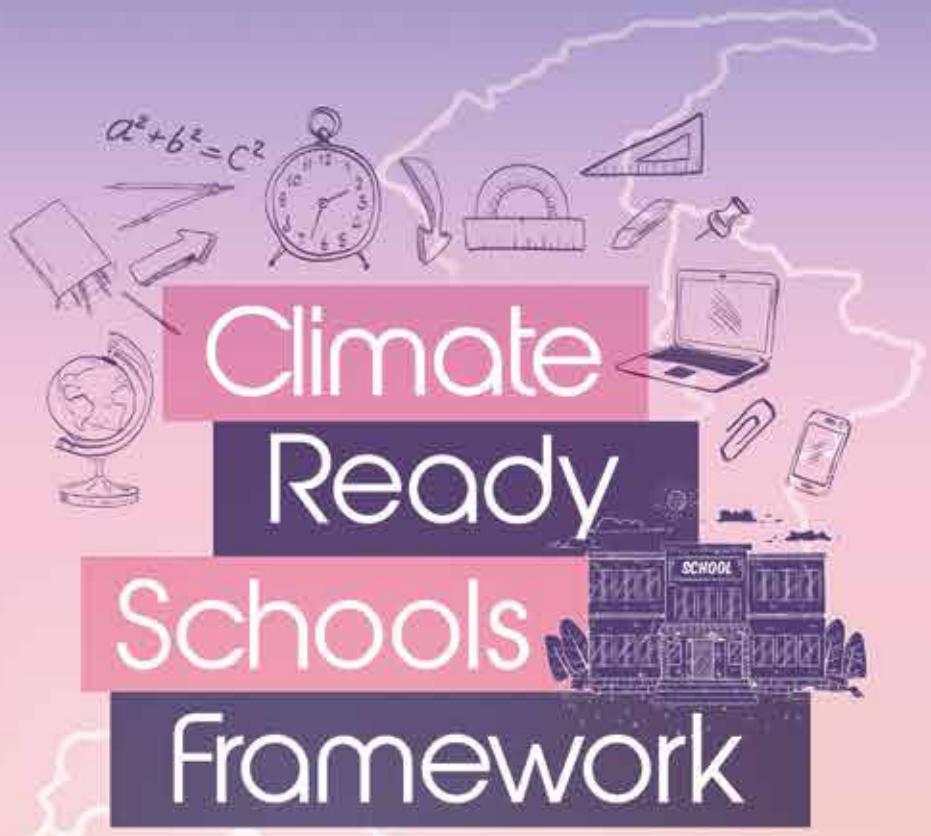
Khyber Pakhtunkhwa



Climate Ready Schools Framework

UK International Development
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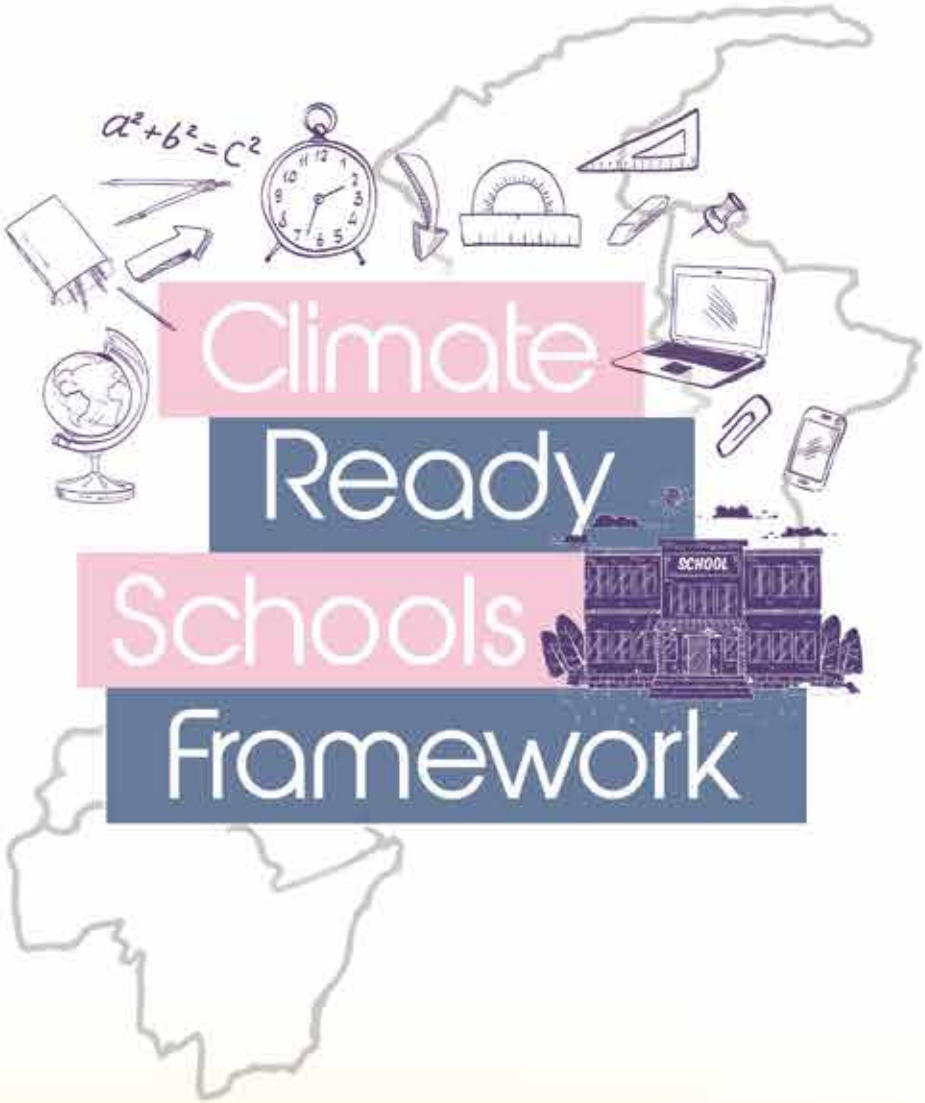
I-SAPS Institute of Social and Policy Sciences
Informing Policies, Reforming Practices

Khyber Pakhtunkhwa



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ACKNOWLEDGEMENT

The Climate Ready Schools Framework for Khyber Pakhtunkhwa reflects the provincial leadership's commitment to building a resilient education system that protects students and learning environments from the growing impacts of climate change. This vision has been advanced under the lead of Elementary and Secondary Education Department, with valuable contributions from the active engagement of the Planning and Development Department, Relief, Rehabilitation and Settlement Department, Climate, Forestry, Environment and Wildlife Department and other institutional partners. The continued guidance of the Secretary, E&SED, has ensured that the Framework is both contextually relevant and strategically aligned. The development of this Framework has been made possible through the support of the Foreign, Commonwealth & Development Office (FCDO) and the technical assistance of the Institute of Social and Policy Sciences (I-SAPS). Practical insights gained from school-level resilience initiatives, including the piloting of School Resilience Plans (SRPs), have significantly informed the design of this framework. The CRSF marks an important step in institutionalising climate resilience within the education sector of Khyber Pakhtunkhwa—ensuring that schools are better equipped to anticipate, manage, and adapt to climate-related risks.

MESSAGE
Minister for E&SE Khyber Pakhtunkhwa

Education is the cornerstone of a progressive and resilient society. However, climate change is posing an unprecedented challenge to our education system, particularly in Khyber Pakhtunkhwa, where schools and communities frequently experience extreme weather events such as heatwaves, flash floods, avalanches, and Glacial Lake Outburst Floods (GLOFs). These climate-induced disruptions not only affect school infrastructure but also hinder students' learning continuity, disproportionately impacting marginalised and vulnerable groups.

Recognising this challenge, the Khyber Pakhtunkhwa Climate Ready Schools Framework represents a major step towards ensuring that our schools are prepared for the realities of a changing climate. This framework sets out a strategic vision for climate-resilient school infrastructure, risk-informed planning, teacher training, and emergency preparedness, ensuring that students continue their education in safe and sustainable learning environments.

I would like to extend my profound appreciation to Bridging Technical Assistance (B-TAG) and the Foreign, Commonwealth & Development Office (FCDO) for their invaluable technical support in shaping this framework. Their expertise has helped us embed global best practices in climate adaptation within the provincial education sector.

The framework is not just a policy document—it is a roadmap for action. I urge all stakeholders, from education authorities to development partners, communities, and the private sector, to work together in implementing climate-resilient solutions that safeguard the future of our students. With collective commitment and strategic investment, we can ensure that Khyber Pakhtunkhwa's schools remain safe, adaptive, and prepared for the challenges of the 21st century.

FAISAL KHAN TARAKAI
Minister for Elementary & Secondary Education
Khyber Pakhtunkhwa

MESSAGE

Secretary E&SE Department Khyber Pakhtunkhwa

The increasing frequency and intensity of climate-related disasters in Khyber Pakhtunkhwa present a critical risk to education continuity, school infrastructure, and student well-being. Climate change is no longer a distant threat—it is a present-day reality that requires immediate and coordinated action within the education sector.

The Khyber Pakhtunkhwa Climate Ready Schools Framework is a proactive initiative that sets out a structured approach to strengthening climate resilience in schools across the province. It outlines measures for risk-informed school construction, enhanced emergency preparedness, teacher training, and community engagement, ensuring that schools not only withstand climate-related shocks but also serve as hubs for climate awareness and preparedness.

I extend my gratitude to the Bridging Technical Assistance (B-TAG) and the Foreign, Commonwealth & Development Office (FCDO) for their technical support and knowledge contributions, which have greatly enriched this framework.

Climate resilience in education is not just about infrastructure—it is about equipping students, teachers, and school communities with the knowledge and tools to adapt to a changing climate. I encourage all stakeholders to take ownership of this framework, collaborate in its implementation, and ensure that every child in Khyber Pakhtunkhwa has access to a safe, resilient, and future-ready education.

MASOOD AHMAD
Secretary to Government of Khyber Pakhtunkhwa
Elementary & Secondary Education Department

ACRONYMS

ADB	Asian Development Bank
ADC	Additional Deputy Commissioner
AQI	Air Quality Index
ASDEO	Assistant Sub-Divisional Education Officer
CCFEWD	Climate Change, Forestry, Environment & Wildlife Department
CRC	Climate Resilience Cell
DC	Deputy Commissioner
DCTE	Directorate of Curriculum and Teacher Education
DDEO	Deputy District Education Officer
DDMU	District Disaster Management Unit
DEO	District Education Officer
DHO	District Health Officer
DMO	District Monitoring Officer
DPD	Directorate of Professional Development
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DRR	Disaster Risk Reduction
E&SED	Elementary & Secondary Education Department
EWS	Early Warning System
FCDO	Foreign Commonwealth and Development Organization
GBV	Gender-Based Violence
GCC	Gender Child Cell
GLOF	Glacial Lake Outburst Flood
GoKP	Government of Khyber Pakhtunkhwa
GPE	Global Partnership for Education
INGO	International Non-Governmental Organization
I-SAPS	Institute of Social and Policy Sciences
IT	Information Technology
KP	Khyber Pakhtunkhwa
LGERDD	Local Government, Elections & Rural Development Department
NGO	Non-Governmental Organization
PDMA	Provincial Disaster Management Authority
PTC	Parent Teacher Council
PWD	Person with Disability
RPDC	Regional Professional Developrnent Centre
RRSD	Relief, Rehabilitation and Settlement Department
SDEO	Sub-Divisional Education Officer
SDG	Sustainable Development Goal
SL	School Leader
TLC	Temporary Learning Centre
UNESCO	United Nations Educational, Scientific & Cultural Organization
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WB	The World Bank

EXECUTIVE SUMMARY

Khyber Pakhtunkhwa's education sector is increasingly vulnerable to climate-induced hazards, including floods, landslides, heatwaves, and shifting weather patterns. These risks pose a significant threat to educational continuity, school infrastructure, and the safety of learners and staff. The Climate Ready Schools Framework (CRSF) provides a comprehensive policy and implementation instrument for mainstreaming climate resilience within the province's school system. It is designed to equip educational institutions to anticipate, absorb, and adapt to climate risks, while ensuring safe, inclusive, and uninterrupted learning.

Anchored in global commitments such as the UN Framework Convention on Climate Change (UNFCCC), the Paris Agreement, and the Sendai Framework for Disaster Risk Reduction, the CRSF aligns with the national and provincial policy landscape. This includes the National Adaptation Plan (2023), the Khyber Pakhtunkhwa Climate Change Action Plan (2022–2030), and the KP Education Sector Plan (2020–25). The Framework offers a practical localisation of these strategic instruments within the education context of KP. The CRSF adopts a three-tiered approach to climate risk management—at the provincial, district, and school levels. It establishes six strategic components: climate-resilient and inclusive infrastructure; institutional preparedness and governance; integration of climate education in curriculum and teacher training; community-based resilience; resource mobilisation and climate financing; and public–private partnerships. The operationalisation of a Climate Resilience Cell (CRC) within the Planning Wing of the Elementary and Secondary Education Department (E&SED) provides institutional leadership and coordination.

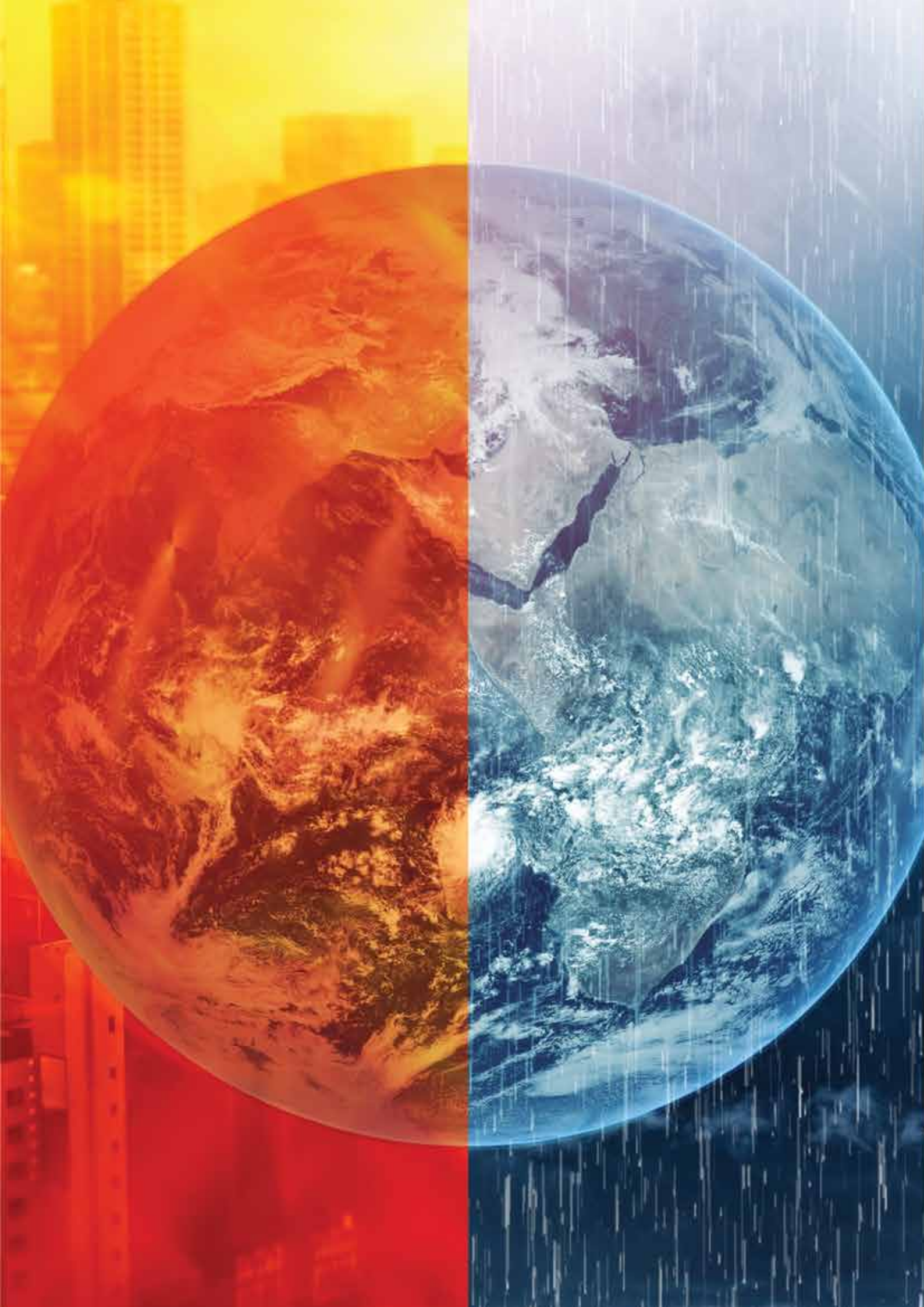
At the school level, the Framework institutionalises the development and use of School Resilience Plans (SRPs). These plans enable schools to conduct risk assessments, prepare for climate-related emergencies, and maintain functional learning environments during disruptions. Integration of climate change into teaching and learning is supported through curriculum reform and capacity development of teachers via the DCTE and KPTBB. Community engagement is embedded through strengthened roles for Parent-Teacher Councils (PTCs) in local risk mapping and preparedness.

The CRSF also reinforces interdepartmental coordination through district-level mechanisms under the Additional Deputy Commissioners (Relief) and the District Disaster Management Units (DDMUs). It calls for climate-responsive budgeting, mobilisation of resilience-linked financing instruments, and engagement with the private sector through innovative partnerships.

By translating strategic commitments into operational mechanisms, the CRSF positions Khyber Pakhtunkhwa's education sector to lead in advancing climate adaptation, institutional resilience, and sustainable development outcomes.

01

Climate Change and School Education in Khyber Pakhtunkhwa: Challenges and Implications



Khyber Pakhtunkhwa (KP) is among the most climate-vulnerable regions of Pakistan, exposed to an array of climatic and geophysical hazards that pose significant risks to lives, livelihoods, and infrastructure. The province's diverse topography, spanning from the glaciated Hindu Kush mountains in the north to semi-arid plains in the south, amplifies its susceptibility to extreme weather events and natural disasters. The increasing frequency and intensity of climate-induced hazards underscore the urgent need for resilience-building measures, particularly within critical public service sectors such as educa

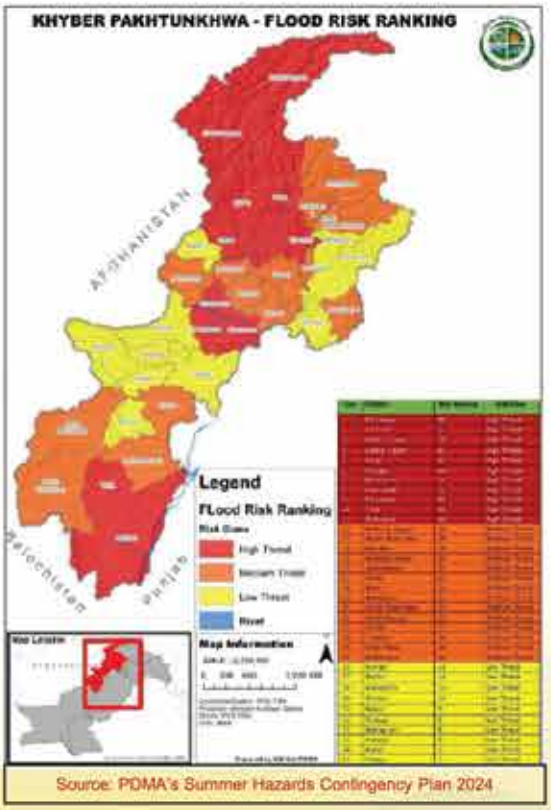
1.1 EXTREME WEATHER AND CLIMATIC VARIABILITY.

Khyber Pakhtunkhwa exhibits a highly diverse climate, with its geography shaping distinct regional vulnerabilities to extreme weather events. The province's southern districts endure prolonged and intensifying heatwaves, with temperatures frequently exceeding 40°C, exacerbating risks related to water scarcity, land degradation, and agricultural decline. In contrast, the northern highlands experience extreme winter conditions characterized by heavy snowfall, avalanches, and sub-zero temperatures, leading to the seasonal isolation of entire communities. The unpredictability of seasonal variations has been further aggravated by climate change, resulting in erratic precipitation patterns contributing to frequent and severe flash floods and landslides. Monsoon rainfall has become increasingly irregular, intense, and spatially concentrated, overwhelming drainage systems, destabilizing slopes, and displacing communities. Moreover, KP's river systems, particularly the Swat and Kabul Rivers, experience fluctuating water levels due to climate-induced shifts in hydrological patterns. Riverine flooding has become an annual occurrence, with extensive inundation of agricultural lands and settlements, further compounding socio-economic vulnerabilities.

Glacial retreat and its consequences have emerged as an additional challenge for the province, particularly in mountainous districts such as Chitral and Swat. Rising temperatures have accelerated glacial melt, leading to the formation and expansion of glacial lakes. The instability of these water bodies has heightened the risk of Glacial Lake Outburst Floods (GLOFs), which have the potential to cause large-scale devastation within minutes. As temperatures continue to rise, the frequency of such events is expected to increase, placing thousands of lives and critical infrastructure at risk. The province's exposure to these climate-induced hazards underscores the urgent need for robust adaptation strategies, particularly in the realm of infrastructure resilience, early warning systems, and disaster preparedness.

1.2 RISING DISASTER RISK DUE TO CLIMATE CHANGE

The frequency and intensity of extreme weather events in KP have escalated significantly over the past two decades, reflecting broader trends of climate variability across the region. Hydrometeorological hazards such as floods, droughts, heat waves, and storms have become more frequent and severe, with far-reaching consequences for communities and public services. The province has witnessed an increasing number of hydrological disruptions, including shifts in monsoon rainfall patterns and prolonged dry spells, leading to alternating cycles of flooding and water scarcity. The unpredictable nature of these climatic shifts poses serious challenges to agriculture, food security, and human settlements, while also straining public infrastructure.



Source: PDMA's Summer Hazards Contingency Plan 2024

including transport, health, and education facilities.

Among the most alarming trends is the rise in forest fires across KP, particularly in regions such as Malakand and Hazara, where extended dry periods have created highly flammable conditions. These fires not only contribute to biodiversity loss and air pollution but also increase the risk of soil erosion and landslides, which further destabilize already fragile ecosystems. The 2010 and 2022 floods serve as stark examples of the intensifying nature of climate-induced disasters. The 2010 floods affected millions across KP, with entire districts submerged and essential infrastructure severely damaged. More recently, the 2022 floods caused large-scale destruction, displacing thousands and resulting in widespread economic and social disruption. These events are no longer sporadic occurrences; rather, they reflect a systemic shift in the province's climate vulnerability, necessitating comprehensive policy interventions focused on climate resilience, disaster risk reduction, and sustainable land-use planning.

1.3 GEOPHYSICAL RISKS: SEISMIC ACTIVITY AND EARTHQUAKES

In addition to climate-induced hazards, KP's location in a seismically active zone further compounds its disaster risk profile. The province has historically experienced high-magnitude earthquakes, with the 2005 earthquake serving as a devastating example of the potential destruction associated with seismic activity. This event resulted in over 9,000 schools collapsing or becoming structurally unfit for use, displacing hundreds of thousands of students and disrupting education for an entire generation. The interaction between seismic risks and climate change is particularly concerning, as earthquakes frequently trigger secondary disasters such as landslides, which are exacerbated by extreme rainfall and deforestation. The fragility of KP's infrastructure—particularly in rural and mountainous regions—necessitates an urgent shift towards disaster-resistant construction practices, retrofitting of existing structures, and improved seismic preparedness measures. Without integrated risk assessment and policy coordination, the province remains highly susceptible to cascading disasters that could have severe socio-economic implications.

1.4 CLIMATE IMPACTS ON KP's SCHOOL EDUCATION SECTOR

The rapid escalation of climate risks has profound implications for KP's education sector, affecting school infrastructure, student attendance, learning continuity, and long-term educational outcomes. The cascading effects of climate disasters on education are both immediate and long-term, necessitating urgent policy interventions to safeguard learning environments.

1.4.1 DAMAGE TO SCHOOL INFRASTRUCTURE

Climate-induced disasters pose a severe risk to educational infrastructure in Khyber Pakhtunkhwa, significantly disrupting access to safe and continuous education. The monsoon floods 2022 had a particularly devastating impact, severely damaging the province's educational infrastructure. According to the KP E&SED Flood Relief Report 2022, a total of 1,790 schools were affected across 36 districts. Of these, 150 schools were completely destroyed, and 1,640 sustained partial damage. Primary schools bore the brunt of these impacts, accounting for 1,491 damaged facilities, including 132 schools completely destroyed and 1,359 partially damaged schools (E&SED, 2022, p. 3). Districts such as D.I.Khan, Swat, Tank, and Nowshera were among the most severely affected, with substantial implications for student attendance, retention rates, and educational continuity, particularly for vulnerable student populations, including girls. District-wise damaged schools are as follows.

S.N	District	Partially Damaged Schools	Fully Damaged Schools	Total
1	Abbottabad	99	2	101
2	Bajaur	10	1	11
3	Bannu	66		66
4	Battagram	23		23
5	Buner	24	9	33
6	Charsadda	30		30
7	Chitral Lower	15	2	17
8	D I KHAN	183	34	217
9	Dir Upper	29	8	37
10	Dir Lower	206	2	208
11	HARIPUR	26		26
12	Karak	40		40
13	Khyber	14	3	17
14	Kohistan Lower	11	33	44
15	Kohistan Upper	12	4	16
16	Kolai Palas	8	1	9
17	Kurram	4		4
18	Lakki Marwat	85	3	88
19	Lower-Chitral	8		8
20	Malakand	6		6
21	Mansehra	48	2	50
22	Mardan	27		27
23	Mohmand	12		12
24	North Waziristan	11		11
25	Nowshera	48		48
26	Orakzai	6	2	8
27	Peshawar	7		7
28	SD Bannu	10		10
29	SD Dara Zinda, D.I.Khan	31	1	32
30	SD Jandola, Tank	24	5	29
32	Shangla	104		104
33	Swabi	51		51
34	Swat	173	26	199
35	Tank	165	12	177
36	Torghar	2		2
37	Upper Chitral	22		22
	Grand Total	**1640**	**150**	**1790**

Additionally, KP's diverse topography and climatic conditions exacerbate the vulnerability of educational infrastructure. In mountainous regions, heavy snowfall, avalanches, and landslides frequently result in road blockages, isolating schools and disrupting access for students and teachers. Schools in these regions often remain inaccessible for extended periods, intensifying learning disruptions and increasing dropout risks (PDMA KP, 2022).

The financial implications of climate-induced infrastructural damage are substantial. The reconstruction costs for the affected schools from the 2022 floods alone were estimated at approximately PKR 8.394 billion (E&SED, 2022, p. 5). The fiscal strain further compounds the already limited education budget, diverting resources from broader educational development and enhancement efforts. Without targeted investments in resilient infrastructure and strategic preparedness, the KP education system will remain vulnerable to recurrent climatic shocks, undermining efforts toward inclusive and equitable education.

1.4.2 DISRUPTIONS IN STUDENT ATTENDANCE AND LEARNING CONTINUITY

Climate disasters not only destroy school buildings but also severely disrupt student attendance and learning continuity. Extreme weather events necessitate prolonged school closures, which in turn lead to significant learning losses. In 2022, thousands of schools in KP were converted into relief shelters, leading to the suspension of regular academic activities. Heatwaves, particularly in the southern districts, have also resulted in school closures due to unsafe learning conditions, especially in facilities lacking proper ventilation and cooling mechanisms. The displacement of families due to floods further worsens educational instability, with many children never returning to school after prolonged absences.

1.4.3 GENDERED IMPACTS OF CLIMATE DISASTERS ON EDUCATION

The intersection of climate vulnerability and gender disparities in KP's education system is particularly concerning. Girls are disproportionately affected by climate-induced school closures, as families often prioritise boys' education in post-disaster recovery periods. Schools operating in temporary learning spaces following disasters frequently lack gender-sensitive facilities, such as separate toilets and secure environments, discouraging female students from attending classes. Economic shocks triggered by climate disasters further exacerbate the risk of female dropout, as families facing financial constraints often withdraw girls from school first. In the absence of timely interventions, climate-induced gender disparities in education will continue to widen. Future resilience strategies must integrate gender-sensitive adaptation measures, including ensuring the provision of separate, secure

sanitation facilities, targeted re-enrolment campaigns for affected girls, and psychosocial support services to address mental health challenges. Strengthening community engagement through Parent-Teacher Committees (PTCs) can also play a critical role in mitigating the long-term consequences of climate disasters on girls' education.

1.5 A FRAMEWORK FOR CLIMATE-READY SCHOOLS IN KHYBER PAKHTUNKHWA:

1.5.1 GLOBAL COMPACTS, FRAMEWORKS, AND PRACTICES SHAPING CLIMATE-READY SCHOOLS

In the context of heightened exposure to climate-related risks, education systems—particularly in vulnerable geographies—are increasingly expected to serve a dual mandate: providing protective environments for learners while acting as catalysts for resilience. The concept of climate-ready schools has emerged in response to this imperative—anchored in global climate agreements, informed by strategic frameworks, and operationalised through national and subnational innovations. Collectively, these instruments establish the normative foundations, systemic strategies, and practical models required to embed climate resilience within school systems, with particular relevance for high-risk regions such as Khyber Pakhtunkhwa.

Global Compacts on Climate Resilience:

There is now broad international consensus on the centrality of education in addressing the intersecting challenges of climate change and disaster risk. Foundational frameworks such as the United Nations Framework Convention on Climate Change (UNFCCC) and its supplementary instrument, the Paris Agreement (2015), explicitly identify education as a critical enabler of climate empowerment and institutional adaptation. These instruments mandate the integration of education into climate action through public awareness, training, and inclusive participation, as outlined under Article 6 of the UNFCCC and Articles 7 and 12 of the Paris Agreement (UNFCCC, 2015). This imperative is further codified in the 2030 Agenda for Sustainable Development, particularly through SDG 4.7, which promotes Education for Sustainable Development, and SDG 13.3, which calls for strengthening education and institutional capacities to address climate change (United Nations, 2015).

In parallel, the Sendai Framework for Disaster Risk Reduction (2015–2030), drawing on the legacy of the UN International Strategy for Disaster Reduction (UNISDR), recognises education systems as essential to reducing hazard exposure and systemic vulnerability. It calls for targeted investment in safe and accessible school infrastructure, the integration of disaster risk reduction into formal curricula, and the development of decentralised school-level preparedness and continuity systems (UNDRR, 2015).

Frameworks for Operationalising Climate Readiness

While an expanding body of international guidance explores the intersection of education and climate resilience, several technical and institutional frameworks now offer structured approaches for integrating climate adaptation within school systems. A selection of these frameworks—each providing distinct entry points for operationalising climate readiness in the education sector—has informed the development of the Climate-Ready Schools Framework and is outlined below.

UNESCO's Whole-School Approach to Climate Action articulates a comprehensive framework organised around four interdependent pillars: school governance, teaching and learning, campus sustainability, and community engagement. This model positions schools as active agents of climate adaptation by embedding environmental literacy, sustainability practices, and localised resilience planning into everyday school operations (UNESCO, 2021).

The Global Partnership for Education (GPE) presents a seven-dimensional framework for climate-smart education systems, encompassing data and evidence, policy and planning, finance, infrastructure, teaching and learning, coordination, and community engagement. It advocates for risk-informed, equity-sensitive, and gender-responsive strategies—particularly in low-resource settings—enabling governments to mainstream climate adaptation across education sector planning, implementation, and governance (GPE, 2023).

The World Bank's Roadmap for Safer and Resilient Schools (SSR) provides a technically rigorous methodology for strengthening the climate resilience of school infrastructure. It promotes the use of multi-hazard risk diagnostics, exposure-based hazard mapping, and vulnerability assessments to inform investment prioritisation. The framework further encourages integration of disaster risk reduction (DRR) into national and subnational education sector plans, with a

focus on safeguarding learning continuity in high-risk contexts (World Bank, 2022)

The USAID Technical Guidance on Climate-Resilient Education offers an implementation-oriented perspective, particularly relevant to fragile and climate-vulnerable regions. It recommends the use of localised climate risk diagnostics, flexible and adaptive learning design, and targeted investment in gender-inclusive education environments. The guidance also underscores the importance of institutional capacity-building at subnational levels to support the operationalisation of climate resilience in practice (USAID, 2022).

Translating Frameworks into Practice

Countries across diverse development and climate contexts are progressively adapting global climate education frameworks into national policies and school-level interventions. These efforts reflect a shared recognition of education systems as critical platforms for mitigating climate vulnerability and enhancing institutional resilience.

In Bangladesh, cyclone-resilient school infrastructure has been designed to serve dual functions—ensuring continuity of education while acting as emergency shelters during storm surges and flooding. Australia, through its Schools Clean Energy Technology Fund, has equipped public schools with energy-efficient technologies, including LED lighting, to reduce carbon emissions and operational costs. This initiative also mitigates the impact of heatwaves on learning environments, which are increasingly disrupted by climate-induced temperature extremes (Department of Education, 2023). Germany promotes climate awareness through cross-curricular integration. The Sustainable Ecosystem for Climate Education initiative embeds climate education across subjects, fostering environmental consciousness and student engagement (EUKI, 2024). In Vietnam, climate change education has been formally mainstreamed within the national curriculum, supported by teacher training and curriculum reform. These practices underscore a common objective: repositioning schools as adaptive institutions capable of protecting learners, sustaining educational delivery, and fostering community resilience amid escalating climate and compound crises.

From Global Practices to Local Adaptation

Taken together, these global compacts, sectoral frameworks, and practical models form the foundational scaffolding upon which the Khyber Pakhtunkhwa Climate Ready Schools Framework (CRSF) is grounded. They provide not only the normative impetus for action but also a repertoire of technical strategies and proven approaches for integrating climate resilience within education systems. The CRSF reflects a deliberate effort to contextualise this global consensus, translating it into a provincial framework that is locally anchored, systemically embedded, and responsive to Khyber Pakhtunkhwa's unique ecological, institutional, and socio-political landscape.

1.5.2. KP CLIMATE READY SCHOOLS FRAMEWORK: KEY PRINCIPLES

Khyber Pakhtunkhwa's education system faces intensifying climate-induced risks—ranging from floods, landslides, and heatwaves to prolonged droughts and cold spells. These shocks increasingly threaten school infrastructure, disrupt learning continuity, and exacerbate existing disparities for children in already vulnerable geographies. With most school buildings constructed without climate-resilient design considerations—often located in high-risk zones or lacking basic protections against temperature extremes—KP's education infrastructure remains structurally fragile and functionally exposed.

Until now, responses to climate impacts in the education sector have largely been reactive and fragmented. Emergency interventions have prioritised short-term relief rather than long-term resilience. In particular, the climate-related disruptions are rarely addressed through coordinated planning, systemic investment, or integrated policy frameworks. Education sector governance face limitations to anticipate, mitigate, and recover from recurrent and escalating climate hazards.

The Climate Ready Schools Framework (CRSF) addresses this critical policy and institutional gap. It sets out a structured approach for enabling schools, districts, and provincial institutions to plan, respond, and adapt to climate-induced risks. Drawing upon global frameworks such as the UNFCCC, Paris Agreement, Sendai Framework, and the Sustainable Development Goals, and aligned with national and provincial policy instruments—such as the KP Climate Change Action Plan (2022), National Adaptation Plan (2023), and KP Education Sector Plan (2020–25)—the CRSF provides a locally relevant and operational model for mainstreaming climate resilience in education.

The CRSF underscores the need to move beyond ad hoc crisis management towards institutionalised, forward-looking planning grounded in climate risk assessments. It emphasises

the role of schools as both sites of safe, inclusive learning and as community hubs for climate adaptation and resilience-building. This transformation necessitates a comprehensive, system-level realignment—encompassing infrastructure, pedagogical content, institutional governance, financing frameworks, and intersectoral collaboration. To enable this shift, the framework is anchored in the following guiding principles, which inform the design and implementation of all interventions:

Guiding Principles

1. Risk-Informed and Systems-Aligned Planning: Education sector resilience must be informed by climate risk diagnostics and integrated into school development plans, district education strategies, and provincial adaptation frameworks.
2. Equity, Inclusion, and Climate-Sensitive Access: Adaptation strategies must prioritise the needs of girls, children with disabilities, displaced populations, and learners in underserved or hazard-prone areas—ensuring safe, inclusive, and accessible learning environments.
3. Continuity of Learning: Schools must maintain functional operations during and after climate shocks by implementing School Resilience Plans (SRPs), digitised learning platforms, flexible academic calendars, and contingency mechanisms.
4. Institutional Coordination and Governance Integration: A coordinated institutional approach is central to success. The operationalisation of the Climate Resilience Cell (CRC) within E&SED, in coordination with Provincial and District Education Resilience Committees, is critical to ensure alignment across education, climate, WASH, health, planning, and local government sectors.
5. Financing and Resource Mobilisation for Resilience: Transitioning to climate-ready schools requires sustainable and targeted financing. The CRSF advocates for dedicated climate adaptation funding, integration of resilience into sector budgets, and innovative solutions such as green bonds, climate-smart subsidies, and resilience-linked results financing.
6. Public–Private Partnerships and Innovation: Leveraging the private sector is essential to scale solutions and bridge resource gaps. Public-private partnerships (PPPs) and corporate social responsibility (CSR) platforms can support infrastructure retrofitting, technology-based learning continuity, and school-based adaptation innovations.
7. Evidence-Based, Adaptive, and Locally Grounded Practice: Climate adaptation must be context-specific and responsive to local needs. The CRSF promotes continuous feedback, real-time learning, and data-driven planning to refine interventions and improve decision-making across schools and institutions.
8. Community Leadership and Participation: Schools are not standalone units. PTCs, parents, and local institutions must be mobilised for community-led risk assessments, school adaptation planning, and intergenerational climate awareness.

These principles serve as the normative backbone of the CRSF and shape the framework's strategic components. Collectively, they provide a comprehensive and scalable roadmap for integrating climate resilience into KP's education system—ensuring that every school is equipped to withstand, recover from, and adapt to the growing risks of a changing climate.

WHAT IS A CLIMATE READY SCHOOL?

A Climate Ready School is an educational institution that anticipates, withstands, and adapts to climate-related risks while ensuring safe, inclusive, and uninterrupted learning. In the context of Khyber Pakhtunkhwa, such a school demonstrates the following attributes:

1. RISK-INFORMED INFRASTRUCTURE:

Facilities are designed or upgraded to withstand local climate hazards—such as floods, heatwaves, and landslides—ensuring structural safety and functional continuity.

2. INCLUSIVE AND ACCESSIBLE LEARNING ENVIRONMENT:

Infrastructure and services are responsive to the needs of all learners, particularly girls, children with disabilities, and those in climate-vulnerable or marginalised settings.

3. PREPAREDNESS AND OPERATIONAL CONTINUITY:

Each school implements a functional School Resilience Plan (SRP) that enables timely emergency response, minimises learning disruptions, and ensures coordination with relevant district systems.

4. CURRICULUM AND PEDAGOGY FOR RESILIENCE:

Climate change education, environmental sustainability, and adaptive life skills are integrated across subjects and school activities to strengthen students' resilience and agency.

5. WHOLE-SCHOOL AND COMMUNITY ENGAGEMENT:

Climate readiness is embedded in participatory governance—engaging students, teachers, parents, and local actors to align school-level action with broader community adaptation efforts.

6. INSTITUTIONAL LEARNING AND RECOVERY:

Schools are equipped to recover from climate-induced disruptions and institutionalise learning from crises to inform continuous improvement and future preparedness.

02

Policy and Institutional Landscape for Climate-Ready Schools


CO2
CO2
CO2
CO2
ESG
ESG

2.1 POLICY AND STRATEGIC FRAMEWORK

The policy landscape governing climate-resilient education in KP is shaped by a range of international commitments, national policies, and provincial frameworks. As climate-induced hazards—such as flash floods, heatwaves, GLOFs, and extreme weather events—continue to disrupt the education sector, it has become imperative to embed climate resilience into education planning, school infrastructure development, and governance mechanisms.

The Framework for Climate-Ready Schools in KP is positioned within this evolving policy landscape, aligning with global, national, and provincial priorities while addressing the existing policy gaps. This section examines key policy and strategic instruments that inform and shape climate resilience in the school education sector of KP.

KP's education sector operates within a broader climate adaptation and disaster risk reduction policy environment, informed by international agreements, national frameworks, and provincial strategies. The Government of KP has made strides in aligning climate adaptation objectives with Pakistan's National Climate Change Policy (NCCP 2021), Nationally Determined Contributions (NDCs), and disaster risk reduction strategies. These policies draw upon global commitments such as the Paris Agreement, Sustainable Development Goals (SDGs), and the Sendai Framework for Disaster Risk Reduction to integrate climate resilience into governance and institutional frameworks.

At the provincial level, climate adaptation and disaster preparedness measures are reflected in several key documents, including KP Climate Change Policy 2022, KP Climate Change Action Plan 2022, KP Climate Change Diagnostic and Investment Plan, and Provincial Disaster Risk Management Plans and Contingency Plans.

These policies collectively underscore the necessity of resilience-building in education, yet the lack of a dedicated framework addressing climate resilience in schools remains a critical gap. The Framework for Climate-Ready Schools in KP is designed to operationalise these policy commitments, ensuring that climate resilience is systematically embedded within school planning, infrastructure, and governance.

2.2 LINKAGES WITH INTERNATIONAL COMMITMENTS

KP's climate-resilient education framework aligns with global policy instruments, drawing on best practices in climate adaptation, disaster resilience, and sustainable education governance.

2.2.1 UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

Pakistan's ratification of the United Nations Framework Convention on Climate Change (UNFCCC) in 1994 laid the foundation for its commitment to climate action. The United Nations Framework Convention on Climate Change (UNFCCC) provides the foundational global treaty guiding climate action. Article 6 of the Convention outlines Action for Climate Empowerment (ACE), mandating signatory states to advance public education, training, awareness, and access to information as core pillars of climate response (UNFCCC, 1992). Within this paradigm, education is positioned as a catalyst for behavioural change, institutional reform, and long-term resilience.

The Khyber Pakhtunkhwa Climate Ready Schools Framework operationalises ACE by embedding climate education and risk literacy within school governance, teaching, and community engagement. Anchored in the School Resilience Plan (SRP) and teacher capacity-building, the Framework nurtures a climate-aware education workforce and student body. It also enhances vertical coordination with local disaster management structures. In doing so, the Framework localises Pakistan's commitments under the UNFCCC, linking international obligations and provincial adaptation priorities to practical implementation at the school level.

2.2.2. PARIS AGREEMENT (2015)

The Paris Agreement (2015), building upon the UNFCCC, affirms a global commitment to limiting temperature rise, strengthening resilience, and advancing climate-responsive development (UNFCCC, 2015). Article 7 establishes the Global Goal on Adaptation, while Article 12 underscores the role of education, training, public awareness, and capacity-building in enabling sustained climate action. The Agreement promotes country-driven, gender-responsive, and inclusive adaptation approaches grounded in science, local knowledge, and the needs of vulnerable communities.

The Khyber Pakhtunkhwa Climate Ready Schools Framework gives effect to these provisions by embedding school-based adaptation planning, institutionalising gender-sensitive preparedness systems, and promoting climate literacy across school ecosystems. Through the School Resilience Plan (SRP) and aligned institutional mechanisms, the Framework enhanc-

es the adaptive capacity of schools while contributing to Pakistan's nationally determined contributions (NDCs). In doing so, it reinforces a decentralised, locally embedded approach to resilience—anchored in equity, empowerment, and education as set forth in the Paris Agreement.

2.2.3 SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION (2015-2030)

The Sendai Framework for Disaster Risk Reduction (2015-2030) provides a complementary approach by focusing on disaster risk education, school safety measures, and inter-sectoral coordination (UNDRR, 2015). It mandates cross-sectoral cooperation, school-level disaster preparedness, and climate risk integration in education governance. The KP Climate-Ready Schools Framework incorporates these principles by institutionalising structured emergency response strategies, school safety planning, and systematic collaboration between education and disaster management stakeholders.

2.2.4 SUSTAINABLE DEVELOPMENT GOALS (SDGs)

The SDGs provide a globally recognised framework for advancing sustainable and inclusive development. The intersection between education and climate resilience is explicitly recognised under SDG 4 (Quality Education) and SDG 13 (Climate Action) (United Nations, 2015). SDG 4 advocates for Education for Sustainable Development (ESD), underscoring the need to embed climate literacy, adaptation strategies, and disaster preparedness within school curricula and educational planning. SDG 13, which focuses on climate action, calls for strengthening institutional responses to climate-induced vulnerabilities through education, awareness-building, and cross-sectoral collaboration. In alignment with these global objectives, the Framework for Climate-Ready Schools in KP ensures that climate adaptation principles are embedded within provincial education sector policies, school-level disaster preparedness strategies, and community-led resilience initiatives. This approach contributes to the broader SDG targets while ensuring that KP's education system is equipped to navigate climate risks effectively.

KP Climate Ready Schools Framework
Alignment with International Commitments

International Instrument	Relevant Commitments	KP CRSF
Sustainable Development Goal 4 (Quality Education)	SDG 4.1, 4.5, 4.a: Ensure inclusive and equitable quality education and promote lifelong learning for all. I mprove education facilities that are safe, inclusive, and effective learning environments.	CRSF promotes education continuity during climate crises, supports gender-responsive planning, integrates DRR and climate literacy into school systems, and prioritises resilient, inclusive infrastructure through the SRP template.
Sustainable Development Goal 13 (Climate Action)	SDG 13.1, 13.3: Strengthen resilience and adaptive capacity to climate-related hazards. Improve education, awareness, and institutional capac ity on climate change mitigation, adaptation, and early warning.	CRSF advances climate adaptation by equipping schools with risk-informed planning, early warning integration, and community engagement mechanisms. It embeds climate change awareness into curriculum and CPD initiatives.
Sendai Framework for Disaster Risk Reduction (2015–2030)	Priority 3 & 4: Investing in disaster risk reduction for resilience and enhancing disaster preparedness for effective response and recovery. Emphasises education as a critical space for building risk awareness.	CRSF aligns with Sendai by institutionalising school-based disaster preparedness, establishing SRP protocols, and linking schools with local DRR authorities (e.g., Rescue 1122, Health, Municipalities) to ensure coordinated responses.
United Nations Framework Convention on Climate Change (UNFCCC)	Article 6: Promote public awareness, education, and training on climate change, and facilitate public access to information.	CRSF reflects UNFCCC's emphasis on education by creating climate-literate school communities, embedding adaptation into school governance, and ensuring participation of vulnerable groups in school-level planning.
Paris Agreement	Article 7: Enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change. Article 12: Improve climate change education, training, public awareness.	CRSF is a provincial localisation of Pakistan's adaptation commitments, building institutional and community capacity to reduce school-level climate vulnerability. It supports implementation of Article 7 through infrastructure and governance, and Article 12 through education and training.

2.4 LINKAGES WITH NATIONAL AND PROVINCIAL POLICY FRAMEWORK

2.4.1 NATIONAL CLIMATE CHANGE POLICY (NCCP) 2021

The National Climate Change Policy (NCCP) 2021 serves as Pakistan's primary strategic framework for addressing climate risks across key sectors, including education (Ministry of Climate Change, 2021). Recognising the education sector's vulnerability to climate-induced disruptions, the policy underscores the importance of climate risk assessments for school infrastructure, the integration of disaster risk education into curricula, and the establishment of climate-resilient education policies. These directives provide a foundation for provincial-level interventions that address the heightened climate vulnerabilities faced by schools in KP. The Framework for Climate-Ready Schools builds upon the NCCP's directives by institutionalising risk-informed planning in education governance, promoting climate-adaptive infrastructure investments, and embedding disaster preparedness within school management systems. Through these measures, the framework ensures that KP's education sector remains aligned with the national climate adaptation agenda while advancing locally tailored resilience strategies.

2.4.2 NATIONAL ADAPTATION PLAN (NAP) 2023

The National Adaptation Plan 2023 articulates Pakistan's strategic vision for climate adaptation, identifying education as integral to building human capital and resilience. It prioritises the development of climate-resilient infrastructure and inclusive education services, while emphasising continuity of learning and institutional preparedness in the face of climate-induced shocks. The Plan mandates the integration of adaptation imperatives within education policies, emergency response systems, and infrastructure planning. In this context, the Khyber Pakhtunkhwa Climate Ready Schools Framework operationalises NAP priorities at the provincial level. Through School Resilience Plans (SRPs), it institutionalises risk-informed planning, supports adaptive infrastructure investments, and embeds climate literacy and disaster preparedness into school governance. The Framework thus serves as a critical sub-national instrument, aligning localised action with Pakistan's commitments under the Paris Agreement and Sustainable Development Goals.

2.4.3 ACCESSIBILITY CODE OF PAKISTAN 2006

The Accessibility Code of Pakistan (2006) establishes national standards for inclusive and barrier-free public infrastructure, ensuring equitable access for persons with disabilities and mobility-impaired individuals. It prescribes technical specifications for building layout, ramps, sanitation, signage, and circulation to enhance safety and physical accessibility. In the realm of climate adaptation, these standards are essential to preventing the exclusion of vulnerable groups in resilience planning. The Khyber Pakhtunkhwa Climate Ready Schools Framework

embeds these principles within its infrastructure design approach, particularly through the School Resilience Plan (SRP) and institutional coordination mechanisms. By aligning with universal design standards, the Framework ensures that school-level adaptation measures are not only structurally sound but also uphold equity and inclusion. This safeguards the right to safe, dignified, and accessible education—particularly for girls and children with disabilities—while reinforcing the principle that climate resilience must serve all segments of society, without exception.

2.4.4. KHYBER PAKHTUNKHWA CLIMATE CHANGE POLICY 2022

The Khyber Pakhtunkhwa Climate Change Policy 2022 outlines a provincial approach to addressing climate risks across various sectors, including education (Government of KP, 2022). The policy explicitly highlights schools as critical institutions requiring urgent adaptation measures, particularly in light of frequent climate-induced disruptions, infrastructure vulnerabilities, and the growing need for cross-sectoral coordination in disaster preparedness. The policy advocates for

climate-resilient school infrastructure development, the integration of adaptation measures into education sector planning, and strengthened interdepartmental coordination to facilitate school-level climate response strategies. The Framework for Climate-Ready Schools in KP translates these policy commitments into structured implementation strategies, ensuring that climate resilience is not merely a conceptual priority but an actionable directive within the province's education sector. By embedding climate adaptation within governance structures, learning continuity strategies, and school-level emergency preparedness measures, the framework operationalises the commitments set forth in the KP Climate Change Policy.

2.4.5. KHYBER PAKHTUNKHWA CLIMATE CHANGE ACTION PLAN 2022

The Khyber Pakhtunkhwa Climate Change Action Plan 2022 functions as an operational mechanism for embedding climate adaptation across public institutions, including education (Government of KP, 2022). The action plan emphasises targeted investments in infrastructure resilience, institutional capacity-building, and climate-sensitive policy development. Schools, as essential public institutions, require systematic integration into climate adaptation strategies, particularly in regions highly susceptible to flooding, temperature extremes, and geophysical risks such as earthquakes and landslides. In alignment with these policy directions, the Framework for Climate-Ready Schools in KP facilitates the institutionalisation of school-level adaptation strategies, structured governance interventions, and infrastructure resilience assessments. This ensures that schools across the province are equipped to anticipate, absorb, and recover from climate-induced shocks without compromising learning continuity.

2.4.6. KHYBER PAKHTUNKHWA CLIMATE CHANGE DIAGNOSTIC AND INVESTMENT PLAN

The KP Climate Change Diagnostic and Investment Plan serves as a foundational policy instrument that assesses sectoral vulnerabilities and identifies investment priorities for climate resilience (Government of KP, 2022). Within the education sector, the plan underscores the need for risk-informed infrastructure development, targeted resource allocation for resilience-building, and institutional strengthening to implement long-term adaptation measures. The Framework for Climate-Ready Schools in KP leverages these diagnostics to ensure that education sector planning is informed by evidence-based climate risk assessments and strategically directed towards sustainable, cost-effective resilience interventions. By aligning school infrastructure development with investment-focused climate adaptation strategies, the framework provides a structured roadmap for embedding climate resilience within KP's education system.

2.4.7 KHYBER PAKHTUNKHWA EDUCATION SECTOR PLAN (ESP) 2020-25

The ESP 2020–25 outlines a strategic vision for education

reform in Khyber Pakhtunkhwa, with a focus on equity, quality, and governance. It prioritises service delivery for marginalised learners, including girls, children with disabilities, refugees, and those in climate-vulnerable regions. The Plan explicitly recognises climate change as a systemic challenge, calling for climate-resilient infrastructure, curriculum integration, and school continuity in disaster contexts. It promotes adaptive design—elevated structures, improved ventilation, and resilient materials—aligned with SDG 4. The ESP further mandates Disaster Risk Reduction (DRR) integration into school planning and management to enhance preparedness for floods, heatwaves, and earthquakes. Institutional coordination is central, with defined roles for PDMA, CCFEWD, Planning & Development, and Finance departments. The establishment of a Climate Resilience Cell (CRC) within E&SED anchors these efforts, ensuring policy coherence, budget alignment, and implementation. Through these measures, the ESP positions KP's education system to navigate climate risks while fostering inclusive, sustainable learning outcomes.

2.4.8 KHYBER PAKHTUNKHWA GUIDELINES FOR CONTINUATION OF EDUCATION DURING EMERGENCIES.

Jointly issued by the Elementary and Secondary Education Department (E&SED) and the Relief, Rehabilitation and Settlement Department (RRSD), the 2023 Guidelines provide a policy framework to protect and sustain girls' education across emergency contexts. Informed by recent experiences of floods, pandemics, earthquakes, and conflict in Khyber Pakhtunkhwa, the Guidelines outline measures such as Temporary Learning Centres (TLCs), distance learning, psychosocial support, and gender-sensitive health and protection protocols. Emphasis is placed on inclusive planning, school-level coordination, and real-time monitoring to ensure learning continuity. The KP Climate Ready Schools Framework operationalises these priorities through School Resilience Plans (SRPs), mobilisation of Parent Teacher Councils (PTCs), embedded mental health and psychosocial support (MHPSS), and cross-sector coordination with WASH, protection, and health services. In doing so, the Framework institutionalises a gender-responsive, equity-driven approach to climate and crisis resilience within the education system.

2.4.9. PROVINCIAL DISASTER RISK MANAGEMENT AND CONTINGENCY PLANS

The Provincial Disaster Risk Management and Contingency Plans, developed by the Provincial Disaster Management Authority (PDMA), offer an institutional blueprint for enhancing disaster preparedness across public sectors, including education. These plans incorporate risk reduction strategies, early warning systems, and inter-agency coordination protocols for climate-induced emergencies (PDMA, 2022). Within the education sector, contingency planning is critical to maintaining operational continuity during crises, facilitating safe evacuations, and ensuring coordinated response mechanisms. The Khyber Pakhtunkhwa Climate Ready Schools Framework aligns with and reinforces these provisions by embedding disaster preparedness within school planning through School Resilience Plans (SRPs). It formalises risk protocols at the school level, strengthens institutional coordination between education and disaster authorities, and supports the education sector's capacity to manage climate shocks. In doing so, the Framework advances a proactive and structured approach to school-based disaster management—ensuring system continuity and safety amid escalating climate risks.

KP Climate Ready Schools Framework
Alignment with National and Provincial Policy Frameworks

Policy/Strategy/Plan	Climate Focus Area	Contribution to KP CRSF
National Climate Change Policy (2021)	Disaster Risk Governance, Education Infrastructure, Vulnerable Groups	Calls for disaster-resilient public facilities including multi-purpose schools as shelters, and prioritises inclusive risk communication for women, children, disabled groups. CRSF integrates these in its school retrofitting, equity and preparedness measures.
National Adaptation Plan (2023)	Human Capital, Inclusive Planning, DRM	Emphasises education continuity, inclusive access, and school-level preparedness for vulnerable communities. CRSF operationalises these via SRPs, climate risk assessments, and DRR-aligned learning strategies.
Accessibility Code of Pakistan (2006)	Inclusive Design Standards	Provides technical standards for universal accessibility in buildings. CRSF aligns its design principles and audit mechanisms for climate-resilient, inclusive school infrastructure accordingly.
KP Climate Change Policy (2022)	Sectoral Mainstreaming, Institutional Adaptation	Recognises schools as priority sites for climate adaptation. CRSF reflects this through climate-smart infrastructure, policy integration, and governance mechanisms.
KP Climate Change Action Plan (2022–2030)	Infrastructure Resilience, Cross-sector Capacity	Focuses on system-wide resilience-building through structural retrofitting and institutional mandates. CRSF links directly through its Resilience Fund, PTC engagement, and inter-agency coordination.
KP Climate Diagnostic and Investment Plan (2022)	Vulnerability Profiling, Climate Finance	Flags education as a climate-sensitive sector, recommends risk-informed infrastructure and financing. CRSF uses this to inform its SRP template, vulnerability assessments, and financing models.
KP Education Sector Plan (2020–25)	DRR Integration, Equity, Continuity	Recognises climate risks to school access and infrastructure. CRSF translates this into curricular, school-level, and infrastructure-level interventions for resilience.
KP Guidelines for Girls' Education in Emergencies (2023)	Gender-Responsive Preparedness, Education Continuity, Psychosocial Support	Emphasises inclusive, flexible learning approaches and cross-sectoral coordination to sustain girls' education during emergencies. CRSF advances this vision by embedding gender-sensitive SRPs, provisions for Temporary Learning Centres, PTC mobilisation, MHPSS, and the use of technology and data systems to maintain access and equity in climate-affected contexts

2.5 BRIDGING POLICY GAPS FOR CLIMATE READY SCHOOLS

The global, national, and provincial policy ecosystem provides strong normative and strategic foundations for embedding climate resilience within Khyber Pakhtunkhwa's education sector. However, the absence of a school-centred adaptation framework left a critical implementation gap. As elaborated in Section 1.5.2, the Climate Ready Schools Framework (CRSF) addresses this gap by translating policy commitments into a locally grounded, system-wide strategy for education sector adaptation. It does so through coordinated school planning, inclusive infrastructure design, institutionalised governance mechanisms, and community engagement. By embedding climate adaptation principles across planning, financing, learning, and oversight, the framework ensures that KP's education sector is positioned to withstand and recover from climate-induced disruptions—while fostering a culture of resilience and sustainability.

2.6 INSTITUTIONAL ROLES AND KEY DEPARTMENTS FOR CLIMATE ADAPTATION IN KHYBER PAKHTUNKHWA

The governance of climate adaptation in Khyber Pakhtunkhwa relies on a complex network of institutions, each with distinct responsibilities in policy formulation, disaster risk management, environmental regulation, and education sector resilience-building. As climate risks escalate, particularly in the context of education infrastructure vulnerability, the role of provincial institutions in mainstreaming climate resilience into school governance has become increasingly critical. Effective interdepartmental coordination, resource mobilisation, and policy integration are fundamental to ensuring that schools in KP are equipped to withstand climate-induced disruptions while maintaining learning continuity and institutional sustainability.

2.6.1. ELEMENTARY AND SECONDARY EDUCATION DEPARTMENT (E&SED)

The Elementary and Secondary Education Department (E&SED) is the lead agency for school education governance in Khyber Pakhtunkhwa and is tasked with mainstreaming climate resilience across sectoral policies and planning. To institutionalise this mandate, E&SED is establishing a Climate Resilience Cell (CRC) to develop and operationalise risk-informed strategies, assess school infrastructure vulnerabilities, and integrate adaptation measures into school management systems. The CRC will collaborate with district education offices, school authorities, and development partners to advance climate-responsive planning, build institutional capacity, and implement localised adaptation interventions—ensuring that schools remain safe, functional, and responsive to climate-induced disruptions.

2.6.2 CLIMATE CHANGE, FORESTRY, ENVIRONMENT & WILDLIFE DEPARTMENT (CCFEWD)

CCFEWD serves as the provincial anchor for climate governance in Khyber Pakhtunkhwa, leading the formulation of adaptation and mitigation policies. Under its leadership, the KP Climate Change Policy and Action Plan (2022) provide a strategic framework for integrating climate risk management across sectors, including education. The Climate Change Cell within CCFEWD undertakes vulnerability assessments and supports climate finance mobilisation, while the Environmental Protection Agency (EPA KP) ensures regulatory compliance and climate-responsive infrastructure standards. Strengthened coordination with the Education Department is essential to mainstream school-level adaptation and risk-informed infrastructure planning.

2.6.3 CLIMATE CHANGE CELL, PLANNING & DEVELOPMENT DEPARTMENT (P&DD)

Following the 18th Constitutional Amendment, climate change was devolved as a provincial mandate, prompting the establishment of the Climate Change Cell within the Planning and Development Department (P&DD), Khyber Pakhtunkhwa. The Cell serves as the provincial government's institutional anchor for climate governance—providing technical assistance across departments, shaping policy inputs, and coordinating cross-sectoral climate action. It plays a pivotal role in mainstreaming climate considerations into planning processes, mobilising access to international climate finance and carbon markets, and enhancing institutional capacity. Guided by a vision of climate-sensitive planning and resilient development, the Cell operates as both a policy hub and coordination mechanism.

2.6.4 RELIEF, REHABILITATION, AND SETTLEMENT DEPARTMENT (RRSD)

RRSD holds a central mandate in disaster preparedness, emergency response, and post-crisis rehabilitation within Khyber Pakhtunkhwa. In a province marked by recurrent floods, heatwaves, glacial lake outburst floods (GLOFs),

landslides, and seismic risks, the RRSD plays a critical role in formulating risk-informed policies and contingency planning across vulnerable sectors, including education. It coordinates closely with the Provincial Disaster Management Authority (PDMA), local governments, and line departments to strengthen early warning systems and recovery protocols. However, fragmented coordination with the Education Department constrains integration of disaster risk reduction (DRR) in school infrastructure planning. Strengthening institutional linkages between RRSD and education authorities is vital to advancing resilient learning environments through system-wide school safety and preparedness measures.

2.6.5 PROVINCIAL DISASTER MANAGEMENT AUTHORITY (PDMA KP)

The PDMA KP under RRSD, leads disaster risk governance in Khyber Pakhtunkhwa. It is responsible for hazard mapping, vulnerability assessments, and coordinating emergency response through District Disaster Management Units (DDMUs). PDMA's annual contingency planning integrates flood preparedness, seismic safety, and school-based risk reduction. Its collaboration with the education sector is vital for embedding disaster preparedness, resilient infrastructure standards, and learning continuity. However, limited inter-agency coordination constrains effective implementation. Strengthening institutional linkages with education authorities is essential to mainstream DRR within school governance and enhance climate resilience at scale.

2.6.6 LOCAL GOVERNMENT, ELECTIONS & RURAL DEVELOPMENT DEPARTMENT (LGERDD)

The LGERDD plays a pivotal role in climate resilience planning at the community level. It oversees municipal service provision, urban planning, waste management, and local climate governance, ensuring that district and tehsil-level authorities integrate climate-sensitive policies within their development plans. In the context of school resilience, LGERDD's role is particularly significant in managing climate adaptive urban development strategies, ensuring climate-resilient water and sanitation systems, and integrating community-driven adaptation models into local governance. Given that school environments are directly affected by municipal-level climate challenges, such as flooding, heat stress, and air pollution, stronger collaboration between LGERDD and the Education Department is required to ensure that climate adaptation is effectively embedded in school development plans.

2.6.7 DISTRICT AND LOCAL ADMINISTRATIONS

District and local administrations serve as critical enablers in operationalising climate-resilient education strategies at the community level. In Khyber Pakhtunkhwa, institutional arrangements—such as the designation of the Additional Deputy Commissioner (Relief) under the Relief, Rehabilitation and Settlement Department (RRSD)—have formalised interdepartmental coordination during emergencies. These administrative tiers oversee school infrastructure development, enforce climate-resilient construction standards, and embed preparedness measures within local education planning. Their regulatory role extends to ensuring climate-adaptive service delivery, including access to safe drinking water, sanitation, and sustainable energy in schools. Local governments also facilitate community engagement, anchoring school-level adaptation within broader climate governance. Strengthening institutional convergence between district administrations, E&SED, PDMA, RRSD, and CCFEWD will be vital to scale resilient education delivery. Enhanced technical capacity and coordination at subnational levels will improve implementation fidelity and accelerate the integration of school safety and adaptation measures across climate-vulnerable districts.

2.6.8 INTERDEPARTMENTAL COORDINATION AND INSTITUTIONAL CHALLENGES

The institutional landscape for climate adaptation in Khyber Pakhtunkhwa provides a foundational platform for advancing resilience in the education sector, yet challenges of fragmentation, overlapping mandates, and limited capacity continue to impede coordinated delivery. While mechanisms such as the Provincial Climate Change Task Force exist, formal interdepartmental coordination remains weak. Effective climate response in education requires enhanced collaboration between E&SED and key departments, including CCFEWD, RR&SD, P&DD, PDMA, LGERDD, and district administrations. The operationalisation of the Climate Resilience Cell (CRC) positions E&SED to lead this agenda, but sustained progress depends on structured engagement, operational data-sharing, and alignment of policies and resources. Within this context, the Climate Ready Schools Framework (CRSF) provides a province-wide, system-anchored model for embedding resilience across school governance.

03

Strategic Framework for Climate-Ready Schools in Khyber Pakhtunkhwa

The Framework for Climate-Ready Schools in KP necessitates a structured climate risk assessment mechanism, ensuring systematic identification, monitoring, and mitigation of climate vulnerabilities within the education sector. Given the province's exposure to multiple climate-induced hazards—including floods, heatwaves, earthquakes, GLOFs, and landslides, an integrated risk assessment process is imperative for data-driven decision-making, resource allocation, and policy formulation. The risk assessment framework is tiered across provincial, district, and school levels, ensuring that strategic planning is guided by comprehensive risk profiling. The approach aligns with global best practices, including the Comprehensive School Safety Framework (CSSF) and the SFDRR, ensuring that schools are not only reactive to disasters but also proactively resilient to evolving climate threats.

3.1 PROVINCIAL-LEVEL CLIMATE RISK ASSESSMENT

At the provincial level, climate risk assessments serve as the foundation for long-term adaptation planning, enabling structured interventions across school infrastructure development, emergency preparedness, and governance reforms. The E&SED, in coordination with the PDMA, and the CCFEWD, is responsible for executing a province-wide vulnerability assessment strategy.

The key objectives at the provincial level include:

1. Conducting comprehensive climate vulnerability assessments to map high-risk districts, assessing the impact of climate hazards on school education, infrastructure, and learning continuity.
2. Developing a provincial climate risk database—integrating school vulnerability profiles, hazard mapping data, and climate risk projections, accessible to district education authorities and local governance bodies.
3. Aligning climate risk assessment outcomes with the KP-ESP 2020-25, ensuring explicit policy directives for climate-resilient school infrastructure and emergency preparedness measures.
4. Institutionalising the Climate Resilience Cell (CRC) within E&SED, which will coordinate school-level climate adaptation strategies, facilitate knowledge-sharing, and provide technical guidance for school disaster resilience planning.

These strategic measures ensure that school climate risk assessments inform resource allocation decisions, adaptation planning, and the integration of resilience principles into KP's education sector governance.

3.2 DISTRICT-LEVEL CLIMATE RISK ASSESSMENT

At the district level, risk assessments are contextualised to reflect localised vulnerabilities, socio-environmental factors, and hazard-specific risks affecting school systems. The District Education Office (DEO), in coordination with the ADC Relief/DDMU, local health authorities, and municipal bodies, is responsible for implementing risk mapping strategies and developing district contingency plans.

The key responsibilities at the district level include:

1. The District Education Officer (DEO), supported by Deputy District Education Officers (DDEOs) and Sub-divisional Education Officers (SDEOs), will oversee the execution of district-wide climate vulnerability assessments, ensuring a structured identification of at-risk schools.
2. Risk assessment findings will be integrated into district disaster management frameworks, guiding contingency planning, infrastructure retrofitting efforts, and emergency response mechanisms.
3. Collaboration with PDMA, local government agencies, Rescue 1122, and environmental bodies to establish early warning systems, school-level preparedness drills, and climate risk communication networks.
4. Regular capacity-building workshops for district education officials and school administrators, equipping them with the technical knowledge required to interpret risk assessment data, implement school-level adaptation plans, and coordinate responses during climate-related emergencies.

These district-level risk assessments serve as a bridge between provincial adaptation policies and school-level implementation strategies, ensuring that climate resilience measures are tailored to the specific vulnerabilities of each district.

3.3. SCHOOL-LEVEL CLIMATE RISK ASSESSMENT

At the school level, climate risk assessments are operationally embedded within school governance mechanisms, ensuring that school leaders, Parent-Teacher Councils (PTCs), and local communities play an active role in identifying risks, implementing safety measures, and strengthening climate preparedness.

The core responsibilities at the school level include:

1. Headteachers/Principals, guided by Assistant Sub-division-

al Education Officers (ASDEOs), will lead periodic climate risk assessments, focusing on infrastructure vulnerabilities, hazard proximity, and school preparedness capacities.

2. Establish School Climate Resilience Committees, consisting of PTCs, teaching staff, and community representatives, to coordinate school-based risk awareness, climate action initiatives, and community engagement programmes.

3. Develop school-specific Climate Resilience Plans, which outline emergency evacuation procedures, disaster response roles, and climate adaptation measures for school facilities and learning environments.

4. Integrate climate resilience education within curricular and extracurricular activities, ensuring that students, teachers, and school personnel are well-equipped to respond to climate hazards through preparedness drills and environmental sustainability projects.

5. Strengthen reporting mechanisms to District Education Offices (DEOs) and relevant authorities, ensuring that school climate risk data is systematically recorded, analysed, and acted upon.

This school-level risk assessment framework ensures that climate adaptation is embedded in school governance processes, fostering a proactive approach to disaster preparedness and environmental sustainability.

3.4 RISK ASSESSMENT FOR EPIDEMIC PREPAREDNESS

This assessment is aimed at identifying potential risks and vulnerabilities in schools across the province, related to epidemic outbreaks. It will provide a comprehensive framework for schools to prepare for and respond to epidemics. Key components of this framework will include:

a. School Infrastructure: Availability and condition of school buildings, classrooms, and facilities.

b. Student and Staff Health: Availability of healthcare facilities, student and staff health awareness, and vaccination coverage.

c. Hygiene and Sanitation: Availability and maintenance of clean water, sanitation facilities, and waste management.

d. Communication and Coordination: Effectiveness of communication systems, emergency response plans, and coordination with local health authorities.

e. Student and Staff Behavior: Awareness and adherence to epidemic prevention measures, such as hand hygiene and social distancing.

3.5 CLIMATE-RESPONSIVE EDUCATION POLICIES AND SECTOR PLANS

The integration of climate resilience into KP's education system necessitates a strategic policy framework that aligns education sector planning with climate adaptation imperatives. Climate-responsive education policies and plans can help ensure that education systems are better equipped to withstand and recover from climate-related disruptions, ultimately reducing the risk of educational losses and promoting sustainable development. The increasing frequency and intensity of climate-induced challenges underscore the urgency of embedding climate adaptation within education policies, curricula, and institutional governance.

3.5.1 MAINSTREAMING CLIMATE RESILIENCE IN KP EDUCATION SECTOR PLAN

The Khyber Pakhtunkhwa Education Sector Plan (KP ESP) will integrate a dedicated climate resilience framework, including:

a. Climate risk profiling in education planning

b. Climate-smart school infrastructure investments

c. Adaptive learning and flexible school calendars

d. Climate education and awareness

A. Developing a Climate Resilience Strategy & Action Plan for Schools

A Climate Resilience Strategy and Action Plan will be developed to serve as a guiding document for institutionalising climate adaptation. The strategy will outline institutional responsibilities, standard operating procedures for climate emergencies, and a financing framework for climate-resilient schools.

i. Climate Risk Profiling in Education Planning – Embedding climate vulnerability assessments at the school, district, and provincial levels, ensuring climate risk categorization informs infrastructure investment, curriculum design, and teacher training priorities.

ii. Climate Ready School Infrastructure Investments – Aligning public sector school construction and rehabilitation projects with climate-resilient design principles, ensuring all new school buildings comply with heat-resistant, flood-resistant, and energy-efficient standards.

iii. Adaptive Learning and Flexible School Calendars – Institutionalizing climate-responsive academic scheduling, enabling adjustments to school timings during extreme heatwaves and implementing remote learning strategies during climate-in-

duced school closures.

iv. Climate Education and Awareness – Establishing a Climate Change Education and Awareness component within the education sector plan, ensuring structured interventions for climate literacy, sustainability education, and environmental conservation activities across all schools.

v. Capacity Building of District Education Officers – Equipping District Education officials (DEOs, DOs, SDEOs, ASDEOs) with climate adaptation toolkits to lead, guide and implement school-based risk assessments, climate-resilient planning, and teacher preparedness for climate-induced disruptions.

B. Integrating Climate Education into Curricula & Teacher Training

Education is a key driver of long-term climate adaptation. Integrating climate change education into the curriculum and teacher training frameworks will ensure students develop necessary knowledge and skills.

i. Curriculum Reform for Climate Literacy

DCTE and KPTBB will integrate climate adaptation themes into school textbooks, embedding climate science, disaster preparedness, and environmental sustainability into subject curricula. Key recommendations include:

a. Introducing age-appropriate climate science modules

b. Embedding practical environmental education through school-based projects

c. Aligning Punjab's school curriculum with international climate education frameworks

ii. Strengthening Teacher Training for Climate Adaptation

Teachers play a critical role in climate education and school resilience planning. DPD will develop a Teacher Capacity Building Programme focusing on climate adaptation skills:

a. Providing teacher training modules on climate resilience

b. Training school leadership in climate risk mitigation strategies

c. Introducing experiential learning methodologies to integrate climate action projects into lesson plans

3.6. CLIMATE READY SCHOOL INFRASTRUCTURE:

The education sector in KP faces heightened vulnerabilities due to climate-induced hazards, including intensifying heatwaves, prolonged cold spells, flash floods, torrential rains, earthquakes, and GLOFs. Ensuring that school buildings are designed and maintained to withstand these hazards is essential for protecting students and staff, safeguarding education infrastructure, and maintaining learning continuity. The Framework for Climate-Ready Schools in KP integrates climate resilience with universal accessibility, ensuring that all school facilities adhere to inclusive and hazard-resistant design principles. The E&SED, in collaboration with the Communication and Works Department (C&W), PDMA, the Climate Resilience Cell (CRC), and relevant local government entities, will ensure that all school construction projects comply with climate-adaptive and accessibility standards. These guidelines align with national and international best practices, drawing from frameworks such as the Comprehensive School Safety Framework (CSSF), the SFDRR, and the Accessibility Code of Pakistan (2006).

3.6.1. KEY PRINCIPLES OF CLIMATE-RESILIENT AND INCLUSIVE SCHOOL INFRASTRUCTURE

a. Hazard-Sensitive and Inclusive Site Selection

School construction must prioritise low-risk zones, avoiding flood-prone areas, landslide-prone slopes, earthquake fault lines, and riverbanks vulnerable to erosion. Comprehensive climate hazard mapping and geospatial analysis must guide school site selection, ensuring that new educational facilities are built in safe and stable locations. In addition, all school infrastructure must comply with accessibility standards, ensuring easy entry and movement for students with disabilities, including level surfaces and barrier-free walkways (Government of Pakistan, 2006).

b. Structural Resilience, Disaster-Resistant, and Barrier-Free Designs

All school structures must be engineered to withstand region-specific climate hazards while ensuring full accessibility for children with disabilities. Key measures include:

(i) Elevated plinth levels in flood-prone areas to mitigate water ingress.

(ii) Seismic-resistant foundations reinforced with structural bracing.

(iii) Wind-resistant roofing designs to withstand high-speed storms.

(iv) Multi-story school designs that prioritise classrooms and essential facilities on upper floors in high-risk districts.

(v) Accessible ramps and widened doorways to ensure that students with mobility impairments can move safely within school premises.

(vi) Inclusive emergency egress plans, incorporating tactile

floor indicators, auditory alarm systems, and visual signage for safe evacuation during extreme weather events.

c. Regular Structural Integrity Audits and Accessibility Compliance

Routine structural integrity assessments are essential for ensuring compliance with climate-resilient construction standards and accessibility requirements. The E&SED and DEOs will conduct annual infrastructure and accessibility audits, identifying vulnerabilities and implementing necessary reinforcements. A data-driven asset management system will support evidence-based decision-making on retrofitting priorities, ensuring that climate adaptation measures align with accessibility needs.

i. Heat-Resistant and Cold-Resistant Building Materials and Passive Climate Adaptation

Given the diverse climatic zones in KP, school infrastructure must incorporate region-specific climate adaptation measures.

d. Heat-Resistant Design for Southern and Lowland Districts

In southern and central KP, where temperatures often exceed 45°C, schools must integrate heat-resilient architectural designs. These include:

(i) Reflective roofing materials and cool coatings to minimise heat absorption and reduce indoor temperatures.

(ii) Passive cooling strategies, such as cross-ventilation, shaded outdoor areas, and green roofs, to naturally regulate temperatures.

(iii) Use of sustainable building materials that provide thermal insulation, reducing reliance on mechanical cooling solutions.

(iv) Accessible cooling areas to provide safe spaces for students with disabilities to regulate body temperature during extreme heat events.

e. Cold-Resistant Design for Northern and Mountainous Districts

In northern KP, where winters are severe with heavy snowfall, school infrastructure must incorporate cold-adaptive materials and insulation techniques. This includes:

(i) Thermal insulation for walls, roofs, and floors using locally available materials to retain heat and minimise energy consumption.

(ii) Double-glazed windows and solar orientation to maximise passive solar heating, ensuring indoor thermal comfort.

(iii) Solar-powered heating systems and renewable energy-based insulation technologies, reducing dependence on fuel-based heating.

(iv) Winter accessibility measures, such as covered walkways, snow-resistant ramp designs, and heated entrances for students with disabilities.

f. Flood-Resistant School Designs and Drainage Solutions

Due to the high risk of flash floods, urban flooding, and GLOFs in KP, school infrastructure must be adapted to prevent water damage and ensure learning continuity. Key interventions

include:
(i) Elevated foundation designs for schools in flood-prone areas, ensuring classrooms remain operational during flood events.
(ii) Reinforced drainage systems, including rainwater channels, underground reservoirs, and rapid water discharge mechanisms.
(iii) Multi-hazard resistant construction materials, such as water-resistant cement and flood-resistant coatings for school walls and floors.
(iv) Barrier-free evacuation routes, including accessible raised pathways and elevated emergency assembly points.

g. Water Conservation and Sustainable Sanitation Practices

Climate adaptation must also incorporate sustainable water management to ensure resilience against droughts and water shortages. Recommended measures include:
(i) Rainwater harvesting systems integrated into school rooftops for sustainable water collection
(ii) Water-efficient sanitation facilities, including dual-flush toilets, handwashing stations with motion sensors, and low-water-use plumbing.
(iii) Accessible sanitation facilities, ensuring that all washrooms comply with the Accessibility Code of Pakistan (2006), featuring wide entryways, handrails, and tactile indicators for visually impaired students.

3.7 RENEWABLE ENERGY, WATER SECURITY, AND SANITATION IN SCHOOLS

3.7.1 RENEWABLE ENERGY SOLUTIONS

i. Solar photovoltaic (PV) systems for off-grid electricity supply, ensuring reliable energy access in remote areas
ii. Hybrid solar-wind systems for sustainable energy generation, particularly in wind-prone northern districts.
iii. Solar thermal systems for water heating and classroom insulation, reducing operational energy costs

3.7.2 FLOOD-RESILIENT SCHOOL DESIGN PRINCIPLES

i. Select safe sites for school construction, avoiding flood-prone zones.
ii. Design schools with elevated foundations and flood-proofing materials.
iii. Incorporate emergency flood adaptations and evacuation routes

3.7.3 RETROFITTING MEASURES FOR EXISTING SCHOOLS

i. Implement waterproofing and structural reinforcements.
ii. Elevate electrical wiring and critical infrastructure.
iii. Install rainwater harvesting systems.

3.7.4 DRAINAGE SOLUTIONS FOR FLOOD-PRONE SCHOOL AREAS

i. Develop sustainable urban drainage systems (SUDS) for schools.
ii. Implement flood-resistant sanitation and wastewater systems.
iii. Engage community-based water drainage networks.

3.7.5 CLEAN DRINKING WATER AND WATER CONSERVATION

a. Provision of Clean Drinking Water

i. Install water filtration and purification systems.
ii. Establish safe water storage and distribution mechanisms.
iii. Conduct regular water quality testing to maintain hygiene standards.

b. Water Conservation Strategies for Schools

i. Implement rainwater harvesting (RWH) systems.
ii. Use water-efficient fixtures and greywater reuse systems.
iii. Conduct regular water safety testing and monitoring

3.7.6 Climate-Smart and Sustainable Sanitation

a. Sanitation Infrastructure

i. Construct flood-resistant latrines and waste disposal systems.
ii. Implement water quality monitoring and health protection measures.
iii. Develop eco-friendly sanitation solutions

b. Sustainable and Inclusive Sanitation

i. Implement low-cost sanitation solutions, such as bio-composting latrines.

ii. Provide handwashing facilities and hygiene education.
iii. Integrate menstrual hygiene management (MHM) facilities and education.

c. Waste and Wastewater Management in Schools

i. Implement solid waste management and recycling programmes.
ii. Develop school-based wastewater treatment and disposal systems.
iii. Engage community-based waste management initiatives.

3.8 GUIDELINES FOR AIR QUALITY AND SMOG RESILIENCE FOR SCHOOLS

Khyber Pakhtunkhwa experiences severe air pollution and smog episodes, impacting school attendance, student health, and learning outcomes.

A. Climate-Responsive IAQ and Smog-Resilience Guidelines

i. Implement enhanced natural and mechanical ventilation systems.
ii. Use air filtration and purification solutions, such as HEPA filters and activated carbon filtration.
iii. Install smog-resistant windows and protective barriers.

B. Low-Cost IAQ & Smog Resilience Solutions

i. Use passive filtration and natural air purification methods, such as jute curtains and wet fabric screens.
ii. Implement rainwater-based air cleansing systems.
iii. Adopt smart school scheduling during smog seasons.

C. Greening of Schools, Schoolyards, and Afforestation Efforts

Greening school environments is vital for enhancing climate resilience, improving air quality, reducing heat stress, and promoting environmental consciousness.

a. Climate-Responsive Tree Plantation Strategies for Schools

i. Select indigenous and climate-resilient tree species.
ii. Establish school-based micro-forests and urban afforestation models.
iii. Integrate tree plantation with CCFEWD annual, seasonal plantation drives and afforestation initiatives.

b. Greening of Schoolyards and Eco-Friendly Landscaping

i. Implement permeable pavements and green walkways.
ii. Establish shaded outdoor learning spaces and green roofs.
iii. Use vertical gardens and climbers for urban schools.

c. Community Engagement & Student-Led Afforestation Initiatives

To promote inclusive and community-driven greening of schools, the following initiatives will be implemented:

a. School Afforestation Drives & Green Clubs

i. Form student-led "Green Clubs/Climate Clubs" to oversee tree planting, waste management, and school greenery initiatives.
ii. Host annual afforestation drives, engaging students and parents in tree planting activities.

b. Parent-Teacher Collaboration for Long-Term Maintenance

i. Engage PTCs in developing localised tree care and watering plans.
ii. Involve parents and students in adopting trees and supporting their growth through seasonal care and protection.

04

School-Based Climate Resilience Planning and Preparedness

This Framework provides a comprehensive roadmap for ensuring that schools systematically assess climate risks, develop resilience plans, and implement preparedness measures to safeguard education in the face of climate-related emergencies. By embedding climate risk management within school governance structures, strengthening institutional coordination, and ensuring that educational authorities, school leaders, and community stakeholders play an active role in preparedness efforts, this framework establishes a strong foundation for institutional resilience and uninterrupted learning.

4.1 DEVELOPING SCHOOL RESILIENCE PLANS:

4.1.1 SCHOOL-BASED CLIMATE RISK MAPPING AND HAZARD IDENTIFICATION

An essential first step in school-based climate resilience planning is the identification and mapping of hazards and vulnerabilities at the individual school level. Given the diverse terrain and localised climate risks across KP, each school must undertake a systematic vulnerability analysis to assess its specific exposure to climate hazards and formulate evidence-based preparedness strategies.

The responsibility for conducting school-specific climate risk assessments rests with school leaders, including headteachers, principals, and school leaders (SLs), under the technical guidance of ASDEOs and oversight by DEOs. These assessments will focus on:

a. Mapping hazard-prone zones within and around school premises, identifying flood-prone areas, seismic fault lines, avalanche-prone slopes, and regions susceptible to extreme temperature fluctuations.

b. Assessing structural vulnerabilities of school buildings and facilities, ensuring compliance with the Accessibility Code of Pakistan 2006, including evaluating ramps, accessible toilets, door widths, handrails, and emergency evacuation pathways.

c. Profiling at-risk student groups, ensuring specific measures are developed for the protection of young children, girls, children with disabilities, and those from socio-economically disadvantaged backgrounds.

Findings from these assessments will be consolidated into School Climate Vulnerability Profiles, which will be reviewed, validated, and approved by DEOs. These profiles will serve as foundational planning documents that guide school-specific resilience interventions while supporting informed decision-making at district and provincial levels regarding resource allocation, infrastructure adaptation, and inclusive disaster preparedness.

4.2 EMERGENCY PREPAREDNESS DRILLS AND EVACUATION PROTOCOLS

Once climate risks have been systematically assessed and documented, schools must operationalise preparedness strategies through regularly conducted emergency response drills and structured evacuation protocols. These practical simulations and response exercises are fundamental to ensuring that students, teachers, and school personnel are adequately trained to respond effectively to emergencies, minimising casualties and disruptions. All schools will be required to conduct scheduled emergency preparedness drills tailored to specific climate hazards identified during risk assessments. These drills will align with district-level emergency response frameworks led by DDMUs and Rescue 1122 and will focus on:

a. Earthquake response drills, equipping students with the knowledge and practice of drop-cover-hold techniques, safe exit procedures, and designated safe zones within school premises.

b. Flood evacuation drills, preparing students to evacuate efficiently to higher ground, avoid waterlogged areas, and use designated safe routes under teacher supervision.

c. Avalanche and landslide response drills, particularly for schools in mountainous districts, focusing on immediate evacuation, emergency assembly points, and terrain safety awareness.

d. Heatwave and extreme cold preparedness measures, ensuring students are aware of hydration, protective clothing requirements, and safe sheltering protocols to prevent heatstroke or cold-related health risks.

To institutionalise a consistent and effective approach to school emergency management, schools will be required to develop structured evacuation protocols detailing:

a. Clearly marked, accessible evacuation routes, ensuring that students and staff, including those with disabilities, can move quickly and safely to designated assembly points.

b. Pre-designated safe assembly zones, where students and staff regroup under the supervision of assigned emergency personnel until further instructions are issued.

c. Defined emergency response roles and responsibilities, ensuring that teachers, administrative staff, and PTCs

have assigned functions in evacuation, first aid, and student supervision.

d. Visible, regularly maintained emergency signage, including accessible evacuation maps, tactile indicators for visually impaired students, and auditory alarms for hearing-impaired students, displayed prominently across school premises.

The DEOs will be responsible for monitoring compliance, ensuring that schools conduct, document, and refine emergency drills based on lessons learned. This structured approach enables progressive improvements in school preparedness measures, ensuring that emergency response protocols remain updated and reflective of evolving climate risks while adhering to national accessibility standards.

4.3 CONTINUOUS MONITORING AND IMPROVEMENT OF PREPAREDNESS PLANS

A robust monitoring and evaluation framework is critical to ensuring that school-based climate risk preparedness measures remain effective, adaptable, and responsive to evolving threats. DEOs, in collaboration with school leaders and disaster management officials, will conduct annual audits of School Resilience Plans, focusing on:

a. Assessing the effectiveness of preparedness drills, ensuring that all schools demonstrate competency in emergency response protocols.

b. Evaluating compliance with climate resilience guidelines, ensuring that infrastructure, evacuation plans, and hazard mapping assessments remain updated.

c. Identifying gaps in school safety infrastructure, advocating for targeted investment in hazard mitigation measures, including reinforced buildings, improved drainage systems, and early warning integration.

To institutionalise preparedness as a permanent component of school governance, the E&SED will integrate school-based risk preparedness within the broader education policy framework, ensuring that:

a. School Resilience Plans become a mandatory part of school accreditation and performance evaluation.

b. Climate risk preparedness is embedded into teacher training and professional development programmes.

c. Climate education is incorporated into school curricula, ensuring that students develop climate literacy and risk awareness from an early age.

Ensuring school-based climate risk preparedness and emergency response is a critical pillar of KP's education sector resilience strategy. By embedding structured risk assessment, preparedness drills, and institutional coordination mechanisms within school governance, the Framework for Climate-Ready Schools establishes a comprehensive, proactive approach to climate adaptation. Through collaborative planning, institutional accountability, and continuous improvement, KP can ensure that its schools remain safe, operational, and climate-resilient, safeguarding educational continuity for future generations.

4.4 CLIMATE-RESPONSIVE EARLY WARNING SYSTEMS AND COMMUNICATION STRATEGIES

Establishing robust early warning systems and structured communication strategies is essential for minimising climate-related risks and ensuring student and staff safety, educational continuity, and timely emergency responses in KP. Schools must be formally integrated into provincial and district early warning mechanisms, allowing them to receive real-time alerts on potential climate hazards and take proactive measures to mitigate risks. Effective school-level communication protocols will enable swift coordination among educational authorities, local governments, disaster management agencies, and community stakeholders, ensuring a clear and structured approach to managing emergencies.

4.4.1 INTEGRATION OF SCHOOLS INTO DISTRICT AND PROVINCIAL EARLY WARNING SYSTEMS

To effectively anticipate, prepare for, and respond to climate

risks, KP's District Education Offices and schools must be integrated into provincial and district-level early warning systems. The E&SED, through the CRC, will facilitate the incorporation of school networks within the PDMA Early Warning System (EWS). This will ensure that hazard alerts, risk forecasts, and emergency instructions are disseminated in a timely and systematic manner to schools via DDMUs and Deputy Commissioners' Offices (DCs).

To operationalise this, the following measures will be institutionalised:

- **Integration of Schools into PDMA's Early Warning Systems:** District Education Offices through respective DEO will be formally included in district-level contingency planning processes, receiving direct and automated alerts related to flash floods, torrential rainfall, extreme heatwaves, avalanches, earthquakes, and (GLOFs).
- **Formalised Communication Networks between Schools and District Authorities:** DEOs will establish clear and structured communication pathways with DCs, DDMUs, and PDMA, ensuring that emergency alerts reach all schools efficiently. This includes SMS-based notifications, WhatsApp group messages and broadcasts, and real-time digital platforms.
- **Regular Testing of Early Warning Reception and Response Protocols:** DEOs will conduct periodic evaluations to assess the efficacy of their response mechanisms upon receiving hazard alerts. Reports highlighting gaps in alert reception, delayed response times, or coordination challenges will be generated by ASDEOs for submission to DEOs, facilitating continuous improvements in early warning effectiveness.

This structured integration will significantly enhance schools' capacity to act pre-emptively, reducing the impact of climate-induced emergencies on education.

4.4.2 SCHOOL-LEVEL COMMUNICATION PROTOCOLS FOR CLIMATE EMERGENCIES

Clear, structured school-level communication protocols are vital to ensuring rapid, well-coordinated responses during climate emergencies. Schools must develop formalised communication frameworks, ensuring that all relevant stakeholders—students, teachers, administrative staff, PTCs, and district authorities—receive timely and accurate emergency instructions.

To achieve this, the following school-level actions will be implemented:

1. Defining Roles and Responsibilities in Emergency Communication: Each school will designate an Emergency Communication Focal Person (ECFP), typically a senior administrative staff member, responsible for receiving, verifying, and disseminating early warning alerts. The ECFP, working under Headteachers, will:

a. Act as the primary liaison between schools, ASDEO, and DEO, ensuring that emergency messages are promptly received and transmitted.

b. Conduct regular staff awareness sessions to ensure teachers and non-teaching personnel understand their roles in emergency communication.

c. Maintain updated contact lists of relevant emergency services, including DEOs, ASDEOs, PDMA, DDMUs, Rescue 1122, local police, district health authorities, and PTC representatives.

Regular capacity-building sessions will be mandated to ensure that all designated communication personnel are well-versed in emergency response protocols.

2. Establishing Multi-Modal Communication Channels: Schools must leverage multiple communication methods to ensure that emergency alerts reach all students, staff, and parents effectively. This will include:

a. SMS and WhatsApp Alerts: Schools will establish SMS/WhatsApp-based notification systems, ensuring that all key stakeholders receive urgent updates in real time.

b. School Public Address (PA) Systems: In schools with access to loudspeakers or bell systems, emergency announcements will be broadcasted promptly, alerting students and staff to take immediate protective actions.

c. Use of Local Mosque Public Address (PA) System: In rural and remote areas, schools will use the local mosque PA systems to communicate emergency alerts where mobile network coverage is unreliable.

d. Community Focal Persons: Parent-Teacher Councils (PTCs) will identify community focal persons responsible for disseminating climate alerts and school-specific emergency instructions to parents and local residents.

By implementing multi-modal communication, schools will be able to reach diverse audiences rapidly and ensure that no critical information is lost due to network failures or system constraints.

3. Emergency Communication Training and Simulation Exercises

To institutionalise emergency preparedness, all schools will be required to conduct regular training and simulation exercises. In order to organise and conduct these drills, the schools with support from ASDEOs and SLs will seek support from local Rescue 1122 and Civil Defence teams. These drills will:

a. Assess the efficiency of emergency messaging, identifying any delays, miscommunications, or technical failures that may impede response times.

b. Train students, teachers, and school staff to understand and follow emergency instructions without panic or confusion.

c. Ensure that students know evacuation routes, understand alert signals, and are familiar with emergency response procedures.

DEOs and DDMUs will collaborate with district emergency authorities, including Rescue 1122, to conduct annual communication drills, reinforcing the importance of structured, school-wide emergency communication preparedness.

4. Emergency Contact Directories and Real-Time Information Management

All schools must maintain an up-to-date Emergency Contact Directory, which will include the contact details of local emergency services, school administrators, education officers, and government response agencies. These directories will:

a. Be updated quarterly to reflect any personnel changes in emergency response teams.

b. Be accessible in digital and printed formats, ensuring availability even in power outages or technical disruptions.

c. Be prominently displayed in school offices, staff rooms, and key locations, ensuring that all school personnel have immediate access to emergency contacts when needed.

4.4.3 ROLE OF DISTRICT AUTHORITIES AND LOCAL ADMINISTRATION

Government of Khyber Pakhtunkhwa with the establishment of Additional Deputy Commissioners (Relief)—reporting to the Relief, Rehabilitation and Settlement Department (RR&SD)—has institutionalised a dedicated focal point for disaster risk management coordination in each district. The District Disaster Management Units (DDMUs) operate under the administrative leadership of the ADC (Relief), ensuring alignment with provincial directives and local implementation. Under this framework, the ADC (Relief), in collaboration with the DDMUs, will:

a. Convene regular multi-agency coordination forums, engaging District Education Officers (DEOs), Rescue 1122, Health Department representatives, and local government functionaries to ensure an integrated emergency response.

b. Oversee the technical support provided by DDMUs and Rescue 1122 to schools for the formulation, review, and simulation of emergency response protocols and evacuation procedures.

c. Ensure the Health Department delivers climate-related health advisories, first aid orientation, and post-disaster medical coordination for educational institutions.

Institutionalising structured communication protocols and early warning systems within the school governance mechanism will significantly enhance preparedness and responsiveness. This approach embeds school-level resilience within the broader district disaster management architecture, ensuring that education continuity and learner safety are safeguarded during climate-induced emergencies

4.5 ROLE OF PTCs IN CLIMATE ADAPTATION PLANNING

PTCs act as a critical link between schools and communities, ensuring locally grounded, practical approaches to climate resilience. As representative bodies comprising parents, teachers, and school administrators, PTCs offer valuable insights into local climate hazards, risk mitigation strategies, and school-level safety priorities. Their active involvement in the design, implementation, and monitoring of School Resilience Plans (SRPs) will ensure that climate adaptation strategies remain community-driven, relevant, and sustainable. To strengthen the role of PTCs in climate adaptation planning, the following key actions will be institutionalised:

1. Capacity Building for PTC Members: The E&SED,

through the CRC, in collaboration with ASDEOs and School Leaders (SLs), will conduct regular capacity-building workshops for PTC members. These sessions will cover:

a. Understanding local climate hazards (e.g., floods, heatwaves, extreme cold, torrential rains, earthquakes, GLOFs, etc.) and their impact on school safety and learning continuity.

b. School-based risk assessments, ensuring that PTCs actively contribute to identifying and documenting local vulnerabilities.

c. Oversight of climate adaptation initiatives, equipping PTCs with the skills to monitor and support climate-resilient infrastructure improvements, afforestation initiatives, and emergency preparedness activities.

d. Emergency response coordination, training PTCs to support schools in executing evacuation drills and community-led disaster preparedness exercises.

2. Active Participation in School Climate Risk Assessments

PTCs, under the leadership of headteachers and ASDEOs, will play a direct role in identifying and mapping school-specific climate risks. Their involvement in this process will ensure that local environmental knowledge, historical climate trends, and community-based hazard management strategies are integrated into School Resilience Plans (SRPs). PTCs will collaborate with school leadership and district authorities in:

a. Mapping school vulnerabilities, identifying flood-prone areas, structurally weak buildings, and evacuation constraints.

b. Ensuring local perspectives inform adaptation strategies, leveraging community knowledge of past climate hazards to enhance risk preparedness.

c. Facilitating school-community dialogues, enabling open discussions on climate-related concerns and preparedness measures.

4.6 COMMUNITY PARTICIPATION IN CLIMATE PREPAREDNESS AND SCHOOL SAFETY EFFORTS

Active community participation is critical to ensuring that school climate adaptation initiatives are sustainable, locally embedded, and effectively implemented. PTCs will be used as a forum for engaging communities to strengthen disaster preparedness, enhance resource mobilisation, and promote long-term school safety planning. To achieve this, schools will institutionalise structured community participation mechanisms, including:

1. Integrating Local Knowledge into Climate Adaptation Strategies

Schools will actively engage local communities through PTCs in climate resilience planning, ensuring that traditional knowledge and local adaptation practices are incorporated into

school preparedness measures. Community insights will inform:

a. Siting and construction of flood-resistant school infrastructure, ensuring that local hydrological patterns are considered in school design.

b. Afforestation and greening initiatives, prioritising the use of indigenous tree species for school-based environmental sustainability efforts.

c. Water conservation strategies, incorporating local practices for efficient rainwater harvesting and greywater reuse.

2. Community-Based School Resilience Dialogues

Regular school-community forums, facilitated by PTCs and school leadership, will provide a platform for ongoing dialogue on climate risks and school safety measures. These forums will:

a. Engage local government bodies, ensuring alignment between school adaptation plans and broader district climate policies.

b. Encourage participatory decision-making, enabling communities to contribute to school adaptation strategies.

c. Promote transparency and shared responsibility, strengthening the collaborative nature of school resilience initiatives.

By empowering Parent-Teacher Committees (PTCs) and garnering strong community support, schools in KP can establish climate-resilient learning environments that are locally embedded, sustainable, and responsive to evolving climate risks. Strengthening community-school partnerships will ensure that climate adaptation measures remain effective, inclusive, and widely supported, thereby enhancing both school safety and long-term educational continuity in the face of climate-induced challenges.

05

Governance, Institutional Coordination & Monitoring for Climate-Ready Schools

A formal governance and coordination mechanism will ensure climate adaptation efforts in the education sector are systematically integrated into policy, planning, and implementation.

5.1 PROVINCIAL-LEVEL FRAMEWORK AND LINKAGES

1. **E&SE Department:** The lead implementing authority, which will provide policy guidance, strategic planning, and governance oversight for integrating climate resilience into KP's education sector.

2. **Directorate of ESE:** DESE oversees education service delivery at the district level. It will ensure the implementation of climate-adaptive education policies, manage teacher training and professional development on climate-responsive education, and supervise district-level execution of climate resilience programs. DESE will also coordinate with DEOs to ensure schools comply with climate-resilient infrastructure standards and will provide technical and administrative support for school climate adaptation initiatives.

3. **P&D Department:** The Planning & Development (P&D) Department of Khyber Pakhtunkhwa plays a central role in the province's development planning and resource allocation. It serves as the main policy-making and coordinating body for development initiatives. P&DD formulates short-, medium-, and long-term development plans aligned with provincial and national priorities. It also Ensures the alignment of projects with strategic goals and feasibility standards.

Figure: Provincial Level Coordination Framework

4. **CCFEW Department:** Will provide technical guidance on climate risk assessments, green school infrastructure, and emissions reduction strategies. The department will also support afforestation and tree-planting initiatives in and around schools, contributing to ecosystem restoration and natural climate mitigation.

5. **RRS Department:** Will lead disaster preparedness and post-disaster school rehabilitation efforts, ensuring rapid response, emergency relief coordination, and funding allocation.

6. **PDMA:** Will guide and provide technical support to DESE for school-level disaster risk reduction strategies and integrate education sector priorities into provincial disaster response plans.

7. **LGERD Department:** Will ensure school sanitation, drainage, waste management, and implement water conservation initiatives to reduce climate vulnerability.

8. **Health Department:** Will support the development of climate-related health protocols for schools, ensuring preparedness against heatwaves, respiratory illnesses, and vector-borne diseases.

9. **Rescue 1122:** Will assist DESE in the provision of emergency response training, facilitate designing school safety drills, and strengthen school integration into district-level disaster response networks.

10. **Finance Department:** Will support long-term climate resilience financing by integrating climate adaptation strategies into provincial education budgets.

This structured governance framework will ensure that education sector adaptation to climate risks is integrated into policy, planning, and district-level implementation, strengthening KP's ability to safeguard schools, students, and teachers against future climate threats.

5.2 DISTRICT-LEVEL FRAMEWORK

1. **DC Office:** Provides overarching supervisory and operational guidance for district and school-based climate resilience efforts. The DC will oversee emergency prepared-

ness planning, interdepartmental coordination, and district-level advisories.

2. **DEO:** Leads school-based climate resilience planning, ensuring integration of climate adaptation into district-level education management. The DEO supervises the implementation of District Climate Resilience Plans for Schools and oversees interdepartmental coordination.

3. **DDEO:** Responsible for middle, high, and higher secondary schools. The DDEO, supported by Assistant District Education Officers (ADEOs), ensures that school-based resilience measures align with district strategies.

4. **SDEO:** Manages the administration and supervision of primary schools, ensuring climate resilience planning is implemented at the foundational education level.

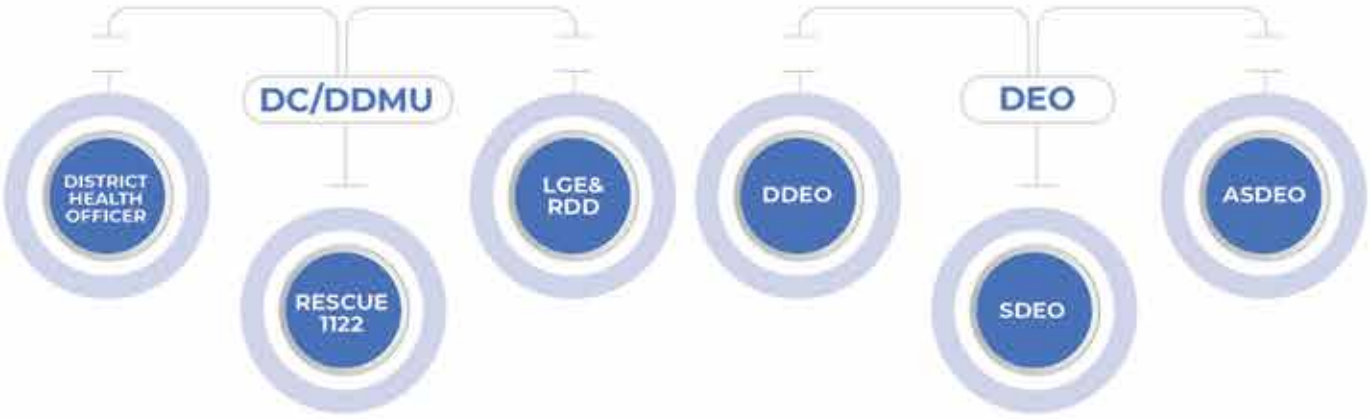
5. **ASDEO:** Directly supervises headteachers of primary schools organised into administrative units called "circles." ASDEOs play a critical role in climate risk assessment, emergency preparedness, and resilience-building initiatives at the school level.

6. **DDMUs:** Provide technical support in school-level disaster preparedness, climate risk assessments, and emergency response coordination.

7. **LGERDD/Municipal Administration:** Ensures sustainability of municipal services impacting school environments, supports sanitation, drainage, and solid waste management, and facilitates afforestation programs.

8. **District Health Authorities:** Supports DEOs through school-based medical screenings, first aid training, and health advisones on climate-related health risks.

9. **Rescue 1122 (Emergency Response Services):** Ensures schools are prepared for climate-induced emergencies by providing emergency response training and facilitating regular evacuation drills.



5.3 INSTITUTIONAL COORDINATION FRAMEWORK

A formalised coordination structure is necessary to align efforts across provincial and district tiers. The government of Khyber Pakhtunkhwa will establish multi-stakeholder committees to oversee the implementation of school-based climate resilience measures.

5.3.1 PROVINCIAL CLIMATE RESILIENT SCHOOLS STEERING COMMITTEE (PCRSSC)

This committee will provide policy direction, interdepartmental coordination, and strategic oversight of climate resilience initiatives in the education sector. It will include representation from:

1. Elementary and Secondary Education Department
2. Directorate of Elementary and Secondary Education
3. Climate Change, Forestry, Environment & Wildlife Department
4. Relief, Rehabilitation, and Settlement Department
5. Provincial Disaster Management Authority
6. Planning & Development Department
7. Finance Department
8. Health Department
9. Local Government, Elections & Rural Development Department
10. Development partners & relevant stakeholders

PROVINCIAL CLIMATE RESILIENT SCHOOLS STEERING COMMITTEE (PCRSSC)

This committee will approve provincial climate resilience strategies, ensure intersectoral collaboration, and oversee implementation frameworks.

5.3.2 DISTRICT CLIMATE RESILIENT SCHOOLS COORDINATION COMMITTEE (DCRCC)

At the district level, a District Climate Resilient Schools Coordination Committee (DCRCC) will be established, led by the Deputy Commissioner with the DEO as Secretary. This committee will be responsible for:

a. Implementation of school-based climate resilience plans

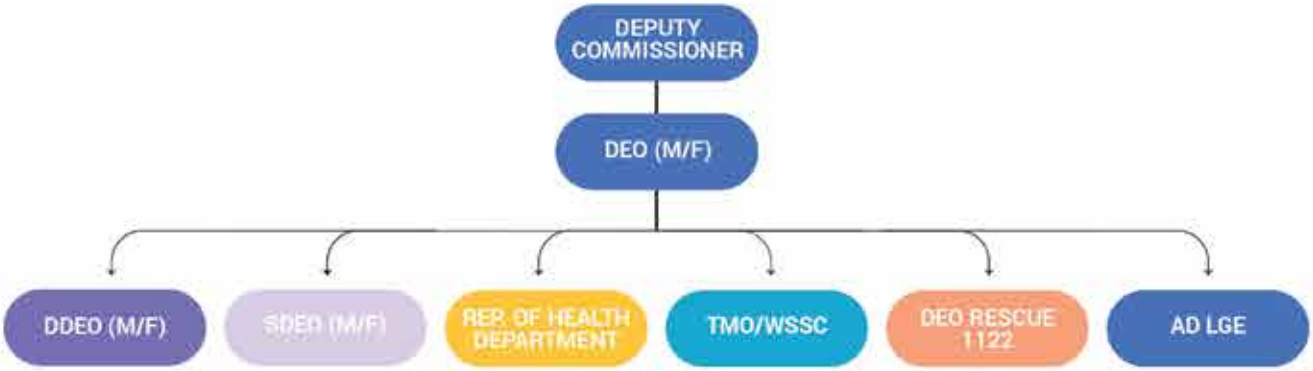
b. Localized risk assessments and emergency response preparedness

c. Ensuring school-level climate adaptation measures align with provincial strategies

Composition of DCRCC:

1. Deputy Commissioner (Chair)
2. District Education Officer (Member)
3. Deputy District Education Officer (Member)
4. Sub-Divisional Education Officer (Member)
5. District Disaster Management Unit Representative (Member)
6. Representative from Health Department (Member)
7. Municipal Administration Representative (Member)
8. Rescue 1122 Representative (Member)
9. Local Government Representative (Member)
10. Representatives from Civil Society and Development Partners (Observers)

This structured governance framework ensures that climate adaptation and disaster preparedness are embedded into education sector planning and policy implementation, fostering resilience across KP's school system.



5.4 MONITORING, EVALUATION, AND OVERSIGHT MECHANISMS

A robust monitoring and evaluation (M&E) framework is crucial for ensuring the effectiveness, sustainability, and continual improvement of climate resilience initiatives within Khyber Pakhtunkhwa's (KP) school education system. Regular assessment of adaptation strategies will enable the Elementary and Secondary Education Department (E&SED), district authorities, and local stakeholders to strengthen preparedness, response mechanisms, and resilience-building efforts across schools.

This section outlines key performance indicators, reporting mechanisms, and oversight measures necessary for embedding climate adaptation in KP's school sector. The approach aligns with E&SED's strategic governance, the KP-ESP, and internationally recognised monitoring standards.

5.5 KEY INDICATORS FOR MONITORING CLIMATE RESILIENCE IN SCHOOLS

To evaluate the impact of climate resilience interventions, measurable indicators will track infrastructure preparedness, emergency response effectiveness, and school adaptation capacity. These indicators will align with the KP ESP, the ACP, and the Comprehensive School Safety Framework (CSSF).

1. Infrastructure Resilience Indicators

(i) Percentage of schools built or retrofitted to climate-resilient standards, incorporating flood-resistant foundations, heat-adaptive materials, and earthquake-resistant structures.

(ii) Proportion of schools equipped with climate-smart infrastructure, such as solar energy systems, rainwater harvesting, and sustainable sanitation facilities.

(iii) Implementation of school-based afforestation and green schoolyard initiatives for natural climate mitigation.

2. Emergency Preparedness and Response Indicators

(i) Number of schools conducting regular emergency preparedness drills (flood, earthquake, heatwave, and smog evacuation).

(ii) Percentage of schools with operational School Resilience Plans (SRPs), aligned with PDMA and DDMUs.

(iii) Effectiveness of early warning systems and school emergency communication protocols.

3. Educational Continuity and Attendance Indicators

(i) Tracking of student and teacher attendance trends before, during, and after climate-related disruptions.

(ii) Implementation of alternative learning strategies (e-learning platforms, temporary learning centres).

(iii) Impact of climate-induced disruptions on learning outcomes, literacy, and numeracy skills.

4. Health and Safety Indicators

(i) Number of climate-induced health incidents reported in schools (heatstroke, respiratory illnesses, waterborne diseases).

(ii) Absenteeism rates due to climate-related health issues, enabling targeted interventions.

(iii) Availability of first-aid and emergency medical support in high-risk schools.

5. Community Engagement and Participation Indicators

(i) Level of PTC involvement in climate adaptation planning, measured through meeting attendance and engagement in school safety measures.

(ii) Number of community-led resilience initiatives, such as afforestation, climate awareness campaigns, and emergency preparedness exercises.

(iii) Strength of school-community partnerships in disaster response planning.

By systematically tracking these key performance indicators, E&SED and district authorities will assess progress, identify gaps, and refine strategies to enhance resilience in the education sector.

5.6 DATA COLLECTION, REPORTING, AND TRANSPARENCY

To ensure accurate, consistent, and actionable monitoring, structured data collection and reporting mechanisms will be institutionalised, allowing provincial and district education authorities to track climate adaptation efforts effectively.

1. Standardised Data Collection Mechanisms

(i) Schools will document climate preparedness activities, infrastructure improvements, and emergency drills using standardised templates developed by E&SED.

(ii) Headteachers, supported by ASDEOs, will oversee climate risk assessment data collection.

(iii) DEOs will compile school-level reports, ensuring quality control before submission to the Director E&SE.

2. Periodic Monitoring and Reporting Framework

(i) Schools will submit quarterly climate resilience reports to DEOs, detailing preparedness measures, infrastructure status, and identified gaps.

(ii) DEOs, in coordination with DDMUs and PDMA, will compile district-level assessments on climate adaptation efforts.

(iii) E&SED will publish an Annual Provincial Climate Resilience Report, consolidating district-level findings and informing policy refinements.

3. Real-Time Climate Resilience Dashboards

(i) EMIS will develop a digital Climate Resilience Dashboard to monitor school readiness, infrastructure resilience, and early warning preparedness.

(ii) The dashboard will be accessible to education policymakers and provincial and district education managers for data-driven decision-making.

5.7 OVERSIGHT MECHANISMS

Ensuring effective implementation is critical to sustaining climate adaptation initiatives. The following mechanisms will enhance institutional responsibility and governance.

1. Provincial Oversight through DESE

o DESE will lead the coordination of school climate resilience policies, ensuring cross-sectoral alignment.

o PDMA and RRSD will provide strategic oversight, linking school-based adaptation plans with provincial disaster risk reduction (DRR) strategies.

o Annual policy reviews by the PCRSSC will refine climate adaptation targets based on monitoring data.

2. District-level monitoring through DEOs

(i) DEOs track the school's compliance with resilience plans, ensuring regular climate risk assessments and emergency preparedness drills.

(ii) DEOs will oversee preparedness training and ensure coordination with DDMU and local government agencies.

(iii) SRPs will be integrated into district education planning.

3. School-Level Implementation through SLs, Headteachers, and PTCs

(i) Headteachers will be the primary focal persons for resilience-building at the school level.

(ii) PTCs will be actively involved in monitoring school preparedness and supporting community-driven adaptation initiatives.

By embedding structured monitoring mechanisms at provincial, district, and school levels, KP's education sector will ensure climate resilience is systematically integrated into long-term governance and policy frameworks.

A structured M&E framework is essential for tracking climate adaptation efforts in KP's school system. By aligning indicators with education sector priorities, strengthening data collection mechanisms, and fostering multi-level oversight, E&SED and DEOs will be able to assess progress, refine strategies, and institutionalise resilience in school planning. Through this structured approach, KP's schools will be better prepared to withstand climate shocks, ensuring that students continue to learn in safe, adaptive, and resilient environments.

06

Capacity Building and Awareness

Building a climate-resilient school education system in Khyber Pakhtunkhwa (KP) requires institutionalised capacity-building initiatives that equip education managers, teachers, and school communities with the knowledge and skills to adapt to climate challenges. The Directorate of Professional Development (DPD), in collaboration with the Directorate of Curriculum and Teacher Education (DCTE), will lead the design and implementation of professional development programs and curriculum reforms, ensuring climate adaptation is embedded in teaching and school management practices.

Training efforts will be decentralised through Regional Professional Development Centres (RPDCs) to strengthen district-level implementation. Additionally, structured awareness campaigns, school-based climate clubs, and participatory learning approaches will promote climate literacy and environmental stewardship among students. By institutionalising these initiatives, KP's education system will build resilience, ensuring that schools remain safe, adaptive, and responsive to climate risks while equipping future generations with sustainability competencies.

6.1 TRAINING FOR EDUCATION MANAGERS AND TEACHERS

Ensuring climate resilience within KP's school system requires structured capacity-building for both education managers and teachers. A well-developed training framework, led by the DPD in collaboration with RPDCs, will provide school administrators, education officers, and teachers with the necessary skills to integrate climate adaptation, disaster risk reduction (DRR), and environmental sustainability into their governance and pedagogy. The capacity-building framework will be implemented sequentially in three distinct phases to ensure systematic integration of climate education and resilience-building measures.

6.1.1 TRAINING FOR EDUCATION MANAGERS

Education managers—including DOs, DDEOs, SDEOs, and ASDEOs—are responsible for overseeing school climate resilience initiatives, ensuring policy compliance, and integrating climate considerations into school planning and operations. DPD and RPDCs will institutionalise training programs that strengthen their capacity to implement and monitor climate adaptation efforts effectively.

KEY TRAINING AREAS:

Training Component	Learning Objectives
Climate Risk and Resilience Planning	**Equipping education managers with skills to conduct district-wide climate risk assessments, prioritise vulnerable schools, and implement risk - informed planning.**
Disaster Preparedness and Emergency Response	**Strengthening int erdepartmental coordination with PDMA, RRSD, DDMUs, and Rescue 1122 to ensure school safety and climate disaster preparedness.**
Monitoring Climate-Resilient School Infrastructure	**Enabling education officers to oversee school construction and retrofitting efforts in compliance with climate-adaptive building codes.**
Climate-Smart Policy Integration	**Embedding climate adaptation into district education planning, governance, and budgeting frameworks.**

Training will be delivered in phases, ensuring that climate-responsive school governance is embedded at all administrative levels.

6.1.2 TEACHERS' PROFESSIONAL DEVELOPMENT

Teachers play a critical role in embedding climate resilience within school education. Through Continuous Professional Development (CPD) programs, DPD will provide structured training to equip teachers with knowledge, skills, and pedagogical strategies to integrate climate adaptation and DRR into teaching practices.

a. Pre-Service Teacher Training on Climate Education

Embedding climate education into teacher preparation programs will ensure that newly inducted educators possess the knowledge, skills, and pedagogical tools necessary to integrate climate literacy into their teaching.

Key Interventions:

(i) Integration of Climate Change Education into Pre-Service Training: Revise B.Ed. and M.Ed. curricula to incorporate climate risk reduction, sustainability, and climate-adaptive pedagogy.

(ii) Capacity Building for Teacher Educators: Equip faculty members at teacher training institutions with expertise in climate-responsive teaching methodologies.

(iii) Hands-on Training Modules: Introduce simulation-based learning, environmental fieldwork, and disaster preparedness exercises into teacher training programs.

b. In-Service Training and Continuous Professional Development (CPD)

For current teachers, structured CPD programs will ensure continuous capacity enhancement in climate literacy, resilience-building, and school-based disaster preparedness .

TRAINING COMPONENTS FOR TEACHERS:

Training Component	Key Learning Outcomes	Responsible Institution
Climate Change Literacy	Enhancing teachers' understanding of climate science, local environmental risks, and disaster risk reduction (DRR).	DPD, DCTE
Experiential and Climate-Responsive Teaching	Training in field-based activities, nature walks, and student-led sustainability projects.	DPD, RPDCs,
Subject-Specific Integration of Climate Change Concepts	Aligning climate education with age-appropriate pedagogical frameworks across different grade levels.	DCTE, KP Textbook Board, DPD
Emergency Preparedness and School Safety	Training teachers in evacuation drills, disaster preparedness, and student safety protocols.	PDMA, Rescue 1122, DPD

c. Integration of Climate Change into Subject-Specific Pedagogy

Teachers will be trained to deliver age-appropriate climate education, integrating climate change concepts into subject-specific pedagogy across different grade levels .

AGE-APPROPRIATE CLIMATE CHANGE CURRICULUM INTEGRATION

Grade Level	Key Climate Change Topics
Grades 1-3	Basics of weather, seasons, and environmental responsibility.
Grades 4-5	Impact of pollution, deforestation, and conservation practices.
Grades 6-8	Climate zones, greenhouse gases, and disaster preparedness.
Grades 9-10	Climate adaptation strategies, renewable energy, and sustainable cities.
Grades 11-12	Global climate policies, economic impacts, and mitigation strategies.

d. Implementation Strategy

The capacity-building framework will be implemented in a phased approach, ensuring systematic expansion of climate training across the province.

Phase	Timeline	Key Actions
Phase 1: Short-Term	2025-26	Development of climate change training modules for teachers and education managers. Pilot implementation in select districts. Initial sensitisation of school leadership.
Phase 2: Medium-Term	2026-27	Expansion of teacher training programs across KP. Integration of climate education into professional development programs. Strengthening of resilience indicators in school governance.
Phase 3: Long-Term	2028 & Beyond	Comprehensive curricul um revision embedding climate themes. The institutionalisation of sustainable training programs for ongoing CPD. Establishment of school and district-level climate resilience mechanisms.

6.2 CLIMATE CHANGE EDUCATION IN THE CURRICULUM

The integration of climate change education into KP's school curriculum is critical for equipping students with scientific knowledge, adaptive skills, and problem-solving capabilities to respond effectively to climate challenges. Embedding climate literacy into formal education, extracurricular activities, and student-led initiatives will foster a generation of climate-conscious learners capable of mitigating risks and leading sustainability efforts in their communities.

The DCTE, as per the guidance of E&SED, will sequentially incorporate climate change education into school curricula.

a. Embedding Climate Resilience in School Curricula:

A structured framework for integrating climate education at different grade levels will be developed to ensure a progressive learning model. Climate education will be incorporated into science, geography, social studies, and environmental education subjects.

KEY CLIMATE CHANGE THEMES ACROSS GRADE LEVELS

Grade Level	Key Climate Topics
Grades 1-3	Understanding seasons, weather, and basic environmental responsibility.
Grades 4-5	Pollution, water conservation, and climate change basics.
Grades 6-8	Punjab and KP's climate challenge, causes of global warming, and adaptation strategies.
Grades 9-10	Climate policies, sustainable cities, and local climate action.
Grades 11 - 12	Disaster risk reduction, energy transition, and environmental governance.

b. Implementation Approach: A phased curriculum revision will be adopted, ensuring immediate, medium-term, and long-term integration of climate education

Phase/Timeline	Key Actions
Phase 1: Immediate (2025-26)	Development of supplementary materials, teacher training, and pilot programs in selected districts.
Phase 2: Medium-Term (2027-29)	Gradual integration into textbooks, capacity - building for curriculum designers, and introduction of digital learning tools.
Phase 3: Long-Term (2030 & Beyond)	Full-scale curriculum revision embedding climate education as a core subject.

i. Awareness Campaigns and Extracurricular Activities

Beyond textbooks, students need practical exposure to climate adaptation and sustainability. Schools will incorporate co-curricular activities, student-led projects, and public awareness campaigns to ensure active participation in climate resilience.

a. Key Initiatives for Climate Awareness and Action

Initiative	Description
Student Climate Clubs	Establishment of climate action groups in schools to engage in sustainability projects and environmental awareness activities.
Tree Plantation & Green Schoolyards	Schools will integrate afforestation an d greening initiatives to promote biodiversity and heat mitigation.
Community-Led Climate Awareness Campaigns	Mobilisation of students and parents for awareness drives on climate risks, conservation, and disaster preparedness.
Eco-Friendly School Projects	Waste management, solar panel installations, rainwater harvesting, and clean energy transition efforts within schools.

b. Climate Clubs in Schools

School-based Climate Clubs will be established as student-led initiatives to encourage peer learning, local sustainability projects, and advocacy efforts.

Functions of Climate Clubs:

(i) Conduct climate awareness sessions and campaigns for fellow students.

(ii) Organise tree plantation drives and water conservation efforts.

(iii) Collaborate with municipal bodies, NGOs, and local experts for knowledge-sharing.

(iv) Serve as student representatives in climate policy discussions at school and district levels.

Supervision & Implementation: Climate Clubs will be supervised by the headteachers and teachers with guidance and oversight from DEOs, PDMA, and RRSD for school-level disaster risk reduction (DRR) initiatives.

This comprehensive approach integrates climate literacy across all levels of education, cultivating scientific awareness, environmental stewardship, and active community engagement among students.

07

Financing Climate Ready Schools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Ensuring the long-term sustainability of climate-resilient education infrastructure and adaptation initiatives in Khyber Pakhtunkhwa necessitates a comprehensive, multi-tiered financing strategy. Climate adaptation within the education sector requires dedicated financial commitments, innovative resource mobilisation, and strategic alignment with climate finance mechanisms. The E&SED, in collaboration with the Finance Department, Planning & Development Department (P&DD), and international development partners, will spearhead efforts to integrate climate-responsive investments into education sector financing, ensuring schools are structurally prepared to withstand climate-induced hazards.

A structured and diversified financing framework will facilitate sustainable financial resource flows for school climate adaptation measures, leveraging provincial funding, international climate finance instruments, public-private partnerships (PPPs), and incentive-based financing mechanisms. This approach will ensure that climate adaptation is not treated as a standalone intervention but is embedded into routine education sector planning and budgeting.

7.1 RESOURCE MOBILISATION AND BUDGETING

Achieving financial sustainability for climate adaptation in schools requires an integrated approach, combining provincial budgetary allocations, dedicated climate adaptation funds, and donor-backed financing instruments. The Government of KP will ensure that education sector investments incorporate climate resilience measures, enabling schools to withstand climate shocks while ensuring continuity of learning.

7.1.1 PROVINCIAL FUNDING FOR CLIMATE ADAPTATION IN SCHOOLS

The Government of Khyber Pakhtunkhwa will institutionalise climate-responsive budgeting, ensuring that climate adaptation priorities are reflected within education sector financing mechanisms. This will be achieved by:

(i) Mainstreaming climate adaptation within the Annual Development Plan (ADP), ensuring sustained budgetary allocations for school resilience initiatives.

(ii) Establishing a Climate Resilience Fund within E&SED, dedicated to infrastructure retrofitting, disaster preparedness, and climate-responsive school designs.

(iii) Linking school resilience financing with the KP Climate Change Action Plan (2022), enabling schools to access provincial climate adaptation funds and other sector-wide resilience investments.

KEY FINANCING MECHANISMS AND IMPLEMENTING BODIES

Financing Mechanism	Key Implementing Body
Climate Resilient School Fund	E&SED, Finance Department
Provincial School Infrastructure Budget	E&SED, P&D Department, DE&SE
Disaster Contingency and Emergency Response Fund	PDMA, RRSD

By ensuring climate adaptation financing is embedded into routine provincial budget allocations, KP can reduce dependency on emergency funding cycles, fostering long-term financial sustainability for climate-resilient schools.

International climate finance instruments provide critical funding opportunities for scaling climate adaptation in the education sector. E&SED, in partnership with the Finance and P&D Departments, will engage development partners, multilateral banks, and climate funds to mobilise additional resources for climate-resilient education initiatives in KP. To effectively leverage these funding sources, the following implementation strategies will be adopted:

(i) Engagement with development partners to develop climate-smart education project proposals aligned with global climate financing frameworks.

(ii) Establishment of a Climate Finance Coordination Unit within CRC, E&SED, responsible for mobilising international climate finance, coordinating donor-funded initiatives, and ensuring compliance with climate fund requirements.

(iii) Capacity-building for education planners and school administrators, equipping them with skills in climate finance proposal development, project implementation, and donor engagement.

By strategically tapping into international climate finance, KP's

education sector can access long-term financial resources to enhance climate adaptation in schools while strengthening institutional capacity for sustainable financing.

7.1.2 PUBLIC-PRIVATE PARTNERSHIPS AND INNOVATIVE FINANCING

In addition to provincial and international funding streams, public-private partnerships (PPPs) and incentive-based financing will be leveraged to enhance investment in climate-resilient schools. This will ensure diversified financing avenues, reducing the burden on public sector budgets while fostering collaborative engagement with private sector actors.

a. Private Sector Engagement in Climate-Smart School Projects

The private sector has a critical role in advancing climate-resilient school infrastructure and adaptation initiatives. Corporate Social Responsibility (CSR) investments, partnerships with green technology firms, and collaborations with construction companies can drive sustainable, cost-effective, and innovative solutions for school climate resilience. PPP Node at E&SED will lead this engagement with the private sector.

POTENTIAL PRIVATE SECTOR CONTRIBUTIONS

Private Sector Partner	Proposed Contribution
Renewable Energy Companies	Installation of solar energy systems in schools
Sustainable Construction Firms	Use of eco-friendly school building materials
Technology Companies	Development of digital learning platforms for climate education

To facilitate structured private sector engagement, PPP Node, E&SED will establish:

(i) Formalised PPP agreements, ensuring long-term sustainability of private sector contributions.

(ii) A policy framework for private sector involvement in school adaptation, detailing investment models, risk-sharing mechanisms, and performance-based incentives.

(iii) Monitoring and evaluation mechanisms, ensuring private sector-led initiatives align with climate resilience standards and contribute to sustainable education financing.

GOVERNANCE AND OVERSIGHT OF CLIMATE RESILIENCE FINANCING

Implementing Body	Key Role
E&SED & Finance Department	Oversee incentive structures and financial mechanisms
P&D Department	Align climate resilience projects with provincial investment priorities
Local Government (LGERDD)	Facilitate community-led climate financing initiatives

Adopting a multi-pronged financing approach will enable E&SED to mobilise domestic, international, and private sector resources for long-term climate adaptation in the schools. The proposed funding mechanisms, incentives, and strategic partnerships will enhance financial sustainability, ensuring that climate resilience remains a core component of the education system's long-term vision.

08

Annexures

Annexure-I

GLOSSARY OF TERMS

Adaptation – The process of adjusting to actual or expected climate conditions and their effects to moderate harm or exploit beneficial opportunities.

Air Quality Index (AQI) – A standardized measurement used to communicate the level of air pollution and its potential health effects, with higher values indicating worse air quality.

Avalanche – A rapid flow of snow, ice, and debris down a slope, often triggered by temperature variations, vibrations, or additional snowfall, posing significant risks to mountainous communities and infrastructure.

Barrier-Free Design – Infrastructure designs that ensure accessibility for individuals with disabilities, promoting inclusive education.

Climate – The long-term pattern of temperature, precipitation, humidity, and atmospheric conditions in a specific region over an extended period.

Climate Change Adaptation – The process of modifying systems, structures, or behaviours to reduce vulnerability and enhance resilience to climate change impacts.

Climate Resilience – The capacity of a system, community, or society to anticipate, prepare for, respond to, and recover from climate-related shocks and stresses while maintaining essential functions.

Climate Risk Management (CRM)- A systematic process of identifying, assessing, and addressing climate-related risks to minimise vulnerabilities and enhance resilience. CRM integrates climate information into planning and decision-making across sectors.

Continuity of Learning – Ensuring uninterrupted education during disruptions caused by climate events through preparedness measures, alternative learning strategies, and emergency response mechanisms.

Disaster Risk Reduction (DRR) – The systematic approach to identifying, assessing, and reducing risks of disasters through prevention, mitigation, preparedness, and response measures.

Drought – A prolonged period of deficient rainfall that results in water shortages, negatively impacting agriculture, water supply, and school operations.

Early Warning System (EWS) – A mechanism that enables timely detection and dissemination of risk-related information to prevent or reduce disaster impacts.

Education Continuity Planning – Strategies that ensure uninterrupted learning during disasters through preparedness measures, emergency response, and alternative education delivery modes.

Equity in Education – Ensuring fair and inclusive access to quality education for all, with special focus on marginalized and vulnerable groups.

Gender-Sensitive Adaptation – Climate adaptation strategies that recognize and address gender disparities in disaster vulnerability and resilience.

Glacial Lake Outburst Flood (GLOF) – A sudden and catastrophic release of water from a glacial lake, typically triggered by ice dam failure, seismic activity, or increased water pressure.

Green Infrastructure – An approach that integrates natural systems into urban planning and construction to improve sustainability and resilience.

Hazard Mapping – The process of identifying areas at risk from specific hazards, such as floods, earthquakes, and landslides, to guide disaster preparedness and response planning.

Heatwave – A prolonged period of excessively high temperatures that can cause severe health impacts, school closures, and learning disruptions.

Inclusive Education – An approach that ensures students with disabilities and other marginalized groups receive equal access to learning opportunities.

Learning Loss – The decline in students' academic progress due to prolonged disruptions in education caused by climate-induced disasters, school closures, or other crises.

Mitigation – Measures taken to reduce or eliminate the impact of disasters, such as strengthening buildings, improving drainage systems, and reducing carbon emissions.

Nature-Based Solutions – Strategies that use natural ecosystems to address climate risks, such as afforestation, wetland restoration, and sustainable land management.

Parent-Teacher Committee (PTC) – A school-based governance body that facilitates community participation in education management and climate resilience planning.

Provincial Disaster Management Authority (PDMA) – The government agency responsible for coordinating disaster risk reduction, emergency preparedness, and response in Khyber Pakhtunkhwa.

Public-Private Partnership (PPP) – A collaborative model between government entities and private sector stakeholders to support climate-resilient school infrastructure and emergency preparedness.

Renewable Energy – Energy generated from natural resources such as sunlight, wind, and geothermal heat that are sustain-

able and environmentally friendly.

Resilient Infrastructure – Infrastructure designed to withstand climate-induced hazards and disasters while ensuring continuity of essential services.

School Disaster Preparedness Plan – A structured plan developed by schools to outline emergency response protocols and disaster mitigation strategies.

Sendai Framework for Disaster Risk Reduction (SFDRR) – A global framework (2015-2030) outlining principles and priorities for reducing disaster risks and building resilience.

Smog – A form of severe air pollution caused by a combination of emissions from vehicles, industries, and climatic conditions, leading to respiratory illnesses and reduced visibility.

Sustainable Development Goals (SDGs) – A set of 17 global goals established by the United Nations, including SDG 4 (Quality Education) and SDG 13 (Climate Action).

Temporary Learning Centres (TLCs) – Emergency educational facilities set up in disaster-affected areas to provide temporary schooling.

Thunderstorm – A severe weather event characterised by lightning, heavy rain, strong winds, and sometimes hail, which can cause disruptions in school operations and damage infrastructure.

Universal Accessibility – The principal of ensuring that school buildings, facilities, and resources are usable by all individuals, including those with disabilities.

Annexure-II

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Annexure-III

MODEL SCHOOL RESILIENCE PLAN

GOVERNMENT OF KHYBER PAKHTUNKHWA
ELEMENTARY AND SECONDARY EDUCATION DEPARTMENT

SCHOOL RESILIENCE PLAN
BASIC SCHOOL INFORMATION

No.	Category	Details to be Filled
1.	School Name	
2.	EMIS Code	
3.	District	
4.	Tehsil	
5.	Village Council/Neighbourhood Council	
6.	Circle	
7.	Year of Establishment	
8.	Total School Area (in Kanals/Marlas/Sq. Ft.)	
9.	Covered Area (in Kanals/Marlas/Sq. Ft.)	
10.	Uncovered Area (in Kanals/Marlas/Sq. Ft.)	
11.	Total Enrolled Students	
12.	Enrolled Students with Disabilities (*Children with Disabilities-CWDs)*	
13.	Sanctioned Strength of Teaching Staff	
14.	Filled Positions (Teachers)	
15.	Sanctioned Strength of Non-Teaching Staff	
16.	Sanctioned Strength of Non-Teaching Staff (Security Guard, Janitorial Staff, etc.)	
17.	Total Number of Rooms in the School Building	
18.	Number of Office Rooms	
19.	Non-functional / Dilapidated Rooms or Sections of the Building	
20.	Total Number of Toilets (Functional/Non-Functional)	
21.	Does the School Have a Playground?	
22.	Number of Lawns/Green Spaces in the School	
23.	Total Number of Trees and Plants in the School	
24.	Annual Non-Salary Budget (Past 3 Years)	
25.	Existing Climate Resilience Plan (Yes/No - Last Updated Date)	

PART 1: CLIMATE RISK ASSESSMENT FOR SCHOOLS

A. School Building, Infrastructure, and Facilities

a) Building Condition

1. When was the school building approximately constructed, and what is its current condition?
2. Is the building constructed using materials that are compatible with local climatic conditions (e.g., bricks or stone masonry/concrete/mud construction)? Does it have the capacity to withstand extreme weather conditions?
3. Are there any existing structural weaknesses in the school's infrastructure that need to be addressed? (e.g., cracks in the building/walls, deteriorating conditions, etc.)
4. Has the school experienced structural issues due to changes in the surrounding terrain, such as soil erosion, land subsidence, or shifting foundations?
5. Is there visible dampness, water stains, or mold formation on classroom walls that could indicate water seepage issues?
6. Does the school's perimeter wall face structural risks due to water pressure from surrounding areas?
7. Are there any roof leakage problems that disrupt learning during rainfall?
8. Has the school undergone structural safety assessments in the last five years? If yes, provide details of the findings and any recommended interventions.
9. Are there any measures in place to strengthen the school building against earthquakes, floods, or high winds (e.g., reinforced walls, elevated foundations, anchoring structures)?

b) Geographical Features

1. Is the school located within or near a natural water channel? (e.g., river, seasonal stream, drainage canal – mention the distance)
2. What type of land use surrounds the school? Agricultural land, residential, or commercial buildings?
3. Is the school situated in an area prone to floods, earthquakes, landslides, or other natural disasters?
4. Is the school in proximity to deforestation-prone areas or barren lands that exacerbate dust storms or increase exposure to extreme heat?
5. Are there government-identified high-risk climate vulnerability zones nearby that require additional mitigation measures?
6. Has the school ever been affected by flash floods due to rapid urbanisation or construction around the area?
7. Are there any waste disposal issues around the school?
8. Are there any nearby stagnant water sources that could contribute to vector-borne diseases such as malaria and dengue?
9. Is the school located in an area prone to extreme heatwaves? What mitigation measures (e.g., shaded areas, green spaces, ventilation improvements) are in place?
10. Are there natural wind corridors that could increase vulnerability to dust storms or extreme cold weather?
11. Does the school have a history of tree-root damage affecting buildings, pavements, or underground pipelines?
12. Are there any industrial sites, major roads, or other pollution sources near the school that could pose an environmental or health risk to students?

c) Energy & Efficient Use of Lighting

1. What is the primary energy source for the school? Does the school frequently experience power outages?
2. Is the school connected to the national electricity grid? If not, are there alternative electricity sources available?
3. Has the school implemented any energy conservation strategies, such as daylight optimisation or LED lighting?
4. Does the school have environmentally friendly or renewable energy sources such as solar panels? (Yes/No)
5. Are there energy-saving measures in place, such as LED lighting, energy-efficient fans, or motion sensor lighting?
6. Does the school have a backup power source (e.g., generator, battery storage, or hybrid energy solutions) in case of prolonged power failure?

d) Water Management

1. What are the sources of water supply within the school? Is clean and safe drinking water available for use?
2. Is safe drinking water provided for students, teachers, and staff?
3. Does the school have a water storage system (e.g., water tanks)? If yes, is it regularly cleaned?
4. What is the wastewater drainage system in the school? Are functional sewage systems and proper wastewater disposal arrangements in place?
5. Are there flood protection barriers or embankments

available in case of heavy rainfall or flooding?

6. Does the school have a rainwater harvesting system, and if yes, is it functional and adequately maintained?

7. Is water conservation actively promoted within the school? (e.g., awareness campaigns, usage monitoring, leak detection and repairs)

8. Is there a system for monitoring water pressure in school washrooms to ensure consistent water availability?

9. Is the underground or piped water supply free from brackish or contaminated sources?

10. Has the school ever faced drought-related water shortages? If so, what alternative arrangements were made?

11. Does the school have contingency measures in case of water shortages or contamination? (e.g., alternative supply arrangements, filtration systems, bottled water storage)

e) Airflow & Temperature Regulation in the Building

1. Is the school building designed to allow natural ventilation?

2. Are there adequate windows, ventilators, and shaded areas within the school premises?

3. Is there a mechanism to reduce indoor air pollution caused by external factors such as vehicular emissions or industrial pollution?

4. Has the school adopted cooling interventions such as insulated roofs, shaded walkways, or heat-reflective paint?

5. Does the school have a tree plantation strategy to improve natural cooling and air quality within the premises?

6. Have any indoor air quality assessments been conducted to monitor dust, pollution, or humidity levels? If yes, provide details.

f) Waste Management

1. Does the school have a system for collecting and recycling materials such as used paper, glass, plastic, etc.?

2. Is the school equipped with a composting system to manage organic waste effectively?

3. Is there an effective waste collection and disposal system in place?

4. Are there enough dustbins placed across the school to facilitate waste segregation?

5. Are students and staff encouraged to participate in waste reduction and segregation activities?

B. Emergency Preparedness & Planning

a) Climate Change & Disaster Risk Assessment

1. Has the school ever conducted an assessment of climate-related risks and identified potential hazards?

2. Has the school developed a hazard mapping document indicating high-risk areas (e.g., flood-prone spots, heat-exposed classrooms)?

3. Have frequent climate change-related disasters or hazards been identified in the school's locality? (e.g., extreme heatwaves, unexpected rainfall, flooding, overflowing drainage channels, etc.)

4. Does the school maintain a record of all past climate-related disruptions for improved future planning?

5. Recent impacts of floods/ torrential rains: Provide details of any damage sustained by the school infrastructure and the number of instructional days lost due to recovery efforts.

6. Recent impacts of windstorms, hurricanes, tornadoes, or hailstorms: Has the school building suffered any damage? Provide details of days lost in recovery efforts.

7. How frequently has the teaching and learning process been disrupted in recent years due to climate-induced disasters? (Mention duration of disruption days/weeks/months)

8. Is there a system to track student and teacher absenteeism due to climate-induced illnesses such as heat exhaustion, respiratory infections, or smog-related health issues?

9. Are mosquito-breeding sites regularly identified and eliminated to reduce vector-borne diseases?

10. Has the school's water supply system been affected due to climate-related disasters? Mention any additional damage if necessary.

11. Has the school experienced indoor air quality issues (e.g., smog, excessive dust, poor ventilation) affecting student health and attendance? If yes, what mitigation measures are in place?

b) Disaster Preparedness & Response Planning

1. Does the school have an emergency preparedness plan for extreme weather conditions (e.g., extreme heat/cold waves, fog, smog, heavy rainfall, floods, etc.)?

2. Has the school ever been used as a shelter for disaster affected people, and was the school administration consulted before making such arrangements?

3. Are students and teachers provided with awareness

sessions and training on emergency protocols? Are emergency drills conducted?

4. Are students trained to recognise and respond to climate-related health risks such as heatstroke, dehydration, or air pollution?

5. Has the school conducted an air quality assessment to identify necessary interventions for smog-prone months?

6. Does the school maintain an emergency stock of first aid supplies, medicines, and lighting?

7. Does the school have an emergency water supply contingency plan in case of drought or disruption in municipal supply?

8. Are classrooms equipped with emergency ventilation options, such as mechanical air purifiers, during high-pollution periods?

9. Are alternative learning arrangements (such as online or flexible scheduling) in place for extreme weather events?

10. At the village/union council level, is there an emergency stockpile of disaster response equipment?

11. Does the school or the community have a volunteer group trained in emergency response?

12. Are emergency evacuation routes and assembly points clearly marked within the school premises?

c) Emergency Communication & Coordination

1. How does the school administration communicate emergency alerts and information to students, teachers, and parents?

2. Does the school have a list of emergency contacts (e.g., Rescue 1122, Fire Brigade, CEO Office, local government, Health Department, district administration, rescue services) displayed in a visible location for teachers and students?

3. Are emergency drills tailored to specific climate risks (e.g., flood evacuations, heatwave response, smog-related indoor safety protocols)?

4. Is there a defined protocol for informing parents about school closures or emergencies due to climate events?

5. Does the school have an emergency PA system or siren for mass communication during an emergency?

C. Community Involvement & Awareness

a) Stakeholder Involvement

1. Are community members involved in disaster response and recovery planning for the school?

2. Does the school actively engage local disaster management units (DDMU) Additional Deputy Commissioner Relief (ADC- Relief), Fire Brigade, Municipality, etc) in planning and training exercises?

3. Does the school collaborate with local government, NGOs, community representatives, and public officials for disaster preparedness?

4. Is the Parent Teacher Committee (PTC) active? (Yes/-No)

5. Are parents and community members engaged in planning for climate-related disasters? (Yes/No)

6. Is there a formal coordination mechanism with health departments for climate-induced health issues (e.g., heatstroke first aid, respiratory illness treatment)?

7. Does the health department conduct medical check-ups for students in the school? If yes, provide details of the most recent session.

b) Awareness & Training Programmes

1. Does the school organise workshops or seminars on climate change awareness and preparedness?

2. Does the school contribute to local climate adaptation efforts (e.g., tree plantations, climate awareness campaigns, agricultural impact discussions)?

3. Are students and teachers well-informed about climate risks and response measures?

4. Are teachers trained to integrate climate change education into different subjects beyond science [e.g., social studies, languages (English, Urdu, etc.)]?

5. Does the school provide awareness campaigns on the importance of conserving water, energy, and other natural resources?

6. Are students encouraged to take part in public advocacy campaigns related to climate resilience?

7. Are there refresher courses or capacity-building sessions for teachers on climate resilience strategies?

8. Has the school hosted joint training sessions with the health department on heatwave protection and smog-induced illnesses?

D. Educational and Instructional Process

a) Textbooks and Teaching Materials

1. Are climate change-related topics included in the curriculum?

2. Are there special classroom sessions or activities focused on climate change awareness?

3. Are there interactive learning sessions where students can develop climate action projects?
4. Are students encouraged to research local climate challenges and propose solutions as part of school projects or coursework?
5. Does the school integrate climate change into STEM education?

b) Co-Curricular & Extracurricular Activities

1. Are student clubs or groups formed to address environmental and climate challenges?
2. Does the school conduct climate resilience competitions such as essay writing, poster-making, or innovation challenges?
3. Does the school participate in local, provincial, or national environmental programmes or competitions?
4. Does the school celebrate environment-related days to raise awareness about climate change, natural disasters, etc.?

c) Policy Considerations

1. Has the school integrated climate resilience into its School Development Plan?
2. Are there defined policies for sustainable procurement and eco-friendly construction?
3. Is there a dedicated budget allocation for school-level climate adaptation initiatives?
4. Does the existing Parent-Teacher Committee (PTC) policy cover climate change issues?
5. What financial resources are available at the school level for addressing climate-related challenges and disaster risk reduction?
6. Does the school have the capacity to mobilise local resources from individuals, businesses, or organisations?

SCHOOL RESILIENCE- ACTION PLAN

1. INFRASTRUCTURE AND FACILITIES

Activity	Category	Status / Required (Yes/No)	Responsibility	Time Frame Monthly, Quarterly, Biannual, Annual
Building- (Repair/Retrofitting)	Walls			
	Windows			
	Classrooms			
	Roof Repair & Insulation			
	Lighting			
	Boundary Wall			
Furniture & Fixtures	Desks & Chairs			
	Storage Cabinets & Whiteboards			
Water Management	Safe Drinking Water			
	Source Cleaning			
	Rainwater Storage Reservoir			
	Drainage Systems			
	Water Conservation Measures			
Waste Management	Collection and Disposal			
	Sanitation			
	Group Latrines			
Energy Source	Power and Electric			
	Solar System			
	Natural Light			
Others	Emergency Disaster Management tool kit/First Aid Kit			
Greening	Tree Plantation			
	Garden/Green Area			
	Miyawaki Forest (Compact Tree Plantation for Urban Areas)			
	Availability of Water			

2. EMERGENCY PREPAREDNESS AND RESPONSE PLANNING

Activity – Action	Status	Responsibility	Time Frame: Monthly, Quarterly, Biannual, Annual
Periodic Risk Assessment for School			
Development and Maintenance of a School Resilience Plan			
Preparation of a Checklist for Emergency Response Measures/SOPs			
Notification of PTC			
Establishment of a Student-Led Climate & Environmental Awareness Club within the School			
Conducting Annual Emergency Drills for Floods, Earthquakes, and Heatwaves			
Identification and Training of Community Volunteers to Respond to Climate Challenges			
Establishing a localised Early Warning System (EWS) for Extreme Weather Alerts			
Displaying an Emergency Contact List in a Prominent Location within the School			
Arranging Climate, Natural Disasters, etc. Awareness Sessions and Training with: *PDMA/DDMU/ADC Relief, Rescue 1122, Health Department, Social Welfare Department,* Fire Brigade, *Boy Scouts,* Others			

3. CAPACITY BUILDING FOR CLIMATE RESILIENCE

Activity – Action	Status	Responsibility	Time Frame Monthly, Quarterly, Biannual, Annual
Nomination of a School Climate/DRR Focal Point (Teacher)			
Identify and train a team of teachers to effectively disseminate climate-related information, including safety procedures and protocols, to all students in the school.			
Training of students in First Aid and Emergency Response Techniques.			
Train school safety focal points and teachers on climate resilience and safety protocols, and ensure uninterrupted education during emergencies.			
Providing teachers with training in psychosocial support for children affected by emergencies			
Training of PTCs on climate resilience and climate-related disasters.			
Conduct awareness programmes/sessions for students using various methods like walks, speech competitions, drawing and Arts competitions to educate them about climate challenges, local hazards and risk reduction.			

4. COMMUNITY ENGAGEMENT AND AWARENESS

Activity – Action	Current Status	Responsibility	Implementation Timeline *(Monthly, Quarterly, Biannual, Annual)*
Engaging PTCs, Parents and Community Members in Climate Resilience Activities, such as Tree Plantation Drives, Awareness Walks, and Speech Competitions.			
Organising Events to Commemorate Environmental and Climate Awareness Days			
Community engagement in climate-related risks and resilience measures			
Establishing a Community-Based Group Comprising Parents, Key Local Figures, and Public Representatives to Address Environmental and Climate Challenges (Using Social Media/WhatsApp)			
Establishing Local Resource Mobilisation Mechanisms through PTC for Climate Resilience (Engaging Local Businesses/Philanthropists)			

5. EDUCATIONAL AND INSTRUCTIONAL ACTIVITIES

Activity – Action	Current Status	Responsibility	Implementation Timeline *(Monthly, Quarterly, Biannual, Annual)*
Head Teachers to include Climate change as an item in weekly/monthly meetings with teachers.			
Physical Education Teachers, in Collaboration with the Designated Focal Person, Regularly Organise Activities on Climate Change, Tree Plantation, and Hygiene.			
Mark Key Environmental, Disaster Preparedness, and Tree Plantation Days in the Academic Calendar and Organise Regular Awareness Activities			
Review and Update the School Climate Resilience Plan at the Beginning of Each Academic Year.			
Integrate the School Climate Resilience Plan into the School Development Plan			

Signatures _____

Name & Designation: _____

Dated:

Approved by:_____

Dated:

Annexure-IV

PC-I CHECKLIST TO ENSURE COMPLIANCE TO PBC 2007 AND ACP 2006

1. General Planning and Documentation

i. Has the building design been prepared by a registered professional engineer as per PBC 2007, Section 1.4?

ii. Does the planning document include a site-specific seismic hazard assessment for KP's seismic zones (e.g., Zone 3 or 4) as per PBC 2007, Section 2.2.1?

iii. Is the building design compliant with the seismic zone map for KP as per PBC 2007, Section 2.2.2?

iv. Has the soil investigation report been prepared as per PBC 2007, Section 3.2, to determine soil bearing capacity and liquefaction potential, especially in flood-prone areas like Peshawar and Nowshera?

v. Are as-built drawings and construction records maintained as per PBC 2007, Section 1.6.3?

vi. Does the design comply with the Accessibility Codes of Pakistan 2006, Section 3, for inclusive access?

2. Earthquake-Resilient Design and Construction

i. Is the building designed to meet the seismic design category for KP (Zone 3 or 4) as per PBC 2007, Section 2.2.3?

ii. Are ductile detailing requirements for reinforced concrete structures followed as per PBC 2007, Section 5.4?

iii. Are shear walls or moment-resisting frames provided as per PBC 2007, Section 5.5, to resist lateral seismic forces?

iv. Is the base shear calculated and distributed as per PBC 2007, Section 4.2?

v. Are soft-story irregularities avoided as per PBC 2007, Section 4.3.2?

vi. Are expansion joints provided in accordance with PBC 2007, Section 5.6, to accommodate seismic movement?

vii. Are non-structural elements (e.g., partitions, ceilings, and fixtures) anchored and braced as per PBC 2007, Section 6.2?

3. Flood-Resilient Design and Construction

i. Is the building located above the design flood level as per PBC 2007, Section 7.2.1, especially in flood-prone areas like Charsadda and Dera Ismail Khan?

ii. Are flood-resistant materials (e.g., concrete, treated wood, and corrosion-resistant steel) used as per PBC 2007, Section 7.3.2?

iii. Is the foundation designed to resist scour and erosion as per PBC 2007, Section 7.4.1?

iv. Are drainage systems designed to handle a 1-in-50-year flood event as per PBC 2007, Section 7.5.2?

v. Are utility systems (e.g., electrical panels, HVAC units) elevated above the design flood level as per PBC 2007, Section 7.6.1?

4. Accessibility and Inclusivity (Accessibility Codes of Pakistan 2006)

i. Are ramps provided with a maximum slope of 1:12 and a minimum width of 1.2 meters as per Accessibility Codes 2006, Section 4.2?

ii. Are handrails installed on both sides of ramps and staircases at a height of 0.85 to 0.95 meters as per Accessibility Codes 2006, Section 4.3?

iii. Are doorways and corridors designed with a minimum clear width of 0.9 meters to accommodate wheelchairs as per Accessibility Codes 2006, Section 4.4?

iv. Are elevators provided in multi-story buildings with a minimum cabin size of 1.1 meters x 1.4 meters and controls at a height of 0.9 to 1.2 meters as per Accessibility Codes 2006, Section 4.5?

v. Are accessible toilets provided with a minimum clear floor area of 1.5 meters x 1.75 meters and grab bars as per Accessibility Codes 2006, Section 4.6?

vi. Are tactile pathways and Braille signage provided for visually impaired individuals as per Accessibility Codes 2006, Section 4.7?

vii. Are parking spaces designated for persons with disabilities, with a minimum width of 3.6 meters, as per Accessibility Codes 2006, Section 4.8?

5. Site Selection and Land Use

i. Is the site located away from fault lines and liquefaction-prone areas as per PBC 2007, Section 2.2.1?

ii. Has the site been assessed for flood risk using historical data and hydrological studies as per PBC 2007, Section 7.2.2?

iii. Are natural buffers (e.g., vegetation, wetlands) preserved to reduce flood and erosion risks as per PBC 2007, Section 7.3.3?

iv. Is the site accessible for persons with disabilities, with barrier-free pathways and drop-off zones as per Accessibility Codes 2006, Section 4.1?

6. Structural Design and Materials

i. Are construction materials (e.g., cement, steel, bricks) tested and certified as per PBC 2007, Section 3.3?

ii. Is the concrete mix design compliant with PBC 2007, Section 5.2, for seismic zones?
iii. Are reinforcement details (e.g., lap length, stirrup spacing) in accordance with PBC 2007, Section 5.4?
iv. Are fire-resistant materials used as per PBC 2007, Section 8.2, for structural and non-structural elements?

7. Emergency Preparedness and Evacuation

i. Are emergency exits designed and located as per PBC 2007, Section 9.2.1, to ensure safe evacuation during disasters?
ii. Are evacuation routes free from obstructions and clearly marked as per PBC 2007, Section 9.2.2?
iii. Are assembly areas designated in safe zones away from the building as per PBC 2007, Section 9.3?
iv. Are accessible evacuation routes provided for persons with disabilities as per Accessibility Codes 2006, Section 4.9?

8. Maintenance and Inspections

i. Is the building inspected for structural integrity (e.g., cracks, corrosion, or settlement) as per PBC 2007, Section 1.6.4?
ii. Are drainage systems and flood barriers maintained to ensure functionality as per PBC 2007, Section 7.5.3?
iii. Are repairs and retrofitting conducted promptly to address vulnerabilities as per PBC 2007, Section 1.6.5?
iv. Are accessibility features (e.g., ramps, elevators, tactile pathways) regularly inspected and maintained as per Accessibility Codes 2006, Section 5?

9. Training and Awareness

i. Are school staff and students trained on earthquake and flood safety procedures as per NDMA guidelines?
ii. Are disaster drills (e.g., earthquake and flood evacuation drills) conducted regularly as per PBC 2007, Section 9.4?
iii. Is there a disaster management plan in place, including roles and responsibilities for staff as per NDMA guidelines?
iv. Are staff trained on assisting persons with disabilities during emergencies as per Accessibility Codes 2006, Section 5?

10. Compliance and Certification

i. Has the building received a certificate of compliance from the relevant authorities as per PBC 2007, Section 1.6.6?
ii. Are all permits and approvals (e.g., environmental, structural) documented and up to date as per PBC 2007, Section 1.6.2?
iii. Is there evidence of third-party audits or inspections to verify compliance with PBC 2007 and Accessibility Codes 2006?

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