fragility to Resilience: Enhancing Sustainable Development*', speaks directly to the heart of our efforts and aspirations as a nation to create sustainable solutions aimed growing complexities. This conference is a landmark moment for Pakistan, as it is the first time that we have prioritised capacity building for our senior government officers on such a platform. This initiative, driven by our government's vision, aims to empower our leadership with the skills and knowledge to address the

* Welcome Remarks delivered on 4 November 2024 at the Inaugural Plenary of the Sustainable Development Policy Institute's Twenty-seventh Sustainable Development Conference titled '*From Fragility to Resilience: Enhancing Sustainable Development*' in Islamabad, Pakistan.

** **Ms Romina Khurshid Alam** is Coordinator to the Prime Minister at the Ministry of Climate Change and Environmental Coordination (MoCC&EC), Government of Pakistan. She also served as Convener of Pakistan's Parliamentary SDG Task Force and is the elected General Secretary of the Young Parliamentarians Forum, where she has championed youth engagement and climate diplomacy.

complexities of climate resilience and sustainable development effectively.

Ladies and gentlemen, today we find ourselves at a critical juncture where the impact of climate change, economic inequalities, and governance challenges converge testing our resilience. Yet, it is in these moments of fragility that we are presented with the opportunities to transform. This conference offers an invaluable platform for thought leaders, policymakers and practitioners to explore how we can collectively move towards sustainable resilience. Our work at the Ministry of Climate Change is driven by this vision to pivot from mere survival towards a model of resilience that safeguards future generations.

Resilience in today's interconnected world demands collaborations beyond borders. Partnerships like those with China through the China-Pakistan Economic Corridor (CPEC), China's Global Development Initiative (GDI), Europe's Global Shield against Climate Risks, UNDP's Climate Promise, the UN's Global Initiative for Information Integrity on Climate Change and Living Indus Initiative and many more offer us invaluable infrastructure and developmental synergies, aligned with the climate resilience goals. With CPEC, we are integrating sustainable growth principles. Such initiatives serve as a model for transformative change.

By aligning these international frameworks, such as United Nation's Sustainable Development Goals (SDGs), we ensure that our development trajectory contributes positively to global resilience efforts. However, the road to resilience is steep and we face significant financial constraints. Climate finance remains a critical area and we are actively pursuing international funding through a comprehensive climate finance strategy. This strategy is not only about securing funds—it is about establishing Pakistan as a credible partner for global climate finance initiatives. With robust carbon market policies, we are laying the groundwork for carbon trading, which can incentivise industries to adopt greener practices. Revenue from carbon credits will be reinvested into vital green technologies supporting projects that directly contribute to Pakistan's climate resilience.

Ladies and Gentlemen, an essential step towards sustainable resilience is strengthening our institutions. The Pakistan Climate Change Authority and Fund are crucial for institutionalising climate action by enhancing our research and policy implementation and capabilities. We aim to address

the gap in climate leadership and enable the country to adapt effectively. Research-driven actions will allow us to approach climate adaptation comprehensively from local agriculture to industrial policy, transforming vulnerabilities into our strength. The National Adaptation Plan in our roadmap for climate resilience. It outlines clear action across sectors vulnerable to climate impacts, ensuring that we are not just reacting but proactively preparing for future challenges.

Local governments are important in this equation. They are often the first responders to climate impacts and empowering them is key to building a resilient Pakistan from the grassroots up. Our efforts in investing in capacity building programmes from local authorities exemplify our commitment to localised resilience by equipping the local governments with the tools and knowledge for climate-sensitive planning. We ensure that resilience reaches every community.

Resilience also requires an informed public. Awareness and education can play a significant role in enabling communities to make sustainable choices. Our Ministry is developing a media strategy aimed at raising awareness about climate issues through strategic use of media platforms. We aim to bridge the gap between policy decisions and community action fostering a culture of resilience.

Furthermore, social climate compliance is a core principle we advocate. We recognise that resilience is not solely about environmental safeguards but also social justice as well. Our policy emphasis is on fair working conditions, equitable access to resources and the integration of social and environmental responsibilities within industries.

Through these policies we aspire to build an adaptive economy that supports both ecological and societal well-being. Our commitment to environmental resilience also extends to tackling plastic pollution—a pervasive issue that threatens our ecosystem and communities. The Ministry's enforcement of plastic ban regulations is part of a broader waste management strategy. Reducing plastic pollution, encouraging recycling and promoting sustainable alternatives are crucial to building resilient communities. This initiative highlights our dedication to fostering an environment that is both healthy and adaptable to climate shifts.

As we gather here, we are reminded that resilience is a shared responsibility of all of us.

Under the guidance of Prime Minister H.E. Mian Muhammad Shehbaz Sharif, our government remains steadfast in pursuing a future where resilience underpins every facet of our national development. However, real progress towards a sustainable future can only be achieved through partnerships, public engagement, and the commitment of organisations like SDPI.

Let us seize this opportunity to rethink, re-collaborate and renew our commitments to resilience.

Ladies and Gentlemen, together we can turn our vulnerabilities into our strengths creating a legacy of sustainable progress for generations to come.

I look forward to the recommendations of this Conference that will help me shape up my arguments for the negotiations at COP29 in Baku.

Thank you very much and have a great day.

Resilience for an Unseen Future: Investing in Economic Stability and Human Capital*

*Senator Dr Musadik Masood Malik***

I believe today's topic, *'From Fragility to Resilience'*, is both timely and deeply important. While it is tempting to focus on the 'fragility' aspect, I would like to frame my remarks by sharing the three core aspirations of our government.

First and foremost, we aim to create employment especially for our youth and for those living in poverty.

Second, we seek to reduce the burden of inflation and ensure that life remains affordable for the people of Pakistan.

Third, we aspire to significantly reduce poverty in Pakistan, and, if possible, to eradicate it altogether.

These are the three primary aspirations that this government, and indeed our Prime Minister, hold at the centre of our policy agenda.

I think we have, at least modestly, succeeded. There is only one sustainable way to create employment, especially for our younger population, and that is to generate new businesses or expand existing ones. All economic activity is ultimately reflected in the GDP growth rate. We have moved from negative or near-zero growth into positive territory, reaching around 2.4%. Our aspiration is to raise this to 3%. Achieving that

* Keynote Address as Chief Guest, delivered on 7 November 2024 at the Closing Plenary of the Sustainable Development Policy Institute's Twenty-Seventh Sustainable Development Conference, titled *'From Fragility to Resilience: Enhancing Sustainable Development'*, in Islamabad.

** **Senator Dr Musadik Masood Malik** is the Federal Minister for Climate Change and Environmental Coordination, Government of Pakistan. At the time of the SDC, he was serving as the Federal Minister for Energy [Petroleum Division].

would mean we are modestly succeeding, not only in boosting GDP, but in creating new businesses, stimulating economic activity, and, most importantly, generating jobs for the people of Pakistan.

As you know, most of Pakistan's population lives in rural areas, where agriculture is the main source of livelihood. In this sector, the growth rate has been an impressive 6.4%. This means that we are not only succeeding in creating employment and driving economic activity in general, but we are also making progress where it matters most: among the poorest of the poor living in rural communities. The growth and increase in economic activity in rural areas have been much higher than in urban areas, ensuring that our focus on uplifting the most vulnerable is beginning to yield results.

I am also tempted to share that our industrial growth is now approaching 4%, currently standing between 3.5% and 3.8%. Not long ago, this sector was in negative territory. Similarly, agriculture is growing at 6.3%. Together, these numbers tell a clear story: we are focused on creating employment, especially for the young people of Pakistan, by driving growth in both our industrial and agricultural sectors.

I would also like to share that we now have a handle on inflation. Last year, inflation stood at 38%; this year, it is in single digits. That is no small achievement. Food inflation, which was 48%, has dropped to just 2%. In rural areas, food inflation has actually moved into negative territory which means that the cost of food products is decreasing. As a result, the economic burden on households is easing, and overall inflation is coming down. This is another area where we are seeing tangible success.

By increasing the funding for the Benazir Income Support Programme (BISP) to PKR 600 billion, we are working to ensure that people do not fall through the cracks during these very difficult times. We have also enhanced development funding because we believe, perhaps somewhat optimistically, that such funding is closely linked to economic activity and employment generation. When we build roads into remote areas of Pakistan, jobs follow. When we construct dams, employment opportunities follow. And in most cases, these projects are located in some of the poorest regions of the country. We are hopeful that by increasing BISP funding and enhancing the Public Sector Development Programme (PSDP), we are making progress in that direction as well.

This past summer, we worked to provide electricity relief to 86% of the people of Pakistan. In Punjab, with the help of an additional provincial grant, support was extended to about 99% of the population. This was critical at a time when electricity bills were rising sharply.

So, are we moving in a positive direction? I believe we are. Our stock market is performing strongly. The policy rate is coming down. Our foreign exchange reserves are strengthening. Substantial Foreign Direct Investment (FDI) commitments have been made to Pakistan, particularly in the industrial and mining sectors.

I speak to you now while exhausted and in transit, having travelled from one country to another in pursuit of attracting more FDI to Pakistan. These efforts are beginning to bear fruit. I can say with confidence that we are modestly moving in the right direction. We have stabilised the country and now we are ready to take off towards sustained growth.

In the larger scheme of things, when I reflect on all of these points, what I am really talking about is fragility. When I compare last year's numbers to this year's, whether they are poverty figures, GDP growth, development spending, or reserve levels, they all point to a simple truth: we were fragile, and we have made progress, moving in the right direction.

But resilience is something different. Talking about resilience means talking about the future, about something no one has seen, something no one can predict with certainty. Take, for example, the young people graduating today in 2024, or next year in 2025. Many of them will retire in 40 years. Imagine retiring in 2060 or 2065, when we cannot even say with confidence what the world will look like in the next five years.

The real question is: how do you prepare a nation for the next 30, 40, or even 50 years? That is where true resilience will be tested. And if there is one thing we know about the future, it is that it will not be a simple, linear continuation of the present: it never has been.

I often speak with my children and try to explain that, when I was young, there were no cell phones. We had these clunky black telephones with round dials, and they can't even imagine such a time. They almost laugh in disbelief. There's a discontinuity between our experiences.

What they don't yet realise is that very soon, they too will no longer be the ones 'happening.' And that is why we must prepare our children for a future that will not be linear: a future that will look very different from

today. It won't be a future of clunky old telephones, and it may not even be a future of cell phones as we know them. Just as it's now hard to imagine a time without cell phones, the technologies and realities of tomorrow may be beyond what we can currently conceive.

My father used to tell me that there was a time when there was no penicillin. That breakthrough was unimaginable at the time. And now, look at the advances we are witnessing. Look at what biotechnology is doing today: designer babies are no longer science fiction, they are happening now. We can grow human organs in petri dishes. Who could have imagined that? In many ways, these petri dishes are the penicillin of a new era. Today's revolutionary breakthrough, reshaping what is possible.

I am the Petroleum Minister, and growing up I could never have imagined a world with cars that run without petroleum fuel. I could not have imagined a telephone without a cable or wire, how does the voice travel? I could not have imagined a car without gasoline, or even a car without a driver.

What I am trying to convey is that resilience lies in the future: a future we have not yet seen. All of the things I spoke about earlier could serve as platforms for resilience, but in truth, they are mostly responses to fragility. What we need is to move beyond merely responding to fragility and begin actively building resilience.

And if you think broadly about everything I have discussed, it becomes clear: there is a set of mission-critical technologies that will define how we adapt, thrive, and prepare for the world ahead.

Biotechnology is going to completely change how we think about illness, life, and death: everything will be renegotiated. When you think about smart cities, you are really talking about connectivity. And if you visit other parts of the world, you can see firsthand what connectivity has already done. You have virtual wallets, stores where you simply walk in, pick up a product, and your account is automatically debited; if you put it back, the amount is instantly credited. You walk out, and everything is settled seamlessly. We could not have imagined such a reality. I certainly could not have imagined it.

What I am saying is that resilience is about the future: a future we have not yet seen. That future will encompass all the things we are talking about

today: nanotechnology, biotechnology, Artificial Intelligence, connectivity, new environmental sciences, climate innovation, and much more.

The only meaningful way to think about that future is to recognise the foundations on which it will be built. There is no biotechnology without biology. There is no nanotechnology without physics. There is no computer science or Artificial Intelligence without mathematics.

If we want to build resilience for a future we have not yet seen, we will have to start by rethinking our education system. We must address the millions of children who are not enrolled in school, the children who drop out, and those who never complete even five years of basic education. We must also take a hard look at our higher education system.

Unless we are able to prepare our youth, our future citizens, for a world not only unseen but almost impossible to imagine, we will not succeed. The skills, knowledge, and adaptability they acquire today will determine whether we can thrive in the unpredictable realities of tomorrow.

So, with all the numbers I shared at the beginning of my talk which reflect our response to fragility, whatever economic space we create must be invested in human capital, in our ecology, in our communities, and in our villages. We must ensure that no child is left behind. We must ensure that, regardless of the kind of future that unfolds, our children have learnt how to think through problems no one has seen before. And those solutions will not be limited to science alone.

I would be remiss to speak only of biology and physics without also speaking of art, aesthetics, culture, and civilisation without placing the future in the context of our history. We must take a liberal arts perspective in bringing all of this together. We need to equip our children and future generations with the ability to think vertically, think horizontally, and not just in a linear fashion. That capability itself is resilience.

Such resilience can be applied to the sciences, to industrial clusters, to climate policy, and to countless other areas. But above all, we must build resilience within our communities. And from my perspective, this resilience must be multisectoral rooted in knowledge, culture, and adaptability across every dimension of our society.

Our investments in health and education depend on the economic space we create, both at the national level and within families and communities. Our economy, in turn, is contingent on the strength of our healthcare

system, because illness remains the single biggest cause of people falling back into poverty.

We must therefore build communities that are strong, resilient units where people can care for their elders and ensure their children receive a world-class education. If we are unable to achieve that, we will have fallen short of our responsibility.

Finally, I believe we must inspire faith and courage in our younger generation. We need to convince them that they have the ability to believe in themselves and to make things happen. Too often, when I travel and speak with people, I hear a level of despair that is daunting. Such hopelessness can pull down any community, even an entire country.

We must instil hope in our youth: the kind of hope that makes them believe that if life throws them a bad ball, they can hit it out of the stadium. And that hope must come from the heart. While we discuss matters of the head, whether policy, economics, science, we must also talk about matters of the heart. We must tell our children that things will be fine, that they will be okay, just like the young people in other parts of the world. If they swing the bat, they can hit; and if they hit, they can send the ball flying out of the ballpark. That is the kind of faith they need to carry with them.

In our conversations, our narratives, and our national discourse, this element of hope is too often missing. I pray that our young people, and those of us who have ‘already happened,’ begin to listen to our hearts because the heart will tell us where to go. And if you have the capacity to be a great scientist or a great artist, there is no reason on God’s green earth for you to settle for being a second-tier or third-tier engineer. So, go out, get educated, have faith, swing the bat and, *InshAllah*, we will all get there together.

Thank you very much for your attention.

Driving Transformative Climate Action: From Rhetoric to Results*

*Senator Sherry Rehman***

Dr Abid Qaiyum Suleri, Executive Director and the driving force behind SDPI; Ambassador Shafqat Kakakhel, Chairperson of the Board of Governors, SDPI; Esteemed Colleagues, Distinguished Diplomats, Members of the Media, Students—I hope some of you are here—Climate Champions, Innovators, and Respected Judges, Assalam-o-Alaikum and Good Afternoon.

Thank you very much for giving me this opportunity and inviting me to speak about fragility, resilience, and—most importantly—real, sustainable development.

First of all, I want to extend my heartfelt congratulations to SDPI and all your partners for bringing together this expo. I remember inaugurating it last year and was genuinely inspired by the kind of innovations and support it fostered—pushing sustainability beyond the cliché, beyond the buzzword—into something real, practical, and meaningful for people's everyday lives.

So, thank you again for continuing this important work. I can see that, much like the climate ambition we hope to see grow at COP29, this venue, this initiative—this entire enterprise—has evolved. It has expanded in a

* Chief Guest Remarks delivered on 4 November 2024 at the Sustainability Investment Expo (SIE) Award & Ribbon-Cutting plenary titled 'Pioneering Solutions for Climate Resilience' during the Twenty-Seventh Sustainable Development Conference organised by the Sustainable Development Policy Institute (SDPI) in Islamabad, Pakistan.

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significant and promising way, and it is clearly engaging more people than ever before.

I would, however, make one small request to the organisers of important public gatherings like this one: please turn down the air conditioning. We may be working hard toward renewable energy, but let's be honest: we are not quite there yet. And it is November in Islamabad. It is entirely unnecessary for the Pak-China Centre to maintain this temperature. Conservation should begin with the spaces we occupy.

I apologise—I tend to begin with a cautionary tale. But I firmly believe that the principles we discuss must apply in our own lives.

That said, something both exciting and encouraging is evident: there are no plastic bottles in sight. And that matters. These bottles are, of course, not recyclable—no matter what anyone tells you. We'll come back to that in a moment.

Now, I won't keep you too long. Dr Abid Suleri is an old friend—and a partner in many climate 'crimes'—and he insists the floor is mine. He clearly doesn't realise how dangerous that can be when you give it to a politician, which happens to be my other day job. So, I'll restrain myself and focus on what this creative and inclusive summit is really trying to do.

Why do I call it creative?

Because it is drawing people in, offering support, and encouraging participation from both large corporations and smaller enterprises.

That said, I would love to see an additional category introduced: perhaps a dedicated chain for young tech innovators: climate-tech, agri-tech, water-tech. There are so many emerging talents in these areas, and I'm sure some of them are already present here today.

So, for the award recipients: I understand that large companies are often able to scale up their outputs, and their scale and numbers naturally position them to meet sustainability benchmarks and qualify for these awards. For instance, if a company can independently generate 14 megawatts of power, as one of the companies here has done, that is a substantial achievement and certainly deserving of recognition.

But I would suggest—Dr Abid and Ambassador Kakakhel—that we create a category specifically to encourage young innovators in the climate space. You've been very thoughtful and deliberate about gender inclusion,

and I truly appreciate that, because inclusion, especially when it represents 51% of the population, is essential to sustainability.

That said, I'd like to address some of your categories and framing in a way that helps us move beyond, as you rightly say, the doom-and-gloom narrative. That narrative has defined much of our journey, especially since 2022, when we faced the great flood of the century and somehow lived to tell the tale.

All of us here today must understand that we are survivors of a great flood—not because it entered our homes, but because it engulfed one-third of our country. The real survivors are the people on the ground who are still rebuilding their lives with home-grown resilience supported by civil society, international partners, and their provincial and federal governments offering a helping hand.

But we must ask ourselves: how much more can we do to strengthen that resilience?

I say this not just because I was the Climate Minister at the time, but because the 2022 flood was a moment none of us who witnessed it closely will ever forget. It was a transformational experience—not just for the country, but for all of us, individually and collectively.

And I think since then—after picking up the pieces, a process still ongoing in parts of Sindh through the construction of resilient housing—it is important to understand that millions of people were displaced. Restoring their lives, their homes, and their livelihoods is a long journey that takes years. Only then can they begin to hope for a future where they are not dependent on subsistence aid or intermittent support from NGOs or well-meaning actors in the international civil society.

So, I think we have come to understand resilience in ways we hadn't before. Out of this challenge and disaster, we found an opportunity—and today, by gathering here, we are continuing that effort. The very act of coming together to discuss these issues signals that Pakistan aspires to move beyond business as usual, recognising that not everything can—or should—be done by governments alone.

This is a non-government space, it is reaching out to industry; it is seeking young and old; seeking to include women; seeking to include all those businesses and corporations that are seeking to redefine ESG as well as

all kinds of connections to social responsibility. Here, we are making those connections.

I think what conferences do is that they actually remind us of what we are doing, what we can do, and how we can make the connections that will enable real sustainable development.

Now, I am not going into how exposed Pakistan is to climate fragility. We all know it is the fifth most vulnerable country in the world. I believe it is a lot more vulnerable than the fifth but data and indicators do change.

What I do know is that we have a massive population—among the fifth or sixth largest in the world—that is exposed, yet not equipped, to confront the challenges of the new millennium. And the new millennium is already here. Science reveals new insights every day, but what reaches our homes is rarely reflected in local media, let alone international coverage.

The media tends to focus only when disaster strikes. And there is something I want to propose today—since we are in the business of recognising contributions through awards, I would very much like to see a media company or journalist included as an award recipient. Let us work on this together, because just today, for instance, we are witnessing a debilitating, crippling smog situation in Lahore.

I know it is not on the agenda, but I believe you're already discussing pollution, circularity, and how our ecosystems must survive—including businesses and urban centres. We are, as you know, increasingly urban—and urbanising faster than any other country in South Asia.

But what are we actually doing about pollution?

The local pollution generated by this urbanisation is distinct from international emissions. A National Cleaner Policy was introduced two years ago. It proposed strong interventions by the scientific community, government, and environmental protection agencies (EPAs), specifically targeting Lahore and similar cities—even Karachi—that are exposed to high-intensity pollution.

Particularly in winter, when particulate matter rises and lingers in the atmosphere, this issue becomes acute. Yet, at the time, the story made it only to page nine of most newspapers—except for one.

And today, you see it on page one—the shock, the horror. The media continues to treat climate as a disaster tool. It focuses only when

catastrophe strikes, followed by the usual hand-wringing: ‘Oh! It’s crop burning.’

Yes, of course, there is crop burning across the border in India—but it is far more than that. And what can we do? We can’t build a wall on the border. We have to take steps to protect ourselves, as we always must. Like climate change itself, its impact know no borders.

When one house is on fire, another can catch fire too—which means that house must build its own fences. And by fences, I mean metaphorical ones—measures to save lives.

So when we proposed such actions, it was natural that Punjab came into focus. The province has a large number of brick kilns. These can be documented and equipped with zigzag technology—enabling them to continue operating, protect livelihoods, and significantly reduce emissions. But that requires some funding, enabling policies, and consistent regulation.

Vehicles—the largest source of urban pollution, particularly in Punjab—can also have their emissions reduced. It is not complicated: regulate engine tuning, enforce emission standards, and make the system work.

But how boring is that? It is not glamorous. It is not a war with India.

But if these measures—along with a reduction in Sulphur content in petrol—can lower pollution by 40 to 50%, then why not act?

Yes, crop burning is still happening, but we can’t just sit back and wait for the rain to wash it away. Children in Punjab are missing school. People are breaking out in rashes. And I often say: pollution in Pakistan is the real serial killer—because its deaths, its impact on mobility, and its mortalities go undocumented.

So why do we only pay attention when it hits home—when our eyes start itching, when planes can’t take off, and motorways are blanketed in fog? Only then does everyone wake up, and the page-nine story suddenly becomes front-page news.

But when solutions are being offered, when people are actually doing the work, no one is interested. And I do hold the media especially the print media responsible for that, because they know better.

If I make a statement about the opposition, it gets a life cycle of 20 hours—sometimes not even a full day—and it runs non-stop. It makes the front page of every paper, even though it is entirely disposable to our allies.

This is what is happening with climate change. I'm sure today's conference will receive the recognition—and more importantly, the constructive reporting—it truly deserves.

Why?

Because it will encourage more climate actors to enter the public space. It will inspire more innovators, and it will draw both companies and consumers into a space where they begin to comply with the very standards we keep talking about.

Standards cannot be abstract—they have to be real. If you're serious about circularity, conservation, and reduced consumption, then the air conditioning must be turned down. If you're talking about waste, then it has to mean something when there are non-reusable plastic bottles on your tables.

This kind of reality check will only be meaningful if we continue these conversations—and we will continue. But until the media embraces this with centrality and purpose—as it has in many countries, particularly in the UK—we'll keep seeing a filter placed in front of climate news. And that filter blocks the urgency of climate action, which is precisely what this conference is about.

If that filter remains, it signals that this problem can be deferred—that the difficult choices we must make can be postponed. And that is the real issue. The filters must come off, because the gloves have come off. Nature is no longer in its normal rhythm. Earth's cycles have been deeply disrupted—by all of us, but especially by wealthier countries. But I'm not here to go into that today. That conversation belongs in another forum.

What I do want to quickly talk about are three or four key things. One is the focus of this conference on a major priority: agri-tech and food security. For Pakistan, this is critical business.

When we buy our food from supermarkets—or, if we're fortunate, from organic grocery outlets in places like Islamabad—we often forget the reality on the ground.

Agriculture in Pakistan is being severely affected by the intensifying summer heat.

Summers have now reached extreme temperatures, particularly in our wheat and rice belts. And while we've been extraordinarily lucky that our soil has bounced back in some areas, a significant number of acres—millions, in fact—have been lost to salinity. This salinisation occurs when waterlogging damages the soil, making it infertile.

Most of Sindh's coastal areas, which were once verdant and fertile, have now turned saline. The same has happened in Balochistan. When I was a child, especially during quieter times, I remember it being full of green orchards—apple orchards in particular—and many beautiful natural assets.

Today, if you drive through Quetta, all you see is brown. What is brown today used to be green when I was a little girl—but that was 40 years ago. And now, we must ask ourselves: who has done this? It is not just nature. So why is the land so fragile, and how do we move it toward resilience?

All the actions we take today—step by step—will help our people, our provinces, and our state transition toward resilient livelihoods. But we must understand: it will be a different way of living than what we knew yesterday.

So why does agri-tech and food security matter?

Because it is one of the key categories being embraced and encouraged at this forum—and it is essential for building a climate-resilient future.

There are several promising initiatives in this space: the FAO's Rice Resilience Programme; the GRASP initiative in Sindh—'Growth for Rural Advancement and Sustainable Progress'; and the Benazir Hari Card, which provides distressed farmers with financial support to help them rebuild. These interventions offer access to seeds, inputs, machinery, and solar-powered energy solutions—tools that enable farmers to reinvent their livelihoods.

All of this is happening—in bits and pieces—across different regions. But in Pakistan, in particular, we need more focused attention. Dr Suleri, I'd like to draw on your expertise in food security here: Pakistan must urgently address its water-intensive, or 'thirsty', crop regions—especially

wheat, rice, and sugarcane. These crops consume far more water than most people realise.

The FAO project I mentioned earlier is a promising example—it is helping rice farmers reduce water usage in paddy fields. We need to examine such solutions, popularise them, and then ensure they are scaled up. Small, scattered projects won't solve the food and water problems of a densely populated country.

Which brings me to the next area I feel strongly about—and which SDPI is also addressing today: water scarcity. It is a deeply serious issue, but we haven't fully come to terms with it especially in our urban centres. We still go to car washes as though our per capita water use is negligible.

But Pakistan's per capita water usage ranks among the highest in the world—possibly the fourth highest. And what does that tell us? It tells us we are wasting water, and that this is not an infinite resource. It will run out.

South Africa's cities ran out of water. They had to ration their showers. They had to limit how long they could flush the toilet. They had to restrict what they could drink.

Do we want to go there? No.

And that is precisely why we must take water scarcity seriously and why the work being done by champions of innovation in this space matters so much.

The more young people get involved in water conservation, the quicker we move toward recognising and preserving water as a finite, precious resource. Just one day without water is hard to sustain. So please—don't waste it.

And if you see the Indus raging in the north—in Gilgit, where the glaciers are melting rapidly—don't assume that is the condition of the river all the way downstream. When the Indus reaches the Delta, it doesn't even meet the sea anymore. And that has serious consequences. For our friends in the north, understand this: when a river does not flow all the way to the sea, the sea begins to flow inward.

Once the sea comes inland, salinity takes over—and two of Pakistan's provinces that were once green are now turning brown. So, be cautious when advocating for big, big dams. Right? That is no longer considered the

future anywhere in the world. What we need to focus on now are smaller, decentralised conservation efforts. That is where real potential lies.

And then, thirdly, we come to the segment on the circular economy—rethinking waste and reclaiming resources—which SDPI is rightly addressing. I believe this is critically important, especially because Pakistan generates around 30 million tonnes of solid waste every year.

And frankly, I think that number is an understatement. We're likely producing more and yet we recycle only about 1% of it. Now, don't feel too bad. The global picture isn't much better. The world recycles only 9% of its plastic. That's right: just 9%.

The secret is out now. It used to be hidden data, but not anymore. I used to challenge that statistic—thinking, surely more plastic is being recycled. But the reality is, most of it is single-use. And this so-called 'forever chemical' is now one of the greatest threats to our health, our future—and even our present.

We are ingesting microplastics every day. That is why we're seeing a rise in illnesses, weakened resistance to infections, and various unexplained health issues. These microplastics are in your food. They're in the chemicals you consume. They're even in the fish you eat, whether freshwater or seawater.

And here is the harsh truth: plastic is coming back onto your plate. The fish have eaten it—because we've dumped so much plastic into the rivers, lakes, and oceans. And now, it is finding its way back to us.

Which brings me to how we treat waste and how we see it as a problem. It is seen as a metropolitan issue. Well yes, of course it is at one level but we need to rethink as a nation, our relationship with waste, we need to see it as a resource.

Yes, we all know that waste can be recycled into energy—but for Pakistan, this isn't just a technical option; it is an economic opportunity worth billions. We generate an enormous amount of waste, and yet, even today—in the 21st Century—many of our cities still lack proper waste collection systems that serve the entire population.

Even elite neighbourhoods are often left to manage their own trash—if the community is willing to bother at all. Waste is, quite frankly, Pakistan's principal circularity problem. We cannot talk about a circular economy if

we're not addressing waste especially single-use plastics and our global addiction to them.

The world is addicted to single-use plastic. In Parliament, I've made sure we use glass bottles. But the moment I step away—back comes the plastic.

Why? Why is this killer bottle back on the table? Because it is easier. It is cheaper. And the attitude is: who cares?

Well, that attitude is the problem. And now, wherever I go, people say, 'Oh, Sherry's coming—remove the plastic bottles!' I hope every one of you becomes that kind of 'scaremonger.' It works. Every bit helps.

So, what we're really looking at is the power of incremental change. And I believe Islamabad's own initiatives matter. But just for your information—we all live here—you all live here. Rawal Dam, which supplies part of this city's water, is receiving 9 million gallons of unfiltered, untreated sewage every single day. And that is one of only three sources of water for Islamabad.

I don't speak in abstractions. This is what real circularity looks like in your life. This is what it means for your health, your water, and your future. Go to Rawal Dam and see it for yourself. I've constituted a parliamentary committee to investigate it—but ultimately, I believe citizens are the most powerful actors.

You are consumers. You are agents of change. And you are the ones who can compel governments to act.

You see the marine life? But now, take a moment to think about what you're drinking. I want to share something with my friends at SDPI—25 or 26 years ago, when I was a journalist editing *The Herald*, I picked up a bottle of water one day and thought: let us test all the brands on the market. And so, we did. Most of the samples were found unfit for human consumption. And you will find that is still the case today. So, think about the water coming from your taps: it is part of a much larger crisis of circularity. And that crisis needs to be interrupted.

What we're doing here today, I believe, is the beginning of a slow consensus. I call it slow because all meaningful consensus takes time. But it is a consensus to interrupt the waste crisis. That is what really matters.

You need to challenge climate disruption with disruption. Be the disruptor.

This convening—this conference—is a disruptor. See it as that.

Now, I don't want to go too deeply into gender inclusion right now, but let me say this: there is actually some very good news. Gender inclusion must become more than just a set of words: it must translate into action.

The Benazir Income Support Program (BISP) has become a global benchmark for building resilience while giving autonomy to household actors—namely, women. During the last flood, BISP disbursed over USD 70 billion.

And I remember international donors saying, 'Thank God you have this instrument. We'd recommend it to other countries.'

So, let us take a moment to appreciate what we do have and build on it.

Let us work toward expanding that model into renewable energy and the broader sustainability sector.

There has been talk here about the total energy mix and, of course, the challenges within our power sector. We are all familiar with the breakdowns, so I won't go into that. What I will talk about is what I call a 'rooftop revolution' in renewables currently underway in Pakistan.

Thanks to an enabling policy—which, thankfully, we managed to protect just a few months ago from changes to net metering—and due to the declining cost of solar panels, Pakistanis are increasingly turning to solar solutions. In fact, this year alone, Pakistanis have imported nearly 15 gigawatts worth of solar panels. That is almost one-third of the country's total installed capacity. That is what's happening on the ground.

Yes, our grid is aging, but at both federal and provincial levels, we are seeing movement—through policy and practice—toward renewable energy. We're a country blessed with high solar density, and people are finding their own solutions.

To me, that is good news. It may present billing challenges for the Power Ministry—it is generating more capacity than it can bill for—but it signals a trend that we all need to pay attention to.

And lastly, I want to highlight one more important achievement: our progress in decarbonisation, particularly through the use of carbon sinks and carbon credit mechanisms, which are now actively in motion.

We are in the process of renewing 350,000 hectares of mangroves, while simultaneously generating revenue through the sale of carbon credits. I'm proud to say that this is part of the Delta Blue Project—an initiative I had the privilege of supporting by helping push through the necessary carbon framework at the time. It has now become one of the largest mangrove restoration projects in the world. Yet, many people in Pakistan still don't know about it. This initiative is not only contributing to climate mitigation: it is also earning millions of dollars in carbon credits for the Sindh government. Importantly, that revenue is being channelled into employing women in the sustainability and renewable sectors, particularly in reforestation, mangrove regeneration, and the rewilding of our heavily eroded coastline.

I'd like to close now by saying this: we must lead with the kind of innovations we've seen here today, and with the commitment and unity they require. Let us remember: sustainability is not just a goal; it is a way of life. It cannot remain an elusive ideal. You can start living it today.

One simple step?

Consume less. Let us reflect on that. Everything we consume needs to be reconsidered. Reuse, recycle or better yet, reuse or simply use less. That is the path to the future. And if you really think about it, all paths to a sustainable future lead back to the wisdom of our grandmothers. Well, my grandmother—certainly not yours, because there is a generational gap—but those timeless principles are exactly what we're now spending global resources to rediscover.

Yes, we'll need technology to support that shift because we've exhausted many of the natural resources that once sustained us. Remember the water we used to drink from clay pitchers and chill in the fridge? We have to go back to that. It may seem tedious or old-fashioned, but it is necessary. And we must also support tech innovators who are finding alternatives to plastic. I recently heard about four schoolchildren in Chaghi and other parts of Balochistan who developed a composite fibre that has the strength of plastic but is fully biodegradable. So let us find those kids. Let us help scale up their innovation. Let us connect them to R&D facilities where they can take it further. That is the kind of future we should be investing in.

Thank you very much.

Policy Synthesis and Institutional Context

Curated by Sarah Siddiq Aneel

Pakistan stands at a hinge moment where fragility and resilience are shaped by daily choices in households, farms, schools, clinics, city wards/*tehsils* and *mohallahs*, then amplified by national policy. Progress is most durable when it is evidence based, locally diagnosed, and co-designed with communities, then tested and scaled with transparent learning. Social protection that reaches the poorest first, gender-responsive services, and second-chance pathways in education and skills can shift life chances at scale. Because pollution burdens and climate shocks fall most heavily on low-income women and children, equity must be built into both programme and policy designs from the start, from clean cooking and safe water to affordable transport and reliable primary healthcare.

Ecological stewardship and economic security are inseparable. A just energy transition that accelerates renewables, grid modernisation and decentralised access will cut air pollution, reduce import dependence and create dignified green jobs in manufacturing, installation and maintenance. Regenerative agriculture, seed and water sovereignty, and urban air-quality management protect the commons on which livelihoods depend. Policy instruments should link incentives with outcomes: polluter-pays enforcement, green tariffs, targeted subsidies for clean technologies, and climate finance that mobilises private capital without overburdening communities. Open data, independent oversight and citizen science can keep attention on health, biodiversity and productivity gains rather than on projects for their own sake.

Macro stability, capable institutions and social cohesion provide the scaffolding for resilience. Fiscal reforms and accountable public finance need to channel resources towards high-impact priorities, while digital public infrastructure improves service delivery and reduces leakage.

Local governments require clear, empowered mandates and practical skills and funds to plan, procure and maintain resilient assets, and technology, including responsible AI and data systems. These should serve public goals such as early warning, efficient social protection and resilient supply chains under credible oversight.

SDPI's Twenty-seventh Sustainable Development Conference (SDC) '*From Fragility to Resilience: Enhancing Sustainable Development*' and Second Sustainability Investment Expo (SIE) '*Pioneering Solutions for Climate Resilience*' organised by the Sustainable Development Policy Institute in collaboration with the Ministry of Climate Change and Environmental Coordination, Government of Pakistan, holistically focused on nine streams that offer a comprehensive strategy to advance sustainable development, economic stability, health, gender equality, resilient food systems and social cohesion and equity across Pakistan; each stream is subdivided into focused sub-themes with detailed recommendations.

ECONOMIC RESILIENCE, REGIONAL TRADE AND LIVELIHOOD SECURITY

FISCAL SOVEREIGNTY AND STRUCTURAL RESILIENCE OF SOUTH ASIAN ECONOMIES

- Countries like Sri Lanka and Pakistan should engage in systematic debt restructuring processes to ensure sustainable growth and prevent dependency on international financial institutions (e.g., IMF). A structured framework would mitigate economic volatility and allow for gradual, resilient economic recovery.
- Address systemic corruption and governance challenges that hinder economic stability. Improving transparency and accountability in governance will build public trust and enhance economic efficiency, essential for attracting investments and securing international support.
- Move from mere economic stabilisation efforts to strategies aimed at long-term resilience. This involves setting and adhering to economic policies that promote sustainable, diversified growth, especially in the face of global and regional crises.
- Streamline and strengthen tax policies to improve domestic

revenue mobilisation. Effective tax reforms, including expanding tax bases and optimising collection, are critical to reducing dependency on foreign aid and loans.

- Prioritise human capital development through investments in education, health, and skills training. A skilled, educated workforce will drive productivity and a competitive business environment.
- Implement policies to create a conducive business environment, encouraging entrepreneurship and foreign investment. Reducing bureaucratic hurdles and offering incentives for investment are necessary steps.
- Focus on long-term economic reforms rather than short-term fixes. This includes tackling structural issues such as inefficient tax systems, inadequate infrastructure, and restrictive labour markets. A comprehensive reform agenda should be designed with clear timelines and accountability measures.
- Develop holistic approaches to tackle multidimensional poverty, considering factors such as education, health, and economic security. Programmes should be designed to address these interconnected aspects, moving beyond income-focused poverty alleviation strategies.
- Collaborate regionally to address economic and geopolitical challenges that affect development. Collective efforts towards resilience and stability can reduce dependency on foreign aid and create a supportive environment for regional trade and cooperation.
- Advocate for changes in global financial assistance criteria, focusing on transparency and accountability. Conditionality in loans should underscore anti-corruption measures, governance improvements, and socioeconomic reforms tailored to long-term sustainability.

LEVERAGING 'NEW ECONOMIC GEOGRAPHY' FOR SHARED PROSPERITY AND STABILITY

In an era shaped by shifting trade corridors, environmental interdependence and realignments, economic geography is no longer

confined by borders. Leveraging regional connectivity and cross-border collaboration offers Pakistan a pathway to shared prosperity, resilience, and long-term stability:

- Think tanks, policymakers, and political commentators in Pakistan should prioritise understanding and responding to global transitions and heightened risks, as these shifts have wide-reaching implications for regional stability.
- The government should develop policies and institutions aimed at attracting private capital to drive regional connectivity initiatives that extend beyond Pakistan's borders for shared growth.
- The South Asian Association for Regional Cooperation (SAARC) should be revitalised to effectively address shared challenges, such as air pollution and smog, that impact multiple countries in the region, particularly India and Pakistan.
- Pakistan and India should collaboratively tackle environmental challenges like smog, ensuring a cleaner and healthier future for citizens on both sides.
- There is need for greater collaboration between Pakistan's Ministry of Commerce and Ministry of Foreign Affairs to advance the country's economic and strategic interests on the global stage, building economic resilience and promoting stability.

DEBT, DEBT JUSTICE AND DEVELOPMENT

Pakistan's policymakers are grappling with a difficult trilemma: rising spending needs, an escalating debt burden, and shrinking fiscal space for government expenditures. To tackle this, thought leaders should:

- Strengthen the role of parliament in fiscal decision-making to promote accountability and responsible governance, ensuring that economic policies reflect national priorities and long-term stability.
- Encourage a unified approach to economic reform, involving all relevant sectors and stakeholders to achieve sustainable development.

- Increase the tax base by bringing more sectors into the tax net. This will improve revenue generation and reduce reliance on external borrowing.
- Focus on export-driven growth as a sustainable path forward, focusing on diversification in key sectors such as IT, healthcare, and legal services to increase Pakistan's global competitiveness.
- Ensure budget discipline by maintaining a primary surplus, reducing the need for additional debt.
- Prioritise investments within Pakistan to stimulate growth. Focus on generating resources domestically and expanding export capabilities to reduce dependency on foreign funding.
- Apply insights from climate justice frameworks to develop equitable debt management strategies that prioritise social and economic fairness.
- Establish a clear and robust Debt Management Architecture, incorporating innovative tools to enhance debt sustainability and transparency.
- Focus on allocating borrowed funds towards projects that yield economic returns and promote sustainable growth.
- In cases of Fiscal Responsibility and Debt Limitation (FRDL) Act violations, the Parliament should hold relevant officials accountable.
- Invest in capacity-building programmes for parliamentarians and their staff, equipping them with the skills to make informed decisions on fiscal and debt-related issues.

SEZs DEVELOPMENT UNDER CPEC 2.0 FOR SUSTAINABLE INDUSTRIAL GROWTH

Pakistan is in the early stages of developing Special Economic Zones (SEZs) under the China-Pakistan Economic Corridor (CPEC) 2.0, while China has nearly four decades of experience with SEZs. Drawing on China's success, Pakistan can maximise the potential of these zones by implementing the following:

- Create a fully independent Special Economic Zones Authority

staffed by SEZ experts, supported by legislative empowerment and fixed tenures to ensure continuity and expertise in zone management.

- Prioritise the establishment of technologically advanced and secure SEZs to strengthen investor confidence and enhance operational efficiency, thereby making Pakistan's these spaces globally competitive.
- Formulate policies within SEZs aimed at generating job opportunities, especially for Pakistan's young and growing workforce, to meet demographic and economic needs.
- Implement measures to simplify investor processes, enhance security, and create an investor-friendly environment that attracts both foreign and domestic investment.
- Strategically balance International Monetary Fund (IMF) policy requirements with SEZ development needs, ensuring that economic reforms support expansion without undermining growth potential.
- Ensure policy stability through political cycles to build long-term investor trust in SEZs as a national priority.
- Enhance institutional support for SEZs and proactively address any misconceptions about CPEC to increase local and international support for such initiatives.
- Smoothly transition to CPEC 2.0 by sustaining investor interest and promoting joint ventures in green technology and sustainable industrial practices.
- Provide competitively priced land within SEZs and focus on high-potential sectors to attract industries that can drive economic growth and create employment.
- Emphasise integration of advanced technology and green practices within SEZs to promote sustainable development and align with global environmental standards.
- Reduce bureaucratic layers and provide SEZ organisations with greater autonomy to improve efficiency and responsiveness to investor needs.

- Study successful SEZ models worldwide to implement best practices that boost competitiveness, productivity, and environmental responsibility.
- Focus on environmentally sustainable projects and enhance production capabilities within SEZs to support long-term economic resilience and environmental sustainability.
- Appoint skilled and experienced leaders to oversee SEZs, ensuring effective governance and decision-making.
- Facilitate free movement of capital within SEZs to create a more favourable investment environment and attract diverse funding sources.
- Strengthen relationships with current investors while attracting new ones, focusing on consistent support and infrastructure improvements within SEZs.
- Develop a comprehensive strategy for SEZ development, keeping in mind consistency, infrastructure expansion, and investor confidence as pillars of sustainable growth.
- Prioritise development of existing SEZs, integrating eco-friendly practices to attract environmentally conscious investors and promote sustainable industrial growth.

ACCELERATING DIGITAL AND SUSTAINABLE TRANSFORMATION IN AGRICULTURE AND TEXTILES IN PAKISTAN

SHORT-TERM

- Relevant ministries (e.g., Ministry of Commerce) and agencies (like the Environmental Protection Agency) should enforce clear regulations that halt the entry of polluted or non-compliant used textile shipments, with mechanisms for accountability and return to exporters.
- The Federal Board of Revenue (FBR) can incentivise sustainable practices in the textile sector by introducing targeted tax relief and subsidies for circular textile businesses.
- The Ministry of Maritime Affairs and the Ministry of Climate Change

and Environmental Coordination ought to support ship recycling and green fueling through regulatory incentives and public-private pilot initiatives.

- Pakistan Single Window and the Ministry of Commerce may jointly initiate a national database on used textile trade to inform regulatory updates and promote alignment with international circular economy standards.
- The Ministry of Education and Higher Education Commission (HEC) should initiate digital skills programmes tailored to agriculture and textiles, preparing students for technology-driven job markets.
- Local governments, with oversight from the Ministry of Planning and Development, are expected to ensure transparency in resource allocation through community audits and digital budget-tracking tools.

MEDIUM-TERM

- The government, in coordination with development partners, could negotiate a five-year debt standstill to create fiscal space backed by a transparent impact framework.
- The Ministry of Finance and the Planning Commission are positioned to adopt performance-based budgeting models that maximise resource use and enhance cross-sectoral coordination.
- The Ministry of Commerce and the Board of Investment (BOI) may introduce licensing regimes and export zone frameworks tied to environmental compliance and sustainable textile innovation.
- The HEC and the Ministry of Science and Technology are encouraged to expand scholarships and competitive grants in priority fields such as digital agriculture, circular textiles, and process automation.
- Industry-academia partnerships, supported by the Ministry of Industries, could be institutionalised through innovation hubs, joint R&D funds, and shared testing facilities.

LONG-TERM

- The Ministry of National Food Security and Research, in collaboration with agritech firms, can scale up adoption of digital technologies including precision farming, satellite monitoring, and blockchain logistics, to enhance productivity and unlock global market access.
- The Ministry of Commerce, together with fintech actors and provincial stakeholders, is well-placed to lead the development of centralised digital finance ecosystems that streamline transactions across agriculture and textile supply chains.
- Textile industry bodies, working with the Ministry of Industries, are encouraged to transition towards automation, smart workforce management, and digital performance systems to improve global competitiveness.
- Environmental regulators, at both federal and provincial levels, can embed long-term enforcement of eco-compliance through continuous monitoring, certification regimes, and incentives for water and chemical treatment innovation.

TOWARDS CLIMATE RESILIENCE

Building climate resilience in Pakistan demands an integrated approach that combines policy, finance, technology, and inclusive partnerships. From scaling renewable energy to green finance and legal frameworks, climate action must be embedded across sectors. The private sector, textile industry, and microfinance institutions all have critical roles to play in enabling local adaptation and industrial decarbonisation. The following sub-themes highlight targeted strategies and recommendations to operationalise a just and future-ready climate agenda:

SCALING RENEWABLE ENERGY

Accelerating renewable energy in Pakistan requires an integrated strategy that strengthens institutional capacity, unlocks private investment and innovation. A coordinated push across public, private, and financial sectors is key to reducing energy dependence, expanding access, and enabling a low-carbon future:

Policy and Regulatory Reform

- Develop a comprehensive 'National Renewable Energy Strategy' that integrates infrastructure planning, diversified financing, and consistent policies to build investor confidence.
- Address governance inefficiencies by enhancing institutional capacity, reforming outdated regulatory structures, and hiring technically experienced professionals across the energy value chain.
- Enable a 'Multiple Seller–Multiple Buyer Model' to encourage competition and increase market efficiency in the renewable energy sector.

Incentives, Finance and Risk Mitigation

- Provide targeted subsidies, financial incentives, and long-term risk-sharing mechanisms to accelerate the adoption of clean energy technologies.
- Launch green bonds and offer tax credits to attract both domestic and foreign investment in renewable energy projects.
- Establish carbon markets and green financing instruments in collaboration with the Ministry of Finance and environmental agencies to promote low-carbon growth.

Infrastructure and Technological Advancement

- Expand transmission infrastructure and invest in energy storage systems to support integration of renewables, especially in high-potential regions like Sindh and Balochistan.
- Prioritise smart grid technologies and advanced storage solutions to optimise the reliability and distribution of renewable energy.
- Promote urban planning that integrates renewable energy systems and ensures grid compatibility for solar, wind, and hydro power.

Localisation and Private Sector Engagement

- Incentivise domestic manufacturing of renewable energy equipment to reduce import dependency and generate local employment.

- Encourage privatisation and Public-Private Partnerships (PPPs) to develop large-scale renewable energy projects, leveraging private sector capital and expertise.
- Engage local industry players in producing solar panels, inverters, and wind components through targeted industrial policies and concessional financing.

International Collaboration and Funding

- Collaborate with international donors and financial institutions on co-financing mechanisms to de-risk renewable energy investments and scale deployment.
- Establish joint funding models for energy access, climate-smart infrastructure, and decarbonisation technologies, particularly in rural and off-grid areas.

UNLOCKING DATA, INCLUSIVE CLIMATE FINANCE AND PRIVATE SECTOR LEADERSHIP

Institutional Collaboration and Governance

- Strengthen inter-agency governance frameworks to improve disaster readiness, promote evidence-based climate policy, and facilitate coordinated energy transition planning.
- Establish disclosure standards and transparency requirements for private climate initiatives to ensure accountability and alignment with national goals.

Data Systems and Research

- Develop comprehensive climate and energy data banks through collaboration between research institutions, regulatory agencies, and private firms to support informed policymaking.
- Empower technology providers and data agencies to support companies in building climate reporting frameworks, tracking emissions, and structuring mitigation strategies.

Finance and Private Sector Engagement

- Integrate sustainable finance instruments into national policy frameworks to secure long-term climate and energy investments.

- Design incentive schemes such as recognition programmes, tax benefits, or performance-linked financing, to encourage businesses to adopt climate-aligned strategies.
- Provide targeted funding for women-led initiatives focused on climate adaptation, empowering women-driven projects to address climate challenges effectively.
- Build local capacity to ensure transparency and accountability in Climate Fund usage, creating a reliable system for monitoring and reporting.
- Support and fund local organisations dedicated to training women in sustainable and climate-smart practices, enhancing local resilience.
- Increase funding allocations for climate-resilient infrastructure, especially in areas most vulnerable to climate change impacts.
- Launch capacity-building programmes to educate local leaders, policymakers, and communities on sustainable practices, renewable energy, and resilient agricultural techniques.
- Engage communities in climate investment decisions and policymaking to ensure local needs and perspectives shape climate initiatives.
- Implement micro-financing programmes to support female entrepreneurs in green sectors, providing accessible funding for women to innovate and lead in sustainable industries.

ROLE OF TEXTILE INDUSTRY IN STRENGTHENING CLIMATE ACTION IN PAKISTAN

As climate change accelerates and international buyers enforce stricter compliance requirements, promoting sustainability within Pakistan's textile sector has become crucial. The government must:

- Establish a comprehensive green ecosystem that promotes sustainable practices across the textile industry, integrating environmental consciousness at every level.
- Improve environmental standards within the textile industry to reduce pollution and enhance eco-friendly practices.

- Develop a robust framework to support and encourage green entrepreneurship within the textile sector.
- Collaborate with the textile and agriculture sectors to advance decarbonisation efforts, reducing carbon footprints and promoting climate resilience.
- Champion inter-ministerial collaboration and Green Growth (GG) mission, ensuring consistent efforts towards sustainable practices in the textile sector.
- Ensure that trade and export policies are in harmony, supporting the growth of sustainable exports that meet international environmental standards.
- Consider fiscal, labour, and energy policies within industrial planning to create a supportive environment for sustainable textile production.
- Develop policies inspired by the EU Green Deal, supporting affected regions, promoting sustainable trade, and educating consumers on eco-friendly product choices.
- Embed skill development initiatives in labour policies to equip workers with the skills needed for sustainable textile practices and new technologies.

The textile sector needs to:

- Prioritise investments in technology transformation to enhance energy efficiency, reduce waste, and drive sustainable production practices in the textile industry.
- Implement strategies to reduce energy consumption in textile production, lowering costs and decreasing environmental impact.
- Build a circular economy in textile production to reduce waste, improve resource efficiency, and extend the lifecycle of products.
- Strengthen PPP initiatives to boost investments in sustainable technologies and practices within the textile sector.
- Increase consumer awareness of sustainable products under a

CSR agenda empowering them to make environmentally conscious purchasing decisions.

ROLE OF MICROFINANCE INSTITUTIONS FOR CLIMATE RISK INSURANCE

- Government agencies and policymakers should take the lead in developing climate-resilient insurance solutions and strategies, working to protect vulnerable communities and their assets in times of crisis.
- Insurance companies and financial institutions must partner with the government to create and customise insurance products that address climate-related risks, ensuring these solutions meet local needs.
- Non-Governmental Organisations (NGOs) and community organisations can collaborate to design and implement strategies that effectively reach and support vulnerable populations.
- Stakeholders and donors, including international development organisations, climate funds, and philanthropic entities, ought to provide financial assistance to fund and scale climate risk insurance products, offering critical support for communities affected by climate events.
- The State Bank of Pakistan should collaborate with Microfinance Institutions (MFIs) to create regulations that would facilitate MFIs in offering climate risk insurance for low-income groups.
- Regulatory bodies need to lead the integration of insurance into laws and policies, creating supportive frameworks that facilitate embedded insurance models.
- Policymakers in collaboration with climate and financial experts must work to make climate insurance products legally available and accessible.
- Lawmakers have to actively play a role in developing and implementing supportive regulations to enhance climate-resilient solutions for vulnerable communities.

- Relevant organisations should implement innovative, technology-driven solutions to enhance crop and livestock insurance for rural and farming communities.
- Insurance providers ought to expand and adapt their products and make climate risk insurance more affordable and accessible for vulnerable communities. Government agencies responsible for finance, agriculture, and climate resilience should collaborate with insurers to establish subsidy programmes that encourage the adoption of climate risk insurance.
- Technology companies and innovation hubs can work with insurers to develop advanced digital infrastructure and tools to improve climate risk data collection, analysis, and insurance delivery.
- Relevant stakeholders have an obligation to provide customised solutions to farming communities with livestock in rural areas where poverty is exacerbated by climate-triggered events and its devastating consequences.
- NGOs and community organisations need to conduct community awareness sessions in collaboration with climate finance and insurance companies in areas impacted by extreme climate events.

GREEN FINANCING AND CLIMATE ACTION

Ahead of COP30, these recommendations highlight actionable strategies to enhance green financing:

- Create a dedicated fund to support climate adaptation and mitigation projects, with a transparent monitoring and reporting framework to ensure accountability and track the impact of funds on climate goals.
- Develop blended finance models and de-risking tools to attract private investment in green projects, particularly for startups, renewable energy, and climate-smart agriculture.
- Promote strong collaboration between public and private sectors, ensuring all initiatives converge with the Sustainable Development Goals (SDGs) to enhance climate resilience. Government

incentives can further drive private sector investment in sustainable practices.

- Mandate climate risk assessments in the financial sector and support green bonds and sustainability-linked loans. These measures encourage banks and businesses to integrate climate resilience into their investment and operational decisions.
- Offer climate risk insurance and resilience-building programmes targeted at vulnerable populations. Expand support for climate-resilient infrastructure, with philanthropic funding and calculated use of global funds like the Loss and Damage Fund.
- Foster circular economy practices, reducing waste and carbon footprints across industries. Implement sustainable waste management systems in line with global best practices to support a regenerative economy.
- Invest in renewable energy projects (e.g., solar, wind) and sustainable agricultural practices, including hydroponics and greenhouses, to reduce reliance on non-renewable resources and improve food security in climate-stressed areas.
- Facilitate access to international carbon markets, enabling Pakistan to benefit from carbon trading.
- Support development and adoption of advanced technologies, such as Artificial Intelligence (AI), to create climate-resilient infrastructure and data-driven agricultural practices. This can improve climate adaptation strategies and enhance sustainability.
- Build a robust data infrastructure through the use of digital tools and data collection on climate impacts. Facilitate knowledge-sharing platforms to ensure stakeholders can access and utilise this data for effective decision-making and regional collaboration.
- Invest in capacity-building programmes for local governments, institutions, and communities to implement and sustain green financing initiatives effectively. This includes training programmes for climate-smart agricultural practices and sustainable water management at the grassroots level.
- Given the water-intensive nature of these industries, promote adoption of water-efficient technologies and practices, such as

wastewater recycling and precision irrigation, to support sustainable development.

- Establish a platform for cross-border knowledge sharing within South Asia (e.g., through SAARC), allowing for regional cooperation in green finance, policy consistency, and climate resilience efforts.
- Encourage digital tools and platforms that enhance transparency, track funding, and streamline processes within climate finance, facilitating better management of resources and clearer accountability.
- Promote eco-certification for businesses and products to encourage sustainable practices across industries, which can also improve access to international markets and attract green investors.

CBAM FOR INDUSTRIAL DECARBONISATION IN PAKISTAN

The European Union's Carbon Border Adjustment Mechanism (CBAM) presents both a challenge and an opportunity for Pakistan's export-oriented industries. Proactive engagement with decarbonisation standards can safeguard market access, attract green investment, and accelerate the country's industrial transition.

- A cross-ministerial task force should be established to design a comprehensive National Decarbonisation Strategy.
- Government regulatory bodies can facilitate CBAM compliance by offering regulatory support and financial incentives, such as tax breaks, subsidies, or low-interest loans, to industries investing in renewable energy.
- Environmental Protection Agencies (EPAs) ought to provide regulatory guidance on carbon management and reporting practices, especially for export-heavy sectors like textiles and steel.
- Industry associations and Chambers of Commerce may help build capacity among industries to report carbon emissions transparently. Training institutes and vocational bodies can develop training programmes for Tier 1 manufacturers on accurate

carbon accounting and management practices.

- The Ministry of Commerce should create an official Carbon Reporting Framework to ensure transparency across supply chains. International organisations like the United Nations and World Bank can collaborate with the government to provide technical support and facilitate technology transfer to Pakistani industries under this plan.
- The Ministry of Energy and Power ought to establish a national strategy for integrating green hydrogen into the energy mix, particularly targeting high-emission sectors such as steel, cement and textiles.
- Research institutes and international partners need to be engaged to conduct feasibility studies and pilot projects for green hydrogen applications.
- There is need for a National Climate Finance Strategy to attract international funding and close the adaptation financing gap.
- Securities and Exchange Commission of Pakistan (SECP) should establish a regulatory framework for Voluntary Carbon Markets (VCMs) enabling industries to trade carbon credits.
- Private sector stakeholders need to be encouraged to participate in carbon trading to offset emissions and promote sustainability.
- The Ministry of Energy and Power is expected to integrate CBAM compliance into national energy policies by setting clear renewable energy targets for energy-intensive sectors, while provincial energy departments are encouraged to promote investments in solar, wind, and hydrogen solutions through subsidies and incentives for on-site generation.
- The Trade Development Authority of Pakistan (TDAP) can be tasked with developing sector-specific compliance programmes to help exporters meet CBAM requirements, while dedicated export facilitation centres provide hands-on support for securing certifications and documentation needed for EU markets.
- The Small and Medium Enterprises Development Authority (SMEDA), together with industry chambers, must help SMEs adopt low-carbon technologies and carbon accounting practices, backed

by government grant programmes that will fund capacity-building and technology uptake, while policy advisory bodies need to conduct gap analyses to design targeted initiatives that ensure SME readiness for CBAM compliance.

- Industry bodies and environmental consultants should encourage industries to calculate their carbon footprints as a foundation for developing decarbonisation plans.
- Industry stakeholders should design strategies to enhance steel production and other high-potential sectors, leveraging CBAM compliance to boost exports.

LEGAL FRAMEWORK OF CLIMATE FINANCE

A strong legal framework is vital for effective climate finance. Clear rules and accountability can ensure sustainable investment and credible climate action. Hence, the state needs to:

- Establish environmental courts and provide specialised training for legal professionals, incorporating best practices from international institutions.
- Ensure climate finance agreements and clauses are clearly articulated to improve the allocation and monitoring of funds.
- Introduce consistent and clear policies for electric and hybrid vehicles, including increased loan limits and policy incentives to encourage adoption.
- Develop and implement national carbon standards to monitor and reduce emissions across sectors.
- Create a unified legal structure to support climate finance initiatives, incorporating insights from successful approaches in other jurisdictions.
- Promote academic exchanges for knowledge sharing and innovation in climate finance and legal frameworks.
- Strengthen the first Nationally Determined Contributions (NDCs) following global stocktake processes to secure international climate funding.
- Develop a robust legal framework for forest conservation,

supporting ecosystem protection and sustainable forest management.

- Encourage EV production by reducing taxes and offering physical incentives, moving away from indefinite subsidies to targeted support and growth.

POLLUTION CONTROL AND ENVIRONMENTAL HEALTH

As environmental degradation increasingly threatens public health and sustainable development, Pakistan must adopt a dual-track approach tackling air pollution's health impacts while preparing for global shifts in plastics regulation.

AIR POLLUTION: STRENGTHENING CROSS-SECTORAL RESPONSE AND PUBLIC HEALTH PROTECTION

The country's public and private sector should work together to:

- Increase funding and institutional support for research institutions and innovators to develop tools that mitigate the health impacts of air pollution.
- Expand the network of ground-level air quality monitors in both urban and rural areas, with priority given to historically high-risk zones, to enable real-time data collection and targeted responses.
- Enable controlled access to anonymised public and private healthcare registries to strengthen air pollution-related health impact modeling and support cross-sectoral policy design.
- Develop sector-specific air pollution apportionment data through environmental departments to clarify emission sources and support targeted regulatory enforcement.
- Enforce the National Clean Air Plan aligning Provincial Air Quality Standards and National Environmental Quality Standards with WHO PM2.5 guidelines.
- Support institutional cooperation between environmental authorities (e.g., EPA) and healthcare facilities to establish

centralised data-sharing platforms that link air quality data with health outcomes.

- Prioritise large-scale epidemiological studies focused on household air pollution particularly its disproportionate effects on women and children to inform public health strategies.
- Launch sustained national awareness campaigns on the health dangers of air pollution (especially PM2.5 and indoor air pollutants) to promote behavioural change and increase public demand for cleaner air.

PLASTICS CONTROL AND GLOBAL NEGOTIATIONS: ENHANCING NATIONAL READINESS AND PRIVATE SECTOR ENGAGEMENT

Pakistan's public and private sectors must work collaboratively to address the growing challenges of waste management. The private sector, in particular, has a critical role to play in advancing circular economy practices, investing in sustainable supply chains, and supporting broader national goals on plastics reduction and recycling:

- Leverage effective policies from international models on plastic management, recycling, and circular economy principles. Instead of creating entirely new frameworks, start with gradual, practical steps to adapt proven strategies ensuring they are tailored and feasible for local application.
- Recognise the scale and specifics of the plastic problem and support local industries, innovators, recyclers, and recommendations from academia.
- Engage actively in the global plastics treaty negotiations, focusing on collective, international commitments towards sustainable production. This treaty should not replicate policies that already address fossil fuels and chemicals but rather promote cohesive global standards that reduce plastic waste and enhance recycling, creating a unified approach across countries.
- Integrate circular economy principles, understanding that no single entity (government, private sector, or others) can tackle this challenge alone - collaborative effort is essential.
- Identify and differentiate between primary and secondary plastics

and ensure proper usage of available machinery for sustainable adaptation.

- Develop national frameworks with key interventions, including tracking systems to identify specific types of plastic-related problems.
- Determine the areas of highest value and societal benefit to prioritise government interventions.
- Establish appropriate methods for collecting recyclable materials and improve overall waste management practices, with government support for private sector involvement.
- Focus data collection on providing actionable insights, not just broad numbers; understanding the technical nature of plastic waste issues is crucial.
- Reduce plastic use by exploring and promoting biodegradable materials for water and beverage containers, mitigating the spread of microplastic pollution.
- With only 1% of Pakistan's solid waste recycled, adopt a circular economy approach to significantly reduce waste, enhance recycling, and improve waste management infrastructure.
- Invest in building and enhancing supplier capacity to support a sustainable recycled polyethylene terephthalate (rPET) supply chain across the consumer goods sector.
- Launch educational and recycling programmes in collaboration with sustainability organisations (e.g. World Wide Fund for Nature and the International Union for Conservation of Nature) to raise public awareness about rPET products and their environmental benefits.
- Optimise costs by adopting advanced technologies and strengthening value chains to improve the affordability and scalability of rPET production.
- Establish global alliances with international markets and industries to gain insights into efficient rPET practices, explore diverse technologies, and lower costs through shared expertise and collaborative innovation.

GOVERNANCE, RULE OF LAW AND INSTITUTIONAL RESILIENCE

PAKISTAN AT 2047: OPPORTUNITIES & CHALLENGES FOR TODAY'S YOUTH AND FUTURE HUMAN CAPITAL

It is vital for Pakistan to:

- Explore alternative financing mechanisms to support health initiatives and programmes.
- Initiate a fundamental shift in addressing the country's demographic challenges, focusing on sustainable population management and human capital development.
- Address social mobility barriers to enhance awareness and engagement in social issues, especially among youth.
- Engage government institutions in Disaster Risk Reduction (DRR) activities, actively involving and training youth in climate resilience, risk management, and climate mitigation.
- Educate women in decision-making and family planning to help control population growth rates.
- Make use of youth potential to drive economic growth, reaping the demographic dividend through targeted programmes for children, adolescents, and young adults.
- Establish climate-resilient health facilities and rehabilitation programmes to ensure youth productivity for the future.
- Increase investment in mental health and nutrition programmes for children, adolescents, and youth with a focus on climate resilience.
- Ensure climate-resilient infrastructure and youth-friendly health initiatives.
- Enhance digital and soft skills training to equip the youth for a competitive economy.
- Prioritise IT initiatives for women empowerment to boost economic productivity and human capital development.

- Innovate community mobilisation strategies to increase awareness and skill acquisition.
- Integrate climate-resilient practices into Water, Sanitation, and Hygiene (WASH) programmes.
- Strengthen skills in green industries to promote economic growth and job creation.
- Increase investment in domestic markets and natural resources to unlock Pakistan's potential.
- Empower informal economy workers, particularly women, and explore channels to extend social protection services.
- Build solidarity among women workers to expand social protection coverage for female workers.
- Integrate the disabled population into Universal Health Coverage (UHC) and financial protection schemes.
- Train healthcare professionals in disaster mental health care for effective psychological support.
- Equip community members, especially youth, with Psychological First Aid (PFA) skills for disaster response.
- Implement school-based resilience programmes to support children's mental health and education in disaster-affected areas.

LOCAL GOVERNMENT SYSTEM IN PAKISTAN

- National and provincial governments should establish a constitutionally guaranteed and well-defined power structure for local government as a separate tier, empowering it to address urgent community needs in areas such as energy, economic development, health and education.
- Community leaders and local government bodies should collaborate to hold inclusive forums for diverse communities, supporting consensus on local aspirations and goals. These collective efforts will help reinforce the local government's capacity to address distinct community needs.
- Parliament should consider a new constitutional amendment to

designate a fixed election day for local, provincial, and federal governments, with all elections conducted simultaneously. This would streamline the electoral process and strengthen democratic governance.

- Policymakers should study best practices from neighbouring countries regarding power and fund allocation from provincial to district levels, ensuring that local governments have adequate resources and authority to operate effectively.
- Politicians and policymakers should approach policy development on a technical basis, focusing on evidence-based solutions to address local governance issues with expertise and precision.

CITIZEN-LED ACCOUNTABILITY

Pakistan's fragility stems from governance challenges, socioeconomic disparities, and inadequate representation of marginalised groups. Building resilience requires empowering citizens, creating trust between government and civil society, and promoting active participation across all societal actors. Think tanks and other stakeholders can play a crucial role in creating frameworks that empower citizens and promote collaborative problem-solving in the following domains:

1. Citizen Empowerment and Awareness

- Launch accessible programmes to educate citizens on their rights and responsibilities within governance processes, with a focus on empowering marginalised communities.
- Develop a lifelong Citizens' Information Portal to inform citizens of government actions, policies, and updates at local and national levels, advancing transparency and engagement.
- Leverage technology to communicate with, engage, and mobilise citizens, enhancing resilience through digital inclusivity.

2. Community-Driven Development

- Promote community-driven projects where citizens, particularly from tribal and underserved areas, identify and prioritise local issues.
- Create policies that consider the cultural and economic

specificities of tribal and remote regions to maximise effective resource utilisation.

3. Institutionalising Citizen-Led Accountability

- Establish a Citizen Monitoring Framework or System, allowing communities to hold leaders accountable for policy outcomes and public service delivery.
- Implement regular, transparent public reports on government progress, financials, and impact assessments to reinforce trust and accountability.

4. Strengthening Local Governance

- Reform local government structures to increase grassroots representation and decision-making power in line with community needs.
- Create collaborative planning and monitoring frameworks where local councils and citizens work together on development initiatives.

5. Inclusion of Marginalised Groups

- Implement policies to ensure representation of marginalised groups in decision-making bodies, utilising quotas, leadership programmes, and targeted outreach.
- Offer training programmes to empower youth, women, and tribal populations, enhancing their capacity to engage in governance processes.

6. Collaborative Decision-Making Framework

- Form a Multi-Stakeholder Council comprising representatives from government, civil society, and citizen groups to collaboratively identify and resolve critical issues, with a mandate for public reporting.
- Conduct regular public consultations at various governance levels to capture diverse viewpoints on socioeconomic and political matters.

7. Accountability and Transparency Measures

- Conduct external audits of government programmes and publicly

funded projects to ensure transparency and accountability.

- Establish an independent bureau ‘Citizen Accountability Bureau’ (CAB) to address complaints, monitor government performance, and enforce transparency in governmental actions.

8. Institutional Capacity Building

- Integrate civic education in schools and communities to promote values of accountability and social responsibility, drawing inspiration from models like those in Australia.
- Strengthen the capabilities of government agencies and community organisations to manage and oversee development initiatives effectively.

9. Promoting Trade Unions and Social Actors in Decision-Making

- Enable trade unions and Civil Society Organisations (CSOs) to participate actively in decision-making, identifying grassroots challenges and recommending viable solutions.
- Establish formal mechanisms for social actors to contribute to national policy discussions, especially those aimed at enhancing resilience and reducing fragility.

10. Policy Development and Evaluation

- Develop policies that address specific regional challenges, with regular evaluations to assess impact, gather feedback, and refine strategies.
- Encourage collaboration between academia, business, and civil society to develop innovative resilience-building solutions.

LABOUR AND HUMAN RESOURCE RESILIENCE IN HIGH-RISK AND MARGINALISED SECTORS

SOCIO-ENVIRONMENTAL COMPLIANCE

As climate change exacerbates occupational hazards, particularly in regions like Pakistan, addressing the socio-environmental impacts on labour and industry is crucial. Building resilience requires robust policies and targeted interventions to protect workers and ensure sustainable

practices in high-risk sectors like mines and brick kilns. Academia, development stakeholders and think tanks should focus on the following areas:

1. Data Collection and Policy Formulation

- Prioritise data collection on heat exposure impacts, especially in underserved regions, to inform targeted policies and interventions.
- Strengthen Occupational Health and Safety (OSH) regulations to safeguard workers from climate-induced hazards such as extreme heat. This includes guidelines for safe working conditions and emergency responses.

2. Worker and Employer Education

- Educate workers and employers on the risks of heat stress and the importance of protective measures, including hydration, ventilation, and heat breaks.
- Tailor safety standards to address the unique needs of different sectors, such as factories, brick kilns, and mining, to ensure effective and relevant protections.
- Implement systems for mine worker registration, skill development programmes, and alternative livelihoods to reduce reliance on precarious mining jobs.

3. Investment in Workplace Infrastructure

- Invest in improved ventilation and cooling systems in workplaces, especially in sectors prone to high heat exposure, to minimise health risks.
- Develop emergency response strategies to protect workers during extreme weather events, ensuring rapid and coordinated action.
- Address the health and safety challenges faced by mine workers in resource-rich but high-risk areas.

4. Economic Benefits of Worker Safety

- Emphasise the economic advantages of investing in worker safety and health as a means to enhance productivity, reduce turnover, and support sustainable growth.
- Link trade, export, fiscal, and energy policies to reinforce

sustainable and safe production practices in line with international standards, such as those of the International Labour Organization (ILO).

- Encourage a 2.7% increase in the cost of bricks to cover social protection for kiln workers, funded by both public and private sectors.

5. Promoting Collaborative Approaches and Capacity Building

- Strengthen PPPs to implement OSH policies effectively, with active collaboration between government agencies, social sectors, and industry players.
- Empower trade unions to play a significant role in negotiating workplace safety measures, especially for heat stress and flexible working hours.

6. Synchronisation between National and International Compliance Standards

- Ensure coherence between national labour policies and provincial regulations, promoting uniform standards for OSH across all levels of governance.
- Implement independent audits and create a Citizen Accountability Bureau (CAB) to monitor and enforce OSH compliance, ensuring transparency and justice in labour practices.

7. Climate Resilience in High-Risk Sectors

- *Brick Kiln Industry:* a) Transition from traditional brick-making to more sustainable methods, such as using blocks that replace multiple bricks, to reduce emissions. b) Support brick kiln workers through microfinancing options, social protection funds, and worker training on health and safety. c) Implement zigzag kiln technology to reduce emissions in the brick-making industry. d) Cultivate green areas around kilns to mitigate environmental impacts. e) Provide brick kiln labourers with training on their rights and compliance standards and ensure proper social security contributions by employers. f) Introduce a comprehensive rescue and rehabilitation plan for workers affected by climate hazards, with adequate social fund allocations from the government. g) Initiate microfinancing options for brick kiln workers' families to

support green projects and reduce reliance on traditional brick production

- *Mining Industry in Balochistan:* a) Protect mine workers by establishing a national committee to oversee labour conditions, enforce health and safety protocols, and promote alternative livelihood programs. b) Ensure Afghan refugees and other vulnerable workers are registered to access social protection.

8. Institutional Capacity Building and Skill Development

- Equip workers with new skills to adapt to a transitioning economy, focusing on green industries and sustainable practices.
- Integrate public health initiatives targeting labourers in high-risk industries to prevent climate-related illnesses and promote long-term well-being.
- Recognise and support businesses that actively reduce emissions and adopt sustainable practices.

9. Developing Climate-Resilient and OSH-Compliant Policies

- Mainstream OSH into climate policies, continuously evaluating legislation to associate with emerging climate risks.
- Develop tailored frameworks for each sector, particularly for brick kilns and mines, with support from organisations like the Sustainable Development Policy Institute.

TOWARDS A LIVING WAGE ECONOMY

The concept of a 'living wage' refers to the minimum income necessary for a worker and their household to afford a basic but decent standard of living covering essentials such as food, housing, healthcare, education, and transport. Unlike 'minimum wage', which is often politically negotiated and may fall below subsistence levels, the 'living wage' is rooted in rights-based and developmental frameworks. The Government of Pakistan needs to:

- Position living wages as an economic necessity, not a charitable act, to boost worker productivity
- Set up a comprehensive data-collection system for living wages with a focus on rural regions to guide evidence-based

policymaking. This framework must assess wage disparities across rural and urban Pakistan.

- Implement policies to close the gap between 'minimum wage' and 'living wage' in Pakistan by introducing targeted social protection measures and gradually increasing minimum wage standards.
- Encourage collaborative effort between the government, private sector, and civil society to ensure that living wages are not only implemented by large organisations but also across supply chains. This includes working with smaller businesses and suppliers to ensure they meet fair wage standards.
- Develop a clear regulatory framework to ensure businesses are incentivised to pay living wages. This includes providing financial or regulatory incentives to companies that adhere to living wage standards, while disincentivising those that do not.
- Recognise that living wages should vary by sector and region, considering factors such as the cost of living, healthcare, transportation, and education. The government should allow for regional minimum wage boards to set local living wage standards.
- Strengthen labour unions and other worker representation bodies to negotiate living wages and ensure that employers and employees are in alignment on wage standards.
- Address the impacts of climate change on livelihoods, especially for vulnerable groups who are most at risk from environmental disasters, by incorporating climate resilience into wage policies.
- Support civil society advocacy of the long-term benefits of paying living wages, including higher employee productivity, lower turnover rates, and overall economic growth with examples where businesses have seen growth after implementing living wage policies.
- Link local wage policies with international standards and conventions on labour rights, such as those set by the European Union (EU), to ensure Pakistan's competitive standing in global markets and improve export prospects.

STRENGTHENING CLASSROOMS TO STRENGTHEN COMMUNITIES

- Public and private educational institutions should work together to create pathways for out-of-school children to access education, ensuring inclusivity and equal opportunities for all.
- School systems (like Beaconhouse) in collaboration with education technology providers should develop an online platform to showcase and monitor community-driven initiatives like cleanliness and plantation drives, as well as track professional development programmes.
- Schools, mental health organisations, and social sustainability advocates should form partnerships to support students' mental health and social resilience, promoting a comprehensive approach to education and community well-being.

FOOD SYSTEMS AND AGRICULTURAL RESILIENCE

EMPOWERING FARMERS: VALUING INDIGENOUS KNOWLEDGE AND SUSTAINABLE PRACTICES

In a context where climate volatility, water scarcity, and rising input costs threaten agricultural stability, the wisdom of those who work the land daily is often undervalued. These recommendations highlight how resilient food systems are not just built through technology and policy, but through recognising the farmer as both steward and innovator. Sustainable agriculture in Pakistan depends on integrating local knowledge with mindful, adaptive resource use ensuring that the land is not only productive today but preserved for tomorrow:

- Emphasise the mindful and efficient use of water resources, minimising waste and contamination. True resilience lies in sustainable resource management.
- Highlight the importance of making informed choices, particularly in climate finance, to ensure funds are allocated towards sustainable practices.
- Recognise that farmers possess valuable practical knowledge and are capable of making optimal crop decisions. Support should focus on empowering farmers rather than dictating methods.

- Promote the use of bio-fertilizers and coated fertilizers to improve nutrient efficiency, increase nitrogen circulation in soil, and reduce chemical runoff.
- Ensure up-to-date data through periodic agricultural censuses to guide policy and identify emerging trends.
- Facilitate access to credit for local farmers, enabling them to invest in sustainable practices and innovations.
- Expand crop insurance programmes to protect farmers against losses, encouraging them to adopt new methods and experiment with diverse crops.
- Improve traceability systems for crops, particularly those meant for export, to strengthen Pakistan's position in global trade while stabilising prices for local consumers.
- Develop and implement policies aimed at reducing post-harvest losses, ensuring that farmers and the wider economy benefit from improved food security and reduced waste.
- Encourage partnerships like Nestlé's work in cultivating apples in Gilgit-Baltistan and mangoes and guavas in Punjab to increase crop diversity and quality.
- Expand investment in research centres focused on cross-learning and innovation to enhance sustainable practices and crop resilience.
- Ensure implementation strategies involve local communities, leveraging their knowledge and aiding a collaborative approach to sustainable agriculture.

South Asian governments, in particular, need to focus on the following key areas:

- Develop inclusive policies by involving farmers in decision-making and consulting them on specific needs and challenges. Use community platforms, like the Panchayat system, to enhance local ownership and encourage farmers to adopt eco-friendly practices.
- Raise health awareness among farmers regarding the impacts of crop residue burning and promote resilient health systems to support communities affected by agricultural practices. Prioritise

sustainable farming techniques, such as organic farming, to protect soil health and longevity.

- Provide farmers with necessary training, equipment, and technical support to adopt sustainable residue management practices. Facilitate partnerships with the private sector and develop profit models that incentivise private investment in sustainable agriculture.
- Encourage joint studies and data-sharing initiatives, both within Pakistan and with regional bodies like South Asian Association for Regional Cooperation (SAARC), to gain insights into crop residue management. Establish collaborative regional monitoring and knowledge exchanges on sustainable practices, technologies and equipment.
- Implement robust, long-term policies that address the root issues of crop residue management. Ensure political commitment by advocating for unified action across stakeholders, enabling consistent and effective implementation that supports smog reduction and agricultural sustainability.

CLIMATE-RESILIENT FOOD SECURITY IN PAKISTAN: ROLES AND RESPONSIBILITIES

ROLE OF THE GOVERNMENT

- Lead development of strategies to link food production with consumer access, ensuring every step from farm to market is sustainable.
- Integrate food resilience and security goals into the national planning framework, promoting cross-industry collaboration.
- Revise and update the National Food Security Policy (2018) to incorporate climate resilience in sync with the 2021 Food System Summit recommendations and focus more on supporting women farmers.
- Establish a National Adaptive Plan with provincial collaboration, using new research to shape strategies for climate-resilient food systems.

- Provide financial incentives and tax relief for small-scale farmers adopting sustainable practices, such as hydroponics and solar-powered farming.
- Strengthen funding mechanisms to incentivise private sector investments in resilient food systems and sustainable agriculture.
- Develop a national action plan to leverage genomics, molecular markers and biotechnology for climate-resilient crop breeding.
- Organise national expectation workshops and dialogue groups to advance food system transformation.
- Promote the use of satellite data for improved weather forecasting and crop health monitoring.

ROLE OF CIVIL SOCIETY & NON-GOVERNMENTAL ORGANISATIONS

- Collaborate with local governments and communities to implement programmes that support the restoration of natural food systems.
- Lead initiatives to promote affordable diets and combat malnutrition through awareness workshops, especially in vulnerable communities.
- Support joint initiatives at the local level to strengthen food systems and promote sustainable agricultural practices.
- Facilitate awareness campaigns on climate-resilient practices, particularly targeting small-scale and women farmers.
- Assist in building digital and financial literacy for farmers, especially women, empowering them with market access and modern farming techniques.

ROLE OF ACADEMIA, RESEARCH INSTITUTIONS AND TECH COMPANIES

- Conduct joint research and development on identifying genes that enhance stress and salinity tolerance in crops like rice.
- Promote the use of diagnostics, genomics, and biotechnology to

accelerate crop breeding for climate resilience.

- Focus on developing high-yield, low-water crops and exploring hydroponic systems that conserve water.
- Integrate digital literacy and education into agricultural training programmes to enhance farmers' adaptation to modern technologies.
- Collaborate with the government on region-specific research to connect policies with local needs and climate challenges.
- Agricultural research institutions and tech companies should collaborate on deploying drone technology to assess soil quality and conditions, offering data-driven insights to farmers.
- Establish systems that provide farmers with timely weather updates, helping them plan and protect their crops effectively.

ROLE OF THE PRIVATE SECTOR

- Invest in digital tools and technologies that promote sustainable farming, such as weather-adaptive tech and water-saving systems.
- Collaborate with the government to fund and develop adaptive technologies, focusing on solar-powered farming and hydroponics.
- Provide financial support and incentives for small-scale farmers to adopt innovative agricultural practices.
- Engage in PPPs to co-finance initiatives (such as insurance schemes) aimed at transforming food systems and enhancing climate resilience.
- Support credit access programmes for farmers, enabling them to adopt modern, sustainable practices.

ROLE OF MEDIA AND COMMUNICATION PLATFORMS

- Raise awareness about the importance of climate-resilient food systems through targeted campaigns and storytelling.
- Promote success stories of sustainable agricultural practices to

inspire broader adoption among farmers.

- Use digital platforms to disseminate information on smart tech tools and innovations in agriculture.

ROLE OF LOCAL COMMUNITIES AND FARMERS

- Engage in community-driven programmes that promote biodiversity, sustainable farming practices and climate adaptation.
- Participate in capacity-building workshops to enhance skills in using modern agricultural technologies.
- Utilise community networks to implement localised food system strategies, ensuring adaptation to climate change.

ROLE OF PHILANTHROPIC ORGANISATIONS AND INTERNATIONAL DONORS

- Fund initiatives focused on food system resilience and provide grants for research on drought-resistant crops and sustainable irrigation.
- Support programmes aimed at enhancing digital access and financial literacy for farmers, particularly women.
- Facilitate the transfer of technology and knowledge through international collaborations and partnerships.
- Establish rainwater collection systems and water conservation initiatives ensuring sustainable water resources to support agriculture.

ADVANCING GENDER EQUALITY THROUGH WOMEN'S LEADERSHIP, ECONOMIC EMPOWERMENT AND SYSTEMIC CHANGE

WOMEN LEADING THE SDGs 2030 AGENDA AND BEYOND

In Pakistan, patriarchy deeply permeates society, often necessitating male endorsement for women's representation. Shifting this paradigm is

essential to achieving SDGs and cultivating genuine progress:

- Women's issues should be integrated as mainstream societal goals rather than being perceived as 'soft' or secondary agendas. Women's progress is fundamental to societal advancement and should be prioritized across all policy sectors.
- Reinforce policies to prevent child marriage and address the high birth rate. Effective regulation and community engagement are needed to delay early marriages, improving health and economic outcomes.
- Allocate direct seats in the Parliament and ensure women's representation in decision-making bodies. Without substantial female representation, democratic processes lack inclusivity and fail to reflect societal needs.
- If women, who constitute nearly half of the population, are underrepresented or restricted from participation, election outcomes should be reassessed for legitimacy.
- Ensure women have a presence where significant decisions are made, recognising that countries progress when women are empowered to lead and contribute.
- While many women work in sectors like clothing, jewelry, and crafts, there is a pressing need to provide access to diverse business opportunities, including exports and entrepreneurship in emerging industries.
- Engage women in nutrition-focused roles, enabling them to contribute to public health recommendations and promote healthier consumption patterns across communities.
- Offer training and mentorship in non-traditional fields to diversify women's skills, supporting them in acquiring capabilities beyond conventional roles.

WOMEN IN TRADE - A SOUTH ASIAN PERSPECTIVE

- Women entrepreneurs, despite their significant contributions in sectors such as textiles, agriculture, IT, and handicrafts, face considerable obstacles. Limited access to funding, logistical challenges, and low literacy rates prevent many from reaching

high-demand markets. Addressing these barriers is essential to empower women and expand their economic impact.

- To promote equitable growth and development, it is essential to ensure women have equal access to opportunities in trade and business, regardless of the products or processes involved.
- To build a more equitable trade environment and empower women entrepreneurs, it is essential for CEOs and business leaders to actively engage in initiatives that promote women's participation in trade.
- Implement inclusive policymaking that ensures the dissemination of comprehensive data about women in trade, making it readily accessible to investors.
- Plan awareness initiatives aimed at overcoming barriers and building trust to encourage collaborative efforts between the public and private sectors.
- Advocate for inclusive policymaking that specifically addresses women's needs in trade and ensure their voices are represented in business decision-making.
- Organise capacity-building programmes for women-owned businesses and provide training that includes the involvement of male members of society to promote gender inclusivity.
- Enhance the online visibility of women-led businesses, making it easier for them to secure investments.
- Empower women through financial literacy programmes and improve their access to financial resources.
- Encourage diversification initiatives to capitalise on trade agreements in ways that specifically benefit women entrepreneurs.
- Invest in programmes that empower women through improved access to finances to facilitate greater participation in trade, especially in rural areas.
- Creating dedicated forums for women can significantly improve their access to information, resources, and networks, thereby empowering them in their business activities.

- Corporate Social Responsibility (CSR) initiatives from large businesses in Pakistan can partner with women's small enterprises for mutual benefit.
- Conduct gender audits within organisation to identify and address the specific challenges faced by women, particularly those from disadvantaged regions, in what is traditionally a male-dominated business environment.
- Improve access to essential information for traders, especially women, regarding how to navigate bureaucratic processes and understand compliance requirements.
- Provide training on digital tools to enhance business-to-business connectivity, ensuring that women are equipped with the necessary skills to use these technologies effectively.
- Promote and support 'women-centric' products in local markets through official branding and marketing initiatives that highlight and enhance the visibility of women-led enterprises.
- Implement training programmes to equip women with modern logistics skills, enabling them to efficiently prepare and transport products for both national and international markets.

WOMEN IN FRONTLINE ROLES: BREAKING BARRIERS AND LEADING CHANGE IN PAKISTAN

- The government, private sector companies and NGOs should actively support and encourage women to take on leadership positions, breaking societal barriers and inspiring change across industries.
- Employers in both public and private sectors must invest in creating inclusive workplaces that include mother's rooms, childcare centres and infrastructure that leads a healthy work-life balance for working mothers.
- Community organisations and social enterprises should focus on empowering women in underserved areas by providing skills training, financial literacy programmes and job opportunities, enabling them to join and thrive in the workforce.
- Policymakers and economic planners should prioritise developing

a care economy that values and supports women's unpaid labour, ensuring that women's economic contributions are recognised and adequately supported.

- Public institutions and private companies should implement policies that provide equal employment opportunities for women, ensuring that workplaces are diverse and inclusive.
- Agricultural boards and labour unions should advocate for fair wages for the 60-70% of women working in the agricultural sector, recognising their contributions and ensuring they receive equitable compensation.
- Educational institutions, tech companies, and training centres should collaborate to enable women to enter and excel in high-tech fields, offering scholarships, mentorship, and training programmes to bridge the gender gap in technology.
- Government, private sector and civil society must work together to implement comprehensive strategies that promote women's empowerment, focusing on education, healthcare, financial inclusion and legal protection.
- Community leaders, mentors and educational institutions should inspire and empower women to make decisions that advance their personal and professional lives.

EMPOWERING WOMEN IN DIGITAL BANKING AND E-COMMERCE IN PAKISTAN

- The government, State Bank of Pakistan (SBP) and the Securities and Exchange Commission (SECP) should ensure affordability of digital finance and e-commerce tools for women by promoting low-fee accounts, interoperable payments, consumer protection, and transparent pricing.
- Ministry of IT and Telecom, Pakistan Telecommunication Authority and telecom operators should close connectivity gaps in underserved areas by expanding coverage through the Universal Service Fund, shared infrastructure, and safe community access points for women.
- State Bank, banks, microfinance institutions and digital wallets

should design women-centred products, including low-cost wallets, microloans, Shariah-compliant options, simplified and fair Know Your Customer (KYC), and effective grievance redressal for low-income and home-based workers.

- Ministries of Finance, Poverty Alleviation and Education, with SBP and provincial departments, should roll out a national financial and digital literacy programme for women that starts with basic literacy then progresses to budgeting, savings, digital payments, consumer rights and online safety, delivered through schools, TVET institutes, BISP touchpoints and community centres.
- Digital payment providers such as Easypaisa and JazzCash, together with BISP and other social protection programmes, should provide hands-on training for beneficiaries and field staff to build comfort with wallets and cashless transactions.
- Universities, think tanks and civil society organisations should conduct grassroots research that maps regional disparities, gendered barriers and freelancer pain points and should publish open data to guide policy and product design.
- Ministry of IT and the Ministry of Commerce, with SBP, banks, fintechs and e-commerce platforms, should establish a Women's Inspiration and Mentorship Network that offers financial literacy, business clinics, peer mentoring and market linkages for new entrepreneurs and freelancers.
- Public and private sector employers, industry associations and marketplaces should facilitate access to finance for women-owned firms through guarantee schemes, supplier finance, invoice discounting and structured referral pipelines to microfinance providers.
- Federal and provincial policymakers should adopt gender-inclusive financial sector rules that remove documentary and mobility barriers, protect privacy and data rights, and require sex-disaggregated reporting from providers.
- Ministry of Commerce, SECP and digital platforms should address freelancer challenges through public private partnerships that simplify onboarding, improve access to compliant international payment channels, and provide tax and compliance helpdesks.

- Community leaders, religious scholars, media and civil society should run social norms campaigns that encourage men to support women's financial autonomy and shared decision-making and that explain women's financial rights in accessible language.
- Payment platforms, banks and marketplaces should promote cashless transactions through incentives and user education while ensuring informed consent and opt-in choices for account opening and data sharing.
- Social protection agencies such as BISP should integrate optional savings, micro-insurance and referral pathways into payment flows and should train staff to counsel beneficiaries on rights, safeguards and recourse.
- Regulators and providers should ensure that disadvantaged women, including low-income, rural, disabled and undocumented groups, can build consent-based financial histories by using alternative data, fair KYC, and inclusion in credit registries with strong safeguards.
- UN agencies and donors, working with government counterparts, should align support to scale proven models in literacy, entrepreneurship and connectivity and should avoid fragmented pilots.
- A national multi-stakeholder task force led by the Government should coordinate this agenda across ministries, private sector, academia and civil society, publish annual progress using sex-disaggregated indicators, and adjust policy in light of evidence.

COLLABORATIVE PHILANTHROPY IN PAKISTAN WITH A GENDER LENS

- Government agencies, non-profits, and philanthropic organisations should establish a collaborative framework to promote partnerships focused on transparency and anti-corruption. This would ensure that resources are effectively utilised and impact is maximised across sectors.
- Ministry of Planning Development and Special Initiatives, in collaboration with funding agencies, should develop a data-driven system to ensure equitable distribution of resources, especially for underrepresented causes like women's initiatives. This will

help channel funds to areas where they are most needed.

- Technology firms and research institutions should collaborate to build a centralised data platform that consolidates information on societal needs, funding patterns, and programme outcomes. This will enable evidence-based decision-making and targeted interventions that promote inclusivity and social impact.
- Policy reform committees and digital inclusion advocates should work together to develop inclusive policies and platforms that promote digital access and merit-based opportunities. This multi-stakeholder approach should integrate evidence-based solutions to empower women, especially in underserved areas.
- The Ministry of Education and Professional Training, donor agencies, and private sector investors should create a centralised body that links the visions of various stakeholders. This body would coordinate partnerships and investments in financial literacy and skill development programmes, ensuring resources are directed to where they can promote sustainable economic growth.
- Financial institutions and philanthropic organisations should move beyond traditional philanthropy by establishing gender bonds focused on socio-capital empowerment. These funding mechanisms should prioritise investments in women's health, education, and economic participation, building sustainable support systems across sectors.
- Community organisations and health advocacy groups should lead sensitisation campaigns to raise awareness about women's health issues. This includes working with corporate social responsibility (CSR) initiatives to direct investments towards empowering women and gender inclusivity.

HEALTH SYSTEMS AND HUMAN SECURITY RESILIENCE

These policy recommendations focus on building resilience within South Asia and Pakistan's health sector by strengthening infrastructure, workforce development, financing, digital integration, and community engagement:

CLIMATE-RESILIENT HEALTH INFRASTRUCTURE

South Asian countries should:

- Develop climate-resilient healthcare facilities (HCFs) that comply with updated building codes, including avoiding flood plains for new construction, elevating buildings in flood-prone areas, and integrating Multi-Risk Hazard Vulnerability Assessments (MRHVAs) into planning.
- Strengthen infrastructure post-flood reconstruction by ensuring adherence to climate-resilient designs and construction standards.
- Update planning and development processes to make HCFs more resilient, including ensuring robust drainage systems and sufficient power backups to support uninterrupted health services.
- Create an enabling environment for PPPs to improve healthcare infrastructure, with government incentives to attract private sector investment in resilient health facilities.

CAPACITY BUILDING AND CLIMATE-SMART HEALTH WORKFORCE DEVELOPMENT

Regional countries ought to:

- Build the capacity of healthcare professionals to respond to climate-induced health challenges, with specialised training in surveillance, disaster preparedness, and climate-health linkages.
- Integrate mental health support and counselling skills into medical training to help healthcare workers address trauma from climate events and support community resilience.
- Develop and retain a climate-smart health workforce by continuously updating medical curricula and providing refresher training on climate-adaptive practices.
- Train local community health workers, particularly in disaster-prone regions to reduce the impact of climate-related disasters on secondary healthcare facilities.
- Establish school-based emotional resilience programmes to

support children's mental health in disaster-affected areas, addressing the needs of young survivors.

SUSTAINABLE FINANCING AND INVESTMENT IN CLIMATE-RESILIENT HEALTH INITIATIVES

South Asian governments need to:

- Secure sustainable domestic and international financing to support climate and health resilience, ensuring funds are dedicated to long-term solutions.
- Encourage PPPs with government incentives to attract private investment in climate-resilient healthcare systems and infrastructure.
- Develop alternative financing mechanisms to support health initiatives aimed at vulnerable populations, including targeted support for children, youth, and adolescents.
- Promote climate-resilient health facilities and rehabilitation programmes that address the mental and physical health needs of young populations, ensuring they contribute productively to the economy.

DIGITAL HEALTH, DATA SYSTEMS AND POLICY INTEGRATION

Regulators and the private sector should:

- Establish comprehensive digital health initiatives to create long-term data repositories for tracking health and climate data, supporting evidence-based policies and adaptation strategies.
- Conduct ongoing research on climate-health dynamics to support evidence-based policies, with a focus on region-specific data for South Asian countries.
- Implement effective communication strategies to translate scientific research into actionable public health policies, sharing successful examples of integrating climate competency into Human Resources for Health (HRH) training.

COMMUNITY ENGAGEMENT, SOCIAL PROTECTION AND VULNERABLE POPULATION SUPPORT

Across countries, it is vital to:

- Engage communities in climate investment and policy decisions, ensuring that local needs and perspectives are incorporated into climate and health initiatives.
- Expand resilience initiatives to cover all vulnerable regions and scale up community-based early warning systems to mitigate climate risks, with a focus on rural and high-risk areas.
- Educate and empower women in decision-making and family planning to address population growth and contribute to climate resilience, particularly in rural communities.
- Strengthen local government roles in disaster-prone regions, equipping local authorities and health workers to mitigate the impact of climate events.
- Establish capacity-building programmes to educate local leaders, policymakers, and communities on sustainable practices, renewable energy, and resilient agriculture to drive economic growth and employment.
- Empower informal economy workers, especially women, by investigating ways to enhance social protection services and strengthen women's solidarity networks for improved support coverage.
- Ensure inclusion of the disabled population in Universal Health Coverage (UHC) and financial protection initiatives to support their resilience and access to healthcare in the face of climate risks.

STRENGTHENING TOBACCO CONTROL IN PAKISTAN

- Government health authorities should advocate for plain packaging of all tobacco-related products (including vapes, e-cigarettes and nicotine pouches) to protect child rights, seeing this as a necessary step despite implementation challenges. Drawing from best practices in countries like India and China, provincial-

level bans and enforcement on sales to minors should be reinforced.

- Regulatory bodies should classify nicotine pouches, vapes and e-cigarettes under consumer or tobacco product laws, given their harmful impacts and popularity among youth. Regulations should include clear labeling requirements per World Health Organization (WHO) guidelines, a 75-80% increase in graphic health warnings, tax measures, and strict sales restrictions to minors.
- Legal and health ministries are encouraged to pursue renewed engagement with the Supreme Court, utilising legal avenues to address deceptive practices by the tobacco industry that have previously obstructed policy advancements.
- Health ministries should apply a strict ban on unregulated and untested nicotine pouches, as these currently lack oversight. An outright ban could serve as an interim public health measure until comprehensive regulations are established.
- Policymakers should classify nicotine pouches as tobacco products, emphasising their regulation under international standards like the Framework Convention on Tobacco Control (FCTC). Given limited quality control capacity, an outright ban on nicotine pouches may be necessary to protect public health.
- Provincial governments should prioritise age-restricted sales bans and strengthen retail regulations for e-cigarettes, vapes and nicotine pouches. This includes expanding Peshawar's age restrictions nationwide to reduce youth access to harmful substances.
- National and provincial legislators should support bans on electronic cigarettes, nicotine pouches, and flavoured tobacco products, prioritising child health.
- Inter-provincial coordinating bodies should reinforce legislative support at the provincial level to counter industry influence, promote legislative efforts like those in Khyber Pakhtunkhwa, and work towards uniform policy development and enforcement across Pakistan.

MINAMATA CONVENTION COMPLIANCE IN PAKISTAN

- Parliamentarians and policy advocates should bring the issue to the legislative floor to draft laws that enforce compliance with the Minamata Convention.
- Medical associations and dermatology societies should conduct educational programmes to inform prescribers about checking product content and mercury levels before prescribing.
- Ministry of Health and public health organisations should initiate awareness campaigns in both English and Urdu as well as regional languages to educate the public on the dangers of mercury-containing products, particularly focusing on vulnerable communities with low buying power.
- Academic institutions and research bodies should collaborate to conduct research on the impacts of mercury in products. Engage social media influencers and digital platforms to spread awareness about safe product usage.
- Psychologists, public health experts, and community health workers should be involved in addressing societal pressures that drive the use of harmful skin-whitening products.
- Pharmaceutical associations and medical training institutes should organise seminars and workshops to educate all healthcare professionals, including dermatologists, about mercury hazards.
- Regulatory authorities, such as DRAP (Drug Regulatory Authority of Pakistan), should enforce bans on mercury-containing products and the pharmaceutical companies that produce them.
- Pakistan Telecommunication Authority (PTA), in collaboration with consumer protection agencies, should regulate online marketing practices, particularly restricting ads that promote harmful skin-whitening products.
- Lawmakers and regulatory bodies need to develop legislation to bring informal markets under regulation, ensuring compliance with the Minamata Convention.
- Chambers of Commerce and industrial associations should

educate local manufacturers on producing mercury-free products and promoting safe alternatives.

- The Ministry of Commerce and regulatory authorities should establish systems for tracking and monitoring the sale of mercury-containing products in the market.
- Health inspectors and environmental agencies should conduct regular surveys of skin-whitening products, sampling them to check for mercury content and enforce standards.
- Regulatory bodies, in partnership with stakeholders and industry experts, should develop stringent standards for all products containing mercury.
- Tech companies and health ministries should introduce digital tools to enhance tracking, reporting, and compliance with mercury regulations.
- Government research labs and private sector labs should be equipped to conduct standardised testing of products for mercury content.
- Media regulatory bodies and CSOs should run campaigns to control misleading narratives and promote public health information.

INTEGRATED PUBLIC HEALTH STRATEGY FOR BREAST CANCER AWARENESS AND EARLY INTERVENTION IN PATRIARCHAL CONTEXTS

- Health organisations, influencers, and social media platforms should collaborate to launch awareness campaigns that educate the public about breast cancer, promoting early detection and prevention.
- Healthcare providers and local clinics should actively promote existing breast cancer screening facilities, encouraging women to prioritise their health by scheduling regular check-ups.
- Community organisations and health educators should engage and educate male members on the importance of breast cancer awareness, especially in Pakistan's male-dominated society, to support women in seeking timely diagnosis and treatment.

- Public health authorities and medical professionals should stress the importance of early diagnosis through regular screenings and provide access to affordable, timely treatment options to improve survival rates.

SOCIAL COHESION AND STATE-SOCIETY RESILIENCE

BEYOND FAKE NEWS: FINDING TRUTH IN A WORLD OF MISINFORMATION

The May 2025 conflict between India and Pakistan underscored the destabilising power of misinformation in shaping public perception, fuelling panic, and eroding trust in institutions. In an age of digital warfare, information integrity has become a national security imperative. Strengthening Pakistan's resilience requires proactive strategies to detect, counter, and inoculate society against the spread of fake news. In this regard, it is vital to:

1. Government and Regulatory Bodies

- Collaborate with tech companies to improve transparency of algorithms and mandate labelling of sponsored or politically biased content, without curbing freedom of speech.
- Establish enforceable national guidelines to curb the spread of unverified or harmful content, particularly during crises or sensitive events.
- Promote cross-border cooperation on digital safety standards, especially for social media platforms and global information flows.
- Support public awareness campaigns on misinformation by funding libraries, civil society, and educational institutions.
- Partner with press councils to maintain a centralised database of credible sources rated for accuracy, neutrality, and transparency.

2. Media Organisations and Editors

- Develop internal frameworks for verifying content authenticity, including the use of digital tools, AI, and verification protocols.

- Require journalists to investigate the context and root causes of stories, especially those involving sensitive or divisive issues.
- Enforce triangulation of sources (2–3 credible and independent confirmations) before publishing sensitive stories.
- Encourage original reporting via field interviews, ground-based investigation over reliance on unverified secondary sources.
- Invest in in-house fact-checking units to screen content before it goes live.
- Implement accountability mechanisms and penalties for deliberate misinformation or failure to meet verification standards.
- Conduct regular training in investigative journalism, source authentication, and digital security.

3. Educational Institutions and Curriculum Bodies

- Integrate media literacy modules into school and university curricula to teach students how to critically assess information.
- Conduct workshops for educators, students, and parents on navigating the digital information landscape.
- Support student-led fact-checking projects, journalism clubs, and collaborations with local media outlets to promote hands-on learning.

4. Journalists and Reporters

- Use triangulation methods and original reporting techniques to validate information from diverse sources.
- Investigate root causes and social context, especially in stories related to health, conflict, or politics.
- Adopt digital verification tools such as reverse image searches, metadata analysis, and AI-based deepfake detection.

5. CSOs and NGOs

- Deliver public education initiatives on misinformation, targeting rural and urban populations.
- Run capacity-building workshops to train communities, teachers, and youth on spotting fake news, algorithmic manipulation, and

bias.

- Develop accessible toolkits and digital literacy campaigns for media consumers.

6. Tech Companies and Digital Platforms

- Increase transparency in how algorithms promote or suppress content.
- Label manipulated, sponsored, or politically biased content clearly.
- Provide backend support for fact-checkers and newsrooms to access verification tools and data where possible.

CO-CREATING PHILANTHROPIC IMPACT

- There is need to adopt an 'Outcome-Based Approach to Philanthropy'. Policies should focus on defining clear, measurable outcomes at the onset of any philanthropic initiative. There should be a robust plan of action that includes outcome-based financing to ensure that resources are effectively utilised and that the impact can be measured and evaluated.
- Local Governments need to be strengthened by providing them with financial stability and autonomy. Offer tax incentives to enhance productivity, enabling local authorities to drive community development, particularly focusing on the capacity-building of women and marginalised groups.
- Cross-sector collaborations are essential where organisations, both public and private, work together to amplify their impact. Collective efforts will achieve far-reaching and sustainable outcomes, which are often limited when initiatives are undertaken in isolation.

ENVIRONMENTAL CONFLICT AND SOCIAL DIALOGUE IN PAKISTAN

- Provincial governments and water management authorities should collaborate to address water distribution disputes through community and stakeholder engagement; and implement an inclusive, transparent approach that promotes equitable access and sustainable development.

- Local governments and regulatory bodies should develop and enforce policies that protect agricultural land, restricting housing schemes to barren land to safeguard food security. A well thought land-use policy will ensure that productive agricultural areas are preserved.
- Government agencies should create sustainable institutional frameworks that prioritise climate mitigation and adaptation strategies, promoting resilience against climate change impacts.
- Agricultural departments and research institutions should support the shift to sustainable agriculture practices and encourage crop diversification with changing weather patterns. This includes developing and disseminating guidelines for climate-compatible crop selection.
- CSOs and community leaders should engage in continuous dialogue with communities, integrating social discourse with sustainable environmental practices. Sharing information and raising awareness in a coordinated manner will ensure that environmental solutions are community driven.
- Political leaders and local authorities should collaborate with environmental experts to incorporate environmental issues into the socio-political agenda. Use nudging techniques, such as informational and cultural incentives, to drive sustainable behaviour change in traditional communities.
- Local governments should have legal authority and resources to enforce environmental laws within their jurisdictions. This will improve effectiveness of local enforcement and encourage community-level compliance.
- Urban planning authorities and multi-stakeholder platforms should coordinate efforts to manage urban expansion and resource allocation. Inclusive decision-making processes should prioritise community perspectives, ensuring that sustainability remains a key focus in urban development plans.
- Establish forums and communication channels that connect communities with their political representatives to collaboratively address environmental challenges. Effective dialogue can build trust and drive meaningful, sustainable change at the local level.

PROMOTING TOLERANCE AND PEACE FOR INCLUSIVE DEVELOPMENT

- Educational institutions, CSOs, and religious leaders should collaborate to nurture respect for diversity through community programmes and educational initiatives that stress inclusivity and mutual understanding.
- Government bodies and judicial institutions should ensure that the Constitution is upheld as the guiding framework for societal cohesion. Law Enforcement Agencies (LEAs) must protect citizens' rights and ensure fair treatment under the law to promote inclusivity and equal justice.
- The Ministry of Education, youth organisations, and NGOs should lead initiatives to educate youth on tolerance, empathy, and respect. Programmes in schools and universities should encourage youth participation in community-building efforts.
- Local government and community development organisations should organise regular community events and dialogues to bring people from diverse backgrounds together, helping to build connections and reduce social divides.
- The government, including Parliament and Local Councils, should work to strengthen fair governance and accountability.
- Police departments can implement community policing programmes to build positive relationships and maintain respect within communities.
- Economic development agencies and private sector partners should collaborate to create fair economic opportunities.
- Humanitarian organisations, government aid agencies, and local NGOs should increase support for peace-building and humanitarian aid in conflict-affected regions.

FINAL THOUGHTS

When over 300 panellists from 15 countries came together, the breadth of dialogue, distilled into nine streams and their respective sub-theme recommendations, can indeed appear overwhelming. Yet, when these diverse insights are mapped, a striking coherence emerges. The word

cloud of priorities consistently highlights *Collaboration*, cutting across themes as the central enabler of progress.

Whether in renewable energy, digital finance, trade facilitation, food or health security, technology transfer, or climate action, the message is clear: sustainable transformation in Pakistan and beyond depends less on isolated interventions and more on building partnerships that capitalise on collective expertise, resources, transparency and accountability.



Governance: Institutions, Accountability and Transformation

Crises in Sri Lanka and Bangladesh: The Cost of Denial

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**Beyond Money: Building Pakistan's Future Through
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Saad Ali Ahmed Malik, Maheen Rehan and Abdullah Khalid

Crises in Sri Lanka and Bangladesh: The Cost of Denial*

*Dr Shantayanan Devarajan***

Abstract

In the past three years, two successful South Asian countries – Sri Lanka and Bangladesh – experienced widespread protests, the resignation of democratically elected leaders, and economic slowdown. This chapter shows that the economic and political upheaval occurred not despite their development progress, but because of it. In both cases, the underlying problem of weak governance had been present for a long time. But development successes enabled policymakers and the international community to overlook the serious crisis lurking below the surface. Meanwhile, the reduction in extreme poverty created a middle class that was much more concerned about good governance. The result was that both countries experienced a crisis that not only disrupted the economy in the short run but will have consequences for the countries' long-term development.

Introduction

Amid generally strong economic performance in South Asia, two countries stand out. Sri Lanka and Bangladesh (along with India) have tripled their per capita income since 1990. Sri Lanka maintained an annual average per capita GDP of growth of 3% during a 26-year civil war; its child mortality

* This chapter has been approved as an Essay by the referee.

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rate is comparable to the European average. Bangladesh developed a vibrant ready-made garment manufacturing sector and reduced extreme poverty and child mortality to lower levels than India.

Yet, Sri Lanka and Bangladesh recently experienced widespread protests, the resignation of democratically elected leaders, and economic slowdown. In Sri Lanka, the 2022 *Aragalaya* movement toppled a President who had two years earlier won by a landslide. In Bangladesh, violent repression of student-led protests led to a nationwide movement that forced the Prime Minister to flee the country in August 2024, seven months after her party's victory in the parliamentary elections.

This chapter shows that these crises occurred not despite the countries' development successes but because of them. The economic progress enabled policymakers and the international community to ignore, or diminish the importance of, the underlying problems in the countries — until it was too late. The ensuing crises and economic slowdowns represent the costs of this denial.

The Case of Sri Lanka

In 2019, the newly elected government of Gotabaya Rajapaksa cut taxes to their lowest levels in the nation's history and, at 8% of GDP, one of the lowest tax-to-GDP ratios in the world. By April 2020 — before the COVID-19 Pandemic spread — the credit rating agencies downgraded Sri Lanka's debt to near-default levels, effectively cutting it off from private capital markets. Economists inside and outside the country called for what most countries do in this situation: a 'pre-emptive debt restructuring' and an IMF programme. Asonuma and Trebesch (2016) show that pre-emptive debt restructurings are associated with smaller output losses and shorter duration than post-default restructurings; and IMF programmes are associated with higher growth (IEO 2021).

The Sri Lankan government refused to do either. Instead, they continued to repay their creditors by drawing down reserves; and they financed the fiscal deficit (which, thanks to the tax cut, had ballooned to 13% of GDP) by borrowing from the central bank. Two years later, by early 2022, Sri Lanka ran out of foreign exchange reserves and was forced to default on its external debt. The method of financing the fiscal deficit (often referred to as 'printing money') caused inflation to spike to 70%. The lack of foreign exchange led to shortages in food, fuel and medicines. Sri Lankans took

to the streets in protest in what became known as the *Janata Aragalaya*, or 'people's struggle.' Importantly, protesters put the blame squarely on President Rajapaksa ('Go home Gota'), rather than on the COVID Pandemic or the Russia-Ukraine war, both of which had an impact on the economy. In July 2022, President Rajapaksa resigned, and Sri Lanka entered into an IMF programme; the debt restructuring was completed two-and-a-half years later, in 2024.

Why did the government refuse to adjust to the debt downgrade for two years, leading to a collapse of the economy and years of hardship? One reason, expressed by the head of a leading think tank, was 'Sri Lanka has never restructured its debt.' This was a sign of the denial: every other time that Sri Lanka faced a crisis, it was able to recover — mostly by good luck. In the 1970s when the youth bulge was entering the labour market, the then-socialist economy was not creating jobs. The Middle East opened up and hundreds of thousands of young Sri Lankans found jobs in the Gulf. When there was a Balance of Payments (BoP) crisis in the mid-1980s, a drought in Kenya sent tea prices soaring. When there was a similar crisis in late 2004, the Indian Ocean tsunami hit. Although it had a devastating effect on people's lives and livelihoods, the tsunami also brought in much-needed foreign exchange that prevented a default.

The ostensible reason the government did not want to enter into an IMF programme was that these programmes typically cause severe austerity. But as pointed out above, the evidence is that countries with IMF programmes are associated with higher, not lower growth. Some observers think the real reason was the government did not want the IMF looking into the corruption in government — another case of denial.

A different kind of denial was in the perceived difference between private and official creditors. Only private creditors downgraded Sri Lankan bonds starting in early 2020. This was not surprising because they are only interested in the economic return on their investment. Official creditors such as China, Japan and India lend for multiple reasons, some of which are geopolitical. When Sri Lanka was closed out of private capital markets, policymakers thought that one or two of the official creditors would continue to lend to the country, mitigating the need for debt restructuring. But this never happened.

Finally, as mentioned earlier, Sri Lanka is one of the most successful economies in Asia. Despite a 26-year civil war, terrorist uprisings, a devastating tsunami and other shocks, the economy continued to grow and improve human development. There was a sense among policymakers that the economy was robust — and different from other developing countries. When this author pointed out that Bangladesh had embarked on an IMF programme before it encountered debt distress, the response was, ‘Don’t compare us to Bangladesh.’

The cost of denial has been huge. The economy contracted by 7.3% in 2022 and another 2.3% in 2023. Poverty and under-nutrition rates have doubled. Taking a longer-term view, Sri Lanka’s per-capita GDP today is the same as it was in 2014. In other words, Sri Lankans have lost a decade of economic growth.

The Case of Bangladesh

Bangladesh has been a consistently strong performer. Its per capita GDP growth rate accelerated by one percentage point every decade. It has developed an export-oriented manufacturing sector, based on ready-made garments, that employs over 4 million people, mostly women. Poverty has fallen to the point where Bangladesh’s extreme poverty rate is lower than India’s. The country’s human development indicators — school enrollment, child mortality, etc. — have improved dramatically since independence.

Meanwhile, Bangladesh has also had consistently high levels of corruption and weak governance. Its standing in Transparency International’s Corruption Perception Index is far below the South Asian average (which itself is quite low). In the early 2000s, Bangladesh was ranked the most corrupt country in the world. In the Worldwide Governance Indicators, Bangladesh ranks in the bottom quartile in almost all indicators. In the Global Competitiveness Index, which looks at the effect of governance on competitiveness, Bangladesh ranks far below Sri Lanka and India.

Despite these serious governance problems, the government continued to emphasise its strong development results. The international community not only praised Bangladesh for its achievements but tried to explain away the apparent contradictions with governance. In 2005, the then-Chief Economist for South Asia at the World Bank [i.e. author of this paper] said, ‘In Bangladesh, there was development despite the corruption because

people found ways of going around the government. The other side of this is that the government made space for the NGOs and private sector to function' (Devarajan 2005). As recently as 2024, the World Bank's website opens with 'Bangladesh has an inspiring story of growth and development, aspiring to become an upper middle-income country by 2031. Since 1972, the World Bank has committed more than USD 39.5 billion to support Bangladesh's development journey' (TWB 2024).

Yet, in 2024, there were signs that Bangladesh was in danger of becoming a fragile state. The Fragile States Index categorised it as 'High Warning', ranking it between Iran and Equatorial Guinea. The Rule of Law Index ranked Bangladesh 127th of 142 countries, below Iran and above Mozambique. The World Press Freedom Index listed Bangladesh 165th of 180 countries, just above Saudi Arabia and below Azerbaijan.

Consistent with these signs, in mid-2024, students began protesting the persistence of quotas for government jobs allocated to descendants of liberation fighters. The government responded with violence. Rather than being suppressed, the protests grew to include garment workers, rickshaw *wallahs*, storekeepers, university students and professors. The Prime Minister was forced to resign.

While the proximate cause of the crisis was the student protests, the real cause was the fact that development success enabled both the government and the international community to overlook bad governance. However, decades of corruption and misgovernance had led to breakdown of trust between citizens and government — the fundamental characteristic of a fragile state.

Moreover, Bangladesh's success in reducing extreme poverty meant that a middle class was emerging. Whereas those living below USD 2.15 a day had declined to a few million people, those living between USD 3.65 and USD 6.85 a day had risen to over 60 million. These people were highly educated — many were university graduates — and therefore desired white-collar jobs (such as government jobs). But these jobs were sorely lacking. They were also demanding greater voice, freedom and rights. By celebrating the progress in reducing extreme poverty, and denying the important governance challenges the country faced, policymakers and the international community paved the way for the crisis that followed.

It is too early to determine the costs of denial to Bangladesh, but most observers expect a slowdown in growth and investment. In September 2024, the World Bank revised its April 2024 forecast of Bangladesh's growth in 2025 by 1.7 percentage points (or about a third of the growth rate). The reduction in investment, triggered by the increased uncertainty around the political situation, could have long-term consequences for economic growth and human development.

The Cost of Denial

The hypothesis of this chapter is that development successes enabled Sri Lanka and Bangladesh (and their international partners) to deny the importance of the governance challenges that the countries were facing. This denial led to mistrust between the people of the countries — who knew the governance problems only too well — and their governments, which erupted into a political crisis and resignation of democratically elected public leaders. The crises, in turn, have caused, and are likely to continue to cause, economic damage. Fluctuations in GDP growth, which is the first-order effect of crises, are associated with slower long-term growth (Raju and Acharya 2020). But there is a more pernicious effect of these denial-caused crises. Most crises result in a downturn — which happens when you deny a problem until it hits you in the face — and these downturns are worse than upturns. In a comparison of 141 countries over 60 years, Broadberry and Wallis (2017) show that today's rich countries had about the same growth rate during their upturns as did poor countries. In fact, the richest countries had lower growth rates during their upturns than others. But the striking finding is that the amount of times these rich countries spent shrinking was much less than for poor countries. Denial increases the chance of a downturn, which leads to slower long-run growth. In other words, the cost of denial is that it keeps poor countries poor.

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Beyond Money: Building Pakistan's Future Through Governance, Technology and Talent*

*Dr Ishrat Husain***

First of all, let me thank Abid for giving me the opportunity this evening to speak on a topic that is forward-looking rather than retrospective. Since this is a panel discussion, I believe it is important for the panel to offer diverse perspectives so that the audience can evaluate the strength of the arguments presented. In that spirit, I would like to humbly submit that I do not share the view that simply throwing money at a problem or an issue constitutes a solution.

I have worked in 50 countries for 20 years in the World Bank and there we discovered that the incentive structure was how much money we had disbursed and how much money we had committed. However, there was no clear linkage between the funds that had been disbursed and the outcomes they were meant to achieve.

When I was the Director of Poverty at the World Bank, we conducted a study in Uganda. For every USD 1 allocated by the central government, by the time it reached the school, only 9 cents remained; 81 cents had disappeared within the bureaucratic hierarchy of the central, provincial, and district governments, absorbed by salaries, perks, and other benefits.

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I conducted a study on the Sindh Government's economy, which has since been published, and found that 95% of the education budget is spent on teachers' salaries. Yet, in many government schools, teachers are frequently absent from their duties. As a result, little to no actual learning takes place, and all indicators of educational quality are alarmingly poor. A fifth-grade child, for example, is often unable to read a sentence from a grade-two textbook.

Therefore, I would respectfully submit that multilateral institutions and others who present financing as a panacea for all our problems overlook a critical reality: governance, management, the effective utilisation of resources, and the direct linkage between spending and outcomes are what truly matter.

So, why did we accumulate this debt in the first place?

Take the Neelum-Jhelum project as an example. It was initially allocated PKR 50 billion for completion, but it took 20 years to finish and ended up costing PKR 500 billion. Even today, one of the tunnels is not functioning, meaning we are not receiving the full benefits in terms of electricity generation or water supply. And this is just one example. I have a complete list of such development projects.

Many believe that simply investing money in development projects will yield positive returns. In reality, we often end up with negative cost-benefit ratios, as costs escalate while benefits diminish. The stream of benefits is now far lower than what was originally envisaged.

My humble submission is that the underlying issue lies in the management of resources, the governance structures, the accountability for results, and the efficient utilisation of funds; all of which are lacking in many developing countries. Unless we put our own house in order, any amount of money will only lead to further external and internal indebtedness.

If you trace the history of Pakistan's indebtedness, it is clear that we have failed to collect adequate revenues from those who are the primary beneficiaries of whatever development and growth has taken place: the top 2% elite of this country. Instead, the burden has been unfairly shifted onto the wider population.

Between 2001 and 2007, we had a local government system under which communities, villages, and districts were delegated responsibility for 12 key departments, including education, health, water supply, solid waste

disposal, public transport, and agriculture. All social audit surveys during that period, well-documented in official records, showed that the level of satisfaction among ordinary citizens rose significantly. People realised that when they contributed taxes to their village, community, or district, they could see tangible, visible results from their contributions.

In contrast, when they are asked to pay taxes and the money disappears into a 'black box' in Islamabad, with no visible benefits, their willingness to pay diminishes. This is not unique to Pakistan. Empirical evidence from Ghana to Guatemala shows the same pattern: citizens are more inclined to pay when they can directly see the impact of their contributions.

What we see today is over-centralisation at the federal level and within the provincial governments. How can a Secretary of Education in Punjab, overseeing 35 districts, realistically be responsible for thousands of schools spread across the province? A district government, however, can manage this effectively because it is closer to the action and has a far more practical and responsive span of control.

Therefore, Ladies and Gentlemen, with due respect to all of you and to others who believe that simply borrowing money and repaying it in the name of development is a sound strategy, I must disagree. Such an approach will only entangle us further in the debt trap.

Now, coming to today's topic: technology, to me, is a tool, a means, much like a pen that enables you to write. It is not an end in itself; it is a means to an end. Technology can be profoundly beneficial for humankind, but it can also be disastrous. The real challenge lies in creating an environment where the benefits are maximised and the costs and potential damages are minimised. This is not only the responsibility of public policymakers but also of all those involved in the development, spread, and dissemination of technology. I would submit that the prevailing pessimism about technology is, in fact, highly exaggerated.

I recall that in 1960, when computers were just beginning to emerge, President John F. Kennedy publicly warned that the computer revolution would increase unemployment and deepen poverty. Ladies and Gentlemen, those concerns proved to be entirely misplaced. The United States (US) went on to create millions of net new jobs, and mass technological unemployment never materialised. The unemployment rate has remained around 3.5%, and technology has, in fact, improved the quality of life not only in the US but across the world through higher life

expectancy, better healthcare, improved education, modern transportation, telecommunications, advanced medicine, and everyday conveniences. Moreover, the supply of educated workers has risen sharply as more people have attended college, and the skill premium has increased accordingly.

So, how do we, in Pakistan, specifically foresee the benefits of Artificial Intelligence (AI) and other emerging technologies?

Before I share my own suggestions on how to maximise these benefits while minimising the potential damage and adverse effects, let me remind this audience of an important example. One of the key reasons China has emerged as the second-largest economy in the world is not because of abundant natural resources or any inherent advantage in its development paradigm.

In the year 2000, the number of Science, Technology, Engineering, and Mathematics (STEM) graduates in China was half that of the United States. By 2010, China and the US were producing the same number of STEM graduates. By 2022, however, China was producing three million STEM graduates annually, while the US produced only about 840,000. According to an Australian think tank, of the 25 most critical emerging technologies in the world today, China is leading in 22, while the US leads in just three.

After the Paris Conference, China faced widespread criticism for being one of the largest emitters of greenhouse gases. Yet, the global revolution in solar energy and battery technology which has reduced the cost of solar power not only in China but worldwide, has been driven by the efforts of Chinese scientists. Today, 50% of PhD candidates in science, engineering, and mathematics at top US universities are Chinese students, and most of them return home after graduation.

It is in this context that I draw my inspiration from China. I would like to propose my agenda for the critical nexus between talent and technology. Without talent, technology will remain out of reach. Therefore, building and sustaining this nexus, ensuring that we have the human capital to develop, adapt, and deploy technology, is essential for national progress.

Number One: Invest in research and development across agriculture, industry, energy, and every other relevant sector, whether in the private sphere, public institutions, academia, or defence. The goal must be to generate innovations tailored to the specific needs and challenges of our

own country. Too often, we see PhDs returning from abroad who have conducted research on highly specialised topics relevant to the host country, and they seek to simply extend that work here. Meanwhile, Pakistan faces pressing and unique problems that remain unaddressed. Our research efforts must be directed toward solving the challenges that matter most to our people.

Number Two: Encourage the Pakistani diaspora to collaborate with researchers in Pakistan in key areas such as education, health, and agriculture. We have outstanding Pakistani scientists working in the US, the United Kingdom, Australia, and Canada, producing world-class research. Yet, when they come here, they often face resistance from incumbents and are not given the opportunity to collaborate. The name of the game is collaboration. Without it, we cannot harness the full potential of our global talent pool.

Number Three: Send Pakistani scholars and researchers to top universities in academically advanced countries and provide them with scholarships that prioritise quality and relevance. We must avoid the current practice of awarding scholarships for soft subjects at second-rate universities: a pattern seen in many of our scholarship programmes. Too often, the objective becomes merely obtaining a ‘thappa’ (stamp) of a foreign degree, without due regard to the actual content or value of that education.

Number Four: Upgrade scientific laboratories in schools, colleges, and universities. In many institutions I have visited, there are no functioning science labs or computer facilities. We must invest in this infrastructure if we are to benefit from the technological revolution.

Number Five: Undertake a massive programme of recruitment, training, and continuous upskilling of teachers in science and mathematics. When I began my academic career in chemistry, even at a university like Sindh University, we had faculty members trained at Oxford, Cambridge, Harvard, Yale, and Princeton. Today, when I survey the landscape, there are virtually no PhDs from these top universities in our science and engineering departments. This gap is causing us to fall behind the rest of the world.

Number Six: Grant liberal scholarships to talented students to pursue degrees at the world’s top universities. Like China, provide them with incentives to establish their own laboratories upon their return. This

approach was also successfully adopted by Korea. Give them the freedom to conduct research focused on Pakistan's challenges rather than on esoteric topics with little local relevance.

Number Seven: Establish science parks and science museums that lead to interaction between young students and the objects of their curiosity. Without cultivating curiosity in our younger generation along with creativity, critical thinking, and problem-solving skills, rather than simply memorising material to reproduce in examinations, this country will never truly absorb or assimilate technology for the greater good.

Number Eight: Promote technical, vocational, and skills training by actively involving the private sector. The government alone cannot accurately gauge the evolving demands of the labour market, but by making the private sector a partner in delivering technical and vocational training, we can ensure that individuals acquire marketable skills. This will enable them to fill critical gaps in the economy and strengthen our overall workforce readiness.

Number Nine: Provide incentives to industry to establish apprenticeship schemes for young graduates. When I had the privilege of leading one of Pakistan's oldest public universities, the IBA, Karachi, founded in collaboration with the Wharton School of the University of Pennsylvania, our fourth-year students were required to spend an entire year in experiential learning, working with a company to solve real-world problems. Their performance was evaluated not by my faculty, but by the company supervisors overseeing their projects. As a result, these young men and women were often hired immediately, having developed precisely the skills and competencies the industry needed.

Number Ten: Support strong collaboration between industry and academia. At present, academia often moves in one direction: producing graduates. While industry complains that it cannot find candidates with the right skills for its jobs. Bridging this gap requires sustained partnerships between the two, ensuring that manpower is trained with the skills demanded by the market.

Pakistan has a youth bulge, while countries such as Japan, Korea, and several in Europe are facing an impending manpower deficit. Japan, for example, is already preparing to open its doors to foreign workers. This presents a valuable opportunity for us to pursue this agenda: preparing

our young men and women not only for the domestic market and economy but also to compete and contribute in the international economy.

Fragility to Resilience Through Citizen-Led Accountability*

Ahmed Awais Khaver**

Abstract

Political, economic, and ecological crises currently facing Pakistan demand urgent governance reforms centred on citizen participation. This chapter highlights the centrality of citizen-led accountability mechanisms through which community resilience can be strengthened, particularly in fragile regions where public service delivery and public trust are the weakest. Based on expert knowledge and local case studies, it shows how participatory tools like social audits and digital platforms can fill the gap between policy recommendations and local needs. The study advocates the importance of embedding these mechanisms within broader policy reforms, including decentralisation and digital inclusion, to foster sustainable development. The findings offer a practical and context-sensitive roadmap for empowering marginalised populations and bridging trust gaps between citizens and the state. Based on primary data from policy dialogue and grounded practice, it calls on decision-makers to institutionalise participatory development as a foundation for resilience and equity.

Introduction

Pakistan has a complex and interconnected basket of crises that remain wide-ranging from political inconsistency to catastrophic economic

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downturns; growing insurgencies and ever more intensive climate change. These interlocking challenges, including the impacts of floods, the COVID-19 Pandemic, and successive periods of economic strife, have placed immense pressure on the state's capacity to deliver essential services and ensure the basic well-being of its citizens. Together, they have exposed structural limitations in governance and delivery of social services, leaving a substantial proportion of the population, particularly the most vulnerable, the underserved or entirely unserved.

In this delicate and sensitive setting, the need to support communities is crucial for both maintaining development and social stability as well as reducing vulnerabilities. This study examines how citizen-led accountability mechanisms influence public service delivery, social trust, and community resilience in fragile regions of Pakistan, with a focus on governance reforms and the role of digital inclusion. The analysis is guided by three core questions:

1. How do citizen-led accountability mechanisms influence public service delivery, social trust, and community resilience in politically and economically fragile regions of Pakistan?
2. What governance and policy reforms are most effective in enhancing transparency and accountability in disaster response and social service delivery across low-capacity districts?
3. How does the use of digital tools affect citizen participation and oversight in marginalised communities, and what infrastructural or socioeconomic barriers hinder their effectiveness?

Citizen-Led Accountability Mechanisms

Citizen-led accountability mechanisms have been increasingly accepted as important tools for enhancing community resilience in situations characterised by political instability, economic uncertainties, and environmental stresses. In Pakistan, where governance challenges and recurring crises intensify local vulnerabilities, grassroots movements that enable communities to hold public institutions accountable are essential. Such mechanisms allow citizens not only to participate directly in the monitoring of public service delivery as well as resource allocation but also to fill the gap between the central policies and local demands (UNDP-Pakistan 2017). Communities have easier access to local forums, public hearings, and social audits; they are better prepared to analyse

government actions, raise questions, and demand transparency, which can, in turn, translate into better performance of public service delivery and greater political and economic stability.

The practical experience from South Asia indicates that when local people become involved in governance accountability, the number of corruption and mismanagement cases reduces and quality and responsiveness of public services increase. In rural Pakistan, for example, social audits have been successfully implemented to check on development projects. These processes have worked to ensure that money flows are diverted towards essential community infrastructure such as water supply systems and sanitation facilities; investments pivotal to combatting climate change and building climate-resilient livelihoods (PPAF 2020). Besides, digital tools and social media have extended the warrantee diameter and potency of such accountability measures whereby the delivery of audit outcomes and evaluations of projects are quickly made public. This heightened transparency not only supports confidence in government among its citizens but also puts public officials under pressure to follow standards of accountability, regardless of testing conditions.

Overall, therefore, by incorporating community oversight in programme design and implementation, citizen-based mechanisms of accountability not only fill immediate service delivery gaps but also entrench a culture of participatory governance, which underpins long-term resilience to political, economic, and climatic disruption.

Transparency and Accountability

Strong and properly integrated policies and governance structures are irreplaceable for ensuring that social services are provided to the most vulnerable members of society in Pakistan especially in times of crisis such as natural calamities and financial emergencies. In the current system, fragmented governance structures at the national, provincial, and local levels often lead to overlapping responsibilities and diffused accountability. There is, therefore, an urgent need for broad reforms to consolidate the administrative base and simplify the method of making decisions (World Bank 2018).

One of the major policy strategies is to create a centralised digital platform that aggregates budget allocation data, project implementation data, and social service delivery. It would be easy for such a platform to allow real-time monitoring and evaluation, meaning both citizens and

oversight institutions would be in a position to monitor progress and ensure funds are well utilised through disaster response operations and economic recovery programmes (UNDP-Pakistan 2018). Legislative changes play just as important a role; steps that require providing detailed reports of expenditure, along with publishing audit reports, establish conditions for encouraging transparency and cutting corruption levels down considerably (MoF 2017).

Institutional strengthening is also essential. Adoption of specialised units in government agencies, which only concentrate on monitoring and evaluation, can guarantee that service delivery is always in line with community needs. In disaster management for instance, creation of autonomous, resource-endowed disaster relief authorities can augment timeliness and effectiveness of across aid distribution and contribute to accountability (Khattak 2020). In the same accord, studies indicate that economic development initiatives should also include mechanisms for community input, for instance, through public hearings and citizen advisor panels, to ensure development projects being implemented keep local priorities in mind (Transparency International-Pakistan 2021).

Technology and Innovation

Technological and innovative developments can change the game around community development by making people self-sustainable and creating openings for the downtrodden in Pakistan. Using technology can help gaps in education, healthcare, financial services, and disaster management in the country. Digital platforms and mobile applications allow communities to obtain needed information and share information and participate in economic activities that they could not access before (ADB 2022). For instance, mobile banking services and digital payment methods have significantly advanced financial inclusion in Pakistan, enabling even residents of remote areas to participate in the modern economy by overcoming geographical barriers (SBP 2021). In addition, community-based digital literacy programmes have helped to empower people with the skills for using these technologies, thus opening doors to more socioeconomic empowerment (Akram 2023).

In the world of public service delivery, innovative governance solutions (interactive government portals and live data dashboards) enhance transparency and accountability. Adoption of such tools increases not only efficiency of service delivery but also empowers citizens to cooperate with

government structures and track development of public projects (ADB 2022). For disaster management, the combination of Geographic Information Systems (GIS) and real-time data analysis and early warning systems, has been essential to reducing the negative impacts of natural disasters and coordinating effective relief operations (World Bank 2018).

In spite of these developments, there are several challenges in extending digital opportunities to the marginalised population. Many poor communities do not have adequate infrastructure, including reliable internet connectivity and smart devices. To minimise these challenges, digital infrastructure investments that are underpinned by Public-Private Partnerships (PPPs) are crucial. Policies that would lead to a reduction in the cost of digital devices and internet services, as well as detailed digital literacy programmes, can guarantee that technological advantages are shared equally among all parts of the population (SBP 2021). Technology and innovation are, therefore, indispensable for developing community self-reliance. By extending access to digital resources and incorporating innovative solutions in public service delivery, Pakistan can enable marginalised populations to break through traditional barriers.

This research examines how citizen-led accountability mechanisms affect public service delivery and trust in politically and economically fragile regions of Pakistan. It explores the institutional reforms and digital innovations needed to make governance more transparent, inclusive, and responsive to marginalised groups. The study identifies barriers to accountability, opportunities for community engagement, and policy measures to support resilience-based development. By addressing issues such as poverty reduction, governance reform, climate adaptation, and PPPs, it aims to provide a blueprint for sustainable development. The findings will inform policymakers, practitioners, and community leaders to encourage and support citizen engagement.

Research Methodology

The study adopts a qualitative research design and is grounded in three primary sources of evidence:

Subject Expert Discussions

This research applies qualitative methodology synthesising information obtained through expert discussions¹ undertaken at the Twenty-seventh Sustainable Development Conference of the Sustainable Development Policy Institute (SDTV 2024) on 5 November 2024. Organised along with the Pakistan Poverty Alleviation Fund (PPAF), the session titled 'Fragility to Resilience through Citizen-led Accountability', was on studying citizen-led accountability, resilience strategies for marginalised communities, and the place of digital advocacy in governance (SDTV 2024).

Although the panel offered valuable cross-sector ideas, it lacked representation from certain regional and demographic groups, particularly urban informal settlements and conflict-affected districts in remote areas of Sindh and South Punjab. Furthermore, even though government and civil society experts attended, the absence of direct representation from grassroots communities impaired a granularity of localised, lived experience in the discussion. Hence, a literature review on relevant citizen-led accountability mechanisms and related governance reforms was undertaken to address these gaps.

Thematic Literature Review

A structured review of academic literature, policy documents, and reports from national and international development organisations was conducted. This review provided context and comparative perspectives on governance reform, digital inclusion, and community-led strategies in Pakistan and similar settings. This approach grounded the study in established theoretical perspectives and global best practices. Through a thematic analysis, it identified patterns and major trends in both expert discussions and existing literature, enabling a systematic, evidence-based examination of sustainable growth challenges and opportunities in Pakistan.

Analytical Framework

Using a thematic coding approach, insights were organised around three core domains derived from the research questions: (i) influence of accountability mechanisms on service delivery and trust, (ii) governance

¹ Muhammad Tahseen, Chairman, PPAF; Masood ul Mulk, CEO, Sarhad Rural Support Programme; Shahid Naeem, Economist, Ministry of Poverty Alleviation and Social Safety, Government of Pakistan; and Mome Saleem from UNICEF.

and policy structures for transparency, and (iii) the role of digital tools and barriers to access. This approach facilitated identification of enabling factors and constraints in citizen engagement. This was crucial for interpretation of the findings.

While the data primarily draws on expert-level perspectives and secondary sources, the study recognises the limitation inherent in the absence of direct empirical data from grassroots communities. Future studies should strive to capture a wider range of regional stakeholders and voices of the community to increase representation and increase the applicability of policy with regard to varying contexts. Future research may also incorporate field-based methods, including interviews, focus groups, and participatory assessments, to deepen and localise the findings.

Literature Review

Citizen-Led Accountability Mechanisms and Community Resilience in Pakistan

Citizen-driven accountability mechanisms have now become an important strategy for building resilient communities in politically unstable environments, where economic crises and ecological threats abound. In Pakistan, where governance failures, rapid socioeconomic changes, and worsening effects of climate change come together to produce wide-scale vulnerability, bottom-up approaches to accountability can help make a difference.

Theoretical Underpinnings and Local Context

Social accountability has its origin in theories of participatory governance that claim that if citizens are actively engaging in the decision-making processes, then public institutions will be more transparent, corruption reduced, and service improved (UNDP-Pakistan 2017). In Pakistan, traditional government practices of centralised decisions and low-level civic participation tend to produce policies that are not in sync with the needs on the ground. Citizen-led initiatives like village councils, public hearings, and community monitoring committees provide an alternative mechanism for giving local voices the opportunity to advise policy and provide greater oversight. For example, in different areas of Pakistan, local social audits were introduced for monitoring the spending of development funds, thereby making sure that funds are channelled as

needed in key areas such as water and sanitation infrastructure, which is important in mitigating the impact of climate change (Transparency International–Pakistan 2021).

Empirical Evidence and Case Studies

Grounded evidence from South Asia shows that active citizen participation in governance can lead to improved public outcomes. According to UNDP (2017), grassroots accountability efforts must be strong to prevent corruption and to ensure a higher level of client satisfaction with public service delivery. In rural parts of Pakistan, community monitoring has brought on actual changes in the state of infrastructure projects and social services. For instance, projects led by local non-governmental organisations (NGOs), in collaboration with government agencies, have effectively ensured equitable distribution of disaster relief funds and facilitated swift responses during floods and droughts (PPAF 2023).

In addition to direct supervision, mechanisms initiated by citizens promote change in local governance culture. Establishing forums for open '*baraza*' (public dialogue) and feedback helps build trust between citizens and authorities, reinforcing the legitimacy of governmental institutions. Such participatory practices reduce the divide between state policies and citizens, a primary aspect in areas that are politically precarious (ICG 2023).

Digital Platforms and Social Media

The proliferation of digital platforms has continued to increase the possibilities of citizen-led accountability. Social media and mobile apps make it possible to publish timely updates about public projects for citizens to follow the actions of the authorities more closely (SBP 2021). Online publication of audit results and progress reports establishes a situation in which government officials are under public scrutiny and, thus, reduce the risk of misuse of resources. This digital transformation has been especially potent in remote or underserved areas where physical conduits for communication are scarce (ADB 2022).

Policies and Governance Structures for Transparency and Accountability in Social Service Delivery

Strong policies and proper governance structures are very important in enhancing social service delivery transparency and accountability. The

delivery of public services, particularly in critical areas such as disaster response as well as economic development, has often suffered bureaucratic inefficiencies, corruption, and lack of cohesive governance. The next section reviews policy reforms and institutional frameworks that can handle these challenges.

Fragmentation and Coordination Challenges

Fragmentation of governance across national, provincial, and local levels remains a major obstacle to effective service delivery in Pakistan. This fragmented structure often results in overlapping roles and unclear chains of command, undermining resource efficiency (World Bank 2018). For example, during severe natural disasters, poor coordination has frequently delayed the disbursement of funds and, in some cases, prevented emergency relief from reaching the most affected communities in time (MoF 2017).

Centralised Digital Platforms

A potential approach for overturning these tendencies is the creation of centralised digital platforms that concentrate inputs on budget allocations, project implementation, and the results of services. These platforms support real-time monitoring and evaluation and thus authorities and citizens can monitor progress and fraudulent cases immediately (Akram 2023). Digital platforms not only improve transparency issues, but also efficiency through coordination in various layers of government. They help eliminate administrative silos and increase public service delivery integration through a single source of information.

Legislative Reforms and Audit Mechanisms

Institutionalisation of transparency and accountability relies on legislative reforms. The formal mechanisms in which corruption could be contained include laws that demand public disclosure of government budgets and expenses as well as publishing of audit reports (MoF 2017). At the same time, regular checks done by individuals like the Auditor General's Office help to create a vigorous oversight. Such audits are not just to guarantee that funds can be put to their intended purposes but also to build trust among the public in state institutions (Transparency International-Pakistan 2021).

Decentralisation and Community Participation

Although centralisation of data is desirable, so is decentralisation of power, as far as responsiveness to local needs is concerned. Decentralisation facilitates local governments to customise service delivery according to the needs of communities, thereby improving outcomes. In Pakistan, a number of studies have demonstrated that once local authorities are empowered through decentralisation, transparency and accountability are enhanced with respect to disaster management (Rashid et al., 2021). The mechanism of participatory governance in the form of public hearings and community scorecards should be institutionalised for continuous feedback from the citizenry, which creates a dynamic system of checks and balances (Kirk 2017).

International Collaboration and Best Practices

Governance reforms in Pakistan have benefitted considerably from the technical and financial support of international organisations. For instance, initiatives to enhance digital governance and streamline public service delivery have been backed by donors such as the World Bank (World Bank 2018) and the Asian Development Bank (ADB 2022). These partnerships have promoted best practices, including the use of blockchain technology to trace the flow of funds during disaster responses. This approach has been tested in several developing countries with promising results (ADB 2022).

Role of Technology and Innovation in Fostering Community Self-reliance and Enhancing Digital Access

Technology and innovation developments can transform community development in Pakistan, especially in making the marginalised self-reliant. This section reviews how digital tools and innovative solutions can break old barriers and, with this, improve access to education, healthcare services, financial services, and emergency management systems.

Digital Inclusion and Economic Empowerment

Technology has become a strong instrument of economic empowerment. Digital platforms from mobile banking apps to ecommerce sites continue to enable long-overlooked communities to join the digital economy. For instance, mobile banking services and digital methods of payment have significantly improved financial inclusion in remote areas of Pakistan.

According to the State Bank of Pakistan, the number of registered mobile banking users increased to 9.4 million by the end of December 2020, up from 8.4 million in the previous quarter, reflecting a significant growth in adoption during the COVID-19 Pandemic (SBP 2021). These tools have enabled even residents of geographically isolated communities to participate in the digital economy. This upward trend has continued: by the end of 2023, the number of mobile banking users surged to 16 million, indicating growing integration of marginalised populations into the digital economy (SBP 2024). Additionally, digital financial services have played an important role in reducing people's transaction costs and driving economic transactions at the rural levels that set the foundation of local entrepreneurship and innovation (ADB 2022).

E-Governance and Public Service Delivery

Technology is not only improving economic participation but also revolutionising public service delivery. E-governance solutions, including interactive government portals and live dashboards, not only improve efficiency but also transparency of service provision. Digital platforms also have the potential for improving the monitoring of public expenditures and enhancing citizen access to government services (Akram 2023). In Pakistan, where bureaucratic inefficiencies and access barriers remain persistent, such platforms can also facilitate the equitable distribution of public goods. However, the impact of digitalisation is contingent on its integration with robust accountability frameworks. Without institutional checks and citizen oversight, digital tools risk reinforcing existing inefficiencies. When strategically embedded within governance reforms, these technologies can foster transparency, responsiveness, and community resilience which are critical components for sustainable development in Pakistan.

Digital Literacy and Capacity Building

Technological innovation alone cannot drive inclusive development unless marginalised populations, particularly women, rural communities, and indigenous groups, have both access to and the ability to effectively use digital tools. While digital initiatives are essential, their success hinges on equitable access and capacity-building. Research shows that digital literacy programmes can empower local communities to meaningfully engage with online platforms and tap into emerging opportunities (Akram 2023). However, structural disparities persist. Pakistan's national literacy

rate stands at 62.8%, with a stark gender gap: 72.5% for males compared to just 51.8% for females. In rural areas, female literacy drops to 35%, revealing a clear intersection of gender, geography, and digital exclusion (Samo 2025). To address this, targeted and gender-sensitive digital education initiatives are critical especially in underserved regions. These must go beyond basic literacy to include practical digital skills aligned with local needs. Integrating such training into broader community development programmes would allow policymakers to ensure that the dividends of digital innovation are distributed more equitably (SBP 2021). While digital literacy programmes are being implemented to bridge the technological gap, the foundational issue of educational access remains a barrier. According to the Pakistan Bureau of Statistics (2024), approximately 25.37 million children aged 5 to 16 years are out of school in Pakistan, representing about 36% of the total population in this age group. This substantial out-of-school population highlights the critical need for integrated approaches, such as those mentioned above, that address both educational and digital divides to ensure inclusive community development.

Innovative Solutions in Disaster Management

Where disaster management is concerned, technology advances serve an indispensable role. The confluence of geographic information systems (GIS) and real-time data analysis are changing the ways we are issuing early warnings and distributing resources at times of emergencies. For example, the World Bank (2018) reports that digital early warning systems have helped reduce human and economic losses during natural disasters in vulnerable regions. In Pakistan, strengthening these technologies could enhance emergency response, streamline fund disbursement, and empower communities facing climate-related risks (ADB 2021).

Bridging the Digital Divide

Despite the promise of technology, a digital divide persists in Pakistan, particularly in rural and underserved areas. Limited internet access and inadequate digital infrastructure remain major impediments. Addressing these challenges requires coordinated PPPs and targeted investment in digital inclusion. The Government of Pakistan, in collaboration with international donors, has launched several initiatives to expand broadband access and lower the cost of digital devices (MoF 2017). A recent 2024 report by the Pakistan Telecommunication Authority

highlights progress, noting a 12% increase in rural broadband penetration following the rollout of the Universal Service Fund's projects.

The literature review, hence, shows that empowering communities in Pakistan relies on strengthening citizen-led accountability, robust governance frameworks, and use of technology. Citizen engagement enables communities to monitor government performance, particularly in times of political and economic instability (UNDP-Pakistan 2017; Transparency International-Pakistan 2021). Effective governance also requires decentralisation, legislative reforms, and integrated digital platforms to improve service delivery and support sustainable development (World Bank 2018; MoF 2017). Moreover, closing the digital divide through targeted innovation and infrastructure is key to building self-reliance (ADB 2022; SBP 2021).

While the literature offers strong conceptual and empirical support, this research advances the discussion by examining how these mechanisms function in practice through recent policy dialogue and expert consultations. The following section outlines the key findings from the primary data discussions.

Study Findings

Drawing on insights from expert dialogue sponsored by the PPAF along with SDPI and a review of policy and development literature, the findings highlight how participatory practices, digital tools, and policy reforms interact to reshape governance at the local level:

Citizen-Led Accountability: Reclaiming Democratic Spaces

The treatment of citizen empowerment as a key cornerstone of democratic governance through the promotion of citizen-led accountability was one of the main points of the dialogue. Speakers pointed out that authentic accountability does not emanate from top-down audit systems, but from inclusive participatory processes in which citizens take active role in planning, monitoring, and evaluating public institutions performance. In vulnerable settings such as Pakistan's in which democratic institutions are often undermined by elite capture, lack of enforcement, and low levels of public trust, involving communities in decision-making can promote more transparency and legitimacy.

Citizen-led accountability initiatives, such as community scorecards, participatory budgeting, and social audits, were discussed by participants as practical tools to empower marginalised groups. Yet, while these tools present unique potential, their effectiveness often depends on a supportive context, including responsive local governance, freedom of association, and institutional security. In politically repressive or overly centralised contexts, these mechanisms risk becoming mere theatre—symbolic gestures rather than genuine instruments of reform. Moreover, if there is no institutional buy-in or budgetary freedom at the grassroots level, citizen input may not mean the reform of policy or redistribution of resources (Transparency International–Pakistan 2021).

Community Empowerment and Place-Based Development

Based on several decades of CSO support to development activities in Pakistan's rural and conflict-affected regions, dialogue participants highlighted the significance of bottom-up approaches, in which community voices are at the centre of programme design and implementation. They cited examples of successes where local organisations and Community-Based Initiative (CBIs) helped drive inclusive governance. Though such accounts are promising, they tend to depend more on external donor support or NGO facilitation. After donors leave and external funding cycles end, sustainability for many grassroots institutions is a problem. Also, in addition to this, success of CBIs may differ tremendously based on local power dynamics, particularly where power is captured by elites or tribal structures restrict inclusive participation. Hence, scaling these models requires not only technical support but also structural change that defends bottom-up governance from co-optation (PPAF 2023).

In Balochistan and Khyber Pakhtunkhwa, women-led village organisations and youth forums have had a transformative impact on mobilising resources, managing local infrastructure projects, and making demands for social justice. When equipped with capacity-building and institutional autonomy, these community forums not only become effective in improving service delivery but also contribute to social cohesion in the face of external shocks, political unrest, or climate-related disasters.

Dialogue participants also emphasised that development interventions need to shift away from hard-wired short-term project cycles and instead develop durable institutions that reflect flexibility, responsiveness, and

democratic values. Institutions rooted in local contexts are more likely to withstand political transitions while continuing to meet community needs over the long term.

Sustainable Development, Gender Inclusion and Local Wisdom

The third theme, which has emerged during the dialogue, explores the interconnectivity of sustainable development, gender equity, and indigenous knowledge. Sustainable development, the respondents argued, must incorporate a whole and integrated approach, also known as the 'nexus approach', which integrates social and economic dimensions of poverty and vulnerability as well as environmental dimensions of poverty and vulnerability.

The role of gender-responsive development was of special focus. Participants emphasised the fact that women from rural and deprived parts display exceptional leadership in responding to local crises, despite their patriarchal discrimination. Women collectives were often the first responders during floods, health crises, and episodes of displacement highlighting both their leadership and the need to invest in the resources that enable their action.

The majority of participants argued that local wisdom and traditional knowledge must be conserved, for example, in agriculture and natural resource management. Although integrating indigenous knowledge with scientific innovation holds promise, challenges arise in validating, extending, and institutionalising such knowledge. Regional practices can be highly diverse, and when they remain outside formal documentation and validation processes, they are often marginalised in policy debates. In addition, balancing local wisdom against evidence-based planning needs deliberate frameworks where cultural practices supplement instead of contradict broader developmental pursuits.

Leveraging Technology for Democratic Consolidation

Technology was identified as a critical enabler for closing accountability gaps and reducing digital and informational exclusion, thereby fostering more inclusive governance. Digital hubs, mobile-based citizen feedback platforms, and data visualisation tools can democratise access to information and magnify the voice of citizens in remote and under-represented localities.

It was pointed out that the digital divide continues to pose a serious challenge in Pakistan, with remote areas, women, and lower-income groups experiencing poor and problematic access to internet services and digital literacy. Although digital tools can enhance visibility and make it easier for citizens to report, the impact is unbalanced along demographic and geographic lines. For instance, if access to the internet is limited in rural or marginalised communities, low digital literacy, and language barriers can prevent groups most in need from participatory governance. In addition, absence of strong data protection laws or ethical barriers or digitally monitored platforms can inadvertently subject citizens to retaliation or surveillance. Therefore, high-tech solutions should be supported by strong legal bases, inclusive design, and offline instruments to prevent increasing the level of inequality. Strategic investments in digital inclusion particularly through community information centres, mobile helplines, and localised e-governance tools can make interaction more transparent between citizens and the state. Several respondents also shared experiences where digital technologies had adapted to local linguistic and cultural circumstances for more engagement. Citizen journalism efforts in vernacular languages and social media-based tracking of service provision had also helped enhance visibility and responsiveness in many communities.

Trust Deficit and Institutional Gaps

While the findings highlight several commendable practices and community success stories, they also acknowledge the substantial challenges that persist. Foremost among these is the enduring trust deficit between citizens and the state, rooted in corruption, weak accountability mechanisms, and the perceived indifference of public officials towards citizen concerns. Participants concurred that building institutional trust not only entails technical solutions, but a change of mind in the country's governance culture.

Transparency International's Corruption Perceptions Index (CPI) 2024 reports that Pakistan's ranking dropped from 133 in 2023 to 135 in 2024 out of 180 countries. Such pervasive corruption can deter citizen engagement and impede successful implementation of community-driven initiatives. The findings highlighted the need to develop inclusive and sustainable platforms enabling citizens, civil society, academia, and government actors to co-create solutions, share knowledge, and monitor progress.

Institutionalising mechanisms such as public hearings, policy roundtables, and joint monitoring committees was proposed as a means to strengthen accountability frameworks and address governance fragmentation (Shah et al., 2020).

Participants stressed the need for sustained funding from national and international donors to support citizen accountability programmes, particularly in fragile and conflict-affected regions. Such investments are essential for scaling proven models, institutionalising participatory development for citizen-driven governance systems that Pakistan urgently requires.

Drawing on the common experiences, success stories, and structural challenges identified above, the following policy recommendations make up a methodologically informed roadmap to institutionalise citizen-led accountability in Pakistan:

Policy Recommendations

Recognising that well-intended policy often fails in implementation, each recommendation is framed with attention to institutional roles, political feasibility, and possible mechanisms for supporting and scaling Pakistan's trajectory from fragility towards resilience through citizen-led accountability. While challenges such as bureaucratic inertia, resource constraints, and trust deficits persist, these proposals are designed to be both context-sensitive and adaptable across varying governance capacities.

Institutionalise Citizen-Led Accountability Mechanisms

The federal and provincial governments, jointly with civil society and local government departments, should formalise participatory mechanisms like community scorecards, social audits, and public forums into local governance institutions. These mechanisms should have legal mandates and funding. This can be achieved through amendments to local government acts and administrative rules of business. Institutional progress should be reflected in policy adjustments and budget reallocations prompted by community feedback.

Support and Create Sustainable Community-Based Organisations (CBOs)

To ensure continuity and independence of grassroots action, provincial governments and development partners should establish dedicated multi-year funding streams for CBOs, especially in fragile and underserved regions. Development partners and state agencies need to give priority to the sustainability of these local institutions outside short-term project cycles. For example, in Balochistan and Khyber Pakhtunkhwa, CBOs supported by PPAF have continued to maintain local development projects, especially via women-led and youth forums (SDTV 2024). Technical support hubs should be set up at the district level to provide long-term capacity development. Progress can be tracked through the growth and survival rate of CBOs beyond funding cycles, the inclusion of women-led and youth-led groups, and the ability of CBOs to independently manage development initiatives.

Adopt Nexus Approach to Development Planning

There is a need for coordinated planning: national and provincial bodies should integrate the country's social and economic goals with its environmental needs into a unified approach. This includes linking poverty reduction, gender equity, and climate strategies into district-level development frameworks. Effectiveness can be monitored by the adoption of integrated indicators across sectors and increased alignment between provincial planning documents and SDG targets.

Enhance Gender-Inclusive Governance

Policies need to ensure that women's voices are not only heard but that they have decision-making power in local development arrangements. Local governance systems should implement gender quotas in citizen oversight bodies such as development committees, health boards, and school councils while Provincial Social Welfare Departments (PSWDs) must support leadership training for women and marginalised gender groups. Increasing funding for women-led initiatives and dismantling socio-cultural barriers are essential for gender-responsive governance. In Gilgit-Baltistan, introducing gender quotas in local health committees improved immunisation coverage and maternal health access. The effectiveness of such measures should be assessed through indicators such as women's representation in local governance, adoption of women-

led development proposals, and measurable gains in service delivery for women and girls.

Leverage Technology for Inclusive Participation

The Ministry of ITT and provincial IT boards should co-develop digital investments in rural and inadequately serviced areas to reduce the digital gap. In addition, government and civil society should co-design multilingual, culturally appropriate digital tools so that citizens can report grievances, receive services, and monitor public projects. Platforms like *'Bolo Bhi'* allow Urdu-speaking citizens in neglected regions to file complaints and obtain information regarding government services. Equally, social audit results and real-time tracking of service delivery when published on digital platforms and mobile apps, enhance transparency and citizen involvement (Akram 2023; Transparency International-Pakistan 2021). Offline options such as SMS-based reporting and community information kiosks must be provided to bridge the access divide. Uptake should be assessed by the reach and usage of these tools, particularly among rural women and low-income communities, as well as the proportion of citizen-reported issues that receive documented responses.

Strengthen Transparent Engagement

Public institutions at all levels should institutionalise transparent engagement through town halls, feedback surveys, and citizen consultations tied to budget and policy planning cycles. Policy decisions should be communicated to communities/citizens openly in accessible language and formats, so that people can track how the government will respond to citizens' feedback. Trust-building efforts can be measured by citizen participation rates, the volume of feedback incorporated into final plans, and satisfaction levels captured through community surveys.

Develop Multi-Stakeholder Accountability Platforms

Create permanent accountability platforms at local and national levels in which citizens, government, CSOs, academia, and civil society work together to simultaneously monitor development outcomes and detect risks. These platforms should be embedded into existing planning and reporting frameworks and linked to SDG progress. Their effectiveness can be assessed through consistency of meetings, diversity of participation, and implementation rate of joint recommendations.

Support from Development Partners

Forecasts may be funded by international funding partners like the United Nations organisations, the World Bank, and bilateral agencies, in the form of long-term governance changes, digital inclusion initiatives, and capacity-building programmes that integrate citizen engagement in national planning. Digital inclusion activities of the United Nations Development Programme (UNDP) in rural Pakistan facilitated broadband expansion and digital enlightenment for hitherto excluded groups to engage in governance through online feedback tools (Akram 2023). Donor support should emphasise sustainability through co-financing requirements and institutional partnerships. Effectiveness of this step can be reviewed based on the basis of the scale and longevity of funding committed to participatory governance and the extent to which initiatives are sustained beyond project closure.

Conclusion

The findings from this study brought out one important conclusion: building resilience in Pakistan requires a paradigm shift in governance, which positions the citizenry as catalysts of accountability and decision-making. In a world riven by concurrent political, economic, security, and environmental crises, citizen-led approaches offer a democratic, inclusive, and sustainable path forward (UNDP-Pakistan 2017).

Community empowerment through participatory mechanisms, empowering grassroots leadership, and mediating state-society gaps helps to overcome systemic fragility. Moreover, when using digital tools to promote gender equity and integrate local wisdom in policymaking, the potential of marginalised populations as co-builders of national progress can be unleashed.

By connecting policy discourse with grounded practice, this research lays the foundation for a more inclusive and responsive governance model. Realising this vision will require sustained political commitment, institutional reform, and donor support being anchored in the voices of those who have historically been left out of the development process. This vision is not detached from reality. It is based on lived experiences, local knowledge, and institutional cooperation. What must be done ahead involves political will, joint actions, and ongoing citizen-state dialogues. Pakistan can shift from fragility to a future of trust, dignity, and shared

prosperity if citizen-led accountability and inclusive governance at all levels are institutionalised.

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From Exclusion to Empowerment: Bridging the Gender Gap in Pakistan's Financial System*

*Anam Tariq Awan***

Abstract

Financial inclusion ensures access to affordable and adequate financial services for individuals and businesses. In South Asia, and particularly in Pakistan, inclusive growth is hindered by a considerable gender gap. Women in Pakistan face major barriers to financial access. Key limiting factors include financial illiteracy, cultural constraints and lack of gender-disaggregated data from institutions. These challenges must be addressed through improvements on the supply side, as well as awareness-raising and demand-side interventions. This chapter briefly looks at various public and public-private initiatives to improve financial inclusion of women in Pakistan.

Introduction

Feminist development policy is grounded in the vision of a fair and equitable world in which every person stands on equal footing. It seeks to eliminate or reduce the structural causes of inequality, particularly those based on gender. Given the fact that women and girls present the greatest number of people who are subjected to systemic discrimination, greater importance has been given to encouraging gender equality in this policy. In 2025, 93% of its funds were committed to projects supporting gender

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equality (BMZ 2023). This substantial allocation indicates the critical importance of addressing gender inequality in financial decision-making and resource allocation.

Financial illiteracy is one of the greatest barriers to financial inclusion in Pakistan, particularly for women. Women in Pakistan face major barriers to financial access, even where economic potential exists with only 13% holding an account (Razzaq et al., 2024) and just 3% using mobile money (Malik 2025). Without basic knowledge of financial concepts and services, many women are unable to access, utilise, or benefit from available financial instruments. Financial literacy should, hence, be improved so that there is effective engagement of women in the formal financial sector. Such initiatives could become important first steps towards advancing women's financial inclusion in Pakistan, laying the groundwork for broader and longer-term efforts to promote their economic empowerment.

Digital technology can help in advancing women's financial inclusion in Pakistan. Evidence shows that, when provided with access to technology along with appropriate training and empowerment, women are often more responsive than men. This potential is strengthened by the rapid adoption of mobile payment systems such as EasyPaisa and JazzCash, which offer a convenient entry point into the financial system for individuals with limited or no engagement with formal banking. This trend represents a critical opportunity to reach unbanked and underbanked populations. Looking ahead, greater collaboration and innovation in this domain can help develop a more inclusive and equitable financial ecosystem for women in Pakistan. The findings in this research are based on expert discussions undertaken at the Sustainable Development Policy Institute's Twenty-seventh Sustainable Development Conference in November 2024. The discussion, co-organised with GIZ, was titled *Towards Economic Empowerment: Women's Financial Inclusion in Pakistan*' (SDTV 2024).

Impacts of Women's Financial Exclusion in Pakistan

Globally, one billion women lack access to financial services. In Pakistan, financial inclusion across the population is minimal; however, women face a disproportionately greater share of the barriers. Financial exclusion affects 93.1% of women, compared with 79.7% of men. Barriers include low financial literacy, cultural and economic constraints, and limited access to

education and employment opportunities (Ejaz and Qayum 2023). Restricted access limits women's capacity to manage finances independently, conduct transactions, receive payments for their labour, and control economic resources. Engagement with formal financial institutions is often indirect, mediated through male household members, further undermining women's economic autonomy. In addition, conservative societal values frequently restrict women's mobility and decision-making, isolating them from financial opportunities (Hussain et al., 2019).

This issue is far from isolated and has deep implications for broader societal development. Evidence shows a strong negative correlation between financial exclusion and women's empowerment. Women entrepreneurs play a vital role in economic growth, yet often face financial access barriers that hinder progress toward achieving the Sustainable Development Goals (SDGs) (Lailiyah and Fajri 2024). Notably, 94% of women without access to financial services also face multidimensional social exclusion, including limited access to education, employment, and participation in public life. Most concerning are the lost opportunities that stem from low levels of financial inclusion, perpetuating cycles of poverty and inequality.

Research consistently shows that empowering women economically generates multiplier effects at the family and community levels. Women reinvest at least 90% of their earned income into their households in healthcare, nutrition, and children's education compared to 35% reinvested by men. Extensive studies further demonstrate that progress on 13 of the 17 United Nations SDGs depends on achieving financial inclusion, highlighting its global development significance (CGI 2009).

The transformative potential of digital financial services in poverty alleviation and resilience is evident from examples worldwide. For instance, M-Pesa, a mobile money platform in Kenya, is estimated to have lifted 186,000 households out of poverty. Similar results have been observed in Southern Africa and Nepal, where users of digital financial tools experienced greater economic resilience (Dawson 2017). These examples are particularly relevant to Pakistan, where such interventions hold considerable promise for advancing financial inclusion and fostering socioeconomic empowerment.

National Trends and Disparities in Women's Financial Inclusion

At the national level, financing women can be considered a key initiative for building stronger economies and promoting social parity within Pakistan's social protection system. Women remain among the most affected by poverty and social isolation in a socio-cultural context facing multiple, overlapping challenges. They should be financially included not only as a means of economic empowerment but also as agents of social change.

Government efforts to close these gaps include capacity-building, improving online access, and promoting financial literacy. Initiatives such as the State Bank of Pakistan's (SBP) National Financial Inclusion Strategy (NFIS) and the National Financial Literacy Program for Youth are key examples. The effectiveness of such collaboration is evident in expanding mobile banking access for underprivileged communities through partnerships with telecom providers. Financial inclusion is also being advanced alongside digital literacy and social protection, supported by international cooperation through programmes such as Benazir Income Support Programme (BISP) and Digital Financial Literacy Training (DFLT). As a member of the Better Than Cash Alliance, Pakistan is moving towards responsible digital payments in line with the Sustainable Development Goals (SDGs).

One notable example of a successful initiative in this area is BISP which provides a USD 2.15 billion social safety net to more than 9.3 million families: an estimated 56 million people, or 24% of the country's population (Cheema et al., 2020). After only five to eight years of implementation, BISP has had a positive impact on women's mobility and decision-making (Iqbal et al., 2021). By delivering income support directly to women, BISP positions them as key financial agents within their households. This model has the potential to transform poverty alleviation in Pakistan, as ensuring women are not financially disadvantaged can uplift household conditions and strengthen communities. Microfinance has also been shown to positively influence women's empowerment and poverty reduction, helping women become more prosperous and self-reliant (Niaz and Iqbal 2019). BISP pursues two main interventions:

1. Conditional Cash Transfer (CCT) – e.g., Waseela Taleem.

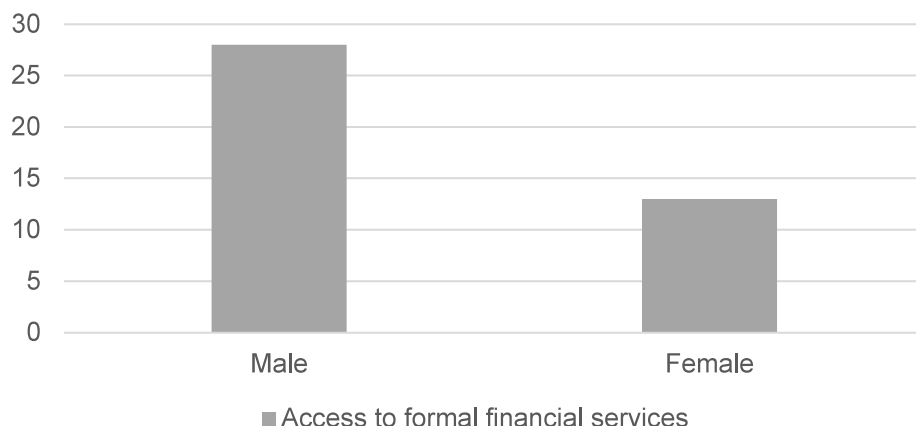
2. Unconditional Cash Transfer (UCT) – quarterly cash payments made directly to beneficiaries.

Such programmes address not only short-term consumption needs but also contribute to the long-term development of human capital. By investing in women-owned digital accounts, BISP promotes financial literacy, increases women's independence in decision-making, and enhances their participation in economic life. The use of social safety nets is growing rapidly, with unconditional cash transfer programmes implemented in 40 countries in 2015: nearly double the number in 2010 (World Bank 2015).

The development of BISP's payment architecture is an important step towards user empowerment and efficiency. It already delivers the intended benefits, operating within a competitive structure of six banks and placing beneficiaries at the centre. The design allows women to choose their preferred service provider, improving access and building trust in formal financial services.

Overall, BISP can serve as a strong example of a policy tool where social protection is linked with financial inclusion, enabling women to be enablers for society-wide change. This approach not only confirms the central role of women in development strategies but also lays the foundation for prosperity beyond poverty alleviation.

Figure I: Access to Formal Financial Services



Source: Profit by Pakistan Today 2025.

The rate of financial inclusion for both women and men in Pakistan has been increasing since 2017. However, there remains a gender gap: only 14% of women have access to formal financial services compared to 28% of men, as shown in Figure I. This disparity highlights the need for targeted efforts to raise awareness and introduce interventions that can improve women's participation in the formal banking sector. Currently, only 13% of women in Pakistan hold financial accounts, compared to 34% of men. A similar gap exists in digital finance, underscoring the urgent need for policies and programmes that directly address these inequalities (Razzaq et al., 2024).

Another notable trend in the financial sector is the growing use of mobile money platforms such as EasyPaisa and JazzCash. While these digital wallets do not yet offer the full range of services provided by formal banks, they represent an important first step towards financial inclusion. Despite high mobile phone penetration in Pakistan, estimated at around 80%, mobile wallet usage remains relatively low. Expanding and enhancing mobile money services presents a promising opportunity to bridge this gap, particularly for women.

Women's access to mobile money wallet accounts in Pakistan is very low. This exclusion is because of several factors like low financial literacy, high costs of financial services, poor physical access to service providers, lack of proper documentation, mistrust of financial systems, and deeply rooted social and religious norms. A large share of the population, particularly women, remains outside the formal financial system. This widespread marginalisation is reflected in the Global Gender Gap Index 2025 (WEF 2025), where Pakistan ranks near the bottom and is identified as the worst-performing country, as shown in Table I:

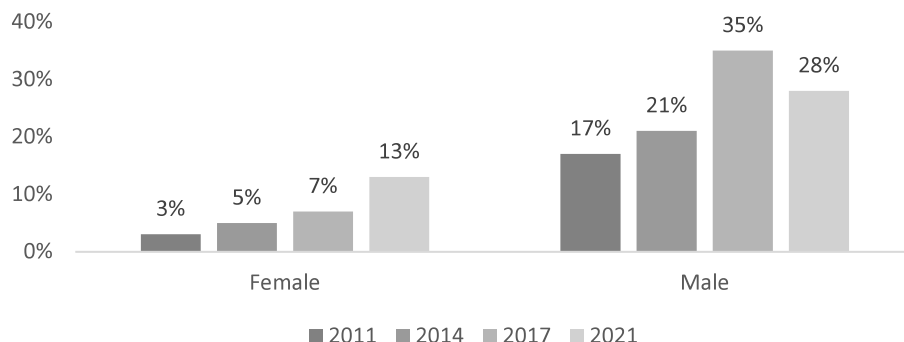
Table I: Global Gender Gap Index 2025–Southern Asia

Economy	Rank		Score
	Regional	Global	
Bangladesh	1	24	0.775
Bhutan	2	119	0.663
Nepal	3	125	0.648
Sri Lanka	4	130	0.645
India	5	131	0.644
Maldives	6	138	0.626
Pakistan	7	148	0.567

Source: WEF 2025.

In addition, Pakistan is highly vulnerable to the impacts of climate change. Poverty and climate risks are worsened by financial marginalisation, especially of women, which limits the effectiveness of response mechanisms. Increasing women's financial inclusion would expand the share of funds reaching citizens through targeted government-to-person (G2P) payments delivered in the right way and at the right time. There is also a close link between poverty and poor health outcomes, hence, women-focused health insurance products, are needed. Such initiatives can contribute to a more comprehensive and lasting reduction of poverty and stronger social resilience by addressing the unique health risks women face through inclusive insurance models.

The Global Findex 2021 presents data on account ownership in Pakistan for the years 2011, 2014, 2017, and 2021, covering different population segments: overall, male, and female. The data comes from the Global Findex Database, which tracks financial inclusion worldwide. In recent years, Pakistan has made notable progress; however, a substantial gap still remains. Figure II shows that financial inclusion in Pakistan has improved since 2016, particularly in account ownership.

Figure II: Global Findex Pakistan

Source: Klapper et al., 2025.

In 2016, only 16% of people had a bank account; today, the figure has risen to about 64%. Female financial inclusion has also grown, from less than 20% in 2016 to 47% in the most recent data. However, a clear gender gap remains. While 81% of adult men in Pakistan have a bank account, only 47% of adult women do: a difference of 34 percentage points. This highlights need for long-term, targeted interventions to ensure women are fully included in the financial inclusion agenda.

Closing the Gender Gap in Financial Access through Partnerships

Germany's continued investment in improving social protection in Pakistan is demonstrated through partnerships with organisations such as BISP, the Punjab Social Protection Authority (PSPA), and others. These efforts represent smart investments in promoting gender equality, strengthening climate resilience, reducing poverty, and encouraging digital innovation. Ongoing cooperation in these areas is essential for achieving inclusive and sustainable development.

Adaptive social protection aims to support individuals and communities before, during, and after climate-related shocks. Financial inclusion is central to this approach, with Anticipatory Action (AA) being one of its key components. This approach has gained attention in Pakistan and other climate-vulnerable regions. Communicating with at-risk populations before disasters such as floods is much easier when they have access to

mobile phones and electronic financial services. Mobile wallets, in particular, enable rapid cash transfers, empowering recipients to take early protective measures for themselves and their families.

Financial inclusion also improves the delivery of government welfare schemes, including those provided by BISP and provincial social protection agencies. Direct G2P payments reduce fraud and make payment flows efficient and timely. To achieve this, it is important to ensure that beneficiaries, especially women, have the skills and resources to manage funds directly rather than relying on third parties.

Equally important is the long-term stability that financial inclusion provides. Access to loans and insurance for women and households helps them prepare for and recover from future shocks. With climate risks increasing, financial inclusion has become a key strategy for strengthening the social and economic resilience of vulnerable populations.

Box A: BISP's Success Story: Empowering Change

In the heart of a small village in Rajanpur, Punjab, lives Nusrat Bibi, a 38-year-old mother of four. Widowed at a young age, she was left to care for her children with no steady source of income. For years, she relied on informal labour and support from relatives – barely enough to cover the essentials. In 2015, Nusrat was enrolled in the Benazir Income Support Programme. The quarterly cash assistance provided her with a sense of stability and dignity for the first time in years. She used the cash transfers strategically: buying groceries in bulk, enrolling her children in school, and saving a small amount from each installment. Realising the need for a sustainable livelihood, Nusrat took a bold step. Using part of the BISP support along with a small informal loan, she started a home-based stitching and embroidery business. With her determination and skill, her work began gaining attention in the neighbourhood. Over time, she built a regular customer base and started earning a modest but steady income. In 2021, with support from a graduation initiative linked to BISP, Nusrat received vocational training and a sewing machine. Her business expanded, and she began training two other women in her community. Today, Nusrat not only supports her children's education but also contributes to the household income with pride. Her eldest daughter is now enrolled in college, a dream Nusrat once thought impossible.

Source: SDTV 2024.

The most effective way to empower people to use digital financial tools is to increase their understanding and awareness of financial services. Expanding the reach and impact of financial education should be a priority, supported through strong Public-Private Partnerships (PPPs).

Advancing Social Protection and Financial Inclusion in Pakistan

An opportunity lies in using existing communication channels and campaigns whether in health, agriculture, or other sectors to include financial literacy messages. Every available channel should be used to raise awareness among women in Pakistan about the range of financial products and services they can access. In addition, more inclusive financial products should be developed, such as insurance and savings options tailored to women's specific needs. The key is to design gender-responsive financial solutions that make financial inclusion both equitable and sustainable.

Digital financial services can be an effective way to expand outreach and reduce the cost of accessing financial products. However, technology is not a substitute for targeted investments aimed at empowering women. While there may be well-designed financial tools, structural barriers often prevent women from using these tools to their full potential.

Another challenge is that when financial products are designed for women, it is often the male members of the household who control these resources. To address this, women need to be empowered in decision-making at both household and community levels. This requires a multifaceted approach that includes financial literacy, digital literacy, entrepreneurship training, and broader capacity-building efforts. Without such support, even the most advanced financial systems and services will fall short of achieving true inclusion.

In addition, persistent social norms and cultural restrictions limit women's access to technology and financial services. For example, in many low-income households, mobile phones are shared within the family and are usually owned by men. This limits women's direct access to digital platforms, reduces privacy, and restricts their freedom in handling financial transactions. Therefore, addressing issues of technology access, ownership, and decision-making is central.

Capacity-building in financial institutions usually includes basic financial education to ensure clients have essential knowledge before loans are disbursed. This training is typically provided shortly before funds are released and focuses on key topics such as responsible borrowing and the risks of excessive debt. Clients are encouraged to use loans for productive, income-generating activities rather than for consumption. However, it is important to recognise that low-income households have a variety of financial needs, and enterprise development is not their only priority. These needs include daily cash flow management and having enough liquidity to cope with emergencies. Therefore, financial products should be designed to match the complex financial realities of low-income households, offering both consumption-oriented and income-generating options to meet their diverse needs. Digitalisation, including the use of tablet-based systems, has improved service delivery in development projects and introduced complementary training modules on topics such as gender justice and maternal health, recognising that sustainable poverty alleviation requires a holistic approach.

Over time, it has become clear that without contingency planning, the gains made in poverty reduction can be fragile similar to a game of snakes and ladders, where progress can quickly be lost. The PSPA applies a gender-focused approach to its poverty alleviation and human capital development initiatives, recognising that investments in women's human capital deliver the greatest long-term benefits. Programmes such as 'Aghosh' aim to empower female beneficiaries especially school-going girls and women in vulnerable households by improving their access to education, health services, and economic opportunities. PSPA prioritises women in beneficiary selection for both conditional cash transfers and asset-based schemes such as 'Bunyad' and 'Khud Mukhtar', which promote women's ownership, financial literacy, and readiness for the labour market. New partnerships, such as with JazzCash, are also helping to promote financial inclusion by creating savings wallets with interest benefits, particularly aimed at women beneficiaries (Jazz 2017). Furthermore, PSPA is launching the Punjab Socio-Economic Registry (PSER) in partnership with the Sub-National Governance Programme. This will be the province's first integrated database aimed at improving the targeting of social protection (PSPA n.d.). The initiative also focuses on financial inclusion and highlights the need for systemic support, such as reducing or waiving transaction fees on G2P payments and upgrading digital wallets to offer a wider range of financial services. These measures

would not only remove existing barriers but also encourage greater participation in digital finance, particularly among women, thereby enhancing both inclusion and empowerment. Including women in finance is not only a matter of equity but also an economic necessity for sustainable development.

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Labour Rights, Environmental Compliance and Climate Resilience: Reforming Pakistan's Brick Kiln Industry*

*Ramsha Mehboob Khan, Saleha Ikram, Dr Shafqat Munir Ahmad, Muhammad Awais Umar and Ali Rehmat***

Abstract

Pakistan is highly vulnerable to climate change and induced disasters despite contributing less than 1% to global greenhouse gas emissions. The brick kiln industry is one of the key sectors of the country's economy. It employs approximately 4.5 million workers, many of whom face exploitative working conditions, including debt bondage, low wages, exposure to extreme heat and pollutants, and exclusion from social safety nets. Women in this sector also face gender-specific challenges, including pay gaps, discrimination, and lack of basic facilities. The 'Socially and

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Environmentally Compliant Brick Kiln Framework (SECBKF)' developed by the Sustainable Development Policy Institute provides a roadmap to ensure the protection of labour rights as well as encourage use of cleaner technologies in the brick kiln industry. Effective enforcement of the framework can help curb pollution, enhance labour standards, meet Pakistan's Generalised Scheme of Preferences Plus (GSP+) trade obligations, promote progress on Sustainable Development Goal-8, and social protections under the International Labour Organization's Decent Work agenda. This chapter discusses the relationship between violations of fundamental labour rights and environmental degradation in Pakistan, with a particular focus on the informal labour sector and the brick kiln industry.

Introduction

Climate change is an ongoing reality that is significantly impacting the lives and livelihoods of people around the world, with Pakistan facing particularly daunting challenges. Earth's surface temperature is now about 1.2°C warmer than before the Industrial Revolution in the late 1800s and warmer than at any time in the last 100,000 years. The most recent decade (2011–2020) recorded the highest temperatures. Each of the last four decades has been warmer than any past decade since 1850 (UN 2024), with human activities (primarily fossil fuel combustion) being the main driver. These changes have led to fewer cold days and more heat waves, heavy rains, and storms, with 2024 being the warmest year on record having an average temperature of 1.29°C above the 20th Century baseline (NCEI-NOAA 2024).

Pakistan is highly vulnerable to climate change and induced disasters despite contributing less than 1% to the global greenhouse gas (GHG) emissions. The Climate Risk Index 2025 (Adil et al., 2025) ranks Pakistan as the first country amongst the top ten most affected in the past decade. The 2022 Super Floods inundated one-third of the country, displaced over 8 million people with economic losses exceeding billions. These events have particularly affected informal workers in sectors such as agriculture, construction, and brick kilns, where hazardous working conditions, lack of social safety nets, and weak regulatory frameworks exacerbate their vulnerability.

The brick kiln industry is one of the most important sectors in Pakistan's construction economy. The industry, which produces more than 45 billion bricks annually, contributes significantly to environmental degradation and emits large amounts of GHGs and other pollutants (Memon 2021), such as black carbon and fine particulate matter, due to outdated technologies, such as fixed-chimney trench kilns (Bashir et al., 2023). Workers in the brick kiln industry face a multitude of challenges, particularly bonded labour (Ball 2024). Even though this type of forced labour was outlawed, it persists due to various administrative, legal, policy, and social barriers that hinder workers from escaping their debts. Women also face gender-specific challenges, including pay gaps, discrimination, and a lack of basic amenities (UN Women 2023).

Significance of the Study

This research study explores the critical interconnections between labour rights, environmental sustainability, and climate change in Pakistan's brick kiln sector. Workers suffer from hazardous conditions, informal employment, and severe environmental impacts. The research also seeks to analyse structural, social, and gender injustices that aggravate poverty and exploitation, such as bonded labour, child labour, and wage inequalities. It aims to provide key policy recommendations to strengthen universal social protection, improve occupational health and safety measures, adopt cleaner technologies and provide evidence-based guidance to policymakers, labour advocates, and international partners to promote social justice, climate resilience, and a just transition to a green economy in Pakistan's informal labour sector.

Research Methodology

A qualitative research method was adopted for the analysis to explore the relationship between violations of fundamental labour rights and environmental degradation in Pakistan. The approach is based on assessments from the Sustainable Development Policy Institute (SDPI)'s Twenty-Seventh Sustainable Development Conference which included stakeholder dialogues and panel discussions that yielded key insights on labour rights, climate change, and sustainable development approaches. To embed a theoretical foundation and support these insights, an extensive literature review was also conducted across academic journals, policy reports, and relevant national and international publications.

Climate Change in South Asia: A Regional Crisis

South Asia is facing the brunt of climate change. Countries such as India, Bangladesh, and Pakistan are experiencing unpredictable rainfall, extreme heat, and devastating floods. In 2024, Delhi recorded its hottest day on record, with temperatures exceeding 50°C in many parts (Sebastian and Armstrong 2024). Similarly, Bangladesh experienced one of the worst heat waves since 1948, affecting 33 million children and forcing schools across the country to close (GCRP 2024).

Workers, particularly those in the informal sector, have been disproportionately impacted by these extreme weather events. During India's longest heatwave, brick kiln workers complained of intolerable working conditions, with temperatures rising to 42.2°C. Many employees chose not to take breaks due to fear of losing their jobs, which put them at risk of severe heat exhaustion. Furthermore, the risk of heat-related illnesses has also increased due to growing exposure of garment factory workers in Bangladesh, Vietnam, and Pakistan to hazardous wet-bulb temperatures (Reid 2024).

Labour Challenges in Pakistan

This section examines Pakistan's labour challenges, focusing on the impacts of climate change, unsafe and informal working conditions, and the absence of adequate social protection. It also explores how heat stress and related occupational hazards affect workers' health, productivity, and earnings; gender wage disparities, child labour and mental health concerns.

Climate Change and Occupational Hazards

Climate change affects labour and industries due to severe weather events, increasing temperatures, and changing environmental conditions that disrupt productivity and economic stability. Extreme heat and flooding diminish worker efficiency, especially in outdoor sectors such as agriculture and construction, while indoor industries encounter heightened costs for cooling and improving infrastructure resilience (ILO 2019). For example, the International Labour Organization (ILO) predicts that by 2030, 2.2% of global working hours may be lost due to heat stress, disproportionately impacting low-income regions (Ibid.). Disruptions in the supply chain, like those triggered by hurricanes or droughts, place

additional pressure on industries that depend on raw materials, such as manufacturing and food processing (IPCC 2022).

Informal labour is the backbone of the economy in Pakistan, and yet some of the worst and most unsafe working conditions are found there, most notably due to increased climate change and heat-related hazards. In industries like brick kilns and mining, workers face severe temperatures, poor ventilation, and near-total lack of protection by the state. Such climate-related occupational hazards are worsened due to weak unionisation, regulation, and a universal absence of much-needed registration.

Climate change has intensified extreme weather events in Pakistan, such as the 2022 floods that affected over 33 million people and caused USD 30 billion in damages, significantly disrupting labour markets (MoPDSI 2022). Agriculture, employing 37.4% of Pakistan's workforce and contributing 23.54% to GDP, is particularly sensitive to climate variability (MoF 2024).

Urban labour markets are also strained by climate change, as rural-to-urban migration increases due to environmental degradation and loss of arable land. Extreme heatwaves, with temperatures reaching 51°C in May 2022, reduced labour productivity, particularly for outdoor workers in construction and manufacturing, which account for 38% of Pakistan's carbon emissions (IGC 2024). Prolonged electricity blackouts during heatwaves further exacerbate working conditions, increasing health risks and reducing income for daily wage earners (Amnesty International 2025).

Impact of Heat Stress on Productivity and Earnings

In countries like Cambodia, the average temperature has been the highest ever recorded, and now occurs four times more frequently, making extreme heat a matter of life or death for vulnerable workers. This threat is invisible, however, and its cumulative effects remain hard to assess (SDTV 2024).

A study combined workers' health data, like core body temperature, with socioeconomic factors, exposing concerning results. Garment workers facing heat stress experience a 30% drop in productivity, while informal street vendors experienced a 27% decrease in earnings. Transport workers were less affected, emphasising gaps across job sectors. Those most impacted often had higher debt levels and received fewer remittances, worsening their situation (SDTV 2024).

Hundreds of thousands of informal workers toil in Pakistan's brick kiln industry, many of them women and children. Workers are subjected to hot ambient temperatures that climb above 45°C in peak season. Without shade, hydration procedures, or suitable work-rest patterns, workers are highly exposed to heat-related stress like exhaustion, dehydration, and Chronic Kidney Disease of non-traditional origin (CKDnt) (Flouris et al., 2024; Lanjwani et al., 2020). Prolonged droughts, and heatwaves have reduced crop yields, with wheat production dropping by 10% in 2022 due to heat stress (USIP 2022). This has led to income losses for rural labourers, forcing many into precarious employment or migration to urban areas, where they face overcrowded labour markets and limited job opportunities.

Child Labour

Rising climate-induced disasters has also exacerbated child labour in Pakistan, with approximately 3.3 million children engaged in work due to economic necessity (Rehman 2024). The 2022 floods displaced eight million people. This likely pushed families in rural areas to rely on children's labour to supplement income (MoPDSI 2022), particularly in agriculture, where 56% of child labourers are employed (Mehmood 2023). This trend is most pronounced in Punjab, where traditional agricultural practices normalise child labour during harvest seasons. Climate volatility has reduced agricultural productivity, compelling families to forgo education for children in favour of immediate economic survival, perpetuating cycles of poverty and exploitation (Rehman 2024).

Precarious Employment, Occupational Vulnerability and Inadequate Social Security

Majority of brick kiln workers are not registered under the Employees Old-Age Benefits Institution (EOBI) or the Social Security system. This means they are given no benefits, pension, or health coverage. Unregistered kilns and undocumented workers also evade routine inspections. Many employers do this to avoid the enforcement of labour laws, leaving workers with little recourse in the event of a workplace injury or heat-related illness. Women, in particular, face wage discrimination and are often denied access to basic facilities such as toilets and rest areas (Abro et al., 2023).

Many labourers work outside of the official labour market, where laws and regulations are either non-existent or poorly applied. As a result, these workers often lack basic legal protections, such as job security, fair pay, occupational safety regulations, and efficient workplace complaint-handling procedures. The lack of formal contracts also makes them more vulnerable to exploitation, including low and precarious pay, long working hours, and hazardous working conditions without proper safety equipment or training.

The vulnerability of these workers is further exacerbated by the lack of social security benefits such as health insurance, retirement pensions, unemployment insurance, and maternity or disability assistance. They have no safety net in case of illness, injury, or unexpected job loss, which further exacerbates their poverty. Women, children, and other marginalised groups working in the informal sector face even greater disadvantages, such as discrimination, wage inequality, and limited access to labour rights and services.

Union membership is important to protect workers from unsafe heat exposure. Non-unionised workers face much worse conditions, working 51% more of the time in unsafe heat than those in unions. When unions educate their members about heat risks, that exposure falls by 37%. Moreover, a simple warning about extreme heat can decrease hazardous conditions by 33%. The efficacy of union contracts is evident in a substantial 74% decrease in worker exposure to hazardous temperature conditions, highlighting their critical role in safeguarding occupational health (SDTV 2024).

Structural Inequalities in Women's Labour Market Participation

In Pakistan, women face significant challenges in the labour market, marked by a substantial gender pay gap and pervasive vulnerable employment. Women earn 25% less per hour and 30% less monthly than men, underscoring deep-rooted wage discrimination (UN Pakistan 2025). Over 70% of employed women are engaged in vulnerable jobs, compared to 44% of men, enduring poor working conditions, lack of formal contracts, and absence of social security. This vulnerability is particularly pronounced in rural areas, where 81% of women are in such roles, compared to 37% in urban areas, with the highest rates observed in Khyber Pakhtunkhwa and Balochistan. The gender gap in vulnerable employment is narrower in urban settings, but education remains a

critical factor, with 73% of female workers in vulnerable jobs having no formal schooling, compared to 30% of male workers (UN Women 2023). Additionally, 72% of workers aged 15–64 operate in the informal sector, including 65% of women and 73% of men, driven by factors such as limited education, restrictive cultural norms, safety concerns, and inadequate transport infrastructure, all of which hinder women's economic empowerment and national development (Redaelli and Rahman 2021).

Compounding these issues, women labourers across Pakistan face systemic human rights violations. In Punjab, the garment industry, a major employer of women, is rife with abuses, including forced overtime, denial of paid maternity leave, and wages below the statutory minimum, often accompanied by verbal and physical harassment (HRW 2019). In Sindh, over 80% of industries fail to comply with the mandated minimum wage of PKR 37,000 per month, a widespread violation affecting millions, particularly in the services sector, where wage disparities are even more severe (Dawn 2025). Women consistently earn less than men for equivalent roles and hours, with wage gaps in Khyber Pakhtunkhwa reaching up to 34%, where women's workforce participation is limited to just 15.5% in urban areas (UN Women 2023; Redaelli and Rahman 2021). Furthermore, women in Sindh face 'anti-union' harassment, particularly in Special Economic Zones, (SEZs) undermining their right to freedom of association (Amnesty International 2024).

Beyond Physical Risk: Psychosocial Challenges

The construction industry is an essential economic pillar, and the brick kiln sector in South Asian countries like Pakistan is particularly important, employing uneducated, poor individuals. Among these workers, the 'Jalaiwalas', who manage the baking process, face some of the toughest and most dangerous conditions due to extensive exposure to extreme heat without proper safety measures. While the physical health impacts are recognised, research reveals that their mental health and social well-being also suffer due to complex psychosocial issues, an area that has received less attention than physical health.

Pakistan's Brick Kiln Industry

The brick kiln industry is a major contributor to environmental pollution in South Asia, a region that is the world's second-largest brick producer. Globally, total clay brick production stands at around 1.5 trillion units, with

87% manufactured in Asia (Si et al., 2021). South Asia alone contributes about 310 billion bricks annually, accounting for 21% of the global total (Ball 2024), reflecting the construction-oriented nature of its economies.

Within this regional context, Pakistan ranks as the third-largest brick producer, contributing 3% to global production. This output is heavily reliant on coal and other energy-intensive processes. The country's brick kiln sector represents about 50% of its related industrial activity, generating economic benefits but imposing substantial environmental costs (Ali et al., 2020).

The brick kiln sector not only adds to the GHGs, but also emits various non-gaseous pollutants like Black Carbon, Sulfur Dioxide (SO₂), and particulate matter. These pollutants add to already critical air quality issues. Public health issues emerge, particularly among the exposed, sensitive populations living near the clusters of brick kilns. The use of inefficient and outdated technologies further aggravates the environmental impact of the industry.

Brick kilns are widely spread in Pakistan, owing to a variety of logistical and economic factors. Nearly 90% of brick kilns are located in rural areas, and this distribution pattern is influenced by factors such as cheap land, easy transportation networks, and proximity to markets. In addition, rural areas offer cheap and readily available labour, which often works under poor and unregulated conditions. All these factors combine to make rural Pakistan a preferred location for brick kiln operators, despite the environmental and social costs (Memon 2021).

The industry employs an estimated 4.5 million people, a large number of whom face exploitative working conditions, including forced labour. This workforce produces approximately 45 billion bricks annually. Despite its critical importance to the economy, the brick kiln industry is generally poorly regulated and lacks adequate environmental monitoring and advanced technology, exacerbating its negative impacts on climate, public health, and socioeconomic progress (Memon 2021).

Case Study: Mine Workers in Balochistan

The same dangerous pattern is evident in Balochistan's mining industry, which is operated by Afghan refugees and rural migrant workers, many of whom live in makeshift camps near mines.

As shared by respondents, the mining sector has frequent cave-ins, lacks protective equipment, and has minimal OSH training. Heat is a similarly mounting threat, with miners toiling in confined, poorly ventilated areas that trap both ambient and mechanical heat.

There are an estimated 100,000 mine workers in Balochistan, yet only around 8,000 to 9,000 are registered with the EOBI. This means the vast majority of miners remain undocumented, placing them outside formal safety oversight and disqualifying them from accessing entitlements such as workplace injury compensation or family benefits in the event of death (SDTV 2024).

Moreover, child labour is also pervasive within the mining sector, posing long-term development threats to young people.

Unions are few and far between, and those that do leave their members with little to no capacity to bargain with employers or obtain legal recognition by provincial labour departments (HRCP 2023). In both brick kiln and mining industries, lack of unionisation exposes informal workers to exploitative operations and uncontrolled occupational risks. In Pakistan, union registration is extremely bureaucratic and, in practice, inaccessible to informal or undocumented workers, such as Afghan refugees.

Key Issues in Pakistan's Brick Kiln Sector

Bonded Labour

Bonded labour is a critical issue in Pakistan, particularly in the brick kilns and agriculture sector, where people often end up in debt (Malik 2016). *'Patras'* are workers in the brick kiln industry who prepare bricks and often help women and children with household work. These workers, who are from marginalised backgrounds, face exploitative conditions with long hours, low pay, and no formal contracts. They also face restrictions on freedom of movement and face physical and sexual abuse. Their dependence on kiln owners for financial advances, known as *'peshgi'*, traps them in a cycle of debt they can rarely escape. *'Jamadars'*, or labour contractors, play a key role by recruiting and managing these workers,

distributing *'peshgi'*, and ensuring their continued labour through control and coercion. The *'peshgi'* system, while appearing to offer immediate relief, effectively binds workers and their families to the kilns indefinitely, as opaque accounting and unjust deductions prevent repayment. This system of unfree labour persists due to widespread poverty, lack of regulation, and systemic abuse within the industry (Ercelawn and Nauman 2004).

Wage Disparities between Provinces

Regional disparities in wages exist in Pakistan, where each province has its own system, leading to inconsistencies in wage rates and compliance mechanisms. This decentralised approach results in workers doing the same job receiving different pay based solely on location, which highlights the weaknesses in the labour governance framework and exacerbates inequality.

The Governor of Punjab, upon the recommendation of the Minimum Wages Board, fixed the minimum wages for domestic workers at PKR 37,000 per month for 26 working days, PKR 1,423.07 per day for eight working hours, and PKR 177.88 per hour (Government of Punjab Labour and Human Resource Department 2024). In Khyber Pakhtunkhwa, the Directorate of Labour announced on 4 September 2024 that the minimum wage for unskilled, juvenile, and adolescent workers in industrial and commercial sectors was set at PKR 36,000 per month for 26 working days and PKR 1,384 per day (Directorate of Labour Khyber Pakhtunkhwa 2024). Similarly, in Sindh, the government through its Labour and Human Resources Department declared on 22 October 2024 that the minimum wage for unskilled adult and adolescent workers across industrial and commercial sectors would be PKR 37,000 per month (Government of Sindh Labour and Human Resources Department 2024). In Balochistan, the provincial government also set the minimum wage at PKR 37,000 per month, with the Department of Labour and Manpower noting that this adjustment benefits a wide range of employees, including small-grade workers and labourers. Notably, it also extends protections to child labourers, ensuring a more inclusive application of the minimum wage policy (Business Recorder 2024).

Despite these efforts to regulate minimum wages across Pakistan, inconsistencies remain, particularly highlighted by the lower minimum wage rate in Khyber Pakhtunkhwa compared to Punjab, Sindh, and

Balochistan. Although Pakistan has set minimum wage rates for unskilled workers nationwide, the evident disparity among provinces exposes gaps in the uniform enforcement of labour rights and wage standards.

Child Labour and Gender Concerns

Women and children bear the brunt of hardship in brick kiln communities. With limited resources and no access to education, children are forced into labour from an early age, perpetuating the cycle of poverty. Women become more vulnerable because of lack of access to water, privacy and toilet facilities. Child labour is another key issue in the informal sector, including brick kilns. Children work in hazardous conditions with little or no pay. These practices distort the labour market wages and keep the overall wages of the industry extremely low. Adult workers also face difficulty in demanding adequate wages as employers exploit this cheap and easily managed workforce.

Workers' Rights: Freedom of Association, Collective Bargaining, and Equality

Protecting workers' rights to association and collective bargaining is a cornerstone of international labour law. ILO Core Conventions 87 and 98 guarantee workers the fundamental rights to form trade unions and to engage in collective bargaining for fair wages and better working conditions. In Pakistan, these international principles are enshrined within the Constitution under Article 17, which allows citizens to form associations or unions, though it is subject to certain legal limits (Iftikhar 2023). In addition, the right to equality at work is also emphasised in ILO Conventions 100 and 111, which advocate equal pay for equal work and the elimination of discrimination based on sex, race, or religion. Pakistan's Minimum Wages Ordinance of 1961, supported by the Minimum Wages Rules of 1962, upholds the principle of equal remuneration for work of equal value and prohibits gender-based discrimination in wages (Aziz 2018; Godart and Phelan 1998).

In 2013, the European Union (EU) granted Pakistan GSP+ status, providing duty-free access to the EU market (Dawn 2013) and reinforcing Pakistan's commitment to human and labour rights. Under this arrangement, Pakistan must comply with 27 international conventions, including core ILO conventions on labour rights, which aim to safeguard workers' rights and improve working conditions. Pakistan is also committed to achieving SDG 8, 'Decent Work,' which promotes employment in safe, healthy, and

socially sustainable environments. These commitments are reflected in Pakistan's Public Development Work Program (PDWP-III), which seeks to expand employment opportunities, reduce poverty, and ensure decent working conditions for all (MoPDSI 2022).

Framework and Policy Recommendations for Brick Kiln Reform

SDPI's Socially and Environmentally Compliant Brick Kiln Framework (SECBKF)

In order to tackle the issues of brick kiln workers, the Sustainable Development Policy Institute (SDPI) has initiated the Socially and Environmentally Compliant Brick Kiln Framework (SECBKF). The framework is aimed at safeguarding the rights of workers and ensuring long-term sustainability of brick kiln operations. It is intended to make brick kiln construction adhere to environmental requirements and be compatible with ILO's concept of 'decent work,' where fair employment is prioritised, social protection is guaranteed, protection of workers is ensured, and social dialogue between workers and employers is encouraged. The SECBKF is determined to award social and environmental compliance certificates to brick kilns and targets precise measures for their proprietors. These involve keeping proper employment records, adherence to minimum wage laws, and providing help to workers in securing required documents such as Computerised National Identity Cards (CNICs). The framework also has a zero-tolerance policy against child and forced labour, encourages an environment of equal opportunity, and social security services for all workers in the brick kiln industry.

The SECBKF strategy encourages social dialogue among employers and workers to enhance productivity and safeguard workers' legal rights. It also encourages a voluntary, incentive-driven model of compliance, which comprises EOBI and Workers' Social Security Fund payments. With the introduction of cleaner technologies into kilns, the enhanced profitability of these kilns will serve to support these payments. This incentive scheme promotes compliance by motivating public and private sector purchasers to pay a bit more for bricks produced in certified kilns. The increase is meant to cover social security contributions, thus providing workers with increased protection. Besides, tax relief and special lump sums are provided in terms of incentives to promote compliance benefiting both kiln owners and workers. Private sector customers, particularly those

purchasing in bulk, can assist in compliance by ensuring procurement from certified kilns and advocating for their enrollment in professional chambers.

Conclusion and Recommendations

In Pakistan, the brick kiln sector is economically significant but is also associated with environmental degradation, climate change, and labour rights violations. The obsolete fixed chimney trench kilns produce considerable amounts of GHG emissions and air pollution and contribute substantially to Pakistan's environmental footprint. These emissions not only worsen urban air quality but also harm workers' health and increase the nation's vulnerability to climate-related disasters. The ecological damage caused by the brick kiln industry is closely tied to the socioeconomic struggles of its 4.5 million workers, the majority of whom are women, children, and undocumented labourers. These workers work under unsafe conditions, with no easy access to protective gear, healthcare, or legal protection. Bonded labour continues to be a long-standing problem, and the denial of access to formal social protection mechanisms perpetuates further poverty and inequality in the industry. The sector, therefore, poses environmental hazards while perpetuating exploitative and exclusionary cycles.

Recent policy efforts aim to mitigate these impacts, but challenges persist. The Ministry of Climate Change's 'National Adaptation Plan', launched in 2021 with USD 2.7 million from the Green Climate Fund, seeks to enhance climate resilience through job-creating initiatives like the Ten Billion Tree Tsunami Programme, which has generated green jobs in Khyber Pakhtunkhwa (UNEP 2023). However, inconsistent policy implementation and limited climate finance, estimated at USD 100 billion needed by 2030, hinder progress (CCPI 2025). Strengthening governance, investing in climate-smart agriculture, and creating alternative employment for adults in disaster-affected areas are critical to reducing reliance on child labour and supporting Pakistan's workforce amid escalating climate risks (Rehman 2024; Junaidi 2023).

To meet these complex challenges, SDPI developed the Socially and Environmentally Compliant Brick Kiln Framework (SECBKF). The framework encourages the use of clean technologies, deployment of labour protections, and incorporation of social protections following the

ILO's 'Decent Work' agenda. Its effective enforcement can curb pollution, enhance labour standards, meet Pakistan's GSP+ trade obligations, and progress on SDG-8 progress. In addition to implementing this framework, the government should work with brick kiln owners and prioritise the following policy directions. These recommendations are drawn from panel discussions organised at the 2024 SDC and a review of literature on labour issues in Pakistan:

- Increase access to CNIC cards and universal social protection programmes, particularly for undocumented, displaced, and informal workers who are often excluded from formal protections.
- Sector-specific interventions are urgently needed, particularly in mining, one of the most hazardous occupations. Formal registration, better access to healthcare, improved infrastructure, and strict enforcement of safety regulations are essential to improve working conditions. Similarly, informal sectors such as construction and agriculture should prioritise investments in climate-resilient OHS infrastructure and reforms. Promoting just and sustainable business practices in sectors employing vulnerable workers, including refugees, will strengthen both economic and environmental sustainability.
- To guarantee accountability and action, cross-sectoral coordination and effective governance are essential. Important ministries like Women's Development, Human Rights, Labour, Climate Change, and NADRA must work together. Infrastructure improvements, improved access to healthcare, and the adoption of climate-resilient systems in high-risk industries should all receive special government funding.
- To guarantee consistency and impact, national laws should be in line with Pakistan's international labour and climate resilience commitments and treaties, and all strategies should be supported by open data systems, strong political will, and sufficient funding.
- Policymakers, industry leaders, and employees themselves must work together to prepare workers for new roles in a changing economy. To encourage a culture of creativity and accountability, companies that lead the way in reducing emissions and implementing sustainable practices should be rewarded, and their success stories widely disseminated. New economic opportunities may arise from investments in green industries, cutting-edge technologies, and regional climate solutions made possible by

climate financing tools. A more equitable and seamless transition will be made possible by the adoption of frameworks such as the Socially and Environmentally Compliant Brick Kiln Framework (SECBKF), which connects worker protections with environmental compliance.

- The industrial policy reforms must be based on a strong emphasis on justice, equity, and participation. To guarantee that 'no one is left behind', national labour and climate policies should incorporate gender considerations and acknowledge the realities of informal workers. There is urgent need for Pakistan to develop gender-sensitive policies to address systemic gender discrimination and promote women's equal economic participation.

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Gender, Climate and Innovation: Reimagining Philanthropy in Pakistan's Development Landscape*

*Saad Ali Ahmed Malik, Maheen Rehan and Abdullah Khalid***

Abstract

This chapter explores the evolving nature of the philanthropy in Pakistan and how it is strategically aligned with gender equality, climate resilience and social innovation. Based on mixed-methods inquiry, consisting of stakeholder surveys, policy roundtables, and organisational case studies, it examines the shift in philanthropic spending towards impact investment rather than traditional charity. The results show increasing focus on measurable results, Environmental, Social and Governance (ESG) integration and cross cooperation. Nevertheless, structural impediments exist, such as a low budget of climate programmes and poor gender mainstreaming, as well as regulatory restrictions. Although efforts to enhance disaster resilience, renewable energy and empowerment of

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women in economic life have had relatively reasonable outcomes, the sector remains scattered and not utilised fully. The study recommends development of a national strategic philanthropy framework, modernisation of fiscal incentives and the establishment of new institutional capacities to enable scale and inclusivity in development efforts. Emphasising the complementary role of philanthropy in supporting public policy, the study highlights its potential to advance sustainable development, particularly in Pakistan's most underserved regions.

Introduction

Philanthropy has emerged as an important development actor in Pakistan, addressing gaps in public service provision and promoting socioeconomic inclusion in contexts marked by state capacity limitations. The industry no longer exclusively revolves around charitable giving based on the Islamic principles of *'Zakat'* and *'Sadaqa'* rather than evolved into a type of social investment that has long-term effects (CPS 2023). As corporate foundations, personal trusts, and cross-sector partnerships are on the rise, there has been a gradual increase in the overlapping of philanthropy in Pakistan with the Sustainable Development Goals (SDGs), especially in terms of education and healthcare, gender equity, and climate preparedness (Jafree et al., 2023; Anser et al., 2023).

The development context in Pakistan points to the critical need for philanthropic engagement. Ranked 161 out of 193 countries on the Human Development Index (UNDP 2023), Pakistan faces persistent challenges in transforming multidimensional poverty, which continues to affect over 38% of its population (Abedullah et al., 2023). These conditions are further exacerbated by structural impediments such as weak regulatory oversight, regional disparities, and entrenched gender inequalities. Women are especially vulnerable due to limited access to education, healthcare and economic opportunities, which can be resolved through direct philanthropic investments (Hill and King 1995; Taukobong et al., 2016). Additionally, as changes in climate have been ranked as one of the greatest threats to Pakistan, now being featured on the list of ten countries most at risk, the importance of philanthropic donations to climate-smart agriculture, renewable energy, and resilience to disasters has come to the forefront (Memon et al., 2023; Nosheen et al., 2023).

Concurrently, recent movements in philanthropy around the world like gender lens investing, Environmental, Social, and Governance (ESG) consideration, and public-private collaborations are transforming foundational philanthropic systems in Pakistan. These changes need an empirical approach to the understanding of how philanthropic organisations are adjusting their strategies to enhance their impact in a difficult policy environment. However, there is limited analysis of the strategic orientation, regulatory barriers, and collaborative mechanisms which characterise the philanthropic ecosystem in the country.

Central to this transformation is the recognition that gender equity, climate resilience, and social innovation are not distinct priorities but deeply interlinked pillars of sustainable development. In Pakistan, women are disproportionately affected by environmental stressors such as floods, heatwaves, and displacement, yet they are also critical actors in community-based adaptation and clean energy deployment. Similarly, innovation, including digital access, social enterprise models, and localised solutions enables philanthropy to simultaneously address economic inclusion and environmental challenges. By leveraging this intersectional nexus, strategic philanthropy can deliver multidimensional impact, particularly in underserved regions where the state and market have historically underperformed. This study, therefore, positions the gender-climate-innovation triad as a foundational framework for reimagining the role of philanthropy in Pakistan's development future.

It fills an gap by exploring how philanthropic actors in Pakistan are navigating these complexities by drawing on primary data collected through organisational surveys, stakeholder consultations, and roundtable discussions with institutions including the Care Foundation, Shaukat Khanum Memorial Cancer Hospital, Engro Foundation and others. The analysis focuses on three interlinked themes:

- (i) Integration of gender equity in philanthropic frameworks,
- (ii) Philanthropic investment in climate resilience, and
- (iii) Role of innovation and cross-sector partnerships in expanding impact.

It also assesses the policy and regulatory environment shaping philanthropic engagement. In doing so, the study contributes to broader debates on development finance, sustainable investment, and institutional

reform in low- and middle-income contexts. It offers evidence-based recommendations to optimise the potential of philanthropy as a lever for inclusive and sustainable development in Pakistan.

Methodology

This study adopted a mixed-methods research design to analyse the structural dynamics, thematic priorities, and enabling environment of the philanthropic sector in Pakistan. Given the multifaceted nature of philanthropy spanning diverse actors, investment strategies, and development goals, integration of both quantitative and qualitative data was necessary to capture the complexity of the sector and generate actionable insights.

Research Design and Data Sources

The research is grounded in three primary data collection streams:

1. Literature review and document analysis,
2. Stakeholder survey, and
3. Deliberative dialogues, including a high-level policy roundtable and thematic consultation on gender-focused philanthropy.

Literature Review

A comprehensive review of academic literature, policy reports, institutional publications, and international case studies was undertaken to contextualise philanthropic trends in Pakistan. Key themes included gender lens investing, climate-resilient giving, corporate social responsibility (CSR), and cross-sector partnerships. Sources included peer-reviewed journals, United Nations Development Programme (UNDP) and the Organisation for Economic Co-operation and Development (OECD) reports, along with national publications by institutions such as the Pakistan Centre for Philanthropy (CPS 2023) and the Sustainable Development Policy Institute (SDPI).

In addition to thematic literature on gender and climate-focused philanthropy, this study draws upon key global frameworks that define Environmental, Social, and Governance (ESG) integration in both corporate and philanthropic strategies. The Global Reporting Initiative (GRI) provides the most widely used standards for sustainability reporting,

enabling organisations to disclose their environmental and social impacts in a comparable and transparent manner (GRI 2021). Complementing this, the Sustainability Accounting Standards Board (SASB) offers sector-specific metrics tailored to material ESG issues, particularly relevant for corporate donors operating in regulated sectors (SASB 2022). The United Nations Principles for Responsible Investment (UN PRI) further advance ESG as a fiduciary responsibility, promoting ethical investment aligned with long-term societal goals (PRI 2025). In the context of impact investing and philanthropy, the Global Impact Investing Network's (GIIN) IRIS+ system serves as a performance measurement tool that aligns outcomes with the SDGs (GIIN 2022). For development actors, the OECD's framework on SDG-aligned finance provides a benchmark for evaluating the effectiveness and additionality of blended philanthropic and public-private funding mechanisms (OECD and UNDP 2021).

While these models are global in nature, there is growing institutional effort in Pakistan to localise ESG frameworks. The Securities and Exchange Commission of Pakistan (SECP) issued guidelines in 2022 to encourage ESG disclosures by listed companies, focusing on climate risk, board diversity, and stakeholder governance (SECP 2023). Similarly, the Pakistan Stock Exchange (PSX) introduced its ESG Disclosure Guide to assist corporate entities in reporting non-financial performance metrics in line with global best practices (PSX 2022). However, these guidelines remain underutilised by philanthropic organisations, indicating a missed opportunity to align giving practices with formal ESG accountability structures.

Some corporate philanthropies in Pakistan are emerging as early adopters. For example, the Engro Foundation integrates ESG goals into its sustainability portfolio through investments in climate-smart agriculture, inclusive education, and health infrastructure (Engro Corporation 2023). Likewise, Telenor Pakistan has embedded ESG principles into its social innovation programmes, focusing on digital inclusion, environmental responsibility, and women's empowerment (Telenor Pakistan 2022). These examples underscore a gradual but visible convergence between corporate philanthropy and ESG-aligned development models in Pakistan.

Stakeholder Survey

To capture empirical trends and sector-level priorities, a structured survey was conducted during a Roundtable Discussion on *'Collaborative*

Philanthropy in Pakistan with a Gender Lens' on 7 November 2024, at the Twenty-seventh Sustainable Development Conference. The survey targeted 35 organisations operating within Pakistan's philanthropic ecosystem (SDPI 2024b). Through the survey, comprehensive data was collected on philanthropic focus areas, investment trends, collaboration patterns, gender integration strategies, regulatory challenges, and climate resilience initiatives within Pakistan's philanthropic ecosystem. It aimed to map sectoral priorities, identify barriers, and capture strategies for enhancing impact, inclusivity, and sustainability in cross-sector philanthropy. Seventeen respondents completed the survey during the roundtable, while the remaining were requested to respond via email. Respondents included representatives from:

- Corporate foundations (e.g., Engro Foundation, Telenor Pakistan),
- Non-profits and social enterprises (e.g., Care Foundation, Pakistan Mission Society),
- Faith-based and hybrid institutions (e.g., Indus Hospital and Health Network),
- Academic institutions (e.g., Pakistan Institute of Development Economics).

The survey specifically captured quantitative and perception-based data on:

- Strategic focus areas (e.g., gender, climate, education),
- Budgetary allocations and investment priorities,
- Engagement with regulatory frameworks,
- Impact measurement tools and barriers, and,
- Cross-sector collaboration and policy advocacy.

Closed-ended questions used Likert-scale and categorical formats to ensure comparability, while open-ended sections allowed respondents to share nuanced experiences and recommendations.

Dialogues and Roundtables

Two deliberative forums were conducted:

- **High-Level Policy Dialogue** titled *'Beyond the Bottom Line: Co-Creating Philanthropic Impact'* (SD TV 2024)

- **Roundtable Discussion** on *'Collaborative Philanthropy in Pakistan with a Gender Lens'* (SDPI 2024a)

Participants included policymakers, philanthropic leaders, CSR heads, gender experts, and sustainability professionals. These sessions generated qualitative insights on institutional bottlenecks, partnership strategies, and reform pathways. Transcripts were thematically coded to complement the survey data and literature review.

Analytical Framework

The analysis employed triangulation across data sources to ensure validity and robustness. Themes were structured around five pillars:

- Actor typologies and sectoral roles,
- Thematic investment trends (gender, climate, innovation),
- Regulatory and institutional enablers/barriers,
- Impact measurement and strategic orientation, and,
- Opportunities for cross-sector alignment and policy coherence.

Quantitative results were analysed using descriptive statistics and frequency distributions, while qualitative data were synthesised using thematic content analysis. This allowed for both macro-level pattern identification and micro-level contextual interpretation.

Results and Analysis

This section presents empirical findings from the stakeholder survey, roundtable discussions, and literature review, organised around three strategic domains: (1) gender equality and inclusive philanthropy, (2) climate resilience and environmental sustainability, and (3) innovation and economic empowerment. These domains represent the evolving focal points of philanthropic capital in Pakistan and highlight both impact potential and structural limitations.

Gender Equality and Inclusive Philanthropy

Gender-focused giving has become increasingly prominent in Pakistan's philanthropic landscape, reflecting a broader shift towards inclusive development financing. However, the study reveals that the integration of

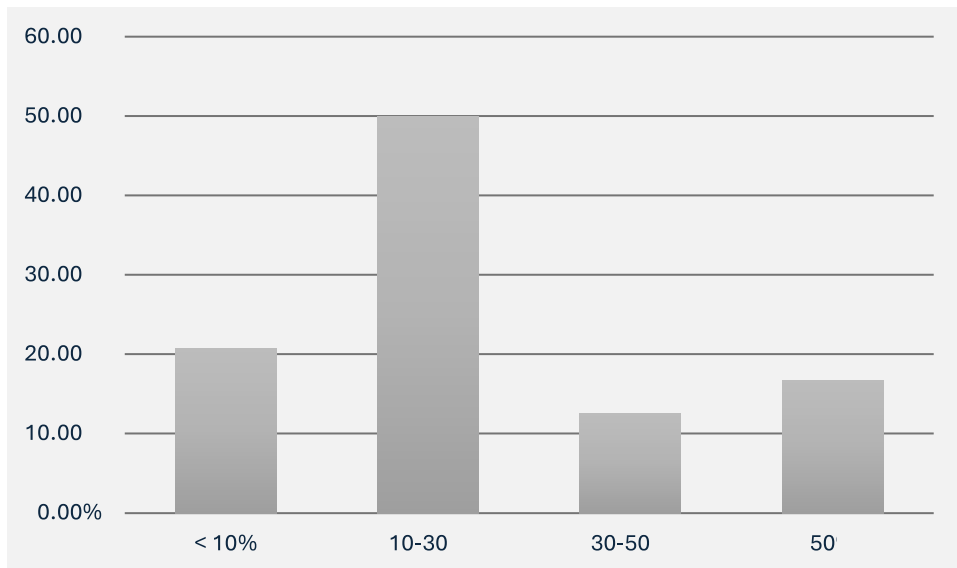
gender equality into philanthropic strategies remains uneven, with gaps in institutional capacity, financing, and data systems.

Strategic Emphasis and Institutional Integration

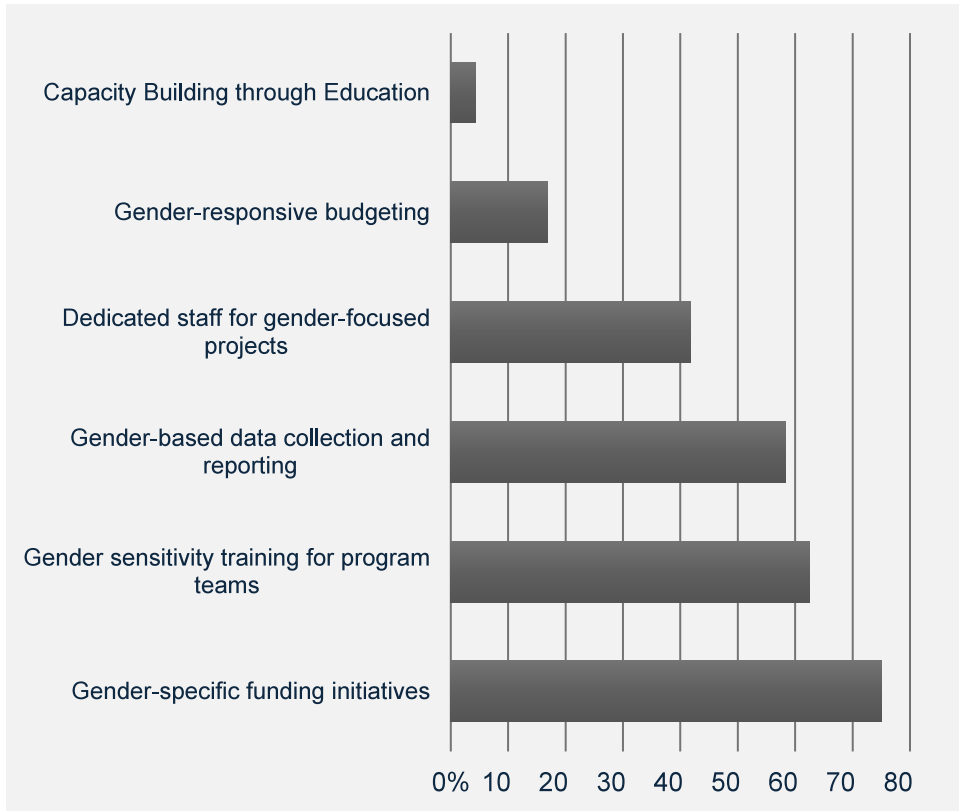
Based on the survey, whose methodology was discussed earlier, the findings shows that 50% of philanthropic organisations allocate between 10-30% of their budgets for gender-focused initiatives, while only 16.7% dedicate 50% or more, signaling that deep institutional commitment is still limited to a few actors (Figure I). Despite rhetorical alignment with gender equity, many organisations lack internal systems such as gender-responsive budgeting or dedicated staff to implement transformative programming. While gender sensitivity training and targeted funding are relatively common, the adoption of gender-disaggregated data collection and impact reporting remains limited (Figure II) (SDPI 2024a).

This partial integration points to a gap between programmatic ambition and operational capacity. As Hill and King (1995) and Taukobong et al. (2016) argue, gender equity requires structural shifts not only in funding but in how institutions conceptualise and implement change across the project cycle.

Figure I: Percentage of Total Funding for Gender Equality Initiatives



Source: SDPI 2024a.

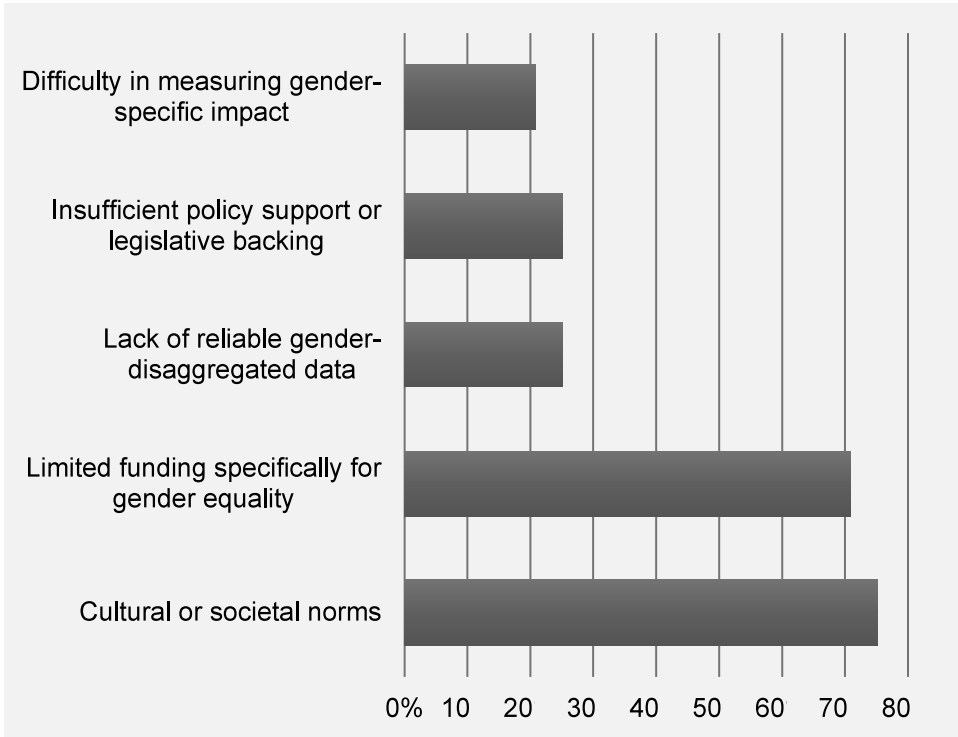
Figure II: Gender Equality Integration Strategies

Source: SDPI 2024a.

Key Barriers

The most significant barrier to gender-focused philanthropy identified in the survey is entrenched cultural and societal norms, followed by insufficient funding and a lack of reliable gender-disaggregated data (Figure III). This reflects both demand-side and supply-side constraints. On the one hand, societal resistance reduces uptake and legitimacy of gender programmes, particularly in rural or conservative areas. On the other hand, funders often deprioritise gender investments due to measurement challenges and lack of immediate, quantifiable outcomes.

Figure III: Key Barriers in Gender-Focused Philanthropy

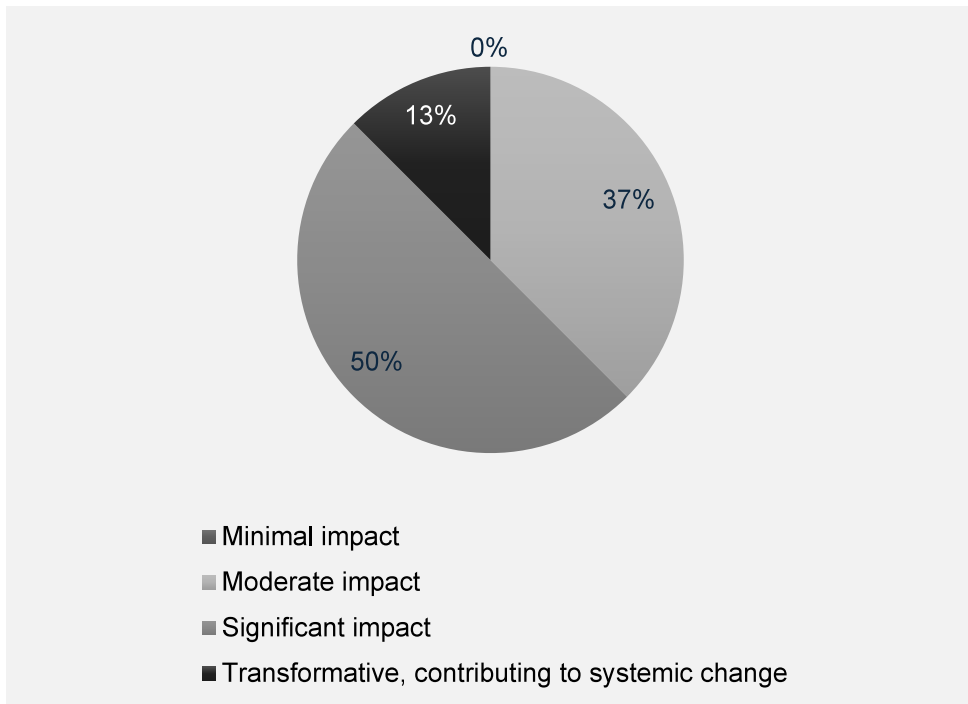


Source: SDPI 2024a.

In line with Jafree et al., (2023), this research finds that even well-intentioned microfinance and livelihood schemes for women are undermined by structural gender barriers that restrict agency, mobility, and long-term asset control.

Impact Assessment

Despite these limitations, impact assessments show encouraging outcomes: 50% of organisations reported a 'significant' impact from gender initiatives, while 12.5% observed 'transformative' change (Figure IV) (SDPI 2024a), building on the survey described in the methodology section. These results suggest that when properly resourced and contextually adapted, gender-focused philanthropy can deliver high returns on social outcomes, especially in areas such as female entrepreneurship, education, and healthcare access.

Figure IV: Impact of Gender Focused Philanthropic Initiatives

Source: SDPI 2024a.

Climate Resilience and Environmental Sustainability

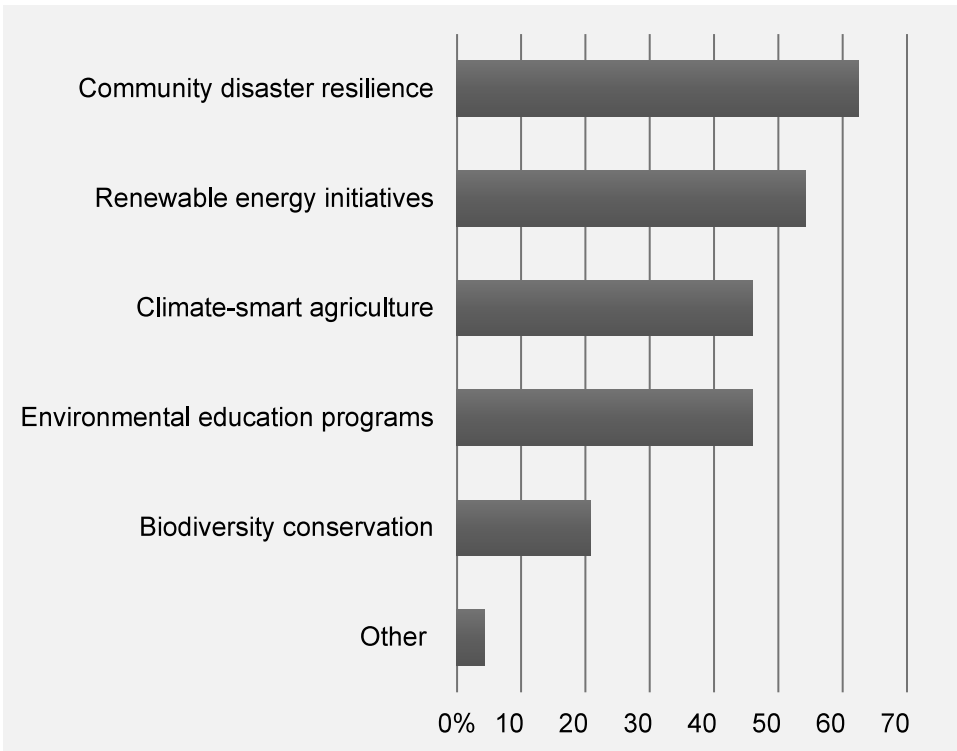
Pakistan's vulnerability to climate change has made environmental philanthropy a growing but still undercapitalised priority. This study highlights both the strategic importance of climate resilience in philanthropic portfolios and the systemic constraints that inhibit its scalability.

Strategic Priorities

Survey data indicate that the highest priorities for climate-focused philanthropic efforts in Pakistan are centred on community disaster resilience, which ranks as the most emphasised area of intervention. This is followed by significant attention to renewable energy initiatives and decarbonisation efforts, as well as climate-smart agricultural practices aimed at enhancing rural adaptation capacity. In contrast, areas such as biodiversity conservation and environmental education receive

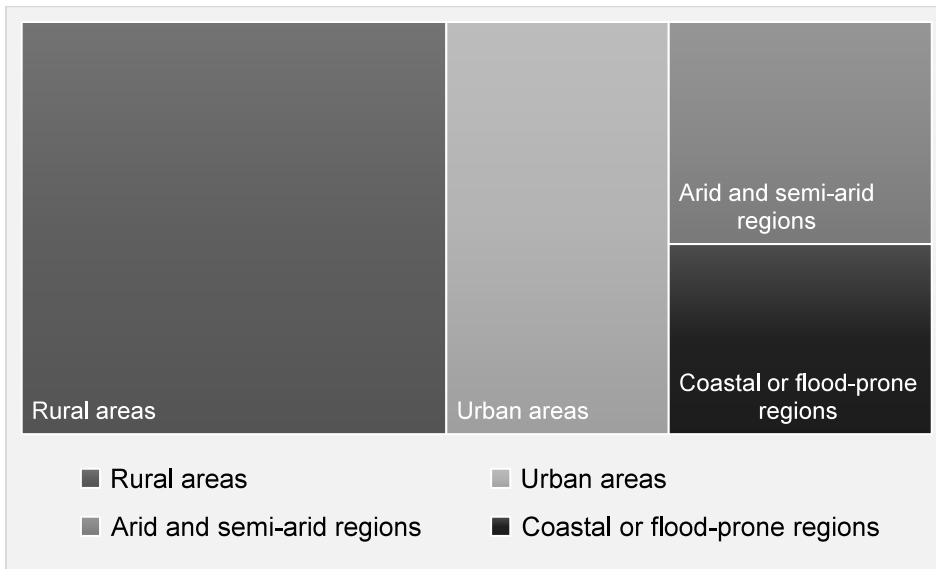
comparatively lower emphasis (Figure V). This distribution suggests a pragmatic orientation within the philanthropic sector favouring immediate, high-impact adaptation measures that directly address urgent climate vulnerabilities, rather than long-term investments in ecosystem restoration or awareness-building.

Figure V: Climate Resilience and Environmental Sustainability Initiatives



Source: SDPI 2024a.

From the survey, it was found that the geographic distribution of projects is concentrated in rural areas (87.5%), followed by urban (45.8%), arid/semi-arid (29.2%), and coastal/flood-prone regions (25%) (Figure VI) (SDPI 2024a). This indicates some level of climate vulnerability targeting, although deeper subnational differentiation (e.g., by hazard profile or livelihood systems) remains lacking.

Figure VI: Geographical Focus of Climate Resilience Programmes

Source: SDPI 2024a.

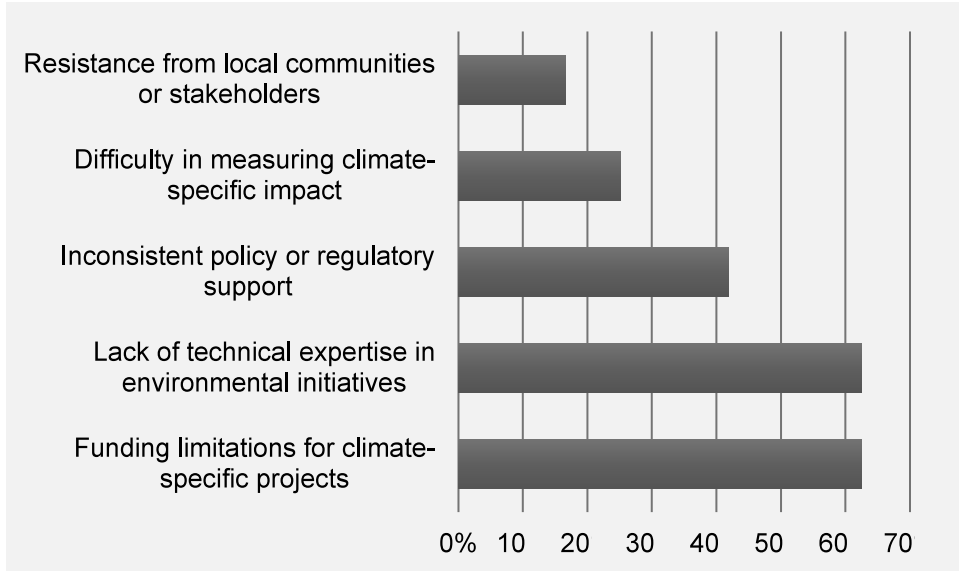
Budget Allocation and Institutional Constraints

Empirical results from the survey revealed that only 8.3% of organisations allocate over 50% of their annual budgets to climate resilience, while the majority 79.2% dedicate less than 30% (SDPI 2024a). This reflects a cautious, exploratory approach to climate philanthropy, often driven by pilot initiatives or reactive disaster relief rather than systemic investment strategies.

Such challenges to the adoption of climate-resilient philanthropic measures in Pakistan are complex. One of the major limitations is the deficit of special financing and the inadequate priority that donors apply to climate matters, constraining the amount and sustainability of such interventions. Also, lack of technical back-up that would assist organisations to design and implement effective environmental programmes is a problem for many organisations especially where the programme involves renewable technologies or climate adaptive infrastructures. Another obstacle is lack of good regulation and the general lacklustre coordination between philanthropic action and national

climate policies, which makes actions uncertain and less incentive of long-term investment in climate resilience (Figure VII).

Figure VII: Challenges in Climate Resilient Philanthropy



Source: SDPI 2024a.

These results are consistent with current trends in the global climate finance with philanthropic fundings still being small and in coalesce as awareness has increased (Anser et al., 2023). Notably, the policy roundtable participants identified lack of standard measurement framework on climate-specific impact as a disincentive to donor confidence and long-term commitment.

Opportunities for Impact

Regardless of the limitations, the sector has potential. An example of such programmes are hybrid ones that connect the concepts of climate resilience with women empowerment and local entrepreneurship, particularly in rural Sindh and southern Punjab. Places like the Indus Hospital and Care Foundation are probing community-owned solar-powered and flood-resistant health facilities which point to an increased overlap between environmental and social targets.

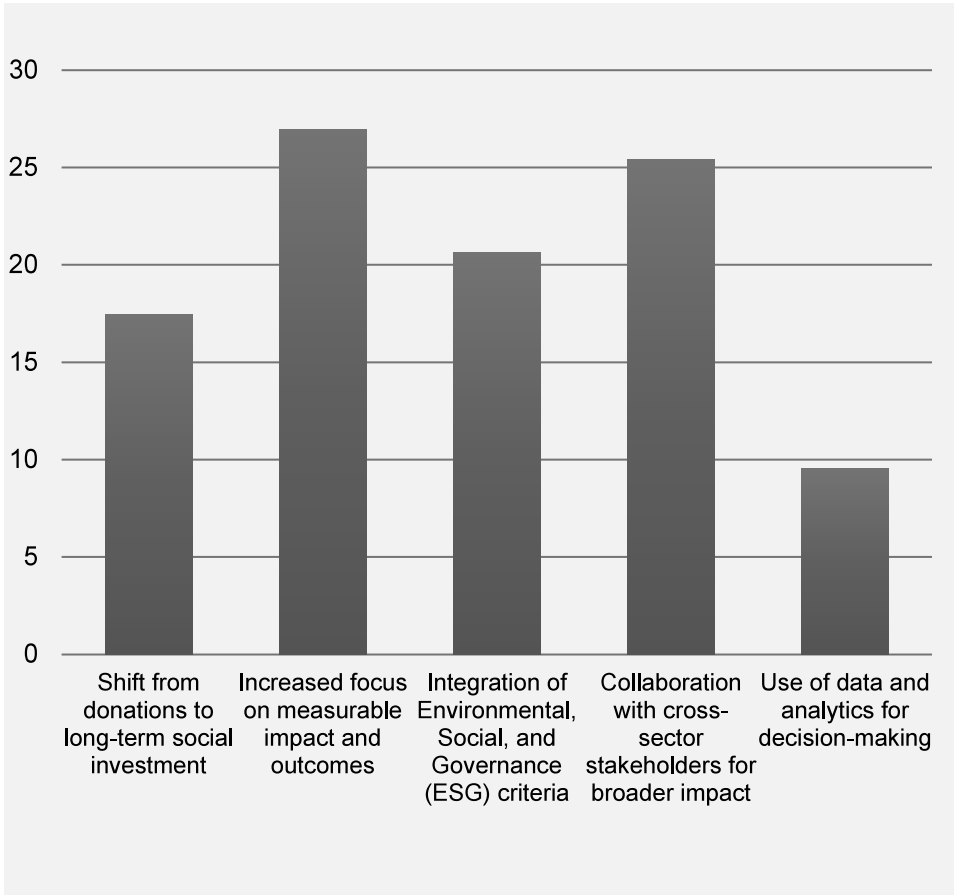
Social Innovation and Economic Empowerment

The paradigm in philanthropy in Pakistan has shifted more notably towards systemic change models of philanthropy that most prominently highlight social innovation, capacity building, and inclusive development, etc. This development signifies a new approach through adopting strategic investments rather than ad-hoc donations which support economic resilience in the long-term.

Strategic Evolution

As the Figure VIII survey findings indicate, there are several prevailing trends that have been defining the direction of the philanthropic practices in Pakistan. A large number of organisations (26.9%) are paying more attention to measurable impact and results, which means that accountability and results-based programming are being given more attention. Working across sectors with stakeholders, as outlined in the preceding methodology section, the survey results indicate that 25.4% of respondents identify this as a potential factor for engaging shared strengths and resources to achieve greater scale and impact. Inclusion of the ESG criteria which 20.6% of the organisations reported suggests an approach to more comprehensive and responsible giving models. It was observed from the survey that 17.5% of respondents cited the shift in traditional charity paradigm to long-term social investments strategy that is characterised with focus on sustainability and system change rather than one-time interventions (SDPI 2024a).

Figure VIII: Philanthropic Collaboration Trends



Source: SDPI 2024a.

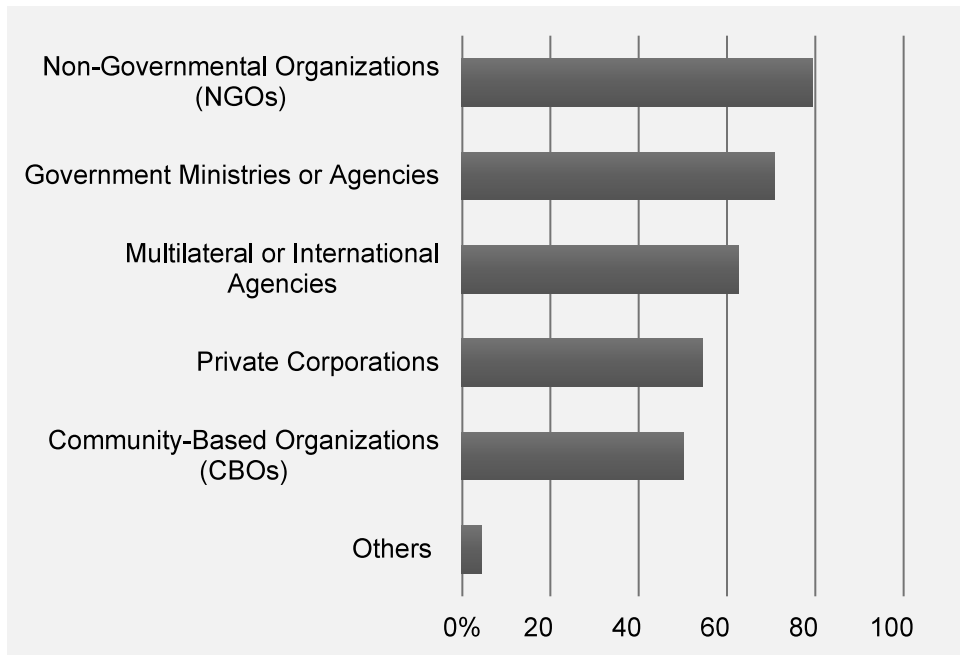
This indicates growing maturity in philanthropic strategy, particularly among corporate donors and urban-based foundations. Organisations are increasingly leveraging analytics and outcome indicators such as employment generation, skills acquisition, and asset ownership to justify their social investments.

Cross-Sector Collaborations

Over the last two years, collaborations with NGOs (most frequent), government agencies, and multilateral partners have increased, enabling

a convergence of technical expertise, local legitimacy, and financial leverage (Figure IX).

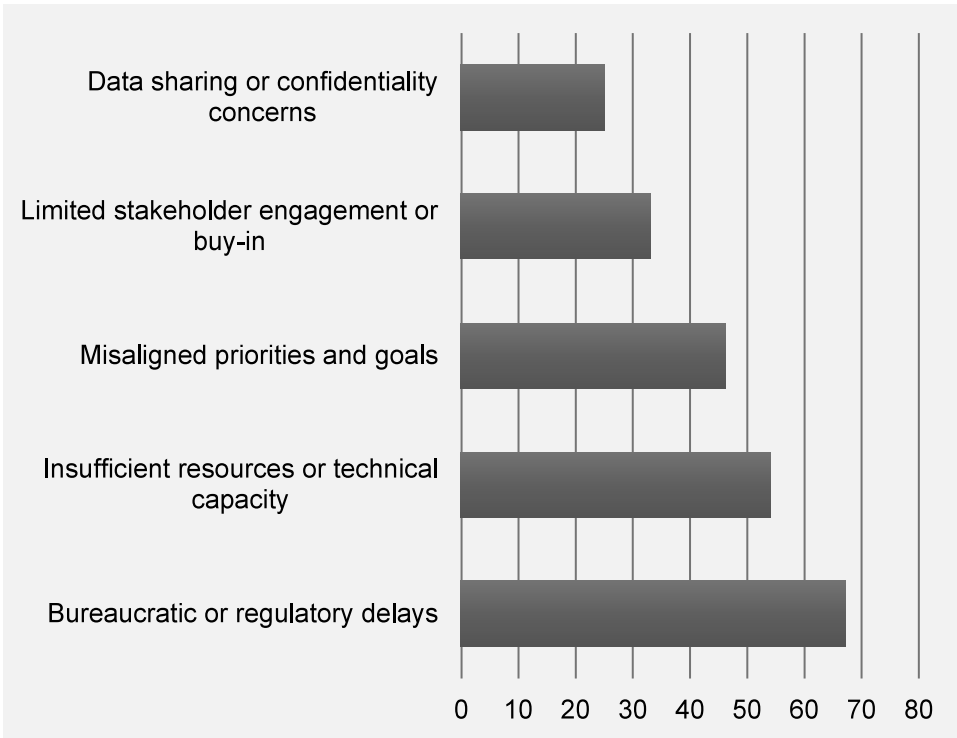
Figure IX: Cross-Sector Collaborations



Source: SDPI 2024a.

Challenges include bureaucratic bottlenecks, resource asymmetries, and goal misalignment among partners (Figure X).

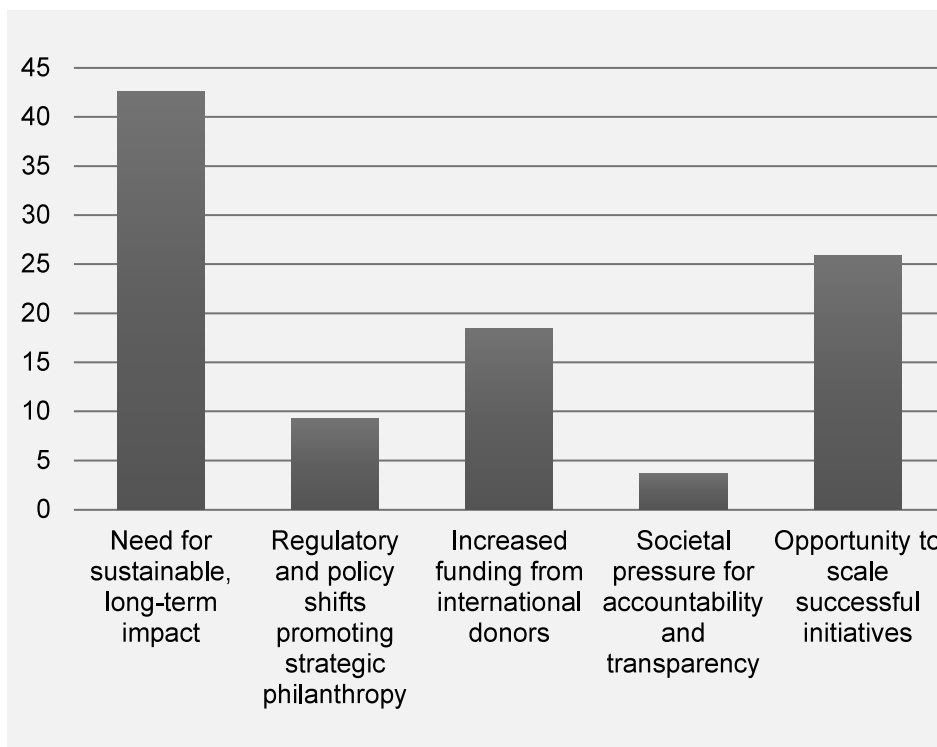
Figure X: Challenges faced in Cross-sector Collaborations



Source: SDPI 2024a.

Innovation Drivers

Stakeholders identified several key drivers that are pushing philanthropic organisations in Pakistan towards more strategic and innovation-led approaches. Foremost among these is the desire for sustainable, long-term impact, cited by 42.6% of respondents, reflecting a sector-wide recognition of the need to move beyond short-term relief efforts towards enduring development solutions. Additionally, using the survey, the analysis demonstrates 25.9% of organisations highlighted the opportunity to scale successful models as a major motivator, emphasising the importance of replication and expansion in achieving systemic change. Access to international funding was also noted by 18.5% of respondents as a critical driver, underscoring the role of global financing streams in shaping local philanthropic agendas and enabling the uptake of evidence-based, high-impact interventions (Figure XI) (SDPI 2024a).

Figure XI: Drivers for Strategic and Innovation-led Philanthropy

Source: SDPI 2024a.

Notably, regulatory changes and societal pressure for transparency also influence this shift, albeit to a lesser degree. These drivers suggest a fertile environment for experimentation, especially with hybrid models that blend philanthropic capital, market mechanisms, and public sector facilitation.

Policy Recommendations

Based on the analysis of survey data, stakeholder consultations, and literature review, this study proposes a set of strategic policy recommendations to strengthen Pakistan's philanthropic sector and enhance its contribution to inclusive and sustainable development. These recommendations are aligned with the SDGs, national climate and gender policies, and global trends in impact-driven philanthropy:

Develop a National Framework for Strategic Philanthropy

There is a critical need for a national strategy or guideline developed in consultation with philanthropic actors, government agencies, and civil society that defines roles, priorities, and evaluation benchmarks for philanthropic initiatives. Such a framework would improve coherence, reduce duplication, and enable targeted investment in underfunded sectors such as climate resilience, social innovation, and gender equity.

Incentivise Impact-Driven Giving through Regulatory Reforms

Regulatory simplification and fiscal incentives can enhance philanthropic flows. Recommended actions include:

- Streamlining registration and licensing procedures for philanthropic entities,
- Expanding tax incentives for impact-focused giving (especially for gender and climate), and,
- Introducing outcome-based financing models (e.g., social impact bonds) for high-impact projects.

Mainstream Gender Equality and Climate Action into Philanthropic Standards

Government and philanthropic networks should institutionalise gender and climate considerations into grant-making and programme design. This includes:

- Requiring gender-disaggregated data and gender budgeting in funded programmes,
- Prioritising support for female-led organisations and green social enterprises, and,
- Integrating climate risk assessments into philanthropic project evaluations.

Strengthen Institutional Capacities and Data Infrastructure

Philanthropic organisations should invest in internal capacities, especially in the areas of monitoring and evaluation (M&E), impact reporting, and ESG compliance. Public-private initiatives can help establish:

- National data platforms for tracking philanthropic contributions and outcomes,
- Shared M&E frameworks aligned with SDG indicators,

- Technical support hubs for smaller or emerging philanthropic entities.

Promote Cross-Sector Collaboration and Public-Private Partnerships (PPPs)

To leverage collective impact, policy frameworks must encourage collaborative platforms between government, corporate foundations, NGOs, and international donors. Mechanisms such as pooled funding, joint ventures in underserved regions, and co-designed pilot projects can improve resource efficiency and amplify impact.

Conclusion

Philanthropy in Pakistan is undergoing a pivotal transformation from traditional models of charitable giving to strategic, data-informed approaches focused on systemic change. This evolution is particularly evident in the growing emphasis on gender equality, climate resilience, and innovation-led social investment. Yet, the sector remains constrained by regulatory bottlenecks, cultural barriers, underfunding in critical areas, and weak coordination mechanisms.

The findings of the study demonstrate that though most organisations are shifting to a result-based approach to philanthropy, a significant number of them are functioning without unified gender inclusion, environmental sustainability, or long-term financial planning structures. There is also evidence in stakeholder data that there is a high level of interest in institutional change and cooperation among a variety of sectors, which is an indicator that the sector itself is ready to be situated within the national and global priorities associated with sustainable development.

To unlock the potential of philanthropy in Pakistan, there should be a policy environment which enables advantages in commissioning high-value strategic investment and encouraging data openness and reducing administration barriers. It further requires ensuring that the less privileged populations are considered and women empowered, and intersectional solutions used to ensure the well-being of the climate in all phases of project planning by philanthropic organisations.

Moving forward, the philanthropic sector could play a key role as an intermediary between the state, market and society as it can both mobilise private funds towards public goods and stimulate innovation, accountability, and resilience. As long as it has the appropriate policy tools

and institutional capabilities, philanthropy in Pakistan can not only help fill development gaps but also transform the way inclusive and sustainable growth is being envisioned in the decades ahead.

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Transforming Agri-Systems Through Technology

**Digital Pathways for Transforming Pakistan's Agriculture
and Textile Sectors**

Soha Nisar

**Of Camels, Taillights and Farmers' Friends: Rethinking
Climate, Agriculture and Digital Transformation in
Pakistan**

Dr Adil Najam

Digital Pathways for Transforming Pakistan's Agriculture and Textile Sectors*

*Soha Nisar***

Abstract

Pakistan's path to economic growth faces significant challenges, including financial instability and the need to adapt to climate change. This chapter explores how digital technologies can revitalise the economy by transforming the agricultural and textile sectors. Specifically, it examines the role of Artificial Intelligence (AI), Internet of Things (IoT), and blockchain in modernising agriculture and ensuring sustainable textile sector growth. In the agriculture sector, digital tools such as blockchain for traceability, smart farming, and predictive analytics can reduce post-harvest losses and improve compliance with international standards, especially in export markets like Europe. For the textile sector, automation, IoT integration, and workforce upskilling are essential to remain competitive amid shifting global supply chains. The study recommends expanding innovation hubs and public-private partnerships (PPPs) to deliver accessible digital infrastructure, technical training, and financing support. Institutional reforms and coordinated investments in sector-specific digital programmes will be pivotal to scaling productivity and sustainability in these two cornerstone industries of Pakistan's economy.

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Introduction

Background and Rationale for Economic Resilience

Economic resilience has emerged as a key policy concern as global debates on sustainable development increasingly emphasise the need for systems that can withstand and adapt to shocks. For developing countries like Pakistan, the capacity to respond to disruptions, whether economic, environmental, or geopolitical, is critical for long-term stability (Sutton and Arku 2022). Pakistan's economy is under mounting pressure due to rapid population growth, constrained fiscal capacity, and intensifying environmental stresses, all of which necessitate structural adaptation and policy reform. At the Sustainable Development Policy Institute's 27th Sustainable Development Conference, a key focus was on digital technology as a means to strengthen resilience capabilities. Innovations in the textile sector and advancements in agriculture can help address persistent developmental challenges by promoting inclusive growth and supporting the implementation of the Sustainable Development Goals (SDGs) through improved institutional mechanisms (Hariram et al., 2023).

Role of Digital Transformation in Emerging Economies

The distribution of Information and Communications Technology (ICT) facilities remains a major issue in Pakistan's rural districts due to a persistent digital divide. With only 36% of the population having internet access, as reported by the World Bank, Pakistan faces substantial digital inequality across provinces posing a challenge to inclusive development and digital governance (McAllister et al., 2023). Currently, suburban internet access is also insufficient, and about 55 million people cannot achieve stable access to broadband, hindering the digital drive across sectors. This is compounded with power shrinkages where electricity is unavailable for most of the day, as witnessed in the provinces of Balochistan and interior Sindh where power rationing may reach up to 12 hours per day, impairing communication through digital means (Mahmood 2024).

Official statistics show that Pakistan's mobile internet access rating is comparably lower than that of India or Bangladesh in the GSMA Mobile Connectivity Index. Limited internet access to 4G connections and slow adoption of 5G technologies means that businesses and individuals cannot

efficiently use digital platforms in sectors such as logistics, smart farming and industry (Sharma et al., 2022).

Pakistan also suffers from low levels of digital literacy. According to the Pakistan Telecommunication Authority (PTA), there is only 28% computer literacy among internet users. Digital literacy in Pakistan is generally constrained to basic usage, primarily involving social media and messaging platforms like WhatsApp and Facebook, indicating a limited capacity for productive or educational digital engagement. Digitalisation is a major challenge because over 65% of rural farmers have never used a smartphone to access any form of information or service related to farming. The low uptake of digital technologies among Small and Medium-sized Enterprises (SMEs) is partly attributed to the inadequate digital literacy of both workers and owners (Shah et al., 2022). This is compounded by insufficient public and private investment in human capital development, including education and technical training. Women and girls face even greater exclusion from digital learning, especially in rural areas.

Pakistan ranks 97th out of 134 countries on the Network Readiness Index (NRI 2023), reflecting persistent weaknesses in its legal and regulatory frameworks. Key sectors such as agriculture and textiles lack dedicated digitalisation policies, leading to bureaucratic delays and fragmented implementation of new technologies. Furthermore, data protection and cybersecurity regulations remain inconsistent, undermining trust and coordination. As a result, efforts to digitally revitalise critical areas of the economy remain weak, disjointed, and largely ineffective.

Studies identify financial constraints as the primary barrier to technology transfer for developing economy SMEs (Singh and Kharel 2023). Limited access to affordable credit makes it difficult for these enterprises to absorb the upfront costs associated with digitalisation. For example, adopting smart textile machinery or precision agriculture tools can increase production costs by 20-30%, a burden that small firms and resource-constrained farmers operating on thin margins are often unable to bear (Karunathilake et al., 2023). Moreover, opportunities for venture capital and government support to foster technological innovation remain limited. In the agricultural sector, fintech platforms are still in their nascent stages, primarily offering crop-based loans or digital micro-insurance - services that currently reach fewer than 5% of farmers. This limited outreach underscores the absence of sustainable funding

mechanisms, which are essential for realising the broader potential of digital transformation (Lenz 2021).

Cultural attitudes and resistance to innovation present additional roadblocks. A PIDE survey conducted in 2023 revealed that 58% of textile firms were unwilling to adopt automation technologies, citing concerns about potential job losses and high conversion costs (Ghafoor and Iqbal 2023). Likewise, in most agriculture-related fields, traders and farmers use traditional techniques inherited from previous generations and fear embracing AI-based advisory tools and encrypted traceability technologies. This is due to inertia, lack of good benchmark examples to emulate, and fear of several industries replacing the manual workforce with technology. As for training and sensitisation, most sectors and people still lack concrete understanding of change and how it can be positively encouraged. The slow speed at which such behaviours evolve hampers outcomes diluting the value of digital ideas and reducing sectoral competitiveness (Kreiterling 2023).

Challenges in the Agriculture Sector of Pakistan

The agriculture supply chain plays a significant role in Pakistan, and unfortunately, it is unorganised and secretive, and losses generally occur frequently. Crop losses after harvest average between 30% and 40% for horticultural crops such as fruits and vegetables due to lack of sufficient and proper storage structures, poor transportation, besides inadequate quality control. For instance, when farmers plan their crops, they struggle to see the overall demand and price of particular products. This also impacts the income of farmers and causes a disturbance in the country's food security and export characteristics. Projected approaches show how adopting digital traceability could yield better credibility and better prices (Khan et al., 2021).

Due to lack of access to commodity prices or weather information, farmers in Pakistan work in relative solitude. Due to this, mobile applications and services that offer market rates or crop pricing, are only used by 11% of farmers. This results in wrong decisions, exploitation by the middlemen, and low profitability since the major focus is on the price. Digital platforms could fill this, but they have limited usage due to low literacy levels and sparse access to the internet. However, some pilot programmes show promise. A pilot programme launched by Telenor and CABI through an SMS-based advisory relating to crops and farming in

Punjab pointed towards the enhancement of crop yields by up to 20%. Nevertheless, such policies and practices are still restricted to certain areas and are neither comprehensive nor long-term. Scaling up the current extension service delivery by engaging telecommunication service providers and university systems can go a long way in increasing data access and knowledge among the smallholders (Syed et al., 2022).

The problem of fragmented landholdings has also plagued agriculture in Pakistan. According to the figures available with the Pakistan Bureau of Statistics (PBS 2010), most farms (86%) are below five hectares; therefore, large-scale mechanisation is not feasible. This implies that this structure hinders efficiency, restricts the use of advanced tools, and leads to high costs per output. Further, the growth of small plots hinders irrigation, pest management and the use of fertilizers or smart technologies. Cooperative farming, as well as land amalgamation, is limited and irregular, which is primarily because of legal factors as well as cultural resistance. Until there is change and commitment to land reforms and encouragement of partnerships, incorporating large-scale innovations such as drones, sensors and smart irrigation systems, will remain a problem.

Water use is also very inefficient. Despite depending on water for over 90% of its water requirements for irrigation, the country remains among the most water-restricted countries in the world. Compliance with old flood irrigation methods results in a lot of water wastage, especially in crops such as sugarcane and rice. To compound the problem, floods occur frequently due to global warming and droughts (Ahmed and Imran 2024). Internet of Things (IoT)-based drip irrigation and moisture sensors help reduce water usage by at least 30-40%. However, this water wastage is still below 5% due to high charges, counterparts' lack of training, and low enlightenment.

Many of the farmers still do not have permission to open an account with conventional banks. Only one-third of the farmers have access to the banks, and less than 2% enjoy any form of agricultural insurance cover. Most conventional moneylenders lend through physical assets and paperwork, which smallholders cannot afford. Although mobile banking and blockchain-based credit scoring offer revolutionary opportunities, they are rarely used in rural finance today (Habib-ur-Rahman et al., 2022).

Objectives of the Study and Research Questions

The purpose of this study was to:

- Explore how digital progress can promote sustainable practices in two key sectors: agriculture and textiles.
- Investigate the technological and financial barriers that hinder digital transformation in these sectors.
- Propose targeted policy recommendations to build a digital economy that benefits the entire population.

Theoretical Background and Best Practices

Economic Challenges and the Malthusian Trap

Pakistan is dealing with economic and structural problems because its population growth limits available resources for the country. Rapid population growth undermines the long-term benefits of rising incomes by hindering sustained economic development. According to the Malthusian trap, economic output depends on labour and fixed resources. However, technological progress improves total factor productivity and overall efficiency. This relationship can be expressed with the formula:

$$Y = A L^{\alpha} R^{(1-\alpha)}$$

Where:

Y is total economic output (e.g., agricultural production).

L represents labour (or population size).

R stands for fixed resources (such as land or capital).

A is total factor productivity, reflecting the level of technology and efficiency.

α (alpha) is the output elasticity of labour, showing how sensitive output is to changes in labour relative to resources.

According to this model, the resources available per person (R/L) decline as labour (L) (or population) increases. Consequently, unless productivity (A) or resource availability (R) rises in tandem, per capita production (Y/L) falls. This explains why Pakistan's population growth makes the country's economic problems worse. Per capita resources decrease as the

population grows, and the economy will either stagnate or shrink unless technological innovation (shown by increases in A) takes place.

Innovation is the key to overcoming this obstacle, and digital technologies are essential for increasing production, cutting waste, and maximising resource utilisation. These technologies effectively counteract the detrimental effects of a growing population and fixed resources by offering the means to raise total factor productivity (A). Pakistan may overcome the Malthusian trap and achieve more sustainable growth and economic resilience by increasing efficiency through technology-driven measures (Ali et al., 2024).

The Schumpeterian growth model functions as an important growth mechanism with its foundation on combined innovation and destructive creation. Economic stagnation may be overcome through new technologies which foster growth produced by innovative practices. Technical innovation priorities along with resource enhancement methods may allow Pakistan to break through its economic restrictions which limit its ability to outpace population growth rates (Ibid.). The key to Pakistan's transition to a more robust and sustainable economic model is emphasis on utilising innovation and digital transformation.

Challenges in Adopting Digital Solutions: A Developing World Perspective

Rising expenses, low digital literacy, and infrastructure deficiencies are particular obstacles that developing nations face when adopting digital technology (World Bank 2025). For Pakistan, these difficulties are made worse by disjointed government frameworks and little funding for Science, Technology, Engineering, and Mathematics (STEM) education. The realisation of SDGs and climate goals in Pakistan needs financial stability. International economists and monetary institutions continue to research the optimal reserve fund level Pakistan needs for its development projects. Economic data from Bangladesh and Sri Lanka reveal patterns that Pakistan should study to better understand the strategies other nations use to avoid financial crises (Nosike 2024).

When Pakistan implements necessary policy-based macroeconomic stabilisation, it creates more economic challenges for itself. The implementation of different programme-originated reforms causes numerous microeconomic dilemmas that lead to opposition across all population groups (Asghar et al., 2023). The need for creative solutions has intensified as Pakistan struggles to balance competing priorities

within its digital technology agenda. Every government agency now pays lip service to improved connectivity and Artificial Intelligence (AI) to achieve economic sustainability. But sustainability relies heavily on the adoption of advanced technologies and long-term digital solutions (Ibid.).

Digital Agriculture Innovations: International Success Stories

Digital technology has transformed agricultural systems worldwide by integrating them into a sustainable economic structure, improving both production methods and environmentally responsible practices. It helps developing countries find solutions to their traditional marketplace problems and, at the same time, addresses economic distribution challenges and improves system efficiency.

India's agricultural sector has been strengthened through its National Digital Agriculture Mission (NDAM), which leverages digital tools and AI to drive improvements. Digital transformation in agriculture occurs through analytical methods coupled with remote sensing and AI in order to yield enhanced outputs from optimised agricultural resources (Nitturkar 2021). AI systems allow farmers to use climate predictions to determine crop planting strategies according to soil characteristics and increase agricultural output while protecting plants better. Before the Food and Agriculture Organization (FAO) got involved, farmers relied on their instincts, yet the organisation proved that analytical decision-making protects farmers from uncertain climates and volatile markets. Environmental sustainability increases through precision farming with digital technology because the process decreases water requirements together with pesticide and fertilizer use. Indian digital programmes increase market accessibility because they directly connect farmers to different market participants and boost agricultural yield production. Farmers can get just payment for their goods by establishing direct transactions and engaging with digital marketplaces through smartphone apps. Through the National Agriculture Market (eNAM)'s platform 1,000 Indian wholesale farmers attain present market price data and product availability information for each participating market. Agriculture-based digital financial service integration enables rural farmers to access credit solutions along with insurance coverage, digital financial products, mobile banking facilities and digital wallet features (Cereno 2023).

In Kenya, farmers were among the first to benefit from nationwide financial services through M-Pesa mobile money. The platform offers two

primary functions for mobile phone users: loan access and payment transfers. Traditional banking systems often exclude smallholder agricultural farmers, making M-Pesa an essential alternative for accessing financial services. Rural M-Pesa transaction testing induced Uganda and Tanzania to implement a similar service using data from the International Finance Corporation (IFC). Basic financial services support farmers by enabling remote digital payment reception and facilitating loan applications without physical bank visits. These capabilities allow farmers to improve their financial stability and invest in better agricultural equipment, ultimately enhancing productivity and output. These information and communication systems have introduced solutions to address key agricultural problems affecting developing countries.

Poor logistics and inadequate infrastructure create barriers that limit farmers' access to markets, allowing supply chain inefficiencies to dominate in various regions. Farmer relationships with consumers and intermediaries become possible through digital channels since these platforms operate without going through intermediaries. Through supply chain delivery optimisation, farmers are able to earn more revenue while product delivery time becomes shorter, and waste occurs less frequently. Mobile technology allowed the Kenyan agricultural industry to conduct efficient transactions by providing low-cost selling methods for products. Through digital platform participation farmers gain expert information about pest control methods that show the best ways to improve harvest quantity alongside harvest quality (Cereno 2023).

The digital initiatives running in India show comparable advantages to those in Kenya by creating market performance enhancements and supplier network connections and solving payment challenges that impact stakeholders. Agricultural digital innovations, involving open market integration with financial and environmental stability systems, will lead developing countries towards sustainable agricultural development in the long-term. Multiple studies about the digital transformation of farming sectors have proven these points of research. The agricultural industry is also advancing through supply chain and data analytics platforms in other countries like Canada's Farmers Edge and Australia's Agri Digital, which integrate farm management with optimisation tools.

According to FAO and IFPRI studies, digital instruments play a pivotal role in agricultural advancement by enhancing operational efficiency and

enhancing resource availability (Canton 2021). The expansion of agri-tech firms proves technology will revolutionise farm practices worldwide.

Study Methodology

This policy research employed an exploratory, cross-sectional, equally quantitative and qualitative approach to study digital advancement in Pakistan's agriculture and textile industries. Expert insights were synthesised from relevant panel discussions at the Sustainable Development Policy Institute's 27th Sustainable Development Conference (SDC) plenary session '*Developing a Resilient Economy: Fostering Digital Innovations in Agriculture, Textiles, and Beyond*'. The study also drew on a range of secondary sources like national and provincial documents, key policy frameworks such as the 'Digital Pakistan Policy' (MoITT 2018) and the 'Draft National Artificial Intelligence Policy' (MoITT 2023), which outline the country's direction for digitalisation and technological adoption. To situate Pakistan's development trajectory within a global comparative framework, the study also looked at UNDP, FAO, and World Bank documents for comparative analyses, case studies, and indicative benchmarks of best practices in digital transformation (Abbasi 2021) across developing countries, including India, Kenya, and Bangladesh. These examples offer valuable insights for policy learning and adaptation. The literature review incorporates academic research applying theories such as the Malthusian trap, innovation diffusion models, and Schumpeterian growth theory to explore how digital economies may enhance productivity and sustainability. The study further integrated insights from policy briefs, and sectoral reports produced by local NGOs, business associations, IT incubation centres, agricultural cooperatives, and SMEs. Through this integrative and multi-source approach, the study ensures that the subsequent observations and recommendations are not only credible and multidimensional but also actionable within Pakistan's unique economic, social, and technological landscape (Mobeen et al., 2025).

Findings and Discussion¹

Sustainable Development and Fiscal Difficulties

Brollo et al. (2021) assess the supplementary expenditure required for Pakistan to prioritise key sectors such as education, health, and infrastructure. According to the IMF's SDG cost approach, approximately 16% of the country's GDP will be needed by 2030 to meet these development goals. The data shows Pakistan faces major obstacles to achieve 73% of the SDGs as per current research. Debt servicing worth USD 147 million daily causes financial restrictions that represent the largest obstacle for Pakistan and allocating funds towards necessary sectors which include healthcare and clean energy projects together with poverty reduction activities.

Such challenges demand urgent financial intervention. Official proposals recommend the temporary suspension of debt payments as a means to unlock fiscal space for critical development initiatives. The Paris Club's Debt Service Suspension Initiative (DSSI) for COVID-19 exemplifies this approach, offering an opportunity to redirect over USD 90 billion towards achieving key development targets over five years (Haughton and Keane 2021). If allocated effectively, these funds could lift 10 million people out of poverty, extend healthcare coverage to over 50 million individuals, and increase school enrolment rates by 20–25%.

Nearly half of Pakistan's national budget is allocated to debt servicing, reflecting the structural inefficiencies that constrain the country's fiscal capacity. This research highlights how Pakistan's substantial foreign debt hampers capital formation, reinforcing the concept of a 'debt overhang.' It underscores the need for more prudent and productive use of loans in public investment projects (Yousaf and Mukhtar 2020). Given the country's fiscal limitations, external assistance becomes critical for advancing progress towards the SDGs.

However, meaningful outcomes from resource allocation can only be achieved through governance reforms and institutional improvement. Enhancing governance, developing healthcare systems, and investing in

¹ Discussion at the Sustainable Development Policy Institute's 27th Sustainable Development Conference (SDC) plenary session '*Developing a Resilient Economy: Fostering Digital Innovations in Agriculture, Textiles, and Beyond*' form the basis of these findings and recommendations.

teacher training all require strong financial support to meet the country's needs. Sustainable development also depends on fair distribution of limited resources; however, substantial financial assistance is still necessary to enable essential national growth. Achieving the SDGs relies on the interconnectedness of structural reforms, effective governance, and adequate funding. To address the current financial shortfall, immediate measures such as a temporary debt suspension can provide short-term economic stability. At the same time, growth-oriented fiscal policies offer more sustainable long-term solutions. This approach gives Pakistan the opportunity to formulate development strategies within the extended timeframe provided by deferred debt repayments.

International collaboration is also crucial. Major developmental failures now affect developing economies because of their well-recognised debt problems throughout the world. International support is crucial for Pakistan, as it shares common developmental challenges with other nations, and both moral and practical considerations call for such assistance. Debt relief measures establish conditions which can allow Pakistan to concentrate its national focus on development objectives that advance sustainability by strengthening institutions and implementing governance reforms. Debt assistance makes sustainable initiatives practical to implement because it addresses both governance systems and fundamental institution restructure.

Governance Reforms and Building a Skilled Workforce

Pakistan's development funding framework faces several operational challenges that affect implementation of the entire system. For example, the Neelum-Jhelum hydroelectric project experienced a budgetary expansion 100 times larger than its initial budget value of PKR 50 billion because of improper planning and operational mistakes. Pakistan's debt situation is worsening as international debt now exceeds the country's tax collection capacity, largely due to ineffective taxation policies. Most public spending comes from taxpaying citizens who belong to lower socioeconomic status groups making increased taxation levels a major challenge for the government budgetary capabilities.

However, the decentralised government system serves as a promising method for enhancing transparency while building accountability in the public sector. During 2001-07, local governments empowered residents to check various basic services that included healthcare, educational and

sanitation institutions. Local citizens displayed higher satisfaction with the government approach because they could see exactly what their tax payments were being used on. Decentralisation enhances transparency and fosters greater public trust, whereas centralised systems often obscure the flow of payments within bureaucratic structures, thereby diminishing local accountability.

Modern technology requires that people dedicate their essential human resources simultaneously. Implementation of employee training in China along with STEM subject instruction has led to national economic growth according to models observed in various other countries. STEM educational investments by China made the nation an innovative technology leader specifically through its renewable energy initiatives which created market benefits for domestic and global customers. The implementation of such a workforce planning model would assist Pakistan by aligning its workforce needs with the digital economy. Several policy-level initiatives can collectively establish a comprehensive framework to strengthen the link between technological expertise and human capital in Pakistan as outlined below:

1. Invest in Research and Development (R&D) in the fields of agriculture and textile industry (apart from others) and the public sector should involve academic groups and commercial organisations. Regional problems are likely to find tailored resolution through these measures.
2. Enable cooperative links between Pakistan and its diaspora by using professional skills of Pakistani professionals working abroad to develop partnerships in the agriculture and textile sector. The establishment needs to overcome all resistance that exists within local institutions to ensure successful collaborations.
3. Provide focused financial aid for highly sought-after STEM programmes at prestigious international universities, avoiding financing for degrees with little bearing on Pakistan's development.
4. Make investments in educational institutions' labs to give students practical experience in science and technology, which is lacking in many colleges and universities.

5. Create extensive programmes for teachers' training to attract and continuously improve science and math teachers, creating a workforce that is ready for future technological developments.
6. Encourage students who receive training overseas to return and set up local research labs that tackle domestic issues, following the successful examples of nations like South Korea and China.
7. Science parks and museums should provide environments that encourage young pupils' creativity, critical thinking, and innovation rather than relying on rote learning methods that impede intellectual growth.
8. Support establishment of apprenticeship programmes by businesses (especially in the agriculture and textile sector) in order for fresh graduates to acquire practical training which bridges the educational-workplace difference.

Digital Innovations in Agriculture

Pakistan's agricultural sector relies on approximately 18 million hectares of land, representing 47% of the country's total geographical area. Agricultural exports make up approximately 70% of the country's total exports through including cotton, sugarcane and various fruits which enables economic stability (Kaur 2025). The export products from Pakistan enter multiple destinations that include the United States (US), China and Europe and many countries in the Middle Eastern territories.

Pakistan's vital agricultural sector faces numerous challenges in complying with the sanitary and phytosanitary (SPS) measures outlined by World Trade Organization (WTO) standards (Ehlermann and Lockhart 2004). Food safety, along with animal and plant health requirements, serves as a primary barrier to entry in major export destinations such as the US and the European Union (EU). Export restrictions persist because international standards in these markets often exceed the compliance capacity of Pakistani agricultural exporters. To retain access to key export markets, it is imperative for businesses to meet all current regulatory requirements.

Organisations that use digital solutions to address their problems will generate groundbreaking achievements which lead to successful transformative changes. Through blockchain technology, implementation in traditional agricultural supply chains manufacturers can track product

movements precisely for maintaining clear network visibility. Blockchain technology's extensive traceability features enable users worldwide to place greater trust in food safety systems. By enhancing supply chain transparency, these technologies facilitate compliance with stringent standards, thereby easing access to high-end markets where consumers can independently verify product quality and safety ratings.

Technical automation streamlines the export process by simplifying complex documentation requirements, which often discourage Pakistani farmers with limited export experience. Digital technologies enable regulatory authorities and exporters to enhance time management by addressing paperwork challenges and reducing operational errors. The adoption of electronic document management systems increases processing speed and overall productivity, particularly when integrated with online customs and immigration platforms.

Enterprises within the Pakistani agricultural sector find various obstacles in adopting digital technology solutions. Small agricultural producers cannot acquire digital devices that combine cell phone and Internet of Things (IoT) sensors due to financial constraints. Digital instruments fail to function correctly in rural areas because the regions have persistent connection issues. The digital transformation faces major barriers because marginalised groups and women show the most severe levels of digital illiteracy problems. Pakistan experiences developmental regression since no domestic information exists for climate data as well as soil conditions within the country. The differences in environmental factors between international borders become so pronounced that globally standardised data yields unsatisfactory research findings.

Addressing these barriers requires effective collaborative efforts. International organisations, in partnership with Non-Governmental Organisations (NGOs), should allocate resources towards establishing robust support systems that are prioritised by both government agencies and private sector stakeholders. The collaboration structure must integrate funding support with educational initiatives to improve infrastructure for digital agricultural resources in Pakistan. Virtual transformation needs concentrated attention toward handling these obstacles since they determine how digital transformation will affect sustainable agriculture development.

AI for Sustainable Growth in Agriculture and Textiles

The agricultural sector contributes nearly 23% to Pakistan's GDP and provides employment to almost 38% of the working population. Despite this, it is still lagging behind the world average productivity rate of cereal productivity at 3,100 kg/ hectare while India is at 3,900 kg/ hectare and China is at 6,700 kg/hectare. The textile industry contributes 60% of the total exports of the country and employment to more than 15 million people; the constraints which exist herein include aged machinery, minimum automation, and a constrained supply chain. The integration of emerging industrial technologies (EITs) such as AI, IoT, and automation presents a critical pathway for Pakistan's textile sector to enhance productivity, environmental compliance, and global competitiveness. Organisational ambidexterity, balancing innovation with operational efficiency, is essential for Pakistani textile firms seeking to adopt Industry 4.0 technologies sustainably. Without alignment between technological adoption and sustainability objectives, Pakistani textile firms risk falling behind regional peers in meeting international standards and export requirements (Aslam et al., 2024).

This shows that for Pakistan to effectively undertake value creation in the identified sectors, such as agriculture and textiles, it needs to adopt the use of AI and other related technologies. Experts from identified international development organisations, as well as those from the national level, have suggested potential enablers and core areas for intervention, which include precision agriculture, supply chain automation, and smart manufacturing systems. However, the process must be approached systematically, and it must be supported by considerable resources. The decision to single out agriculture and textile as a base is based on their high-growth nature and broad impact on the economy (Rathore 2022).

Nonetheless, such technological opportunities seem to be feared by labour-intensive fields, resulting from the anticipation of displacement by any automation, hence the emergence of resistance towards change. With the following brief guide to the appropriate adoption process broken down into phases and further accompanied by numerous precautions and the proper communication of the benefits, it is possible to minimise the negative impact of digital disruptions. Real-life examples of integrated ecosystems, such as India's National Digital Agriculture Mission and Kenya's M-Pesa financial system, demonstrate that technological

interconnectivity can enhance transparency, expand market access, and improve organisational operations, all without causing widespread displacement of the labour force. These platforms have promoted welfare of farmers by offering them weather information, market information, and payment through mobile money platforms provided under one roof. Pakistan can adopt similar models to those used in India and Kenya, where AI and blockchain technology is used for food supply chain traceability, digital payments and agricultural insurance (Kesavan and Swaminathan 2008).

To ensure sustained progress, the development of digital talent is essential. According to the UNDP Pakistan Annual Report (UNDP 2023), only 50-60% of the rural workforce is digitally literate. This underscores the urgent need to prioritise skill development in key sectors such as agriculture and textiles. Addressing these gaps requires a coordinated effort to identify skill deficiencies and design targeted training programmes in areas such as data analytics, smart farming, textile automation through the IoT, and AI-driven diagnostics. Effective collaboration among government institutions, private sector actors, and academic partners is critical to achieving these objectives.

In addition, it is suggested that new innovation centres and digital hubs should be opened in regions that are not densely populated by individuals with high incomes and education levels. Most of the population of Pakistan lives in rural areas and they are still unable to avail the opportunities of stable internet and digital facilities. Low-cost innovation hubs offer an effective means of providing access to education, financing, and essential resources for underserved and underinformed communities. Traditional and fintech players can provide microloans and credit lines for underserved regions with the aim of empowering innovation hubs (Jha and Dangwal 2025).

In textiles and agriculture, the application of AI and analytical tools, RFID, and QR code tracking helps enhance the supply chain and decrease leakages. Currently, an estimated 30-40% of fruits and vegetables are wasted in Pakistan due to perishability. Digital tracking and e-commerce integration can streamline value chains and reduce this loss. To demonstrate the benefits of such technologies, flagship pilot projects should be launched in targeted districts, showcasing scalability and attracting investment. Expanding broadband connectivity is not merely infrastructural: it enables a digitally interconnected economy linking rural

markets, SMEs, start-ups, and consumers. Pakistan's macro-to-micro digital transformation strategy need to prioritise key sectors to foster inclusive and sustainable growth (Jabeen et al., 2024).

Sustainability and Digital Transformation in Textiles

Despite widespread discourse, a clear understanding of digital transformation remains lacking across many industries, including agriculture and textiles. Often, it is mistakenly equated with isolated tool-based implementations such as dashboards or ERP systems. This narrow approach results in the creation of 'digital silos,' where limited digital projects complicate operations without addressing core business challenges. As a result, the transformative potential of digitalisation remains underutilised.

Digital transformation success in organisations happens through discovery approaches because discovery enables the identification of operational issues for developing essential use cases. A demonstration project that begins with modifications discovered during the discovery phase proves value potential to stakeholders. Organisations often begin by experimenting with digital solutions as a first step in implementing operational process changes. Companies need to establish deployment goals after system implementation to activate processes that generate integration solutions and tool systems. Organisations fail to get digital value from technology insights because they do not include proper implementation practices.

Digital transformation projects rely on accurate data, which is often misunderstood by workers despite their efforts to maintain procedural quality. A real-time, server-connected data lake that securely stores information in the cloud can aggregate data from multiple sources. By enabling data flow across different systems or departments, a unified platform that consolidates all business information can deliver more accurate insights. When data is integrated effectively, machines can leverage both modelling and digital twin processing to support better decision-making across a textile firm.

Textile firms must break down their independent data management systems in order to achieve successful digital transformation. The activation of analytical capabilities that enhances workflow and decision quality requires all organisations to combine their complete information into one single database. Operational excellence and present-day stability

require businesses to know their industrial standing in relation to market forces so they can implement flexible expansion methods. The analytic programme of enterprises must implement standardised processes and central databases prior to commencement. Business expansion occurs through the sequential enlargement of small-scale initial processes that grows into larger business domains. The method allows businesses to rely exclusively on digital tools to fulfil their present industry requirements thereby strengthening their competitive position.

Development of a Digital Ecosystem

Two goals of Pakistan's 'National Digitalisation Programme'¹ focus on establishing robust digital infrastructure across the country. The national digital interchange layer serves as a component of this programme to integrate land records and taxation data with agricultural data for developing data-driven decisions using a unified framework. Private sector startups involved in agriculture development play an essential role in this programme because they drive innovation throughout the sector. Businesses create customised solutions through their Know Your Customer (KYC) implementations of farm information by uniting farm condition details with fertilizer metrics and financial records. Advanced instruments in practice can lead to better agricultural operations through enhanced measurements of soil quality and management tools for pesticides together with irrigation techniques. The use of AI platforms by startups can enable them to analyse soil composition. The agriculture industry of Pakistan must adopt climate technologies because climate conditions continue to deteriorate. The strategy consists of three fundamental sections focused on developing awareness levels and offering access to equipment with adoption assistance. The youth-oriented initiatives have introduced need-based agricultural loans as a way to assist farmers who survived the 2022 floods. The 'Smartphone for All' policy will enable farmers to access affordable smartphones through instalment payments, supporting the implementation of their digital access rights. Under the digitalisation programme, a combination of drone sensors utilising IoT detectors and space-based imagery technology systems would also allow farmers to instantly assess crop health that

¹ Editors' Note: The 'National Digitalisation Programme' in Pakistan, officially the 'Digital Nation Pakistan Act, 2025', aims to transform the country into a 'digital nation'.

creates relationships between export quality standards and national food demand levels and harvest outputs.

Pakistan's agricultural sector urgently requires the adoption of international sustainability standards to meet EU market requirements. Integrating technologies such as blockchain can enhance supply chain transparency and reduce post-harvest losses. To accelerate progress, financial assistance programmes should incorporate coordinated international and domestic partnerships that deliver both technical expertise and human resource development, particularly in areas such as smart farming, data analytics, and sustainable practices. In the textile sector, predictive analytics can help business owners anticipate operational changes driven by technological advancement. As the industry adapts to evolving global standards, international collaboration will be essential to upskill the workforce and align production with digital transformation goals.

Both sectors demonstrate growing engagement with industrial transformation through digital integration efforts. Achieving sustainable development in Pakistan's agriculture and textile industries will require sustained collaboration between public and private stakeholders to implement scalable, future-oriented solutions.

Policy Recommendations

1. Promote a short-term debt freeze to free up funds for investments in sustainable energy, health, and education.
2. Guarantee effective use of resources, increase transparency in development spending. Encourage decentralised governance to improve public participation and accountability.
3. Develop a skilled workforce for the digital transformation, emphasise STEM education; and offer financial aid for specialised courses at international institutions with a focus on high-impact industries.
4. Combine blockchain with IoT for agriculture monitoring and supply chain transparency. Assist small-scale farmers, close the digital literacy and rural connectivity gaps.

5. Support use of automation methods together with digital options to reduce environmental damage from textile industries' production processes.
6. Seek investments and expertise from Pakistani diaspora to support local agri-textile businesses.
7. Focus on financing initiatives for digital transformation through partnerships between governmental and private entities. Every citizen in rural areas should have equal access to digital tools and connection networks.
8. Establish multiple innovation hubs across the country to provide accessible digital solutions for the agriculture and textile sectors, addressing current gaps in technology availability.
9. Implement secure data interchange standards at the national level to enable accurate and coordinated decision-making. Efforts to streamline human involvement in data processing should prioritise enhancing data transparency, consistency, and precision.

Conclusion

The policy framework and recommendations outlined in this chapter establish the foundation for a dynamic digital transformation architecture in Pakistan, aimed at economic stability through enhanced performance in the textile and agriculture sectors. Suggested digital systems can help address financial, environmental, and market challenges by offering integrated solutions. Automation will enable organisations in both sectors to increase output using existing resources, generating dual value through improved productivity and overall business growth. The government should allocate funds for the development of new technologies, as key industries such as agriculture and textiles require modernisation through Public-Private Partnerships (PPPs). Having proper relationships with the related regional centres, blockchain tools will facilitate clear supply chains and effective textile management by transmitting necessary information across national, regional and international networks. The current wave of economic digitisation requires government officials in Pakistan to collaborate with local entrepreneurs and international corporate partners in the agriculture and

textile sectors to advance digital transformation of two of the most vital sectors of the country's economy.

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Of Camels, Taillights and Farmers' Friends: Rethinking Climate, Agriculture and Digital Transformation in Pakistan*

*Dr Adil Najam***

Thank you very much and thank you everyone for having me.

I want to start with three words. I'm not sure if this counts as a keynote or not, but for my own framing, allow me to begin with them. If I had a slide, it would have just these three words, each in Urdu, and that's what I want to talk about, and I'll explain why.

The first word is '*Oont*' (camel). That's why I'm wearing a camel tie today. In fact, to be honest, the tie came first, and that's how '*Oont*' became the first word. I'll come back to it in a moment.

The second is '*truck ki batti*' (truck's taillight). I don't think there's an exact translation in English, but the closest would be a 'fad': something that suddenly becomes fashionable, and everyone rushes to follow it. But I want to make a serious point here; I'm not just trying to be facetious.

The third is '*Kisan dost*' (farmer's friend). It's a term that's been used so often, and sometimes so casually, that it's become almost empty.

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If we are going to think seriously about agriculture and digital transformations, whether good or bad, I want to contextualise it through these three words.

Why *'Oont'*?

Partly because, as I was leaving home and choosing a tie, this one caught my eye, and I thought it might be a good starting point. I say this with my WWF hat on even though that's not the role I'm speaking from right now. The reason I bring up the camel is because of a common misconception: we think of the camel as an animal that uses very little water. But only people who have never actually seen a camel think that way

If you've ever seen a camel drinking water, it's very much like the way I eat food—the camel drinks as if there's no tomorrow, as if water is about to go out of fashion.

The point of the *'Oont'*, and the reason I'm wearing a tie with a camel on it, apart from the fact that camels are sadly underrepresented on men's neckwear, is that the camel survives not because it avoids water altogether, but because it uses water wisely.

This is a serious point. In a simplistic sense, especially in this age of climate change, the easy slogan is, *'We must do less of everything.'*

And yes, for many things, that's true. Many parts of the world with high consumption certainly need to reduce. But the real challenge for us as a species is this: are we wise enough, like the camel, to use the resources we depend on with care and intelligence?

I say this without facetiousness. We throw around alarming numbers about water, and every few years we hear predictions that we're about to 'run out of water.' The truth is, we are not going to run out of water entirely. But we do face extremely serious water challenges. And the core problem is wastefulness: of water, yes, but also of energy and other resources.

Which brings me to agriculture and digital transformation. Just as the camel thrives by using its resources with precision, our agricultural systems and the technologies we introduce into them, must be designed for efficiency, not excess.

Digital transformation, if guided by the 'camel principle,' can help us measure, manage, and deploy resources in ways that increase productivity without depleting the very systems we rely on.

Let me give you an example. Our energy-use efficiency is worse than Saudi Arabia's. Everyone, and their neighbour, will complain about high energy prices, but when you look at how many dollars' worth of GDP we produce per unit of energy, we perform worse than a country where you can strike the ground and energy will literally come up.

The same is true for water. Now, I don't want to be facetious: there are real and serious issues with water availability and quantity. But I do want to break open this idea that the challenge is purely about 'how much water there is.' If that were the only issue, the pictures during flood season would tell a very different story.

The real challenge is whether we are at least half as smart as the '*Oont*' in how we use resources. As a species, humans haven't consistently demonstrated that wisdom. And this is where my point connects to agriculture and digital transformation. Whether we talk about regenerative agriculture, whatever definition we adopt, or about resilience, both come down to one fundamental principle: how you use the resources you have.

And this is where I want us to think carefully about the role of digital tools in shaping agriculture policy. Technology can help us manage resources more intelligently, but only if our goal is efficiency and sustainability not just following trends or chasing the next big thing.

Now, '*truck ki batti*' is actually a wonderful conceptual and scientific idea. I wish more languages had expressions like this. It's not inherently a bad thing. Earlier, I described it as a fad but let me explain it more fully.

A '*truck ki batti*' moment happens when you're travelling somewhere, not entirely sure where you're going, and you spot a vehicle ahead of you with a light. You decide to follow it, assuming the driver knows the way. Some of you might have had this experience: you're on your way to a wedding, you don't know the exact location, but you assume the car in front of you is heading to the same wedding, so you follow it. And then you end up at someone else's wedding. That's '*truck ki batti*'.

The important thing is: the truck isn't lost. It gets exactly where it's supposed to go. The problem is that, by following it blindly, you end up where the truck wanted to go and not where you needed to be.

This is the context for the plastics conversation I really wanted to have. And it's why I believe some of the words we throw around in our policy conversations are actually *'truck ki batti'*. One of those words is 'digital.'

Like any *'truck ki batti'*, the truck itself is going in the right direction. Those who know where they're going with digital have thought it through. But if we simply follow others who are adopting digital tools, assuming they know what they're doing but we may end up where they want to go, not where we need to be

AI, in my view, is one of the world's biggest *'truck ki batti'* examples right now. Just because ChatGPT is fascinating because it can summarise things, mimic conversation, or replace a quick Google search doesn't mean it truly 'knows' anything.

AI is a very real and very potent tool. But ChatGPT? That's a toy.

If we start thinking of AI as the solution to every problem, we're in trouble. And I think many countries, including our own, are in danger of treating it that way: as the latest fad. Yes, ChatGPT might write you a better memo, but that's about all it can meaningfully do at the moment. Serious AI applications will require serious, sustained work and that is a completely different thing.

And if I may, the world's other big *'truck ki batti'* these days, and I say this very deliberately here in Pakistan, because I'm going to keep repeating it all week, is climate finance. This is not to say climate finance isn't needed; it is. But because we have foreign exchange problems, we've turned it into a vehicle for simply trying to plug that gap, rather than using it strategically for climate resilience and long-term adaptation.

For example, just last week it was announced that we are going to take a USD 500 million (half a billion dollar) loan for climate. On the surface, how could that be a bad thing?

Yet I'm not ready to celebrate. Because in reality, that means USD 500 million for disaster relief. It means that someone who loses their home, perhaps because of my actions, will be given a loan they will then have to pay back.

What I'm getting at is this: there is going to be a lot of discussion about climate finance in the coming years, much of it tied to agriculture. And we

must be very smart about distinguishing which of it is a *'truck ki batti'* and which of it is genuinely useful, productive climate finance.

Climate finance should not be measured simply by how many dollars flow in. It should be measured by whether we are making the right climate investments: investments that will actually pay off. This is, at its core, a clear-headed, straightforward economic proposition.

If instead it becomes just another tool to meet IMF provisions or to prop up foreign exchange reserves, then we will be saddled with bad loans and bad investments, all in the name of climate. I understand the politics of it but we should be honest about the risks.

The last example I'll share, though I'm not sure it's entirely a *'truck ki batti'*, is this: I don't like the way we use the word 'resilience.' And since Abid isn't here, I'll say it plainly.

I've worked on resilience for 30 years, and here's the thing: resilience has both a common English meaning and a technical meaning. Technically, it's *'the ability to take shocks and survive shocks.'* But that should not be the goal. After every flood, we proudly say, *'We are a very resilient people.'*

Resilience is not a strategy; it is the baseline: the minimum you need to start from.

What we should aim for is robustness: reducing the severity of the shocks in the first place. Floods will come. They've been coming for hundreds of years. But robustness means building systems that can manage the floods, not just picking ourselves up after the damage is done.

Yet every time we talk about resilience, it's in the aftermath: after a flood, after an earthquake. I have spent 40 years hearing and saying how 'resilient' we are. But if you keep testing people's resilience over and over, there comes a point when they will break.

There is such a thing as good resilience. There is a climate opportunity, not just a climate cost. That opportunity could be linked to resilience. There is a plastics opportunity, not just a plastics cost.

Too often, we view policies solely through the lens of cost: if there's a cost, someone has to pay it; and if no one is willing to pay, then we simply do nothing. That mindset is holding us back.

We need to start seeing these issues as opportunities for innovation, for economic gain, and for building systems that are stronger from the outset not merely as expenses to be endured.

My third and final thought:

'Kisan dost' (farmer's friend) is a phrase I use with great care, because I know there are people who genuinely try to live by it. It is a wonderful expression; we all like to use it. We are all, in our words at least, 'friends of the farmer.' If anyone here considers themselves an enemy of the farmer, please raise your hand.

And yet, our actions often resemble those of a farmer's enemy.

What does 'farmer-friendly' actually mean?

To me, it means showing respect for the farmer. And I do not believe that, in the last 75 years, we have consistently shown that respect. Even those who claim to do so often end up idealising and romanticising the farmer as someone who knows everything, yet our policies treat them as if they know nothing.

Look at the empirical evidence of our agricultural policy. The underlying assumption has always been that the farmer must be told what to do. So, we create extension services to instruct them on how to grow their crops. We set up price-control mechanisms to dictate what they can sell them for. We design agricultural plans that determine what they should grow in the first place.

And this is where the link to climate and digital transformation comes in because if we approach these new tools with the same top-down mindset, we will repeat the same mistakes, only with shinier technology

Then we'll bring in someone, Adil Najam or whoever, from outside to tell us what others are doing. I'm being facetious here, and I recognise I'm making a sweeping generalisation. It's not entirely true.

But if we look honestly at how we tend to approach these things, much of it begins with the assumption that the farmer cannot make decisions on their own.

Our role, we believe, is to somehow 'help' the farmer make better decisions because, obviously, I can speak English, therefore I must know better than the farmer.

What I'm getting at is this: the alternative is not to simply idealise or romanticise the farmer as an all-knowing figure. The real alternative is to create a genuine, two-way conversation that shifts the relationship from informing the farmer to empowering the farmer.

And that, to me, is the crux of what I'm saying with all three of my themes: the '*oont*', '*truck ki batti*', and '*kisan dost*.' That is the true role of digital technology: not to dictate, but to enable; not to lecture, but to empower.

If the role of digital is simply to replace traditional extension services so instead of sending a person, we now send an email or a WhatsApp message saying, 'This will happen, that flood is coming', that's fine. But if that's all we do, we are reducing the potential of this tool to just another '*truck ki batti*'.

The real promise of these technologies, as seen elsewhere, lies in enabling farmers to make better decisions because they want to make better decisions, because their livelihoods depend on it. Yes, there is a whole layer of policy complexity around who owns the land and who ultimately makes decisions on the farm. But the essential thing we need to unlock, especially now when digital technologies are giving us new capabilities, is this: to reach a point where the farmer is empowered to make informed choices as they see fit.

Think about how Google works, or how AI works or, for example, how ChatGPT works. Let me take that last example.

How does ChatGPT produce all those answers? We've actually known the underlying idea for a long time: it is essentially *crowdsourcing*. It doesn't 'know' anything. What it does is draw on the work that others, say, Basit, have written, repackage it, and then present it back to me as 'what people are saying.'

In a way, those of us in agriculture policy have understood this concept for years: collective knowledge, when harnessed properly, can be far more valuable than the sum of its parts. And that is where digital technology comes in not just as a delivery mechanism for information, but as a means to tap into and organise that collective intelligence so that farmers themselves can make better, more informed decisions.

Let me begin to close with two thoughts. The first is on resilience. Too often, we view climate only as a cost. We've seen that framing in the floods

of 2022, in the floods of 2010, and in so many other climate-related disasters. But we rarely see climate as an opportunity and we should.

What I mean is this: climate change, while undeniably disruptive, is also a catalyst. Every major change in history, whether it was a world war, the invention of the steam engine, or the rise of AI, created opportunities for those who could adapt and innovate. The people and societies that succeeded were those who used change to transform their circumstances drastically.

For Pakistan, particularly in the context of climate and agriculture, this mindset is critical. Things are already so bad that change is not just desirable: it is necessary. And that means much of the transformation we have been talking about here can, in fact, be driven by climate-related opportunities.

Plastics is another example. And I can almost guarantee that when we talk about agriculture in the future, we will keep coming back, again and again, to plastics, especially microplastics, and particularly single-use plastics.

Why?

Because these are among the primary pathways through which microplastics enter our systems both the water system and the food system. And those, as the evidence increasingly shows, are the two most important places where microplastics are now showing up, with serious implications for health, the environment, and agricultural sustainability

Let me end with this final point. In 2015, during my time as Vice Chancellor at LUMS, I had the privilege of leading one piece of research; my only real research during that period, as most of my time was spent writing memos. This was done in collaboration with WWF to explore what climate change might mean for agriculture in Pakistan.

We focused on Southern Punjab and Upper Sindh. In Punjab, we examined wheat and cotton; in Sindh, we looked at wheat, cotton, and rice. It was an early study, and methodologically, I believe we could improve on it today. But the results were still robust enough to be worth sharing, and they are directly tied to the three ideas I've spoken about: *'Oont'*, *'truck ki batti'*, and *'kisan dost'*,

We looked at a 25-60 year horizon for how climate change might affect yields and productivity. At that time, the models, primitive though they were, suggested an 8-10% loss in productivity for all three crops: wheat, cotton, and rice. For any farmer or any country, an 8-10% loss is not to be taken lightly.

But here's the part that I find most interesting. The second part of our study asked: what if the farmers who are currently non-adapters (still the majority in our country) adopted climate-smart practices? We identified five such practices. If implemented, wheat productivity could increase by as much as 52%, and cotton by 49%. Rice would see negligible gains, because it is so fundamentally tied to water.

Now, these gains don't happen because climate change is *'jadu'* (magic), nor because the methods are revolutionary. They happen because current practices, particularly overuse of water and chemicals, are so poor that even moderate improvements yield massive results.

And this brings me back to my central question: will we approach policy with the short-term instincts of humans, or with the long-term wisdom of camels? The camel knows water will be scarce, so it stores what it can and uses it wisely. We, too, know how to use our resources wisely but will we?

Are we going to use opportunities, whether AI, digital tools, or climate finance, simply as *truck ki batti*, following someone else's path without thinking, or will we adapt them intelligently to serve our own needs?

And finally, will we remain *'kisan dost'* in the shallow sense helping farmers because we believe they need our guidance or will we become true *'kisan dost'* in the deeper sense, recognising that we can learn from their lived wisdom, and shaping policies that empower rather than instruct?

I thank you all.



Climate Finance Architecture

Transforming Food Systems for Resilience to Climate Change in South Asia: Overcoming Financial Gaps

Dr Arjan de Haan

Let Pakistan Breathe: Sustainable Growth through Debt Relief

Mohamed Yahya

Financial Institutions as Climate Enablers in Agriculture: The HBL Model

Adnan Pasha Siddiqui, Syed Farzan Ahmed, Taimur Shad Mahmood and Yusra Ali

Carbon Border Adjustment Mechanism (CBAM): An Opportunity for Industrial Decarbonisation in Pakistan

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Moving Past the 1% Narrative on Climate Change

Dr Adil Najam

Legal Readiness for Climate Finance

Ayesha Naeem

Transforming Food Systems for Resilience to Climate Change in South Asia: Overcoming Financial Gaps*

*Dr Arjan de Haan***

Abstract

The impacts of climate change are increasingly felt in Pakistan and other South Asian countries, as elsewhere. These impacts tend to intensify the structural constraints of small-scale food producers which continue to form a large part of the continent's economy and labour force. Access to finance is a key component of the challenges small-scale food producers face, and therefore this chapter explores the potentials and shortcomings of climate finance. There is a large and growing gap between availability of and needs for climate finance. This gap is particularly large for economic activities in lower-income countries and those by smallholder farmers and other less-endowed groups. It may widen due to new financing modalities, internationally and at national levels. The chapter discusses priorities for climate finance, emphasising the need to enhance both its quantity and quality, and to scale innovations in climate action.

Introduction

This chapter examines the twin and likely escalating challenges faced by small-scale food producers in South Asia: enduring structural constraints and the intensifying impacts of climate change. Among the most pressing

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barriers is limited access to finance, a difficulty compounded by persistent shortcomings in climate finance. A critical and widening gap exists between the availability of climate finance and the needs on the ground, particularly in lower-income countries such as Pakistan and among marginalised groups, notably smallholder farmers. Emerging financing modalities risk further exacerbating this disparity. The chapter concludes by outlining key priorities for improving both the quantity and quality of climate finance, with a strong emphasis on scaling innovative approaches to climate action.

Small-scale Food Producers in South Asia: Structural Challenges

'... in Southern Asia, where 41.1 percent of the population, or 833.4 million people, faced moderate or severe food insecurity, close to half of whom were severely food insecure (387.7 million people, or 19.1 percent of the population in that subregion)' (FAO 2024: 16).

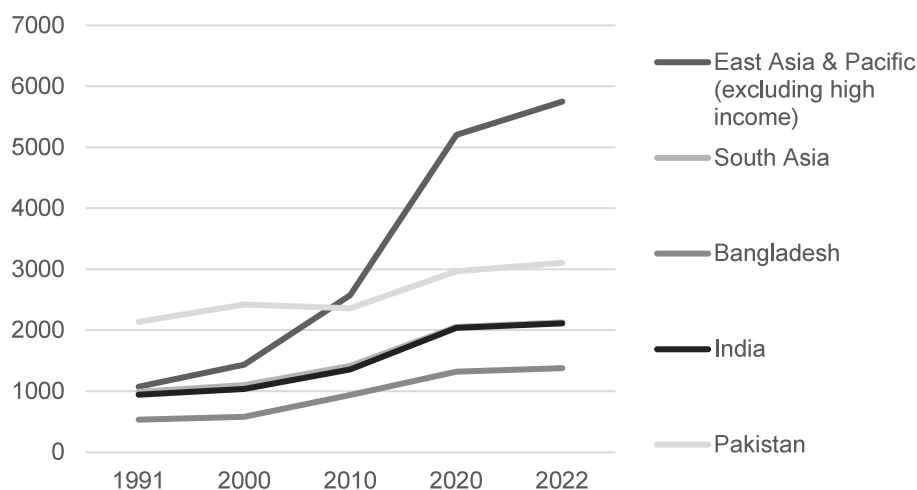
Despite significant improvements, South Asian countries continue to be marked by high levels of food insecurity. The FAO's 2024 report 'The State of Food Security and Nutrition in the World' highlights that 8% of Asia's population still faces hunger. This represents half of the world's hungry population (384 million). Within Asia, this is most severe in South Asia, where 14% of the population was undernourished in 2023, with hardly any change since 2010 when the level was 15%.¹ In Asia as elsewhere, the cost of a *healthy* diet has grown significantly over the last few years (FAO 2024: Table 6, p. 29).

These poor food security and nutrition indicators are closely linked to low productivity and production in agriculture in the region. World Bank data reproduced in Figure I shows that productivity per work increased significantly over the last two decades but fell far behind other parts of developing Asia, for example. A large proportion (40-50%) of the population continues to depend on agriculture for their livelihoods – with an overrepresentation of women in the agricultural labour force.

¹ Table A1.1 provides country-level data FAO (2024: Table 1, p. 7). In Southern Asia, levels of food insecurity are 3-4 percentage higher for women than for men (FAO 2024: Table A1.4, p.183). The region also has the world's worst indicator of wasting among children under 5 years old and low birth weight (Ibid.: Table 7, p. 35).

The region's low agricultural productivity is caused by a range of well-known factors. The sector is dominated by small farmers. While yield per acre may be high on small farms, they require more labour and other inputs to achieve that (Aragón et al., 2022). In many places out-migration increasingly reduces the availability of labour, a challenge that may be growing as the result of climate-change induced migration. Crop yields remain low because of poor extension services and limited adoption of technologies, despite their availability. Smaller farmers may be constrained to adopt and avail incentives towards 'greener' production (FAO 2022).² The sector is further hampered by unsustainable water use, partly caused by earlier Green Revolution changes, weak irrigation systems, wastage of outputs, and pressure on agricultural land caused by urbanisation.

Figure I: Value Added Per Worker in Agriculture, Forestry and Fishing (South and East Asia, 1991–2022)



Source: World Bank Group n.d.

Note: Constant 2015 USD.

² Globally, emissions from agri-food systems form about one-third of total emissions, with a declining share as emissions in other sectors have been increasing faster [FAO 2022]. In Bangladesh, agriculture is responsible for most of the country's emissions, contributing 44%, and the energy sector contributing 39% as quoted in Letsch et al. [2023].

Climate Change Compounds Food System Challenges

The direct and indirect impacts of greenhouse gas emissions are becoming increasingly evident and are expected to intensify as the world remains locked into a trajectory of ongoing climate change. While climate change is a global phenomenon, lower income countries and particularly smallholder farmers within them have contributed minimally to its causes yet bear a disproportionate share of its impacts. These climate-related challenges are often compounded by additional external shocks, including trade restrictions, rising prices of imported commodities such as oil, and increasing debt burdens (Rehman et al., 2024; Alayza et al., 2023).

South Asia is disproportionately impacted by climate change, and one of the world's most vulnerable regions due to a combination of geography, population and still high rates of poverty (despite significant declines over the last decades) (Shaw et al., 2022; Eckstein et al., 2021; WMO 2024). Bangladesh, Pakistan and Nepal, are among the ten countries most affected globally by weather-related losses. Within South Asia, impacts vary widely across socioeconomic and climate scenarios, as do institutional and financial capacity to respond to these.³

The impact of climate change is manifested in a range of interrelated aspects. Warming in South Asia has been above the global mean – while as observers note 1.5% is already too high for vulnerable areas (CLARE 2024). Snow and ice in the mountains are decreasing rapidly, impacting livelihoods of hundreds of millions. The region has seen an increase in heat waves and long hot spells, contributing to droughts, and impacting health and productivity. Patterns of precipitation have been changing: 'Over the past 2 decades, high-rainfall regions have experienced declining rainfall, while low-rainfall regions have received increased rainfall' (Jana et al., 2024). While floods and landslides are common in the region and cannot be attributed solely to climate change, exceptionally large flooding events occurred in Pakistan in 2022 and in Bangladesh and Nepal in 2024.

Adapting to the impacts of climate change, while also meeting commitments to reduce greenhouse gas emissions, are key challenges across sectors in the region. Impacts of climate change *compound the challenges* the agricultural and food sector face (FAO 2024a; Sulser 2021;

³ South Asia's spatial climate variability ranges from extremely arid in the Thar desert, to hot and semiarid, hot and humid, and cold in northeastern India, Bhutan.

Kerr et al., 2022). These impacts are, of course, diverse and may be positive for example in the more Northern parts of the region and at higher altitudes. Evidence indicates that climate change impacts – including elevated temperatures, extreme climatic events and surging sea levels – are likely to reduce crop yields, marketability of products, and may worsen food and nutrition challenges, as illustrated next.

The impacts of disasters on economic activity, including food production, are substantial. The devastating floods in Pakistan in 2022, for instance, were estimated to have caused USD 30 billion in damages and economic losses, with agriculture being the second most affected sector after housing. The sector's value added was estimated to have declined by 0.9% of GDP (MoPDSI 2022). Floods in Bangladesh in 2014 were estimated to have cost the country 1.5% of its GDP (Letsch et al., 2023).

Second, evidence shows that warming and heat stress have had a long-term impact on rice-wheat systems, reducing wheat yields and shifting maize cropping patterns, which has also affected yields (Sadiq et al., 2019). Rising temperatures can impact occurrence of crop pests and diseases (Deutsch et al., 2018).

Third, changing rainfall patterns have impacted agriculture and food systems (Behera 2024). Both shortfalls and excesses of rainfall can negatively impact food production and increase disease risks. The changes may require farmers to adapt their growing seasons and crop choices. Soil health can also be impacted by changing rain patterns and multi-year droughts.

Soil salinity can increase due to the impact of climate change, combined with unsustainable agriculture practices leading to degradation and decreased productivity. In arid and semi-arid areas, water evaporation leads to increased salinity. The percentage of saline soils in coastal Bangladesh has increased significantly over the last decades, following sea water intrusion and excessive extraction of ground water sources (Mukhopadhyay et al., 2021; World Bank 2015).

Further, inefficiencies in water use and irrigation, and reliance on water-intensive crops (e.g. sugarcane) are becoming more critical under climate change (Straatsma et al., 2020). Water availability is low in the region as compared to that of Africa, though with significant variation. It is heavily dependent on the use of groundwater, and its use has increased as a result of population and economic growth. There are significant

weaknesses in the governance of the water sector, often linked to vested interests (Srinivasan 2024).

These climate change impacts do not affect all producers equally (Hou-Jones and Sorsby 2023).⁴ Smallholder farmers tend to be more constrained to adopt new technologies, including the ones that adapt to changes in temperatures, soil, etc. Lack of education can hamper adaptive capacity (Sadiq et al., 2019)⁵ though a perception survey in Punjab, Pakistan does show awareness of the need to adapt (Rana et al., 2023). Smallholders tend to have less access to water sources, including canal irrigation. They are often less able to mitigate the impacts of disasters, flooding, and heavy rains, which can push them into debt, force the distress sale of assets, and result in migration. Finally, smallholder farmers face constraints in accessing finance, as they lack collateral and credit histories. Banks tend to consider small enterprises too risky to invest in, while procedures are too complicated, and farmers tend to lack the needed financial skills (Khan et al., 2024).

Finance: Key but Short in Supply

'Small-scale producers and the agri-MSMEs are expected to face the most severe impacts of climate change and have limited capacity to manage them... [S]mall-scale agriculture and land use change due to agriculture accounts for an estimated 5% of global greenhouse gas (GHG) emissions ... Despite their critical position in food production, emissions, and climate vulnerability, small-scale farmers and agri-MSMEs receive a meagre share of climate finance' (CPI 2023a: IV).

This quote from a recent publication by Climate Policy Initiative, sums up well the impact of climate change on small food producers. It highlights that they have difficulty accessing climate finance to introduce needed changes. As mentioned, lack of access to finance is a persistent challenge for smaller farmers. The growing needs under the impact of climate

⁴ A survey among 1,800 farmers in countries in Asia, Africa and Latin America indicated that smallholder forest and farm producers (managing 10 hectares or less of land) invest on average 20–40% of their annual income in adapting to the impact of climate change (Hou-Jones and Sorsby 2023).

⁵ Sadiq et al. (2019) developed a Farmers' Vulnerability to Climate Change Index in Pakistan to identify the most vulnerable farming zones.

change and the shortfall in finance is likely aggravating this challenge. This section briefly summarises recent trends in climate finance.

Globally, and particularly in lower-income countries, insufficient climate finance is available to address the growing impact of climate change and the need to move to greener economies. The poorest and indebted countries – often also heavily vulnerable to climate change – are least likely to be able to fund climate action. Pakistan is estimated to need USD 340 billion to fulfil its Nationally Determined Contributions (NDCs), and it received less than USD 2 billion annually over the previous decade (Climate Finance Pakistan 2024; IIED 2021).⁶ Data on climate finance, reproduced in Table I, shows relatively small flows towards Pakistan compared to many Asian countries, and smaller finance flows to South Asia as compared to Southeast Asia – though in all regions and countries the finance falls far behind needs. The quality of finance data is also not very strong in many countries (ADB 2023).

Further, more money is available for mitigation than there is for adaptation, even though the latter is no longer the ‘forgotten child’ (CPI 2024, for India; CPI 2023b; UNEP 2024; Huq 2016). In 2022, USD 28 billion was invested globally on adaptation, while the adaptation finance need is an estimated USD 215–387 billion per year⁷ (Butera 2024). According to CPI and ADB estimates, less than 10% of all climate finance in Asia funds adaptation action. The emphasis on mitigation often creates a bias against access to finance for poorer regions, marginalised groups, and farmers who are most vulnerable to climate impacts. These groups also require funding for adaptation and access to clean energy, among other needs. The availability of adaptation finance is not keeping up with the growing needs for adaptation.

In this context, the emphasis on private finance and the expectation that it will support essential climate action are significant. However, the

⁶ Climate Finance Pakistan (2024) and IIED (2021) research studies stress the triple crisis of debt, climate change and environmental degradation of low-income countries; and these same countries are also unable to invest in other development priorities. See also analysis by WRI (Alayza et al., 2023).

⁷ UNEP’s Adaptation Gap Report (2023 and 2024) moreover shows that funding tends to be reactive rather than anticipatory. The CLARE ECONOGENESIS project has been mainly responsible for generating estimates, and also included in the New Collective Quantified Goal on Climate Finance (Butera 2024).

anticipated flows of private finance have largely failed to materialise.⁸ Moreover, the shift to blended finance and the leveraging of private alongside public funding may have created new barriers to access for poorer groups and small farmers. Blended finance requires commercial returns to that investment, which makes it less likely that this funding targets the needs of poorer groups as they have less ability to repay and invest in commercially viable activities.⁹ The shift may also contribute to a focus on reactive rather than anticipatory funding, and neglect supporting capacity needed for adaptation action. Analysis from the Adaptation Gap Report (2024: XV, 55–56) indicates that private finance has the potential to cover only one-third of the estimated adaptation finance needs.

Local communities find it hard to access climate funding, despite growing commitments to locally-led adaptation. IIED estimated that during 2003–15, only 11% of the available climate funding reached local communities affected by climate change. This was caused by a range of factors including climate funds prioritising large-scale results, development banks shying away from smaller projects with higher transaction costs, co-financing requirements that hindered local ownership, and the complexity and long gestation of applications and accreditation (Soanes and Shakya 2016).

Gender disparities tend to compound these differences, a key issue in the agricultural sector as women tend to be overrepresented among smallholder farmers. Only a very small proportion of climate finance has gender equality as a principal objective (Patel et al., 2023). The modalities of providing climate finance fails to capture the specific roles and needs of women (USAID 2022).

According to CPI (2023, pp. v–vii), climate finance for small-scale agri-food systems in 2019/20 was just USD 5.5 billion, representing less than 1% of total climate finance, and 19% of climate finance to agrifood systems (CPI and IFAD 2020).¹⁰ Some 96% of the USD 5.5 billion was public finance,

⁸ Managing physical climate risks is becoming part of private sector strategies to safeguard supply chains and production facilities [CPI 2024]. However, more financing is needed to support these efforts [CPI 2023, 2024; Convergence 2023] for India.

⁹ It appears that the opportunity costs of development resources leveraging private resources are usually not assessed.

¹⁰ Only 1.7% of climate finance – a fraction of what is needed – goes to small-scale farmers in developing countries [CPI and IFAD 2020]. CPI data also suggest that South Asia is relatively underserved by climate finance for small-scale agri-food climate funds.

highlighting the challenges to mobilise private finance to support smaller producers. Available finance represents only a small fraction of estimated needs, with climate finance required for agrifood systems estimated to be seven times greater than what is currently available. The financing gap is even larger for small-scale producers.

Thus, both international and national finance falls short of the needs of small producers, including the need to adapt to growing climate change impacts, as it does for many economic activities directly relevant to poorer countries and groups. Before concluding, it is important to consider what potentials exist to invest, as the literature suggests significant innovation in 'climate resilient agriculture', as discussed in the next section.

Table I: Climate Finance for South Asian Countries (2018 & 2019 in USD Million)

	Climate Finance 2018-19 (USD Million)	Climate Finance per capita (USD)
Bangladesh	6,123	18.6
Bhutan	50	32.4
India	38,597	14.0
Maldives	28	25.9
Nepal	878	15.1
Pakistan	5,606	12.7
Sri Lanka	1,140	26.6
South Asia (excl. Pakistan)	46,816	14.7
Southeast Asia	27,846	24.2

Source: ADB 2023, Annex Table A2: 79.

Note: The publication stresses that data on climate finance is not very reliable in many countries. The smaller flows of finance to larger countries are not unique to the climate but common in development finance.

'Islands of Success' and Strategies to Scale

The challenges faced by smallholder farmers have been well recognised for some time, and considerable efforts have been made to design and pilot solutions to overcome these barriers. Although the focus on climate change impacts is relatively recent, broader experience with development interventions remains highly relevant to the issues under consideration.

Solution and technologies to the challenges of smallholder do exist. In an ICIMOD workshop, it was stressed that local solutions do exist and are being piloted – but that these tend to remain 'islands of success' (CLARE 2024). Lists of climate resilience interventions, technologies and practices are substantial, for example in seed varieties that are resilient to diverse climate stresses, crop residue management, crop diversification, micro-irrigation, and weather advisories.

Many adaptation approaches are also good for nature and can help conserve biodiversity and store carbon (Kaushik et al., 2023; Hou-Jones and Sorsby 2023; Aryal et al., 2020). In turn, this improves climate resilience, including controlling pests and erosion, increasing the number of species of crops, trees and animals, and conserving and using traditional species. Precision nutrition management can reduce greenhouse gas emissions while maintaining productivity (World Bank 2024; FAO 2021; CGIAR 2021; Naveen et al., 2024). The concept of 'climate-smart agriculture' is now widely used for approaches to promote food security alongside reducing greenhouse gas emissions and addressing climate change impacts.

While continued innovation for and solutions to changing environmental conditions remain critical, for example on how adaptation investments can simultaneously reduce greenhouse gas emissions, a key question that seems to be less researched is that of scaling: why local solutions often remain 'islands of success'. Meta-analysis of the rapidly growing literature on climate-smart agriculture identifies that a lack of understanding of the challenges hampers its widespread adoption (Zaidi et al., 2024).¹¹ Aryal et al. (2020: 5045) conclude that 'agricultural practices that help climate change adaptation in agriculture are available, while the

¹¹ Zaidi et al., [2024] alongside identifying strategies for the scaling-up, among others identified the creation of typologies at the farm level and cost-benefit analysis as key priorities.

institutional setup to implement and disseminate those technical solutions is yet to be strengthened... rather than a mere focus on agricultural technology.'

The recent Adaptation Gap Report (2024), which assesses the implementation of climate adaptation projects, highlights that in addition to stakeholder engagement and effective management, alignment with national policies and institutional strengthening are critical for success. These challenges are not unique to climate change and are common across many development interventions.

The question of scaling innovations and technologies is not new and involves various strategic components that are often interrelated (CCAFS 2021; FAO 2017; FAO and IPA 2024).¹² First, more evidence is needed on the specific conditions under which pilot interventions are effective, as well as the modifications required for them to work in different contexts. Creation of typologies at the farm level can support this, for example. Second, advisory services and information technologies are important conditions and can support scaling. Third, participation in value chains and collaboration with larger companies are key enablers for scaling innovations. Federations of smallholder farmers can play a key role. Fourth, as mentioned, alignment with national (and state, in India) policies is a key condition for success. For example, successes in Odisha in climate resilient and nutritious foods are enabled by strong government support. Scaling requires institutional capacities including the will to adopt new climate risk management strategies, climate services and weather forecasting, and 'political will' to implement new approaches. Policies for social protection and crop insurance have shown potential at national scale. Coordination across sectors including disaster responses can thus be important (Madurapperuma et al., 2021). Fifth, access to finance is critical to scale innovation. In many instances, cost-benefit analyses of new practices to provide farmers and decision-makers with information on financially feasible and sustainable approaches require further development. On the side of (climate) finance institutions, as mentioned,

¹² A FAO and IPA (2024) brief summarises experimental studies on how access to finance and services affect productivity and profitability for farmers and SME; its focus is not climate finance but its findings are likely to be relevant here. Access to finance through Village Savings and Loan Associations (VSLAs) can effectively help increase savings and allow for easy access to credit, especially for women. Agricultural insurance can protect farmers from shocks and help them manage risks. But findings are context specific.

there are significant barriers to support access by smaller farmers, as they prioritise large-scale results and avoid smaller projects, require co-financing requirements, and impose complex application procedures. Finally, much work is needed to bridge the gaps in understanding and incentives between banking institutions and development practitioners, and to create an ecosystem that optimises the use of financial resources at the local level. This will require innovation in Public-Private Partnerships (PPPs), with the government taking the lead, the private sector contributing, and a role envisioned for philanthropic capital in financing adaptation activities (CLARE 2024).

Enhancing capacities to enable organisations and groups promoting innovation to access both public and private finance is essential. This remains particularly challenging for many smaller organisations, as even climate finance preparatory facilities often struggle to provide effective support. Member-based organisations, including forest and farm producer groups, can play a vital role in supporting producers to scale up (Patel et al., 2023). They can mobilise collective action, influence policies and markets, and facilitate access to funding through mechanisms such as village savings and loan associations and credit cooperatives.

Conclusion

The impacts of climate change are increasingly evident. While adaptation is now clearly on the international and national agendas, the gaps between needs and responses are growing. Climate change affects already vulnerable regions (such as large parts of South Asia) and groups (including smaller farmers) disproportionately. These regions and groups tend to have the least capabilities to address these new challenges.

This chapter reviewed some of the literature and experts' views on the impacts on food systems in South Asia, particularly small producers. It summarised the well-known structural constraints that hamper South Asia's food systems and particularly the ability of small producers – who continue to form a substantial part of the region's economies – to enhance productivity and help address persistent poor food security and nutrition indicators. This indicates that climate change impacts are *compounding* structural challenges. These compounding effects have important implications: growing climate change impacts need (new) transformative responses, but these equally need to address (old) structural constraints.

The literature highlights that adaptation is now firmly on political agendas, the costs of inaction are increasingly evident, and vulnerabilities are becoming better understood. Technologies and solutions associated with what is termed climate-smart agriculture are already available, supported by rigorous research on effective approaches and the conditions necessary for successful implementation. These innovations appear ready for wider application. There are promising examples of progress in addressing the interconnected challenges of overcoming structural constraints, adapting to climate change, and reducing greenhouse gas emissions.

However, the challenges of addressing climate change impacts remain multifaceted. This chapter has emphasised the interrelated issues of scaling innovation and accessing climate finance. While numerous technologies and pilot projects have demonstrated success, this has not translated into scaling at the state or national levels needed to meaningfully confront the twin challenges of food security and climate resilience. Given that most adaptation action is inherently local, and that locally led adaptation is a critical principle, bridging the gap between community-based initiatives and national policy frameworks is essential.

Finance remains a major bottleneck. Both international and domestic financial systems have thus far failed to meet the escalating demands posed by climate change. The contribution of the private sector remains limited, especially in relation to the economic activities and population groups most in need of public support. Addressing the impacts of climate change on food production and nutrition will require the international community to honour its Paris Agreement finance commitments. This involves ensuring not only the delivery of promised funds but also improving access for priority activities and vulnerable groups, reducing transaction costs, and enhancing the flexibility and predictability of financial flows. National governments must also create an enabling ecosystem to mobilise domestic resources, engage financial institutions and the private sector, and strengthen the capacity of local organisations to access and utilise climate finance.

Finally, as evidence of the increasing impacts of climate change continues to mount, it is imperative to deepen understanding of these effects across regions, gender and socioeconomic groups, and individual crops in specific agroecological zones in South Asia. Evaluating the resilience of food systems at the micro level, under different climate scenarios, will be

crucial. These assessments can reveal context-specific challenges and opportunities and will form a vital foundation for proactive policymaking to build climate-resilient food systems in the face of rapidly evolving risks.

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Let Pakistan Breathe: Sustainable Growth through Debt Relief*

*Mohamed Yahya***

Thank you very much for inviting me to speak.

This presentation was inspired by a conversation I had with Dr Suleri in my office, where we were brainstorming a range of development issues, particularly those related to sustainable development. Within that context, and with his encouragement, I decided to prepare this presentation to share some basic evidence on how we can work towards achieving the Sustainable Development Goals (SDGs) over the next five years.

So, you are probably wondering why the title starts with *'Let Pakistan Breathe.'* This is not related to Lahore, but we will come back to what we mean by this.

First, let me tell you where we stand with the SDGs. This January marks five years before we are to meet the SDGs, both in Pakistan and globally.

The figures in Pakistan are not encouraging when it comes to the challenges of meeting the SDGs. I will not go into all of them, but I will give you a sense of where we stand. Very few Goals are on track or maintaining progress: most are stagnating or showing only moderate improvement, and around 17% are actually declining.

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According to both the IMF and UNDP, Pakistan needs about 16% of its GDP (roughly USD 54 billion) over the next five years to meet the SDGs. This investment would be focused on accelerating progress towards the SDGs within that period. At the same time, Pakistan has no dedicated resources to fund these goals and is facing an increasing burden of debt servicing. Each year, the proportion of the budget allocated to servicing debt continues to rise and now exceeds 50%. This alone illustrates the weight of the debt burden. The country currently borrows around USD 147 million a day to fund daily expenditure, and these figures have been ballooning over the past few years.

To give you a sense of my specific focus today, I want to turn to external debt. Internal debt is an equally important issue; one which the former Governors of the State Bank of Pakistan present here could explain in greater depth, as it is far more complex to address but my remarks will focus on external debt and where those liabilities lie.

Now, if the largest portion of Pakistan's 2024-25 budget goes to debt servicing, what remains for development on an annual basis? In this context, how do we talk about sustainable development? Where will the resources come from?

In my discussion with Dr Suleri yesterday, we considered whether under the best-case scenario projected economic growth would be sufficient to both service the debt and finance the SDGs over the next five years. The question remains: how do we finance the SDGs? Frankly, I believe there is no way to avoid confronting this challenge head-on.

From our perspective, or at least from my team's and my own, the only short-term, reliable way of financing the SDGs over the next five years is through some form of *debt standstill*.

In the immediate term, there is no other viable option, unless someone in this debate can demonstrate where the resources for the SDGs will come from over the next five years. At present, the only immediately available tool is a debt standstill.

In that context, external debt savings would amount to around USD 90 billion over the next five years. Our projections indicate that if this amount were spent effectively, we could see substantial improvements in key SDG outcomes such as education, healthcare, water, sanitation and hygiene (WASH), and energy. In addition, across the major SDGs, we would expect

progress in areas such as poverty reduction and good health, among others. I will not go into all the details, but to give you a sense: assuming the external debt standstill of USD 90 billion is utilised wisely, we foresee a significant shift and acceleration in achieving these Goals.

To give you an example: with a debt standstill, ten million people could be lifted out of poverty, more than 50 million could gain access to healthcare, and education enrolment rates could rise by 20–25%, among other transformative outcomes. Whenever we discuss sustainable development, enhancing equity, or promoting inclusion, one fact remains unavoidable: none of it is possible without adequate financing.

If a country is heavily indebted, with more than 50% of its budget devoted to servicing debt, there is very little fiscal space to meet development needs. In the immediate term, economic growth, while it may materialise in five or six years, cannot simultaneously cover both debt servicing and the investments required for development.

There is a global commitment to the SDGs and the issue is not financing alone although financing is a major part of it.

Pakistan has 26 million children out of school and about 20 million people suffering from stunting. Yes, institutional efficiency and governance structures are critical, but financing also plays a decisive role.

For us, the argument is not that financing is the only requirement. Absolutely not! But, it is an essential component. Teacher training, investments in healthcare, maternal health services, all require resources. Yet, Pakistan continues to send vast amounts of money abroad in debt servicing, even though the most urgent needs are internal.

The issue here is not that Pakistan should refuse to pay its debts or fail to meet its liabilities. Rather, the question is whether there can be a pause in debt repayments at a time when we have globally committed to achieving the SDGs. The international community has already agreed that these Goals are essential and that we must invest in them.

The international community met again in New York this September for the ‘Pact for the Future,’ where debt stress was identified as one of the key impediments to achieving development outcomes. This is an important discussion to have: not to halt progress in other areas, as Dr Ishrat rightly pointed out, but to address a fundamental question: where will the resources come from for Pakistan to meet its SDGs?

From my perspective, the most viable short-term solution is some form of debt standstill. A standstill does not mean debt forgiveness which is a separate debate the government could pursue, but it does mean creating fiscal breathing space. Forgiveness could, of course, be an option, yet the immediate and more practical approach is a temporary suspension.

We have a recent precedent. Under the Debt Service Suspension Initiative (DSSI), following the COVID-19 crisis in 2020, the international community (through the Paris Club) agreed to place a temporary standstill on eligible debts. For Pakistan, this measure, though limited to Paris Club creditors, saved approximately USD 3.68 billion during that period. This example shows that coordinated action on debt relief is possible and can free up substantial resources for urgent national priorities.

These mechanisms exist, and I believe that meeting the SDGs over the next five years will require creative solutions. Relying solely on the expectation of economic growth to generate the level of resources needed will be challenging.

I am not, in any way, discounting the importance of governance and other structural reforms. They are essential but our financing partners must urgently think this through. The international community also has a critical role to play in finding solutions to these financing gaps.

Otherwise, colleagues, we can spend as much time as we want discussing investment in green energy or progress in other sectors, but without the necessary resources flowing through government channels, it will be extremely difficult to deliver the solutions we seek. This is not an 'either-or' argument. It is an 'all of the above' approach. Financing, however, plays an undeniably critical role.

Thank you.

Financial Institutions as Climate Enablers in Agriculture: The HBL Model*

*Adnan Pasha Siddiqui, Syed Farzan Ahmed, Taimur Shad Mahmood and Yusra Ali***

Abstract

Climate change poses a significant threat to Pakistan's agricultural sector, impacting productivity, food security, and livelihoods. This chapter explores the potential of climate-smart technologies to address these challenges and promote sustainable development. It highlights the crucial role of Financial Institutions (FIs) in facilitating the transition towards climate-smart technologies. It presents HBL as a case study, showcasing its initiatives in developing a green taxonomy, financing renewable energy solutions (solar power), and promoting biofuels and electric vehicles (EVs) to enable it to transition into clean energy initiatives while ensuring long-term sustainability. These interventions aim to enhance productivity, reduce carbon emissions, and improve the livelihoods of rural communities. Using HBL as a use-case example can encourage other FIs in Pakistan to think along the same lines. It underscores the need for collective action, innovative financing mechanisms, and a commitment to

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sustainability to ensure a thriving climate-smart agricultural sector in Pakistan.

Introduction

Climate change is a clear reality with consequences that have already started emerging around the globe. In the case of Pakistan, its effects have clearly materialised in the form of rising temperatures, erratic rainfall patterns, and extreme weather events which cause serious volatility in agricultural productivity. Therefore, timely, persistent and effective actions are required in order to remedy this catastrophic threat.

Agriculture remains the second largest economic sector in Pakistan, contributing approximately 25% to the national Gross Domestic Product (GDP) and absorbing roughly 42% of the labour force, mainly composed of women (CIAT and World Bank 2017: 2). However agricultural output has experienced a decline in the past decades due to erratic rainfall patterns, increased temperatures and seasonal delays. It is crucial to shift focus on how to not only preserve the agricultural sector but also shelter it from the incapacitating effects of climate change. According to Global Change Impact Study Centre (GCISC) projections, wheat crop yield will be reduced towards the end of the current century by 3.4 to 12.5% in semi-arid irrigated areas including Faisalabad and Sheikhpura, and 3.8 to 14.5% in arid areas including Hyderabad, Badin, Bahawalpur and Multan (APP 2017). Addressing these challenges is essential to sustaining the sector's growth. The sector also holds significant potential for integrating sustainable solutions that can enhance climate resilience and reduce carbon emissions.

Climate-smart technologies are one of many such actions available today that provide a promising pathway for enhancing agricultural productivity while making agriculture resilient to the impacts of climate change. Moreover, these technologies can bring improvements in water resource management (a resource that Pakistan already has a scarcity of) and a drastic reduction in greenhouse gas emissions (the root cause of climate change-related events).

The private sector is a key stakeholder in advancing sustainable agricultural practices in Pakistan. Agriculture, which accounts for the largest share of national employment, operates almost entirely within the private domain (World Bank 2006). Realising comprehensive, private

sector-led agricultural growth necessitates strengthened linkages with modern infrastructure, adoption of appropriate technologies, and development of a robust manufacturing base. Through climate-smart interventions and innovations, the private sector can address the growing threats of climate change, enhance farmer livelihoods, and contribute to sustainable economic development. This includes generating employment, increasing productivity at reduced costs, and lowering emissions; thereby improving quality of life and strengthening climate resilience. Moreover, investments by private Financial Institutions (FIs) in sustainable and climate-smart technologies within agriculture can facilitate entry into carbon markets, enabling the generation of carbon credits and issuance of green bonds over time.

This study, therefore, explores how climate-smart technologies can address these challenges and contribute to sustainable development. It focuses on the critical role of FIs in facilitating the adoption and financing of such technologies to enhance resilience and adaptation within the sector. Using Habib Bank Limited (HBL) as a case study, the research highlights key initiatives including the development of a green taxonomy, investment in renewable energy solutions (such as solar power), and promotion of biofuels and electric vehicles. These interventions aim to increase agricultural productivity, lower carbon emissions, and improve the well-being of rural communities while demonstrating how FIs can lead the transition toward climate-smart, clean energy systems. The authors further discuss the role of government and regulatory bodies in enabling FIs to scale such interventions, and stress the importance of collaboration among public, private, and community stakeholders. Ultimately, the study argues that Pakistan's food and water security is closely linked to the performance of its agricultural sector, and that collective, innovative, and sustainability-driven action by FIs can play a transformative role in securing a climate-resilient future.

Enabling Pakistan's Green Transition: Role of Private Financial Institutions (FIs)

Financial Institutions (FIs) in Pakistan play a pivotal role in advancing the agriculture sector's transition to a green economy by channelling capital into climate-smart technologies. By financing innovative and sustainable practices, FIs (particularly banks and Development Finance Institutions

[DFIs]) can drive climate resilience and low-carbon growth. This section examines their role, with a focus on Habib Bank Limited (HBL) as a case study.

To effectively channel financial resources toward climate-smart agriculture and broader green initiatives, a structured and transparent approach is essential. One of the foundational steps in this process is the development of a clearly defined framework to assess whether an activity qualifies as environmentally sustainable. Recognising the growing need for greater private sector involvement in sustainable economic growth, the establishment of a 'Green Taxonomy' is recommended to guide financial institutions in directing investments and loans toward environmentally responsible projects (World Bank 2020).

A green taxonomy helps financial actors determine which investments can be classified as 'green' within their jurisdictions and operational contexts. Beyond this overarching function, such taxonomies can also serve a range of specific objectives: directing capital towards environmentally beneficial activities, promoting transparency and comparability in green finance, mitigating the risk of greenwashing, fostering innovation in sustainable technologies, and supporting the broader transition to a low-carbon economy (Ibid.).

While environmental sustainability remains the central aim, the taxonomy's design can be tailored to address diverse, context-specific priorities, as outlined below:

1. Define its strategic goal.
2. Specify sectors that are expected to deliver on the objectives.
3. Identify intended users and beneficiaries, their roles, and, ideally, their respective responsibilities in the implementation and use of the taxonomy.
4. Assess and select specific investments in the sectors that contribute to addressing selected environmental objectives. Whenever possible, the criterion for selection should be the expected performance of these investments in connection with national environmental targets.
5. Select environmental objectives relevant to the country's sustainable development priorities and agenda.

6. Outline reporting guidelines for market actors applying the taxonomy components (World Bank 2020).

As green taxonomies provide the necessary framework to link financial flows with environmentally sustainable goals, their successful implementation depends heavily on the engagement of the wider banking sector. While HBL serves as a leading example in this transition, the broader banking industry in Pakistan has an equally critical role to play in operationalising and scaling these frameworks. With a broad array of tools such as blended finance and equity-based financing, FIs can play a pivotal role in financing the adoption of renewable energy solutions such as solar power for meeting farming electricity needs (for irrigation, lighting and ventilation), and promoting efficient agriculture practices via financing advanced agri-technologies such as tunnel farming, centre-pivot irrigation and mechanised farm equipment. By providing loans and financial support to farmers and agribusiness, banks and DFIs can help bridge the gap between traditional farming practices and modern, sustainable technologies. Building on the case of HBL, the following section expands the analysis to explore how other banks in Pakistan can adopt similar strategies to support sustainable agriculture and advance climate resilience across the sector.

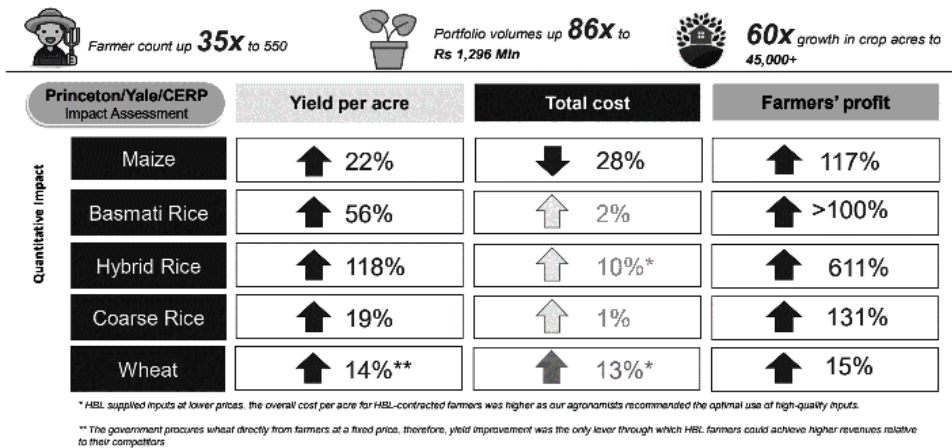
Transitioning towards Green Taxonomy and Clean Energy: A Case Study of HBL

For HBL, the development of a green taxonomy has facilitated defining clear investment strategies and goals while also proving instrumental for further lending and financing of climate-smart sustainable products. This can serve as a valuable blueprint for other FIs to be able to draw up their own green taxonomy, relevant to the context of Pakistan.

The outstanding agriculture credit recorded an encouraging growth of over 10% and reached PKR 691 billion by end-June 2022 (SBP 2022). Despite this growth, Pakistan lags behind most comparable economies in providing credit to the agricultural sector mainly due to a lack of awareness of farmers, lack of collateral, high interest rates and inadequate credit history. HBL is helping to transform the agricultural landscape of Pakistan by acting as a direct touchpoint for farmers and vendors to create an end-to-end efficient agri-value chain which benefits all stakeholders in the process. It has partnered with diverse agricultural

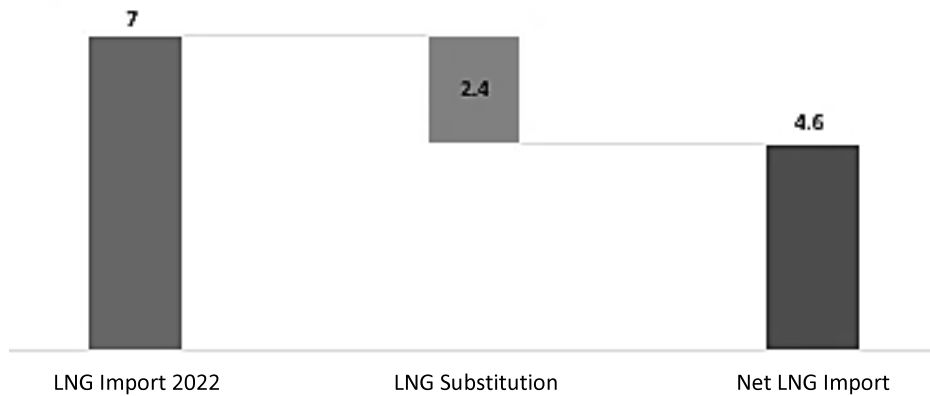
inputs and service providers at various levels of the value chain to maximise benefits for farmers, increasing their productivity, access to inputs and advisory services, and improving crop yields (Figure I). HBL facilitates farmers at various stages of crop production, from sowing and growing to harvesting and selling these crops, modifying the conventional value chain, and reducing it significantly so that they have increased autonomy over the process.

Figure I: Agricultural Productivity Enhancements



Source: CERP, Princeton and HBL 2021 and 2022 a&b.

The initiative to finance solar energy solutions involves setting up solar energy solutions, in the form of localised farm-level units and through distributed mini-grids, at the *chak* (village) level to improve farm output productivity, home use, and support agri-processors in the value chain. This will result in increased productivity at a lower cost, and reduce the dependence on unreliable DISCOs (Distribution Companies), benefitting people at a community level while also reducing the electricity consumption-related greenhouse emissions impact of the agriculture sector. HBL's solar energy disbursement to farmers now stands at PKR 4 billion since its inception in 2021. This has evidently improved farm irrigation and increased outputs for farmers. Many farmers and small-scale agriculture participants are now also interested in adopting solar energy for their domestic usage. HBL has curated a pool of pre-qualified vendors to ensure the provision of reliable and high-standard services to its clients.

Figure II: LNG Import Savings (Metric Tonnes Per Annum)

Source: IGU 2022.

HBL is also venturing into the conversion of various types of organic wastes into biofuels (both biodiesel/sustainable jet fuel and biogas) with the goal of substituting conventional fossil fuels (the bulk of which are imported into the country and cost the national exchequer a significant sum of foreign exchange) and alleviating a substantial proportion of liquefied natural gas (LNG) imports (Figure II). HBL is also designing pilots around Electric Vehicles (EVs) primarily for the rural sector with the aim of rural economic uplift. By financing EV and hybrid bikes/rickshaws, HBL plans on reducing the carbon footprint of rural transportation while providing affordable and sustainable mobility options for farmers and processors. These initiatives not only contribute to environmental sustainability but also create economic opportunities for rural communities. Figure III shows a sample calculation of the economic savings associated with a transition from regular, fossil-fuel driven two-wheelers to electric two-wheelers. This makes for a quite compelling case for such a transition in addition to the innovative financing mechanisms involved in making these products affordable for the rural sector.

Figure III: Fuel Bike versus EV Bike Costs

	Average Bike (CD-70)	Average EV Bike
Purchasing Cost (CAPEX)	157,000	258,000
Maintenance	4,700	1,500
Refueling/Recharging	9,600*	859**
Total OPEX	14,300	2,359

Source: HBL DFG 2024.

The scope of HBL's work as a DFI through the pilot of the aforementioned clean energy and clean transportation initiatives can be seen as a blueprint for FIs across Pakistan to design, innovate and test new financing mechanism for the ambitious transition of the country as a whole towards a greener, more sustainable future. These pilots can create multi-fold benefits for the social and economic uplift of the country while ensuring climate conservation.

Lessons for the Banking Sector

Lessons from HBL's initiatives can be applied to the broader banking sector in Pakistan. Other FIs can adopt similar strategies to promote sustainable agriculture and climate resilience. For example, banks can:

- a. **Develop Green Taxonomies:** Like HBL, other banks can develop their own green taxonomies to guide investments towards environmentally friendly projects. Doing so will help ensure the direction of financial resources towards activities that contribute to sustainable development.
- b. **Utilise Innovative Financing Mechanisms for Renewable Energy Solutions:** Banks and DFIs can utilise innovative financing mechanisms such as equity-based financing to setup renewable energy projects, such as solar power, to reduce dependence on fossil fuels and promote clean energy.
- c. **Promote Climate-Smart Agricultural Practices:** FIs can provide advisory services to farmers via dedicated teams of agronomists to adopt climate-smart agricultural practices, such as efficient

irrigation systems and sustainable crop management techniques. Services such as these could serve as valuable add-ons to the loans already provided to the farmers.

- d. **Support Carbon Credit Markets:** Banks can play a role in facilitating the development of carbon credit markets in Pakistan, allowing farmers and businesses to generate additional revenue streams through carbon offset projects.

Policy Incentives for Development Finance Institutions (DFIs) to Support Climate-Smart Technologies

Economic Benefits

These include job creation through solarisation, biofuel and EV/hybrid mobility projects that can generate employment opportunities in various sectors of the economy, enabling individuals to acquire long-term skills and expertise in renewable and sustainable energy solutions. Increased productivity can further employ more labour force in the agricultural sector and provide greater productivity gains to higher farm and Small and Medium Enterprises (SME) valuations. These pilots can also ensure cost reduction on electricity expenses for businesses and households, reduce cost of transport and operations by decreasing dependence on fuels, and reduce energy costs for businesses, leading to increased profitability and savings. While encouraging increased productivity through solar, EV and biofuel products. Activities powered through these initiatives can lead to enhanced efficiency of production and output in rural areas.

Environmental Benefits

These benefits include the reduction of carbon emissions through the adoption of sustainable technologies that serve as clean and renewable energy sources. By decreasing reliance on fossil fuels, these initiatives contribute to lower greenhouse gas emissions. The integration of alternative energy sources into agricultural processing units supports more sustainable practices across energy use, agricultural inputs, and transportation.

By harnessing solar power, farms and homes can achieve energy independence, reducing reliance on fossil fuels and mitigating greenhouse

gas emissions. A transition towards solar energy carries with itself significant financial benefits in the form of substantial electricity cost savings in addition to a lower level of reliance on grid electricity which at times, can be unreliable. When solar power is used in conjunction with post-harvest agri-processing units, the result is a substantial decrease in post-harvest losses (a major challenge in many agricultural regions) and a sizeable reduction in the costs associated with processing leading to better margins for the processors and a more price-friendly end product. Post-harvest losses can occur due to inefficient storage systems, causing a substantial chunk of the stored crop to decay and go to waste before it reaches the end consumer. Financial losses resulting from such waste are primarily incurred by the producer themselves, i.e., the farmer. Such losses are estimated to be between 30-50% in the case of developing countries which is mostly due to an energy crisis, a lack of proper handling procedures and refrigeration issues (Firdous 2021). These losses inadvertently become a contributing cause to declining food security; an issue which Pakistan is already grappling with.

Solarised grocery stores or 'Kiryana stores' can serve as a beacon of sustainable development in the rural economy. These grocery stores have meaningful footfall hence the solarisation of these locations serves to encourage local households in adopting similar setups leading to increased solarisation of the entire village and an overall reduction in grid electricity reliance. Furthermore, the prospect of financially affordable solar power generation systems allows for grocery stores to open up in areas where there may be a lack of grid electricity and it is here that the provision of essential goods and services to the local community stimulates economic activity and eliminates the need for residents to travel longer distances to meet their household needs

Collectively, these efforts can play a significant role in climate change mitigation by replacing fossil fuels with cleaner alternatives, thereby helping to reduce the frequency and severity of climate-related impacts such as droughts and extreme weather events.

Health and Livelihood Benefits

Pilot initiatives promoting EVs and environmentally sustainable biofuels have the potential to improve public health and livelihoods. Fossil fuel-based activities are known to pose serious risks to human well-being, particularly through air pollution and environmental degradation.

Transitioning to cleaner energy alternatives can reduce these risks, especially for rural populations, by lowering exposure to harmful emissions and contributing to a healthier, more sustainable living environment.

Carbon Market Benefits

This can lead to private sector FIs making the most of climate-related benefits through the creation of Carbon Offset Credits. There is ample potential for generating carbon credits through these pilot projects and utilising them to finance climate action initiatives and generation of additional revenue streams for businesses. Additionally, the issuance of green bonds to finance clean or renewable energy-linked initiatives and rural economic uplift projects is attracting both domestic and international investors. Sustainable and climate-smart technologies can promote impact investing as a strategy to attract private capital towards sustainable and socially responsible projects. FIs can also explore financial instruments and risk mitigation tools like insurance and guarantees to mitigate the risks associated with renewable energy investments, particularly in the rural segment. This can boost local and foreign investments in climate-smart technologies for Pakistan while mitigating the commercial and non-commercial risks associated with investing in the rural uplift of developing countries.

It is worth recognising that interventions and pilots of such an innovative nature cannot be driven in isolation. For a developing economy such as Pakistan, there are nuances to the implementation and scale up of such initiatives which require across the board collaboration with local government and political entities which in and of itself is a separate challenge altogether. What may be useful perhaps is to identify use-case examples from other similar economies and to tune them according to the local geopolitical and socioeconomic context in order to formulate a better execution plan rather than opting to 're-invent the wheel'.

Areas for Future Research and Discourse

There are numerous areas that still require critical attention in order to allow for nationwide action with greater momentum towards the successful integration of climate-smart technologies in Pakistan's agri-sector. Only then will this vital component of the economy be meaningfully able to transition towards a greener, more sustainable future:

- a. **Policy Framework and Regulatory Support:** The need of the hour is a comprehensive policy framework which lays down a structure for across-the-board green financing activities integrated with climate-smart agriculture at its core. This involves regulatory incentives to encourage FIs to lend to the rural sector as well as setting mandatory green financing targets specifically for climate smart technologies (not meeting which would imply serious financial penalties).
- b. **Capacity Building and Awareness:** The rural agricultural community needs greater awareness regarding the impending threats posed by ongoing climate change and how a shift towards sustainable agriculture and climate-smart agricultural technologies would pave the way towards a more sustainable future and prevent the materialisation of climate-change induced threats.
- c. **Access to Finance:** The bulk of agricultural landholding in Pakistan belongs to smallholder farmers who unfortunately are unable to access conventional finance due to a myriad of reasons, of which lack of proper collateral and credit history are the primary ones. As such, novel financing mechanisms are needed to circumvent these barriers. These mechanisms include equity-based financing and blended financing to reduce or in some cases, completely eliminate the requirement for physical collateral thereby opening up this vast and as of yet, untapped bankable audience within Pakistan.
- d. **Technology Transfer and Innovation:** There is a need for greater collaboration between research institutions, technology providers, and FIs to facilitate the transfer of innovative technologies to the agricultural sector.
- e. **Monitoring and Evaluation:** Establishing robust monitoring and evaluation mechanisms is essential to assess the impact of climate-smart technologies and ensure that they are delivering the desired outcomes.

Critical Areas for Multi-Stakeholder Engagement

To encourage potential lending and investment transactions, it is essential to contextualise and conduct due diligence on existing policy and regulatory frameworks that guide financial decision-making. FIs must consider a range of macro- and microeconomic factors when evaluating such opportunities. Investing in a developing country like Pakistan inherently involves certain risks, which must be carefully assessed to ensure informed and sustainable financial engagement. From the perspective of an FI as a lender, evaluating a potential lending or investment opportunity requires a comprehensive assessment of the financial and regulatory environment, alongside the borrower's institutional readiness and the broader macroeconomic credit infrastructure. This assessment entails a detailed examination of critical factors such as insolvency risks, the quality and transparency of accounting practices, and compliance with relevant regulatory frameworks.

Key diagnostic questions include:

- a. Has there been harmonisation of budget classifications and accounting standards across federal, provincial, and municipal levels of government?
- b. Is there a clear and credible pathway for transitioning to accrual-based accounting?

The impact of joint ventures or Public-Private Partnership (PPP) obligations must also be carefully evaluated, as these can affect a borrower's financial picture. Moreover, assurances in the form of government guarantees and risk sharing initiatives can substantially enhance financing programmes aimed towards undocumented borrowers such as those in the rural sector. Measures of this nature provide surety and security to FIs and encourage these institutions in expanding aggressively into the largely untapped rural sector as the lending risks associated with this sector are mitigated.

Conclusion

The integration of climate-smart technologies and sustainable practices throughout Pakistan's agricultural sector is critical in the pursuit of

enhancing productivity and ensuring food security while also tackling the escalating threats posed by climate change. The role of FIs is pivotal in enabling such a transition and with the right government and regulatory support, this challenge is surmountable. Targeted investments in renewable energy solutions — such as solar power and electric mobility tailored for rural communities — along with the promotion of efficient agricultural practices through dedicated agronomy teams, can pave the way for a sustainable, greener future for agriculture in Pakistan. Through fostering collaboration between stakeholders which include the government, regulators, FIs and local rural communities, a more robust framework for sustainable agricultural financing can be developed in line with both national and international climate goals.

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Carbon Border Adjustment Mechanism (CBAM): An Opportunity for Industrial Decarbonisation in Pakistan*

Arfa Ijaz and Ayesha Naeem**

Abstract

Due to its heavy reliance on fossil fuels, Pakistan's industrial sector faces significant challenges, especially in the backdrop of sustainability being mainstreamed in the development agenda. With increasing export compliances and reporting mechanisms, industrial decarbonisation for the country is not just an environmental but has also become an economic consideration. With key industries, particularly the hard-to-abate sectors contributing heavily to carbon emissions, there is a need and substantial potential for progress through adoption of clean energy and decarbonisation strategies. Given this challenge, this chapter uses a mixed method approach to analyse the integration of international trade frameworks, particularly the European Union's Carbon Border Adjustment Mechanism (CBAM) in incentivising emission reductions and facilitating transition to low-carbon technologies. Based on the qualitative analysis of Pakistan's industrial sector, the critical levers to address these challenges include emission accounting, enhancing energy efficiency, energy market reforms particularly transition to renewable energy sources, use of alternate materials, stringent environmental regulations,

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and implementing carbon capture technologies. However, decarbonisation and energy transition entail significant costs due to high technology prices, outdated infrastructure particularly in the informal sector and rising energy expenses. Addressing these challenges requires comprehensive solutions that combine financial incentives, regulatory support, and the development of a green financial framework. CBAM's role in this transformation cannot be understated, offering both market access and a compelling reason for industries to accelerate their decarbonisation efforts.

Introduction

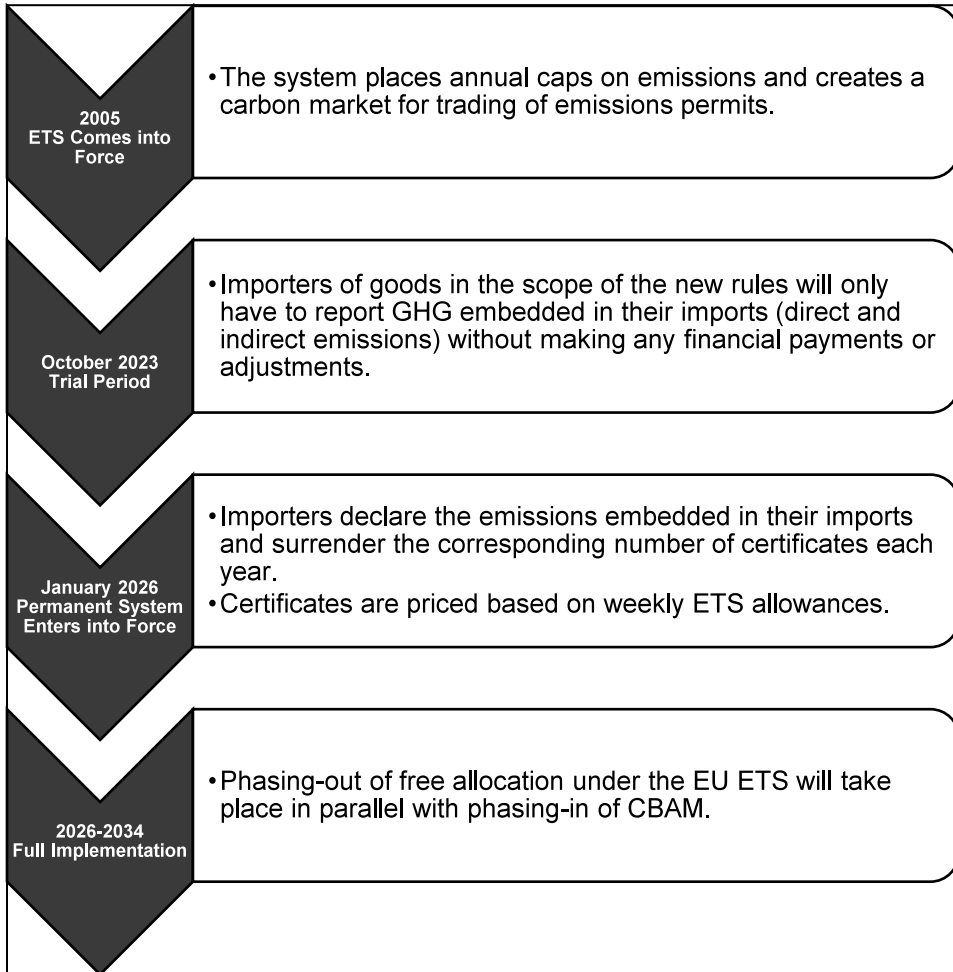
Despite numerous commitments and actions taken by governments to address the drivers of global warming, emissions from energy and industry have grown by 60% since the United Nations Framework Convention on Climate Change (UNFCCC) was signed in 1992. Global greenhouse gas (GHG) emissions grew by 51% from 1990 to 2021 (Ge et al., 2024). Global energy-related CO₂ emissions rose by 1.1% in 2023, increasing by 410 million tonnes (Mt) to reach a record 37.4 billion tonnes (Gt) (IEA 2024). In 2022, emissions from energy combustion and industrial processes accounted for 89% of energy-related GHG emissions (IEA 2023). This significant proportion highlights the critical role that industrial sectors play in global emissions. To achieve net zero emissions by 2050, as outlined in the Paris Agreement, annual clean energy investment worldwide will need to more than triple by 2030 to around USD 4 trillion. Here lies the opportunity for the world's industrial sectors to rapidly transition towards the adoption of clean energy and sustainable practices. Failure to implement this transformation will escalate climate impacts and lead to major disruptions in industries and economies worldwide. Hence, the need for decisive action is clear.

CBAM and the Future of Global Trade

In May 2023, a key milestone was reached with the announcement of legal regulations for the reform of the European Union Emissions Trading System (EU ETS) and introduction of the EU Carbon Border Adjustment Mechanism (CBAM). Part of the EU's 'Fit for 55' legislative package, which was initially announced in July 2021, the new CBAM and ETS reforms are seen as pivotal measures to help Europe achieve a 55% reduction in emissions by 2030, relative to 1990 levels. These targets are outlined in the

European Climate Law and form a key component of the broader European Green Deal strategy aimed at achieving climate neutrality by 2050.

Figure I: EU CBAM Timeline



Source: European Commission 2025a.

The application of CBAM began in October of 2023, with a three-year transition period, during which EU importers of carbon-intensive goods were required to submit quarterly emissions reports to the European Commission. In 2026, following the conclusion of the transition phase, tariffs will be gradually introduced, with full implementation expected by

2034. Initially, CBAM will apply to cement, iron, steel, aluminium, fertilizers, electricity, and hydrogen, though its scope is anticipated to expand to include all products covered by the EU ETS. The mechanism aims to support decarbonisation of European industries while addressing the issue of carbon leakage, where businesses relocate production to countries with weaker climate regulations to avoid higher carbon costs. By levelling the playing field, CBAM ensures that the EU can continue its decarbonisation efforts without losing competitive advantage (Oropeza 2023; EY Global 2023). On the flip side, modelling suggests that the EU CBAM could cost developing countries USD 10.2 billion, with some countries, like Zimbabwe and India, most exposed (Zero Carbon Analytics 2024).

Additionally, the EU's Competitiveness Compass, set to take effect in 2025, is designed to further reinforce Europe's industrial competitiveness, innovation, and sustainability, aligning directly with the objectives of CBAM. While CBAM addresses carbon leakage and ensures that imports face similar carbon cost burdens as domestic production, the Competitiveness Compass complements this framework by promoting the adoption of low-carbon technologies and sustainable practices within European industries. This, in turn, facilitates adaptation of EU industries to carbon pricing mechanisms and mitigates potential impacts on competitiveness (European Commission 2025b). For trade-exposed sectors in countries like Pakistan, particularly textiles, cement, and steel, CBAM could result in higher export costs due to carbon adjustments, prompting these sectors to adopt greener production methods to remain competitive. The Competitiveness Compass and CBAM are integral to the EU's broader strategy of achieving climate goals while maintaining industrial competitiveness, influencing both European industries and global trade dynamics, including the impact on countries such as Pakistan.

Pakistan's Industrial Landscape

The industrial sector is the backbone of a modern economy and provides the energy and materials that are essential for rapid growth. In Pakistan, the industrial sector is crucial for economic growth, with a 1.21% growth rate in FY 2024 (MoF 2024) and a contribution of 20.76% to GDP in 2023 (Trading Economics 2023). However, as the country shifts towards an industry-driven economy, its energy consumption and carbon emissions are rising, given that over 98% of its energy comes from polluting sources.

In 2023, fossil fuel consumption and industrial activities in Pakistan generated approximately 200 million metric tonnes of CO₂ (MtCO₂) emissions. Since 1990, fossil CO₂ emissions in the country have increased by more than threefold (Tiseo 2024). As global pressure to address climate change grows, Pakistan faces the challenge of reducing industrial emissions while maintaining economic competitiveness. In its revised Nationally Determined Contributions (NDCs) submitted in 2021, Pakistan set an unconditional emissions reduction target of 15% and a conditional target of 35% by 2030, relative to the 2015 baseline (MoCC 2021). Pakistan's industries often operate with higher carbon intensities than their EU counterparts due to outdated technologies, energy inefficiencies, and reliance on coal and other fossil fuels. The implementation of CBAM could have profound implications for its industrial exports. At the same time, the challenge presents an opportunity for Pakistan to transition towards more sustainable industrial practices and improving its competitiveness in the global market by 2030.

Objectives and Methodology of the Study

With CBAM on the horizon, Pakistan's industrial sector faces both a challenge and an opportunity to decarbonise its processes. This study employs a mixed-methods approach to examine the evolving dynamics. The secondary data is obtained from academic research, industry reports, government publications, and relevant news sources. The analysis also incorporates insights from industry experts and statistical data from 2023 and 2024 reports on Pakistan's industrial emissions, trade statistics, and global market trends. It examines the challenges faced by Pakistan's industries in light of CBAM and identifies potential growth areas for green investments, technological innovation, and carbon reduction in key industrial sectors. Secondly, it synthesises insights from consultative discussions, Key Informant Interviews (KIs), particularly a policy dialogue on *'CBAM as an Opportunity for Industrial Decarbonisation in Pakistan'* organised by Sustainable Development Policy Institute (SDPI) and Pak-German Climate and Energy Partnership (PGCEP) at the 27th Sustainable Development Conference (SDC) in November 2024.

Based on the scope and approach defined above, this study aimed to address the following key objectives:

- Assess the potential impact of CBAM on Pakistan's carbon-intensive industries, particularly in terms of export competitiveness and costs.
- Explore opportunities for Pakistan to leverage CBAM to drive innovation in green technologies and energy efficiency in its industrial sectors.
- Analyse the potential for Pakistan to generate revenue through carbon credit trading and attract foreign investment in green technologies, aligning with global sustainability trends.

CBAM and Pakistan's Path to Industrial Competitiveness

Challenges of CBAM Implementation for Pakistan's Industry

The EU, which serves as Pakistan's second most important trading partner, accounting for 15.3% of Pakistan's total trade in 2023 (European Commission 2023), continues to implement renewable energy standards as a trade barrier. Pakistan's immediate concern lies in ensuring the competitiveness of its businesses on the global stage. While only 1.23% of Pakistan's exports are presently exposed to CBAM, the potential inclusion of textiles—an essential sector for Pakistan's export economy—necessitates implementation of proactive strategic policies to sustain competitiveness in the European market (Hanif 2024). Initially targeting six key sectors: cement, aluminium, hydrogen, iron and steel, fertilizer, and electricity, CBAM will eventually extend to all industries, including textiles, which make up the largest share of Pakistan's exports (Khan 2024a). The World Bank's *CBAM Exposure Index* indicates that Pakistan faces moderate but significant exposure, particularly when compared to major exporters like India and China (World Bank 2023). With this mechanism's carbon pricing, industries may incur additional costs to comply with EU standards, either through direct carbon taxes or the need to invest in cleaner technologies. These added costs could reduce Pakistan's export competitiveness in the EU market and undermine the profitability of these sectors, which are essential to the country's economy.

While CBAM presents an opportunity for Pakistan to align its industrial sector with global decarbonisation efforts, its implementation poses

several challenges that must be addressed to ensure trade competitiveness and economic stability:

- **Pakistan's Textile Supply Chain:** Implementing the CBAM in Pakistan's industrial sector, particularly textiles, presents significant hurdles. While this approach currently prioritises industries like fertilizers, cement, metals, and hydrogen, the textile sector is indirectly impacted as it prepares for future compliance. The key challenge lies in establishing a robust carbon accounting mechanism for the entire textile supply chain, which typically comprises five tiers, ranging from manufacturers to farm-level producers. Without full visibility and accurate measurement of carbon footprints across all tiers, it becomes infeasible to calculate product-associated emissions.
- **Carbon Accounting and Verification Gaps:** The complexity of integrating carbon accounting systems, especially for tier-one manufacturers, is compounded by the need for transparency, authenticity, and third-party verification. While some companies, like Interloop, have adopted science-based targets, the lack of a standardised and verified framework for carbon credit transfer within the supply chain remains a barrier. These challenges make it difficult for Pakistan's textile sector to meet CBAM requirements, which could impact global competitiveness and market access.
- **Exports in the Steel Sector:** Pakistan currently does not export steel or metals like aluminium due to stiff competition from the economies of scale in India and China. While China produces around 1 billion tonnes of steel annually (Reuters 2024) — more than the rest of the world combined — India's steel industry has grown its capacity from 142.3 million tonnes per annum in 2019–20 to 179.5 million tonnes in 2023–24 (Press Information Bureau 2024). In comparison, Pakistan produces only 9 to 10 million tonnes of steel per year (PALSP n.d.). This stark disparity in production levels, coupled with cost efficiency in primary steelmaking in these countries, renders Pakistan's steel industry uncompetitive in global markets.
- **Reliance on Fossil Fuels:** The steel sector in Pakistan relies primarily on scrap steelmaking, which has a lower carbon footprint than primary steelmaking. However, the sector's energy

mix is still heavily reliant on fossil fuels, making decarbonisation a challenge. To remain competitive under the CBAM framework, an estimated 70–80% shift to renewable energy in the energy mix is required which is a major infrastructural and financial hurdle.

- **High Electricity Tariff:** Another challenge facing Pakistan's industrial sector is high electricity tariff. The introduction of CBAM would further exacerbate this issue by adding additional costs, such as carbon fees, to industries already struggling with high energy costs. Pakistan's National Grid is 1.4 times more carbon-intensive than the EU's grid, as highlighted by the World Bank's CBAM Exposure Index (World Bank 2023). This means that an exported commodity could incur an additional €40 in costs after this mechanism is applied. Such an increase would reduce export competitiveness, discouraging industries from participating in the National Grid. As a result, the goal of increasing industrial demand for the grid could be undermined, and industries may opt for captive power solutions instead, further entrenching the challenges in Pakistan's power sector.
- **CBAM Tax on Primary Steelmaking:** With CBAM introducing taxes of approximately USD 50–75 per tonne for primary steelmaking, global trade patterns in steel are expected to shift (Belletti et al., 2023). While this presents an opportunity for Pakistan's scrap steel producers, the absence of renewable energy integration means Pakistani steel remains vulnerable to Scope 2 emissions penalties.
- **Policy and Financial Support:** The absence of a clear policy framework or financial incentives to promote decarbonisation in the steel industry limits its ability to leverage CBAM as an opportunity. Without targeted subsidies or access to climate finance, the industry faces challenges in adopting renewable energy solutions or enhancing efficiency to meet its requirements.
- **Awareness and Preparedness:** Many industries in Pakistan lack an understanding of CBAM, including carbon accounting, net zero targets, and compliance mechanisms. The complexity of the accounting process and limited education on sustainable practices leave key sectors underprepared for its partial implementation in 2026 and full-scale enforcement by 2030. This knowledge gap prevents industries from adopting best practices in sustainability

and carbon footprint reduction, limiting their ability to compete in the global marketplace.

- **Non-Mandatory Sustainable Reporting:** While the Securities and Exchange Commission of Pakistan (SECP) has issued guidelines on sustainable reporting, these are currently optional. This lack of mandatory reporting hampers the ability of industries to align with international standards and prepare for CBAM compliance.
- **Sectoral Vulnerability:** Although CBAM initially targets nine industries (primarily steel, cement, and fertilizers), Pakistan's exports, particularly in textiles and rice, are expected to face future exposure. Textiles alone account for approximately 60% of Pakistan's total exports, making it the eighth largest textile exporter in Asia (Bol n.d.). Additionally, rice exports crossed the five million tonne mark in ten months (July–April FY24), earning USD 3.4 billion, positioning Pakistan as the fourth-largest rice exporter (Mahmood 2024; Hussain 2024). However, limited preparedness in these sectors, especially in carbon accounting and sustainable supply chain practices, poses a risk to their global competitiveness under this framework.
- **Technological Gaps and Lag in Adoption:** Pakistan has yet to initiate CBAM-related measurement processes, unlike other countries that have begun aligning their industries with EU regulations. This delay in adopting advanced technology and sustainability practices places the country at a competitive disadvantage.
- **Expertise and Resources:** Pakistan's export-oriented sectors, particularly textiles and rice, also face problems due to lack of standardised carbon accounting systems, inadequate emission tracking infrastructure, and limited access to international expertise in carbon management and climate policy, resulting in insufficient capacity to measure and reduce carbon emissions.
- **Compliance Gaps in Supply Chains:** While larger industries may have streamlined operations, their supply chains often include smaller, less-equipped entities that struggle to meet compliance standards. This creates risks, including penalties, exclusion from international markets, and reputational damage through practices like 'naming and shaming.' Pakistan's SMEs and informal sectors, in particular, face challenges due to a lack of financial resources,

technology, and expertise needed to meet CBAM and other global regulations. The fragmented nature of the supply chain, spanning from tier-one manufacturers to smaller informal units, further complicates efforts to ensure compliance across all levels.

Opportunities for Decarbonisation and Trade Competitiveness

Revenue Generation through Carbon Markets

While CBAM introduces higher costs, a 'stick' factor, it also offers an avenue for revenue generation for Pakistan. If the country succeeds in reducing its industrial carbon footprint and complies with EU environmental standards, it could access carbon credits or participate in carbon trading mechanisms. This would allow industries to generate revenue by selling surplus credits in carbon markets, serving a 'carrot' factor. Pakistan can potentially leverage anywhere between USD 2 billion and USD 5 billion from carbon markets by 2030 if it properly manages and develops the nascent market, creates a conducive regulatory and policy framework to ensure benefits reach communities affected by the impacts of climate change (UNEP Copenhagen Climate Centre 2024). This shift could further enhance the country's export profile creating a potential income stream for the country.

Technological Innovation and Investment Opportunities

Global green technology investments reached USD 1.77 trillion in 2023, a 17% rise from 2022 (Relander 2024). Pakistan could benefit from these trends by adopting cutting-edge technologies in energy-intensive industries, attracting Foreign Direct Investment (FDI). Investors are increasingly prioritising countries with clear policies on decarbonisation. CBAM will likely incentivise industries in Pakistan to adopt cleaner, more energy-efficient technologies. The requirement to reduce carbon emissions to meet EU standards could spur innovation within Pakistan's industrial sector, driving investments in renewable energy, use of alternate material, carbon capture and storage (CCS), and energy efficiency measures. The transition to greener technologies would help Pakistan improve the long-term sustainability and competitiveness of its industries.

Significance of Pakistan's Industrial Decarbonisation

In 2023, the global decarbonisation rate stood at just 1.02%, highlighting that the world must accelerate its efforts twenty-fold to limit warming to

1.5°C above pre-industrial levels. Even to achieve the Paris Agreement's lower target of limiting warming to 2°C, an urgent shift is needed, with an annual decarbonisation rate of 6.9% (PwC 2024). Industrial decarbonisation can accelerate the clean energy transition, ensuring long-term economic growth. For Pakistan, the significance of CBAM lies in its potential to drive industrial transformation by providing economic incentives for carbon reduction. Approaching this initiative with a positive outlook will encourage Pakistan's industries to adopt cleaner technologies and reduce carbon emissions in order to maintain market access in the EU (Khan 2024b). Furthermore, decarbonisation serves to attract international investment in clean technologies, promoting innovation and supporting economic growth (Majid 2024).

Policy Actions for CBAM Compliance

According to the European Commission, Pakistani exports to the EU are dominated by textiles and clothing, accounting for 73.2% of Pakistan's total exports to the region in 2023. With exports amounting to €5.5 billion in 2020, the EU was Pakistan's largest export destination (PBC 2021). Pakistani industries could face additional tariffs if they fail to reduce their carbon emissions. Cement, textiles, and steel contribute a substantial portion to exports, making them vulnerable to the CBAM's carbon pricing affecting their competitiveness in EU markets. Given its severe implications for Pakistan's export competitiveness, this transition is not just about adapting to new trade requirements but about aligning its industrial practices with global decarbonisation trends. While the implications of this mechanism on export costs and competitiveness have been highlighted, it is equally important to recognise the systemic transformations that this policy demands from developing economies like Pakistan. The country's public and private sector must work together to implement the following policy measures:

- There should be a concerted effort to *enhance industry awareness and technical capacity* to meet global sustainability standards, similar to initiatives like Germany's Development Corporation, which has partnered with over 100 textile factories to align their production practices with international environmental standards. Expanding such partnerships with organisations like the Overseas Investors Chamber of Commerce and Industry (OICCI), United Nations Development Programme (UNDP) and others to educate

stakeholders on carbon accounting, net zero goals, and compliance mechanisms will help accelerate adoption of low-carbon practices across Pakistan's industrial sectors.

- There is need to *strengthen institutional frameworks*, such as the Responsible Business Help Desk, to support industries in reducing emissions and adopting sustainable practices. This help desk, launched in partnership with Germany and the Federation of Pakistan Chambers of Commerce and Industry, can serve as a model to support large-, medium-, and small enterprises.
- The government should design a *Domestic Carbon Pricing Mechanism* that reflects Pakistan's unique industrial context, setting a gradual pricing structure that encourages industries to adopt low-carbon technologies. Offering financial incentives, such as tax rebates or grants, for industries that achieve carbon reduction targets, would be a step in the right direction. In addition, providing direct grants for the purchase of energy-efficient technologies such as LED lighting or energy-efficient HVAC systems, would support businesses in lowering emissions. A model for this approach is Canada's carbon pricing system where industries are offered rebates for meeting emission targets. As a result of the carbon tax, annual emissions in British Columbia, a province of Canada, are 5% to 15% lower than they would otherwise have been (Beugin et al., 2018).
- Textile and rice exports, though not immediately impacted, should begin preparing for future inclusion under CBAM. Given that textiles account for approximately 60% of Pakistan's total exports, it is crucial to implement targeted decarbonisation programmes for this sector. The government should create an *Industry-Wide Decarbonisation Roadmap*, focusing on reducing emissions across the entire supply chain. This could include introducing subsidies for renewable energy installations in textile factories.
- Pakistan should implement a *Standardised Carbon Accounting Framework* for the textile sector, tracking emissions from raw materials to finished goods, ensuring transparency and alignment with CBAM requirements. Developed with international expertise, this system could be scaled through partnerships with global carbon accounting firms like Société Générale de Surveillance

(SGS) to help scale up the system nationwide. Additionally, early adoption of this carbon accounting mechanism will help industries prepare well before its enforcement. This will minimise compliance shocks when CBAM regulations are fully implemented by 2030.

- To ensure the accuracy and credibility of carbon accounting systems, the government should *mandate third-party verification for all industries* seeking to export to EU markets. This could be implemented through certification bodies, such as the Carbon Trust, which would audit industry carbon footprints and ensure compliance with international standards. Additionally, introducing a public registry of verified companies would increase transparency and incentivise others to adopt similar practices.
- Pakistan should create a *National Regulatory Body* tasked with overseeing carbon accounting systems and ensuring compliance across all industries. This body would set emission reduction targets, track industry progress, and provide financial assistance to companies adopting green technologies. For instance, the Ministry of Climate Change could create a carbon credit exchange to facilitate carbon credit trading and incentivise industries to meet their carbon reduction targets.
- The government ought to *initiate pilot projects* within the textile industry to test different carbon accounting models and refine the process before nationwide implementation. The data collected from these pilots could help identify bottlenecks in the supply chain and suggest improvements.
- It is vital to develop a comprehensive, *Three-Year National Roadmap* for decarbonising Pakistan's steel sector. This plan should focus on increasing the use of renewable energy in steel production to 70–80% by 2027, thereby reducing Scope 2 emissions and aligning with CBAM standards. Additionally, the government could provide subsidies for adoption of technologies that support lower carbon emissions. This will not only reduce emissions but also enhance Pakistan's export competitiveness.
- Pakistan's reliance on *scrap steelmaking*, which generates fewer carbon emissions compared to primary steelmaking, offers a competitive edge under CBAM. The government should actively

promote this advantage in international markets, particularly in the EU, where lower-carbon steel is increasingly in demand. By marketing Pakistan's scrap-based steel production as a sustainable alternative, the country can tap into the growing demand for green steel in the global market, as demonstrated by the EU's Green Steel Initiative.

- To support decarbonisation of the steel industry, the government should introduce climate finance programmes or subsidised loans to *help steel manufacturers* adopt renewable energy systems or install energy-efficient technologies. The government could work with International Financial Institutions (IFIs) to secure funds that support the transition to decarbonised steel production in Pakistan, ensuring competitiveness in global markets.
- The Securities and Exchange Commission of Pakistan (SECP) should introduce a *mandatory sustainable reporting* requirement for all major industries, particularly those with significant carbon footprints. A clear, standardised reporting framework should be developed to guide industries in measuring, reporting, and managing their carbon emissions to enhance transparency, improve data reliability, and help industries identify emission reduction opportunities.
- To facilitate the adoption of CBAM compliance in Pakistan, the government should utilise OICCI's access to multinational companies to *facilitate technology transfer and best practices* from global headquarters. Strong public-private collaboration is essential, with the government providing clear guidelines, incentives, and subsidies for clean technologies. These partnerships can address high initial costs for cleaner technologies, particularly for smaller players. Pakistan should also adopt successful readiness models from other countries and collaborate with the EU and international organisations to accelerate integration of sustainable production and reporting practices.
- An *integrated, cross-sectoral* approach is needed, where terms like CBAM, competitive markets, and carbon compliance are understood in a comprehensive, interconnected framework. It is crucial that various governmental divisions (e.g., Ministry of

Energy, Ministry of Commerce, Ministry of Climate Change, etc.) collaborate to formalise a national policy that accommodates these global challenges while addressing Pakistan's internal power sector issues. This would involve creating clear communication channels, joint policy frameworks, and mutual coordination to ensure the entire sector encompassing energy, environment, and industry is aligned with long-term sustainability goals.

- Pakistan can also leverage its *low labour costs* and labour-intensive industries to attract foreign companies. To fully capitalise on this advantage, the government must work to ensure that Pakistan's electricity grid becomes cleaner and more reliable, which would, in turn, enhance the country's competitiveness for foreign investment. A clean grid would attract industries such as data centres, textiles, and technology-intensive sectors, allowing them to reduce their carbon footprint and meet EU standards.
- A key challenge in CBAM implementation is ensuring Small and Medium Enterprises (SMEs) are not left behind, as they often lack the financial resources, technical expertise, and access to clean energy solutions available to larger industries. Establishing a *National Compliance Centre* can support SMEs by providing tailored guidance, resources, and technical assistance to meet its requirements. This framework should offer step-by-step support, enabling SMEs to transition sustainably without excessive financial burden.
- With the implementation of CBAM, there is a significant risk that industries from developing countries like Pakistan could face barriers to entering international markets, particularly the EU. To mitigate this risk, the government should actively *engage with the EU* and other trading partners to advocate for a more inclusive and flexible approach to implementation, particularly for developing economies. Diplomatic channels should be used to negotiate phased implementation, providing industries more time and support to adjust to the new compliance mechanisms.
- At the domestic front, the challenges presented by CBAM should be tackled through a *collaborative, whole-of-sector approach*. This means that not only government agencies, but also private sector

stakeholders, civil society, and academia should be engaged in policy discussions, research, and implementation efforts. A multi-stakeholder platform could be created to regularly assess impact, monitor progress on tariff and grid reforms, and identify new opportunities for investment and innovation in the industrial and energy sectors.

- Facilitating the flow of *green technologies* and best practices from multinational corporations (MNCs) and transnational corporations (TNCs) that are already operating in Pakistan can accelerate adoption of cleaner technologies across the industrial sector. A focus on energy-efficient technologies, as well as CCS technologies, would be essential in reducing the carbon intensity of Pakistan's industrial output, preparing for CBAM compliance, and enhancing competitiveness in global markets.
- *Decarbonising the national grid* is essential, as it remains heavily reliant on thermal power. Increasing the share of renewable energy can lower electricity's carbon intensity, aiding CBAM compliance and attracting foreign investment from sustainability-focused companies. A clear green energy transition plan with defined targets and public-private investments is crucial.
- As part of a broader national strategy, Pakistan should develop a forward-thinking export strategy that integrates CBAM compliance into its industrial planning. This strategy should focus on creating a *competitive, sustainable industrial base* to meet evolving global market demands, especially from the EU. The strategy should consider all stages of the industrial value chain, from raw material extraction to final product exports, ensuring that the country's exports remain competitive even as global standards for sustainability and carbon emissions become more stringent.
- Both public and private sector *financing mechanisms* must be explored, including climate finance, green bonds, and international funding for sustainability projects. The government should work closely with IFIs and private investors to unlock funding for key infrastructure projects, such as renewable energy installations, energy efficiency upgrades, and carbon capture technologies. Additionally, incentivising financial institutions to provide low

interest loans or grants for green initiatives in the industrial sector would help mitigate the upfront costs of adopting sustainable practices.

- CBAM presents both a challenge and an opportunity for Pakistan, particularly in the energy sector. The decline in electricity demand due to high tariffs has shifted residential consumers to decentralised solutions like solar rooftops, causing a 13-15% decline in demand, putting pressure on the national grid and driving up capacity charges. The solution lies in boosting *industrial demand for the grid*. However, with the grid's carbon intensity 1.4 times higher than the EU's, CBAM fees could raise export costs and reduce competitiveness. This could discourage industries from joining the grid, thus hindering the goals of the power sector. To address this, Pakistan must reduce tariffs in a way that is both carbon-efficient and sustainable aligning with EU standards while maintaining competitive market conditions.

Conclusion

Pakistan's reliance on carbon-intensive energy sources and outdated industrial practices creates significant barriers to meeting CBAM requirements which necessitate a broader understanding of how Pakistan can position itself strategically within this evolving global framework. However, this challenge also presents an opportunity to reassess the country's development trajectory and provide access to new markets, technologies, and avenues for revenue generation and investment streams as global investors increasingly prioritise decarbonised economies.

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Moving Past the 1% Narrative on Climate Change*

*Dr Adil Najam***

Do you think Pakistan's agriculture can adapt to climate change? Do we truly have the capacity to make that happen?

Let me say this plainly: whether we are ready or not, the climate is moving forward. If we choose to be ready, we must act now. If we choose not to, we might as well go to sleep because the climate will not wait for us. And I say this with complete seriousness.

Let me put this in two ways. First, I'll take the positive view, and then I'll come to what I call my *'truck ki batti'* (the truck's taillight).

Yesterday, I referred to some research I was involved in back in 2015, along with my colleagues. At the time, I was serving as Vice Chancellor at LUMS. This was the only piece of research we conducted there on this particular topic, but I remain very proud of it. The methodology was somewhat preliminary, yet the findings were quite interesting.

This research dates back to 2015, and of course much has changed since then particularly in the context of climate. But at that time, we asked a straightforward question: if climate change continues as projected, given

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the models we had and the knowledge available then, how would it affect agriculture?

We focused our study on two regions: southern Punjab and upper Sindh. In southern Punjab, we examined cotton and wheat, while in upper Sindh, we looked at cotton, wheat, and rice.

We then asked: if climate change continues over the next 50 years, what kinds of impacts will it have on agricultural productivity focusing solely on productivity? And how would those impacts differ between farmers who adapt and those who do not?

By 'adapting,' we meant farmers using water more efficiently, applying fertilizer more effectively, and managing pesticides better. 'Non-adapting' referred to those who were not taking such measures. The bottom-line result was as follows:

We found an 8% to 10% loss in productivity for cotton, wheat, and rice. Now, a loss of 8% to 10% is essentially the entire profit margin and this is huge. To put it in perspective, if agriculture accounts for around 40% of GDP, then losing 10% of that translates to an additional 4% loss of GDP overall.

So, that's a significant loss. But interestingly, that wasn't even the most striking part of the research: whether we are ready or not was the real question.

The truly interesting finding was the second part. For farmers who are not currently adapting, those who are not following best practices, if they were simply to adopt basic climate adaptation measures, primarily better water management and improved chemical management, the results would be transformative.

Cotton productivity could increase by 52%, and wheat by 49%. For rice, there would be almost no change, as rice production is already heavily dependent on water. You are essentially converting water directly into rice!

What this means is that there is enormous scope and capacity for improvement. But it requires someone to take action. And, with all due respect, I do not sense either the urgency or even the desire to do so. The energy level in this room, frankly, reflects that.

Many of you have heard me speak about the *'truck ki batti'* (a truck's taillight). These are things that, while seemingly moving in the right

direction, can still mislead us if we simply follow without thinking. Climate finance, Artificial Intelligence, digital technologies which are all important. But if we just copy what others are doing without adapting them to our own realities, we risk chasing the light without ever reaching our destination.

But, a truck has another light: the headlight. And today, I want to focus on that. Because when you see the headlight, it means the truck is coming straight at you. And climate change is that headlight. As Former Federal Minister Amin Aslam has pointed out, this truck is not going to swerve, whether we are ready or not.

With all due respect, I think we should stop or at least reduce the narrative that *'we have not caused climate change.'* That may be true, but it sends the wrong signal: that this is not our problem. The truck is still coming. It came in the floods of 2010. It came again in the floods of 2022. And when a flood arrives, you cannot say to it, *'I didn't cause this. Go to America.'*

That's not how it works. The truck comes and—tha!—bam! And, unfortunately, I fear that in many sectors, including agriculture, we are sleepwalking towards this headlight unless we start taking it seriously, urgently, and decisively.

What I have tried to convey here is that there is enormous potential but potential alone does not translate into results. Action must be taken. And that action requires a level of earnestness that, frankly, I do not always see in our current approach.

I hope my words are not taken as discouraging. That is not my intent. In fact, given the wonderful people present here today, I want to make this a call to action.

I sometimes worry about the way we frame the *'1% narrative'* that Pakistan contributes only 1% of global emissions. While this is true, when we say it, we often seem to imply that our own contribution is minimal in every sense, or that our role in addressing the problem is somehow less important.

There are around 200 countries in the world. If every country produced emissions equally, each would account for about 0.5%. If emissions were proportional to population, Pakistan's share would be around 3% of global emissions. So yes, our share is low, but it is not that low. In fact, if you look at per capita emissions, Pakistan is not at the very bottom of the list.

There are, of course, many Pakistanis who produce very little carbon. But there are also Pakistanis, including some of us in this very room, and certainly myself, who produce a great deal of carbon while contributing relatively little to actual production.

My concern is that when we lean too heavily on the *'1% narrative'*, it risks giving people the impression that climate change is not our problem; that the truck coming towards us is someone else's truck. My only point is this: whether you like it or not, it is coming.

The world will be divided between the smart and the not-so-smart. The smart will be those who seize the opportunity for a 52% gain; the not-so-smart will be the ones who get rolled over by the truck.

Legal Readiness for Climate Finance*

Ayesha Naeem**

Abstract

As Pakistan faces escalating climate risks and growing financing needs, strengthening the legal framework for climate finance has become a strategic imperative. This chapter evaluates the current legal architecture and identifies critical gaps in the alignment of Pakistan's financial regulations, environmental policies, and international obligations. Looking ahead, it underscores the importance of adopting a coherent, cross-sectoral legislative framework that can enable predictable, transparent, and scalable climate financing. By outlining actionable legal reforms, ranging from clarifying mandates of public institutions to embedding enforceable climate goals in finance laws, it lays the groundwork for transforming Pakistan's climate finance governance. With the right legal instruments in place, Pakistan can mobilise both domestic and international capital, support low-carbon development, and ensure long-term regulatory coherence.

Introduction

Pakistan stands at the frontline of the global climate crisis. Consistently ranked among the top ten most climate-vulnerable countries, its exposure to floods, heatwaves, and extreme weather events continues to grow (Adnan et al., 2024). The 2022 Super Floods alone displaced over eight million people and caused an estimated USD 30 billion in damages, demonstrating the scale and urgency of the country's climate adaptation

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needs (Harvey et al., 2022). Yet, despite its negligible contribution to global emissions and its ambitious climate commitments, such as reducing projected emissions by 50% by 2030, with 35% conditional on international finance, Pakistan receives a disproportionately small share of global climate finance. Annual climate finance requirements are estimated at USD 40–50 billion but receives only USD 1.5–2 billion from international sources. For example, Pakistan has secured just USD 250–304 million from the Green Climate Fund (GCF), compared to India's USD 782 million and Bangladesh's USD 441 million (Khan 2025).

This financing gap is not just a question of equity or geopolitics. Increasingly, it is recognised as a function of legal and institutional preparedness. Legal readiness, existence of transparent, predictable, and investment-friendly laws and regulatory frameworks, is a critical enabler of climate finance, particularly from private and multilateral sources. A growing body of global evidence confirms that law and regulation should not be seen merely as tools for compliance, but as strategic levers for mobilising capital, de-risking investment, and building investor confidence (Bowman and Steenmans 2019). For Pakistan, strengthening legal and regulatory frameworks is not only essential to access international climate finance but also to promote domestic private investment and realise its Nationally Determined Contributions (NDCs) (UNFCCC 2021).

Encouragingly, Pakistan has shown strong legal leadership in climate and environmental jurisprudence. It was one of the first countries to interpret the constitutional right to life as encompassing the right to a clean and healthy environment. Its judiciary has issued landmark rulings, such as *Leghari v. Federation of Pakistan* (Sabin Center 2015), *Shehla Zia Case 1994* (Mansoor 2025), and *Muhammad Ahmad Pansota v. Federation of Pakistan* (CHLPI 2020), that recognise climate change as a violation of fundamental rights and compel executive action on adaptation. These precedents have made Pakistan a thought leader in rights-based climate litigation and established a robust judicial foundation for future climate finance governance.

At the global level, Pakistan has played an instrumental role in shaping the climate finance agenda. Its leadership within the G77 was pivotal to the establishment of the Loss and Damage Fund at COP27, a milestone in climate justice (Haq 2023). At COP29, finance took the centre stage again, with the adoption of the New Collective Quantified Goal on Climate Finance (NCQG) expected to define the post-2025 global financial architecture

(UNFCCC 2024). Yet, for countries like Pakistan to fully benefit from such mechanisms, domestic legal systems must be ready to align with international norms and operationalise commitments transparently and effectively. Against this backdrop, this study aims to:

- Assess Pakistan's legal and institutional landscape to identify barriers to the mobilisation and governance of climate finance, especially from private and international sources.
- Propose legal reforms to enhance transparency, accountability, and private sector participation in climate-aligned investments.
- Recommend mechanisms to align domestic legal frameworks with international climate finance commitments, including the Paris Agreement, NDCs, and the National Adaptation Plan.

Study Methodology

A mixed-method approach was used to develop this brief. It is grounded in an extensive review of secondary sources, including legal statutes, regulatory documents, academic research, and international climate finance frameworks. In addition, the brief draws directly from two policy discussions, the 'High-Level Plenary on the Legal Framework of Climate Finance' (SDTV 2024) and 'Bridging the Climate Gap: Mediation and Climate-Conscious Lawyering' (SDTV 2025). These convenings brought together legal practitioners, regulators from the Islamabad and Pakistan Bar Councils, environmental experts, and representatives from policy think tanks and civil society. The insights from these expert dialogues inform the primary source legal analysis and policy recommendations presented here.

International Legal Obligations: Norms, Gaps and Ambiguities

Despite international recognition of climate finance as a legal obligation, most notably under Article 9 of the Paris Agreement, the global framework remains fraught with normative ambiguities and institutional gaps. Although the language of Article 9 states that developed countries 'shall provide financial resources' to developing countries, the provision lacks specificity in terms of scale, timelines, and enforceability mechanisms. This legal indeterminacy weakens predictability, constrains

accountability, and complicates national planning for recipient countries like Pakistan (Yamineva 2021; UNFCCC 2016).

The shift from a defined list of Annex II countries under the United Nations Framework Convention on Climate Change (UNFCCC) to the more fluid designation of 'developed countries' in the Paris Agreement introduces further interpretive uncertainty. While some argue this widens the pool of potential donors, the absence of binding individuation mechanisms dilutes legal clarity over who must pay and how much. Similarly, the term 'new and additional' finance, central to Article 4.3 of the UNFCCC, remains undefined, leaving room for donor discretion and raising risks of double-counting Official Development Assistance (ODA) as climate finance (Weikmans and Roberts 2019; UNFCCC 2016). The collective nature of obligations also means that no country is individually liable unless an international agreement explicitly defines fair shares, a shortcoming that limits enforcement.

These global legal ambiguities heighten the importance of domestic legal preparedness. Pakistan must codify its climate finance responsibilities and entitlements in national law, not only to strengthen credibility and investor confidence, but also to protect its negotiating position and eligibility for international funding.

Legal and Institutional Uncertainty in Article 6 Implementation

The operationalisation of market-based mechanisms under Article 6 of the Paris Agreement presents additional legal complexity. Despite the formal adoption of the Paris Rulebook, critical issues such as accounting methodologies, corresponding adjustments, baseline setting, and verification protocols remain unsettled. The ability of countries to switch between cooperative approaches under Articles 6.2 and 6.4, combined with variability in NDCs undermines uniformity in emissions credit trading (Schneider et al., 2020; UNFCCC 2016).

The lack of an agreed-upon definition for environmental integrity and evolving standards for additionality and reporting raise questions about the legal robustness of carbon markets (Wawrzynowicz et al., 2019). The Article 6.4 Supervisory Body, though central to methodology approvals, has allowed parties to propose their own baselines and metrics. This

approach risks fragmentation and weakens compliance assurance (Chao 2023; UNFCCC 2016). For Pakistan, which plans to submit its updated NDC with mandatory ICTU (Information necessary for clarity, transparency and understanding)¹ guidance in 2025, these challenges underscore the urgency of institutional and legal readiness to engage credibly in international carbon markets.

At the domestic level, absence of enabling laws for carbon markets, fragmentation between financial and environmental regulators and unclear safeguards for affected communities compound these risks. Without a coherent legal framework, Pakistan risks investor-state disputes, poor enforcement, and reputational damage in global carbon finance markets.

Table 1: Timeline of Commitments on Climate Finance

Year	Climate Agreement	Key Commitments
1992	UNFCCC (Article 4.3)	Annex II countries shall provide new and additional financial resources and technology transfer to developing countries.
1997	Kyoto Protocol (Article 12 - Clean Development Mechanism)	Established the Clean Development Mechanism (CDM) allowing Annex B countries to offset emissions through projects in developing countries.
2009	COP15 Copenhagen Accord	Developed countries pledged USD 100 billion annually by 2020 for climate action in developing countries.
2010	COP16 Cancun Agreements	Established the Green Climate Fund (GCF). Developed countries committed to Fast Start Finance of USD 30 billion for 2010-2012.
2015	COP21 Paris Agreement (Articles 9 & 6)	Developed countries reaffirmed the USD 100 billion annual commitment. Article 9 codifies finance obligations. Article 6 introduces framework for carbon markets.
2021	COP26 Glasgow Pact	Urged developed countries to fully deliver on the USD 100 billion goal urgently and through to 2025.
2022	COP27	Agreement to establish a Loss and Damage Fund to assist vulnerable countries with climate change impacts.
2023	COP28	Agreement on operationalisation of the Loss and Damage Fund. Initial pledges of over USD 600 million.
2024	COP29	Call to triple global climate finance by 2030. New Collective Quantified Goal (NCQG) aiming for USD 300 billion annually by 2035 for developing countries. Broader goal of USD 1.3 trillion annually by 2035.

Source: Author's own.

¹ **Editors' Note:** The term 'ICTU' comes from the Paris Agreement [Decision 4/CMA.1], which outlines modalities, procedures, and guidelines [MPGs] for NDCs. Countries are required to submit NDCs with information that enhances clarity, transparency, and understanding [ICTU] of their climate commitments.

Evolving Responsibilities and South-South Differentiation

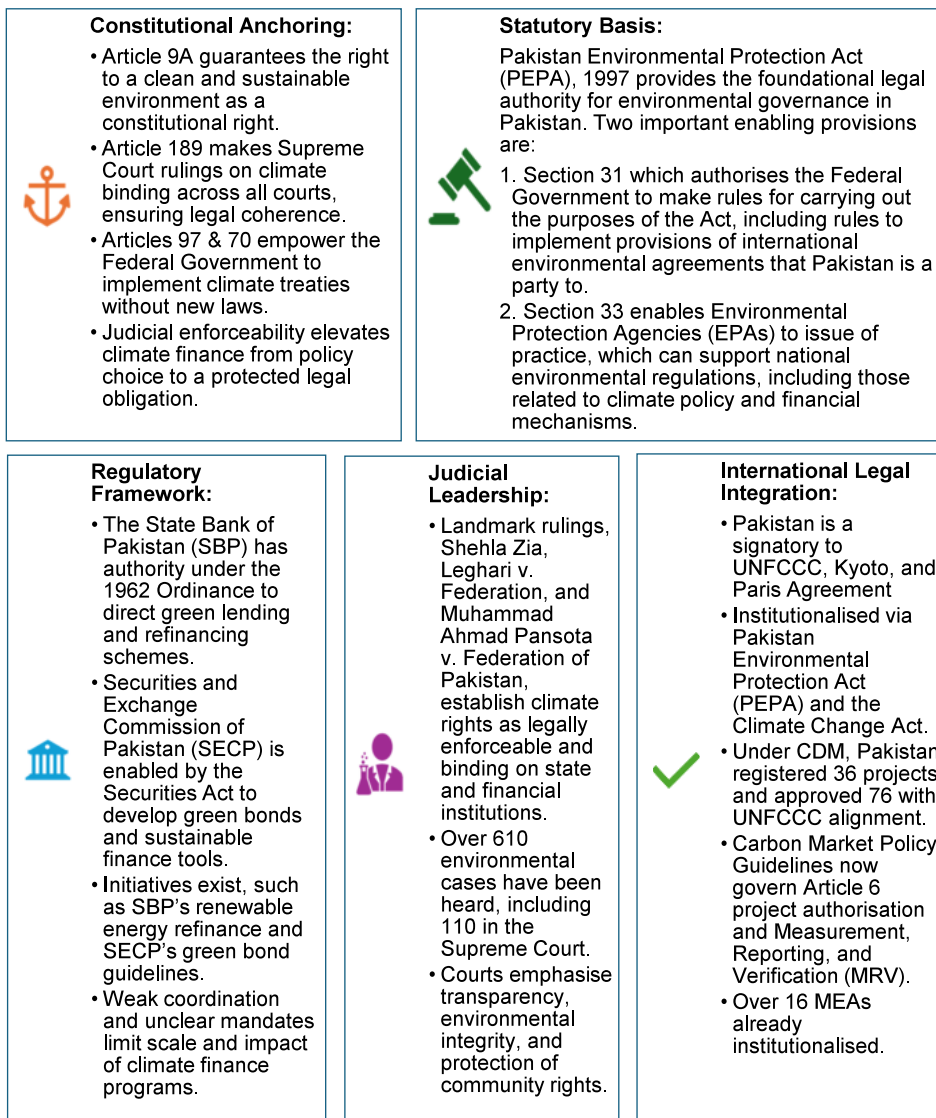
While the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC)² remains foundational in international climate law, its operational meaning is evolving. For instance, the recent advisory opinion of the International Tribunal for the Law of the Sea clarified that financial assistance may fall under 'other assistance' in United Nations Convention on the Law of the Sea (UNCLOS) Article 202(a),³ reinforcing the growing expectation, though not a strict obligation, that developed countries support developing ones (ITLOS 2024). Yet this evolving norm is now prompting debate about whether wealthier developing countries, such as China and Russia, should also assume greater financial responsibilities (Fajardo et al., 2024).

The Paris Agreement points to this internal differentiation by recognising 'voluntary contributions' from developing countries, and other legal regimes, such as the World Trade Organization (WTO)'s Agreement on Fisheries Subsidies, have adopted language around graduated obligations (SSGP 2023). While current climate finance law does not yet codify such differentiation within the Global South, the trend raises important questions for countries like Pakistan: how to assert vulnerability without being overshadowed by larger emerging economies, and how to strategically position itself within a changing global finance hierarchy.

² **Editors' Note:** CBDR-RC is a foundational principle in international climate negotiations, especially under the UNFCCC. CBDR-RC means that all countries share responsibility for addressing global environmental problems, but not equally. The responsibilities vary based on each country's: historical contributions to environmental degradation (especially greenhouse gas emissions); current capabilities to respond (technological, financial, institutional); national circumstances and development needs.

³ **Editors' Note:** UNCLOS Article 202(a) calls on developed countries to promote scientific, educational, and technical assistance to developing states, especially in marine technology and resource management, through training and capacity-building. This supports equitable participation in ocean governance.

Figure I: Legal Foundations in Pakistan



Source: Author's own.

Carbon Markets and Article 6: Legal Readiness

Article 6 of the Paris of the Agreement presents a critical opportunity for Pakistan to access climate finance through carbon markets. This includes bilateral cooperation via Internationally Transferred Mitigation Outcomes (ITMOs) under Article 6.2, a UN-supervised crediting mechanism under Article 6.4, and non-market-based approaches such as capacity building under Article 6.8. However, Pakistan's legal and institutional readiness to operationalise these mechanisms remains significantly underdeveloped.

While Pakistan has introduced the Policy Guidelines for Trading in Carbon Markets 2024 (MoCC&EC 2024), this document lacks the force of law. It articulates broad principles but does not establish enforceable legal definitions, frameworks, or regulatory mandates. Unlike other jurisdictions where carbon credits are treated as intangible property (United Kingdom), personal property (Australia), or regulated commodities (United States), Pakistan has no statutory classification of carbon credits. This absence creates uncertainty about ownership rights, tradeability, and dispute resolution, weakening investor confidence.

Moreover, there is no enabling legislation to register, certify, or domestically trade ITMOs. Although the policy outlines the intent to establish a National Carbon Registry, it does not constitute legal authority for implementation. Similarly, Pakistan lacks a binding framework to prevent double counting and apply corresponding adjustments, a fundamental requirement under Article 6 for international credibility and environmental integrity. The policy references these mechanisms but does not codify how they will be verified, tracked, or enforced. The legal infrastructure for carbon trading platforms and registry systems is also missing. Despite plans to develop digital MRV platforms and compliance markets, there is no statutory provision for their creation, regulation, or oversight. The absence of legislation to underpin these structures has delayed market operationalisation.

The high upfront validation costs further deter private sector participation and highlight the need for state-backed legal and financial facilitation. Additionally, legal gaps around credit ownership, transfer rights, taxation, and enforcement mechanisms limit private sector engagement, particularly in voluntary carbon markets. Pakistan's existing environmental and climate policies do not bridge these gaps or provide clarity on investor protections.

Institutional coordination remains fragmented. The lack of a central carbon market authority, and weak coordination between the Ministry of Climate Change & Environmental Coordination (MoCC&EC), provincial EPAs, and financial regulators, has created operational ambiguity. This is particularly problematic given that key sectors for mitigation, such as forestry, agriculture, and water, fall under provincial jurisdiction. Without harmonised legal mandates across federal and provincial levels, implementing a cohesive carbon market strategy remains a distant goal. Pakistan's inability to participate meaningfully in international carbon market mechanisms under Article 6 is a missed opportunity. As other developing countries increasingly mobilise carbon finance through bilateral and multilateral partnerships, Pakistan's unclear legal standing limits its access to such funds (Salman and Yar 2024).

Way Forward

Some recommendations to address the above legal and institutional lacunas are as follows for the Government of Pakistan:

- Make sustainability disclosures mandatory for corporate and financial sectors. The SECP's Environmental, Social, and Governance (ESG) Disclosure Guidelines remain voluntary, limiting data availability and climate-aligned innovation. Legally binding, standardised, and centralised disclosure requirements are essential to ensure accountability, enable product development, and drive private sector climate action.
- Establish clear definitions and independent validation procedures for compliance with Paris Agreement stipulations under Article 6 mechanisms. This should include a robust system to verify carbon credits and track long-term compliance, ensuring transparency and alignment with international obligations.
- Expedite the issuance of No Objection Certificates (NOCs), Letters of Intent (LOIs), and the Project Document Design (PDD) process under carbon market initiatives by reducing bureaucratic delays. Implement digital platforms for faster approvals and establish clear timelines for each step to enhance project implementation efficiency.

- Strengthen the legal framework around the Carbon Market Policy by prescribing a graduated penalty regime for non-compliance within carbon market programs, including failures in project verification, reporting, or approval processes, with codified penalties and delegated enforcement authority to regulatory bodies.
- Set up an effective and transparent grievance redressal mechanism to address stakeholder concerns related to delays or procedural challenges in carbon credit trading and project approval. This will ensure that all parties involved in emission reduction activities have access to timely resolutions.
- Embed climate finance targets into budgetary and planning processes. This would institutionalise climate relevance scoring and ensure that climate financing is mainstreamed in public sector allocations, closing the gap between climate policy and actual spending.
- Mandate climate budget tagging and tracking across federal and provincial levels. Making this a legal requirement would standardise reporting, enable fiscal accountability, and strengthen Pakistan's access to international climate finance, including results-based mechanisms.
- Establish a dedicated national entity with legal authority to directly access and manage climate funds. It should meet fiduciary and environmental standards of global climate finance mechanisms and be empowered to coordinate across public and private stakeholders.
- Mandate the SECP to formally recognise green and sustainability-linked financial products, providing legal clarity on definitions, eligibility criteria, verification standards, and reporting obligations to minimise reputational and regulatory risks and enhance investor confidence.
- Provide a legal basis for carbon markets and tradable environmental credits. Recognising property rights for carbon offsets and setting out verification protocols can enable a credible domestic market and facilitate cross-border cooperation under Article 6 of the Paris Agreement.

- Develop clear guidelines for blended finance and public-private co-investment models. Standardised templates and risk-sharing frameworks can de-risk investments in green infrastructure and help crowd in private capital at scale.
- Institutionalise participatory processes in climate finance governance. This includes formal mechanisms for public input in fund allocation, project selection, and monitoring to improve legitimacy and responsiveness of climate spending.
- Enable provinces to operationalise climate finance through their own legal rules. Provincial governments should develop climate finance rules to implement green budgeting, levy local taxes for climate resilience, and manage sub-national climate funds. Legal empowerment will strengthen local action and financing, especially as many climate-relevant sectors fall under provincial jurisdiction.
- Enshrine legal safeguards to protect community and indigenous rights in climate-related investments, including provisions on land tenure, benefit-sharing, and free, prior, and informed consent to promote equity, accountability, and sustainability in climate finance delivery.

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Annexures

**About the Sustainable Development Policy Institute
(SDPI)**

**About the Sustainable Development Conference (SDC)
Series**

Acknowledgements

SDC 2024: Conference Agenda



About the Sustainable Development Policy Institute

Charting the Course of Research Excellence

Established on 4 August 1992 in the heart of Islamabad, the Sustainable Development Policy Institute (SDPI) started from humble beginnings within a modest office space, nurtured by a committed group of visionaries. Fast forward to today, and it is heralded as one of Asia's premier non-partisan policy research entities, amplifying the voice of Pakistan and the surrounding region on the global development stage. For more than three decades, SDPI's dedication to its foundational mission has remained steadfast, championing the cause of sustainable development:

To catalyse the transition towards sustainable development, defined as the enhancement of peace, social justice and well-being, within and across generations.

Registered under the Societies Registration Act, XXI of 1860, SDPI has long been recognised as one of Pakistan's leading policy research institutions, consistently ranked among the country's top think tanks in the now-retired Global Go To Think Tank Index. Its global credibility was further affirmed in 2022 when the United Nations Economic and Social Council (ECOSOC) granted SDPI Special Consultative Status acknowledging its substantive contributions to shaping sustainable development discourse at both regional and international levels. In 2025, SDPI achieved another milestone, becoming the first organisation from Pakistan to be accredited as an Observer Organisation of the Commonwealth, cementing its role as a trusted voice in global policy dialogues.

Where We Come From

The Institute's genesis lies in the Pakistan National Conservation Strategy (also known as Pakistan's Agenda 21), which approved by the Federal Cabinet in March 1992, outlined the need for an independent non-profit organisation in the country to serve as a source of expertise for policy analysis, evidence-based research and training services.

What We Do and How We Do It

For more than three decades, SDPI has actively shaped Pakistan's policy landscape through a richly multifaceted portfolio. Its work is not just rooted in conventional themes like governance reform, inclusive economic growth, and sustainable industrial development. It also extends into emerging areas such as the Fourth Industrial Revolution, circular economy, digital transformation, green finance, and the open-data movement.

At its core, SDPI serves as a bridge between research and policy. It provides high-level policy advisory services, drives cross-sector capacity building and training, and catalyses sustained advocacy and public education. Its research agenda spans climate resilience, water-food-energy nexus, trade and regional connectivity, urban sustainability, education, health, gender equality, social protection, peacebuilding, and human security.

Driven by a philosophy of inclusive policy discourse, SDPI regularly convenes local-to-global dialogues from media engagement, seminars, and curricula development to high-profile flagship conferences. The Institute publishes a wide array of outputs like reports, policy briefs, working papers, journals, and compendiums, making research accessible and actionable. SDPI also hosts its own digital media platform, SDTV, showcasing an extensive library of original content, including documentaries, podcasts, interviews, and expert analyses. This channel serves as a dynamic space for sharing research insights, policy debates, and stories that inspire change. Through partnerships with international institutions, SDPI translates research into practice, helping institutionalise the use of evidence in policymaking systems.

In essence, SDPI is more than a think tank: it is a platform for innovation, advocacy, and impact, where rigorous, multidisciplinary research meets

strategic partnerships, data infrastructure, and policy engagement across emerging and enduring challenges.

Why We Do It

The Institute's efforts remain unwavering in its vision to become a Centre of Excellence on sustainable development policy research, capacity development and advocacy in the country and in Asia by producing knowledge that not only enhances the capacity of the state to make informed policy decisions, but also engages civil society and academia on issues of public interest for the betterment of current and future generations.

How We Reach Out

The Sustainable Development Conference (SDC) Series has become a flagship event of the Institute that not only provides a forum for highlighting SDPI's own research, but also offers space to other academics from South Asia in particular and across the globe in general, to share their work and engage in constructive dialogue with fellow intellectuals, movers and shakers from the public and private sector, students, and the general public. Through shifting political landscapes, global economic shocks, financial meltdowns, pandemics, and even the shadow of war, SDPI's resolve has never wavered. For 27 consecutive years, its dedicated team has delivered the SDC: an enduring platform where ideas converge, partnerships are forged, and solutions take shape. This uninterrupted tradition stands as both a testament to institutional resilience and a beacon of thought leadership in ever-changing times.

About the Sustainable Development Conference Series and SDC Anthologies

Introduction

Since 1995, the Sustainable Development Policy Institute (SDPI) has convened the Sustainable Development Conference (SDC) as a platform for high-impact dialogue, collaborative problem-solving, and the exchange of transformative ideas.

As SDPI's flagship annual forum, the SDC brings together researchers, policymakers, practitioners, and academics from across Asia and beyond to engage in evidence-based discussions that address the world's most pressing sustainable development challenges. Over nearly three decades, it has evolved into one of South Asia's leading convenings for regional and global thought leadership on sustainability.

The conference's distinctive value lies in its multi-stakeholder approach facilitating mutual learning, generating critical analyses, and spotlighting replicable best practices. Each conference culminates in the publication of a peer-reviewed book that captures the research presented, the depth of debate, and the innovative solutions shared, serving as both a historical record and a resource for policymakers, practitioners, and scholars worldwide.

The legacy of the SDC is reflected not only in the breadth of topics explored but also in the actionable knowledge it generates, shaping discourse, informing policy, and inspiring collaborative action across borders:

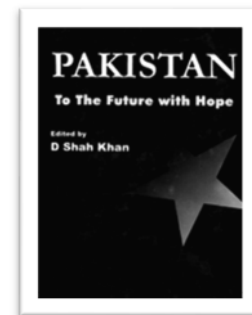
First SDC (1995)

The inaugural SDC, *The Green Economics Conference*, explored the critical intersection between economics and the environment, featuring research on trade, fiscal policy, Environmental Impact Assessments (EIAs), green accounting, forestry, energy, industry, and the urban environment. Its peer-reviewed anthology, published under the same title, captured the research and insights presented.

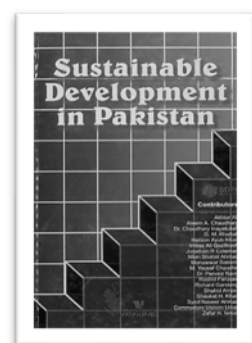


Second SDC (1996)

The second SDC centred on the broad theme of sustainable development, addressing issues such as pollution abatement, resource management, biodiversity conservation, technology transfer and utilisation, trade and the environment, human development and poverty alleviation, as well as social capital and governance. The conference successfully highlighted key challenges facing Pakistan and showcased the latest thinking and analysis to inform practical solutions.

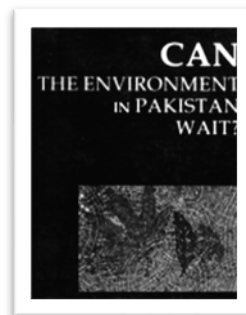


The proceedings were captured in the peer-reviewed anthology *Pakistan - To the Future with Hope* followed by *Sustainable Development in Pakistan*, the second in a series of books published by Vanguard on behalf of SDPI. This volume spans a wide spectrum of themes from economic policies and environmental governance in the Pakistani context to national environmental quality standards, sustainable agriculture, biodiversity, and forestry; from clean energy solutions to stratagems for combating marine pollution; and from tackling urban management challenges to advancing sustainable city planning.



Third SDC (1998)

The third SDC, themed *A Dialogue on Environment and Natural Resource Conservation*, aimed to foster constructive discussion on practical policy options for addressing Pakistan's most pressing environmental challenges. The programme was structured around two broad thematic areas—Urban Environment and Natural Resources—covering topics such as urban pollution, water resource management, deforestation, and sustainable agriculture. Experts from Pakistan and across South Asia contributed research, case studies, and policy recommendations. The resulting peer-reviewed anthology, *Can the Environment in Pakistan Wait?*, captured the insights, analyses, and actionable proposals emerging from the conference.



Fourth SDC (2000)

The fourth SDC, titled *Discourse on Human Security*, focused on advancing policy and practice in Pakistan through the lens of human security. The conference sought to build awareness among senior policymakers, key federal and provincial government officials, and civil society actors, including media representatives and non-governmental organisations, on the evolving nature of security challenges and the need for integrated, people-centred solutions.

Fifth SDC (2002)

The fifth SDC, *Sustainable Development and Southern Realities: Past and Future in South Asia*, revisited the conceptualisation and implementation of sustainable development across its economic, political, social, and moral dimensions. Delegates critically examined and built upon the ideas presented at the World Summit on Sustainable Development in



Johannesburg, reframing these debates within the South Asian context. The conference proceedings were later published as a peer-reviewed anthology under the same title, capturing the research, analyses, and region-specific perspectives generated during the event.

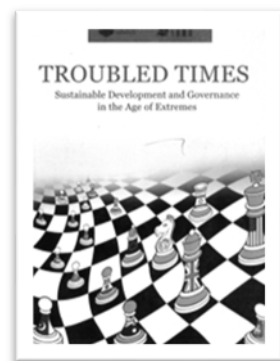
Sixth SDC (2003)

The sixth SDC, titled *Sustainable Development: Bridging the Research/Policy Gaps in Southern Contexts*, focused on the problematique of knowledge production in the Global South. It examined policy–research gaps in two directions: in some cases, policy needs to be informed by stronger research; in others, existing robust research is insufficiently reflected in policymaking. The discussions explored practical ways to translate knowledge into effective policy initiatives at local, national, regional, and international levels, identifying multiple sector-specific gaps and directions to address them. The proceedings were later published as a peer-reviewed anthology under the same title.



Seventh SDC (2004)

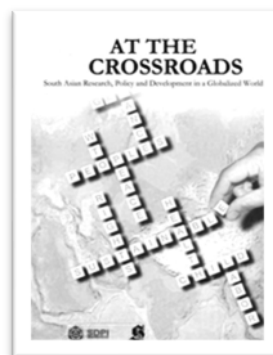
The seventh SDC, titled *Troubled Times: Sustainable Development and Governance in the Age of Extremes*, examined fundamental questions on the state of governance and its role in delivering just and equitable development. Discussions probed whether resource sharing—both natural and institutional—has improved; whether regional and international institutions have been strengthened; and how much progress South Asia has made on governance. The conference also explored issues of transparency, accountability, and whether governments have fulfilled their commitments to marginalised groups, including the poor, women, and



minorities. The proceedings were later published as a peer-reviewed anthology under the same title.

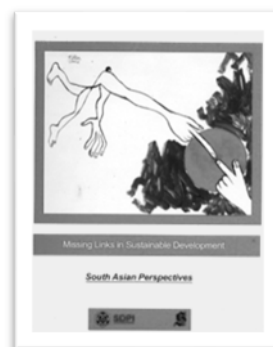
Eighth SDC (2005)

The eighth SDC, titled *At the Crossroads: South Asian Research, Policy and Development in a Globalized World*, explored the multifaceted dimensions of sustainable development within the South Asian context. Speakers examined how regional challenges could be addressed more effectively by drawing on lessons from successful policy interventions at local, national, and international levels. The conference's outcomes were consolidated into a high-impact, peer-reviewed anthology, published under the same title, which serves as a definitive record of the research, policy insights, and innovative tactics presented, offering a lasting resource for policymakers, academics, and development practitioners across the region and beyond.



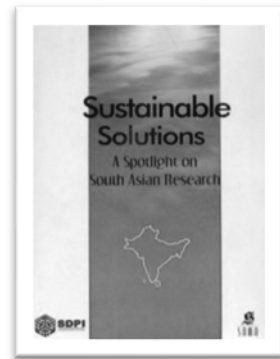
Ninth SDC (2006)

The ninth SDC, titled *Missing Links in Sustainable Development (SD): South Asian Perspectives*, sought to identify critical gaps in the region's sustainable development agenda and propose actionable solutions. The conference convened leading academics, senior policymakers, activists, and other key stakeholders for a vibrant three-day exchange of ideas and evidence-based research. The insights and research generated were consolidated into a high-impact, peer-reviewed anthology—published under the same title—which stands as an authoritative reference for addressing the region's most pressing development gaps.



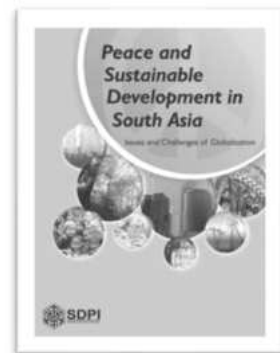
Tenth SDC (2007)

The tenth SDC, titled *Sustainable Solutions: A Spotlight on South Asian Research*, examined a spectrum of urgent challenges, including poverty, illiteracy, public health crises, environmental degradation, disaster management, gender inequality, insecurity, violence, and historical legacies. The discussions highlighted both innovative solutions and enduring, indigenously developed approaches that have stood the test of time. The conference's intellectual contributions were captured in a high-impact, peer-reviewed anthology which serves as a repository of region-specific methodologies, evidence-based analyses, and replicable best practices for advancing sustainable development.



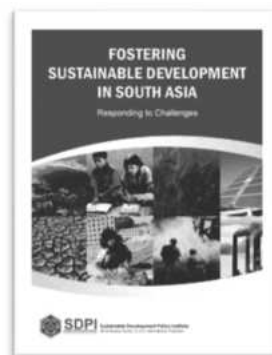
Eleventh SDC (2008)

The eleventh SDC, titled *Peace and Sustainable Development in South Asia: Issues and Challenges of Globalization*, addressed a wide range of pressing issues, including inequality, poverty, climate change, energy scarcity, natural resource degradation, trade liberalisation policies, food insecurity, violence and conflict, historical narratives, and governance deficits. The conference also explored how addressing non-conventional security threats could yield significant dividends for peace in the region. The resulting peer-reviewed volume channelled the most compelling research, policy insights, and debates from the event providing a critical knowledge base for advancing both sustainable development and peacebuilding across South Asia.



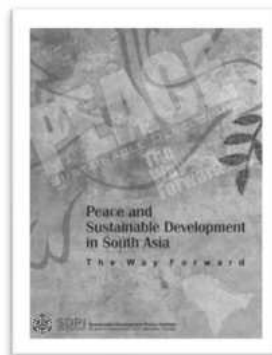
Twelfth SDC (2009)

The twelfth SDC, titled *Fostering Sustainable Development in South Asia: Responding to Challenges*, examined the region's response to the six 'Fs' crises: food, fuel, frontiers, functional democracy, and the fragility of climate. Scholars from across South Asia and beyond provided in-depth analyses of where the region stands in addressing these interconnected challenges, with gender considerations woven throughout the discussions. The conference culminated in a peer-reviewed anthology—published under the same title—that brought together diverse regional perspectives, offering both diagnostic assessments and forward-looking pathways for policy and action.



Thirteenth SDC (2010)

The thirteenth SDC, titled *Peace and Sustainable Development in South Asia: The Way Forward*, examined how economic challenges could be addressed in ways that safeguard natural resources while strengthening institutional capacity and effectiveness. Panels covered a wide spectrum of issues, including Pakistan's post-flood recovery, food insecurity, energy and financial crises, land acquisition, trade and financial liberalisation, social protection, eliminating violence against women, the role of think tanks, chemical management, climate change, religious diversity, and labour rights. The resulting peer-reviewed anthology, under the same title, captured this breadth of discourse, weaving together research findings, policy proposals, and regional case studies into a resource designed to inform both immediate decision-making and long-term strategy.



Fourteenth SDC (2011)

The fourteenth SDC, titled *Redefining Paradigms of Sustainable Development in South Asia*, brought together diverse perspectives on an expansive set of themes, including livelihoods, governance, literature, Sufism, poverty, geopolitics, forest management, REDD+, social accountability, the 18th Amendment, land rights, food security, education financing, feminism, economic non-cooperation, water governance, and energy sustainability. The peer-reviewed anthology published under the same title serves as a curated compendium of ideas and evidence, offering a multidisciplinary lens on how South Asia can reimagine its pathways to sustainable development in the face of complex, interlinked challenges.



Fifteenth SDC (2012)

The fifteenth SDC, titled *Sustainable Development in South Asia: Shaping the Future*, looked ahead to the next 20, 30, and even 50 years, identifying the critical issues likely to define the region's trajectory. Discussions offered concrete ideas for overcoming emerging challenges and presented practical policy recommendations for building a sustainable South Asia. Its peer-reviewed anthology translates these forward-looking deliberations into a structured body of knowledge, providing policymakers, researchers, and development practitioners with a roadmap for navigating the region's long-term future.



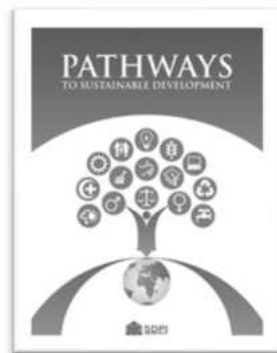
Sixteenth SDC (2013)

The sixteenth SDC, titled *Creating Momentum: Today is Tomorrow*, examined the critical link between present choices and future outcomes, emphasising that the ability to forecast and adapt decisions today can shape a more sustainable tomorrow. Across multiple sub-themes, discussions underscored the risks of delaying action warning that postponement could mean the permanent loss of opportunities. The resulting peer-reviewed anthology captures this sense of urgency, bringing into focus the conference's analyses, policy recommendations, and case studies into a call-to-action for decision-makers across South Asia and beyond.



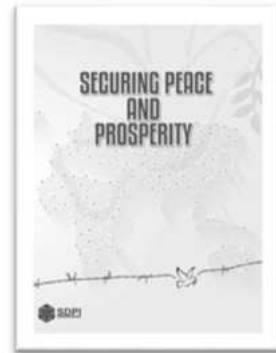
Seventeenth SDC (2014)

The seventeenth SDC, titled *Pathways to Sustainable Development*, explored how leadership transitions in China, Pakistan, Iran, Bangladesh, India, and Afghanistan could shape the region's future development trajectories. The discussions underscored the need for political and executive leadership committed to peace, human security, and the political economy of the region while engaging directly with its primary stakeholders, the people. In this context, panels addressed climate change, migration, sustainable and inclusive economic growth, regional energy-sharing, environmental challenges, food security, human rights, women's participation in peace processes, and regional connectivity. These insights were consolidated into a peer-reviewed anthology that serves as a regional reference point for advancing a shared vision of sustainable development.



Eighteenth SDC & Eighth SAES (2015)

The eighteenth SDC, titled *Securing Peace and Prosperity*, convened a ‘thinkers’ agenda’ in Islamabad bringing together leading regional think tanks, senior policymakers from across South Asia, and representatives of current and prospective SAARC member states. The conference examined the evolving dynamics of regional integration, with particular attention to the 2015 initiatives within SAARC aimed at opening new development corridors to accelerate sustainable growth and stability in the region. Held in parallel, the Eighth South Asia Economic Summit (SAES)—the region’s foremost platform for the political, social, and economic debate—expanded this dialogue, engaging stakeholders in a critical review of South Asia’s development challenges and opportunities under its theme of *Regional Cooperation for Sustainable Development in South Asia*. Together, these twin events created a rare convergence of foresight-based visioning, policy dialogue, and collaborative problem-solving. The consolidated insights, research, and policy recommendations from both the SDC and SAES were captured in the peer-reviewed anthology *Securing Peace and Prosperity*, which stands as a joint intellectual output, offering an integrated perspective on the pathways to peace, prosperity, and sustainable development in South Asia.



Nineteenth SDC (2016)

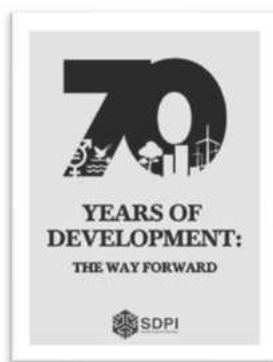
The nineteenth SDC, titled *Sustainable Development: Envisaging the Future Together*, examined the role of cooperation between developed and developing countries in advancing the Sustainable Development Goals, with a strong emphasis on human-centred approaches. Discussions addressed a broad set of interlinked themes, including post-conflict recovery, trade, economic growth, environmental sustainability, sustainable energy, regional economic integration,



minority rights, disaster risk management, climate change, youth employment, and the intersections of gender with both democracy and demography. The conference's proceedings were synthesised into a peer-reviewed anthology which integrates diverse perspectives into a unified framework for action. The volume not only documents the debates and evidence presented but also consolidates them into actionable strategies for policymakers, development practitioners, and scholars committed to shaping a more inclusive and sustainable future.

Twentieth SDC (2017)

The twentieth SDC, titled *Seventy Years of Development: The Way Forward*, stands out as one of the most significant gatherings in Pakistan's and the region's development discourse. Over three days, the conference brought together the best and brightest minds in 40 panels, roundtables, and podium discussions, including four plenary sessions, many of which ran concurrently. The event reviewed seven decades of development in Pakistan and the wider region, drawing on participation from across the globe. A total of 269 panellists from 16 countries—Afghanistan, China, Ethiopia, Finland, France, Germany, India, Italy, Nepal, Pakistan, Thailand, the Philippines, Sri Lanka, Switzerland, the United Kingdom, and the United States—shared their insights. The conference attracted an audience of over 3,000 participants, making it a landmark in SDPI's convening history. Its peer-reviewed volume presents a comprehensive reflection on Pakistan's development journey since independence. It examines the country's economic, social, political, and environmental transformations over seven decades, distilling lessons learnt and proposing policy directions for the decades ahead.



Twenty-First SDC & Eleventh SAES (2018)

The twenty-first SDC, held alongside the eleventh South Asia Economic Summit (SAES), explored the theme *Corridors of Knowledge for Peace and Development*. The joint events expanded the concept of ‘corridors’ beyond economic infrastructure to include corridors of connectivity, knowledge, and cooperation emphasising their potential to steer South Asia towards peace, stability, and sustainable development. Across 40 concurrent sessions, participants examined the implications of stalled regional organisations and processes, stressing that such setbacks must not hinder research, innovation, or the exchange of best practices. The dialogue underscored the importance of forging new collaborative partnerships in knowledge-sharing while reinforcing existing networks to strengthen the region’s collective capacity for problem-solving. The events brought together 261 delegates from 20 countries—Afghanistan, Australia, Brazil, Brussels, Canada, China, Germany, Kenya, Maldives, France, India, Nepal, Sri Lanka, Switzerland, Tajikistan, Thailand, Pakistan, the Philippines, the United Kingdom, and the United States. Of these, 204 participants were from within Pakistan, while 57 represented the other countries listed. Over 4,000 attendees engaged with the four-day proceedings. The peer-reviewed edited volume—*Corridors of Knowledge for Peace and Development*—consolidates the key debates, policy proposals, and case studies presented during the joint sessions, offering a forward-looking blueprint for harnessing connectivity and knowledge exchange as drivers of peace and regional prosperity.



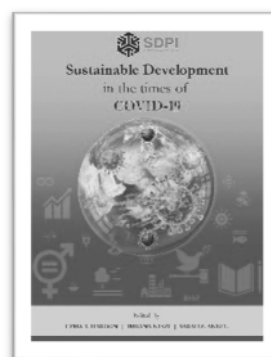
Twenty-Second SDC (2019)

The twenty-second SDC, themed *Sustainable Development in a Digital Society*, was inspired by the transformative wave of the Fourth Industrial Revolution (4IR) and the accelerating digitalisation reshaping human interaction, governance, and economic systems. The conference convened scholars, researchers, policymakers, innovators, and civil society leaders to explore how South Asia—and Pakistan in particular—can harness 4IR technologies, with Artificial Intelligence (AI) playing an increasingly pivotal role in development plans. The Inaugural Plenary was held on 2 December 2019 at Aiwan-e-Sadr, with the then-President of Pakistan, Dr Arif Alvi, serving as Chief Guest and formally inaugurating the event. Over three days, 223 panellists from 17 countries participated, including 192 from Pakistan and 31 international speakers representing Afghanistan, China, Finland, France, Germany, India, Iran, Italy, Maldives, Nepal, the Philippines, Sri Lanka, Thailand, Türkiye, the United Kingdom, and the United States. The conference also reflected a strong commitment to diversity and inclusion, with 150 male panellists, 69 female panellists, and four transgender panellists contributing their perspectives. The peer-reviewed anthology—*Sustainable Development in a Digital Society*—crystallises the conference's deliberations, offering critical insights on leveraging emerging technologies for inclusive, equitable, and sustainable growth in the digital era.



Twenty-Third SDC (2020)

The twenty-third SDC, titled *Sustainable Development in the Times of COVID-19*, focused on the profound impact of the Pandemic and the shifting contours of the global order in its aftermath. Held entirely online from 14–17 December 2020, the conference provided a platform to assess the health, economic, social, and environmental dimensions of the crisis while



exploring pathways for recovery and resilience. Over four days, 45 sessions, comprising nine plenaries and 36 concurrent discussions, were conducted, attracting 235 panellists from 25 countries. Of these, 174 participants were from Pakistan, while 61 international speakers joined from Afghanistan, Australia, Austria, Bangladesh, Brunei, Canada, China, Ecuador, Germany, Hong Kong, India, Kenya, Nepal, Nigeria, Saudi Arabia, South Africa, Singapore, Sri Lanka, Sweden, Switzerland, Thailand, the Netherlands, the United Kingdom, and the United States. The event drew an online audience of over 6,800 viewers from 84 countries, underscoring its extensive global reach and engagement. Its peer-reviewed anthology captures the breadth of research, analysis, and policy dialogue from the conference, offering a critical record of how South Asia and its partners dealt with one of the most disruptive global crises in modern history.

Twenty-Fourth SDC (2021)

The twenty-fourth SDC, themed *Beyond the Pandemic: Leaving No One Behind*, was held in a hybrid format from 6-9 December 2021 in Islamabad, Pakistan. Dr Arif Alvi, then-President of Pakistan, inaugurated the conference at the Presidency, while then-Prime Minister Imran Khan delivered a special message underscoring the importance of inclusive development. The four-day programme comprised 38 sessions—ten plenaries and 28 concurrent discussions—designed to be both forward-looking and

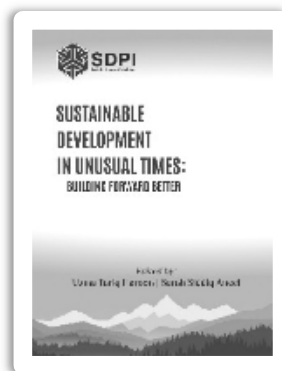


reflective, marking two years since the onset of the COVID-19 Pandemic. The event drew 2,365 in-person and online participants, featuring 250 speakers from 20 countries, including Afghanistan, Bangladesh, Bhutan, Canada, Ecuador, Fiji, Germany, India, Malaysia, Maldives, Nepal, Peru, Sri Lanka, Sweden, Switzerland, Thailand, the Netherlands, the United Kingdom, and the United States. The intellectual output of the conference was consolidated into a peer-reviewed anthology, *Beyond the Pandemic: Leaving No One Behind*, which not only documents the key debates and research findings but also serves as a resource for policymakers. By translating lessons from the Pandemic into actionable pathways, the

volume provides guidance on building resilient, equitable, and inclusive development systems for the future.

Twenty-Fifth (Silver Jubilee) SDC (2022)

From 5-8 December 2022, SDPI hosted its twenty-fifth SDC in Islamabad under the theme *Sustainable Development in Unusual Times: Building Forward Better*. Marking the Institute's Silver Jubilee, the hybrid event enabled both in-person and online participation. Held alongside UNESCAP's Sixth South and South-West Asia Forum (SSWAF) on the SDGs, the conference was jointly organised with the Ministry of Planning, Development & Special Initiatives, Government of Pakistan. Together, the two events brought together 345 panellists from 21 countries and regions, including Afghanistan, Bangladesh, Bhutan, Cambodia, Canada, China, Hong Kong, Germany, India, Iran, Italy, Malaysia, Maldives, Nepal, Pakistan, Singapore, Sri Lanka, Thailand, Türkiye, the United Kingdom, and the United States. Over four days, 46 sessions were convened—11 plenaries and 35 concurrent discussions—attracting a total audience of 5,000. The closing day featured Dr Arif Alvi, then-President of Pakistan, as Chief Guest. The peer-reviewed anthology from this milestone Silver Jubilee SDC draws together the extensive debates, research, and policy recommendations, offering a lasting record of the thought leadership and collaborative insights that emerged from this landmark gathering.



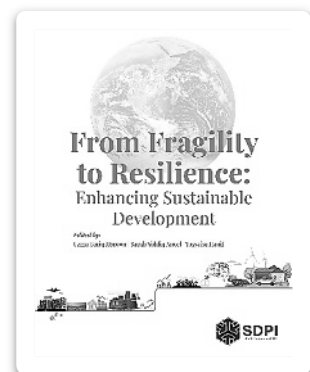
Twenty-Sixth SDC (2023)

The twenty-sixth SDC, themed *Light at the End of the Tunnel: Hope in Times of Despair*, was inaugurated by Dr Arif Alvi, then-President of the Islamic Republic of Pakistan. Over four days, 40 sessions—nine plenaries and 31 concurrent discussions—brought together more than 300 speakers from 19 countries, including Australia, Bangladesh, Canada, China, Germany, Italy, India, Kenya, Nepal, Norway, Pakistan, the Philippines, Qatar, Singapore, Sri Lanka, Switzerland, Thailand, the United Kingdom, and the United States. The event attracted an audience of over 3,000 participants. For the first time, the conference was complemented by a Sustainability Investment Expo (SIE) and a Food Security Hackathon. The Expo connected public and private sector innovators in the design, production, and management of sustainability-oriented products, services, and initiatives. The two-day Hackathon focused on developing creative solutions to pressing food security challenges in Pakistan and Afghanistan. The peer-reviewed anthology—published the following year under the same title—captured the event’s diverse dialogues, forward-looking research, and innovative case studies, serving as both a record of the conference and a resource for shaping regionally collaborative policy and practice.



Twenty-Seventh SDC (2024)

The twenty-seventh SDC, held from 4-7 November 2024 in Islamabad, Pakistan, carried the overarching theme *From Fragility to Resilience: Enhancing Sustainable Development*, underscoring SDPI's commitment to addressing contemporary global challenges through resilience-building and sustainable growth. The conference convened over 300 panellists from 15 countries—Bangladesh, Chile, China, Germany, India, Italy, Kenya, Nepal, Qatar, Sri Lanka, Switzerland, Thailand, the United Kingdom, and



the United States—alongside Pakistan. Syed Yousaf Raza Gilani, then-Acting President of the Islamic Republic of Pakistan and Chairman of the Senate, addressed the inaugural plenary as Chief Guest. Across four days, the programme featured 52 sessions, including 11 high-level plenaries, 29 concurrent discussions, and 12 fireside chats. The conference also hosted the second edition of the Sustainability Investment Expo (SIE), titled *Pioneering Solutions for Climate Resilience*, which brought together 35 companies and organisations from the development and private sectors. These included key innovators in the design, production, and management of sustainability-focused products, services, and initiatives. Development partners, including multilateral institutions exploring high-impact investment opportunities, showcased their work through knowledge booths. The peer-reviewed anthology book you hold in your hands is a compendium of the research, policy insights, and leadership vision that emerged from this landmark gathering, capturing the spirit of resilience and the pathways to a sustainable future for Pakistan and South Asia.

Note: Download past anthologies at the following link:
<<https://sdpi.org/sdconference/sdcpublications/publications>>.

Acknowledgements

The Sustainable Development Policy Institute (SDPI) is grateful for the support provided by donors and partners during the Twenty-seventh Sustainable Development Conference (SDC) 2024 titled *'From Fragility to Resilience: Enhancing Sustainable Development.'* They are listed below:

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- 40 BMZ (Federal Ministry for Economic Cooperation and Development
(Bundesministerium für wirtschaftliche Zusammenarbeit und
Entwicklung), Germany)
- 41 United Nations Economic and Social Commission for Asia and the
Pacific (UNESCAP)

SDC Anthology Review Panel

The Sustainable Development Policy Institute (SDPI) is committed to producing research that is both valuable and credible, underpinned by rigorous quality assurance processes. Central to this commitment is the blind peer review, a cornerstone in assessing the robustness, validity, and scholarly merit of the work published annually in the Sustainable Development Conference (SDC) Anthology. This year's volume includes peer-reviewed papers presented at the Twenty-Seventh SDC, reflecting the diversity and depth of discourse generated at the conference.

While our Panel of Referees continues to expand, we recognise that the quality of peer review depends not only on the process but also on the calibre of the reviewers themselves. Each referee is selected with deliberate care, based on their reputation, expertise, and relevance to the subject matter. Peer review is an essential yet often unseen aspect of scholarly publishing, and we deeply value the impartial, timely, and insightful feedback provided by our reviewers. Their fair and

constructive critique strengthens the integrity of the Anthology, ensuring it meets the highest standards of academic rigour.

The Institute and Anthology editors extend sincere gratitude to the academics, researchers, and professionals whose expertise has informed and enriched this year's publication:

Dr Abdul Saboor has extensive experience collaborating with leading national and international institutions, including the United Nations Development Programme (UNDP), the United Nations Children's Fund (UNICEF), the World Bank, the Food and Agriculture Organization of the United Nations (FAO), the International Food Policy Research Institute (IFPRI), the International Fund for Agricultural Development (IFAD), and the International Centre for Integrated Mountain Development (ICIMOD). Over the course of his career, he has supervised 30 doctoral dissertations and authored more than 100 publications and policy papers. Dr Saboor holds a postdoctoral qualification from the University of Oxford.

Dr Danish Junaid is a Senior Assistant Professor at Bahria University, Islamabad, specialising in entrepreneurship, strategy, and policy, with a particular focus on institutional development and governance in emerging economies. His research and teaching explore the intersections of business innovation, policy frameworks, and socioeconomic transformation.

Dr Farhat Rasul is an Associate Professor at the School of Business and Economics, University of Management and Technology (UMT), Lahore. Her research interests include development economics, labour markets, environmental economics and public policy analysis.

Dr Hina Aslam is an environmental management specialist with expertise in environment and climate policy, renewable energy, governance, climate finance, e-waste and circular-economy regulation, waste management, and cross-border value chains (including trade and investment law). She has led multi-country research and policy programmes across South Asia, the Asia-Pacific, and West Asia, and is trained and certified under the Greenhouse Gas (GHG) Protocol standards. She holds a PhD in Ecology from the University of Chinese Academy of Sciences, Beijing, and an MS in Environmental Engineering and Sciences from the Beijing Institute of Technology, China.

Dr Khalid Waleed is a Research Fellow at the Sustainable Development Policy Institute (SDPI). With over ten years' experience in Pakistan's energy sector, his expertise spans energy markets, energy poverty, energy transitions (macro and micro), sustainable resource futures, carbon markets and emissions trading, long-term macroeconomic sustainability, and econometrics. A strong advocate for integrating sustainable energy and environmental considerations into economic policy, he has authored a book and published multiple research papers. He represented Pakistan as an official negotiator for the Climate Mitigation team at the United Nations Framework Convention on Climate Change (UNFCCC) COP29 in Baku, Azerbaijan. He holds a PhD in Energy Economics.

Dr Muhammad Hassan Danish is an Assistant Professor of Economics at the School of Commerce and Accountancy, University of Management and Technology (UMT), Lahore, Pakistan. He also serves as Chief Editor of *Audit and Accounting Review* (since 2022). With over ten years of teaching and research experience, he has published more than 18 peer-reviewed articles. His research spans the economics of happiness and development studies on households and industrial economics, with a primary emphasis on empirical, primary-data methods. He completed his PhD in Economics at the National College of Business Administration and Economics (NCBA&E), Pakistan, in 2022, and in 2019 received an International Research Support Initiative Program (IRSIP) fellowship to conduct research at Radboud University, the Netherlands.

Sarah Kazmi is a Barrister-at-Law and an Advocate of the High Court of Pakistan, with over 14 years of experience in corporate and commercial law, particularly in the oil and gas, power, and infrastructure sectors. She serves as a founding partner at Energy Resource Management, a legal consultancy based in Islamabad, and regularly advises on matters such as commercial litigation, regulatory compliance, contract structuring, legislative drafting, dispute resolution, mergers and acquisitions, and international arbitration. Her legal training includes an LLB from the University of London (2007), and she was called to the Bar at Lincoln's Inn, London (2008).

Dr Shafqat Munir Ahmad is the Deputy Executive Director (Policy) and Head of Sustainability and Resilience Programme at the Sustainable Development Policy Institute (SDPI). Before joining SDPI, he served on regional positions in Asia while working with the United Nations

Development Programme (UNDP), Oxfam GB, and ActionAid out of their regional offices in Bangkok. He specialises in community resilience against climate change, disasters, and conflicts, SDGs, anticipatory action, rights in crisis.

Dr Usman Ahmad specialises in the interconnected domains of education, poverty, and social protection, with methodological strength in qualitative research. His research interests include education policy, poverty alleviation, and social protection systems.

Dr Vaqar Ahmed leads the United Kingdom Foreign, Commonwealth & Development Office (FCDO) programmes in Pakistan. A former civil servant, he has worked with the World Bank, the United Nations Development Programme (UNDP), and the Asian Development Bank (ADB), and has taught at universities in the United Kingdom and the European Union (EU). His expertise spans public finance, governance, taxation, and trade reform. He also serves as Adjunct Faculty at the Sustainable Development Policy Institute (SDPI).

Key Contributions

In addition to the leadership of SDPI's Executive Director, Dr Abid Qaiyum Suleri, the Twenty-Seventh SDC relied on the cooperation of thematic session organisers and rapporteurs; the late-night and weekend efforts of the IT, Administration, and Social Media teams; and the dedication of the entire SDPI staff. Above all, it benefited from the oversight of Uzma Tariq Haroon, ably supported by her team:

Asim Zahoor is a consultant for the Sustainable Development Policy Institute (SDPI), supporting the Sustainable Development Conference with event administration, database management, and bespoke operational solutions. He also transcribed all policy speeches delivered at SDC 2024, ensuring accurate records for policy follow-up and dissemination. He streamlines workflows and enhances database systems to meet client requirements across engagements. He holds a degree in Commerce.

Romila Qamar is Associate Managing Editor at the Sustainable Development Conference Unit of the Sustainable Development Policy Institute (SDPI), where she manages the Journal of Development Policy, Research & Practice (JoDPRP) and led rapporteur teams of the 2024 Sustainable Development Conference. She has over ten years' experience

in research publishing, editorial management, and research support, and regularly conducts capacity-building sessions for authors and editors on research quality, ethical publishing, journal development and indexation, research dissemination, and alignment with Higher Education Commission (HEC) of Pakistan and international standards. She holds an MPhil in Economics and Finance.

SDPI's Twenty-seventh Sustainable Development Conference (SDC)

From Fragility to Resilience: Enhancing Sustainable Development

&

**Second Sustainability Investment Expo (SIE)
Pioneering Solutions for Climate Resilience**

4 – 7 November 2024, Pakistan-China Friendship Center (PCFC),
Islamabad, Pakistan

<p>Day 1 Monday, 4 November 2024 Inaugural Plenary 1.1 Registration 9:30am-10:00am Plenary: 10:00am-11:30am</p>
<p>From Fragility to Resilience: Enhancing Sustainable Development</p> <p>Master of Ceremony: Dr. Khalid Waleed, Research Fellow, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Welcome Remarks: Ambassador Shafqat Kakakhel, Chairperson, Board of Governors, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Welcome Remarks: Ms Romina Khurshid Alam, Coordinator to the Prime Minister, Ministry of Climate Change and Environmental Coordination (MoCC&EC), Government of Pakistan</p> <p>Introductory Note: Dr. Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Chief Guest: Syed Yousaf Raza Gilani, Acting President & Chairman Senate, Islamic Republic of Pakistan</p> <p>Launch of Publications:</p> <ul style="list-style-type: none"> • <i>Light at the End of the Tunnel: Hope in Times of Despair</i> • <i>The Keeper of the Lighthouse: A Migrant's Story by Raheel Yawar (Biographies & Memoirs: Brig. Mohammad Yasin Retd.)</i> <p>Plenary Organisers: Mr Hassan Murtaza & Mr Asim Zahoor, SDPI</p> <p>Rapporteurs: Ms Sania Panezai & Mr Aftab Hameed Mirani</p>
<p>11:30am – 12:30pm</p>
<p>SI Expo Fireside Chat – 1 (Online) Air Pollution and Health: PM2.5 and Air-Q+ Estimation of Health End Points, A Review and Analysis from Two Urban Cities of Pakistan</p> <p>Host: Mr Syed Ali Wasif Naqvi, Sustainable Development Policy Institute, Islamabad, Pakistan</p> <p>In Conversation with:</p> <ul style="list-style-type: none"> • Dr Razia Safdar, Sustainable Development Policy Institute, Islamabad, Pakistan • Mr. Abid Omar, Founder, Pakistan Air Quality Initiative (PAQI), Karachi <p>Organiser: Dr Razia Safdar, SDPI</p> <p>Rapporteurs: Ms Khadija Hasan & Dr Tayyaba Masood</p>

<p>Day 1 Monday, 4 November 2024 Sustainability Investment Expo: Awards Plenary & Ribbon Cutting Plenary 1.2 12:30pm-2:00pm</p>
<p>Pioneering Solutions for Climate Resilience</p> <p>Moderator: Ms Saleha Qureshi, Research Associate, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Presentation: <i>SDPI's Sustainability Awards 2024: Statistics, Process and Evaluation Approach</i></p> <p>Welcome Remarks: Dr Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Sustainability Awards:</p> <ol style="list-style-type: none"> 1. Agri-Tech and Food Security: <i>Fauji Fertilizer Company Limited (FFCL)</i> 2. Circular Economy: <i>Concept Loop</i> 3. Gender Equality: <i>Pakistan Poverty Alleviation Fund (PPAF)</i> 4. Production Innovation and Decarbonisation: <i>Artistic Milliners</i> 5. Renewable Energy: <i>Fauji Cement Company Limited – FCCL</i> 6. Social Impact and Community Engagement: <i>MG Apparel</i> 7. Sustainability Education Innovator: <i>Habib Bank Limited (HBL)</i> 8. Water Conservation: <i>NED University of Engineering and Technology</i> <p>Remarks by Chief Guest: Senator Sherry Rehman, Chairperson/Convener, Senate Standing Committee on Climate Change and Environmental Coordination, Government of Pakistan</p> <p>Winners Group Photo with Jury Members and Chief Guest</p> <p>Introduction of Expo: Ms Zainab Naeem, Associate Research Fellow, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Ribbon Cutting and Visit of Stalls by the Chief Guest</p> <p>Plenary Organisers: Ms Romila Qamar, Ms Sahar Basharat, Ms Saleha Qureshi, Ms Sadia Satti & Ms Arooj Waheed Dar, SDPI</p> <p>Rapporteurs: Mr Ibraheem Khan & Ms Ramlah Javed</p>
<p style="text-align: center;">2:00pm-3:00pm</p> <p>SI Expo Fireside Chat – 2 (Online)</p> <p>Sustainability Governance of China's Global Infrastructure Investment</p> <p>Host: Engr. Ubaid Ur Rehman Zia, Sustainable Development Policy Institute, Islamabad, Pakistan</p> <p>In Conversation with: Prof. Dr Yixian Sun, University of Bath, UK</p>

<p>Launch: S-GAIN Project between Sustainable Development Policy Institute and University of Bath</p> <p>Organiser: Engr. Ubaid Ur Rehman Zia, SDPI</p> <p>Rapporteurs: Ms Zainab Babar & Mr Nazar Muhammad</p>
<p>Day 1 Monday, 4 November 2024 Plenary 1.3 3:00pm-4:30pm</p>
<p><i>High-Level Plenary</i> Legal Framework of Climate Finance</p> <p>Moderator: Dr Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Scene Setting: Justice Jawad Hassan, Lahore High Court</p> <p>Speakers:</p> <ol style="list-style-type: none"> 1. Syed Bulent Sohail, Advocate High Court & Managing Partner, Sohail & Partners, LLP 2. Mr Khurram Lalani, Principal, Resources Future Limited 3. Prof. Dr Christian Tietje, Martin Luther University Halle-Wittenberg, Germany (<i>Online</i>) 4. Prof. Petra Minnerop, Professor of International Law, University of Durham, UK (<i>Online</i>) <p>Plenary Organisers: Dr Shafiqat Munir Ahmad & Engr. Ubaid ur Rehman Zia, SDPI</p> <p>Rapporteurs: Ms Ramsha Mehboob Khan & Ms Amna Jamshaid</p>
<p>4:30pm-5:30pm</p>
<p><i>SI Expo Fireside Chat – 3 (Online)</i> Partnership for Action in Climate and Energy</p> <p>Host: Ms Zainab Naeem, Sustainable Development Policy Institute, Islamabad, Pakistan</p> <p>In Conversation with: Ms Sobiah Becker, Advisor, Pak-German Climate & Energy Partnership, GIZ, Islamabad</p> <p>Organiser: Ms Zainab Naeem, SDPI</p> <p>Rapporteur: Dr Tayyaba Masood</p>

<p>Day 1 Monday, 4 November 2024 Plenary 1.4 5:30pm-7:00pm New York Time 7:30am-9:00am</p>
<p>Economic Resilience amidst Turbulent Times</p> <p>Master of Ceremony: Engr. Ahad Nazir, Associate Research Fellow & Head Center for Private Sector Engagement, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Moderator: Dr Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Scene Setting Presentation: Prof. Dr Shantayanan Devarajan, Georgetown University, Washington, D.C., USA (<i>Online</i>)</p> <p>Distinguished Speakers:</p> <ul style="list-style-type: none"> • Dr Samuel Rizk, Resident Representative, United Nations Development Programme, Pakistan • Dr Dushni Weerakoon, Executive Director, Institute of Policy Studies of Sri Lanka (IPS), Sri Lanka • Mr Najib Benhassine, Country Director, The World Bank, Pakistan Office • Ms Esther Perez Ruiz, Resident Representative, International Monetary Fund (IMF), Pakistan Office <p>Plenary Organisers: Engr. Ahad Nazir, Ms Maheen Rehan & Dr Khalid Waleed, SDPI</p> <p>Rapporteurs: Ms Maheen Rehan & Mr Tahir Zaman</p>
<p>Day 2 Tuesday, 5 November 2024 Plenary 2.1 Registration: 9:30am-10:00am Plenary: 10:00am-11:30am</p>
<p>Leveraging New Economic Geography for Shared Prosperity, Stability and Resilience</p> <p>Master of Ceremony: Ms Khansa Naeem, Research Associate, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Moderator: Dr Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Scene Setting: Mr Haroon Sharif, Chairman, Pakistan Regional Economic Forum (PREF), Islamabad, Pakistan</p> <p>Distinguished Panellists:</p> <ol style="list-style-type: none"> 1. Engr. Khurram Dastgir Khan, Former Federal Minister, Government of Pakistan 2. Ambassador Naghmana Hashmi, Former Ambassador of Pakistan to China

3. Dr Dushni Weerakoon, Executive Director, Institute of Policy Studies of Sri Lanka (IPS), Sri Lanka
4. Dr Paras Kharel, South Asia Watch on Trade, Economics and Environment (SAWTEE), Nepal
5. Dr Rajan Sudesh Ratna, United Nations Economic and Social Commission for Asia and the Pacific: Sub-regional Office for South and South-West Asia (UNESCAP-SSWA), India
6. Dr Moeed Yusuf, Vice Chancellor, Beaconhouse National University (BNU), Lahore, Pakistan (<i>Online</i>)
Plenary Organisers: Mr Hassan Murtaza & Mr Asim Zahoor, SDPI
Rapporteur: Ms Aqsa Huma
11:30am-12:30pm
SI Expo Fireside Chat - 4 (<i>Online</i>)
Book Discussion: Paper Soldiers – How Weaponization of the Dollar Changed the World Order
In Conversation with: Ms Saleha Mohsin, Senior Washington Correspondent, Bloomberg News, Washington, D.C., USA
Organiser: Ms Zainab Naeem, SDPI
Rapporteur: Mr Intesham Ul Haq & Mr Aftab Hameed Mirani

Day 2 Tuesday, 5 November 2024			
Thematic Session A-1	Thematic Session A-2	Thematic Session A-3	Thematic Session A-4
12:30pm- 2:00pm	12:30pm- 2:00pm	High-Level Policy Dialogue (<i>Podium Discussion</i>)	Role of Textile Industry in Strengthening Climate Action in Pakistan
Podium Discussion Women Leading Sustainable Development: Addressing SDGs and Beyond	Roundtable Debt, Debt Justice and Development	Driving Special Economic Zones (SEZs) Development Under CPEC 2.0: Opportunities for Sustainable Industrial Growth	Moderator: Ms Zainab Naeem, SDPI Chair: Mr Muhammad Farooq, Sr. Joint Secretary (CC & Environment), GoP Keynote Speaker: Mohammad Nisar Palla, COO, Yunus Textile Mills Panellists: 1. Mr Ahmad Gazi, European Union Delegation to Pakistan
Moderator: Dr Fareeha Armughan, SDPI	Moderator: Dr Sajid Amin Javed, SDPI Opening Remarks: Mr Abdullah Dayo, FES Chair: Rana Ihsaan Afzal, Coordinator to Prime Minister on Implementation and Monitoring, GoP Speakers: 1. Mr Mohsin Mushtaq Chandna, DG (Debt), Finance Division, GoP 2. Dr Dushni Weerakoon, IPS, Sri Lanka 3. Dr Paras Kharel, SAWTEE, Nepal 4. Dr Hamza Ali Malik, Director MPFD, UNESCAP, Thailand 5. Dr Farooq Sattar, MNA, MQM	Moderator: Engr. Ubaid ur Rehman Zia, SDPI Welcome Remarks: Dr Abid Qaiyum Suleri, SDPI Opening Remarks: Mr Mustafa Hyder Sayed, ED, PCI Technical Presentation: Dr Hassan Daud Butt, Senior Advisor, Energy China	

<p>4. Dr Zeba Sathar, CD, Population Council</p> <p>Panel Organisers: Ms Fatima Muzammil & Mr Yahya Gulraiz, SDPI</p> <p>Rapporteurs: Mr Yahya Gulraiz & Ms Ramlah Javed</p>	<p>6. Ms Ammara Durrani, UNDP</p> <p>7. Mr Ali Salman, ED, PRIME Institute</p> <p>8. Mr Mosharraf Zaidi, ED, Tabadlab</p> <p>9. Mr Khurram Hussain, Journalist, Karachi</p> <p>10. Mr Mehtab Haider, Senior Journalist, The News</p> <p>11. Mr Imtiaz Ali Solangi, FBR, GoP</p> <p>Panel Organisers: Dr Sajid Amin Javed & Ms Aqsa Naveed, SDPI Mr Abdullah Dayo, FES</p> <p>Rapporteurs: Ms Aqsa Naveed & Dr Tayyaba Masood</p>	<p>Keynote Speech: Senator Mushahid Hussain Syed, Chairman, PCI</p> <p>Distinguished Speakers:</p> <ol style="list-style-type: none"> 1. Mr Wang Huihui, Chairman, CCCI 2. Mr Shakeel Ahmad Ramay, AIERD 3. Dr Erfa Iqbal, Additional Secretary / EDG, Bol, GoP <p>Panel Organisers: Dr Khalid Waleed, Engr. Ubaid ur Rehman Zia & Ms Saira Adnan, SDPI</p> <p>Rapporteurs: Mr Fahad Nadeem & Ms Ayesha Naeem</p>	<p>2. Mr Asad Naqvi, UNEP, Geneva</p> <p>Closing Remarks: Dr Abid Qaiyum Suteri, SDPI</p> <p>Panel Organisers: Ms Zainab Naeem & Ms Amna Urooj, SDPI</p> <p>Rapporteurs: Mr Ali Zawar & Mr Aftab Hameed Mirani</p>
2:00pm - 3:00pm			
<p><i>SI Expo Fireside Chat - 5 (Online)</i></p> <p>Danish Energy Transition Program in Pakistan</p> <p>Host: Engr. Ubaid ur Rehman Zia, Sustainable Development Policy Institute, Islamabad, Pakistan</p> <p>In Conversation with: Dr Nadeem Niwaz, Special Advisor & Country Manager, Global Cooperation, Danish Energy Agency</p> <p>Organiser: Ms Zainab Naeem, SDPI</p> <p>Rapporteur: Ms Arfa Ijza</p>			
Thematic Session A-5	Thematic Session A-6	Thematic Session A-7	Thematic Session A-8
3:00pm - 4:30pm			
<p><i>Policy Dialogue</i></p> <p>Fragility to Resilience through Citizen-Led Accountability</p> <p>Moderator: Ms Uzma Nomani, PPAF</p> <p>Chair: Mr Mohammad Tahseen, Board Chairperson, PPAF</p>	<p>Socio-Climate Compliance for Resilience of Labour and Industry</p> <p>Moderator: Dr Shafiqat Munir Ahmad, SDPI</p> <p>Chair: Senator Samina Mumtaz Zehri, Chairperson/ Convener, Senate Standing Committee on Human Rights, GoP</p>	<p>Women in Trade – A South Asian Perspective</p> <p>Moderator: Ms Sadia Satti, SDPI</p> <p>Chair: Ms Gulmina Bilal Ahmad, Chairperson, NAVTTC</p> <p>Opening Remarks: Ms Birgit Lamm, Country Head, FNF Pakistan</p>	<p>Global Plastics Negotiations and its Local Implications: Pakistan's Readiness</p> <p>Moderator: Ms Zainab Naeem, SDPI</p> <p>Speakers:</p> <ol style="list-style-type: none"> 1. Mr Sheikh Waqar Ahmad, CEO, CoRe Alliance

<p>Presentation: Mr Nadir Gul Barech, CEO, PPAF</p> <p>Speakers:</p> <ol style="list-style-type: none"> 1. Dr Shahid Naeem, Consultant, MoPASS, GoP 2. Mr Masood ul Mulik (TI), CEO, SRSP 3. Ms Mome Saleem, UNICEF <p>Panel Organisers: Mr Ahmed Khaver, SDPI Ms Uzma Noman, PPAF</p> <p>Reporteurs: Mr Tahir Zaman & Mr Nazar Muhammad</p>	<p>Presentations:</p> <ul style="list-style-type: none"> • Dr Shafiqat Munir Ahmad, SDPI - <i>Socially and Environmentally Compliant Brick Kiln Framework</i> • Ms Rabia Razaque, ILO - <i>Global Report: Heat at Work: Implications for Safety and Health: A Global Review of the Science, Policy, and Practice</i> <p>Speakers:</p> <ol style="list-style-type: none"> 1. Mr Federico Santos Azcarate, Labour Issues Expert, Washington, D.C., USA 2. Mr Iqbal Detho, SHRC, Karachi 3. Mr Ikram Rasheed, Senior Advisor, Construction Industry <p>Closing Remarks: Dr Abid Qaiyum Suleri, SDPI</p> <p>Panel Organisers: Dr Shafiqat Munir Ahmad, Mr Muhammad Awais Umar, Ms Ramsha Mehboob Khan, Mr Ali Rehmat & Mr Irfan Ahmad Chatha, SDPI Ms Rabia Razaque, ILO</p> <p>Reporteurs: Mr Ibraheem Khan & Ms Ramsha Mehboob Khan</p>	<p>Guest of Honour: Dr Najma Afzal Khan, Former MPA, GoP</p> <p>Presentation: Ms Mahnoor Arshad, SDPI</p> <p>Speakers:</p> <ol style="list-style-type: none"> 1. Ms Anjum Assad Amin, Former Chairperson, NTC, MoCom, GoP 2. Mr Aftab Haider, CEO, PSW 3. Ms Nausheen Barkat, CEO Asqurr; Co-Convenor FPCCI Central CSR Standing Committee on Innovation & Entrepreneurship, Karachi <p>Panel Organisers: Ms Sadia Satti & Ms Mahnoor Arshad, SDPI</p> <p>Reporteurs: Ms Farwa Gohar & Ms Ramlah Javed</p>	<ol style="list-style-type: none"> 2. Ms Jodie Roussel, The Business Coalition for a Global Plastics Treaty, Nestlé (<i>Online</i>) 3. Ms Bontu Yousuf, WEF, Geneva (<i>Online</i>) 4. Dr Basit Yameen, LUMS, Lahore 5. Mr Faraz Ahmed Toor, LII, UN Resident Coordinator's Office 6. Mr Babar Aziz Bhatti, Green Earth Recycling <p>Panel Organisers: Ms Zainab Naeem, SDPI Ms Namwar Yusuf, CoRe Alliance</p> <p>Reporteurs: Ms Faria Farooq</p>
<p>4:30pm – 5:30pm</p> <p>Thematic Session A-9 The Life and Work of Mr Karamat Ali <i>Dedicated to (Late) Mr Karamat Ali, Champion of the Cause of Labour</i></p> <p>Moderator: Dr Shafiqat Munir Ahmad, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Documentary on the Life of Mr Karamat Ali</p> <p>Opening Remarks: Dr Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Distinguished Panellists:</p> <ol style="list-style-type: none"> 1. Mr Mohammad Tahseen, Executive Director, South Asia Partnership Pakistan 2. Ms Mahnaz Rehman, Former Resident Director, Aurat Foundation, Karachi (<i>Online</i>) 3. Ms Farhat Parveen, Executive Director, NOW Communities, Karachi (<i>Online</i>) 			

<p>4. Dr Navsharan Singh, Former Senior Program Specialist, International Development Research Centre (IDRC), India (<i>Online</i>)</p> <p>5. Dr Saba Khattak, Former Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan (<i>Online</i>)</p> <p>6. Mr Jatin Desai, Journalist, Mumbai, India</p> <p>Reflections from Friends</p> <p>Organiser: Dr Shafqat Munir Ahmad, SDPI</p> <p>Rapporteurs: Mr Ali Rehmat & Mr Ibraheem Khan</p> <p>4:30pm- 5:30pm</p> <p>SI Expo Fireside Chat – 6 (<i>Online</i>) Inclusive Climate Investment</p> <p>Host: Ms Zainab Naeem, Sustainable Development Policy Institute, Islamabad, Pakistan</p> <p>In Conversation with: Ms Lisa Gans, Director, Inclusive Investment, USAID's Climate Finance for Development Accelerator (CFDA) & CollaborateUp Blended Finance Business Unit</p> <p>Organiser: Ms Zainab Naeem, SDPI</p> <p>Rapporteur: Mr Nazar Muhammad</p>
<p>Day 2</p> <p>Tuesday, 5 November 2024</p> <p>Evening Plenary 2.2</p> <p>5:30pm-7:00pm</p> <p>Developing Resilient Food Systems: Climate Change, Regenerative Agriculture and Digital Innovation</p> <p>Moderator: Dr Kashif Majeed Salik, Research Fellow, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Chief Guest: Ms Aisha Humera Chaudhry, Secretary, Ministry of Climate Change and Environmental Coordination (MoCC&EC), Government of Pakistan</p> <p>Keynote Speaker: Dr Adil Najam, Professor and Dean Emeritus, Boston University, USA</p> <p>Presentation: Mr Zafar Masud, President and CEO, The Bank of Punjab (<i>Online</i>) – <i>Case Study: Chief Minister Punjab Kissan Card</i></p>

Speakers:

1. Dr. Fuad Imran Khan, Chief Commercial Officer, Concave AGRI
2. Mr. Kazim Saeed, Chief Executive Officer, Pakistan Agricultural Coalition (PAC), Karachi, Pakistan
3. Mr. Mustapha Yousaf, Chief Executive Officer, Blume Agri & Dar-Es-Salaam Farms
4. Mr. Waqar Ahamad, Head of Corporate Affairs & Sustainability, Nestlé Pakistan

Plenary Organisers: Dr. Kashif Majeed Salik & Mr. Mobeen Ali Khan, SDPI | Ms. Aatekah Mir Khan & Ms. Namwar Yusuf Rahman, Nestlé Pakistan

Rapporteur:

Ms. Ramlah Javed

Day 2
Tuesday, 5 November 2024
Evening Plenary 2.3
5:30pm-7:00pm

Developing a Resilient Economy: Fostering Digital Innovations in Agriculture, Textiles and Beyond

Master of Ceremony: Mr. Irfan Ahmad Chatha, Associate Research Fellow, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan

Moderator & Opening Remarks: Dr. Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan

Chief Guest: Ms. Shaza Fatima Khawaja, Minister of State for Information Technology & Telecommunications (MoITT), Government of Pakistan

Keynote Speaker: Mr. Mohamed Yahya, UN Resident Coordinator and Humanitarian Coordinator, Pakistan

Guest of Honour: Dr. Ishrat Husain, Former Federal Minister & Governor State Bank of Pakistan

Distinguished Speakers:

1. Dr. Jordanka Tomkova, Senior Digital Transformation and M&E Advisor, Innovabridge Foundation, Switzerland (*Online*)
2. Dr. Jing Huang, Economic Affairs Officer, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), India
3. Mr. Tanveer Karamat, Chief Executive Officer, Octopus Digital, Lahore (*Online*)

Plenary Organisers: Mr. Irfan Ahmad Chatha & Ms. Soha Nisar, SDPI

Rapporteurs:

Ms. Soha Nisar & Mr. Tahir Zaman

Day 3 Wednesday, 6 November 2024			
Thematic Session B-1	Thematic Session B-2	Thematic Session B-3	Thematic Session B-4
Registration: 9:30am-10:00am Sessions: 10:00am-11:30am			
<p><i>Roundtable</i> Role of Microfinance Institutions for Climate Risk Insurance</p> <p>Moderator: Mr Asif Javed, SDPI</p> <p>Chair: Mr Wazirzada Yasir A. Khan, Additional Joint Director, SECP</p> <p>Presentation: Ms Zainab Naeem & Mr Umar Farooq, SDPI</p> <p>Speakers:</p> <ol style="list-style-type: none"> 1. Syed Bulent Sohail, Head Program & Partnerships, IBA 2. Ms Khowla Shoaib, Head of Strategy, Mobilink Microfinance Bank Ltd. 3. Mr Mumtaz Iqbal, COO, Kashf Foundation 4. Mr Ali Basharat, Head of Operations, PMN 5. Mr Umer Baloch, Economist, TWB 6. Mr Anirudha Mirikar, Director, SELF, India <i>(Online)</i> 7. Mr Raza Narejo, DCD, Islamic Relief, Pakistan 8. Ms Rimsha Taj, AVP – Research, PMIC <p>Closing Remarks: Mr Hamza Ali Haroon, Regional Director, South Asia, CVF & V20</p> <p>Panel Organisers: Ms Zainab Naeem & Mr Umar Farooq, SDPI</p>	<p><i>Roundtable</i> Living Wage for a Sustainable Pakistan: Bridging Gaps, Building Equity</p> <p>Moderator: Mr Abdullah Khalid, SDPI</p> <p>Technical Presentation: Ms Fatima Arshad, Unilever – <i>Understanding and Implementing Living Wages</i></p> <p>Opening Remarks: Dr Shafiqat Munir Ahmad, SDPI</p> <p>Speakers:</p> <ol style="list-style-type: none"> 1. Dr Sebastian Paust, Embassy of the Federal Republic of Germany 2. Mr Guillermo Montt, ILO, Chile 3. Dr Asad Sayeed, CSSR, Karachi <i>(Online)</i> 4. Dr Azfar Khan, ARI <i>(Online)</i> 5. Mr Iftikhar Ahmad, Labour Law Expert, CLR 6. Mr Monis Rahman, Rozee.pk <i>(Online)</i> 7. Ms Nageen Akhtar, Head of Innovation, Bank Alfalah, Karachi <p>Panel Organisers: Engr. Ahad Nazir, Mr Abdullah Khalid, Ms</p>	<p>Ahmad Salim: A Life and Legacy Dedicated to (Late) Mr Ahmad Salim</p> <p>Moderator: Mr Abid Rasheed, SDPI</p> <p>Opening Remarks: Dr Abid Qaiyum Suleri, SDPI</p> <p>Documentary on the life of Mr Ahmad Salim</p> <p>Chair: Mr Murtaza Solangi, Former Minister of Information and Broadcasting, GoP</p> <p>Guest of Honour: Barrister Naseem Ahmed Bajwa, UK</p> <p>Speakers:</p> <ol style="list-style-type: none"> 1. Mr Panah Baloch, Writer, Balochistan 2. Mr Abid Hussain Abid, Progressive Writer/Poet, KPK 3. Dr Syed Jaffar Ahmed, Dean, Sohail University, Karachi 4. Mr Niaz Nadeem, ICF, Sindh 5. Ms Nuzhat Abbas, Poet, UK 6. Mr Rana Fawad, MD, GALCO, Qatar <p>Closing Remarks: Dr Humaira Ashfaq, IJUJ</p>	<p>Pakistan at 2047: Opportunities & Challenges for Today's Youth and Future Human Capital</p> <p>Moderators: Dr Amna Khan & Dr Razia Safdar, SDPI</p> <p>Chair: Mr Abdullah Fadil, UNICEF Pakistan</p> <p>Panellists:</p> <ol style="list-style-type: none"> 1. Mr Bilal Anwar, NDRMF 2. Ms Rabia Awan, PBS 3. Ms Cindy Kushner, UNICEF, Pakistan 4. Dr Nicolai Dellmann, GIZ Pakistan 5. Mr Jahanzaib Sohail, TWB 6. Mr Muhammad Bilal Abbasi, Ignite – National Technology Fund 7. Dr Safdar Sohail, SPRC 8. Dr Lubna Naz, CBER, IBA <i>(Online)</i> <p>Closing Remarks: Dr Abid Qaiyum Suleri, SDPI</p> <p>Panel Organiser: Dr Razia Safdar, SDPI</p> <p>Rapporteurs: Ms Khadija Hasan & Mr Aftab Hameed Mirani</p>

Rapporteur: Ms Aqsa Huma	Maheen Rehan & Mr Hammad Nadir, SDPI Rapporteurs: Ms Maheen Rehan & Dr Tayyaba Masood	Panel Organisers: Dr Humaira Ashfaq, IIUI Mr Ali Aamer, SDPI Rapporteur: Ms Anum Fatima	
11:30am-12:30pm			
SI Expo Fireside Chat - 7 (Online) Private Sector Role in Climate Initiatives			
Host: Ms Saleha Qureshi, Sustainable Development Policy Institute, Islamabad, Pakistan			
In Conversation with: Mr Favad Soomro, Head, Engro Foundation, Pakistan			
Organiser: Ms Zainab Naeem, SDPI			
Rapporteur: Ms Faria Farooq			
Thematic Session B-5	Thematic Session B-6	Thematic Session B-7	Thematic Session B-8
12:30pm-2:00pm			
Building Resilient Health Systems in the Wake of Climate Crisis in South Asia Moderator: Ms Khansa Naeem, SDPI Chair: Dr Mehreen Mujtaba, MoHSRC, GoP Special Remarks: Dr Robert Marten, AHSR, Geneva	Bridging the Gender Gap: Empowering Women in Digital Banking and E-Commerce in Pakistan Moderator: Ms Zainab Naeem, SDPI Special Remarks: Dr Van Nguyen, UNDP Pakistan Speakers: <ol style="list-style-type: none"> Ms Nageen Akhter, Head Digital Innovation & Integrations Department, Bank Alfalah Mr Pervaiz Ifrikhar, Member PM's Council of IT, GoP Ms Quratulain Chaudhary, Executive Manager, Mobitink Microfinance Bank Ltd. 	Roundtable From Fragility to Resilience: Strengthening Tobacco Control in Pakistan Moderator: Mr Wasif Naqvi, SDPI Chair: Prof. Dr Zafar Mirza, Director, STMU (Online) Speakers: <ol style="list-style-type: none"> Dr Minhaj us Siraj, Syndicate Health Mr Anees Ahmed, CTFK Ms Asiya Arif, SPARC Dr Armina Khan, The Initiative, Islamabad Ms Elvina Majiwa, Marketing & Communications Consultant, Kenya (Online) Mr John Thomi, NTA, Kenya (Online) 	Roundtable Local Government System in Pakistan: From Challenges to Resilience Master of Ceremony: Ms Sadia Satti, SDPI Moderator: Mr Moazzam S Bhatti, SDPI Special Remarks: Barrister Naseem Ahmed Bajwa, UK Distinguished Panelists: <ol style="list-style-type: none"> Dr Nafisa Shah, Co-convener Parliamentary Forum on Energy and Economy Mr Muhammad Jawed Hanif Khan, Chairman, Standing Committee on Commerce, GoP

<p>Panel Organisers: Syed Qasim Ali Shah, Ms Rabia Tabassum & Ms Khansa Naeem, SDPI</p> <p>Rapporteurs: Ms Dua Mobeen & Dr Tayyaba Masood</p>	<p>4. Dr Fareeha Armughan, SDPI</p> <p>Panel Organisers: Ms Zainab Naeem, Mr Umar Farooq, SDPI Syed Talha Uddin Hyder, Bank Alfalah</p> <p>Rapporteur: Mr Ibraheem Khan</p>	<p>7. Mr Asif Iqbal, SPDC, Karachi (Online)</p> <p>8. Ms Sania Ali Khan, STOP Pakistan</p> <p>9. Ms Sana Ahmad, Blue Veins Organization, Peshawar</p> <p>10. Dr Waseem Iftikhar Janjua, SDPI</p> <p>Panel Organisers: Dr Waseem Janjua, Mr Wasif Naqvi & Ms Radma Nouman, SDPI</p> <p>Rapporteurs: Mr Yahya Gulraiz & Mr Ali Zawar</p>	<p>3. Mr Muhammad Riaz Fatyana, MNA</p> <p>4. Syed Firasat Shah, Deputy Secretary General, JI Pakistan</p> <p>Panel Organisers: Mr Moazzam S. Bhatti, Ms Sadia Satti & Engr. Ubaid ur Rehman Zia, SDPI</p> <p>Rapporteur: Ms Sania Panezai</p>
<p>2:00pm-3:00pm</p>			
<p><i>SI Expo Fireside Chat - 8 (Online)</i> PepsiCo's rPET Journey</p> <p>Host: Ms Zainab Naeem, Sustainable Development Policy Institute, Islamabad, Pakistan</p> <p>In Conversation with: Ms Hiba Akhtar, Supply Chain Operations Director Beverages and Head Office of Sustainability, PepsiCo Pakistan</p> <p>Organiser: Ms Zainab Naeem, SDPI</p> <p>Rapporteur: Ms Amna Jamshaid</p>			
<p>Thematic Session B-9</p>	<p>Thematic Session B-10</p>	<p>Thematic Session B-11</p>	<p>Thematic Session B-12</p>
<p>3:00pm-4:30pm</p>			
<p><i>Roundtable</i> Inclusive Crop Residue Management and Sustainable Agriculture</p> <p>Moderator: Dr Jing Huang, ESCAP-SSWA</p> <p>Opening & Closing Remarks: Dr Rajan Sudesh Ratna, UNESCAP-SSWA, India</p>	<p><i>National Level Policy Dialogue</i> Circularity and Used Textile Trade</p> <p>Moderator: Ms Zainab Naeem, SDPI</p> <p>Chair: Mr Gaiser Ahmed Sheikh, Federal Minister for Maritime Affairs of Pakistan, GoP</p>	<p><i>High Level Pre-COP29 Policy Dialogue</i> Green Financing and Climate Action through Private Sector</p> <p>Moderator: Dr Khalid Waleed, SDPI</p> <p>Chair & Closing Remarks: Dr Muhammad Rafiq, Member Climate Finance, PCCA</p>	<p>Societal Cohesion: Promoting Tolerance and Peace for Inclusive Development</p> <p>Moderator: Dr Shafqat Munir Ahmad, SDPI</p> <p>Distinguished Speakers:</p> <ol style="list-style-type: none"> Senator Farhatullah Babar, PPP Senator Afrasiab Khattak, ANP

<p>Welcome Remarks: Dr Abid Qaiyum Suleri, SDPI</p> <p>Speakers:</p> <ol style="list-style-type: none"> 1. Dr Dushni Weerakoon, IPS, Sri Lanka 2. Dr Paras Kharel, SAWTEE, Nepal 3. Dr Babar Shahbaz, UAF 4. Mr Imran Shiekh, PBHF 5. Mr Anjum Ali Butt, PSEF, Punjab <i>(Online)</i> 6. Mr Sultan Ahmed Bhatti, Farmers Representative, Gujranwala 7. Dr Razia Safdar, SDPI 8. Dr Kashif Majeed Saliq, SDPI 9. Mr Irfan Ahmad Chatha, SDPI 10. Mr Umendra Dutt, KVM, India <i>(Online)</i> 11. Mr Karan Singh, KVM, India <i>(Online)</i> 12. Ms Rupsi Garg, KVM, India <i>(Online)</i> 13. Mr Usman Manzoor, GGPI 14. Mr Zawar Kazmi, Head of Agro, PepsiCo Pakistan <p>Panel Organisers: Mr Junaid Zahid & Ms Soha Nisar, SDPI Dr Rajan Sudesh Ratna & Ms Jing Huang, UNESCAP</p> <p>Rapporteur: Ms Faria Farooq</p>	<p>Speakers:</p> <ol style="list-style-type: none"> 1. Mr Asad Naqvi, UNEP, Geneva 2. Mr Jeroen Willems, EU Delegation to Pakistan 3. Mr Umar Farooq, MoCom, GoP 4. Ms Yulia Bazhenova, GLZ, Germany 5. Mr Mustafa Sattar, Retex Global & KEPZ, Karachi 6. Mr Mudassar Raza Siddiqi, DG (Textile), MoCom, GoP <p>Closing Remarks: Dr Abid Qaiyum Suleri, SDPI</p> <p>Panel Organisers: Ms Zainab Naeem & Ms Amna Arooj, SDPI</p> <p>Rapporteur: Ms Amna Jamshaid</p>	<p>Speakers:</p> <ol style="list-style-type: none"> 1. Mr Jason Avancena, OICCI 2. Mr Samuel Rizk, UNDP 3. Mr Sheikh Waqar Ahmad, Nestlé 4. Ms Fatima Arshad, Unilever Pakistan 5. Mr Adnan Pasha Siddiqi, HBL 6. Mr Farooq Pasha, Standard Chartered Bank 7. Mr Fawad Soomro, Engro Foundation <p>Panel Organisers: Ms Saleha Qureshi & Dr Khalid Waleed, SDPI</p> <p>Rapporteurs: Ms Aqsa Huma & Mr Sarim Zia</p>	<ol style="list-style-type: none"> 3. Ms Zebunnisa Burki, The News International, Karachi 4. Dr Syed Kaleem Imam, Former Federal Secretary, MNC, GoP 5. Ms Asma Shirazi, Senior Journalist & Anchor 6. Ms Karon Shaiva, IDOBRO & RIF, India <i>(Online)</i> 7. Dr Saber Ahmed Chowdhury, University of Dhaka, Bangladesh <i>(Online)</i> 8. Mr Dushyanth Weeraman, Sri Lanka 9. Ms Farwa Zafar, KKAWF <p>Panel Organisers: Mr Abid Rasheed, Ms Uzma T. Haroon & Ms Tayyaba Hanif, SDPI</p> <p>Rapporteur: Mr Nazar Muhammad</p>
4:30pm-5:30pm			
<p>SI Expo Fireside Chat - 9 (Online) From Classroom to Community: Collaborative Approaches to Environmental and Social Responsibility</p> <p>Host: Dr Sajid Amin Javed, Sustainable Development Policy Institute, Islamabad, Pakistan In Conversation with: Mr Kasim Mahmud Kasuri, Chief Executive Officer, Beaconhouse School System, Pakistan Organisers: Ms Zainab Naeem & Ms Fatima Muzammil, SDPI</p> <p>Rapporteur: Mr Ibraheem Khan</p>			

Day 3

Wednesday, 6 November 2024
Evening Plenary 3.1

5:30pm-7:00pm

Towards Economic Empowerment: Women's Financial Inclusion in Pakistan**Moderator:** Dr Fareeha Armughan, Research Fellow & Lead-Center of Evidence Action, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan**Co-Moderator:** Mr Frank Schneider, Senior Policy Advisor, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Pakistan**Scene Setting Presentation:** Ms Johanna Knoess, Head Adaptive Social Protection Project, GIZ- Pakistan**Chief Guest:** Mr Amer Ali Ahmad, Secretary, Benazir Income Support Programme (BISP), Government of Pakistan**Keynote Speaker:** Ms Helene Paust, Deputy Head, Development Cooperation, Embassy of Germany**Speakers:**

1. Ms Roshaneh Zafar, Founder and Managing Director, Kasht Foundation, Lahore (*Online*)
2. Mr Saleem Ullah, Deputy Governor, State Bank of Pakistan
3. Mr Murtaza Ali, President, Jazz Cash
4. Mr Ali Shehzad, Chief Executive Officer, Punjab Social Protection Authority (PSPA), Government of Pakistan

Closing Remarks: Ms Maria Poddey, Country Director, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Pakistan**Closing Remarks and Vote of Thanks:** Dr Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan**Launch:** *Center of Adaptive Social Protection & Economic Empowerment (CASPEE)***Plenary Organisers:** Dr Fareeha Armughan, Ms Anam Tariq Awan & Ms Umaima Ahmed, SDPI | Ms Johanna Knoess & Mr Frank Schneider, GIZ- Pakistan**Rapporteurs:**

Mr Tahir Zaman & Ms Umaima Ahmed

Day 3 Wednesday, 6 November 2024 Evening Plenary 3.2 5:30pm-7:00pm			
<p>Advancing Sustainable Agriculture: Innovations, Collaborations and Community Impact</p> <p>Moderator: Ms Zainab Naeem, Associate Research Fellow, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Opening Remarks: Dr Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Chief Guest: Mr Rana Tanveer Hussain, Ministry of National Food Security and Research, Government of Pakistan</p> <p>Distinguished Panellists:</p> <ol style="list-style-type: none"> Ms Khalida Bashir, Joint Secretary, Ministry of Climate Change and Environmental Coordination (MoCC&EC), Government of Pakistan Dr Adil Najam, Professor and Dean Emeritus, Boston University, USA Mr Malik Amin Aslam, Former Minister of State for Environment, Government of Pakistan Mr Haseeb Malik, Director Supply Chain, PepsiCo Pakistan <p>Plenary Organisers: Ms Zainab Naeem, SDPI Ms Basit Pirzada, PepsiCo Pakistan</p> <p>Rapporteurs: Mr Ibraheem Khan & Mr Nazar Muhammad</p>			
Day 4 Thursday, 7 November 2024			
Thematic Session C-1	Thematic Session C-2	Thematic Session C-3	Thematic Session C-4
<p><i>High-Level Policy Dialogue</i> Carbon Border Adjustment Mechanism (CBAM) as an Opportunity for Industrial Decarbonisation in Pakistan</p> <p>Moderator: Ms Saleha Qureshi, SDPI</p> <p>Welcome Remarks: Ms Sobiah Becker, GIZ Pakistan</p> <p>Keynote Speaker: Ms Maria Poddey, GIZ Pakistan</p>	<p><i>Roundtable</i> Collaborative Philanthropy in Pakistan with a Gender Lens</p> <p>Moderator: Mr Tristan Ace, CEO, AVPN</p> <p>Co-Moderator: Ms Deborah Foo, AVPN</p> <p>Panellists:</p> <ol style="list-style-type: none"> Ms Seema Aziz, CARE Foundation Ms Shaheen Atiq-ur- Rahman, Bunyad Foundation 	<p>Registration: 9:30am-10:00am Sessions: 10:00am-11:30am</p> <p>Minamata Convention Compliance in Pakistan: Role of Dermatologists and Regulatory Authorities</p> <p>Moderator: Dr Razia Safdar, SDPI</p> <p>Chair: Dr Zaigham Abbas, Director Lab/NEQS, PEPA</p> <p>Guest of Honour: Dr Shazia Sobia Aslam Soomro, Former MNA, GoP</p> <p>Special Remarks: Dr Farzana Altaf, MoCC&EC, GoP</p>	<p><i>Podium Discussion</i> Beyond Fake News: Finding Truth in a World of Misinformation</p> <p>Moderator: Dr Shafiqat Munir Ahmad, SDPI</p> <p>Speakers:</p> <ol style="list-style-type: none"> Mr Mazhar Abbas, Senior Journalist & Former President PFUJ Ms Zebunnisa Burki, The News International, Karachi

<p>Chair: Mr Zulfiqar Younas, Additional Secretary, MoCC&EC, GoP</p> <p>Distinguished Panellists:</p> <ol style="list-style-type: none"> 1. Dr Sardar Mohazzam, MD, NEECA 2. Mr Muhammad Abdul Aleem, CE/Secretary General, OICCI 3. Mr Fauz ul Azeem, Interloop Limited 4. Mr Abu Bakar Ismail, Head of Energy and Sustainability, Amreli Steels 5. Dr Nabeel Amin, Head Compliances, MoCom, GoP <p>Vote of Thanks: Dr Khalid Waleed, SDPI</p> <p>Panel Organisers: Ms Saleha Qureshi & Dr Khalid Waleed, SDPI</p> <p>Rapporteurs: Ms Sania Panezai & Mr Muhammad Umer</p>	<ol style="list-style-type: none"> 3. Ms Neha Nazir, Rabia Trust Hospital 4. Mr Shakeel Ahmed, Telenor Pakistan 5. Ms Aimen Bajwa, PepsiCo Pakistan 6. Mr Fatima Arshad, Unilever Pakistan 7. Ms Kehkshan Jibran, PMS 8. Ms Amna Kausar, Kashf Foundation 9. Ms Nadia Shah, SRSP 10. Mr Fahd Zulfiqar, PIDE 11. Ms Sara Munir, i2i Ventures 12. Mr Saif ul Qahhar, Kay & EMMS Pvt Ltd 13. Dr Naushin Mahmood, PCP 14. Ms Gull Zaiba Jawad, Red Marker Systems 15. Mr Javed Hussain, SCF 16. Ms Farwa Zafar, KKAWF 17. Mr Zulfiqar Ali Khan, Lucky Cement Limited <p>Closing Remarks and Vote of Thanks: Dr Abid Gaiyum Suleri, SDPI</p> <p>Panel Organisers: Engr. Ahad Nazir, Mr Abdullah Khalid, Ms Maheen Rehan & Mr Hammad Nadir, SDPI</p> <p>Rapporteurs: Ms Maheen Rehan & Ms Ramtiah Javed</p>	<p>Speakers:</p> <ol style="list-style-type: none"> 1. Mr Taufique Ali Abbasi, PSQCA (Online) 2. Dr Shabana Saleem, MoNHSRC, GoP 3. Brig. Dr Naeem Raza, PAD 4. Prof. Dr Nadia Ali Azfar, AIMC, Lahore (Online) 5. Dr Tahira Shahid, Kaya Wellness Retreat, Islamabad 6. Dr Sadiya Tabassum, AKUH, Karachi (Online) <p>Panel Organisers: Dr Razia Safdar & Ms Amina Ehsan Qazi, SDPI</p> <p>Rapporteurs: Ms Khadija Hasan & Dr Tayyaba Masood</p>	<ol style="list-style-type: none"> 3. Mr Asad Baig, MMFD 4. Dr Abid Gaiyum Suleri, SDPI <p>Panel Organisers: Mr Wasif Naqvi & Mr Asim Sherazi, SDPI</p> <p>Rapporteur: Mr Ibraheem Khan</p>
<p style="text-align: center;">11:30am-12:30pm</p> <p>SI Expo Fireside Chat - 10 (Online) Use of Data & AI in Sustainability Planning for Cities</p> <p>Host: Ms Zainab Naeem, Sustainable Development Policy Institute, Islamabad, Pakistan</p> <p>In Conversation with: Dr Naveed Iftikhar, Co-founder and CEO, Polix Analytics</p>			

Organiser: Ms Zainab Naeem, SDPI		Thematic Session C-5		Thematic Session C-6		Thematic Session C-7		Thematic Session C-8	
Rapporteur: Ms Ramlah Javed									
				12:30pm-2:00pm					
Transforming Food Systems for Climate-Resilient Food Security in Pakistan Moderator: Ms Khansa Naeem, SDPI Chair: Dr Akmal Saddiq, Technical Advisor, Ministry of National Food Security & Research, GoP Opening Remarks: Mr Eric Kenefick, WFP Keynote Speaker: Ms Alessia De Caterina, WFP, Italy Presentations: <ul style="list-style-type: none"> • Mr Taltal Hakeem, APAC – <i>Meeting Increasing Food and Feed Demand Sustainability with Biotechnology</i> • Mr Muhammad Osama, Namal University, Mianwali – <i>Solar-powered Hydroponic Farming: A Pathway to Sustainable Agriculture</i> 		High-Level Policy Dialogue Beyond the Bottom Line: Co-Creating Philanthropic Impact Moderator: Mr Tristan Ace, CEO, AVPN Chair: Mr Saeed Ashraf Siddiqui, Senior Joint Secretary, Ministry of Economic Affairs, GoP Welcome Remarks: Dr Abid Qaiyum Suteri, SDPI Speakers: <ol style="list-style-type: none"> 1. Ms Kamyla Marvi, Director BATP 2. Ms Uzma Mansoor, SBP 3. Ms Roshan Khurshid Bharucha, Member, BoG, SDPI 4. Syed Sayem Ali, BoP 		Environmental Conflict and Social Dialogue in Pakistan Moderator: Dr Zainab Ahmed, BNU Chair: Prof. Dr Mukhtar Ahmed, Chairman, HEC, Pakistan Speakers: <ol style="list-style-type: none"> 1. Ms Imirana Tiwana, BNU 2. Prof. Dr Arshi Saleem Hashmi, Dean – FCS, NDU, Islamabad 3. Dr Rafi Amir-ud-Din, COMSATS University, Lahore 4. Mr Qazi Saqib Basir, Muslim Aid, Pakistan 		Women in Frontline Roles: Breaking Barriers and Leading Change in Pakistan Moderator: Ms Zainab Naeem, SDPI Speakers: <ol style="list-style-type: none"> 1. Ms Sarah Hassan, PepsiCo Pakistan 2. Ms Rabia Khattak, Head of D&I, Jazz 3. Ms Nabila Zar Malik, Head of Partnerships and Communications, UN-Women 4. Syeda Kiran Altaf, Country Head HR, Syngenta 5. Ms Halima Khan, Head of Sustainability and Corporate Affairs, Energy Update 			
Discussants: <ol style="list-style-type: none"> 1. Dr Arjan De Haan, IDRC, <i>India-Financing Needs in Food and Agriculture to Meet Climatic Challenges (Online)</i> 2. Dr Tariq Mukhtar, PMAS AAUR, Pakistan 		Panel Organisers: Engr. Ahad Nazir, Mr Abdullah Khalid, Ms Maheen Rehan & Mr Hammad Nadir, SDPI Rapporteurs: Ms Maheen Rehan & Ms Sania Panezai		Panel Organisers: Ms Romila Qamar, SDPI Dr Zainab Ahmed, BNU Rapporteurs: Ms Aqsa Huma & Mr Fahad Nadeem		Panel Organiser: Ms Zainab Naeem, SDPI Rapporteur: Mr Umar Farooq			

<p>Speakers:</p> <p>1. Ms Florence Rolte, FAO Pakistan – <i>Gender Perspective of Food Systems Transformation</i></p> <p>2. Mr Aftab Alam Khan, CEO, RFI</p> <p>Panel Organisers: Syed Qasim Ali Shah, Ms Rabia Tabassum & Ms Khansa Naeem, SDPI Ms Emily Vooris, Mr Eric Kenefick & Mr Arshad Jadoon, WFP</p> <p>Rapporteurs: Ms Anum Fatima & Ms Dua Mobeen</p>		
2:00pm–3:00pm		
<p>SI Expo Fireside Chat – II (Online) Pink Together, Stronger Forever: Nobody Fights Alone (An Awareness Session on Breast Cancer)</p> <p>Host: Ms Khadija Hasan, Sustainable Development Policy Institute, Islamabad, Pakistan</p> <p>In Conversation with: Dr Maryam Iftikhar, Consultant Surgeon, Riphah International University, Islamabad</p> <p>Organisers: Dr Razia Safdar & Ms Khadija Hasan, SDPI</p> <p>Rapporteur: Dr Tayyaba Masood</p>		
<p>Day 4 Thursday, 7 November 2024 Plenary 4.1</p>		
3:00pm–4:30pm		
<p>Annual State of Renewable Energy 2024</p> <p>Moderator: Engr. Ubaid ur Rehman Zia, Senior Research Associate & Lead Energy Unit, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Co-Moderator: Ms Saleha Qureshi, Research Associate, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Technical Presentation: Engr. Ahad Nazir, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan <i>Annual State of Renewable Energy 2024</i></p>		

<p>Opening Remark: Mr Adil Khattak, CEO, Attock Refinery Limited & Member, Board of Governors, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan</p> <p>Distinguished Speakers:</p> <ol style="list-style-type: none"> 1. Mr Shah Jahan Mirza, Managing Director, Private Power and Infrastructure Board (PPIB), Ministry of Energy (Power Division), Government of Pakistan 2. Mr Hussain Talib, Head of External Affairs, Unilever Pakistan 3. Mr Tanveer Afzal Mirza, Company Secretary, United Energy Pakistan (UEP) 4. Mr Tauseef H. Farooqi, Former Chairman, National Electric Power Regulatory Authority (NEPRA) <p>MoU Signing between SDPI and NPO</p> <p>Special Remarks: Muhammad Alamgir Chaudhry, CEO, National Productivity Organization (NPO)</p> <p>Plenary Organisers: Ms Zainab Babar, Dr Khalid Waleed, Engr. Ubaid ur Rehman Zia & Ms Saira Adnan, SDPI</p> <p>Rapporteurs: Ms Zainab Babar & Mr Nazar Muhammad</p>	<p>4:30pm-5:30pm</p>
<p>SI Expo Fireside Chat – 12 (Online)</p> <p>The Keeper of the Lighthouse: A Migrant's Story by Raheel Yawar (Biography & Memoirs: Brig. Mohammad Yasin Retd.)</p> <p>Host: Mr Abid Rasheed, Sustainable Development Policy Institute, Islamabad, Pakistan</p> <p>In Conversation with: Brigadier Mohammad Yasin (Retd.)</p> <p>Organiser: Ms Zainab Naeem, SDPI</p> <p>Rapporteur: Ms Sania Panezai</p>	

Day 4
 Thursday, 7 November 2024
 Closing Plenary 4.2
 5:30pm-7:00pm

From Fragility to Resilience: Enhancing Sustainable Development

Master of Ceremony: Dr Fareeha Armughan, Research Fellow & Lead-Center of Evidence Action, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan

Introductory Note: Dr Abid Qaiyum Suleri, Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan

Chief Guest: Senator Dr Musadik Masood Malik, Federal Minister for Energy (Petroleum Division), Government of Pakistan (*Online*)

Special Remarks:

- Senator Farhatullah Babar
- Ms Roshan Khurshid Bharucha, Member, Board of Governors, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan

Awards Ceremony:

- SDPI's Outstanding Award in Research – *Ms Rabia Tabassum, SDPI*
- Excellence Performance Award – *Ms Sahar Basharat, SDPI*
- Green Responsibility: Nurturing the Planet Initiative Award – *Dr Abid Qaiyum Suleri, Mr Khurram Shahzad, Ms Sania Amin, Rana Junaid Zahid, Mr Muhammad Riaz, Ms Zainab Babar & Mr Mujeeb ur Rehman (Gardener)*
- Best Pavilion Award – *PepsiCo Pakistan*

Presentation: Mr Irfan Ahmad Chatha, Associate Research Fellow, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan – *Preliminary Findings of Provincial Development Monitor*

SDPI Team Group Photograph

Vote of Thanks:

- Ambassador Shafqat Kakakhel, Chairperson, Board of Governors, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan
- Ms Romina Khurshid Alam, Coordinator to the Prime Minister, Ministry of Climate Change and Environmental Coordination (MoCC&EC), Government of Pakistan
- Dr Sajid Amin Javed, Deputy Executive Director, Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan

Plenary Organisers: Mr Hassan Murtaza & Mr Asim Zahoor, SDPI

Rapporteurs:

Mr Tahir Zaman, Mr Nazar Muhammad & Mr Ibraheem Khan

Abbreviations & Acronyms

ADB	Asian Development Bank
AHK-F	Akhter Hameed Khan – Foundation
AHPSR	Alliance for Health Policy and Systems Research
AIERD	Asian Institute of Eco-civilization, Research, and Development
AKU	The Aga Khan University
AKUH	The Aga Khan University Hospital, Karachi
APTMA	All Pakistan Textile Mills Associations
APTUF	All Pakistan Trade Union Federation
ARI	Anker Research Institute
Asst. Prof.	Assistant Professor
Assoc. Prof.	Associate Professor
AVP – Research	Assistant Vice President Research
BASF	Badische Anilin und Soda Fabrik
BATP	British Asian Trust Pakistan
BISP	Benazir Income Support Programme
BoG	Board of Governors
Bol	Board of Investment, GoP
BoP	Bank of Punjab
BMZ	Federal Ministry for Economic Cooperation and Development (German: Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung)
BNU	Beaconhouse National University
BPPS	Bureau for Policy and Programme Support
BRC-A	Business Renewables Centre – Australia
BRI	Belt and Road Initiative
BRIGDI	BRI Green Development Institute
BZU	Bahauddin Zakariya University
CABI	Centre for Agriculture and Bioscience International
CANSA	Climate Action Network South Asia
CAREC	Central Asia Regional Economic Cooperation
CBER	Center for Business and Economic Research
CC	Country Coordinator
CCI	Chamber of Commerce and Industry
CCP	Competition Commission of Pakistan
CCPS	Center for Critical Peace Studies
CD	Country Director
CEGS	Centre of Excellence in Gender Studies
CEO	Chief Executive Officer

CEI	Climate-Energy Initiative
CERB	Centre of Excellence in Responsible Business
Chintan	Chintan Environmental Research and Action Group
CLR	Centre for Labour Research
CPEC	China-Pakistan Economic Corridor
CR	Country Representative
CRCC	Climate Resourcing Coordination Center
CREB	Center for Research in Economics and Business
CPRD	Center for Participatory Research and Development
CSD	Center for Sustainable Development, Earth Institute
CTFK	Campaign for Tobacco-Free Kids
CVF	Climate Vulnerable Forum
DAI	Development Alternatives Incorporated
DED	Deputy Executive Director
DG	Director General
DGG Ltd	Development Guarantee Group Limited
DoE	Department of Economics
DPPC	Disaster Preparedness and Prevention Center
DWU	Domestic Workers' Union
ECOPM	European Centre for Development Policy Management
EDD	Environment and Development Division
EFP	Employers Federation of Pakistan
ESG	Environmental, Social and Governance
ETP	Ehsaas Tahatuz Program
EU	European Union
FAO	Food and Agriculture Organization
FBR	Federal Board of Revenue
FCCU	Forman Christian College (A Chartered University)
FCDO	Foreign, Commonwealth and Development Office
FCS	Faculty of Contemporary Studies
FES	Friedrich-Ebert-Stiftung
FJWU	Fatima Jinnah Women University
FKAAB	Faculty of Civil Engineering and Built Environment
FNF	Friedrich Naumann Foundation for Freedom
FPCCI	Federation of Pakistan Chambers of Commerce & Industry
GAIN	Global Alliance for Improved Nutrition
GCU	Government College University
GFANZ	Glasgow Financial Alliance for Net Zero
GGPI	Green Growth Planning & Implementation

GIF	Global Infrastructure Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit / German Agency for International Cooperation
GoP	Government of Pakistan
GRMA	Global Risk Management Alliance
GS	General Secretary
HBS	Heinrich Böll Stiftung
HEC	Higher Education Commission of Pakistan
HRCP	Human Rights Commission of Pakistan
HPSR	Health Policy & Systems Research
HKS	Harvard Kennedy School
HORDJ, DOA	Horticultural Crops Research and Development Institute, Department of Agriculture, Sri Lanka
HSA	Health Services Academy
IBA	Institute of Business Administration
ICAR	Indian Council of Agricultural Research
ICDDR-B	International Centre for Diarrheal Disease Research, Bangladesh
ICF	Indus Cultural Forum
IDRC	International Development Research Centre
IDS	Institute of Development Studies
IFC	International Finance Corporation
IGP	InsuResilience Global Partnership
IJUI	International Islamic University Islamabad
ILO	International Labour Organization
INGOs	International Non-Governmental Organisations
IOM	International Organization for Migration
IRC-Pak	International Rescue Committee-Pakistan
IRC	Indus Resource Center
ITC	International Trade Centre
JIP	Jamaat-e-Islami Pakistan
JICA	Japan International Cooperation Agency
KP	Khyber Pakhtunkhwa
KEPZ	Karachi Export Processing Zone
KKAWF	Karim Khan Afridi Welfare Foundation
KVM	Kheti Virasat Mission, India
LEF	Labour Education Foundation
LII	Living Indus Initiative
LMICs	Low and Middle-Income Countries
LSE	Lahore School of Economics
LUMS	Lahore University of Management Sciences
MGPO	Mountain and Glacier Protection Organization

MJIT	Malaysia-Japan International Institute of Technology
MMfD	Media Matters for Democracy
MNA	Member National Assembly
MNC, GoP	Ministry of Narcotics Control, Government of Pakistan
MNFSR, GoP	Ministry of National Food Security & Research, Government of Pakistan
MoCom, GoP	Ministry of Commerce, Government of Pakistan
MoCC&EC, GoP	Ministry of Climate Change and Environmental Coordination, Government of Pakistan
MoHR, GoP	Ministry of Human Rights, Government of Pakistan
MoITT, GoP	Ministry of Information Technology and Telecommunication, Government of Pakistan
MoNHSRC, GoP	Ministry of National Health Services Regulations and Coordination, Government of Pakistan
MoPASS, GoP	Ministry of Poverty Alleviation and Social Safety, Government of Pakistan
MoPDSI, GoP	Ministry of Planning, Development & Special Initiatives, Government of Pakistan
MoPHRD, GoP	Ministry of Overseas Pakistanis and Human Resource Development, Government of Pakistan
MPA	Member Provincial Assembly
MPFD	Macroeconomic Policy and Finance Division
NACTA	National Counter Terrorism Authority
NADRA	National Database and Registration Authority
NASTIP	National Aerospace Science and Technology Park
NAVTC	National Vocational and Technical Training Commission
NCCR	Nepal Center for Contemporary Research
NCRC	National Commission on the Rights of Child
NCSW	National Commission on the Status of Women
NDRMF	National Disaster and Risk Management Fund
NDU	National Defence University
NED	National Endowment for Democracy
NEQS	National Environment Quality Standards
NEECA	National Energy Efficiency & Conservation Authority
NEPRA	National Electric Power Regulatory Authority
NFIS	National Financial Inclusion Strategy
Norec	Norwegian Agency for Exchange Cooperation
NTA	National Taxpayers Association, Kenya
NTC	National Tariff Commission
NTDC	National Transmission & Despatch Company
NUST	National University of Sciences & Technology
NYCOP	National Youth Council of Pakistan
OICCI	Overseas Investors Chamber of Commerce & Industry
OPM	Oxford Policy Management
PAFLA	Pakistan Freelancers Association
PAGE	Pakistan Alliance for Girls Education

PAL	Pakistan Academy of Letters
PAQI	Pakistan Air Quality Initiative
PBC	Pakistan Business Council
PBS	Pakistan Bureau of Statistics
PCCA	Pakistan Climate Change Authority
PCI	Pakistan-China Institute
PCP	Pakistan Centre for Philanthropy
PDMA	Provincial Disaster Management Authority
PEPA	Pakistan Environmental Protection Agency
PFAN	Private Financing Advisory Network
PFUJ	Pakistan Federal Union of Journalists
PHFI	Public Health Foundation of India
PHIMC	Punjab Health Initiative Management Company
PIDE	Pakistan Institute of Development Economics
PILER	Pakistan Institute of Labour Education and Research
PMAS AAUR	Pir Mehr Ali Shah Arid Agriculture University Rawalpindi
PM	Program Manager
PMIC	Pakistan Microfinance Investment Company Limited
PML-N	Pakistan Muslim League-Nawaz
PMN	Pakistan Microfinance Network
PMS	Pakistan Mission Society
PNWC	Pakistan Navy War College
PPAF	Pakistan Poverty Alleviation Fund
PPIB	Private Power Infrastructure Board
PPMA	Pakistan Pharmaceutical Manufacturers' Association
PPP	Pakistan People's Party
PPPA	Public Private Partnership Authority
PPPPA	Punjab Public Private Partnership Authority
PRCS	Pakistan Red Crescent Society
PREF	Pakistan Regional Economic Forum
PREIA	Pakistan-Regional Economic Integration Activity
PSEB	Pakistan Software Export Board
PSQCA	Pakistan Standards & Quality Control Authority
PTI	Pakistan Tehreek-e-Insaf
PU	University of the Punjab
PUWF	Pakistan United Workers' Federation
Reg.Dir.	Regional Director
RF	Research Fellow
RFI	Resilient Future International

RIF	Rise Infinity Foundation
RIHS	Rawal Institute of Health Sciences
RIS	Research and Information System for Developing Countries
RPC	Regional Programme Coordinator
RSPN	Rural Support Programmes Network
SAARC	South Asian Association for Regional Cooperation
SANS	South Asia Network on the Sustainable Development Goals
SAPM	Special Assistant to the Prime Minister
SAPPK	South Asia Partnership Pakistan
SBP	State Bank of Pakistan
SC	Solidarity Center, USA
SCF	Sindh Community Foundation
SDGs	Sustainable Development Goals
SDPI	Sustainable Development Policy Institute
SEC	SAARC Energy Centre
SECP	The Securities and Exchange Commission of Pakistan
SHRC	Sindh Human Rights Commission
SI	Sitara-e-Imtiaz
SIFC	Special Investment Facilitation Council
SELF	Sampada Entrepreneurship & Livelihoods Foundation
SPDC	Social Policy and Development Centre
SPRC	Social Protection Resource Centre
SRSP	Sarhad Rural Support Programme
STMU	Shifa Tameer-e-Millat University
SUDS	Sustainable Urban Development Section
TERI	The Energy and Resources Institute
TIHKM	The International Institute for Knowledge Management
TWB	The World Bank
UEP	United Energy Pakistan
UMT	University of Management and Technology
UNCT	United Nations Country Team
UNDP	United Nations Development Programme
UNEP-FI	UN Environment Programme - Finance Initiative
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCAP-SSWA	United Nations Economic and Social Commission for Asia and the Pacific: Sub-regional Office for South and South-West Asia
UNOPS	United Nations Office for Project Services
UNOSSC	United Nations Office for South-South Cooperation
UNRCO	United Nations Resident Coordinator Office

UO	University of Oxford
UoF	University of Faisalabad
UoK	University of Karachi
UoP	University of Peshawar
USF	Universal Service Fund
USSEC	U.S. Soybean Export Council
UTHM	Universiti Tun Hussein Onn Malaysia
UTM	Universiti Teknologi Malaysia
VC	Vice Chancellor
VNRS	Voluntary National Reviews
VP	Vice President
V20	Vulnerable Twenty Group
WASH	Water Sanitation and Hygiene
WCCI	Women Chamber of Commerce and Industries
WEF	World Economic Forum
WES	World Education Services
WFP	World Food Programme
WHO	World Health Organization
WSSC	Water Services and Sanitation Company
WWA	Women Workers' Alliance
WWF	World Wide Fund for Nature

About the Editors

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Tayyaba Hanif is Coordinator of the Sustainable Development Conference (SDC) Unit at the Sustainable Development Policy Institute in Pakistan. Since 2017, she has managed high-level conferences and academic publications, with 16 years' experience in communications and coordination. For this anthology, she led chapter reviews, reference standardisation, and related editorial processes. She holds a Master's in Gender and Women's Studies and a Bachelor's in History and Political Science.



'From Fragility to Resilience: Enhancing Sustainable Development' is an ambitious intervention into the critical debates surrounding sustainability, resilience, and justice in the Global South. Bringing together a unique combination of evidence-based, data-driven research and the perspectives of Pakistan's leading policymakers, the volume bridges the often-divided worlds of scholarship and governance. It provides not only rigorous academic analysis but also policy reflections from those directly engaged in shaping the country's development trajectory.

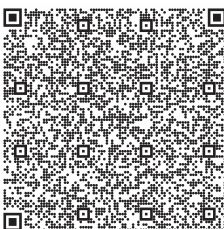
The book situates Pakistan as a focal point for understanding the complex tensions between growth-oriented economic policies and the imperatives of environmental stewardship, inclusive governance, and social equity. It explores fragility across political, economic, and ecological systems unveiling how weak institutions, resource pressures, and inequality exacerbate vulnerability. Yet, rather than a narrative of despair, the contributions chart a forward-looking vision. They highlight adaptive governance, participatory policy frameworks, gender-responsive planning, and innovative responses to climate and resource crises as viable pathways towards resilience.

Its value lies not only in diagnosing systemic weaknesses but also in offering a platform where policymakers, scholars, and practitioners converge to reflect on sustainable futures. By combining grounded research with insider perspectives from the government, the anthology provides a rare and comprehensive view of the challenges and opportunities that define sustainable development in fragile contexts.

At its core, the book raises pressing questions: How can resilience be institutionalised in states facing chronic fragility? What forms of knowledge and participation are necessary to democratise development? How can national priorities be reconciled with global responsibilities in an age of interdependence?

Interdisciplinary in its approach and unapologetically forthright in tone, *'From Fragility to Resilience'* compels its readers to think beyond superficial solutions. It insists on reframing resilience not merely as a technical or economic concern, but as a profoundly political, social, and ethical project. By bringing together data, theory, and lived policy experience, this volume stands as an essential resource for academics, policymakers, practitioners, and engaged citizens who seek to imagine and build more resilient and just futures.

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