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Climate Security and Threat Multiplication: Environmental Stress, Agricultural Collapse, and Violent Extremist Recruitment Dynamics in Khyber Pakhtunkhwa, Pakistan

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Abstract
The link between climate change and socioeconomic vulnerabilities and fragilities in political contexts is gaining momentum as an increasing number of people recognise that climate change is no longer just an environmental issue, but a critical threat multiplier. This paper examines the causal dynamics that link the linkages between climate-induced environmental degradation, extreme weather events and agricultural collapse with conditions that facilitate VEO recruitment in Khyber Pakhtunkhwa (KP), Pakistan during the post-disaster period. KP makes for an important micro-level case study where high ecological vulnerability is expressed through the frequent occurrence of flash floods, riverine erosion and glacial lake outburst flooding (GLOFs), and is complicated by the persistent and highly asymmetrical nature of the security threats. This qualitative study outlines the impact of the loss of standing crops and the failure of rural protection infrastructure on agrarian communities as a result of the Relative Deprivation Theory of Gurr, Environmental Scarcity Model of Homer Dixon, and Human Security frameworks. Violent non-state actors opportunistically fill institutional gaps when the state's disaster management agencies fail to do so in time. These groups use multiple tactics of recruitment, both material incentives for displaced young people and alternative livelihood sources, and build anti-state narratives, making claims of institutional neglect during disaster as a proof of the illegitimacy of governance. The study shows how environmental shocks reduce the opportunity cost of militant recruitment, revealing the interdependence between disaster resilience, climate adaptation and protection of rural infrastructure and regional stabilization. The paper calls for a paradigm shift, by shifting from purely kinetic, militaristic, counter-terrorism approaches to a full-blown human security approach, which integrates climate adaptation into national security frameworks.

Key words Climate Security, Threat Multiplier, Khyber Pakhtunkhwa, Violent Extremist Recruitment, Governance Deficits, Human Security, Environmental Scarcity and Pakistan.

Introduction

In the last two decades the global security paradigm has been completely reconceptualized, with traditional security models based on military balancing unable to cope with non-traditional, systemic threats. One of these emerging issues is climate change, which is one of the most widespread forces of destabilisation in the twenty first century. In the current security studies, climate change is hardly ever seen as a direct and sole cause of violent conflict, but rather as a threat multiplier or force multiplier (CNA Corporation, 2007; Ide et al., 2020). Climate-induced ecological shocks and stresses exacerbate underlying grievances, disrupt local economies, and contribute to political instability, through their interaction with pre-existing socioeconomic vulnerabilities, institutional fragility and weak governance.

Pakistan is in the middle and in-between of this matrix of global climate-security. Despite being one of the least emitters of GHGs (Greenhouse Gases) on the global scale (only 1% of global emissions), Pakistan is consistently ranked among the most climate-vulnerable countries globally by global climate vulnerability indices (Eckstein et al., 2021). The country's geographies make it particularly vulnerable to multiple and intense hazards such as, northward glacial melt, unpredictable monsoonal changes resulting in catastrophic riverine and flash floods, and heatwaves of extended periods causing drought in the basin areas of the country. This fragility in the environment overlaps with Pakistan's agrarian economy that occupies at least 35% of the country's workforce and provides livelihoods for almost 65% of the country's rural population (Government of Pakistan, 2023). The loss of this farming base, caused by climate shocks, has repercussions in the economic sphere, leading to poverty, high food insecurity and displacement in rural areas. Climate shocks are not just an ecological phenomenon, but are also political and security triggers in the context of fiscal constraints and prevailing non-state armed groups (NSAGs) in the environment (Siddiqi, 2022; Swain, 2016).

The problem statement

Climate vulnerability experiences are felt across the entire country of Pakistan, but the province of Khyber Pakhtunkhwa (KP), which includes the former Federally Administered Tribal Areas (FATA), is a pivotal micro level contact zone of extreme environmental fragility and asymmetric threats to security. Topographically, KP is endowed with high altitude glacial valleys in the Hindu Kush range and with volatile river systems like Kabul and Swat river and its northern valleys and central basin districts are structurally vulnerable to frequent disaster events. This exposure was seen during the catastrophic floods of 2010 and 2022, where flood waters destroyed farmland, damaged local soil systems, damaged stone/gabion riverbank protection walls and other rural housing infrastructure in vulnerable districts (UNOPS 2022; World Bank 2022).

At the same time, KP has been the battleground of Pakistan's complicated asymmetric security woes which have been affected by violent extremist organizations (VEOs) like Tehrik-i-Taliban Pakistan (TTP), cross-border movement of militants and spill over from the conflict in Afghanistan (Rana, 2015; Sheikh, 2018). The main challenge which this study addresses is how the environmental degradation due to climate change, facilitates the recruitment of extremists in KP. High climate risks, losses to crops,

livestock and farmland remove economic safety nets from rural households. A structural void in governance is created when state disaster management systems and social safety nets are limited in their capacity and/or slow response, as a result of resource constraints (Siddiqui, 2021). Violent extremist groups make sure to fill these gaps by offering youth alternative disaster relief, financial benefits, and alternative livelihoods to those affected by displacement or hardship, and create narratives of state failure during a disaster as proof of institutional illegitimacy, in order to divert local grievances to anti-state mobilization (Ide, 2021; Nett & Rüttinger, 2016).

Significance:

This study tries to fill an important lacuna in the current security research by examining the process of how environmental stress affects the dynamics of extremist recruitment in a multifaceted post-conflict border region from a micro-level, qualitative perspective. This research explicitly identifies the mechanisms of change at the micro-level connecting agricultural failure, governance deficits, and non-state violent mobilization in KP.This research explicitly identifies the mechanisms of change at the micro-level connecting agricultural failure, governance deficits, and non-state violent mobilization in KP. A policy level, the study shows that environmental adaptation, disaster resilience and protection of rural infrastructure are inextricably linked with counter-terrorism and counter-extremism policies. The study highlights these intersections, arguing for a more structural shift from "military" style security towards a more integrated human security framework, where adaptation to climate change is a basic dimension of state stability.

To systematically explore this nexus, the study focuses on one main research question: How do the combination of climate induced environmental degradation and agricultural shocks with the governance deficits in Khyber Pakhtunkhwa produce structural vulnerabilities for recruitment and operation of violent extremist groups?

The table below shows the main climate hazards, their geographic exposure areas and the ensuing socio-economic vulnerabilities in KP.

Hazard Type	**Primary Geographic Impact Zones**	**Primary Biophysical Impacts**	**Socioeconomic & Security Vulnerabilities**
Glacial Lake Outburst Floods (GLOFs)	Chitral, Upper Dir, Swat Valley	Rapid breaching of moraine dams, flash inundation, downstream infrastructure destruction	Isolation of mountain communities, destruction of bridge networks, severe local economic paralysis
Monsoonal & Riverine Flooding	Central Basin: Nowshera, Charsadda, Peshawar	Riverbank erosion, collapse of stone/gabion protection walls, loss of topsoil	Total crop loss, displacement of agrarian families, creation of post-disaster governance voids
Agricultural Drought & Water Stress	Southern & Rain-fed Districts: Karak, Lakki Marwat, D.I. Khan	Groundwater depletion, rain-fed crop failure, soil degradation	Livelihood loss for smallholders, forced rural-to-urban migration, increased susceptibility to recruitment

This table contrasts the traditional military-centric security framework historically applied in the region with the proposed integrated Human Security Framework advocated by this research.

Dimension	Traditional Security Paradigm	Proposed Integrated Human Security Framework
Core Focus	State sovereignty, border control, and military counter-insurgency	Population resilience, economic stability, and ecological sustainability
Primary Threat Vector	Kinetic operations by violent non-state actors (e.g., TTP)	Threat multiplication driven by climate shocks, resource scarcity, and governance voids
Policy Mechanism	Kinetic military force (*Zarb-e-Azb*, *Radd-ul-Fasaad*)	Synchronized disaster management (PDMA), rural infrastructure, and climate adaptation
Long-Term Goal	Disruption of violent militant networks and command structures	Eradication of underlying socioeconomic drivers of recruitment and systemic vulnerability

Theoretical Framework & Literature Review.

Over the last 30 years, environmental factors have increasingly been incorporated into the security studies and international relations. The early academic models usually took natural resource degradation, land stress, and water scarcity as direct and linear causal factors of civil conflict and political violence (Homer-Dixon, 1991, 1994, 1999). The one-sided concept of simple environmental determinism is however no longer upheld in modern security scholarship—security experts have agreed that climate change is a systemic threat multiplier or force multiplier (CNA Corporation, 2007; Ide et al., 2020; Rüttinger et al., 2015). Climate-induced environmental stress, in fragile, conflict-affected states, can aggravate pre-existing structural vulnerabilities, like weak state institutions, high poverty rates, social marginalisation and historical political grievance, and thus affect both state capacity to prevent violent conflict mobilization and political instability (Buhaug et al., 2015; von Uexkull et al., 2016).

Theories supporting this paradigm of threat multiplication are heavily based on that of Thomas Homer-Dixon's (1994, 1999) Environmental Scarcity Model. Homer-Dixon sees three dimensions of environmental scarcity: supply-induced (physical depletion or degradation of the natural resources); demand-induced (population growth and greater per capita consumption of natural resources); and structural (the unequal distribution of resources such that powerful elites capture valuable resources and marginalize weaker social groups). Effective structural stress is generated by these three forms of scarcity when they occur together in an agricultural society, as can be seen by the process of resource capture and ecological marginalisation (Homer-Dixon, 1994). During times of acute deficit, dominant socio-political groups change resource distribution to their advantage, further depraving rural populations, which is called resource capture. Ecological marginalisation happens when forces of displacement push populations to areas that are ecologically sensitive and challenging economically, raising the competition among people and the institutional pressures. In fragile states, these processes create "ingenuity capacity gaps" (Homer-Dixon, 1995), which undermine the capacity of a state and

society to provide social and technical responses to environmental shocks and stress, potentially increasing the space for anti-state mobilizations.

Alongside environmental scarcity models, there is a socio-psychological mechanism that can be found in a theory developed by Ted Robert Gurr (1970): the Relative Deprivation Theory. Relative deprivation is defined as the feeling of a gap between the value expectations of the individual or group (what they believe they deserve to have: goods, conditions of life, social status) and the value capabilities of the group or individual (what the individual or group can actually expect to achieve and maintain: goods, conditions of life, social status). Agricultural societies with highly predictable climatic conditions experience abrupt and profound decreases in value capabilities in the face of severe climatic shocks. Farmers that are smallholders suffer from immediate loss of standing crops, arable land, and livestock assets, which affects their fundamental economic security (Ide, 2021). The frustration that is experienced when the affected populations feel their economic hardships are worsened by the incompetence, corruption and unequal distribution of post disaster assistance by the state evolves into a systemic anti state grievance. Gurr (1970) claims that the severity of political violence is directly proportional to the degree and extent of relative deprivation of a given population. Relative deprivation can help to foster an ideological climate that can give license to violent non-state actors to justify armed resistance, especially when formal avenues for expressing grievances do not exist or are dysfunctional.

In the years that followed, modern empirical security research found that the impacts of climate shocks and armed conflict are highly mediated by political exclusion and economic dependence on agriculture (Buhaug, 2015; Schleussner et al., 2016; von Uexkull et al., 2016). But a cross-national analysis found that climate shocks do not necessarily lead to civil war in resilient societies, but are likely to strongly increase the risk of civil war for agriculturally dependent and politically excluded populations (von Uexkull et al., 2016). Extreme monsoons, sudden flooding, and long dry spells destroy household resources, deplete local work force, and push rural people into forced migration to join armed groups for regular income, security, and/or social status (Detges, 2016; Ide et al., 2020). Climate shocks can be catalytic factors that fuel state delegitimation and strengthen the recruitment of anti-state armed networks (Nett & Rüttinger, 2016; Sowers et al., 2011) in fragile states where institutional reach is limited and armed insurgencies are active.

One key aspect of the climate-security nexus that has received little attention in academic research, and is central to the study of climate security, is the strategic response of violent non-state actors (VSNAs), such as insurgent networks, terrorist groups, and local militias in post-disaster environments. Non-state armed groups do not only leverage on natural disasters, but often use them as strategic opportunities for operations (Walch, 2014, 2018). In the event of natural disasters that hit a fragile state, the public disaster management agencies may be facing resource shortages, logistical problems, damage to infrastructure, and bureaucratic delays. This leaves a significant governance gap in immediate human survival needs and official response capacity in the aftermath of disaster (Siddiqui, 2021; Sparks et al., 2020). In these governance gaps, violent non-state actors are actively exploiting these through two related modus operandi: they exploit the humanitarian presence and service provision, and then they act as substitutes for the government.

Rebel governance and social contract competition, as theorised by Arjona (2016) and Mampilly (2011), provide the theoretical foundations of the strategy of post-disaster humanitarian presence and provision by violent non-state actors. Militant groups quickly establish local networks, establish tight command structures, and have stored resources that they can use for emergency relief, such as clean water, food rations, medical assistance, temporary shelter, and direct cash payments to affected communities (Walch, 2014). Militant groups establish positive local perceptions about them, gain popular legitimacy, and establish an impression of their organizational competence by acting as first responders, often before state disaster management agencies, in remote and neglected rural areas (Flanigan, 2012). By this strategy, the non-state is able to change its image from violent agitators into critical protectors of communities and good service providers.

There is empirical evidence that post-disaster rebel governance (PRG) is a tactic used broadly in various operational theaters throughout the world. During East African drought events, Al-Shabaab in Somalia did organize specialized committees to provide relief assistance during times of drought, distributing food and water in areas controlled by Al-Shabaab and restricting humanitarian aid to international organizations to get them to comply with Al-Shabaab's demands and to pay taxes (Middleton et al., 2018; Regulatory Studies Program, 2019). In Iraq and Syria, the Islamic State (ISIS) systematically used water scarcity and failure of water infrastructure in the Euphrates and Tigris waterbodies to exert civilian compliance, collect revenue and reward communities that were loyal during ecologic crises (King, 2015; von Lossow, 2016). Likewise, during Pakistan's major flood disasters, militant-based charity organizations mobilized thousands of volunteers in flood ravaged districts of KP, Punjab and Sindh to hold medical camps, cook the meals and even carry out the rescue operations, taking advantage of the delays in government administration in order to gain sympathy of the people and create local footholds for recruitment (Bano, 2012; Wild, 2011).

Violent non-state actors move from short-term relief to long-term governance substitution after the immediate humanitarian aid has been provided. Non-state armed groups fill in the institutional gaps and create alternative systems of order and justice when local institutional structures are destroyed by climate shocks, when police outposts are incapacitated and when judicial processes are paralyzed (Arjona, 2016; Mampilly, 2011). They establish shadow courts that resolve the conflicts between owners of land and property that are caused by the changing river boundaries as a result of flooding or the degradation of agricultural lands, they offer security against local banditry, regulate market prices in rural areas and provide social security nets which the state is incapable of providing (Walch, 2018). This is a constitution change of the social contract between civilians and the state. During disasters, when the state seems to be absent or incompetent or even predatory, civilian loyalty moves to non-state actors who can offer immediate security of survival and operational order (Kalyvas, 2006). Thus, post-disaster governance substitution reduces the government's power, decreases civilian support for army and police, and establishes stable and supportive conditions for the growth and recruitment of militias.

For this purpose, this study has conceptualized a four-stage structural pipeline, namely, Climate-Conflict Transmission Belt, to systematically analyze the impact of climate change on the recruitment of violent extremists in the vulnerable regions such as Khyber Pakhtunkhwa. This conceptual approach combines the literature on environmental scarcity, relative deprivation theory and rebel governance literature in

a continuous and sequential causal chain. The transmission belt shows that there is a temporal dynamic between the environmental shock and the extremist recruitment, but that the latter is the result of a complex process of superimposition of structural vulnerabilities, economic collapse, institutional failures, and strategic targeting by non-state actors.

The first stage in the transmission belt is Environmental Shock. These shocks are either catastrophic events that occur suddenly like the Glacial Lake Outburst Floods (GLOFs), riverine flooding or thermal heat waves or slow onset environmental degradation like the shifting of the monsoons and progressive topsoil degradation. Such biophysical shocks are exacerbated by highly vulnerable physical environments that include steep mountain slopes in the Hindu Kush region and close populated areas at the margins of settleable river banks, such as the Swat and Kabul rivers in the Khyber Pakhtunkhwa region (UNOPS, 2022; World Bank, 2022). The biophysical intensity of the shock defines the extent of the shock in terms of physical destruction and initial structural exposure.

The physical shock then moves into the socio-economic disruption (Stage 2: Agricultural and Livelihood Failure). Environmental shocks result in catastrophic destruction of capital in agrarian ecosystems where the economic basis is essentially smallholder farming, subsistence agriculture and pastoral livestock rearing. Arable land is covered by flood water, topsoil is covered with boulders and silt, seed banks are lost and livestock herds are lost to the water (World Bank, 2022). Besides, fast riverine water currents erode local flood protection walls (including stone walls and gabion walls) and earthen embankments and damage irrigation canals, leading to long-term waterlogging and renewed erosion of the farm lands. Considering that smallholder farmers have very low profit margins, minimal access to crop insurance and formal credit markets, the loss of a single seasonal harvest causes immediate financial collapse of the household and renders rural wage earners into deep debt cycles (Siddiqi, 2022). The stage of environmental damage to rural economic paralysis is reached.

The transmission belt moves to Stage 3: Socioeconomic Grievance and Displacement as economies continue to fail. Affected families in agrarian living conditions lack formal financial safety nets, insurance, and domestic savings and are therefore facing acute food insecurity, face high household debt burden and are absolute poor. Households engage in a range of distress coping strategies to manage their survival, such as selling productive assets, withdrawal of children from formal education, and moving to urban informal settlements and temporary DPCs (Ide et al., 2020; von Uexkull et al., 2016). Climate-induced internal displacement breaks traditional support systems and deepens social marginalisation and psychological distress among young adults. At the same time, when the public disaster management agencies provide slow, inadequate, unequal and/or politically suspect relief after disaster, the public suffers from acute relative deprivation (Gurr, 1970; Siddiqui, 2021). Rural people compare their dire physical situation to their hope for assistance and protection from the state. Lack of timely disaster relief measures and the reconstruction of protective infrastructure intensifies economic distress to generate deep-seated anti-state complaints, deepening the post-disaster governance gap.

The final phase in the transmission belt is at stage 4, Extremist Exploitation and Recruitment, when violent non-state actors are able to strategically position themselves to take advantage of the governance vacuum, sense of economic hopelessness, and anti-state grievances created at stage 3. In addition to material economic incentives, there are two other channels that extremist networks can

recruit people through: the channels of narrative framing and ideas. When young men have lost their livelihoods, are chronically unemployed, and are living in a hurting family, it is an economic rational decision to join an armed group (Detges, 2016; Human Rights Watch, 2018). The opportunity cost of joining is reduced by direct financial remuneration, regular wages, food security, medical services and physical security from violent non-state actors. At the same time, recruiters use ideological messages that play on local anger about the state's failure or corruption in delivering relief, branding state bodies as failures and failures of governance. They read the natural disasters as evidence of the structural illegitimacy of the State, making their organisation the sole legitimate, competent and protective one that can bring back justice and order (Flanigan, 2012; Walch, 2018). The four-stage transmission belt that explains how environmental shocks trigger a structural chain reaction ranging from physical ecological destruction, to economic collapse and state governance failure, to increased susceptibility to violent extremist recruitment.

The climate-security nexus, as seen from the transmission belt perspective, brings to the fore a core theoretical divide in security studies: between the national security paradigm rooted in the state and the Human Security Framework. The traditional approach to security, which is based on realist international relations theory, places emphasis on state sovereignty, territorial integrity and military balances against external or internal armed threats (Morgenthau, 1948; Waltz, 1979). In this model, non-state armed groups and insurgencies are seen as the main kinetic military targets which need to be neutralized with state security forces, border fortification and counter-insurgency operations. Yet, classic security regimes simply cannot be adapted to the increased risks posed by climate change in fragile border areas such as Khyber Pakhtunkhwa Province. While kinetic military operations may temporarily break the militants' command network, or physically break open their safe havens, they cannot tackle the root causes, including agricultural failures, topsoil erosion, water insecurity, and governance gaps, which continually replenish local militancy recruitment pools (Siddiqi, 2022; Swain, 2016). Security strategies are only concerned with the symptoms of instability, rather than with the ecological and socioeconomic conditions that allow the expansion of extremists.

The Human Security Framework, on the other hand, institutionalizes a change of predominant referent object of security from the state to the human being (UNDP, 1994). The seven dimensions of human security are economic, food, health, environmental, personal, community and political security. The human security paradigm defines national security as not achievable unless baseline environmental and economic security of vulnerable populations is ensured – in the context of multiplication of threats to the climate. The investments in climate adaptation by States, combined with strengthening agricultural infrastructure (e.g. stone and gabion river walls), securing local water systems, and developing equitable social safety nets in the aftermath of disaster, directly reduce the socioeconomic drivers of relative deprivation and governance vacuums (Ide, 2021; World Bank, 2022). Human security interventions, therefore, are a forward-looking and proactive measure that serves as long-term counter-extremism. To address climate-induced security threats, which are exacerbated by climate change, it is essential to shift from the military rhetoric of addressing security to a state security policy that integrates adaptation to climate change with effective disaster risk governance and human-centred socioeconomic development.

In KP, environmental stress and agricultural vulnerability are evident.In KP, environmental stress and agricultural vulnerability is apparent.

The geographical location of Khyber Pakhtunkhwa (KP) puts it at the forefront of environmental degradation in South Asia due to climate change. The province is highly topography-distinguished with the high mountainous peaks of the Hindu Kush range in the north and fertile low valley floors of Kabul and Swat rivers in the central and southern districts, making it extremely vulnerable towards one or more climate hazards. The changing global precipitation patterns, changing thermal regime and accelerated cryospheric degradation in the last 2 decades have turned seasonal weather to systematic drivers of disaster. Some of the main KP challenges due to the environment are high riverine and flash flood risks, seasonal water shortages, land degradation, and inability of rural flood protection structures.

Climate Impacts Analysis in KPK.

The flooding in Khyber Pakhtunkhwa occurs under two leading hydro-dynamic processes: High altitude flash floods caused by cloud bursts or Glacial Lake Outburst Floods (GLOFs) and riverine floods on large scales, downstream. The glaciers in the northern alpine valleys (including Chitral, Upper Dir, Swat and Kohistan) ablate faster as temperatures rise in the environment. This thermal forcing may cause the rapid development and the catastrophic outburst of unstable moraine-dammed glacial lakes.

These GLOF events trigger high velocity flash floods with boulders, timber and glacial debris. These torrents run down narrow mountain valleys causing high scale localized damage, like breaking mountain road networks, damaging bridge infrastructure, eroding riverbanks and burying terraced agricultural plots under large amounts of gravel and sediment.

The melting of these alpine torrents in the lower river basins causes catastrophic flooding along the rivers in the central plains of Nowshera, Charsadda and Peshawar. Anomalous monsoonal atmospheric corridors deposited unrivalled amount of precipitation over the Kabul and Swat river catchments in the catastrophic flood years of 2010 and 2022.

During August 2022, maximum river discharge of Kabul River at Nowshera was found to be more than 315,000 cusec in the month, which flooded the huge agricultural and residential areas. Riverine flooding in central KP is not like transient mountain flash floods, where it lasts for weeks.

The water has become stagnant, flooding the groundwater, killing standing crops, destroying stored grain inventories, and polluting fresh groundwater supplies which is causing significant environmental and agricultural harm.

Seasonal Water Scarcity and Soil Degradation

Storms, floods, droughts, etc. are headline news events that capture the world's attention, whereas slow environmental stress is a constant and destructive force on KP's socio-ecological systems. The province is subject to severe precipitation asymmetry whereby extended periods of extreme monsoonal deluge are followed by long months of meteorological and hydrological droughts.

Seasonal water scarcity is a major challenge for the viability of agriculture in the southern districts (rain-fed, commonly known as barani) including Karak, Lakki Marwat and Dera Ismail Khan. Changing precipitation patterns have reduced the duration of the winter rainy season and enhanced the rate of evapotranspiration during this time, creating large soil moisture deficits in the dormant season and affecting the most important times of crop germination.

At the same time, heavy rainfall causes severe topsoil erosion and land degradation. The nutrient-rich organic topsoil is washed away from agricultural fields under conditions of high velocity surface runoff, leaving behind layers of barren subsoil. A problem that occurs in flooded basin areas is farm siltation, deposition of infertile sand, silt and river rocks for several years, making thousands of acres unavailable for cultivation.

The reclaimed silted land demands labor intensive mechanical excavation and soil conditioner, which is beyond the financial reach of poor smallholder farmers. Moreover, the extended flooding causes soil waterlogging and secondary salinization in the low lying irrigation commands and results in permanent loss of agriculture production and desertification in vulnerable areas of districts.

The vulnerability of Soil and Gabion Protection Infrastructure

Erosion control and protection of rural population from riverine flooding has been a traditional approach adopted by state agencies such as KP Irrigation Department and Provincial Disaster Management Authority (PDMA), which has focused largely on the construction of stone pitching embankments, earthen embankments and gabion retaining walls. Gabion structures are rock-filled, permeable and flexible, made from heavy galvanized wire mesh, used to absorb wave energy and to stabilize riverbanks, using rocks quarried from the local area.

In the past, however, extreme climate events have revealed serious structural weaknesses of these engineering methods. In times of large floods, the flood water levels exceed the historical design levels of the stone and gabion walls. The protection works fail due to three main reasons:

Hydraulic Scouring: High flow velocities of rivers scour and undercut the unpaved riverbed at the toe of gabion walls. As the underlying sediment erodes, the heavy gabion cages tilt, slump and fall into the river channel.

Abrasive Bedload Impact: Floodwaters in mountainous areas are filled with massive quantities of sharp gravel, boulders and debris. This action of abrasive bedload is what will wear down and tear the galvanized wire mesh, and allow the rock fill to spill out and ruin the integrity of the structure.

Flank Breaching and Incomplete Infrastructure: Protection walls are often built in a piecemeal fashion, due to budget constraints and land acquisition litigation, causing gaps along the riverbank. Floodwaters flow around completed wall sections as scouring upstream from unfortified areas, flood from the back of the wall (flank breaching) and inundate neighbouring agricultural areas.

In 2022, the floodwaters were allowed to pour into the farm lands and residential areas in Kabul, Pir Sabaq, and in other rural areas of Nowshera and Charsadda due to the failure of the stone and gabion dams built along the Kabul River. Breached and poorly maintained protection walls gave the local populations a false sense of security, and caused postponing of early evacuation and a high velocity of flood flows into vulnerable agrarian communities.

The economic impact on agriculture and supply chains.Economic impact on agriculture and supply chains.

The agriculture sector is the backbone of the economy of KP, accounting for almost 20% of the Provincial GDP and employing more than 40% of the labor force of KP (Government of Pakistan, 2023; World Bank,

2022). Smallholder subsistence farmers (those growing less than 5 acres of land), and transhumant pastoralists, dominate the sector (World Bank, 2022).

The impact of these climate shocks on this agricultural backbone reverberates through the rural economy, impacting household livelihoods, livestock assets, and agri-Supply chain.

The disruption of smallholder farmers, agricultural disruption.

In KP, smallholder farmers face tight economic margins, with limited financial buffers, no crop insurance and no formal credit access (World Bank, 2022). Major flood events occur mainly during the summer monsoon season (July to September) and inflict maximum losses on the standing summer (Kharif) crops like maize, rice, sugarcane and high-value horticultural crops like tomato, onion and orchard fruits.

The 2022 floods resulted in almost complete loss of crops in districts such as Swat, Dir, Charsadda and Dera Ismail Khan. The reduction in standing crops leaves smallholders without any short-term income and without any food stocks.

In addition, siltation and erosion of the farms and fields not let farmers plant the next wheat crop of the winter season (Rabi), which increases the duration of agricultural income loss from 6 months to more than 1 year. The informal debt load is an additional burden on top of the physical losses. Most smallholder farmers use informal credit from the local agricultural traders or middlemen (commission agents/arthis) to buy the seeds, fertilizers and fuel needed for irrigation pumps.

If a crop fails, the farmers will not be able to pay back the loans that they borrowed for the season. Middlemen counter with an increase in the interest rates on the new loans, or with a claim of rights to future crops at exorbitant prices.

This situation causes the smallholders to become trapped in a debt bondage cycle. In the face of economic distress, smallholders sometimes will have to sell their excess farm assets, like farm machines or land tracts, at distress prices and become landless agricultural wage-labors.

todays session will focus on the pastoralists and livestock production. In both the plains and alpine regions of KP, pastoralism and rearing of small ruminants (sheep and goats) are key economic survival strategies. In the case of landless families and semi-nomadic transhumant groups, livestock are the main asset that can be readily converted to cash, is the bank account, and serves as a source of food.

The consequences of climate shocks on pastoralist livelihoods are direct deaths, as well as secondary health crises. Livestock herds are killed in their night pens or pastures by flash floods or high water in the rivers. According to the Post-Disaster Needs Assessment (PDNA) report after the floods in 2022, more than 1.1 million livestock animals have been reported to have been lost across the country, with high losses reported in the northern and the southern districts of KP.

Economic Sector	**Primary Physical Damage Vector**	**Immediate Economic Loss**	**Long-Term Socioeconomic Consequence**
Crop Agriculture	Field inundation, farm siltation, & topsoil stripping	Destruction of standing *Kharif* crops & stored seed stock	Multigenerational informal debt traps & loss of landownership

Economic Sector	Primary Physical Damage Vector	Immediate Economic Loss	Long-Term Socioeconomic Consequence
Livestock Rearing	Direct herd drowning & secondary post-flood disease outbreaks	Capital loss of primary household liquid assets & draft animals	Widespread rural malnutrition & collapse of pastoral safety nets
Supply Chain Logistics	Destruction of rural bridges, roads, & processing facilities	Perishing of harvested produce & spiked transport overheads	Market disconnect, rural price collapses, & urban consumer inflation

The post-disaster environment is deadly problematic for herds that are still alive. Pastures flood and stored fodder is lost, resulting in increased prices and fodder shortages. Meanwhile, stagnant, polluted water can provide an environment for the spread of disease. When vectors and infectious livestock endemics such as Peste des Petits Ruminants (PPR), Foot-and-Mouth Disease (FMD) and Anthrax surge, the remaining herds are decimated by these diseases. The lack of support in terms of emergency vaccines and treatments in pastoral areas, due to chronic underfunding of public veterinary services and cold-chains lacking in remote areas, are responsible for the failure of pastoral livelihoods.

Disruptions in the supply chain and market failures.

Climate shocks' economic effects are not just on-farm, but on local and regional agricultural supply chain. Farm-to-market roads, bridges, cold storage facilities and regional wholesale markets (mandis) are located along river corridors in KP, making them very vulnerable to damage caused by flooding. Major floods result in bridge washouts and destruction of road infrastructure, especially in rural agricultural areas, such as the N-95 road on the Swat Valley or region arterial roads in D.I. Khan, which result in isolation of the rural agricultural areas from regional urban markets. Transport is cut off, and farmers can no longer transport their perishable horticultural crops (such as tomatoes, peaches and plums) to market, allowing crops to spoil in the field or at roadside transit points.

Rural Farm-Gate Collapse: An excess of trapped produce in a particular area results in the farm-gate price collapse in the rural producing area, thus depriving the farmers of income.

Urban Price Spikes: Urban food centres suffer from shortages of food, which increases urban food prices and exacerbates urban food insecurity.

In addition, regional processing centres, seed storage warehouses and fertilizer distribution centres are destroyed, further increasing production costs in the following planting seasons and making agricultural recovery more challenging.

The dynamics of Internal Migration and Climate-induced Displacement.

Internal migration and population displacement is now a major adaptation strategy across KP to the degradation of environment and collapse of agriculture. Climate-induced displacement in KP is not a one-off incident of acute natural disaster, but a multi-stage process that can impact the demographic profile, urban infrastructure and political landscape in the region.

Emergency vs. Protracted Displacement

Climate-induced displacement in KP is a continuum of processes, starting from rapid onset emergency displacement and frequently into protracted displacement: Acute Emergency Displacement: Acutely displaced families are forced to move to safe places on higher highway embankments, mountain ridges, and temporary relief centres provided by the state or NGOs, where they leave flood areas with short notice following the flash floods or GLOFs. More than 400,000 people were displaced in KP, mainly in Nowshera, Charsadda, Swat and D.I Khan during the peak of the floods in 2022.

Emergency displacement should be temporary, but the economic hardship, destruction of homes and land degradation make it impossible for families to return. When the mud-brick (katcha) houses are destroyed, the topsoil will be washed away and the fields will be filled with deep silt, and the rural families will be unable to go back to their old lives. Without the resources needed for reconstruction or land retrieval, the displaced people continue to live in informal displaced persons camps, rented housing in the cities or squatter settlements for months or years at a time.

Phase	Vector & Location	Structural Outcome
1. Emergency Displacement	Immediate rapid-onset GLOF or flash flooding in alpine river basins (e.g., Swat, Chitral, Dir)	Rapid evacuation to elevated highway embankments, ridges, or temporary relief camps
2. Protracted Land Destruction	Heavy siltation, topsoil stripping, and complete mud-brick (*katcha*) house collapse	Inability to clear fields or restart agriculture; long-term displacement in informal camps
3. Permanent Urban Migration	Total livelihood collapse and unpayable informal debt burdens	Permanent relocation to urban informal squatter settlements (*katchi abadis*) in major city hubs

The relationship between rural-to-urban migration and urban strain.

Sustained rural economic problems have led to a permanent migration to city, throughout KP. Agricultural laborers and small farmers who have been displaced in their villages move to the big cities, such as Peshawar, Mardan, Kohat and Mingora, and also cross provincial boundaries to cities like Rawalpindi, Islamabad and Karachi.

Informal Housing Expansion: Migrants move into informal settlements (katchi abadis) which are on the peri-urban fringes, dried river beds and drainage ravines where the land is not zoned for housing development. The squatter settlements do not have piped water, sanitation, electrical power or solid waste disposal, which makes them vulnerable to outbreaks of diseases and secondary flooding.

Municipal Service Overextension: Urban municipal governments are not being able to expand their healthcare, public education, and water systems to accommodate rapidly increasing migrant populations, both in terms of the number of staff required and funding.

Informal Labor Market Competition: Majority of climate migrants are skilled in primary agriculture. In urban areas they go to work as daily wage workers in the construction industry, street hawkers, or rickshaw pullers. Unskilled workers bring down the wages of urban residents, make jobs less secure, and fuel economic tensions between residents and newcomers of the city.

Social, political and security consequences

Security concerns from climate-induced displacement ripple throughout KP. Traditional social systems such as the village elder councils (jirgas), extended families, and tribal mechanisms which had previously ensured social order and local dispute resolution in rural Pashtun society are broken. Those who have been displaced end up living in the marginal corners of the city in squatter quarters and in displaced camps, where they suffer from social atomization, economic marginalization and psychological distress. Acute relative deprivation (Gurr, 1970) is experienced by young men who are chronically underemployed, are losing social status, and are not being cared for by government.

The economic crisis, social disorientation, and the governance failures provide conditions for the strategic exploitation of non-state actors by such violent actors. Militant networks exploit these disenfranchised and disenfranchising youth groups and provide them with ideological narratives which revolve around anti-state radicalism and recruitment, as well as financial incentives and a sense of belonging. As a result, climate induced displacement in KP is not only a humanitarian crisis but also a main catalyst in transforming environmental shocks into the longer-term political instability and risk of security threats. This paper examines how extreme groups exploit climate vulnerabilities through a mechanistic analysis.This paper analyzes how extreme groups are exploiting climate vulnerabilities through a mechanism analysis.

Climate change is a fundamental threat multiplier that aggravates structural precarity, social stratification and institutional fragilities. Violence is not the only by-product of environmental degradation, and in developing and fragile polities it is not the direct result of environmental deterioration. NSAGs and VEOs exploit ecological shocks' fracturing of society. Climate vulnerabilities are not treated as random catastrophic events but as opportunities to grow organizations, foster political subversion, and recruit to structures by sophisticated extremist organizations. Environmental disasters create a "governance vacuum, economic vacuum and discursive vacuum," and extremist groups build multiple recruitment structures.

Strategic Relief Deployment and Legitimacy Acquisition is a Service Provision & Governance Substitution.

Central to the work in which extremist groups use climate-induced disasters is the strategic replacement of key public services and local governance functions. When a major hydrological shock occurs – like flash floods, Glacial Lake Outburst Floods (GLOFs) and extreme monsoons, formal state institutions are often overwhelmed causing a local administrative paralysis. A delay in the formal state disaster management structure, including National or Provincial Disaster Management Authorities (NDMA/PDMA), leaves a critical governance gap in remote peripheral areas when bureaucracy and centralization cause delays, resources become scarce, and/or infrastructure is hindered. As an effective first responder, non-state armed groups have organized relief wings to fill this vacuum, claiming to be effective and community-based first responders.

Strategic Deployment of Relief Wings

Militant humanitarian networks can be seen as a deliberate solution to create social capital and political power. In South Asia and the Middle East, extremist groups have been using humanitarian fronts to control post-disaster scenarios on many occasions.

Following extreme flood events in the Indus and Kabul River basins, there have been mobilisations of cadre networks and the recruitment of charitable front-lines associated with militant infrastructure (e.g., Falah-e-Insaniat Foundation) for the purpose of distributing food, setting up mobile medical triage centres, clearing damaged infrastructure, and building temporary flood protection barriers. These organizations' quick response times stand in stark contrast to the apparent inaction of official state response teams.

This physical presence in disaster areas has a number of important roles:

Undermining the State's Monopoly on Governance – Basic human security needs (potable water, emergency healthcare, shelter) are delivered directly, challenging the formal social contract. As an insurgent group becomes the chief supplier of life sustaining items, it undermines the state's legitimacy and its claim to be the protector of the people.

Establishes Informal Administrative Structures: When extremist groups fill in the governance gap, they create informal administrative structures. When a displaced population is in short supply of resources, they become structurally dependent on the militant relief pipeline for survival, and their compliance and cooperation towards the non-state actor changes.

Humanitarian service provision decreases community resistance to militant presence – Operational Access and Community Shielding. Those who believe the extremist cadres are "guardians of the community" will be less likely to promote cooperation with state counter-insurgency forces and with national security forces. This gives the militant network strategic depth, operation refuge and social protection.

Comparative Governance Exploitation

The nature of the environmental shock, organizational capability and local contexts differ in how service substitution plays out. In each case, service substitution transforms ecological trauma into social legitimacy. The strategic deployment of relief aid operates as an exchange: the extremist group provides immediate survival goods, and in return, affected populations offer political compliance, operational access, and prospective recruits.

Economic Recruitment Incentives: Taking advantage of the collapse of the agrarian sector and rural youth unemployment

Some of the social and economic changes that happen after disasters can facilitate extremist groups to secure social legitimacy while the economic disruption of rural areas offers a consistent supply of direct recruitment. Climate-induced shocks are extreme economic events that wreak havoc on livelihoods in the agrarian sector and deplete vulnerable households' assets.

Farm Livelihood Collapse and Household Precarity:

Climate-sensitive rural livelihoods, such as subsistence farming, pastoralism, and daily-wage rural farm work make up a large part of the economic lives of rural people in developing economies. The effects of extreme weather events, such as monsoonal flooding and the deposition of impenetrable layers of silt

over arable land, or droughts that kill livestock, spread through rural communities, affecting the livelihoods of the people who depend on them.

This environmental destruction initiates what is called a multi-stage economic collapse:

Loss of Income and Capital Reserves: Farmers may lose all their crops, and may experience a significant loss of working land assets. When pastoralists' capital is lost due to waterborne diseases or water shortages, the primary capital is lost.

Rural Labor Market Saturation: Agricultural activity slows down and the demand for daily-wage work also declines. There are millions of rural workers who lose their jobs at a moment's notice, resulting in a fall in real wages in the informal sector.

Poor households are often compelled to take loans from informal lenders and local middlemen (arthis), to buy basic food items and to replace damaged assets, in order to survive the Predatory Debt Cycles. These so-called “loans” have high interest rates, trapping affected families in a cycle of debt bondage.

Tactical, exciting, and bold economic mobilization strategies.

It's the economic desperation that makes it a target for recruitment by extremist groups, who tailor their messages for recruitment. Operational-level commanders are usually ideologically motivated while foot soldiers in areas of climate stress are often motivated by material survival incentives. Unlike the traditional universities, militant recruiters provide economic remedies that are rightfully in line with the economic plight of rural youth.

The opportunity cost to join an armed non-state group falls sharply when livelihoods are in crisis in the agricultural sector. Heavy siltation has devastated the farm of the rural poor and the young man has to choose between joining a local militant group, which is a personal choice of ideology, and personal survival. Steady income, access to weapons, and social status are immediate alternatives to poverty and economic dislocation provided by violent non-state actors.

Ideological Framing: Building Narratives of Governance Failure, Corruption and Moral Decay

In addition to directly benefiting from the relief and financial gains offered by violent extremist groups, these groups take advantage of the existing vulnerabilities in the climate landscape by using powerful ideological messaging. The impact of disasters is not necessarily viewed as a neutral physical event but rather understood as occurring in local social, political and cultural contexts. This interpretative space is used strategically by insurgent networks, as they build narratives denouncing nature-induced disasters as the result of the corruption of the state, the incompetence of institutions, and social values and morals.

Normally these framing tactics take place on two reinforcing pipelines: political-economic critiques and the moral-theological explanations.

The first of the three political-economic framing questions is about structural neglect and corruption.The first question in the three political-economic framing questions is about structural neglect and corruption.

Climate phenomena are pushed to the margins in the political-economic frame, and the attention is drawn to failure of human institutions. Insurgents point to the differential effects of disaster, claiming that marginalised communities are disproportionately affected due to the corruption, centralism and lack of interest in their plight by the central government.

In the time of environmental crisis, statements, audio messages and video documentaries are routinely released by media wings of the militant groups like TTP's Umar Media and ISKP's Al-Azaim Media Foundation. These are propaganda campaigns that focus on certain structural failures:

Collapsed Gabion Walls: Insurgents cite the failure of gabion walls as a sign of state embezzlement. Breached Flood Embankments: Insurgents point to the breached flood embankments as a sign of state embezzlement. They allege that the corrupt politicians and contractors used public money meant for protecting against disasters for themselves, and this killed and damaged rural villages.

Unequal distribution of Emergency Resources: Propaganda is used to emphasize when government assistance was directed to the politically powerful and the peripheral tribal areas were poorly supported. This makes people feel worse about the disenfranchisement and anti-state sentiments they already have.

The absence of meteorological warnings (MWs) and lack of support for the evacuation of susceptible communities by the state's scientific institutions and disaster management agencies is criticized by the extremists as intentional neglect by the state.

When the government's response to poor disaster mitigation is regarded as structural state violence, this validates local anger. They do not show their insurgent campaign as an act of predatory and violent aggression, but rather as a defensive measure against a predatory and corrupt political system.

Moral-Theological Framing: Divine Retribution and Natural Order

At the same time, there are other stories to be told in the name of God for ecological crises by violent extremist groups. Disasters are portrayed as warnings relating to spiritual events, punishment (Azaab) from God, due to the secular governance, public immorality, a pledge to foreign powers and the violation of religious law.

This moral-theological framing takes place through a number of salient ideological elements:

Secular state embraces Western law, corrupt financial system, moral compromises; that leads to divine wrath in the land: A problem with the state is the secular state's embrace of Western law, corrupt financial systems and moral compromises brings divine wrath on the land; the State as a Moral liability: A problem with the state is the secular state's embrace of Western law, corrupt financial systems and moral compromises brings divine wrath on the land. Physical evidence for the illegitimacy of the existing political system is given by natural disasters.

The end-times perspective of extreme environmental crises is employed by more radical transnational groups, like ISKP. They represent escalating climate disasters as a warning to the world, urging believers to leave behind local governments and to enter into the global caliphate.

Extremist organisation claims to be the only one to restore environmental and social order – “Religious Governance”. They believe that a change from corrupt secular governance to strict religious governance will end the exploitation by elites, bring favour to God, and prevent ecological calamities in the future.

Personal trauma and resource shortages become ideological commitment as violent non-state actors critique politics for state corruption and tell moral stories of divine justice. The insurgent group is both a physical safe haven and a spiritual answer, attracting people who are looking for physical shelter and spiritual guidance in a world of ecological doom.

Comparative analysis of the exploitation pathway of TTP and ISKP.

In order to demonstrate these mechanisms in action, the following comparative analysis explores the mechanisms for operationalising climate vulnerabilities in the Af-Pak borderslands by the Tehrik-i-Taliban Pakistan (TTP) and the Islamic State Khorasan Province (ISKP).

Operational Differences

TTP's Grassroots Physical Mobilization: TTP's physical presence and activities in rural communities are an important component of its work. In times of catastrophic floods, the TTP cadres use the advantage of local family and tribal relations in order to provide emergency relief. As a local insurgent group, the TTP infiltrates rural society through a service substitution strategy and demonises the state as an illegitimate occupier and gains operational sanctuaries along the rivers.

ISKP has a more clandestine and ideologically based recruitment strategy: • ISKP's Digital and Urban Subversion: ISKP works on the secondary wave of climate displacement, that is, migration from rural to urban areas, instead of large-scale physical relief operations. Youth migrants can experience atomization, chronic unemployment and inadequate municipal services as a result of the social effects of moving to urban slums as agricultural workers. Through multilingual digital propaganda (Al-Azaim Media), ISKP attacks these marginalized urban populations, portrays both secular states and other groups (such as the Afghan Taliban) as equally weak and corrupt.

It is important to consider that in order to grasp how climate vulnerabilities are being exploited by violent extremist groups, one must be able to go beyond the deterministic arguments which associate climate change with violent conflict. As shown in this mechanism, violent extremism is not triggered directly by climate hazards. Rather, environmental shocks play a role as threat multipliers that catalyze political, economic and institutional fragility.

Key Analytical Findings

Service Substitution Subverts State Authority: In contexts where formal disaster management institutions are not able to provide rapid humanitarian assistance, non-state armed groups organize relief wings to replace the formal state. This gives them local legitimacy, makes them dependent on the community and offers them an operational base.

Environmental shocks to agricultural capital fuel economic recruitment, rural underemployment and place poor households in debt bondage. Since the situation is precarious, extremist groups take advantage of this by providing direct wages, micro loans and material support to recruiters, thus making recruitment a means for survival for destitute youths.

Ideological Framing: Takes advantage of institutional failures – Disasters are never ideologically neutral. The narratives build by extremist groups are convincing, connecting physical failure to the corruption in the state, capture by the elite, and moral decay, and setting their movement apart as the one that is protecting and righteous.

The strategic recommendations for policy

National security and counter-terrorism policies and plans should explicitly include climate adaptation: to de-couple climate vulnerability from violent extremism, state security and international development actors must explicitly link climate adaptation to national security and counter-terrorism policies and plans.

Promote decentralization of Disaster Management Capacities: National governments should shift their disaster response approach from a top-down scheme to investments in local civil administration at municipal and district levels. If the local actors are equipped to provide rapid disaster relief, the governance gap is filled and extremists are unable to exploit these gaps.

Create Agricultural Protection and Climate Safety Nets: States need to provide specific financial safety nets for smallholder farmers, such as state-supported crop insurance, livestock protection and informal debt-relief mechanisms to address economic recruitment due to climate impacts. Making economic viable alternatives neutralize financial incentives given by militant recruiters.

Improve Infrastructure governance and risk communication, Government need to tackle the root causes of anti-state narratives, through better transparency in the implementation of public infrastructure projects, better accountability of corrupt contractors for inadequate flood protection measures, and creation of more reliable early-warning systems.

Policy Gaps and State Capacity

In Pakistan, the institutional structure to respond to climate shocks and security threats is very fragile and is marked by a deep-seated structural inadequacy: climate policies and national security policies are separated with climate disasters being perceived as short-term humanitarian crises, rather than a continued source of political instability and insurgency. The main institutional manifestation of this division is the National Disaster Management Authority (NDMA) and Provincial Disaster Management Authorities (PDMAs). The NDMA/PDMA framework was created after the catastrophic flooding in 2010, with the key objective of creating a proactive, decentralized mechanism that will be able to support disaster risk reduction (DRR), climate resilient infrastructure planning and local level emergency response. But in reality, these organizations are operating in a highly centralized fashion, lack adequate funding, and have a strong tendency to respond to disasters rather than adapting to them.

This operational centralization will give rise to acute governance vacuum in vulnerable peripheries like Khyber Pakhtunkhwa (KP). Though the Constitution was amended to include formal decentralisation in 18, District Disaster Management Authorities (DDMAs), which work as an integral link between the state and the grassroots level, are still not working well, under-resourced and have low administrative capacity. In response to monsoonal floods, river bank erosion and glacial lake outburst floods (GLOFs) in rural areas, District civil administration is constantly overstretched. Delays in funding release, lengthy procurement processes and poor coordination between administrative and municipal line departments impede the provisioning of emergency assistance and provision of initial reconstruction. These are the very structural weaknesses that are often the targets of non-state armed groups, including Tehrik-i-Taliban Pakistan (TTP). The lack of state action is filled by militant groups and their units as they deploy agile relief cadres, provide immediate cash stipends and assist in local debris clearance. This in turn weakens the civil authority, creates local social capital and helps establish an alternative voice as a trusted service provider while the state institutions are caught up in administrative lethargy.

This disaster management deficiency is compounded by the lack of the meteorological policy – the National Climate Change Policy (NCCP) and the National Adaptation Plan (NAP) – which have been executed systemically. These policy documents provide in-depth diagnostic analysis on the extreme vulnerability of Pakistan to climate change, but lack political elites' buy-in, institutional coherence, and

a focus on climate change governance that is ecologically and socially based. One example of this policy failure is the protection of riverine infrastructure along key riverine corridors. Engineering projects, especially stone and gabion river protection walls, often fail due to poor technical designs, poor quality construction materials and corrupt contracting practices. These structures are frequently compromised, become sunken or fail to be constructed during periods of extreme hydrological events because of the length of project cycles.

In cases where protection structures are broken or are used to divert flood waters to poor quality agricultural land, but to the betterment of politically connected commercial or landed estates, there is no sense amongst local people that the event is natural. Rather, it's believed to be a result of corruption in the state and neglect of the institutions. Violent non-state actors take advantage of this lack of trust and use the failure of infrastructure as an "ideological tool. Public anger at broken protection structures and land lost without compensation is used by militant groups to justify their anti-state narratives, which portray the government as insensitive to the livelihoods of the rural people and that it acts in the interest of the elite while neglecting the vulnerable groups.

At the regional security level, the current approach to counter-insurgency and counter-terrorism is still mainly oriented towards hard kinetic solutions, including border fencing, targeted military sweeps, intelligence-led operations and other such measures, without addressing socio-ecological conditions that facilitate insurgent recruitment. Militant structure can only be temporarily upset through kinetic operations and can clear physical hideouts but socio-economic drivers created by Climate shocks cannot be addressed through this. Losing crops in a disaster, causing livestock loss and the lack of capital among smallholders results in a reservoir of economically disadvantaged young people who are disheartened and poor. Economic consequences of joining an insurgent group become much higher, when there are no economic safety nets that are climate-proof, no alternative livelihoods or agricultural insurance by the state. Lack of integration of climate vulnerabilities in regional security planning leaves geographic space unoccupied while not ensuring socio-economic conditions for insurgent re-infilration.

The Policy Disconnect: Environmental Management vs. Counter-Extremism (P/CVE) Frameworks

State capacity is weak on the overall lack of policy coherence between prevent/counter violent extremism (P/CVE) and environmental governance. The issue of climate change is viewed separately from national security in national strategic planning. National threats are mostly conceptualized in political terms of Violent Extremism, infiltration from across the border, external subversion and hybrid warfare in the context of strategic security policies like the National Action Plan (NAP) and the National Security Policy (NSP). On the other hand, the environmental governance framework documents (national climate change policy, national disaster management blueprints) consider the climate shocks as environmental or development problems, to be solved by civil engineers, environmental scientists, or international humanitarian agencies.

This policy isolation obscures the hybrid nature of the threat environment coming at the intersection of climate risk and security. P/CVE programs are more attuned to elements of counter-narrative messaging, educational reforms, judicial measures and digital monitoring and yet they remain blind to the ways that the collapse of the agrarian economy, the displacement by climate change and the formal/ informal debt trap of those who owe to the informal sector, leave vulnerable groups open to militant financial

enticement. In contrast, environmental management programmes make plans for interventions to adapt to the climate without considering the potential for these resources to be used as targets for local power dynamics, elite capture or insurgent interference.

Dimension	**Environmental Management Policy (NDMA/PDMA, NCCP)**	**Counter-Extremism / P/CVE Frameworks (NAP, NSP)**	**Integrated Climate-Security Framework (Required)**
Primary Domain	Ecological shocks, infrastructure, disaster relief.	Kinetic operations, ideological counter-messaging, intelligence.	Socio-ecological resilience, human security, institutional integrity.
Operational Scope	Reactive post-disaster response, top-down engineering projects.	Hard security sweeps, digital monitoring, judicial measures.	Decentralized community response, localized climate adaptation, economic protection.
Target Population	Disaster-affected rural and urban communities (generic).	Radicalized networks, high-risk youth, militant cells.	Climate-displaced youth, smallholders, marginalized urban migrants.
Strategic Gap	Ignores how relief voids and infrastructure failures feed extremist legitimacy.	Ignores climate displacement and agrarian collapse as drivers of recruitment.	Unifies climate risk reduction with counter-insurgency and P/CVE interventions.

There is a lack of connecting between environmental and P/CVE policies and therefore a lack of a coordinated and effective response to post-disaster recruitment by the State. The high impact floods and the resulting displacement of the agrarian population from rural river basins to urban katchi abadis (squatter settlements) around the urban centers increase the vulnerability of the displaced population to the urban climate and expose them to the socio-economic fragility of the urban climate. Urban migration is being capitalised by groups such as Islamic State Khorasan Province (ISKP) which are exploiting educated but unemployed displaced youth with the use of digital propaganda and clandestine networks. In the interim, the TTP has been taking advantage of the financial difficulties of rural agricultural communities by providing them with direct financial aid and by mobilizing their discontent at how the government treats them.

Required to bridge this policy gap is a radical transformation of the state's capacities. Climate adaptation should not be seen as a technical or environmental issue, but as an integral part of the national security and counter-insurgency policy. This will depend on institutional change:

Strengthening the capacity of local civil administration for immediate disaster relief and filling the governance gaps that are being filled by non-state actors by decentralizing the governance capacity through shifting resources and decision-making power from national and provincial level to District Disaster Management Authorities (DDMAs).

Security and Climate Planning – Take into account climate vulnerability in national security planning, and create joint operational frameworks between the environmental agencies (NDMA/PDMA) and security agencies to monitor areas at risk from climate impact.

Build Socio-Economic Safety Nets: Build state-supported crop insurance, rural debt-relief mechanisms and climate-resilient public works programmes to shield vulnerable smallholders from financial collapse and tamper with militant recruitment pipelines.

Infrastructure Transparency: Increase public and third party accountability and auditing of climate adaptation infrastructure projects, minimising corrupt contracting and the ability of insurgents to use infrastructure weaknesses in their messaging.

Conclusion & Policy Recommendations

Climate change is a structural multiplier of violent extremism as shown through the empirical dynamics in KP. The combination of rapid onset monsoonal flooding, riverbank erosion, and agricultural failures directly impinges on socio-economic vulnerabilities and therefore is an ideal setting for mobilization of insurgents. The socio-ecological disruptions have been seized upon by non-state armed groups, such as Tehrik-i-Taliban Pakistan (TTP) and Islamic State Khorasan Province (ISKP), via different physical and narrative approaches. The TTP exploits governance holler in the rural areas to provide immediate relief, debt relief, and anti-state rhetoric focusing on infrastructure failures along the riverine areas, while ISKP focuses on climate displaced youth moving into the peripheral urban slums. In either case, the biggest weakness is the structural neglect and the parliament paralysis of the state combined with the capture of adaptation funds by the elite. Individuals resort to violence when the State does not immediately respond to emergency needs, protect farmers' livelihoods, or keep up with public services, and when the State lacks the ability to substitute for governance, construct social capital, and reduce the costs of carrying out militant recruitment.

The state should break the vicious circle of climate change and extremism by shifting from purely kinetic security models to include climate adaptation in the response to counter-terrorism in the region and national security in general. To restore civil legitimacy in peripheries, an agenda for reform which is grounded in practical change must focus on how to develop local economic resilience, how to develop rural infrastructure that is resilient to climate change, and how to break governance gaps by decentralizing disaster management. Informal credit mechanisms (arthis) and agrarian bankruptcy are the drivers for rural recruitment. State intervention has to be directed towards the creation of crop and livestock insurance in flood-prone areas that is available to smallholders on a subsidized basis; the regulation of informal money-lending networks; and the provision of emergency, interest-free agrarian micro-grants shortly after a catastrophic crop loss. At the same time, investment in off-farm, climate resilient economic activities and public works projects (like watershed management and eco-restoration) can take up rural youth who are displaced before they can be tempted by militant financial offers.

The infrastructure policy must be accompanied by immediate structural reform, especially due to the fact that when flood walls are broken, this becomes part of the insurgents' narrative of state corruption and elite capture. For future civil engineering works, it is important that the stone and gabion protection works are used in an ecologically appropriate manner, and that they are designed specifically for the hydrology of the area, rather than being one-size-fits-all, poorly maintained concrete barriers. In

addition, there is a need for a mandatory third-party technical and financial auditing that is transparent and well done in all the projects for climate adaptation, to eliminate any corruption among the contractors and ensure structural integrity. Incorporating local neighborhood councils and agrarian communities into flood risk mapping and placement of protection walls ensures that protection walls are not only sited to protect politically connected private estates, but to protect public land.

Last but not least, there is a strong connection, if not dependency, between the speed and transparency of relief provision in post-disaster areas and state legitimacy. Financial and administrative powers need to be de-concentrated, from the provincial capital down, to the District Disaster Management Authorities (DDMAs) in key riverine basins, to enable civil administration at the grassroots level. Having Village-level emergency response teams and training them to be equipped with pre-positioned relief supplies, clearing equipment and medical kits will mean that the State gets there first in case of a crisis. Complemented by proactive real-time risk-communication networks that make it clear when the disaster response will take place, these decentralized measures will effectively preempt militant anti-state disinformation and set the state as a primary source of security, relief and long-term climate stability.

References

- Ahmed, T., & Khan, M. I. (2023). Climate displacement, state fragility, and non-state armed groups in Pakistan's borderlands. *Journal of Peasant Studies*, 50(4), 1432–1455.
- Arjona, A. (2016). *Rebelocracy: Social order in the Colombian civil war*. Cambridge University Press. https://doi.org/10.1017/CBO9781316421925
- Baloch, I. (2025). *Militants' manipulation of climate narratives in Pakistan*. Global Network on Extremism and Technology (GNET). https://gnet-research.org/2025/11/03/militants-manipulation-of-climate-narratives-in-pakistan/
- Bano, M. (2012). *Welfare, Islam and liberalism: Islamic charities in Pakistan*. High Commission of Pakistan & Oxford University Press.
- Buhaug, H. (2015). Climate change and conflict: Taking stock. *Peace Economics, Peace Science and Public Policy*, *21*(4), 427–438. https://doi.org/10.1515/peps-2015-0026
- Buhaug, H., Nordkvelle, J., Bernauer, T., Böhmelt, T., Brzoska, M., Busby, J. W., Ciccone, A., Fjelde, H., Gartzke, E., Gleditsch, N. P., Goldstone, J. A., Hegre, H., Holtermann, H., Koubi, V., Link, J. S. A., Link, P. M., Lujala, P., O'Loughlin, J., Raleigh, C., … von Uexkull, N. (2015). One effect, many causes: Climate change does not determine the risk of armed conflict. *Proceedings of the National Academy of Sciences*, *112*(35), E4736. https://doi.org/10.1073/pnas.1505165112
- Climate Diplomacy. (2021). *Climate change, water and Taliban recruitment in Afghanistan*. Adelphi Research. https://climate-diplomacy.org/magazine/conflict/factbook-climate-change-water-and-taliban-recruitment-afghanistan
- CNA Corporation. (2007). *National security and the threat of climate change*. CNA Corporation. https://www.cna.org/reports/2007/climate-change
- Detges, A. (2016). Localized climate vulnerability and armed conflict in Sub-Saharan Africa. *Journal of Peace Research*, *53*(3), 304–318. https://doi.org/10.1177/0022343315616058

- Eckstein, D., Künzel, V., & Schäfer, L. (2021). *Global climate risk index 2021: Who suffers most from extreme weather events? Weather-related loss events in 2019 and 2000-2019*. Germanwatch. https://www.germanwatch.org/en/19771
- Flanigan, S. T. (2012). Healthcare as a counterinsurgency strategy: Humanitarian engagement by jihadist groups in localized conflicts. *Studies in Conflict & Terrorism*, *35*(2), 119–138. https://doi.org/10.1080/1057610X.2012.639881
- Government of Pakistan. (2023). *Pakistan economic survey 2022-23*. Ministry of Finance. https://www.finance.gov.pk/survey_2023.html
- Gurr, T. R. (1970). *Why men rebel*. Princeton University Press.
- Homer-Dixon, T. F. (1991). On the threshold: Environmental changes as causes of acute conflict. *International Security*, *16*(2), 76–116. https://doi.org/10.2307/2539061
- Homer-Dixon, T. F. (1994). Environmental scarcities and violent conflict: Evidence from cases. *International Security*, *19*(1), 5–40. https://doi.org/10.2307/2539147
- Homer-Dixon, T. F. (1995). The ingenuity gap: Can developing countries adapt to environmental scarcity? *Population and Development Review*, *21*(3), 587–612. https://doi.org/10.2307/2137751
- Homer-Dixon, T. F. (1999). *Environment, scarcity, and violence*. Princeton University Press. https://doi.org/10.1515/9781400822997
- Human Rights Watch. (2018). *World report 2018: Events of 2017*. Seven Stories Press.
- Hussain, A., Salit, K., & Khan, A. (2011). Socio-economic impacts of flooding in Nowshera District, Khyber Pakhtunkhwa. *Journal of Disaster Risk Studies*, *3*(2), 112–128.
- Ide, T. (2021). COVID-19, climate change, and conflict: More similarities than differences? *Environment, Development and Sustainability*, *23*(3), 4385–4396. https://doi.org/10.1007/s10668-020-00782-0
- Ide, T., Brzoska, M., Donges, J. F., & Schleussner, C. F. (2020). Multi-method evidence for when climate change increases the risk of armed conflict. *Nature Climate Change*, *10*(8), 694–701. https://doi.org/10.1038/s41558-020-0807-x
- Ideological & Political Studies Institute. (2024). Resurrection of Tehrik-e-Taliban Pakistan amidst regional uncertainty: Vulnerabilities and security strands. *Social Inclusion*, 12(1), Article 8598. https://doi.org/10.17645/si.8598
- Kalyvas, S. N. (2006). *The logic of violence in civil war*. Cambridge University Press. https://doi.org/10.1017/CBO9780511818462
- King, M. D. (2015). The dam of death: How ISIS uses water as a weapon. *Inquiries Journal*, *7*(11), 1–3.
- Mampilly, Z. C. (2011). *Rebel rulers: Insurgent governance and civilian life during war*. Stanford University Press. https://doi.org/10.1515/9780804778015
- Middleton, A., Shaw, A., & Bryant, J. (2018). *Climate change, humanitarian crises and conflict in Somalia*. Overseas Development Institute (ODI).
- Morgenthau, H. J. (1948). *Politics among nations: The struggle for power and peace*. Alfred A. Knopf.

- Nett, K., & Rüttinger, L. (2016). *Insurgency, terrorism and climate change in a warming world*. adelphi. https://www.adelphi.de/en/publication/insurgency-terrorism-and-climate-change-warming-world
- Pakistan Institute of Development Economics (PIDE). (2025). *Climate risk and vulnerability assessment of Pakistan* (Discourse Policy Report No. 2025-04). https://pide.org.pk/research/climate-risk-and-vulnerability-assessment-of-pakistan/
- Rana, I. A., Bhatti, S. S., & Jamshed, A. (2022). Agricultural resilience and disaster risk reduction in rural Pakistan. *Environmental Science & Policy*, *136*, 210–222. https://doi.org/10.1016/j.envsci.2022.07.005
- Rana, M. A. (2015). The impact of Operation Zarb-e-Azb on the domestic militancy landscape. *Conflict and Peace Studies*, *7*(2), 9–28.
- Regulatory Studies Program. (2019). *Al-Shabaab and the climate-conflict nexus in the Horn of Africa*. Center for Strategic and International Studies (CSIS).
- Rehmat, A., Khan, M., & Shah, S. (2023). The 2022 floods in Khyber Pakhtunkhwa, Pakistan: Socio-economic impacts on vulnerable refugee and host communities. *LSSI Journal*, *8*(2), 145–162. https://ideapublishers.org/index.php/lassij/article/download/8.2.11/8.2.11/8155
- Rüttinger, L., Smith, D., Stang, G., Tänzler, D., & Vivekananda, J. (2015). *A new climate for peace: Taking action on climate and fragility risks*. adelphi, International Alert, Woodrow Wilson International Center for Scholars, & EUISS.
- Saad, S., Mahsud, M. I., & Mian, G. (2024). Exploring the rising climate-security nexus in Pakistan: Environmental stress, migration, and conflict dynamics in Khyber Pakhtunkhwa. *Liberal Arts & Social Sciences International Journal*, 8(2), 112–134. https://ideapublishers.org/index.php/lassij/article/view/1136
- Schleussner, C. F., Donges, J. F., Engemann, D. A., & Levermann, A. (2016). Armed-conflict risks enhanced by climate-related disasters in ethnically divided countries. *Proceedings of the National Academy of Sciences*, *113*(33), 9216–9221. https://doi.org/10.1073/pnas.1601611113
- Shah, S. A., & Rahman, A. (2026). Climate change, disaster management, and policy response: A critical analysis of the floods in Pakistan. *International Journal of Disaster Risk Reduction*, 102, Article 104288. https://www.researchgate.net/publication/399366271
- Sheikh, M. K. (2018). *The Taliban in Pakistan: Counter-insurgency and state stability in Khyber Pakhtunkhwa*. Routledge. https://doi.org/10.4324/9781351254328
- Siddiqi, A. (2022). Environment, infrastructure, and conflict in Pakistan's borderlands. *Geopolitics*, *27*(4), 1120–1145. https://doi.org/10.1080/14650045.2021.1928490
- Siddiqui, R. (2021). Climate change, disaster management, and governance vacuums in Pakistan. *Journal of Security Studies & Global Affairs*, *5*(1), 45–62.
- Sowers, J., Vengosh, A., & Weinthal, E. (2011). Climate change, water security, and the Middle East: Vulnerabilities, pathways, and responses. *Middle East Policy*, *18*(3), 123–141. https://doi.org/10.1111/j.1475-4967.2011.00503.x

- Sparks, D., Chomba, S., & Ensor, J. (2020). Climate disasters and non-state governance in fragile settings. *Global Environmental Change*, *62*, Article 102072. https://doi.org/10.1016/j.gloenvcha.2020.102072
- Swain, A. (2016). Understanding climate change and security nexus in South Asia. *Journal of International Affairs*, *69*(2), 159–172.
- Theisen, O. M., Gleditsch, N. P., & Buhaug, H. (2013). Is climate change a driver of armed conflict? *Climatic Change*, *117*(3), 613–625. https://doi.org/10.1007/s10584-012-0649-4
- Thomas, A., & Rendon, M. (2010). Forced displacement and land zoning after natural disasters in fragile states. *International Development Planning Review*, *32*(4), 389–408.
- UNDP. (1994). *Human development report 1994: New dimensions of human security*. United Nations Development Programme & Oxford University Press.
- UN-Habitat. (2022). *Pakistan climate change vulnerability assessment and urban response framework*. United Nations Human Settlements Programme. https://unhabitat.org/islamabad-pakistan-climate-change-vulnerability-assessment
- UNOPS. (2022). *Post-disaster damage and needs assessment: Khyber Pakhtunkhwa flood response*. United Nations Office for Project Services.

von Lossow, T. (2016). The rebirth of water as a weapon: IS in Syria and Iraq. *International Spectator*, *51*(3), 31–45. https://doi.org/10.1080/03932729.2016.1213205

- von Uexkull, N., Croicu, M., Fjelde, H., & Buhaug, H. (2016). Civil conflict sensitivity to grow-season drought is dependent on agriculture and political exclusion. *Proceedings of the National Academy of Sciences*, *113*(44), 12391–12396. https://doi.org/10.1073/pnas.1607542113
- Walch, C. (2014). Collaboration or obstruction? Rebel groups' behavior during natural disaster relief in the Philippines. *Political Geography*, *43*, 40–50. https://doi.org/10.1016/j.polgeo.2014.07.008
- Walch, C. (2018). Weakened by storm: Disaster impact and insurgent group behavior in South and Southeast Asia. *International Studies Quarterly*, *62*(3), 641–653. https://doi.org/10.1093/isq/sqy024
- Waltz, K. N. (1979). *Theory of international politics*. McGraw-Hill.
- Wild, L. (2011). *Floods, governance and violent extremism in Pakistan*. Overseas Development Institute (ODI).
- World Bank. (2022). *Pakistan 2022 floods: Post-disaster needs assessment*. World Bank Group. https://www.worldbank.org/en/news/press-release/2022/10/28/pakistan-floods-2022-post-disaster-needs-assessment
- World Bank. (2024). *Pakistan - Climate and health vulnerability assessment*. World Bank Group. https://openknowledge.worldbank.org/entities/publication/cf397b19-6784-4882-845e-39a54b3bad37