Road to Resilience

Adaptive Transformation Among Vulnerable Communities

JINNAH INSTITUTE

Jinnah Institute

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EXECUTIVE SUMMARY

Jinnah Institute's research study breaks new ground on resilience interventions. There are a number of ongoing policy interventions and programming supported by development partners, aimed at adaptation and sustainable growth. Many of these interventions cite resilience as a core outcome, and their impact is intended at a strategic level. The collective objective is to consolidate gains in a manner that minimize the risk of reversal, and a path ahead can be forged in spite of disruptive events. Road to Resilience recognizes the value of resilience programming, but urges a distinction between intervention levels and beneficiaries. Many resilience outcomes are geared towards systems and delivery chains, not communities. Road to Resilience submits that the social capital of communities is instrumental for resilience.

Resilience in practice remains fragmented, weakly defined, and difficult to measure. All too often, development frameworks pursue differing milestones for resilience. Between the multiple resilience programs being implemented, there is no standard definition, nor a measurable set of indicators that can help an objective assessment of resilient outcomes (unlike vulnerability or poverty assessments, that have measurable indicators). The result is a fragmented state of practice, and inter-agency duplication, despite years of policy upgrades. Lessons identified after the 2010 and 2022 floods have not translated into consistent practice, leaving coordination gaps, weak early warning systems, and inadequate public awareness. The 2025 floods proved that resilience requires proactive effort in institutional response and cohesion.

There are steep differentials in provincial capacity for combatting climate stress. While some impressive progress has been made, provinces continue to work in silos. Provinces must establish transparency, and effectively integrate climate practice within their development frameworks. A lot of aid has as flown into nature based solutions, for example, without promising results. The floods of 2025, too, have raised questions about billions received in aid. Climate finance needs to be embedded into public financial management systems so that provincial development plans and budget cycles can routinize climate action in governance, and not treat it as a standalone subject. Furthermore, embedding climate readiness across sectors means creating resilient transport and housing infrastructure; crucial overhauls in agriculture, water and energy; and, minimizing socio-ecological stress through wetland restoration, reforestation, and sustainable land management practices.

Investments in community resilience will guarantee that vulnerability is reduced at the household level. This research found that community resilience is the strongest safeguard against slow or rapid onset disasters, and enables households to survive and adapt after disruptions. Communities jointly administer and share resources; distribute public goods more efficiently than local governments can; and, negotiate for collective benefits, where accessible. In disaster management frameworks and resilience programming, communities are tasked with support roles in adaption and recovery, but seldom seen as the mainstay of transformative adaptation. Investing in community resilience will guarantee that vulnerable households receive their rightful benefits.

Communities identified seven core enablers of resilience. Over the course of this research, which engaged 330 respondents in 15 districts, vulnerable communities were asked for their understanding of resilience. They identified seven core enablers that assist survival and adaptation, which included: (1) vocational skills that can help employment; (2) viable community networks (3) access to social transfers; (4) availability of social services; (5) digital literacy; (6) women's ownership of material assets; and, (7) proximity to urban centres.

This report presents Pakistan's first district-level Resilience Index, that reflects regional disparities and pockets of relative growth. The Index was constructed using indicators that closely resembled communities' resilience enablers, and refined over many rounds of peer review. The Index reveals stark disparities that are consistent with other indices: Lahore scores 0.72, while Lehri in Balochistan scores just 0.14. Districts with a higher resilience score are absorbing displaced population cohorts, as well as rural outmigration, whereas districts with lower rankings are experiencing climate and environmental degradation, alongwith lack of digital connectivity and healthcare.

Qualitative findings show that vulnerability is compounded by socio-cultural barriers. Women with asset ownership and decision-making authority show measurably stronger adaptive capacity, yet continue to face barriers to documentation, financial inclusion, and mobility. Persons with disabilities report that exclusion operates as much through social attitudes as physical inaccessibility. Transgender persons remain dependent on urban anonymity for basic safety, with access to healthcare, education, and family support systematically denied. Youth in remote districts face a stark choice between staying back with little economic opportunity, or leaving for cities where safety nets are non-existent. Qualitative fieldwork showed that vulnerability operates in multiple forms, yet cannot be overcome through providing civic entitlements and opportunities alone. Resilience is built through reversing socio-cultural exclusions, prejudice and enabling equity.

Inclusive resilience will mean redoing the welfare model, creating redistributive policies, and the participation of business and industry in the resilience agenda. Building resilience necessitates some reorientation in public sector development initiatives and the welfare model. Pakistan's social protection programs constitute the bulk of welfare programming, and despite their inadequacies, remain the critical baseline for welfare benefits. Prolonged economic turbulence has depleted household incomes and increased reliance on social protection mechanisms. The participation of business and industrial actors in development has been very limited thus far, and a sustained role can create an outsized social impact. Impact investing or ESG capital can go far beyond existing CSR 'corporate philanthropy', in consonance with development partners' assistance for resilience programming.

ACRONYMS

4G	Fourth-Generation Wireless
5G	Fifth-Generation Wireless
ADB	Asian Development Bank
AJK	Azad Jammu and Kashmir
AQI	Air Quality Index
BISP	Benazir Income Support Program
CBO	Community Based Organization
CNIC	Computerized National Identity Card
COVID-19	Coronavirus disease 2019
EPI	Expanded Program on Immunization
EPI	Expanded Program on Immunization
ESG	Environmental, Social, and Governance
FCDO	Foreign, Commonwealth and Development Office
FGDs	Focus Group Discussions
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GLOF	Glacial Lake Outburst Floods
HDI	Human Development Index
HEC	Higher Education Commission
HEI	Higher Education Institutions
HIES	Household Integrated Economic Survey
ICT	Islamabad Capital Territory
ICT	Information Communications Technology
IFAD	International Fund for Agriculture Development
IFL	Interest-Free Loans
IT	Information Technology
KII	Key Informant Interviews
KP	Khyber Pakhtunkhwa
LHW	Lady Health Worker
MICS	Multiple Indicator Cluster Surveys
MoCC	Ministry of Climate Change
MPI	Multidimensional Poverty Index
NADRA	National Database and Registration Authority
NAP	National Adaptation Plan
NDC	Nationally Determined Contributions
NDMA	National Disaster Management Authority
NGO	Non-governmental organization
NHDR	National Human Development Report
NHV	National Health Vision
NPGP	National Poverty Graduation Programme
OOSC	Out of School Children
PBS	Pakistan Bureau of Statistics
PDMA	Provincial Disaster Management Authorities

PIDE	Pakistan Institute of Development Economics
PPB	Parts per billion
PPM	Parts per million
PSLM	Pakistan Social and Living Standards Measurement
RECCU	Resilience, Environment and Climate Change
SDG	Sustainable Development Goals
SHC	Sindh Human Rights Commission
SSP	Sehat Sahulat Program
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
USD	United States Dollar
USF	Universal Service Fund
USIP	United States Institute of Peace
WHO	World Health Organization

INTRODUCTION

The 2025 floods in Pakistan have revealed both progress and the limits of existing preparedness. The floods have scaled century old records, recoursing rivers through their primal waterways, and obliterated cities and townships that recklessly stood in their path.

The floods have also underscored our failure in treating climate stress as a national priority, let alone respond to it as Pakistan's foremost "existential challenge". There is a state of disarray and fragmentation in domestic climate action, and natural disasters have exposed how far removed our policy and practice are from transformations on ground, despite being one of the world's most climate vulnerable nations. Since the 'biblical' flood of 2022, some capacities in emergency response have improved, but those cannot stand in for all other mechanisms and delivery chains that should have been up and running, to save lives, assets and communities.

In 2025 floods, over 7 million people were impacted by the floods, 5 million of whom were in Punjab. 3 million were evacuated, and several accommodated in 1,580 provincial evacuation centers. 1037 lives were lost; 1067 sustained injuries; 12,569 homes were destroyed; 6800 heads of livestock were killed; about 2000 kilometres of road, and 239 bridges were washed away.

Pakistan's premier lamented that lessons from the 2022 floods had sadly not been learnt, and the heavy toll was on account of illegal and precarious construction in flood zones. Government bodies and development partners leading the crisis response documented a number of other reasons as well. These included inadequate planning for disaster risk reduction, insufficient community preparedness, and flawed early warning systems.

This report posits another reason – the absence of a robust community resilience framework. While resilience is the cornerstone of many climate and environmental interventions, it is seldom measurable, and nor is it geared towards delivering tangible benefits for communities. In disaster after disaster, vulnerability assessments

will point out community needs, but these rarely go beyond relief aid in practice. Resilience has come to mean many things because of its universal reference, but very few resilient outcomes impact long term human development and livelihoods, or medium term 'bounce forward.'

This report attempts to collate lessons from the major floods over the last decades in Pakistan, and examine whether our wherewithal in combatting climate stress has improved, and the reasons why perennial challenges continue to inhibit successes. From extensive fieldwork with vulnerable communities across Pakistan, this report developed a definition of community resilience, and documented stories of survival and growth. This report also presents a district level Resilience Index that measures where communities have the resources to 'bounce forward' after disruptive events, and why rural outmigration is bound to increase.

The report is organized into four sections: 'From Flood Response to Systemic Resilience' reviews recurring gaps in disaster preparedness and governance that continue to amplify losses; 'Resilience Score for Pakistan' introduces the Resilience Index, combining data and community perspectives to identify district-level strengths and vulnerabilities; 'Policy Roadmaps for Resilience' sets out targeted recommendations for government, development partners, businesses, and civil society to build adaptive capacity; and 'Covering the Distance from Vulnerability to Resilience' documents community narratives that illustrate their experiences of coping, adaptation, and aspiration in the face of climate stress.

SECTION 1

FROM FLOOD RESPONSE TO SYSTEMIC RESILIENCE

Lessons Not Learnt: From Megafloods to Superfloods

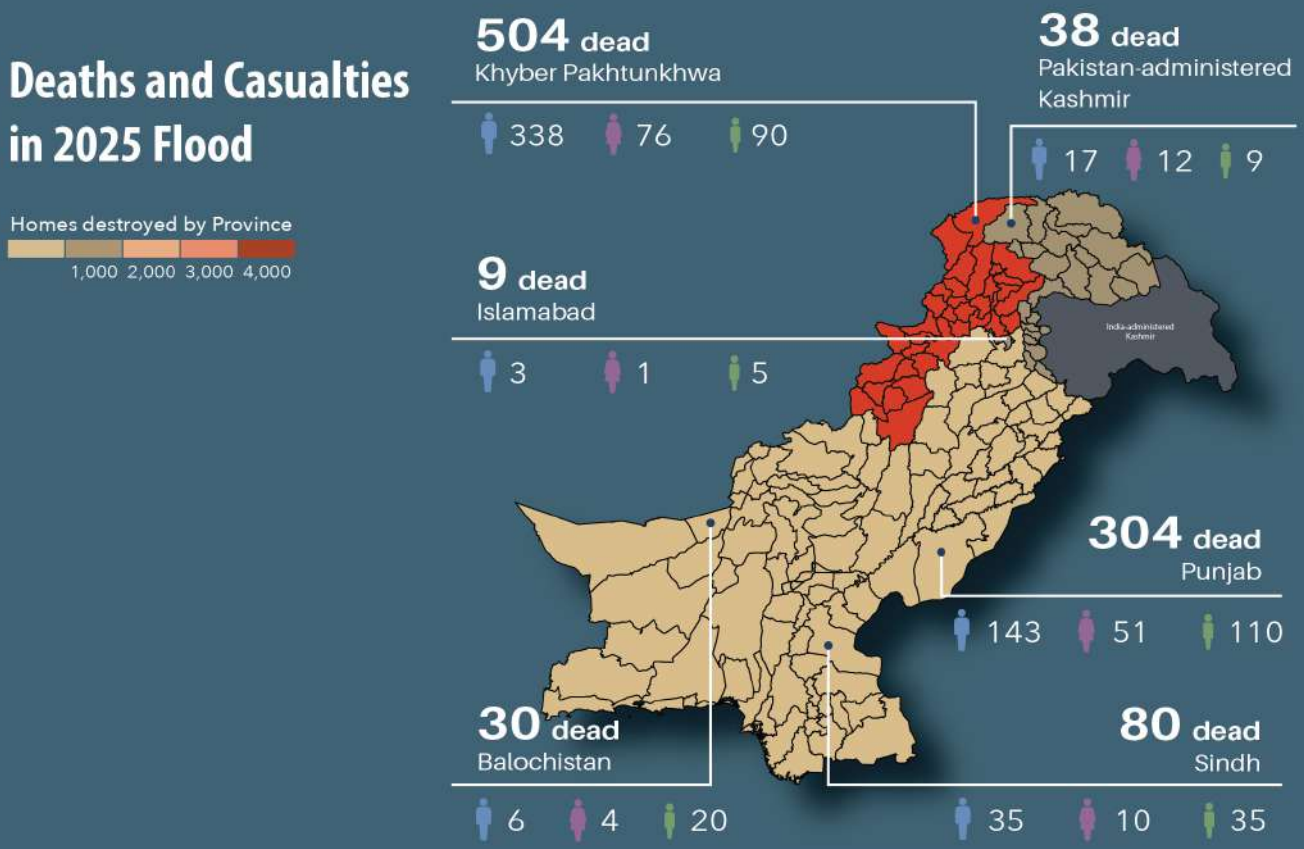
Despite years of devastating floods, new policy frameworks and strengthened disaster management structures, Pakistan continues to repeat old mistakes that cost lives, livelihoods, and ecosystems. Lessons identified after the 2010 and 2022 floods have not translated into consistent practice, leaving coordination gaps, underdeveloped risk reduction, weak early warning systems, and inadequate public awareness. Environmental degradation, reckless urban planning, and the neglect of natural buffers like forests and wetlands further amplify vulnerabilities.

While institutional reforms, climate strategies, and community-led initiatives mark important progress, they remain poorly implemented. The 2025 floods expose these persistent shortcomings, underscoring that resilience requires not only reactive disaster management but also long-term investment in prevention, and sustainable resource management.

- Inter-agency coordination remains a struggle during disaster response.

Coordinated responses for disasters have come a long way since the 2010 floods. The proactive Remodelled National Disaster Mitigation Plan II 2023 restructured institutional mandates for disaster management agencies, with a view to reducing overlap, delays in approvals, and miscommunication. The Inter Agency Monsoon Contingency Plan 2025 also specified roles for UN and other aid agencies in supporting the government's rescue and relief efforts. These plans are based on lessons from the 2010, 2011, 2022 floods, and several other disruptive events.

Coordination remains the most complex aspect of disaster management. A great deal of effort has been made to prevent inter-agency duplication and overstepping of mandates. Many of these omissions



previously cost lives and irreparable damage.

There are often egregious gaps between agencies, and outreach. Frequently information comes with delay, officials on ground are spread too thin, the aid received is unusable, or there is an overabundance of aid in certain areas. All the same, disaster management may yet be Pakistan's most effective and well undertaken intervention, led by NDMA. Similar strides are yet to be made in disaster risk reduction.

- **Disaster Risk Reduction is underdeveloped, or it would have prevented casualties and damages.**

A large population cohort in Pakistan is exposed to environmental risks by living in the vicinity of flood plains, glaciers, or seismic activity. The frequency of flash floods and riverine floods should have necessitated anticipatory safeguards for populations, public assets, and food producing regions that employ half the national workforce.

The National Risk Reduction Strategy 2025 was unveiled just weeks before the floods in 2025. While its framework is commendable, it is at a nascent stage in implementation. Public departments will take their time in adopting its guidance.

There have been many disconnected attempts at creating risk reduction through interventions supported by development partners and civil society efforts. These have created vital support links and assisted many vulnerable communities over the years, and the success of crisis operations can be attributed to the knowledge generated through these interventions. But they remain limited in scope, as well as resources.

There is no substitute for government-led efforts to de-risk and safeguard vulnerable communities and ecosystems from disasters, and building capacities that shore up resilience. It is commendable that government bodies are finally moving towards holistic risk reduction, whose outcomes will become apparent over the medium term.

- **Early Warning Systems have not lived up to their expectations.**

As pointed out in several assessments, early warning messages did not reach vulnerable communities, which resulted in casualties and delayed evacuation. Even where they do, they are frequently deficient in content, and issue generic messages. By issuing the basic cautionary messaging, public authorities absolve themselves of critical enforcement actions. Across Pakistan, communities interviewed for this research stated they did not wait for early warnings, which arrived days after the disaster had struck. More effective early warnings occur through community based interventions.

- **Strategic communication on climate stress has never been undertaken holistically, despite climate being declared a national emergency.**

Over the last few years, television talk shows have devoted increasing airtime to discussions on climate change, and policy interventions. While this is helpful for building knowledge and awareness, strategic communication through mainstream media needs to be supplemented with realistic adaptation efforts for the public. This is critically important in disaster prone areas where early warning has not brought about the desired results. A concerted communication campaign is necessary on key aspects of community adaptation, environmental preservation, sustainable behaviours, and personal safety. The lack of knowledge and awareness regarding climate hazards has brought about a high casualty toll among tourists for many years. In 2022, 22 tourists in Murree perished from freezing temperatures and carbon monoxide fumes in their cars while being stranded overnight in a snowstorm. The tragic incident highlighted poor awareness on personal safety, combined with a breakdown of law enforcement.

Social media has rapidly expanded its influence in Pakistan, increasingly shaping public debate alongside print and electronic media. Digital behaviour change campaigns have to be directed at digitally fluent, younger cohorts to achieve environmentally conscious behaviours, from conserving water to clean energy usage to planting trees.

- **Deforestation dismantles Pakistan's first line of defense against disasters.**

Forests are the country's first line of defense against floods, landslides, and heatwaves. Yet Pakistan's forest cover has shrunk to just 4.8 percent, the lowest in South Asia. Over the past three decades, 18 percent of forests have disappeared, falling from 3.78 million hectares in 1992 to 3.09 million in 2025 due to timber mafias, weak enforcement, and illegal logging. In Swat alone, 30-40 per cent of forests are already gone, with losses projected to reach 70 percent if it remains unchecked. In Chitral's Rumbur Valley, 700,000 trees were felled under the pretext of being "unhealthy," while 8.8 million cubic feet of timber was marked for official cutting.

The correlation between vanishing forests and worsening flood impacts is undeniable. Depletion of reserves in Khyber Pakhtunkhwa has pushed its fragile ecosystem close to collapse, amplifying floods, soil erosion, and water scarcity. Without decisive action on enforcement, watershed management, and community-led conservation, Pakistan will remain dangerously exposed to extreme weather events.

Some positive initiatives exist. The Delta Blue Carbon project in Sindh, launched in 2015, aims to restore 350,000 hectares of mangroves, which absorb four times more carbon than other trees, and has generated $40 million in carbon credit sales. Pakistan now ranks seventh globally in mangrove area and may soon climb higher due to reforestation efforts. The Green Pakistan Programme, which overtook the Billion Tree Tsunami initiative, seeks to scale up afforestation nationwide, with Punjab alone targeting 466 million new trees on 251,000

acres. Its success however, hinges on consistent funding and community engagement.

But these remain isolated successes. Plantation drives remain scattered, survival rates are low, and crackdowns on timber mafias are sporadic at best. Weak enforcement allows illegal logging to continue unabated, undoing years of reforestation in a single season. The net result is that Pakistan is losing natural flood buffers faster than it can rebuild them, leaving catchments bare and rivers choked with silt.

Bottom Line: Unless deforestation is curbed and large-scale restoration made integral to disaster planning, Pakistan's resilience will continue to erode.

- **Encroachments and poor urban planning choke natural drainage channels.**

Pakistan's flood crises are made worse by reckless urban expansion, weak land-use planning, and illegal construction on waterways. Despite repeated catastrophes, development continues in floodplains and riverbeds, where houses, hotels, and roads obstruct natural flows. Monsoon rains that should have been absorbed or channeled, become destructive torrents when drainage paths are blocked. Provincial laws such as Punjab's Flood Management Act (2016) and Sindh's Public Property (Removal of Encroachment) Act (2010) exist on paper but are enforced on an ad-hoc basis.

The consequences are visible in Karachi, where surveys revealed that most drains feeding into the Mahmoodabad outfall were either blocked or occupied, and only 4 of 18 outflow points functional. Similar blockages exist in other cities, where neglected drainage systems and unplanned growth turn streets into waterways. Informal settlements along nullahs and low-lying areas remain especially vulnerable.

With over half of the urban population living in katchi abadis, many without proper sewage, drainage, or disaster-resilient structures, floods regularly displace thousands of people triggering outbreaks of cholera, dengue, and gastroenteritis. More than half of all flood deaths since 2022 were due to collapsing low-quality or mud houses.

Solutions exist but require political oversight and resolve. Riverbeds need proper mapping to include floodplains, and no-construction zones have to be strictly enforced.

Encroachments should be addressed through phased removal and rehabilitation, not overnight demolitions. Without climate-sensitive urban planning and land management reform, Pakistan's cities will remain locked in a cycle of preventable destruction.

What Has Prevented Effective Climate Action?

At international climate summits, the credibility of the global climate regime rests on whether countries can translate pledges into real finance and support for the most vulnerable. The New Collective Quantified Goal (NCQG) agreed at COP29 of USD 300 billion annually by 2035 remains a fraction of the USD 900 billion–1.46 trillion needed every year by 2030.

For Pakistan, this credibility gap amplifies the challenges it already faces: limited institutional capacity, weak provincial integration, dependence on debt-heavy external finance, and the neglect of natural endowments. These challenges prevent Pakistan from creating resilience and adaptation on the ground.

- **Climate change is treated as an international compliance issue.**

After ratifying the Paris Agreement in 2015, Pakistan committed itself to mandatory reporting at the UNFCCC. This became a challenge for newly established institutions, whose submissions were often place holder drafts aimed more at compliance than framing national positions. For example, the tabulations in earlier NDCs were off-target; never backed up with actual growth trajectories, and meant to be recast later with greater accuracy and realistic sectoral ambitions.

NDC 3.0 acknowledges that Pakistan's emissions will rise as its economy grows, but commits to cutting projected emissions by 50 percent, investing USD 565.7 billion across the full economy, and embedding adaptation across health, ecosystems, agriculture, and district-level risk as a core commitment. Capacity to set sectoral targets, track adaptation and mitigation markers, and align climate policy with international frameworks, however, remains constrained.

Federal and provincial ministries struggle to program, or monitor climate interventions, and it has taken the best part of a decade in establishing and an institutional architecture for climate action. Federal practice on climate change remains focused on international compliance, and keeping in step with international developments at the aegis of UNFCCC. In recent years, questions have been raised around Pakistan's inability to channelize adaptation funds, other sources of climate finance, and the effectiveness of representation at international forums.

Provincial practice has taken much longer in building momentum on climate action, and there are large variations in capacity, expertise and policy interest. Provinces have devised their own climate frameworks, but have a lot of catching up to do with global practices, and positively reporting on outcomes from their own programming.

Until then, substantive progress on climate action will be limited, even as we showcase our best attempts at UNFCCC.

- **Provinces have steep differentials in climate capacity.**

With support from development partners and the centre's lead on climate policy, provincial governments are making headway on climate goals. Punjab and Sindh in particular have made impressive progress, and have successfully implemented a number of climate interventions.

Concerted efforts are needed in building technical capacity in project design and execution, as well as appraisal, implementation, and monitoring. Climate programming, like all other social sector domains, need greater transparency and accountability, as a lot of aid has flown already into domains like nature based solutions or community resilience, without promising results.

The floods of 2025 have raised several questions about billions in aid received for resilient infrastructure. Provinces must establish transparency in operations to generate confidence

among citizens, development partners, and civil society partners.

Secondly, not all provinces have effectively integrated climate practice with their development frameworks; it is often treated as a standalone subject. Climate finance in particular needs to be embedded into public financial management systems so that provincial development plans and budget cycles can routinize climate action as a pillar of governance.

Provinces still need to work on climate related legislation to give climate action the political attention it needs, smoothen issues in governance, and create stakes for public participation. Climate action remains the preserve of a technocratic elite, and does not adequately engage the efforts of CBOs on ground, or enjoy local buy-in from communities.

- **Domestic sources of climate funding will remain minimal, increasing dependence on multilateral loans.**

In 2021, Pakistan's climate finance was 69 per cent from public against 31 per cent from private sources; 84 per cent from international versus 16 per cent from domestic sources. Domestic private financing currently stands at a mere 5 per cent. In spite of Pakistan's extreme vulnerability, it is a lesser recipient of aid than Bangladesh, Philippines and India.

Pakistan needs a staggering $348 billion till 2030 to address climate stress and development needs. Out of this, $196 billion is essential for deep decarbonization, while $152 billion is required for adaptation and resilience.

Low climate finance can be attributed to a number of challenges. Firstly, a multiplicity of climate finance institutions with overlapping mandates, low capacity within provinces and unclear prioritization of actions in policy frameworks. This is exacerbated by frequent bureaucratic transfers within institutions. Furthermore, there is a misalignment with multilaterals forums and private sector investors.

Secondly, domestic sources of climate finance are minimal because Pakistan's own private sector players lack knowledge, guidance, and capability on risk identification, management, and reporting. The private sector is unable to assess physical

and transition risks involved, partly because of inadequate access to reliable data on climate projects. Information that exists is spread across several ministries, departments and agencies, making it impossible to have an objective tally of interventions. This drives away both local and international investors. For local investors who have stepped forward, there remains a significant challenge in the way of credit risk and long-term tenure of climate projects.

Therefore, climate finance will remain dependent on external sources, particularly multilateral banks that have enabled US$6.4 billion in climate-related investments over 2015–2020. These institutions are predominantly focused on the public sector, and come with a high share of sovereign and sovereign-guaranteed debt. Pakistan's appeals for more grant-based climate finance have not met with as much success, and multiply its heavy debt burden.

- **There is willful neglect and consistent depredation of Pakistan's natural endowments**

On the one hand, Pakistan is the world's most climate vulnerable country, and yet, it also holds the unenviable title for the world's most polluted cities. Climate stress and environmental degradation are not disconnected challenges, yet the responsibility for the latter lies squarely with decisionmakers at home.

There is willful neglect and criminal exploitation of natural endowments, that creates stress for communities, fragile ecosystems and municipal management. Hundreds of case studies point to the underlying political economy of 'overextracting' Pakistan's natural assets, and the interlinkage of official patronage, mafias, and shared rents. There are well documented studies on illegal tree felling by the 'timber mafia' across KP, Balochistan and GB. Closer examinations of the Ten Billion Tree Tsunami show that members of the timber mafia were appointed official agents or 'nigehban' caretakers of tree enclosures. Habitat destruction, water dispersion, illegal hunting and trade, and unchecked tree felling in recent years has also wiped out several species of animals in Sindh, largely on account of massive deforestation.

Nine million gallons of daily sewage contaminate Rawal Dam, which caters to the water usage needs of Rawalpindi and Islamabad. Despite official inquiries and activism, no safeguards have come in place to date, and water borne diseases have a high prevalence in the twin cities.

Many of these challenges require routine administrative fixes and bureaucratic interest. Local solutions should not wait for donors' encouragement.

- **Public discourse around water stress is superficial, often focused around conversations on dams.**

Water stress has been experienced in Pakistan much longer than climate stress, but has not resulted in public awareness campaigns on water conservation, recycling, or preventing waste. Public discourse tends to focus exclusively on policy and governmental actions, and fails to sensitize citizens and industrial actors about environmentally conscious practices or sustainability.

Instead, Pakistan's acute water stress is subjected to circular debates on building more dams, as a one stop fix for resolving complex water management issues. It generates heated debate on the issue of provincial water rights, but devoid of technical knowledge on water storage and infrastructure. In 2018, the former Chief Justice initiated crowdfunding for the Diamer-Bhasha and Mohmand Dams without realizing the steep costs involved or the effectiveness of large dams.

To resolve its perennial water challenge, Pakistan must move past the idea of constructing mega dams, particularly as sedimentation reduces storage capacity over time, and changing rainfall patterns make reservoir-dependent systems less reliable of water, whereas Tarbela dam being Pakistan's largest artificial aquifer, holds less than six million acre-feet.

We need to restore our wetlands along river corridors that recharge underground water reserves, and regulate water flows. In doing so, we will develop more sustainable water storages that replenish on its own and act as a bulwark against droughts.

Combatting water stress and climate change needs a whole host of measures mentioned in subsequent sections of this report. But most of all, public discourse needs to be upgraded with new evidence in light of the climate crisis, behaviour change campaigns and stricter enforcement around waste and damage.

Embedding Climate Readiness Across Sectors

The 2025 floods underscored that rebuilding after loss and damage is insufficient; systems need to be created that can withstand the next disaster. Traditional infrastructure and service delivery collapsed under extreme events, from washed-out bridges to contaminated water streams.

Going forward, inclusive resilience must be the defining principle of Pakistan's post-disaster recovery.

This requires embedding climate-smart design across infrastructure, nature-based solutions, and agriculture, water, and energy systems. The following section outlines priority areas where resilience can transform Pakistan's recovery into an opportunity for long-term adaptation, protection, and growth.

▪ Transport Infrastructure

The most urgent priority following the 2025 floods was the reconstruction of roads, bridges, and transport systems, as they are critical lifelines for humanitarian relief, market recovery, and community access to essential services. Estimates suggest that approximately 1,980 kilometres of roads sustained major damage, and nearly 240 bridges were washed away, with Punjab's southern districts (Vehari, Bahawalnagar, Muzaffargarh) particularly imparted. Nearly 40 per cent of the assessed villages across Punjab became inaccessible by light vehicles, isolating approximately 2.8 million displaced people from relief operations. The economic losses from roads and bridges alone exceeded PKR 100 billion.

Reconstruction must adopt a climate-resilient approach that does not reinforce pre-disaster vulnerabilities, and build infrastructure capable of withstanding future shocks. Bridges and road segments that isolate districts or disrupt agricultural supply chains need to be mapped and prioritized. In mountainous areas that have experienced flooding, hydrological modelling and erosion risk analysis become critical for designing upgrades with deeper foundations, elevated spans, and adequate culverts to handle 1-in-100-year floods. This prevents isolation and keeps markets and relief goods moving.

Globally, flood prevention is shifting toward 'sponge city' models that treat stormwater as a resource rather than a threat. In Pakistan, this approach is especially relevant for cities like Lahore, Karachi, and Sialkot, where urban flooding is made worse by inadequate drainage and urban sprawl. Wetland restoration along peri-urban floodplains, coupled with redesigned public spaces that double as stormwater channels, can reduce flood risks while enhancing resilience.

To finance such projects, provincial Annual Development Plans (ADPs) can integrate climate-resilient transport and drainage projects, while leveraging donor support.

▪ Social Infrastructure

The 2025 floods inflicted severe damage across education, health, and water infrastructure. In Punjab alone, over 3,000 schools and 395 healthcare facilities (53 per cent of those

assessed) sustained damage, with KP reporting 437 schools affected across 10 districts and 40 health facilities damaged. Flood waters compounded disease outbreaks of malaria, diarrhoea, and dengue, stretching an already strained public health system. WASH systems were similarly hit, with over 1,060 water schemes damaged in KP and rural Punjab communities reporting inundated wells and boreholes.

In response, federal and provincial governments moved to restore essential services through a combination of emergency and longer-term measures. Temporary Learning Spaces were deployed to maintain education, and rehabilitation frameworks were developed to guide the reconstruction of schools and health facilities. Efforts to restore WASH infrastructure included repair of pumping systems and water schemes, with solar-powered alternatives introduced in the most affected areas. Mobile health units and prepositioned health kits were deployed to contain epidemic spread, and partnerships with NGOs and local providers helped extend coverage in high-burden districts.

Building on these efforts, there is scope to further embed resilience into social infrastructure over the medium term. Reconstruction plans can progressively incorporate flood-resilient design standards, including elevated substations, solar-hybrid energy backups, and integrated WASH facilities in schools and clinics. Peri-urban wetland restoration along floodplains can also serve as a longer-term buffer, reducing the frequency and severity of damage to infrastructure networks.

- **Housing Infrastructure**

NDMA data showed that 55 per cent of fatalities in 2025 were due to collapse of houses. In Punjab alone, 161,700 houses were damaged, 28 per cent fully and 72 per cent partially, displacing nearly 2.8 million people. Most of them were accomodated in out-of-camp settings, straining host families' capacity and compromising basic living conditions. In KP, 3,487 houses were damaged across ten districts, with Swat reporting the highest toll with 67 fully and 1,849 partially destroyed houses. These figures underscore the urgent need to transition from mud-based kutcha housing, which constitutes nearly 29 per cent of rural homes, to more resilient housing models.

There have been successful experiments in this regard. Affordable, flood-resistant housing using

locally available materials combined with structural reinforcements such as raised plinths, bamboo or steel framing, and water-resistant roofing, have been tried and tested in several districts of Sindh and Balochistan. 'Vernacular architecture' has reduced flood damage in villages along the Indus, and demonstrated the potential of local solutions when adapted with modern engineering. Public-private partnerships can provide microcredit, subsidies, or conditional cash grants to enable adoption among communities at higher risk.

Community infrastructure must also follow disaster-resilient standards. Rebuilding rural health clinics and storage depots with elevated foundations allows them to serve as distribution hubs during emergencies. Housing layouts in high-risk zones should avoid natural floodways and incorporate elevated cluster roads and drainage corridors, reinforced by nature-based buffers such as vegetation strips and permeable surfaces. Financing for these efforts could be drawn from blended models, linking national schemes like BISP with targeted adaptation funds, ensuring vulnerable households receive housing infrastructure.

Case Study 1: Sindh Flood Emergency Housing Reconstruction Project

The Sindh Flood Emergency Housing Reconstruction Project stands as a transformative resilience-building intervention which emerged in response to the devastation of the 2022 floods. Sindh was hit quite intensely in comparison, with rainfall levels exceeding 426 per cent of the average records. The resulting catastrophy displaced 7.38 million people and led to 823 deaths. With assistance from development partners such as the Asian Development Bank (ADB) and the World Bank, the Sindh Government has accumulated over $1.5 billion for the construction of 350,000 hazard-resistant homes. The project is mainly centred around the rehabilitation of those most vulnerable and aims to contribute towards a total of 2.1 million homes.

The project follows a "beneficiary-driven" approach, which ensures transparency by channelling the funds directly to the affected communities. This also serves to provide them with more control over the reconstruction efforts. The architecture is designed to withstand extreme inundation through the integration of waterproofed foundations. It has also made reformative leaps in gender inclusion by assigning land ownership to female headed households. More than 157,000 women have become involved in the reconstruction process as of 2023.

Resilience Through Nature Based Solutions

▪ Reforestation and Afforestation

Nature-based solutions are critical for Pakistan's resilience strategy, even though forest loss has been a major challenge. Official data shows a decline in forest cover from 3.78 million hectares in 1992 to just 3.09 million hectares in 2025, leaving only five per cent of land under forests, the lowest in South Asia. This has intensified soil erosion, surface runoff, and vulnerability to floods. Tackling this loss requires decisive action against timber mafias and illegal logging networks, coupled with stronger enforcement and community-led forest management to stop the annual clearance of thousands of hectares.

Reforestation and afforestation, therefore, need to move beyond scattered plantation drives towards landscape-level programmes. For instance, Pakistan's Billion Tree Tsunami (BTT) demonstrated the value of large-scale, community-based reforestation, but lessons from BTT highlight the need for stronger monitoring, survival audits, and integration with watershed management. Scaling this model to flood-prone catchments in Punjab and Khyber Pakhtunkhwa will reduce downstream flood surges.

Urban-focused initiatives like Miyawaki forests have also expanded rapidly since 2018. These dense, native plantations grow 10–30 times faster than traditional methods, filter dust, absorb pollutants, and provide carbon sequestration at far greater rates. Across urban centres, Miyawaki forests should be aligned with stormwater management to both cool urban heat islands and increase water absorption capacity.

Along the coast, Pakistan has more than doubled its mangrove cover over the past three decades, with the Indus Delta alone expanding from around 51,000 hectares in 1990 to over 101,000 hectares by 2023. Scaling mangrove belts along the Indus Delta can provide both carbon sinks and cyclone barriers. In riverine Punjab, combining afforestation of degraded riparian belts with zoning laws near embankments will reduce the destructive force of monsoon floods.

▪ Wetlands Restoration

Pakistan hosts over 240 significant wetlands, covering nearly 10 per cent of its land area, and is following the global trend of depletion: worldwide, 85 per cent of wetlands have been lost due to drainage, encroachment, and altered river flows. Wetlands are vital buffers for flood control, aquifer recharge, and carbon storage, with coastal wetlands alone providing 3–4 per cent of global mitigation potential by 2050. For Pakistan, restoration is both ecological and economic: every dollar invested in coastal restoration can yield up to $15 in returns through fisheries, tourism, and ecosystem services.

Immediate action is needed to protect Ramsar-listed wetlands such as Keenjhar, Haleji, Chashma Barrage, and Jiwani by designating them as legally enforced no-construction zones, restricting sand mining, and regulating tourism. Urban masterplans for Karachi and Hyderabad should incorporate wetland buffers to prevent further encroachment

Restoration must address root causes: halting upstream practices like unchecked roadbuilding, impervious urban sprawl, and canal diversions, while regulating downstream modifications such as damming and channelisation. Selected floodplains in Punjab should be reconnected to rivers through controlled breaching of illegal embankments, while recharge ponds in Balochistan can channel monsoon flows into aquifers.

A National NbS body should set restoration targets, integrate wetlands into flood-risk and water policies, and align with the Ramsar Convention. Financing can be diversified: CSR-backed constructed wetlands for wastewater treatment, PES schemes rewarding communities for conserving wetlands, and targeted support for industries (e.g., textiles) to meet ESG standards while co-funding ecosystem restoration.

▪ Sustainable Land Management

Flood resilience in Pakistan cannot be separated from the way land is cultivated. Many traditional farming practices accelerate soil erosion, reduce infiltration, and worsen runoff. Sustainable land management (SLM) can reverse this trajectory by integrating soil conservation, regenerative farming, and water harvesting.

Examples already exist. In Tharparkar, communities reviving traditional beris (rainwater storage wells) and constructing small-scale ponds have improved water access by 60 per cent across 15 villages. In Gilgit-Baltistan, reforestation of slopes with juniper and willow has cut soil erosion by a quarter, while boosting biodiversity. And in southern Punjab, smallholder farmers adopting agroecology, including crop diversification, composting, and reduced chemical inputs, have seen 20–35 per cent income gains alongside healthier soils.

Policy approaches must build on these successes. First, financial incentives: subsidies should shift away from chemical fertilisers towards compost, organic amendments, and drought-resistant seeds. A national carbon credit scheme could reward farmers who adopt agroforestry, cover cropping, and reduced tillage, aligning local practices with global carbon markets.

Second, knowledge transfer: farmer field schools can teach water harvesting, contour farming, and intercropping. Women farmers should be prioritised in capacity building, for example, through kitchen gardening, seed banks, and medicinal plant cultivation that improve both food security and household incomes.

Third, policy integration: land management reforms must embed NbS in agricultural planning. This means discontinuing cultivation in fragile floodplains, promoting agroforestry in canal command areas, and linking crop insurance to the adoption of climate-positive practices. With over 44 million livestock also dependent on rangelands, SLM is not optional but essential for rural livelihoods.

▪ Green Infrastructure

Cities are Pakistan's fastest-growing flood hotspots. Urbanisation has stripped soils of permeability, replacing them with concrete that accelerates runoff and leaves cities increasingly vulnerable to flash flooding. Interventions such as green roofs, rain gardens, and permeable pavements offer a way to work with this problem, slowing and absorbing water before it overwhelms drainage systems.

Heat is a parallel crisis. Lahore and Karachi face urban heat island (UHI) effects that push temperatures several degrees above surrounding areas. Expanding tree cover, green roofs, and urban forests could lower surface temperatures by 0.3–3°C, easing energy demand and improving public health. Lahore's Miyawaki forests, for instance, have shown how dense native plantations can rapidly sequester carbon and reduce particulate pollution.

The Lahore Green Corridor Project, a Rs. 2.53 billion initiative by the Punjab government and Pakistan Railways, illustrates how NbS can be embedded into urban planning. Stretching 40 km along railway land, it will convert 700 kanals into greenbelts, recreational spaces, and cultural zones.

Green infrastructure also strengthens mobility and flood resilience. Permeable pavements on BRT corridors in Karachi, combined with rain gardens in underpasses, could reduce chronic flooding during monsoons. Policies promoting electric vehicles (EVs), especially for two- and three-wheelers, should be paired with green corridors that double as carbon sinks.

Nationally, cities should mandate urban forestry programmes and incentivise private housing schemes to incorporate green belts, bioswales, and water-absorption features. Done systematically, green infrastructure can cut urban flood damages, improve livability, and enable climate-resilient growth in Pakistan's cities.

Case Study 2: Delta Blue Carbon (DBC)

The Delta Blue Carbon (DBC) project, launched in 2015 as a public-private partnership between the Government of Sindh and Indus Delta Capital, is the world's largest mangrove restoration initiative. Spanning over 350,000 hectares in the Indus Delta, the project aims to restore and conserve more than 3,500 square kilometres of mangrove forests. So far, it has generated $40 million in carbon credit sales, with expectations of higher dividends in the coming decades. Mangroves absorb four times more carbon than ordinary trees, positioning Pakistan as the 7th largest country for mangrove forest area globally, with the potential to rise to 4th or 5th place due to these aggressive reforestation efforts. Beyond its climate benefits, the project emphasizes socioeconomic co-benefits by creating 21,000 full-time jobs for community members, engaging them in natural resource management activities.

What distinguishes the DBC project is its systematic, large-scale, and participatory approach compared to earlier grassroots initiatives. It integrates local livelihoods into its operations, ensuring that community members are involved at every stage of planning and implementation. The first phase spaned 60 villages and benefitsted 42,000 people by generating employment in diverse fields, including mangrove protection, nursery maintenance, plantation, infrastructure development, and data collection. Alongside ecological restoration, the project invests in human development, improving access to education, offering training in agriculture, crab farming, livestock management, and forestry, and setting up community-led development mechanisms.

A key innovation is the introduction of three-year Mangrove Stewardship Agreements (MSAs), which designate local people as custodians of specific mangrove areas. These agreements strengthen conservation by embedding accountability within local structures. In addition, DBC has established two reverse osmosis plants through village development committees, providing clean drinking water to nearly 49,000 people. Future phases aim to expand MSAs to fishing communities, bringing 38 more villages in its fold, thereby combining ecological restoration with long-term community empowerment.

Resilience in Agriculture, Water and Energy

▪ Agriculture

The 2025 floods caused an estimated $2 billion in economic losses, with agriculture bearing $1.6 billion. Punjab lost 1.3 million acres of crops, with 80 per cent of Bahawalnagar's cotton destroyed.

Rice, sugarcane, and cotton losses were severe, at a national level and export earnings from rice, sugar, and textiles fell by nearly $900 million. GDP growth projection for FY26 has been cut back to 3.2 per cent, with agriculture growth slashed to 1.1 per cent. Inflation could rise to 7.2 per cent, driven by shortages of staple foods.

To stabilize the sector, Pakistan must expand and reform crop insurance. The current scheme covers only small farmers who borrow from banks and just five crops. A reformed system should insure all farmers, regardless of loan status or landholding size, with payouts that reflect actual damages. Advances in weather forecasting and satellite mapping now enable accurate identification of flood-prone areas, allowing targeted risk pooling.

Farmers require support to recover from lost wheat stocks, livestock, and inputs for the Rabi crop. Timely input assistance and food support should be paired with targeted subsidies to offset climate-driven food inflation. Short-term relief must be linked to resilience-building, with crop insurance and food security safety nets scaled through development support.

Improving irrigation efficiency is critical. Only 41 MAF of 145 MAF water released into the Indus system reaches fields. Lining watercourses and promoting drip and sprinkler irrigation can reduce massive conveyance losses. Crop diversification toward less water-intensive staples should be incentivized. These have been piloted at high costs in some districts, but not scaled to a sustainable level.

In the longer term, scaling climate-smart agriculture (CSA) requires increased investment and technology adoption. Despite agriculture driving one-third of global greenhouse gas emissions, agrifood systems receive only 4 per cent of climate finance, with smallholders accessing very little. Pakistan must align domestic and international finance to CSA priorities, empowering producers with digital tools, precision farming, and resilient seed varieties.

▪ Water

Pakistan faces acute water stress, ranking among the most water-insecure countries globally. Only 36 per cent of the population currently has access to safely managed drinking water. 2025 floods have further disrupted access to clean water and sanitation services.

The country's dependence on the Indus Basin is overwhelming: more than 90 per cent of the population and three-quarters of economic activity rely on its waters, with nine of the ten largest cities situated within 50 kilometers of the river system. Climate change is projected to reduce water availability in the Indus Basin by up to 50 per cent by 2030, threatening nearly 300 million people in South Asia.

Modernizing irrigation and strengthening water governance are critical priorities. Pakistan's irrigation system wastes an estimated 60 per cent of water due to leakage, seepage, and outmoded practices. Investments in canal lining, leak repair, and efficient irrigation technologies are essential to reduce losses. Diversifying crops toward less water-intensive options such as pulses and oilseeds would further enhance resilience.

Transparent allocation of Indus waters, supported by inter-provincial telemetry data and enforced by the Indus River System Authority, can help ensure equitable distribution across provinces.

Cross-border coordination was functional until

Indian abeyance of the Indus Waters Treaty (IWT). During monsoon periods, water released from Indian dams on the Ravi, Chenab, and Sutlej rivers intensifies downstream flooding in Pakistan. While the IWT governed allocations and mandatory information, it lacked provisions for coordinated flood-release management. The loss of IWT mechanisms have removed a vital information safeguard.

Finally, Pakistan must move beyond reliance on large dam projects, which have lost significant capacity to siltation and do little to prevent floods. Practical alternatives include completing ongoing projects like Diamer and Dasu while scaling up small and medium dams, rainwater harvesting, and adaptive floodplain management.

Strengthening flood protection infrastructure is particularly cost-effective: moving from a 9-year to a 25-year protection system could yield an $11.90 return for every dollar invested. Taken together, these interventions offer Pakistan a path toward sustainable water management and long-term resilience.

▪ Energy

Pakistan's 2030 climate commitments explicitly target a deep decarbonization of the power sector: the updated NDC commits the country to reach 60 per cent renewable energy in the national mix by 2030, with renewables accounting for roughly 35 per cent of generation by 2025. This ambition is feasible given Pakistan's unusually rapid solar uptake, whereby solar generation rose sharply through 2024 and into 2025, but achieving the 2030 target requires coordinated policy and finance.

The energy and agriculture sectors are the largest sources of greenhouse-gas emissions, comprising the overwhelming share of emissions. Globally, these energy-related categories together represent roughly three quarters of total emissions. Decarbonizing power, particularly via wind and solar, offers among the largest mitigation returns, with IPCC assessments identifying multi-gigaton annual reduction potentials from scaling those technologies. To capture this potential, Pakistan must prioritize utility-scale renewables, grid integration investments, and distributed solar for off-grid and urban demand.

Financing is the critical enabler: globally, energy attracts the lion's share of mitigation finance (≈44 per cent), but Pakistan must amplify domestic and international capital through bankable pipelines, blended finance (green bonds, guarantees), and public–private platforms that de-risk projects and link developers to supply chains.

A just transition and industrial strategy will maximize jobs and political support. The IEA recommends aligning industrial and climate policy to create quality employment in renewables, energy services and digital energy technologies while funding targeted upskilling and regional economic diversification, especially in fossil-fuel producing areas. Pakistan should adopt national transition plans that combine retraining, local content requirements, and social protection to ensure the green transition is both rapid and equitable.

Case Study 3: Agroforestry Practices in Khyber Pakhtunkhwa (KPK)

In the mountainous districts of Shangla and Swat in Khyber Pakhtunkhwa, small-scale agroforestry has emerged as a transformative practice for enhancing livelihood resilience and local economic development. Communities in this region rely heavily on agriculture, with agroforestry offering a sustainable approach to integrating trees, crops, and livestock on the same land. This practice has provided a critical buffer against climate shocks and economic instability.

Agroforestry systems in KPK incorporate diverse tree species, such as Poplar, Persimmon, Walnut, and Plum, alongside traditional crops. This mixed land use improves soil fertility, prevents erosion, and offers shade, which moderates local microclimates and protects crops from temperature extremes. Many farmers have benefited economically, earning income from selling fruits, timber, and other agroforestry products. The study documented that households involved in agroforestry earned, on average, 6 per cent more income and held 23 per cent more assets compared to those not engaged in these practices.

The adoption of agroforestry has also been driven by community-based initiatives and government-backed programs like the Billion Tree Tsunami, which supports tree planting efforts. However, local farmers face challenges such as limited water access for irrigation, pest control, and the availability of seedlings. Despite these hurdles, agroforestry continues to strengthen rural resilience, diversify livelihoods, and foster environmental sustainability in KPK, making it a crucial strategy for climate adaptation and economic stability in the region.

SECTION 2

RESILIENCE SCORE FOR PAKISTAN

What Makes up Resilience?

Earlier sections of this report have examined resilience for infrastructure, resilience through nature based solutions, and resilience in agriculture, water, and energy. Resilience is often taken to mean so many things, that it has become little more than a catch phrase for wellbeing after a disruptive event.

This report builds a case for creating resilience among communities through examining adversities and gains that propel groups towards welfare, or deprivation. Unless resilience programming can alleviate climate stress experienced by vulnerable communities, Pakistan's efforts are a long way off from securing lives and livelihoods.

Why Resilience?

The research was undertaken in response to the widespread usage of the term 'resilience', often found in climate literature to denote degrees of well-being in the aftermath of a natural calamity. There is considerable lexical debate on what resilience means or how it can be understood. This research found that resilience is expressed distinctively at individual and community levels, depending on variations of capacity and resource. Articulations of resilience can vary, depending on who is asked, and indicate a larger set of values that fit more than one definition. More than anything else, resilience is defined as the absence of key vulnerabilities, and the existence of core adaptive capacities.

This research fills an evaluation gap in determining how resilience can be created. Most policy and programming frameworks refer to resilience as a value outcome, if at all they prescribe steps leading to it, or measure its components. This research has developed a Resilience Index based on key indicators that determine how and where resilience

exists in Pakistan, hoping that such standardization can bxe utilized by national frameworks. This Index has closely examined the statistical methodologies of international and national indices, and attempted to work around the standard critiques of being reductive, exclusive and misleading. These arguments have merit when indices have no qualitative context around them. This research extensively documented case histories for building context to the Index, to understand ways in which communities build resilience. At the same time, it is important to mention that the critical challenge in developing a nationwide index is the absence and diversity of data in all districts, particularly Gilgit-Baltistan, and Azad Jammu & Kashmir.

▪ Defining Resilience

This research reviewed dozens of definitions of resilience, and categorized a few select ones according to key variables. Most definitions denote a positive integration of institutional settings, beneficiaries, and capacities, in the aftermath of a disruption. Some perceive resilience to be an inherent quality that pre-exists with identifiable markers, or can be developed over time. Two major approaches can be seen (i) 'bounce back' or the absorptive model, emphasizing the need to recoup and revert to a pre-existing state; and (ii) 'bounce forward' through adaptation, recognizing that it is impossible or even undesirable to return to a prior state.

Unfortunately, too many definitions are 'turbocharged' with features and outcomes, making them read like transformational guidelines for whole-of-government and whole-of-society, rather than realistic end goals for policy intervention. Such descriptors are evidently theoretical, and relate little to the lived experiences of communities confronting disruptions.

The definitional and substantive elements outlined below are important for resilience programmers in particular.

RESILIENCE

"The capacity to prepare for disruptions, recover from shocks, and grow from a disruptive experience"

▪ Resilience and Vulnerability

Many practitioners describe resilience as the absence of vulnerability. Vulnerability and resilience are paired as polar ends of the same continuum in much of the policy literature, whereby gains in one reflect a reversal of the other.

However, this is not always the experience of vulnerable communities. Deprivations take their toll and intensify, even while communities demonstrate signs of resilience. Conjoining vulnerability and resilience presumes that treating one will alleviate the other, and this creates an analytical gap in devising remedies, such as providing digital access without addressing lack of education. Both concepts share complementarities, although resilience is more applicable to rapidly evolving scenarios or disruptive events such as disease outbreak, whereas vulnerability is more focused on consistent risks, whose magnitude can vary, such as malnutrition.

Resilience studies have attempted to identify thresholds that transition systems or communities from one state to another. In comparison, vulnerability assessments utilize indicators for quantification, and thresholds for change are rarely presented.

Moreover, resilience is predicated on resistance and recovery during a temporal sequence. Vulnerability focuses on susceptibility, and adaptive capacity with implicit temporality.

Vulnerability assessments are often prospective, typically projecting threats or hazards yet to occur, whereas resilience tends to be more retrospective, referring to stressors or disruptions already occurred.

▪ Resilience and Adaptation

Adaptation exists on the same continuum as resilience, and can be a more useful analytical tool for evaluation. Adaptation denotes adjustment to actual or expected climatic effects, moderating harm and leveraging beneficial opportunities in human systems. Adaptation measures can include building sea walls as protection against sea level rise, afforestation to reduce urban heat, or alternative seed choices. However, costly adaptation projects can undermine resilience by reducing communities' response diversity or bringing in a false sense of security.

Incremental adaptation comes about with minor changes to existing practices, while maintaining the function of a social-ecological system, for example through reducing livestock or using another fertilizer. *Transformational* adaptation occurs with the creation of a fundamentally new system, while addressing underlying vulnerabilities and new institutional arrangements. Examples include migration, or giving up traditional livelihoods.

Transformational responses can be deliberate, if taken as a preventive measure by exposed communities, or forced, if occurring from a panic response to rapidly changing circumstances. Deliberate transformation is uncommon as communities tend to maintain their systems. Both incremental and forced responses can lead to maladaptation, that result: (i) rebounding vulnerability; (ii) shifting vulnerability; and (iii) eroding sustainable development. For example, herders sell all their livestock to fetch better prices (rebounding vulnerability); water saving techniques fail to counter climate induced water scarcity (shifting vulnerability); and, a household's inability to farm after the migration of a male family member (shifting and rebounding vulnerability). Maladaptation is conflated with negative coping strategies, that communities use to handle adverse emotions or stressful situations, and have been the subject of extensive psychological research. Maladaptive strategies provide short-term relief but exacerbate distress in the long run. Substance abuse, avoidance, self-harm, and negative self-talk are among the most common examples of unhelpful coping strategies, which are commonly found among vulnerable communities.

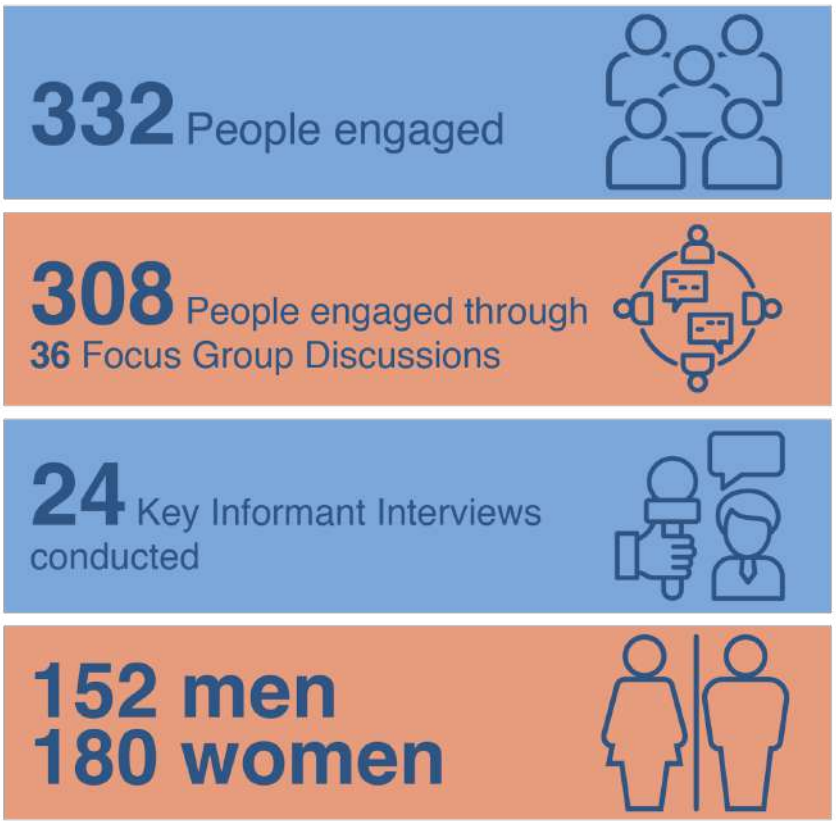
- **How This Report Makes a Contribution?**

The objectives of this study were (i) defining and measuring resilience in Pakistan through a comprehensive set of indicators that can assist country-wide analysis; (ii) conducting qualitative field research that provides socio-political, psycho-social, socioeconomic, and environmental explanations for vulnerability and resilience; (iii) identifying key challenges and gaps in policy approaches aimed at reducing vulnerability; and (iv) recommending effective policy and programming interventions that enhance resilience.

The study was built around a simple theory of change, that if select capacities and resources are enhanced among vulnerable communities over time, then this will enable adaptive transformation, and make communities more resilient in the face of stressors and disruptions.

The following key questions were posed to respondents across 15 districts:

1. How do vulnerable communities identify resilience?
2. What coping mechanisms do vulnerable communities have to withstand socio-ecological stress?
3. Which capacities and resources can help communities cover the distance towards resilience?



- **What Makes up Resilience in Pakistan?**

Standardizing resilience is a challenge, not least for its interpretive complexity, but also the quality of data available for developing a baseline. There are several definitions and models of resilience that showcase vulnerability and progress, and have been used in policy and programming with varying results.

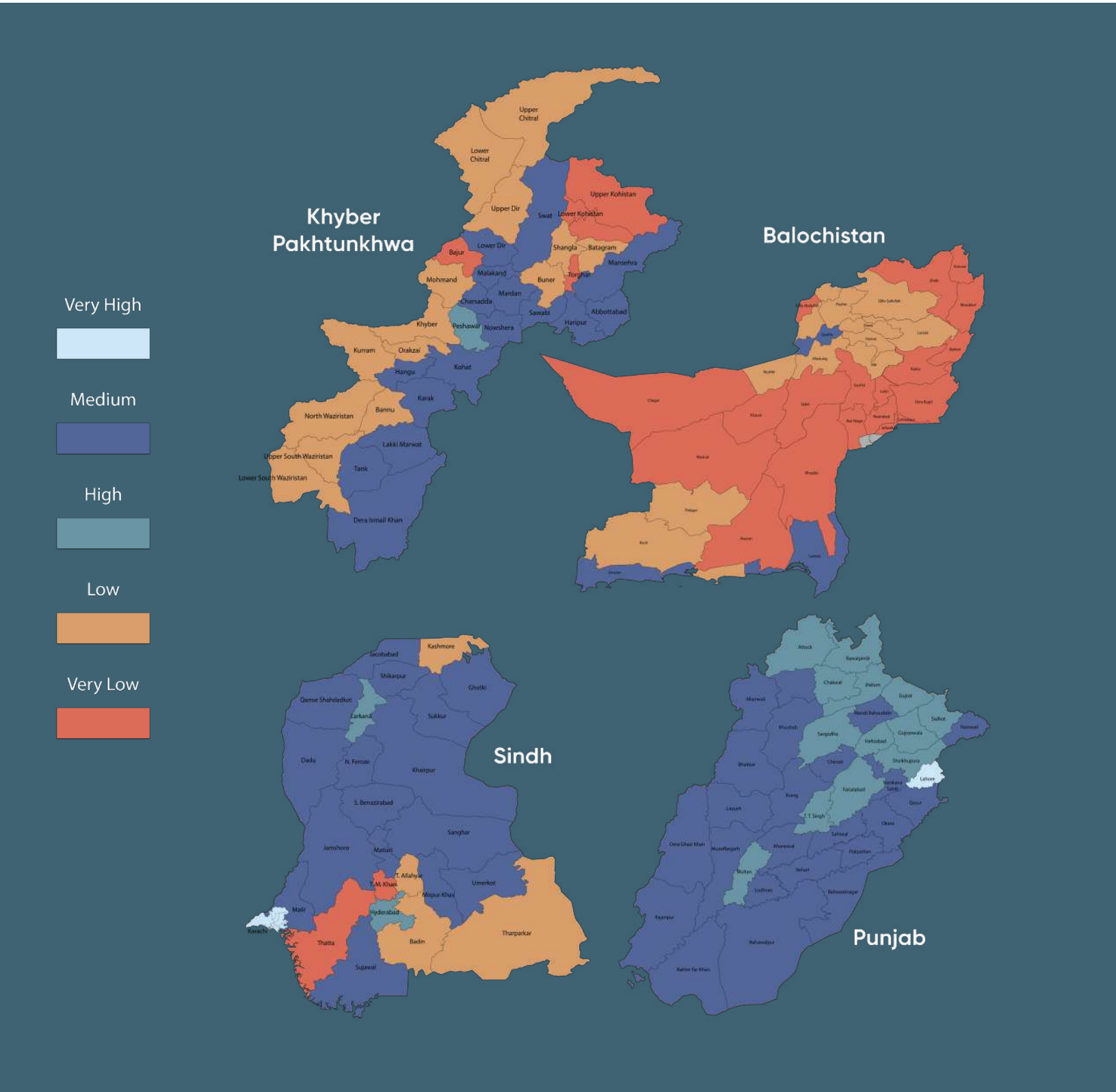
This research developed a new approach towards resilience for Pakistan, based on in-depth interactions with vulnerable communities who perceive resilience as "every step away from things that bring [them] down." Communities articulated a number of strength and capacities that can take them towards safety, but this far from a linear journey.

Their description of resilience varied according to their exposure, cohesion, access to services or political patronage. Vulnerable groups identified their challenges, as well as adaptive resources that can help overcome them. Several commonalities run through their narratives, and this research identified the following core enablers, which were used to construct a Resilience Index.

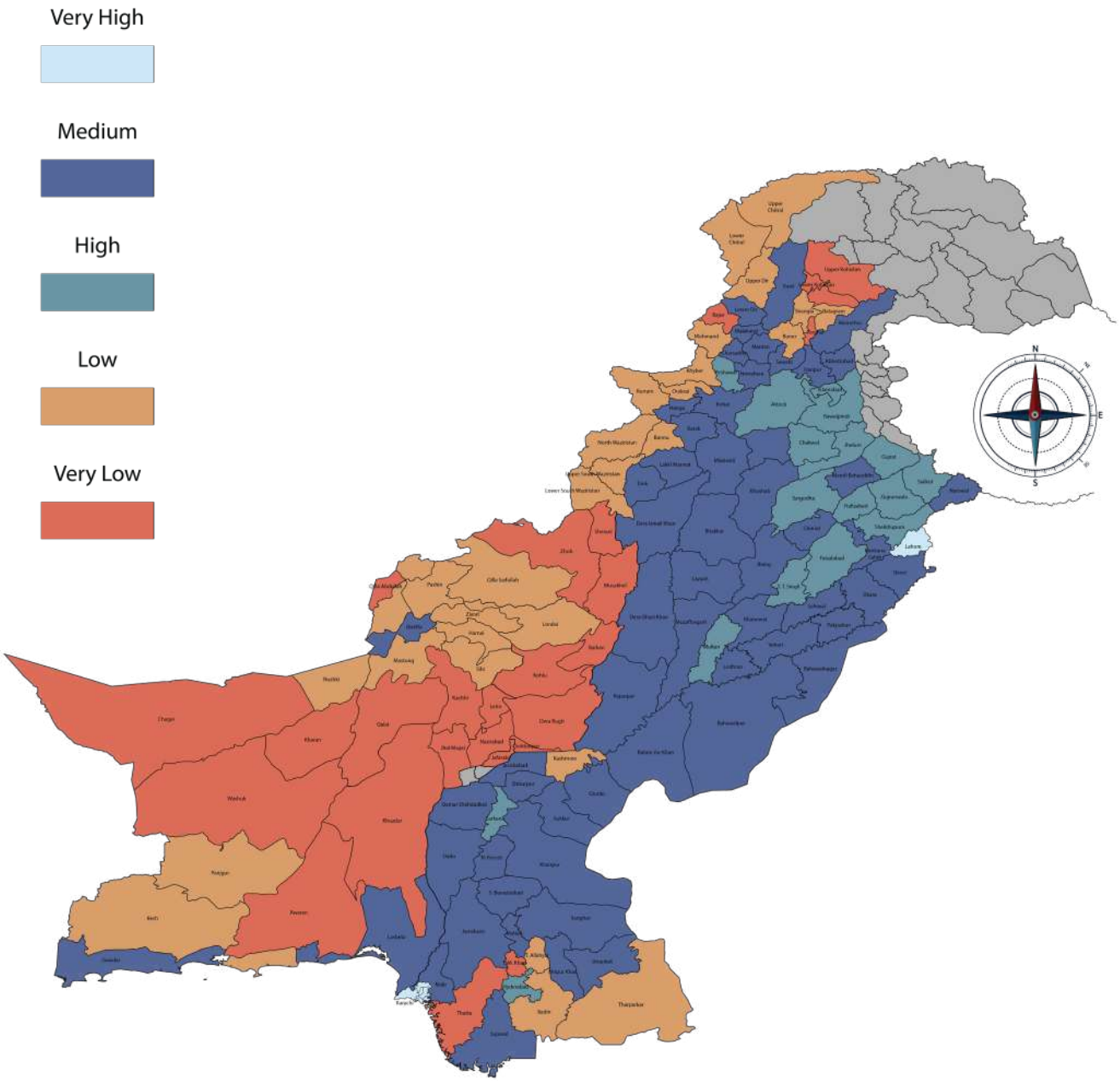
- **Resilience Index**

The Resilience Index initially started off with multiple indicators, and was subsequently narrowed down to ensure that its scope was focused. Several proxies had to be incorporated, which runs the risk of vague extrapolation. There was a conscious effort to showcase resilience, not vulnerability, and the lack of data on positive indicators became critically apparent during the process.

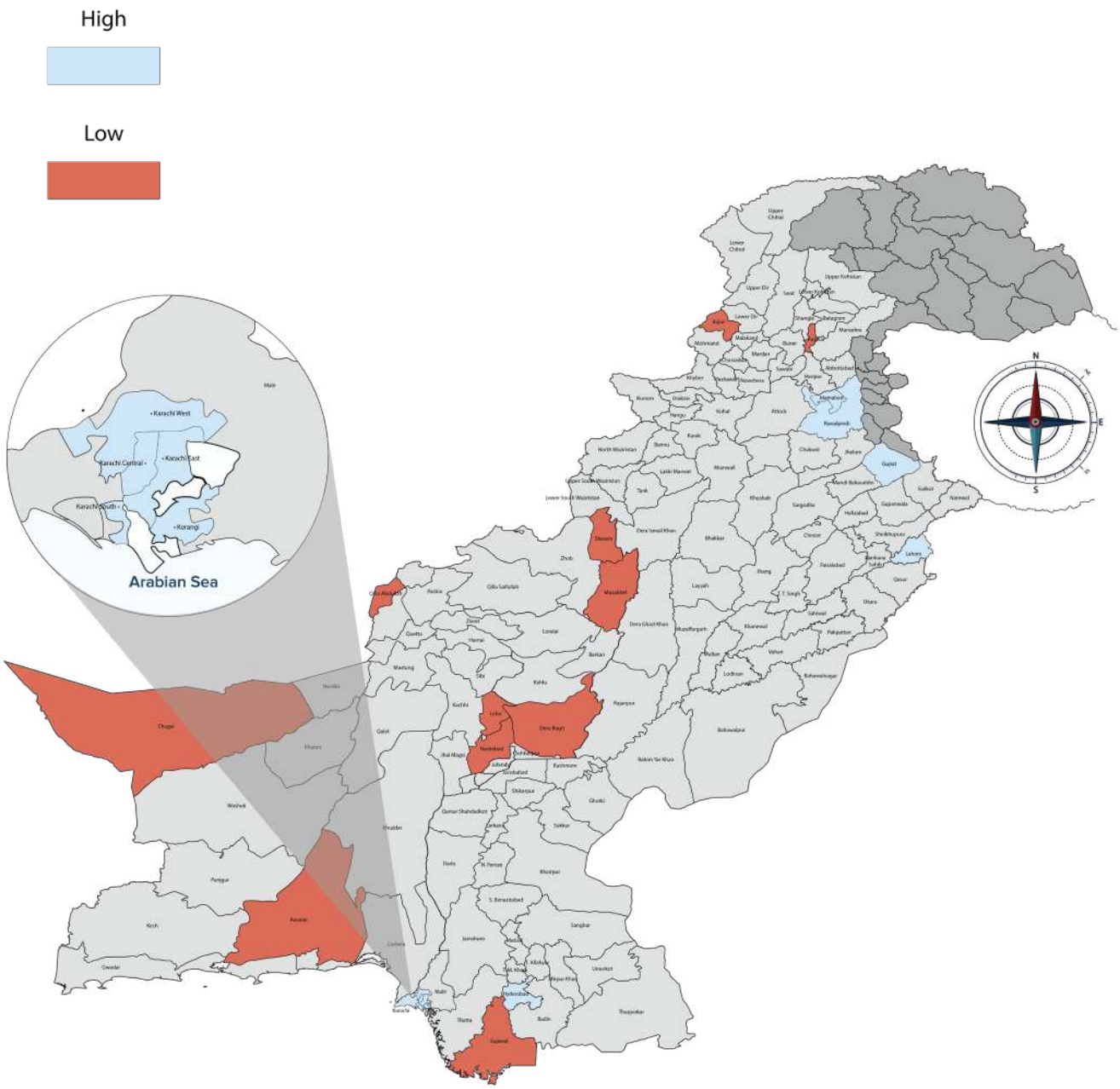
Map 1: Provincial Resilience Index



Map 2: Pakistan's Resilience Index



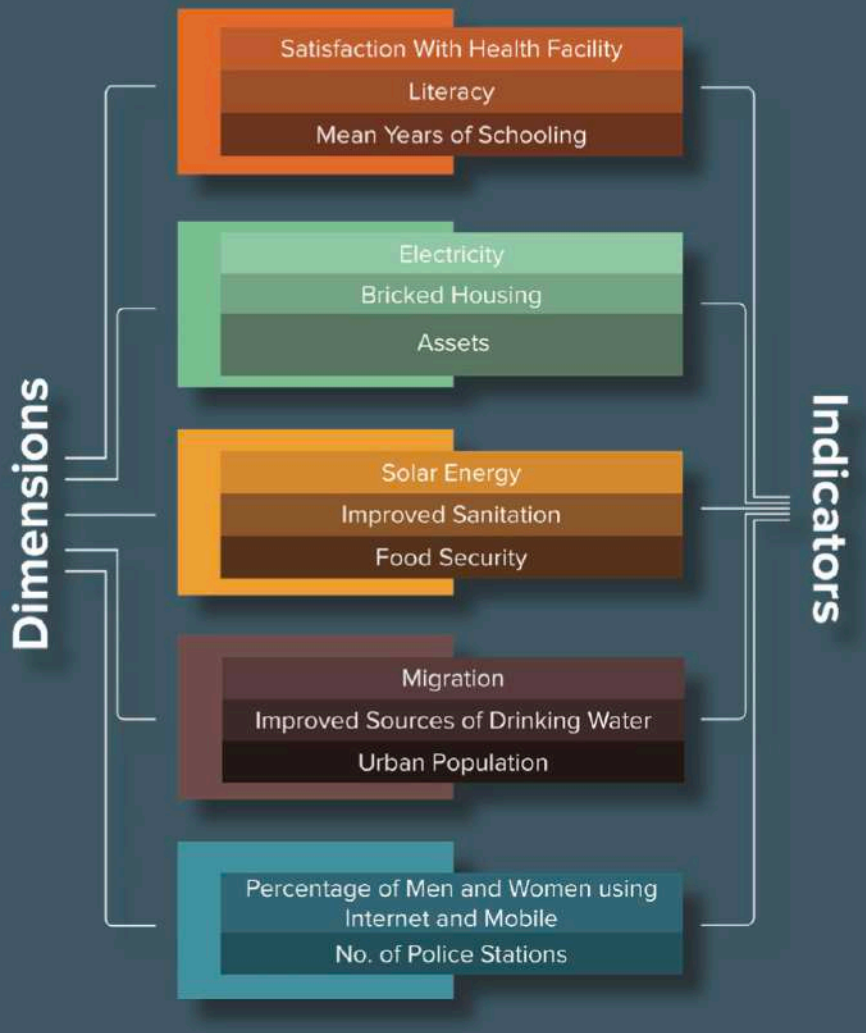
Map 3: Districts with Highest and Lowest Resilience



The dataset was constructed using government databases, as well as UNICEF's Multiple Indicator Cluster Surveys (MICS).

Due to the sourcing of data from multiple datasets (MICS, PSLM, etc), some cleaning up was necessary to draw comparisons. Most data from MICS was segregated for gender, and had to be merged together using the weighted populations for men and women in the sample sizes. While statistics on Punjab, Sindh, KP and Balochistan was easier to come across, there was severe fragmentation in data sources when it came to AJK and Gilgit Baltistan. Due to the scarce amount

of data available for these regions, the resilience scores for districts in GB and AJK could not be determined. Inconsistencies also arose across the timelines of the data sources, as the MICS for each province was conducted in different years. Data trendlines do not vary as much between one survey and another, therefore, data from different years is still valid for comparison. Data disaggregated by gender is hard to come by on key indicators, therefore an extrapolation of men and women's respective behaviours is difficult to analyze. There are no data points on climate or environment that can assist a credible analysis on climate vulnerability or resilience, and proxies can be misleading. Incomplete data for some regions, inconsistent timelines, and information gaps emerge as the largest drawbacks in the databases utilized.



▪ Weightages Justification

Many international indices do not apply weightages, given the difficulty in justifying the importance of one indicator over another. The Resilience Index too did not use weightages initially, but this resulted in high resilience scores for districts known for poor rankings on all other indices, for example districts with low human development, and poor social services. After rounds of statistical modelling, referencing weightages against global literature, and rechecking with communities on their priority domains for resilience, the following weightages were applied: Human Capital (12.5 per cent), Economic Well-Being (20 per cent), Standard of Living (12.5 per cent), Urbanization (35 per cent), and Digital Access (20 per cent).

▪ Critique of Composite Indices

The Resilience Index has taken inspiration from global indices such as the HDI, therefore many of the critiques levelled against them also apply here.

Critiques that highlight the reductive nature of such indices are correct in pointing out that communities should not be reduced to mere statistics. While these rankings are often helpful in providing a cumulative picture, they cannot possibly account for unique social, economic, political, psychological and ecological dynamics on ground, especially on as complex a phenomenon as resilience. In measuring temporal progress, such indices have a tendency to overemphasize economic factors over psycho-social or socio-ecological ones.

Secondly, such indices rely on a number of proxy indicators meant to give shape and form to an unrelated concept, like resilience. In the absence of better data and incomplete records, there have to be estimations and approximations. This often masks inequalities that exist among marginalized groups, and the levels of disparity within districts.

Thirdly, that such rankings reinforce the prevalent 'colonial' stereotypes within development, and rankings such as the HDI, Fragile States Index and Corruptions Perceptions Index repackage prejudices, ignoring the cultural strengths, variation and inequalities entrenched by global aid. Governments cherry pick their wins, overemphasizing thin successes, and wholly ignore rankings that reflect failures. Or alternatively, governments take a bad view of rankings altogether, and criticize the index for peddling a political agenda.

These arguments need careful consideration. The objective of the Resilience Index, like other indices, is to furnish evidence that helps decision-making, and benefit communities that need assistance. Rankings reflect longer term investments in people, policies and procedures, and a contemporary read-out of indicators can shine a light on a future of outcomes.

The value added by this Index is not captured by the statistics alone, but the analysis that follows. The Resilience Index rankings will show geographical clusters of economic wellbeing, or social infrastructure, but the outcomes experienced by vulnerable communities can only be gleaned through qualitative knowledge, which this research attempts to provide in later sections.

Building Blocks of Resilience in Pakistan

- **Economic Well-being is Instrumental to Resilience**

The chief determinant of resilience at the household and community level is economic well-being, which encompasses asset ownership and access to social safety nets. In contexts where 70 per cent of economically disadvantaged people depend directly on natural resources, erratic rainfall and livestock losses can erase livelihoods overnight. Households with financial and physical assets are able to adapt, whereas others fall deeper into vulnerability. Social transfers like the Benazir Income Support Programme (BISP) have proven critical in cushioning these shocks: districts like Punjab, Bhakkar and Mianwali, where up to 60 per cent of households are covered, rank high on the Resilience Index. Evaluations of BISP show tangible improvements in food security, household conditions, and even livestock ownership. By contrast, districts in Balochistan with under 20 per cent coverage consistently perform lowest on resilience outcomes.

Employment to population ratio is another measure of determining resilience. It suggests income generation and higher financial stability, reflecting districts' overall ability to withstand shocks and stresses. Most districts have less than 50 per cent employment to population ratio, but interestingly, rural parts of districts with the highest ratio, like Dera Bugti and Kashmore, have higher rates of employment than urban areas. Urban districts such as Karachi and Lahore, despite larger working-age cohorts, tend to have lower employment-to-population ratios due to high population density and the sheer number of individuals in the workforce.

Asset ownership and diversification determines whether households can withstand disruption. Districts that rely predominantly on one means of earning (more often than not, agriculture) such as Sheerani, Lehri and Musakhel, remain highly exposed to extreme weather events, and are more likely to fall back deeper into their poverty.

Industrially diverse areas like Sialkot, on the other hand may be more adaptive. The evidence underscores that economic well-being, anchored in assets, income and safety-nets is a core feature of resilience.

- **Higher standards of living, significantly strengthen stability and communities' adaptive capacity**

Districts with higher Resilience Index (RI) scores demonstrate the advantages of improved living conditions, while lower-performing districts expose the vulnerabilities tied to these gaps. In Pakistan, disparities in energy, sanitation, water, and food security shape resilience outcomes. Electricity supply remains uneven: while solar power contributed 25.3 per cent of Pakistan's utility electricity in early 2025, millions of rural families still endure long summer blackouts.

As of 2022, about 80.6 per cent of Pakistan's population used basic sanitation services. For water, 92.6 per cent of households reported using an improved drinking water source, yet only 36 per cent of the population accessed safely managed water services by 2022. The 2025 monsoon floods worsened these gaps: in affected districts, cases of cholera, diarrhoea, malaria, and dengue rose sharply, with vector-borne diseases surging by 87 per cent between June and August 2025.

Food security remains one of the starkest indicators of vulnerability. As of 2025, about 22 per cent of Pakistan's population faced high levels of acute food insecurity, with 11 million projected in IPC Phase 3+ (crisis or worse) across 68 rural districts. Malnutrition burdens are severe: 40 per cent of children under five are stunted, 17.7 per cent wasted, and 28.9 per cent underweight. These conditions lock entire cohorts into cycles of poor adaptive capacity.

District-level Resilience Index (RI) scores mirror these disparities. Lahore (0.64) benefits from reliable services, while Dera Bugti (0.25) suffers repeated crises due to poor access to water and energy. Rawalpindi (0.52) gains health protection from safer water, contrasting with Chaghai (0.24), where untreated sources fuel disease. In Bahawalpur (0.43), solar uptake offers promise, yet Rajanpur (0.39) remains trapped in outages and costly stopgaps. Districts with relatively higher RIs, like Abbottabad (0.43), show how stronger service delivery cushions shocks and sustains livelihoods.

- **Strong human capital is critical to households' adaptive capacity**

Human capital, encompassing education, skills, and health, is essential for building resilience and directly shapes the ability of households and districts to recover from shocks. Pakistan's Human Development Index (HDI) value of 0.544 ranks the country 168th out of 193, placing it in the low development category, while its Human Capital Index (HCI) value of 0.41 is well below the South Asia average of 0.48. A child born in Pakistan today will only be 41 per cent as productive as they could be if they enjoyed full education and health. This is borne out of stark deficits in learning outcomes, where expected years of schooling (9.4) drop to only 5.1 years once adjusted, and by the fact that 38 per cent of children under five are stunted, with life long consequences for physical and cognitive development.

These indicators limit both household earning capacity and national economic growth; while Pakistan's "Uraan Pakistan" plan envisions transforming the economy into a $3 trillion powerhouse by 2047 with growth rates of 9-10 per cent over the next two decades, other human capital trajectories suggest that without significant investment in education and health, per capita GDP may rise by only 18 per cent. District-level performance reinforces the link between human capital and resilience. High ranking districts on the Resilience Index like Rawalpindi and Karachi East, perform well due to stronger education and health outcomes.Rawalpindi's literacy rate of over 80 per cent and extensive schooling access strengthen both household earnings and adaptive capacity,

while Karachi benefits from a diversified, skilled workforce and relatively improved health system, enabling faster recovery from heatwaves or disease outbreaks. By contrast, with literacy below 25 per cent and high infant mortality, Sheerani remains locked in subsistence farming and vulnerable to droughts. Lehri's poor educational outcomes and elevated child mortality compounds its fragility.

Education, health and skills help to reduce multidimensional poverty, which still affects 39.5 per cent of Pakistan's population, and empowers households to adapt to climate change and diversify livelihoods. Investing in human capital protects people from the impacts of climate disasters and enables them to deliver solutions. Teachers, health workers, and service infrastructure are critical for continuity during crises, and each additional year of education increases environmental awareness and pro-climate behaviour. Districts which combine higher literacy and stronger healthcare exemplify how human capital translates directly into resilience and sustained economic growth. Districts that perform well on these indicators consistently demonstrate better recovery and adaptability to crises.

- **Higher urbanization, defined by access to infrastructure and services, enables faster recovery during crises for communities on the edge.**

Globally, 55 per cent of people now live in urban areas, a share projected to rise to nearly 70 per cent by 2050. The UN-Habitat's 2024 World Cities Report notes that well-planned cities not only generate economic and social value but also equip communities to build back better after crises. Blue-green infrastructure like mangroves and bioswales are cost-effective methods of cutting risk and restoring ecosystems.

Almost 40 per cent of Pakistan's population is urban today, projected to rise to 59 per cent by 2050. This shift makes cities pivotal for economic growth and crisis recovery. With such fast-paced urban growth, investing in compact, transit oriented infrastructure becomes all the more necessary. Compact and well-managed urban growth can reduce per capita emissions by up to 25 per cent compared to sprawling development, lowering climate risks and facilitating efficient public services.

Urbanization presents several opportunities to strengthen resilience if managed with foresight. Expanding sustainable transport systems like Lahore's Metro Bus, the Orange Line, and Karachi's Green Line, alongside the rollout of the National Electric Vehicle Policy, can cut emissions and improve urban mobility. Air quality interventions, including Punjab's 2017 Smog Policy and zigzag kiln technology, have already shown promise, but Lahore continues to top the list of world's most polluted cities. Solid waste, which is rising by 2.4 per cent annually, and hospital waste of 250,000 tonnes per year, can be transformed into resources through NEPRA's waste-to-energy policy and improved collection systems. Urban green initiatives such as Lahore's Miyawaki forests, Karachi's urban forests and Rawalpindi's vertical plantations demonstrate how cities can lower the urban heat island effect and enhance livability. At the same time, renewable energy expansion, with 2,000 MW already installed and a target of 30 per cent generation by 2030, can reduce reliance on fossil fuels and strengthen energy security. By harnessing urbanisation through integrated planning in transport, energy, waste, and air quality, Pakistan can turn its growing cities into engines of resilience.

Districts with higher urban proportion allow greater resilience among populations to recover better from shocks. This is true for both rural and urban districts.

Urbanization in Pakistan is marked by its concentration in major cities. Karachi and Lahore have transformed into megacities, together hosting over 34.5 per cent of the national urban population as of 2017. Lahore, which ranks highest on the Resilience Index (RI) with a score of 0.61 benefits from urban economies of scale, diversified employment sectors, and better social services, making residents more capable of withstanding shocks. By 2023, Karachi's population stood at approximately 18 million, while Lahore's reached 13 million. In Sindh, urban areas now represent 53.7 per cent of the provincial population, largely due to Karachi's dominance.

In contrast, geographic isolation and low urbanization are consistent themes in Pakistan's lowest-performing districts. Districts like Musakhel and Lehri, ranked at the bottom of the resilience index with a score of 0.22 and 0.18 respectively, are entirely rural. These districts suffer from inadequate social infrastructure and livelihoods that forces rural outmigration. Disasters displace an estimated 1.8 million Pakistanis annually, mostly from the poorest districts in Balochistan, South Punjab and Khyber Pakhtunkhwa.

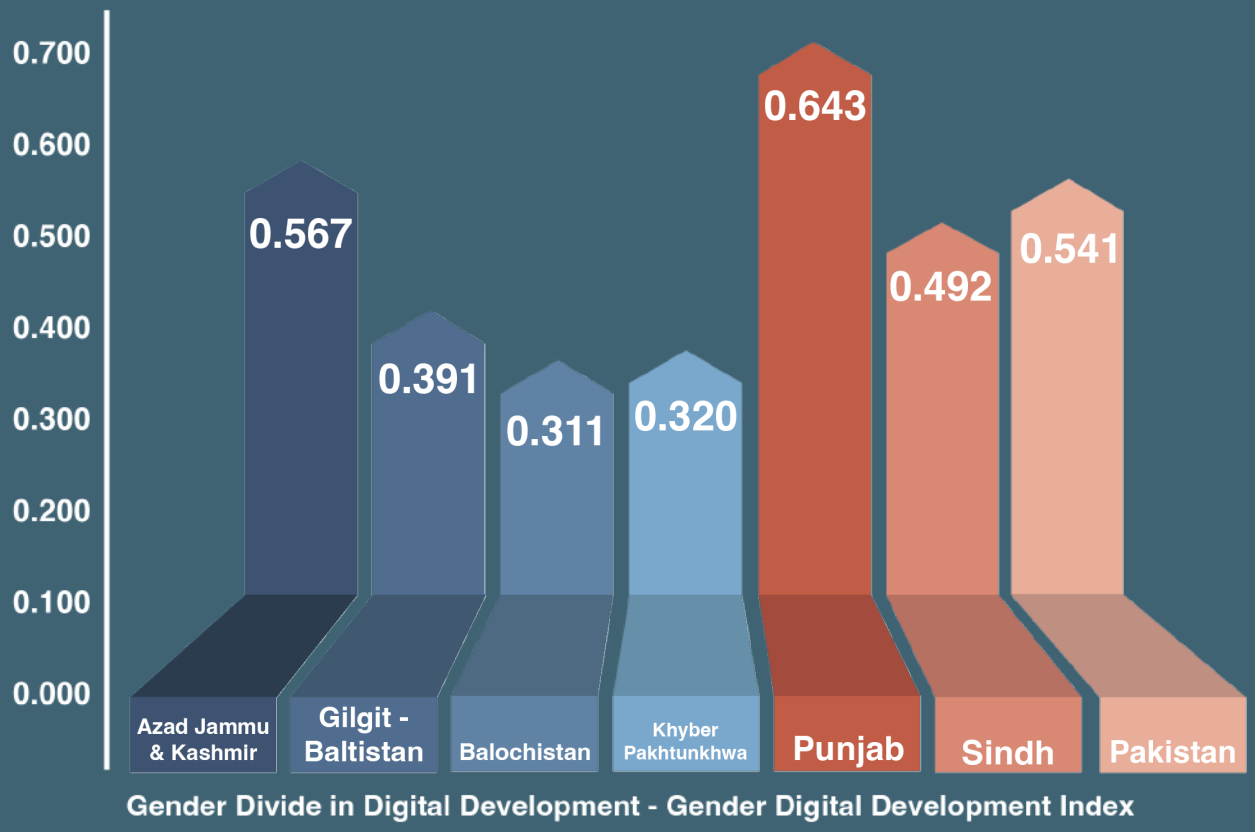
- **Regions with higher digital connectivity are better equipped to withstand and recover from shocks**

The World Economic Forum (WEF) estimates that 50 per cent of all the world's employees will need reskilling by 2025 as adoptions of new technology increase. In an increasingly digital world, access to technology enables communities to work, receive cash transfers, and access information.

As of recent estimates, Pakistan has 135 million broadband subscribers, with 132 million using mobile broadband. Fixed broadband penetration is at 56.21 per cent, while mobile broadband penetration stands at 54.82 per cent. Despite the challenges posed by the 2022 floods, which severely impacted infrastructure in Sindh and Balochistan, internet usage in the country has steadily grown, supported by a tele-density rate of 80.60 per cent. The widespread use of mobile broadband is largely due to low mobile data rates, some of the lowest globally, while fixed broadband remains unaffordable for most households. Additionally, the high cost of internet-enabled devices poses another barrier to widespread access.

Districts like Abbottabad, with digital usage rates above 60 per cent, are better positioned to take advantage of technology for education, healthcare, and governance. The higher digital access in urban centres like Karachi East (with 60 per cent digital usage) facilitates faster disaster response and greater connectivity, which strengthens resilience in these regions. In contrast, the lowest-

performing districts in Pakistan show alarmingly low digital penetration rates. For example, Awaran and Musakhel have digital usage rates of 19.73 per cent and 25.16 per cent, respectively. This digital divide further isolates these districts, preventing them from accessing vital online resources like telehealth, e-education or mobile wallets. When comparing the lowest-performing districts to the top performers, it becomes clear that human capital, economic well-being, standard of living and urbanization play central roles in determining resilience. Districts like Lahore and Karachi South, which top the Resilience Index with scores of 0.64 and 0.58, benefit greatly as they provide a buffer against economic shocks, allowing these regions to recover more quickly from crises.



Gender Divide in Digital Development - Gender Digital Development Index

SECTION 3

POLICY ROADMAPS FOR RESILIENCE

Inclusive Resilience

Resilience in Pakistan is unevenly distributed, and susceptible to reversal. Socio-economic stressors and climate shocks erode hard-won development gains. Addressing this requires a fundamental shift in how the public sector, development partners, and civil society design and deliver interventions. This section sets out that policy agenda, grounded in the Resilience Index findings and the priorities communities themselves have identified.

▪ Public Sector: Redo the Welfare Model

Programming resilience is predicated on navigating Pakistan's rapid demographic change, economic turbulence, ecological degradation and political instability. This necessitates some reorientation in public sector development initiatives, and a consideration of the welfare model currently in practice.

Pakistan's social protection programs constitute the bulk of welfare programming, including social assistance, labor market interventions, and social insurance. These have often been evaluated as fragmented, duplicative, and covering approximately 3 percent of the total population, compared to a poverty rate of about 40 percent. Increasing poverty has outstripped the supply of social welfare services, and safety nets reach only a fraction of deserving cohorts. Although these have provided crucial support to millions of households on ground, the implementation and monitoring capacity of these programs remains low, with inadequate institutional arrangements around the social protection agenda. The provision for households impacted by natural disasters is also known to be insufficient. Despite their inadequacies, social protection and safety nets remain the critical baseline of welfare benefits.

The state's other investments in social sectors do not mark an encouraging trajectory. Reviewed against human capital outcomes, the picture is bleak: in FY2023, cumulative federal and provincial spending on education was 1.5 per cent of GDP; 1.0 per cent on healthcare; and 0.72 per cent on social assistance (including

BISP, SDGs and PBM). Pakistan has the world's second-highest number of out-of-school children (OOSC) with 22.8 million children aged 5–16 not attending school. 42 out of 1000 babies die as newborns, and 62 as infants, from preventable complications during labour and delivery, and preventable infections. These statistics have been recorded and reported several times in the past, but social sector support remains neglected.

A major reason cited is the lack of funds. Admittedly, Pakistan has one of the lowest tax-to-GDP ratios in the world, at 8.77 per cent, compared to the South Asian average of over 19 per cent. Domestic tax revenue has recently seen significant improvement due to a host of regulatory measures taken by revenue authorities. However, the bulk of collection is devoted to debt servicing, which has increased year-on-year. Despite improvements in tax collection, revenue authorities still need to address issues of tax evasion and avoidance caused by inadequate tax enforcement, a cash-based economy, and ineffective tax obligations. Tax exemptions and concessions further reduce the tax base, and limit the government's ability to provide better public services. However, there are many ways in which fiscal deficits can be curtailed without reducing expenditure on social safety nets. Subsidies are a good place to look: FY2024–25's large allocation of subsidies amounting to Rs. 1363.412 billion went to power, petroleum, fertilizer and urea, among other sectors. The Public Sector Development Programme (PSDP) brought down its allocation for poverty alleviation and social safety between 2024-2025 whereas allocations more than tripled in some areas.

Private sector entities could be invited into areas traditionally dominated by the government and allow greater budgetary resources to be diverted to social protection. Pakistan's welfare system has to be transformed to harness economic and social resilience. There are models to consider from other contexts, without incurring the circular argument on funding constraints. A major learning from welfare systems around the world is that redistributive policies have to be mechanized, and service delivery redundancies must be addressed in order for funds to make a difference.

▪ Businesses and Resilience: Beyond Corporate Social Responsibility

Some private sector entities in Pakistan have forayed into resilience initiatives, but the vast majority of industry and businesses are disconnected from mainstream development. Corporate social responsibility (CSR) initiatives do not sustain beyond a few years. Private sector contributions can mean much more than financial support, and encompass technical and managerial expertise; skill transfers and jobs; access to markets; and, business linkages. However, there needs to be greater alignment of business interests and community resilience goals, so that private sector entities are incentivized to participate.

Such attempts have been made, with mixed results. The challenges include businesses' lack of development expertise; reluctance to jointly implement projects; unequal management standards, and mismatched objectives between companies and community representatives. Despite these challenges, the bigger players in industry have sustained and scaled their models of community development.

After COVID-19, the corporate sector's engagement in social development has increased, and there is considerable interest in utilizing CSR to meet welfare objectives, with due recognition of the Sustainable Development Goals (SDGs). Contributions have also steadily risen, as reports show. However, the majority of businesses conduct CSR from a limited legal compliance perspective, and investments take the form of 'corporate philanthropy' donations, part of Pakistan's annual USD 3 billion charity. Much of this stems from faith-based and community care contributions that create the bedrock of social support in Pakistan. Given the large contribution volumes, this can occasion much larger social impact, beyond short term financial donations to hospitals, shelter homes, and community schools. There is a lot more room for businesses to reorient their philanthropic donations and invest in longer term outcomes.

Beyond CSR in Pakistan, impact investing offers a niche domain for large institutional investors, including development finance organizations and private equity firms. Impact investment has so far brought about projects with a 'base-of-pyramid' focus such as microfinance, and raised questions about whether 'philanthrocapitalism' will deliver the social impact required. As some experts see it, impact investing will likely be subsumed under Environmental, Social and Corporate Governance (ESG) investing, which has many more investors.

The ESG market enables a real possibility of financing development and building resilience. There are multiple sectors where government authorities have encouraged ESG investments, particularly in climate adaptation, where energy infrastructure needs a transition towards renewables; urban resilience requires greener transport, and information technology (IT) needs a new digital architecture. Financial markets are also responsive to the sustainability agenda, and there is improved financial data and knowledge on ESG investments. It remains to be seen whether local businesses and corporations will profit from investments that enable a resilient future, or restrict their contributions to everyday charity.

▪ Development Partners: Targeted Advocacy Needed

Development agencies have dedicated portfolios for resilience, and are assisting government and civil society meet their programming objectives. At the same time, there are a number of fundamental challenges that stakeholders must bear in mind so that resilience gains are not undermined.

The contextual challenge is Pakistan's unrelenting poverty. Estimated at around 40 per cent in 2024 (US$3.65/day 2017 PPP), poverty has increased from 34.2 per cent in 2022, and there are 12.5 million more Pakistanis below the poverty line compared to 2022.

Household incomes are constrained by low labor force participation (particularly with women

unable or prevented from working), lack of high-productivity jobs, and predominant informality. On the other hand, a decline in economic activity has been accompanied with stagflation in food and energy prices, shrinking the purchasing power of households, particularly poor groups who spend half their budget on food.

If more and more groups are situated near the poverty line, chances are that interventions for resilience will assist the affluent, with limited benefits cascading down. This is certainly the case in climate mitigation, where solar panels or electronic vehicles have created market options for the affluent. Pakistan may be the world's sixth largest market for solar energy, but 40 million people remain without access to electricity, and 46 per cent of the population still uses firewood as domestic fuel.

The added policy challenge is Pakistan's inability to transition its declining sectors, particularly water management and agriculture. Water management is a case study of willful neglect failure, and agriculture follows as a close second. By 2035, Pakistan is projected to face absolute water scarcity and is already ranked as the fifteenth most water-stressed country globally. Agriculture accounts for more than 93 percent of the nation's freshwater consumption. However, water use efficiency remains alarmingly low, with agricultural water productivity under USD 1 per cubic meter compared to a global average of roughly USD 17 per cubic meter.

Pakistan's water-guzzling agriculture sector has one of the lowest levels of labor productivity in the region, despite enjoying government subsidies and preferential taxation for both income and inputs. This support is costly, inefficient, heavily distortionary, poorly targeted, and makes the system vulnerable to shocks. This has wasted resources at the expense of transitioning towards more dynamic segments of the economy. Development partners must try to steer government policy planning towards this transition.

Recommendations

- **Without reliable local evidence, policies risk being built on flawed assumptions and leave vulnerable regions invisible** *(Federal and Provincial Decision Makers, Development Partners)*

Frequent district-level data collection must become a cornerstone for evidence-based planning. Current national datasets are outdated, while localized data on climate, socio-economic indicators, and resilience is largely unavailable, particularly in regions like AJK and Gilgit-Baltistan. Without accurate information, policy frameworks operate on skewed assumptions. Development partners should undertake district-level surveys, establish open data-sharing initiatives, and build user-friendly dashboards integrating critical indicators. This will not only support state institutions in allocating resources effectively but also enable communities to advocate for their own needs and improve program targeting.

- **Top-down adaptation strategies will fail unless communities are trusted as co-designers of solutions** *(Development Partners)*

Programs must be co-designed with local stakeholders to reflect the lived realities of vulnerable communities. While environmental preservation has been prioritized, technical and administrative approaches dominate adaptation strategies, often excluding community perspectives. Local knowledge, especially from communities that have navigated repeated crises, offers insights for culturally relevant and sustainable solutions. Development actors should empower local actors through participatory models, strengthen community-based organizations (CBOs) as intermediaries for service delivery, and embed inclusion of marginalized groups to ensure transformative outcomes.

- **Marginalized voices must be amplified, with social media used as a lever for building inclusive resilience** *(Federal and Provincial Decision Makers, Development Partners)*

Resilience is not solely a policy output; it requires social acceptance and inclusion of vulnerable groups such as persons with disabilities and transgender persons. Beyond economic measures, addressing entrenched social prejudice demands broader awareness strategies. Social media remains a powerful tool for shaping narratives and should be leveraged to promote tolerance and social cohesion, while vulnerable groups must be given leadership roles to move beyond token inclusion.

- **Community Resilience strengthens when women are equipped with education, resources, and decision-making power** *(Federal and Provincial Decision Makers, Development Partners)*

Women often lack the same expendable resources as men, yet they demonstrate greater awareness of transitional challenges due to caregiving responsibilities. Their limited education prevents participation in community decision-making, diversification of trade, and digital literacy. Evidence shows that women channel any supplementary income toward family welfare, education, and debt repayment. Policies and programs must improve women's education, digital fluency, financial inclusion, and employment opportunities to enhance community-wide resilience. Addressing structural and socio-cultural barriers is critical to ensuring women's full and equitable participation in economic and community life.

- **Local governments must be revitalized to restore accountability and close service delivery gaps** *(Federal and Provincial Decision Makers)*

Centralized governance structures have weakened local governments, creating significant service delivery gaps and obstructing climate response. Remote decision-making disconnects policymakers

from ground realities, leaving communities without functional grievance redressal systems. This vacuum reinforces informal governance practices and corruption, with the highest cost borne by vulnerable communities. Revitalizing local governance will enable real-time communication during emergencies, support grievance mechanisms, and restore accountability in public service delivery.

- **Redressal Mechanisms must be made accessible to bridge the gap between state promises and everyday realities** *(Federal and Provincial Decision Makers)*

Micro-level needs, such as access to fuel, clean water, and maternal healthcare, remain unaddressed despite being within the state's remit. Communities report being advised to "call helplines" that do not work or file applications that go unanswered, reinforcing feelings of neglect. Functional grievance systems, combined with localized service points, must be introduced to bridge the gap between state provisions and community needs. Without such mechanisms, communities remain disenfranchised and exposed to further crises.

- **Strengthening Community-Based Organizations is vital to sustain their role as bridges between households and the state** *(Federal and Provincial Decision Makers, Development Partners)*

CBOs often serve as the only link between households and state institutions, particularly during crises. They provide critical mediation where government outreach fails, but face severe resource constraints and bureaucratic hurdles. Financing CBO capacity through legal facilitation and funding can ensure sustainability.

- **Businesses must move beyond shorterm CSR and adopt ESG investments that drive systemic resilience** *(Businesses and Corporate Entities)*

Corporate Social Responsibility (CSR) programs often deliver short-term benefits without creating

systemic change or financial returns. Companies should transition toward Environmental, Social, and Governance (ESG) investments, which provide both community impact and long-term business advantages. ESG-focused strategies can strengthen sectors such as food security, sustainable transport, and renewable energy, while enhancing investor confidence. This shift will position businesses as key drivers of climate resilience and social well-being.

- **Digital infrastructure and skills must be expanded to unlock economic opportunities and extend essential services to underserved communities** *(Businesses and Corporate Entities)*

The private sector is leading Pakistan's digitization, but connectivity gaps persist in remote districts where private investment is less profitable. Technology firms and entrepreneurs can create immense economic value by investing in digital infrastructure, developing youth skills, and promoting innovation in sectors like telehealth, e-education, e-commerce, and e-banking. Digital inclusion will expand economic opportunities and improve service delivery, while partnerships with public institutions can amplify the impact of these initiatives.

- **Building Provincial Capacity is essential for translating Pakistan's NDC commitments into effective climate action** *(Federal and Provincial Decision Makers, Development Partners)*

Provincial governments lack the technical capacity and institutional structures to operationalize climate commitments under Pakistan's Nationally Determined Contribution. Federal and provincial policy chains remain disconnected, and gaps persist in budgeting, programming, and evaluation. Development partners should support provincial

capacity-building through training, resource provision, and coordination platforms to ensure coherent climate policy implementation across all tiers of governance.

- **Formal coordination mechanisms with clear accountability and shared monitoring are needed to overcome institutional silos** *(Federal and Provincial Decision Makers)*

Climate governance suffers from fragmented mandates, overlapping responsibilities, and poor coordination across institutions. Competing priorities and lack of reciprocity hinder the ability to deliver integrated solutions. Establishing formal coordination mechanisms among relevant state bodies, with clear accountability lines and shared monitoring frameworks, is critical to meeting both national priorities and international obligations. Development partners can play a catalytic role in facilitating this coordination.

Ineffective early warning systems must be overhauled into timely, credible tools shaped by community feedback *(Federal and Provincial Decision Makers, Development Partners)*

Current early warning systems often fail to deliver timely, actionable alerts and are perceived as ineffective by communities. In many cases, alerts arrive after disasters have struck, rendering them useless. Future systems must incorporate multi-channel communication strategies, ensure timely dissemination, and provide clear steps for preventive action. Community feedback should inform design improvements, making warnings credible and actionable.

- **Reorienting urban planning toward climate resilience addresses flood risks with stronger infrastructure, zoning, and community-focused services** *(Federal and Provincial Decision Makers, Businesses and Corporate Entities)*

Rapid urbanization has intensified pressure on Pakistan's civic infrastructure, which remains poorly equipped to withstand extreme weather events. City master plans should be revised to include climate-resilient architecture, strict zoning regulations, and green public spaces. Small but impactful interventions, such as improved drainage systems in informal settlements or the construction of safer shelters in flood-prone areas can significantly reduce climate risks. Private actors can complement public efforts by expanding waste management, water supply, and housing services to underserved peri-urban and low-lying areas.

- **Securing predictable climate finance for anticipatory resilience requires strategic global negotiations and community-driven programming** *(Federal and Provincial Decision Makers, Development Partners)*

Pakistan must adopt a strategic approach in global negotiations, such as COP30, to secure predictable, grant-based adaptation finance. Funding should prioritize anticipatory investments in infrastructure, early warning systems, and social protection. Additionally, resilience programming must be co-designed with local actors to ensure that priorities reflect community realities. Leveraging the recent flood experience as evidence will strengthen Pakistan's position in advocating for climate justice and inclusive financing mechanisms.

SECTION 4

COVERING THE DISTANCE FROM VULNERABILITY TO RESILIENCE

This research documented incredible stories of community resolve in the face of climate stress and other complex derivations. Through qualitative interactions across the country, community members described their understanding of resilience, negative coping strategies, gendered burdens in community care, and services that can alleviate stressors.

No matter how hard communities try on their own, many do get left behind. This section explores their struggle in search of safer ground, the challenges they face along the way, and the ways in which they can be assisted.

Stories of Resilience

- "We Stay Up at Night with Worry": The Psychological Toll of Vulnerability

The field research engaged with several communities that discussed deteriorating psychological and emotional health, as a result of prolonged neglect, lack of agency, high levels of frustration, or trauma from loss. This is an underreported phenomenon, but its prevalence is high all across Pakistan, notably within cohorts like persons with disabilities, transgender persons, youth without gainful employment or agency, housewives, women engaged in informal labour, refugees and climate-affected communities.

Climate anxiety was palpable among communities in Gilgit-Baltistan, who have experienced GLOFs or are anticipating them. The emotional distress of picking up after the flood is immense: older men feel at a loss to provide for their families as their fields have been wasted, and they have limited employable skills to do alternative work; whereas women reveal hardships of making food last, finding fuel for wood-stoves, and soothing traumatized children who "cry at night from the sound of the river." Early warning messages never seem to work, and panic and fear spread quickly,

particularly when there is no help at hand. In a refugee community outside Nowshera, women explained their climate anxiety, saying "When it rains, we stay up all night worrying as we know we will have to rebuild our [mud] houses in the morning". For many, the memory of a natural disaster lingers on, and respondents in Bagh are informed that mere mention of an earthquake, as part of school drill or emergency training, will "paralyze some with fear, and cause many to pass out, as the association is that strong."

Mental and emotional health challenges are particularly acute among transgender persons, who face harassment, abuse and violence on an everyday basis. "Our survival depends on living in a big city, where people are more accepting, despite the challenges. Security has improved, and we share live locations on our smartphones with each other, so nobody is harmed," explained a transgender activist in Karachi. They felt greater awareness is a result of decades long activism, assisted by social media in recent years, that has led to positive change in mindsets. However, there is persistent ostracization from society, and particularly from families, that create emotional distress within the community. "Sometimes doctors refuse to see us; we cut our hair to fit in school, where children ridicule our younger ones. Imagine not being able to meet an ailing relative, or attend a loved one's funeral, for the shame it would bring to your family. We have homes we cannot return to, and I took pills to deal with my depression," stated a transgender person.

Younger housewives residing in urban slums were the most marginalized group, with extreme mental and emotional health challenges. Living lives of physical and mental abuse, and denied agency or resources, these respondents found it difficult to articulate the extent of their challenges. They agreed that "tension" was rife in each household, and poverty led men to become physically abusive. "Sons learn from their fathers, turn to drugs, and raise hands on their mothers and sisters. The rest of the time, they sit at street corners, and there is no work for them," explained a respondent. When asked what they do to help each other cope with stress, they explained "nobody wants to reveal they are beset with problems. What will we gain by telling someone? We had been told that when our children grow up, life will get better, but it hasn't." In extreme cases, one respondent stated she had gone to a doctor, who prescribed sleeping pills to alleviate stress. Several deprivations come together in urban slums, but the most deprived among the vulnerable are young women denied agency, mobility, and autonomy.

▪ “We migrate looking for work”: Rural Out-migration, Opportunities and Hope

Migration has largely determined the pace of urbanization in Pakistan, as well as the robustness of urban economies, and urban infrastructure. Urban labour markets are changing, as are family structures in rural areas, with pressures on social services, municipal governance, and security. Since 1980, the number of people living in urban areas has tripled, from 22.4 million to 75.6 million in 2017, and urban centres are likely to accommodate 50 per cent of the population by 2030. About 15 percent of city dwellers are internal migrants, or those who have arrived from adjoining (rural) areas. Environmental degradation, income inequality, poor social services, and frequent natural disasters are driving more and more communities to cities. However, the move to an urban centre comes with protracted hardship for households, before benefits materialize. Many do not possess the resources to move.

This research interacted with several rural communities whose youth were considering a move for higher education and a job. Private education is costly, and most households struggle to find the resources to pay. Young respondents from Oshikandas village in Gilgit-Baltistan explained *“there are people who can afford to go to Islamabad or Karachi to study... but, most cannot afford to even go to Gilgit city. We depend on the education here, which is not of a high standard.”* Those who stayed behind expressed a lack of growth opportunities, as one student explained: *“There is nothing for me to do back here. My brother has found a job in Karachi, and I hope I can find one too.”* Refugees come to cities in search of anonymity and livelihoods. Many of the refugee groups interviewed for this research stated their primary reason for living in a city was proximity to government offices processing their documents. There was constant harassment, intimidation, and extortion of refugee families, but temporary work could be found. *“Several families are forced to live in one rented house, because nobody rents to a refugee. Rents are arbitrarily increased each month by homeowners,*

knowing we have nowhere to go. Our children are denied school admissions, and our elderly cannot avail treatment in hospital, but we get by with odd jobs," explained a respondent in Islamabad.

Informal labour constitutes a steady stream of internal migrants, especially from rural areas adjoining urban centres or districts where climate has disrupted livelihoods. Agriculture workers complained that crop yields barely fetch any profit despite record expensive *"water, fertilizer and diesel"* inputs, hence their move to the city. Brick kiln workers informed that they too had moved in search of better livelihoods, as rural poverty was *"nothing but hunger and destitution."* However, life in the city was full of challenges, particularly home rentals and utility bills. *"We migrate looking for work; but look at this place, there is no electricity through the day, there is no clean water; men sleep on the green belt at night to escape the stifling heat, and women at home,"* observed a respondent from Rawalpindi.

While cities offer better social services, these are often unaffordable or inaccessible to poor urban communities. If inequality is evident anywhere, it is found in the heart of urban densities where destitution and prosperity run in parallel.

▪ "Without papers, we don't exist:" Weak local governance creates systemic deprivation

Local governments are the vital link between policy planning and delivery. From developing large infrastructure to waste collection, local governments are meant to provide entitlements that form the backbone of community resilience. Weak local governance contributes to higher vulnerabilities, especially in urban settings where inadequate services intensify deprivation. In Pakistan, the absence of local government structures has created serious voids in service delivery, and pushed communities to extreme marginalization. In expert interviews across Pakistan, policy implementers acknowledged that the lack of localized decision-making had undermined an authentic interface with the public; the mechanisms to solicit community challenges were too few or ineffective, and the system's responsiveness had little accountability. Communities attempt resolving their problems through petitions, litigation, complaint portals, approaching officials, politicians or NGOs.

Those in need of legal documentation have suffered a great deal due to systemic 'blindspots' and policy ambiguity. Refugees in particular are easy targets for extortion and harassment due to incomplete documentation, despite Constitutional protections for them. *"We have been trying to get our national identity cards for years, but no one listens to us. Without papers, we feel like we don't exist,"* stated an Afghan refugee in Nowshera. Bengali migrants in Karachi echoed similar thoughts: *"We have lived here for decades, and built this city with our hard work. We have even gone to court, but not obtained basic documentation. Politicians come and give assurances, but nothing happens... there is no system that supports us."* A universal challenge among vulnerable communities is not being able to access social protection funds for BISP. *"For two years, our funds have not been given, and there is no reason why,"* said a BISP beneficiary in Charsadda. There are several omissions and gaps in digitizing records, often haphazardly done by officials with repeated demands for prior documentation and evidence, which vulnerable communities do not have. The most common problems reported were that women without male family members could not get Computerized National Identity Cards; on collection day BISP officials would say ATM machines are dysfunctional, and charge each beneficiary a 'stipend' for themselves; the waiting queues last all day, and women faint from exhaustion in line or turn violent; there is nobody to ask or complain to if cards are blocked. In all districts covered by this research, there were routine challenges with NADRA and BISP that vulnerable communities found insurmountable.

In disaster-prone districts, there are obvious deficits in local coordination and overlapping

mandates among government agencies. Communities in Gilgit observed about early warning systems: *"We don't receive any early warnings. In fact, many times the warning comes after the disaster has already taken place."* Environmental protection and management is weak in the major cities, and completely missing in peri-urban locations or slums. *"Our sewage was broken and leaking underground; it was giving our children bad skin diseases. We complained several times, but nobody paid any heed, so we collected money together over a year to get the pipes fixed. Half the people in our area suffer from chest related ailments because of the poisonous air,"* shared women respondents in Mehmood Booti, Lahore.

Deficiencies in basic services undercut the adaptive capacity of communities to withstand shocks, making them more vulnerable to climatic hazards. Moreover, weak governance creates a disconnect between local authorities and the communities they serve, limiting accountability and responsiveness. Residents often lack the channels needed to voice concerns or demand improvements, leading to a cycle of neglect that perpetuates poor living conditions.

- **"There is no protection for us in Pakistan": Social attitudes prevent inclusion**

There are legal and political inequities that prevent Pakistan's marginalized groups from fuller citizenship and participation. Simultaneously, there are deeply ingrained social attitudes that create exclusion, disharmony and discrimination towards minority groups. Many of the minorities interviewed for this research pointed out social antagonism and extremism as a reason for vulnerability.

Religious minorities face the brunt of majoritarian tendencies. There are reserved quotas for religious minorities in government jobs, but almost always for sanitation work. Religious minorities quotas are seldom, if ever, advertised for white-collar jobs.

Quotas also apply to educational institutions, but

these go unfilled despite the best attempts of minority communities to utilize them. *"Students are not given admission to primary classes... we are sometimes told that there are limited seats,"* explained a parent. *"When we ask college principals why my son or daughter can't avail the reserved seat, they tell us the student is not at par, and lacks promise,"* shared another parent. Christian community leaders and parents recognize the frustration this creates in young people. *"We always downplayed our religious identity... it served us well, but our children do not see social restraint as something that will save them,"* they stated, adding that social media has fueled new extremisms that were impacting their community: *"[Muslims] get angry looking at what Israel is doing in Palestine, and they take their anger out at us... there is no protection for us in Pakistan."*

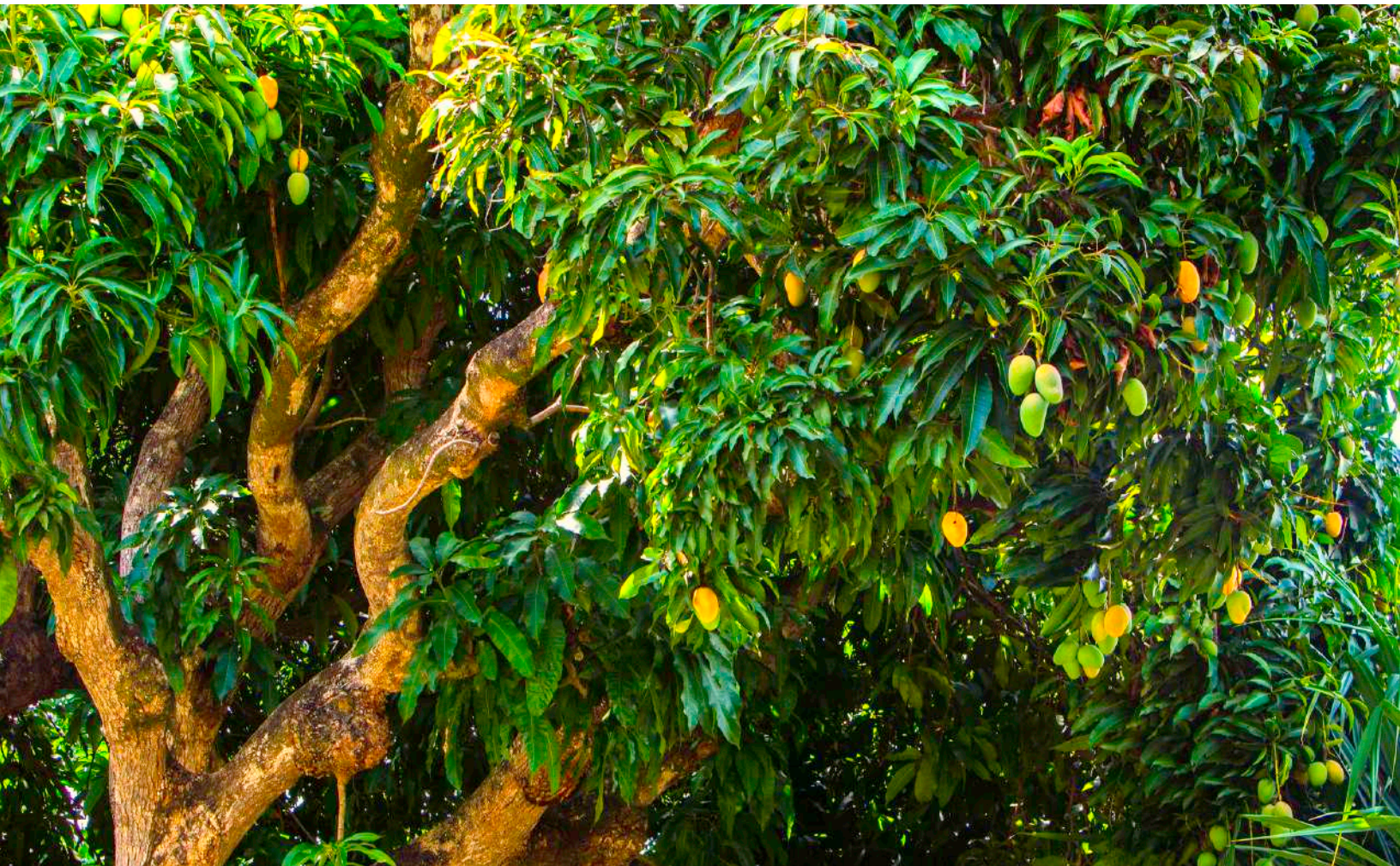
Persons with disabilities spoke about social apathy and regressive attitudes towards differently abled people. Apart from the usual challenges of inaccessibility, such as lack of ramps for wheelchair users, or public toilets for the disabled, respondents highlighted the larger issue of recognition and respect. *"What respect can we expect from society, when our own families do not accept us? That makes it extremely hard for us to accept ourselves,"* they stated. They also shared that persons with disabilities strived really hard to educate and enable themselves, against many odds, and should be given livelihood opportunities. *"We know we will never experience a normal married life, or children to take care of us. That does not mean we live a life of disdain and rejection by society,"* they stated.

Transgender persons observed that there is increasing awareness on gender rights, as well as the plight of transgender communities, who are forced to beg, perform at weddings, or engage in sex work. While there are encouraging examples of transgender professionals, activists and scholars in Pakistan, the majority of those in the transgender community are struggling to make ends meet as they are shunned by society. *"Within our community we are safe, but outside we are not,"* they stated, sharing stories of police brutality, and threats they have to overcome. "Imagine what it's like to beg on roadsides in the scorching heat; and to be catcalled by every passer by... imagine what it feels like to be half human," they said.

- **“A mango tree is nurtured like a son”: Geographies determine vulnerability or resilience**

There are geographical clusters that demonstrate more resilience as a result of higher investments in social infrastructure and human capital, as well as districts that are collectively underdeveloped. Communities that reside within regions prone to climate-induced disasters experience far greater vulnerability, even if other indicators are positive. This was the case for populations living in Gilgit whose proximity to a glacier 26 miles from their village put them at risk of experiencing a Glacial Lake Outburst Flooding (GLOF) incident. Higher incidence of natural disasters coupled with outdated infrastructure undermines community resilience and efforts to build.

Not all geographies are at risk of natural disasters. Communities living in South Punjab have always relied on agriculture for employment, livelihoods and food security. Recent moves to convert prime farmland into real estate has incurred extreme reactions by community members, who lament the loss of trees and soaring temperatures as a result of deforestation. A strong connection to the land makes communities resilient, they explained, but unwarranted development of housing societies over age-old mango orchards had undermined natural habitats and disrupted livelihoods. *“A mango tree is nurtured like a son; to see entire orchards chopped down has been emotionally distressing for us all. Those who lived on the land have been evicted. What new job can one do after growing mango orchards for fifty years?”* asked a respondent in Multan. Communities are conscious that new housing societies will not create prosperity for locals despite the promise of several new jobs, and developers will benefit from the profits. *“Those of us who owned the land have been paid a fraction of the price. We were not given a choice; a court order was issued saying we have to relocate,”* they informed.



- **“All we have is ourselves”: Community is the mainstay of resilience**

At the heart of resilience lies the strength of community bonds, which create a vital support system during times of crisis. Communities that foster solidarity, resource sharing, and collective problem-solving demonstrate a remarkable ability to adapt and recover from adversity. This interconnectedness among community members forms the foundation of both individual and collective resilience. When individuals feel connected and supported, they are more likely to ‘bounce forward’ from adversity.

Members of a landless community in Adizo, Charsadda shared that the only way they survived was because they had a strong community culture. Living in makeshift tents next to an open field, these households had meager material wealth; no electricity or running water, and none of the children had finished primary school. They could not move elsewhere because they did not have the resources, and ever since BISP support was suspended, they tilled fields nearby for grain and nominal monetary compensation. *“We are mostly all illiterate, and cannot fill [official] forms; our homes are made from discarded, waste material; there is one ‘touch mobile’ here, which is charged at a local shop; we keep our young ones with us, as all we have is ourselves,”* explained a community elder. Flood affected persons in Jaglot, Gilgit stated that they had been living in temporary arrangements since several months after a GLOF had destroyed their homes and fields. Most members of their community shared family ties, and had pooled their resources to get by. *“There has not been any compensation by the government. We survive because the land grows food itself, and rain falls from the sky, otherwise our own fields have been wasted. Thankfully, we have our ‘biradari’ to make collective demands, otherwise who would entertain our petitions?”* they explained.

Religious minority members stated that communities have to constantly adapt and create new resolve, otherwise they will lose their younger generation to high-risk practices. These came

hand in hand with poverty, social negligence and lack of opportunity. Community members have to be given the right guidance; and collective welfare, and morality have to be reinforced to make younger people appreciate common values, they said. *"We had a high prevalence of drug abuse among adolescents in our community, and it was really impacting family life. We took it upon ourselves to rectify this problem, and now things are much better,"* shared a religious leader. Not all vulnerable groups have a supportive community net around them. Persons with disabilities and transgenders, to name just two cohorts, struggle with lack of community support, and are informed that they have to leave their homes to find support, understanding and facilities.

- **"I was the first to be educated": Resilience is evident where women lead**

Where women own assets and have leadership roles, a ripple effect fosters broader community empowerment. As this research found, communities with women at the helm demonstrate far greater well-being and resilience. This finding corresponds with research in other parts of the world. The pattern is more apparent in more urbanized districts, and where women have better access to education. Even so, it is a rare characteristic that many communities can benefit from.

Women agriculture workers in Sheedi Goth, Karachi, own small tracts of land, with whose income they built small homes, and invested in their children's education. The community has solar panels, pukka houses and political patronage, which is common to many other peri-urban communities. But the decision-making here is unique, as women decide much of what goes on from pricing agricultural produce to sons' marriages. *"Women can do anything. We have worked hard, and earned our success. But our boys waste time, and say they want to move closer to the city so they can enjoy themselves."*

Lady health workers in Peshawar felt that there were many barriers to establishing women's leadership roles in communities. "The reason I was supported by my husband was that I was literate. I was the first girl to be educated at a college in my whole village, and I have encouraged many other girls to join technical fields. The main reason women aren't taken seriously is that they are illiterate," observed

a lady health worker. They agreed that women use their empowerment to build their communities, especially engaging other women in productive roles, community mobilization, healthcare and education. "Women are critical for community health and resilience initiatives. In districts beyond our own, we have tackled immunization and disease prevention, despite security threats and resource constraints," shared a lady doctor who had opened a clinic that provided free medication. Women leaders from a religious minority in Peshawar shared how they had created a community 'chowkidar project' to protect households from targeted attacks. When they found a deteriorating law and order situation, and no official help forthcoming, they took it upon themselves to safeguard the community. They have also undertaken cleanliness drives and child immunization efforts in the village. Sharing resources, and jointly caring for each other was based on their sense of faith, they said.

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ANNEX

Annex A: Pakistan's Resilience Index

RANKING	DISTRICTS	PROVINCES	RESILIENCE INDEX
VERY HIGH			
1	Lahore	Punjab	0.720
2	Karachi South	Sindh	0.700
3	Islamabad	ICT	0.670
4	Korangi	Sindh	0.670
5	Karachi East	Sindh	0.660
6	Karachi Central	Sindh	0.650
7	Karachi West	Sindh	0.650
8	Rawalpindi	Punjab	0.640
9	Gujrat	Punjab	0.630
10	Gujranwala	Punjab	0.630
11	Hyderabad	Sindh	0.620
12	Sialkot	Punjab	0.610
13	Faisalabad	Punjab	0.600
14	Jhelum	Punjab	0.590
15	Sheikhupura	Punjab	0.590
16	Narowal	Punjab	0.580
17	Chakwal	Punjab	0.580
18	Attock	Punjab	0.580
19	Multan	Punjab	0.570
20	Malir	Punjab	0.570
21	Abottabad	Khyber Pakhtunkhwa	0.570
22	Sargodha	Punjab	0.570
23	TT Singh	Punjab	0.560
24	Hafizabad	Punjab	0.560
25	M Bahauddin	Punjab	0.560
26	Sahiwal	Punjab	0.560
HIGH			
27	Peshawar	Khyber Pakhtunkhwa	0.550
28	Nowshera	Khyber Pakhtunkhwa	0.550
29	Haripur	Khyber Pakhtunkhwa	0.550
30	Mardan	Khyber Pakhtunkhwa	0.550
31	Larkana	Sindh	0.550
32	Okara	Punjab	0.550
33	Mianwali	Punjab	0.540
34	Sukkur	Sindh	0.540
35	Nankana Sahib	Punjab	0.540
36	Mansehra	Khyber Pakhtunkhwa	0.540
37	Swat	Khyber Pakhtunkhwa	0.540
38	Jhang	Punjab	0.530
39	Kasur	Punjab	0.530
40	Vehari	Punjab	0.530
41	Swabi	Khyber Pakhtunkhwa	0.530
42	Bahawalpur	Punjab	0.520
43	Charsada	Khyber Pakhtunkhwa	0.520
44	Khanewal	Punjab	0.520
45	Kohat	Khyber Pakhtunkhwa	0.520
46	Layyah	Punjab	0.520
47	Chiniot	Punjab	0.520
48	Malakand	Khyber Pakhtunkhwa	0.520
49	Khairpur	Sindh	0.510
50	Karak	Khyber Pakhtunkhwa	0.510
MEDIUM			
51	Bahawalnagar	Punjab	0.500
52	Khushab	Punjab	0.500
53	Bhakkar	Punjab	0.500
54	Dadu	Sindh	0.500
55	Lower Dir	Khyber Pakhtunkhwa	0.500
56	Ghotki	Sindh	0.500
57	Quetta	Balochistan	0.500
58	L Marwat	Khyber Pakhtunkhwa	0.490
59	RY Khan	Punjab	0.490
60	Pakpattan	Punjab	0.490
61	Hangu	Khyber Pakhtunkhwa	0.490
62	DG Khan	Khyber Pakhtunkhwa	0.490
63	Bannu	Khyber Pakhtunkhwa	0.490
64	DI Khan	Khyber Pakhtunkhwa	0.480
65	Lodhran	Punjab	0.480
66	Buner	Khyber Pakhtunkhwa	0.480
67	Muzzaffargarh	Punjab	0.470
68	Sanghar	Sindh	0.460
69	N Feroze	Sindh	0.460
70	Kashmore	Sindh	0.450
71	Rajanpur	Punjab	0.450
72	Chitral	Khyber Pakhtunkhwa	0.440
73	Tank	Khyber Pakhtunkhwa	0.440
74	Jacobabad	Sindh	0.440
75	Sibbi	Balochistan	0.440

RANKING	DISTRICTS	PROVINCES	RESILIENCE INDEX
VERY HIGH			
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2	Karachi South	Sindh	0.700
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13	Faisalabad	Punjab	0.600
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17	Chakwal	Punjab	0.580
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HIGH			
27	Peshawar	Khyber Pakhtunkhwa	0.550
28	Nowshera	Khyber Pakhtunkhwa	0.550
29	Haripur	Khyber Pakhtunkhwa	0.550
30	Mardan	Khyber Pakhtunkhwa	0.550
31	Larkana	Sindh	0.550
32	Okara	Punjab	0.550
33	Mianwali	Punjab	0.540
34	Sukkur	Sindh	0.540
35	Nankana Sahib	Punjab	0.540
36	Mansehra	Khyber Pakhtunkhwa	0.540
37	Swat	Khyber Pakhtunkhwa	0.540
38	Jhang	Punjab	0.530
39	Kasur	Punjab	0.530
40	Vehari	Punjab	0.530
41	Swabi	Khyber Pakhtunkhwa	0.530
42	Bahawalpur	Punjab	0.520
43	Charsada	Khyber Pakhtunkhwa	0.520
44	Khanewal	Punjab	0.520
45	Kohat	Khyber Pakhtunkhwa	0.520
46	Layyah	Punjab	0.520
47	Chiniot	Punjab	0.520
48	Malakand	Khyber Pakhtunkhwa	0.520
49	Khairpur	Sindh	0.510
50	Karak	Khyber Pakhtunkhwa	0.510
MEDIUM			
51	Bahawalnagar	Punjab	0.500
52	Khushab	Punjab	0.500
53	Bhakkar	Punjab	0.500
54	Dadu	Sindh	0.500
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56	Ghotki	Sindh	0.500
57	Quetta	Balochistan	0.500
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64	DI Khan	Khyber Pakhtunkhwa	0.480
65	Lodhran	Punjab	0.480
66	Buner	Khyber Pakhtunkhwa	0.480
67	Muzzaffargarh	Punjab	0.470
68	Sanghar	Sindh	0.460
69	N Feroze	Sindh	0.460
70	Kashmore	Sindh	0.450
71	Rajanpur	Punjab	0.450
72	Chitral	Khyber Pakhtunkhwa	0.440
73	Tank	Khyber Pakhtunkhwa	0.440
74	Jacobabad	Sindh	0.440
75	Sibbi	Balochistan	0.440

Annex B: Selection and Justification of Proxy Indicators

Domain	Indicators	Source
Human Capital	Satisfaction with Health Facility	PSLM
	Literacy	Labour Force Survey
	Mean Years of Schooling	PSLM
Economic Well-Being	Social Transfers	MICS
	Employment to population ratio	Labour Force Survey
	Assets	MICS
Standard of Living	Bricked housing	PBS 2017
	Electricity	PBS 2017
	Solar Energy	PBS 2017
	Improved Sanitation	MICS
	Improved Sources of Drinking Water	MICS
	Food Security	UNICEF 2018
Urbanization	Migration	PSLM
	Urban Proportion	Population Census (PBS)
	HEC Registered Universities	HEC
	No. of Police Stations	PBS
	No. of Govt Hospitals	Multiple sources
Digital Access	Usage of Internet and Mobile	MICS

Annex B: Selection and Justification of Proxy Indicators

$\bar{x}$: Weighted average
x_i: Individual values in the dataset
w_i: Corresponding weight for each value
$\Sigma(x_i * w_i)$: Sum of the product of each value and its weight
$\Sigma(w_i)$: Sum of all weights

The weighted average is calculated by multiplying each value (x_i) by its corresponding weight (w_i), summing those products, and then dividing by the total sum of the weights ($\Sigma(w_i)$).

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