



EVENT REPORT

SILENT SCARS

The Environmental
Destruction in War Zones

28 November 2025



ABOUT CRF

Chintan Research Foundation is an independent think tank dedicated to shaping policy through rigorous research and thought leadership. With a strong focus on fostering collaboration between policymakers and industry, CRF integrates practical insights into its research and advocacy efforts. It conducts comprehensive research to support informed decision-making and engages with stakeholders through discussions, events, and publications. CRF's research is focused on three core domains – Climate Change & Energy Transition, Economy & Trade, and Geopolitics & Strategic Studies. For more details, refer to the website: www.crfindia.org

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28 November 2025 | Chintan Research Foundation Office, New Delhi



Chintan
Research
Foundation

CONTENTS

Foreword1

Welcome Address2

Session 1 - Intersecting Crises: Armed Conflict, Environmental
Degradation And Climate Vulnerability.....3

Session 2 – Integrating Environmental Dimension
Into Policy Pathways 11

Closing Remarks & Vote of Thanks 17

Policy Recommendations 18

FOREWORD



Armed conflict has long been associated with profound human suffering, displacement, and destruction of infrastructure. However, one of the most overlooked yet significantly consequential dimensions of contemporary warfare is its impact on the environment. Across conflict-affected regions—including South, Central, and West Asia, Sub-Saharan Africa, Latin America, and parts of Europe—wars have caused severe ecological degradation, undermined already fragile ecosystems, and obstructed long-term recovery and development.

While natural disasters and climate change have their own roles in environmental degradation, their effects are often magnified in conflict zones, where war directly damages ecosystems, pollutes water sources, and disrupts agricultural production. Yet, there is limited global recognition or accountability for the environmental legacies of warfare, especially in already vulnerable and low-income nations. As global awareness for ecological sustainability grows, it is imperative to explore strategies that mitigate the environmental impacts of warfare without compromising national defence.

It was in this context that Chintan Research Foundation had convened a seminar titled “Silent Scars: The Environmental Destruction in War Zones,” which brought together senior scholars, practitioners, policymakers, and members of the strategic and defence community to reflect on India’s approach to integrating environmental security into its strategic and defense planning and to consider possible frameworks that safeguard ecosystems during and after conflict.

This report seeks to offer timely and policy-relevant perspectives on the environmental dimensions of armed conflict in the backdrop of India’s expanding geopolitical responsibilities and the growing salience of climate-security linkages. It aims to contribute to ongoing debates on how environmental considerations can be systematically embedded within security planning, while supporting India’s broader commitments to climate action, sustainability, and responsible global leadership.

Warm regards,
Mr. Shishir Priyadarshi
President, Chintan Research Foundation

SEMINAR

SILENT SCARS**THE ENVIRONMENTAL DESTRUCTION IN WAR ZONES**

In light of India's expanding geopolitical responsibilities and the escalating urgency of climate-security challenges, the Chintan Research Foundation (CRF) convened a seminar titled "Silent Scars: The Environmental Destruction in War Zones" on November 28, 2025. The event brought together senior scholars, current and former government officials, and academic experts to examine India's evolving approach to integrating environmental security within its strategic and defence planning frameworks. The discussion focused on potential mechanisms to protect ecosystems during and after armed conflict.

Set against the backdrop of the devastating and often overlooked environmental consequences of war, the seminar addressed the invisible yet long-term damage inflicted on ecological systems and explored strategies for environmental preservation in conflict-affected zones. Amid a shifting regional security landscape, the dialogue served as a timely platform for evaluating both the risks and opportunities involved in aligning defence imperatives with ecological sustainability.

WELCOME ADDRESS



MR. SHISHIR PRIYADARSHI
President, Chintan
Research Foundation

Mr. Shishir Priyadarshi, President of the Chintan Research Foundation, in his welcome address, underscored the urgent need to recognize and engage with the often-overlooked but long-term environmental consequences of armed conflict. He noted that while humanitarian and security concerns typically dominate the discourse, the ecological toll of warfare remains underacknowledged despite its far-reaching impacts.

Drawing on examples from conflict zones such as Ukraine, Iraq, and Gaza, he highlighted how environmental degradation can persist for decades, exacerbating poverty, undermining agriculture and livelihoods, and intensifying socio-economic vulnerabilities. Acknowledging the scepticism surrounding the efficacy of such dialogues, he pointed to existing UN declarations that affirm the environmental costs of war, advocating for the continuation of such discussions—however incremental—describing them as necessary but persistent “woodpecker-like” efforts.

He further emphasized that the seminar aims not only to map the multifaceted nature of ecological degradation in conflict settings but also to examine its intersections with pollution, livelihood disruption, and climate fragility. He highlighted the multilayered impact of climate change while stating the instance of a rise in domestic violence, especially in rural areas affected by climate change. Importantly, he stressed the need to identify small but actionable policy interventions, with the broader objective of fostering sustained engagement and raising awareness about this critically crucial but neglected dimension of modern warfare.

SESSION 1 - INTERSECTING CRISES: ARMED CONFLICT, ENVIRONMENTAL DEGRADATION AND CLIMATE VULNERABILITY

OPENING SESSION

Moderated by



AMB. MANJEEV SINGH PURI
Former Ambassador of India to the EU, Nepal, Belgium & Luxembourg, India's Former Deputy Permanent Representative to the UN

In his introductory remarks, Ambassador Manjeev Singh Puri emphasized that war “ravages” the environment and underscored the necessity of considering the ecological consequences of conflict alongside its broader geopolitical dynamics. He observed that environmental responsibility is shaped as much by political interests as by policy frameworks. While elaborating on the influence of political interests he stated the case of smooth transition towards Türkiye, set to host the COP31. While acknowledging that military activities contribute to greenhouse gas emissions, the deeper challenges rooted in the complexities of international diplomacy were highlighted where UN resolutions on conflict-related environmental damage often receive limited attention. He specified about the haw anthropogenic nature of climate change that can develop a conflict scenario, illustrating the potential impact on naval routes due to the melting of ice caps in Arctic. Concluding his address, Amb. Puri welcomed the diverse gathering of academics and senior officials, stressing the importance of leveraging scholarly and academic insights to inform policy responses and deepen understanding of the intersections between warfare, climate change, and international law.



DR. DHANASREE JAYARAM
Assistant Professor (Senior Scale), Department of Geopolitics and International Relations, Manipal Academy of Higher Education

Dr. Dhanasree began by highlighting that environmental security studies have existed since the 1970s, focusing on the connection between environment change, conflict and environmental disruption, though the scholarship has been largely dominated by voices from the Global North, with limited contributions from regions like Africa and South Asia. Tracing the evolution of the climate-conflict discourse, she explained that during the early Cold War era, attention was primarily centered on the environmental consequences of war. However, from the 1990s onward, the focus shifted towards understanding how climate change and environmental degradation could themselves serve as catalysts for conflict and eventually becoming nontraditional security threats.

She emphasized that causal relationships between climate and conflict are rarely linear. Climate impacts tend to ripple across interconnected systems, compounding existing pressures through feedback loops involving weak resilience, resource scarcity, poor governance, and migratory shifts—all of which can escalate or instil conflict scenarios. Dr. Dhanasree pointed out that the academic landscape remains fragmented, as establishing empirical links between environmental stress and conflict requires robust evidence. This distinction is crucial, she noted, since environmental stressors can foster both conflict and cooperation depending on the context.

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However, interest in the subject has grown significantly in recent years, driven by conflicts such as the Russia-Ukraine war, the Israel-Hamas escalation, and the crises in the Sahel and the Horn of Africa. These events have prompted closer examination of war-induced environmental harm. Organizations like the Conflict and Environment Observatory are now regularly assessing wartime emissions and ecological damage. Meanwhile, international institutions such as the UN Security Council and NATO have begun incorporating climate-security discourse into their agendas. However, political impediments persist, as illustrated by Russia's veto of a climate-security resolution in 2021.

With regard to India, Dr. Dhanasree observed that research in this domain remains limited but is slowly expanding. Emerging work is beginning to address themes like Himalayan ecological fragility, water stress, migration, and impacts of localized conflict on the environment. She concluded by underscoring the urgent need for improved data collection and analytical tools in this area of research. She also briefly introduced forward-looking concepts such as 'low-carbon warfare', suggesting their potential role in shaping future defence planning, keeping emissions reduction as a factor. Finally, she called for integrating environmental rehabilitation into peacebuilding processes, strengthening international legal norms, and elevating the voices of local communities in policy and research conversations.



LT GEN ASIT MISTRY
 PVSM, AVSM, SM, VSM (RETD),
 Former Director, School of
 Internal Security, Defence and
 Strategic Studies, Rashtriya
 Raksha University (RRU), Gujarat

Lt. Gen. Asit Mistry addressed the often-overlooked environmental consequences of armed conflict, describing them as “silent scars” that affect all—combatants and non-combatants alike, including those far removed from the immediate theatre of war. Structuring his remarks around three central questions—how strategic communities perceive environmental impacts, how awareness has evolved, and whether such concerns influence policy and planning—he emphasized that despite increasing recognition, ecological considerations remain peripheral in mainstream defence discourse.

Drawing from historical examples, he noted that while wars have long inflicted moral, physical, and economic harm, the environmental toll was rarely treated as a distinct category. With technological advancements, the destructive capacity of warfare has increased significantly. The post-World War II era saw a shift towards more intrastate warfare, which proved harder to contain. Although the frequency of conflict declined following the Cold War, it has surged again since 2010, bringing with it escalating casualties and environmental destruction.

Lt. Gen. Mistry outlined a cyclical model of environmental degradation associated with conflict. In the pre-conflict phase, military preparedness contributes significantly to global emissions—with militaries accounting for an estimated 5.5% of global greenhouse gas output due to the fuel-intensive nature of heavy equipment and vehicles. During conflict, ecological devastation is magnified. He cited the widespread deforestation and chemical contamination during the Vietnam War (the use of Agent Orange), the burning oil fields of the Gulf War, and the escalating environmental threats in recent conflicts such as those in Ukraine, Gaza, and Iran, including potential nuclear risks. Post-conflict, environmental harm persists through mass displacement, degraded ecosystems, destruction of critical infrastructure such as dams and agricultural land, and widespread contamination from land and sea mines—factors that often sow the seeds for renewed instability.

On the question of strategic awareness, he observed that serious acknowledgment of these concerns only emerged in the late 1980s and early 1990s, spurred by the Gulf War, growing climate discourse, and the geopolitical shifts following the Cold War. However, most remedial efforts remain limited to the pre-conflict stage, focusing on greening military operations rather than

integrating environmental safeguards into combat planning. Environmental considerations are typically subordinate to operational imperatives and will gain traction only when codified in international conventions, such as those banning chemical weapons.

Concluding his remarks with references to former UN Secretary-General Ban Ki-moon and U.S. President John F. Kennedy, Lt. Gen. Mistry underscored the inseparability of environmental well-being from the conduct of war. He called for a long-term, ecologically informed approach to conflict and defence planning, stressing the urgency of protecting a planet which is already under significant strain.



DR. STELLINA JOLLY
Senior Associate Professor,
Faculty of Legal Studies, South
Asian University (SAU)

Dr. Stellina Jolly explored the evolving and complex legal landscape governing the interlinkage between climate change and armed conflict, highlighting both its limitations and emerging developments. She began by demonstrating a paradox: while international law prohibits the use of force except under narrow exceptions, the frequency of armed conflicts—such as those in Ukraine and Gaza—continues to rise. This reality has compelled legal scholars to reexamine the ways in which warfare exacerbates environmental degradation. While much discourse has focused on climate change as a catalyst for conflict, Dr. Jolly emphasized that the inverse relationship—where conflict intensifies environmental vulnerability and contributes to greenhouse gas emissions—has only recently, due to Ukraine war, begun to receive substantive legal attention.

She outlined possible legal avenues for redress in cases like Ukraine, including recourse to a proposed European Commission compensation mechanism or the International Court of Justice (ICJ). Ukraine's most viable legal claim, she argued, would be based on Russia's violation of the prohibition on the use of force under international law. Should such a violation be established, Russia could be held accountable for all resultant damage, including ecological harm. Additionally, Dr. Jolly referenced the UN General Assembly's 2022 recognition of the human right to a clean, healthy, and sustainable environment, noting its potential relevance in future legal arguments. Though certain provisions in international humanitarian law restrict military operations that cause widespread, long-term environmental harm, she cautioned that the evidentiary thresholds required to invoke these provisions remain prohibitively high.

Turning to the realm of international environmental law, Dr. Jolly highlighted a significant legal ambiguity: it remains unclear whether peacetime treaties such as the UN Framework Convention

on Climate Change (UNFCCC), the Kyoto Protocol, or the Paris Agreement retain their applicability during armed conflict. Some scholars argue that during hostilities, international humanitarian law becomes the prevailing legal framework. However, political resistance persists, particularly regarding the treatment of military emissions, which are often classified under national security and therefore, left out of mandatory reporting. This, coupled with the fragmented nature of global environmental governance, poses a major challenge to legal accountability.

Dr. Jolly also addressed the difficulties of establishing causality and measuring environmental harm in legal forums. She cited the ICJ's struggle in adjudicating environmental damage in the *Costa Rica v. Nicaragua* case—a relatively straightforward dispute—underscoring the far greater complexity in conflict zones. Nevertheless, she identified emerging legal instruments that offer hope for progress. Chief among them are the International Law Commission's 28 Draft Principles on the Protection of the Environment in Relation to Armed Conflicts (PERAC). These draft principles adopt a comprehensive approach, covering the pre-, during-, and post-conflict phases. They emphasize precautionary measures, environmental impact assessments, restrictions on pillage, the responsibilities of non-state actors, and mechanisms for ecological restoration and compensation.

While acknowledging that these principles are largely aspirational and non-binding, Dr. Jolly viewed them as reflective of a growing normative shift within international law. She concluded by recognizing the limitations of international legal mechanisms and their susceptibility to political influence. Nonetheless, she argued that the continued efforts by states to justify their actions within a legal framework demonstrate the enduring moral and normative force of international law, even in addressing the environmental consequences of conflict.



DR. ROBERT MIZO
Assistant Professor,
Department of Political Science,
University of Delhi

Dr. Robert Mizo opened by thanking CRF and emphasised the importance of the discussion precisely because it addresses an issue that is routinely marginalised. He argued that the environment is not a “silent victim” of war by nature; rather, its silence is actively produced. This silencing, he suggested, stems from the dominant ways in which International Relations (IR) has been theorised and global politics has been framed over decades. The key question, therefore, is not whether the environment is silent, but whether it has been rendered silent—an issue rooted deeply in the epistemological foundations of traditional roots of realism in IR.

He underscored the immense scale of the problem by noting that if global militaries were treated as a single entity, they would constitute the world's fourth-largest emitter of greenhouse gases. Global military expenditure reached approximately USD 2.44 trillion in 2023, while climate finance continues to struggle to mobilise even a fraction of this amount. South Asia, he observed, reflects the same pattern of neglect. Although data remain scarce,

existing research clearly points to extensive environmental damage: loss of forest in Sri Lanka; deforestation and land degradation in Afghanistan; widespread landmine contamination across the region; glacier retreat in Kashmir (29% of area being lost); and mounting ecological stress in the India–China borderlands due to militarisation, landslides, and pressure on fragile ecosystems.

According to him, realism remains the dominant framework shaping global “common sense” in IR. By naturalising war, treating conflict as normal, and defining security narrowly in military terms, realism renders ecological harm largely invisible. Within this logic, environmental destruction is simply not framed as a security concern forming an ecological blindness. To move beyond this limitation, he proposed engaging alternative theoretical frameworks. Constructivism, he argued, helps reveal how threats are socially constructed—how language, norms, and discourse determine what is recognised as danger, and how the environment is systematically excluded in this regard. If states construct climate change as a security threat, it gains political salience; if they do not, it remains invisible.

He also drew on critical theory, which links militarism, capitalism, and ecological violence. This perspective exposes how powerful actors have shaped the existing global order and how war-making sustains extractive and environmentally destructive growth models. In this sense, he contended, climate change represents a crisis of modernity itself. As such, it cannot be addressed through minor adjustments within existing paradigms, but requires a more fundamental rethinking of prevailing frameworks.

For a meaningful shift, he argued, the very concept of security must be reimagined. Security can no longer be confined to borders and armed forces; it must encompass ecological integrity, human well-being, and climate justice. Threats and sovereignty need to be redefined to include ecological risks, and sovereignty must be understood not only in territorial terms but also in relation to the health of ecosystems. Otherwise, societies lose far more than land in war—losses that remain systematically uncounted and unacknowledged. He further stressed the need to denaturalise war itself, viewing it not as an inevitable condition but as a historical institution shaped by specific ideas and power structures. Treating war as “natural,” he warned, perpetuates the invisibility of its ecological consequences.

In closing, he observed that climate change compels thinking beyond borders, as environmental risks do not respect sovereignty and demand cooperation rather than competition. The realities of a climate-stressed world, he concluded, expose the growing inadequacy of conflict-centric IR. Only an ecological turn in world politics, he argued, will enable us to understand why global politics operates as it does—and to imagine alternative, more sustainable ways of being.

SESSION 2 – INTEGRATING ENVIRONMENTAL DIMENSION INTO POLICY PATHWAYS

Moderated by



DR. DEBAJIT PALIT
Centre Head, Centre for
Climate Change & Energy
Transition, Chintan Research
Foundation (CRF)

Dr. Palit underscored the deep and often underappreciated linkages between armed conflict and environmental degradation, calling for urgent policy attention at both national and global levels. He delineated two interrelated dimensions of harm: first, the localized environmental impacts during active hostilities and the post-conflict reconstruction phase; and second, the global consequences of military dependence on fossil fuels, emissions from which are typically subsumed under general energy statistics rather than reported as a distinct military category.

He observed that military preparedness alone is estimated to account for nearly 6% (around 3 gigaton) of global greenhouse gas emissions—a level comparable to India’s total emissions, which stands around 3.2 gigaton—highlighting the sheer scale of the challenge. At the local level, conflict precipitates deforestation, contamination of air, water, and soil, and additional emissions generated by resource-intensive reconstruction processes, producing what he described as a “double whammy” of environmental damage. He further warned of the emerging risk of “ecological warfare,” pointing to large upstream dam construction, with the capacity of generating 60 gigawatts of power, near Assam from the Chinese side as an example of environmental vulnerability with serious security implications, particularly in the event of seismic activity or structural failure. The need to measure the impact of direct and indirect environmental degradation was flagged. These measures can be taken up by international organisations like COP.

Turning to mitigation, he noted that India has initiated measures such as simulator-based military training and the adoption of precision warfare technologies, which have the potential to reduce fuel consumption and limit collateral environmental harm. Dr. Palit concluded by stressing the urgent need for far more systematic research to quantify emissions and ecological impacts before, during, and after conflict, reiterating the principle that what is measured can only be effectively managed.



AIR VICE MARSHAL ANIL
GOLANI (RETD.)
Director General, Centre for
Aerospace Power & Strategic
Studies (CAPSS)

Air Vice Marshal Golani highlighted two dimensions that have received comparatively limited attention in earlier discussions: first, the substantial contribution of non-state armed groups to environmental degradation in contemporary conflicts; and second, the potential value of recognising ecocide as a fifth international crime—alongside genocide, crimes against humanity, war crimes, and crimes of aggression—within the jurisdiction of the International Criminal Court. He argued that addressing conflict-related environmental harm requires early and sustained education, beginning at military academies and extending to the school level, given that the broader society ultimately supplies the armed forces.

Turning to India's experience, he outlined the wide-ranging environmental initiatives undertaken by the armed forces. The Indian Army, deployed across varied and ecologically sensitive terrains, operates ten Eco-Territorial Army battalions that have collectively planted over ten crore trees. At the Siachen Glacier, approximately 236,000 tonnes of waste have been retrieved under the "Clean Siachen, Green Siachen" programme, with recyclable materials converted into environmentally friendly products and non-recyclables safely disposed of in designated pits. He noted that the "Green 2.0" initiative was launched recently by the Raksha Mantri at the Chanakya Defence Dialogue.

He further emphasised that the Joint Doctrine of the Armed Forces formally recognises environmental degradation as a critical security challenge, encompassing non-traditional threats such as ecosystem destruction, energy scarcity, demographic pressures, food insecurity, and environmentally induced conflict. Mitigation strategies include integrating environmental risk assessments into operational planning, treating ecological damage as a potential conflict trigger, and conducting environmental impact assessments for military strategies. The Army Environment Cell plays a coordinating role with state and district authorities, while field-level efforts focus on safeguarding wildlife habitats in regions such as Rajouri, Kargil, and the forests of Assam.

At the ministerial level, he observed, the Ministry of Defence has prioritised the adoption of renewable energy sources, including solar and hydropower, transitioned select vehicles to biofuels, deployed bio-digesters for sanitation, and issued guidelines in collaboration with the Wildlife Institute of India to monitor biodiversity in conflict-affected zones, particularly in Ladakh. The Indian Air Force

has certified the AN-32 transport aircraft for 23% sustainable aviation fuel (SAF) blends since 2021, with operational flights conducted in 2023. While comparable initiatives are underway in the United States and the Royal Air Force—projecting lifecycle emission reductions of 70–80%. Future plans envisage increasing SAF usage, although technical constraints persist, especially for fighter aircraft.

In conclusion, he outlined additional Army-led initiatives under the “Green 2.0” campaign, including the “Ek Ped Maa Ke Naam” pledge by every soldier, restoration of wetlands and dry ponds, rehabilitation of degraded forests in containment areas, a complete ban on single-use plastics effective from 1 January 2026, systematic e-waste management, rainwater harvesting, and the construction of micro-bore wells. He also highlighted veteran-led environmental projects such as Atulya Ganga, recognised by the current Army Chief. On green hydrogen, he pointed to the inauguration of an electricity generation plant at Chushul recently by the Raksha Mantri, alongside the introduction of green hydrogen buses and vehicles. Impressed by the sustainability practices at Upna Military Station, the Raksha Mantri has called for their extension to neighbouring civilian areas through enhanced civil–military cooperation. Recyclable waste recovered from Siachen has been repurposed into jackets, with a non-recyclable variant presented to the Prime Minister as a symbol of these efforts.



LT. GEN. JASBIR SINGH LIDDER
(RETD.)
Distinguished Fellow, United
Service Institution of India (USI)

Lt. Gen. Lidder observed that strategic threats and global violence have reached unprecedented levels, driven by the concentration and proliferation of advanced weaponry that generates mass casualties, widespread destruction, and cumulative environmental stress. He noted that international laws, agreements, and operational protocols are increasingly being formulated in a context marked by shrinking space for dialogue and accountability, even as global military expenditure reaches historic highs. Multilateralism—originally conceived to promote collective security and economic progress—has become characterised by rivalry, proxy conflicts, rigid military alliances, and large-scale arms transfers. The short- and long-term consequences of these trends include profound human suffering, large-scale displacement, regression in human rights, and accelerating biodiversity loss. Questioning the assumption that higher defence spending automatically delivers peace, he warned that weapons are frequently diverted to non-state armed groups, terrorists, and traffickers, thereby deepening instability and compounding environmental degradation. Excessive defence expenditure, he added, also diverts resources away from human security priorities and undermines progress towards the UN Sustainable Development Goals.

Turning to environmental degradation, he stressed that while human casualties and damage to infrastructure dominate conflict narratives, the destruction of biodiversity and the neglect of climate impacts remain systematically underreported or deliberately

downplayed. The increasing deployment of AI-enabled autonomous weapon systems (AWS), he cautioned, could further intensify environmental harm unless governed by robust precautionary frameworks. The environmental consequences of warfare are often extensive and irreversible, degrading habitats, ecosystems, and critical life-support systems.

At the international level, he highlighted that military organisations consume vast financial, natural, and energy resources, contributing to environmental degradation even in peacetime. While acknowledging the legitimacy of national security imperatives, he argued that aligning military expenditure with climate resilience and environmental sustainability would be strategically prudent. Referring to the UN's Pact for the Future, adopted by world leaders in New York, he underscored its emphasis on the indispensable role of the international community in strengthening global and domestic efforts to address evolving threats to peace and security.

Shifting to national security, he argued that states must carefully balance the use of force against moral responsibilities and the broader socio-economic costs of war. The application of force, he maintained, must remain firmly grounded in international law, with national strategies and military operations guided by the principles of proportionality and necessity under International Humanitarian Law (IHL). Despite increasingly consolidated national security architectures that integrate multiple instruments of power, the environmental dimension remains inadequately mainstreamed. He therefore called for a reconceptualisation of national security that embeds environmental and climate considerations within joint doctrine.

Traditional formulations of national power, he noted, focus on three core instruments—defence, diplomacy, and the economy—with the United Kingdom more recently adding information as a fourth. He argued for the recognition of a fifth instrument: the environment. Within a framework encompassing defence, diplomacy, economy, information, and environment, “environmental security” (ES) could be systematically conceptualised. ES, he proposed, should be recognised as a principle of war and integrated into national strategies, interests, and strategic processes, cascading down to contingency planning and operational directives.

In discussing military strategy and field practice, he linked environmental security closely to IHL, which already contains provisions aimed at limiting damage to biodiversity. Military statecraft, he argued, requires the calibrated use of force informed by moral restraint and humanitarian responsibility. Effective campaigns should be manoeuvre-oriented, with operational plans designed to avoid ecologically sensitive zones, natural resource hubs, and densely populated areas wherever possible. He emphasised that the application of firepower must clearly distinguish legitimate military targets from protected landmarks and sites requiring restraint, in order to minimise civilian harm and long-term environmental damage.

In his concluding remarks, he described the contemporary hybrid battlefield as increasingly fluid, undefined in both space and time, and characterised by decentralised operations in which junior leaders are required to exercise initiative and make outcome-critical decisions. While technology can enhance military effectiveness, he cautioned that it must remain a support tool and never supersede human judgement, as machines alone cannot win wars or sustain legitimacy. In the information age,

he stressed the importance of proactive and credible strategic communication, including transparent engagement with the environmental dimensions of conflict. Once environmental security is recognised as a component of national power, he argued, it will naturally shape strategic messaging as well as post-conflict reconstruction and recovery narratives.



**DR. JAYASHREE
VIVEKANANDAN**
Associate Professor, Senior
Grade, Department of
International Relations. South
Asian University (SAU)

Dr. Jayashree stated that the need to problematize the conventional binary between war and peace by acknowledging the persistent resource conflicts that continue in the absence of overt violence. While biodiversity hotspots have accounted for nearly 80% of the world's armed conflicts between the 1950s and 2000s, structural forms of violence, manifested through displacement, underdevelopment, and contested state-building, sustain conflictual dynamics even outside recognized war zones. These zones, which are neither of war nor of peace, exemplify what the speaker terms "silenced gull," where environmental and human insecurities intersect.

Her analysis centered on two transboundary protected areas (TBPAs) -

- The Sundarbans and
- The Kailash Sacred Landscape (KSL)

They represent distinct types of environmental conflict: militarisation in the Sundarbans and sedentarization in Kailash.

She explained the ecological as well as geographical significance of the Sundarbans. Conservation efforts such as India's Project Tiger (1973) have contributed significantly to protecting the endangered Bengal tiger but have also deepened the separation between the human and natural worlds. The exclusionary approach of designating core tiger habitats has resulted in the displacement and marginalization of indigenous communities, who are now prohibited from collecting honey or firewood, directly threatening their livelihoods.

Providing a historical background of the region, she emphasized that it has been shaped by successive waves of partition-induced migration, which has contributed to demographic volatility and socio-political vulnerabilities. Therefore, environmental governance has taken militarised forms. Local communities often face criminalization following tiger attacks, as any human-tiger encounter resulting in tiger deaths is penalised under poaching laws. Consequently, retaliatory killings and participation in transnational poaching networks have emerged as acts of defiance

against the state's prioritization of conservation over local welfare. Moreover, coercive practices employed not only by state agencies but also by international NGOs have intensified the militarisation of conservation efforts in the region.

Highlighting the socio-economic constraints, she stated that the deprivation is acute. Per capita income in the Indian Sundarbans is less than half the West Bengal average as only 17% of residents have access to electricity, while the doctor-patient ratio is drastically (at 1 doctor to 50,000 individuals) below the government mandated ratio. Despite close India–Bangladesh cooperation on development projects, coordination on conservation remains limited. Projects such as the Rampal Thermal Power Plant, situated four kilometres from the ecologically critical zone, along with 190 other industrial units, underscore the ongoing commercialisation that threatens ecological sustainability.

On the other hand, the Kailash Sacred Landscape (KSL), spanning northwestern Nepal, central India, and southwestern China (Tibet), supports nearly one-fifth of the world's population and encompasses the sources of four major river systems, namely the Brahmaputra, Ganges, Indus, and Sutlej. The area is also of immense spiritual value to multiple faiths. The Kailash Sacred Landscape Conservation and Development Initiative, launched in 2009, is a multilateral platform that brings together China, Nepal, and India.

She explained how environmental governance has been used as an instrument of political control. The Chinese state's sedentarization policies, under legislation such as the 2002 Grasslands Law and the Pasturelands to Grass Act, have sought to settle Tibetan nomads deemed disruptive to territorial control. These policies, framed in the language of ecological conservation, have facilitated the marginalisation and displacement of nomadic populations, whose mobility traditionally defined the cultural and environmental landscape of the region.

She concluded her address by suggesting that effective ecological governance requires rescaling environmental politics to meaningfully integrate local institutions, knowledge systems, along with local community participation, not merely as implementers but as co-producers of policy and conservation outcomes.

CLOSING REMARKS & VOTE OF THANKS



DR. INDRANI TALUKDAR
Fellow, Chintan Research
Foundation



DR. ANCHITA BORTHAKUR
Research Associate,
Chintan Research Foundation

In her closing remarks, Dr. Indrani Talukdar expressed sincere gratitude on behalf of the Chintan Research Foundation (CRF) to all the panellists for the depth of expertise and rich perspectives shared across the sessions. She noted the intellectual coherence that marked the day's deliberations, highlighting the narrative progression from discussions on Global North–South dynamics and the implications of the Ukraine war to analyses rooted in international law, realism, and state–nation relations.

She observed that while the military is often viewed primarily as a generator of conflict, it also performs a critical role in conflict mitigation and recovery. Drawing on real-time experiences from Kashmir, she cited instances where military personnel have supported state-led efforts to rebuild lives, including through environmentally sensitive and community-oriented interventions. Dr. Talukdar further appreciated the manner in which the discussions effectively linked geopolitics with environmental degradation and local community concerns, noting the smooth transition from conceptual and theoretical reflections in the morning sessions to more policy- and recommendation-oriented deliberations in the later panels.

She emphasised that this balance between scholarly insight and practical experience—bridging perspectives from the military and the social sciences—was particularly enriching and added significant value to the overall discourse. Dr. Indrani Talukdar and Dr. Anchita Borthakur concluded by thanking the panellists for their candid and insightful contributions. They also conveyed their appreciation to all participants for their thoughtful engagement and expressed their intention to continue working closely with them as the initiative moves forward.

POLICY RECOMMENDATIONS

Integrated Military and Environmental Reforms

- The accelerating degradation of environmental systems in conflict settings necessitates the formal inclusion of military and war-related emissions within global climate governance frameworks, including the Global Stocktake and Conference of the Parties (COP) processes. Despite likely resistance from certain states, these platforms should initiate structured deliberations to address the environmental externalities of armed conflict in a transparent and systematic manner.
- Environmental intelligence should be institutionalised as a core component of military planning to identify ecologically sensitive areas, critical natural resources, and civilian infrastructure that warrant protection during hostilities. Comprehensive risk and threat assessments must inform protection-oriented rules of engagement and operational doctrines, ensuring that environmental considerations are embedded in decision-making across all phases of military operations.
- Beyond the obligation to minimise harm, armed forces also bear a responsibility to contribute to post-conflict environmental recovery. Strengthened civil–military coordination should therefore be integral to joint planning frameworks, enabling the effective deployment of military logistics, engineering capabilities, and manpower in support of ecological restoration and rehabilitation efforts.
- As contemporary warfare becomes increasingly multidimensional, military and policy decision-making must incorporate cognitive, ethical, and moral reasoning alongside strategic and tactical considerations. Greater attention to these dimensions can enhance judgment among military, legal, political, and diplomatic actors. In parallel, environmental audits should be institutionalised across military training and operational areas to systematically assess land degradation, explosive contamination, and unexploded ordnance, thereby addressing public concerns regarding environmental and human safety.

Environmental Security and Sustainability

- Environmental security and sustainable development are deeply interlinked and mutually reinforcing. Post-conflict environmental rehabilitation must therefore be anchored in multi-stakeholder partnerships, supported by adequate financing, and grounded in close collaboration with host communities and local actors. Conflict-related environmental damage should be systematically documented, addressed, and periodically reviewed to ensure recovery processes that balance immediate humanitarian needs with long-term ecological restoration. Such an approach requires a whole-of-nation commitment, drawing on lessons from post-conflict contexts such as Sudan as well as from disaster management experiences.
- There is a pressing need to recognise the scale and persistence of environmental destruction caused by armed conflict. Warfare contributes to deforestation, land degradation, glacial retreat, and extensive air, water, and soil pollution, generating impacts that often outlast the cessation of hostilities. Defence and security planning must therefore internalise these environmental costs as

a core component of strategic assessment and national preparedness rather than treating them as secondary or external concerns.

- The concept of low-carbon warfare provides a potential framework for aligning defence practices with global climate objectives. Military operations should prioritise emissions reduction, improved fuel efficiency, and the selective use of heavy equipment wherever operationally feasible. Such measures not only mitigate environmental harm but also complement India's broader climate commitments.
- Systematic mapping of environmental damage and rigorous tracking of emissions from military activities—particularly in ecologically fragile regions such as the Himalayas, Kashmir, and the India–China borderlands—are essential for generating reliable data. This evidence base can inform more effective recovery, mitigation, and adaptation strategies.
- Finally, environmental security must be institutionalised through structured syllabi, simulation-based exercises, and mobile training modules across military and security institutions. The adoption of a formal environmental doctrine and a comprehensive environment–security framework is necessary to embed environmental considerations as a cross-cutting principle shaping strategic, operational, political, and diplomatic decision-making processes.

Sub-National and International Cooperation

- A shared conception of collective security—anchored in political candour and reinforced by robust international law, global frameworks, and consultative operational protocols—is an urgent imperative. Partnerships among governments, institutions, and relevant stakeholders, supported by contemporary technological tools, should be mobilised to mitigate environmental degradation and restore damaged landscapes.
- Drawing on Lyle Goldstein's notion of "cooperation spirals," which emphasises incremental and pragmatic confidence-building measures that can mature into formal agreements, specific areas for action should be identified and pursued. Existing precedents—such as the Kalahari Transfrontier Park jointly managed by Botswana and South Africa, and Bangladesh's community radio networks for disaster response—demonstrate scalable, participatory models that integrate local communities into environmental governance.
- Looking ahead, peace negotiations and post-conflict settlements should systematically incorporate provisions for environmental rehabilitation. Strengthening legal norms at both international and national levels is essential to ensure accountability for ecological harm. Equally important is the meaningful engagement of local communities as partners and knowledge holders, enabling environmental governance that is inclusive, adaptive, and context-specific.





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Chintan
Research
Foundation



1st Floor, Bharti Crescent Building, 1 Nelson Mandela Marg, Vasant Kunj Phase II, New Delhi - 110070



info@crfindia.org



+91 9311630957, +91 6358871398



www.crfindia.org