The New Grammar of War: Industry, Infrastructure and Invisible Frontlines

What Iran's War Teaches India

BY EARTH NEWS POLITICAL DESK

Modern warfare rarely announces itself with a single dramatic moment anymore. It unfolds in layers, often invisibly at first, before revealing its full force in a carefully orchestrated cascade of disruption and destruction. The ongoing conflict involving Iran, the United States and Israel captures this transformation with striking clarity. What is being witnessed is not merely a campaign against military assets in the conventional sense, but a deliberate and sustained assault on the foundations that make military power possible. The true battlefield is no longer confined to tanks, aircraft and troops. It now extends deep into laboratories, factories, supply chains and even the minds that design them.

When the joint American and Israeli strikes began on the morning of 28 February 2026, the operation appeared, at first glance, to follow the familiar script of overwhelming air power. More than a hundred aircraft surged forward in what was described as a synchronised wave, hitting targets across Iran with speed and precision. Yet the decisive phase of the campaign had already unfolded before a single bomb was dropped. Cyber and space-based operations had quietly degraded Iran's ability to detect, communicate and respond. Networks were disrupted, sensors blinded and command structures fractured. By the time the first missiles struck their targets, the architecture that coordinated Iran's defence had already begun to unravel.

In the hours and days that followed, the scale of the assault became apparent. Senior political and military figures were targeted in rapid succession. Command-and-control nodes were dismantled. Naval assets were struck, and ballistic missile facilities repeatedly hit. Within less than three days, the operational tempo had achieved what would once have taken weeks. By early March, thousands of targets had been engaged, and air dominance had extended deep into Iranian territory. The sheer intensity of the campaign conveyed a clear message about capability. Yet what remained less clear, and continues to invite debate, is the precise political endgame that underpins this military effort.

Public statements from Washington and Tel Aviv suggest a convergence of intent, but not complete alignment. For the United States, the conflict has been framed as the culmination of decades of hostility, a continuation of a longstanding effort to curb Iran's regional ambitions and alleged nuclear aspirations. Embedded within this narrative is an openly articulated desire for regime change, an objective that has historically proven elusive and fraught with unintended consequences. The rhetoric emanating from the American leadership has not been subtle in this regard, openly urging internal political transformation within Iran.

Israel, while sharing many of these objectives, views the conflict through a more immediate strategic lens. The security shocks of recent years have sharpened its focus on eliminating any potential adversary capable of mounting a credible military threat. For Israeli leadership, the war represents an opportunity to reshape the regional balance of power decisively. Yet even within this apparent alignment, differences persist. The United States must weigh its military actions against broader geopolitical and economic considerations, mindful of the risks of prolonged entanglement. Israel, grappling with its own domestic political pressures, may find strategic advantage in sustaining the conflict for longer durations.

Amid these overlapping yet distinct political calculations, the military objectives have remained remarkably coherent. The campaign has focused relentlessly on preventing Iran from projecting power beyond its borders. This has translated into a systematic targeting of missile systems, drone capabilities, naval assets and the networks that connect them. However, what distinguishes this conflict from many that preceded it is the recognition that destroying weapons alone is insufficient. The true centre of gravity lies in the ability to produce, maintain and innovate those weapons. It is here that the campaign reveals its most consequential dimension.

From the earliest stages of the operation, strikes have been directed not just at deployed capabilities but at the ecosystem that sustains them. Research institutions, universities, manufacturing plants and testing facilities have all been drawn into the target matrix. Industrial zones linked to defence production have been evacuated and then struck with precision. Underground facilities, once assumed to offer a measure of security, have been penetrated and neutralised. What emerges is a picture of deliberate and comprehensive degradation, one that seeks to impose not just immediate losses but enduring limitations.

The logic behind this approach is both simple and profound. Military hardware, once destroyed, can be replaced if the industrial base remains intact. By contrast, the destruction of production capacity imposes a far more lasting constraint. Missiles can be launched only once, drones only flown once, ammunition only expended once. Without the means to replenish these assets, a nation's ability to sustain conflict diminishes rapidly. Reports of declining missile launches from Iran in the days following the initial strikes point to this reality, whether driven by depleted stockpiles or a forced recalibration of strategy.

This shift towards targeting the industrial backbone of military power represents a significant evolution in the conduct of war. Earlier conflicts often treated factories and production facilities as secondary objectives, to be addressed after immediate battlefield concerns. Today, they have moved to the forefront. Advances in influence, surveillance and precision targeting have made it possible to identify and strike specific nodes within complex industrial networks. The result is a form of warfare that seeks not merely to defeat an adversary in the present, but to constrain its capacity for resistance in the future.

The campaign against Iran also reveals a carefully sequenced operational design. The initial suppression of air defences created the conditions for sustained aerial dominance. This was followed by efforts to disrupt command structures and limit retaliatory capabilities. Only then did the focus intensify on industrial targets, ensuring that the degradation of production capacity occurred in an environment where resistance had already been weakened. The subsequent targeting of internal security apparatus suggests an attempt to extend pressure beyond the military domain into the political and societal fabric of the state.

For India, these developments carry implications that cannot be ignored. The country's defence-industrial ecosystem, spread across major urban centres and emerging corridors, represents a critical pillar of national security. These clusters encompass not only manufacturing units but also research institutions, testing facilities and supply chains that collectively sustain military capability. In any future conflict, they are unlikely to remain peripheral. On the contrary, they are likely to be among the earliest and most heavily targeted assets.

The emerging discourse from adversarial quarters underscores this risk. Explicit references to economic and industrial infrastructure as potential targets signal a shift in strategic thinking. The battlefield is expanding, and with it, the definition

> The war unfolding in Iran marks a decisive shift in how modern conflicts are conceived and executed. No longer confined to battlefields, warfare now targets the very systems that sustain military power—factories, research centres and supply chains. The coordinated US–Israel campaign has demonstrated that crippling a nation's defence industry can be more consequential than destroying its deployed forces, limiting its ability to fight not just today, but in the future. For India, this is not a distant spectacle but a strategic warning. Its own defence-industrial hubs, concentrated in key regions, could become prime targets in any future conflict. Protecting them will require more than conventional air defence. It demands a rethinking of industrial planning, incorporating dispersal, hardening and resilience into the core of national security strategy. In the wars of tomorrow, the strength of a nation will depend as much on the survivability of its factories as on the firepower of its forces.

of what constitutes a legitimate target. This demands a corresponding shift in India's approach to defence planning, one that recognises the centrality of industrial resilience.

Traditionally, the planning of industrial infrastructure has been guided by considerations of efficiency, cost and logistics. Security has often been layered on as an additional feature rather than integrated from the outset. This approach is no longer adequate. Defence industries occupy a unique position, where their vulnerability translates directly into strategic weakness. Protecting them requires a reimagining of how they are conceived, designed and operated.

India's proposed initiatives in integrated air and missile defence offer a starting point, but their scope must extend beyond protecting cities and military bases. Defence-industrial nodes must be treated as critical assets within this framework. This entails the creation of layered and networked systems capable of detecting and neutralising a wide spectrum of threats, from missiles and aircraft to drones and unconventional attack vectors.

Yet active defence alone cannot provide complete assurance. The lessons emerging from the Iranian experience point to the necessity of dispersal and hardening. Concentrated industrial clusters present attractive targets, where a single well-executed strike can inflict disproportionate damage. Distributing production across multiple locations reduces this risk, while structural reinforcements enhance survivability. Facilities designed to withstand blasts, protect critical processes and shield personnel can continue operating even under adverse conditions.

Equally important is the incorporation of deception and concealment measures. Camouflage, decoy structures and adaptive design can complicate targeting efforts and introduce uncertainty for an adversary. In an era where precision is prized, even small disruptions to targeting accuracy can yield significant advantages.

The human dimension of this ecosystem demands equal attention. Skilled personnel represent a resource that cannot be easily replaced, particularly during conflict. Ensuring their safety through protective infrastructure and contingency planning is essential. At the same time, the evolving nature of warfare necessitates vigilance against internal threats, including sabotage and infiltration. Security, in this sense, must extend beyond physical protection to encompass organisational resilience.

Supply chains present another layer of vulnerability. Modern defence production often depends on complex networks that span multiple regions and, in some cases, international boundaries. Disruptions to these networks can have cascading effects on production. Building resilience requires diversification, stockpiling of critical components and the development of indigenous capabilities. Logistics systems must be designed for flexibility, enabling rapid adaptation under changing conditions.

These challenges cannot be addressed by industry alone. They require coordinated action at the national level, guided by a clear strategic vision. The creation of dedicated institutional mechanisms to oversee the security of defence-industrial infrastructure could provide the necessary focus and coherence. Such an approach would facilitate the integration of military, industrial and policy perspectives, ensuring that security considerations are embedded at every stage.

What the conflict in Iran ultimately illustrates is a fundamental shift in the grammar of war. The lines between military and industrial domains are blurring, and the distinction between frontline and hinterland is becoming increasingly irrelevant. Victory is no longer determined solely by battlefield outcomes but by the resilience of the systems that sustain them.

For India, the message is unambiguous. The question is not whether its defence-industrial infrastructure will be targeted in a future conflict, but how prepared it will be to withstand and recover from such targeting. The choices made today in planning, investment and policy will shape that preparedness.

There is a tendency to view distant conflicts as isolated events, disconnected from one's own strategic reality. That would be a misreading of the present moment. The systematic dismantling of Iran's defence-industrial base is not an anomaly. It is a demonstration of capability and intent that is likely to be replicated in future conflicts.

Preparing for this reality requires more than incremental adjustments. It demands a comprehensive rethinking of how national security is conceived, one that recognises the central role of industrial resilience. Factories, laboratories and supply chains must be viewed through the same strategic lens as military formations and weapon systems.

In the final analysis, the strength of a nation's defence lies not only in the weapons it possesses, but in its ability to sustain, replace and adapt those weapons under pressure. The war in Iran serves as a stark reminder of this truth. It is, in many ways, a warning delivered in real time, one that calls for attention, reflection and decisive action.

BEYOND EMISSIONS CUTS:
Why Carbon Removal Is Now Climate's Hardest Task

BY EARTH NEWS POLITICAL DESK

There are numbers that define eras, and then there are numbers that indict them. Since the dawn of the Industrial Revolution, humanity has pumped more than 2,000 gigatonnes of carbon dioxide into the atmosphere — an accumulation so vast that it has quietly, steadily rewritten the planet's climate script. Today, that invisible blanket of gases traps heat, intensifies droughts, fuels wildfires, and pushes seas higher against vulnerable coastlines.

Yet, for all the global pledges, summits, and shifting rhetoric, emissions have not meaningfully declined at the pace science demands. The uncomfortable truth is now widely acknowledged in scientific and policy circles: cutting emissions, though essential, is no longer enough. The world must also begin the far more complex task of removing carbon dioxide already lingering in the air.

This dual imperative — to reduce and to remove — marks a turning point in how we confront climate change. It is not a retreat from mitigation but an expansion of responsibility. The atmosphere, after all, does not negotiate; it responds only to concentrations.

Beyond Cutting Emissions: Why Removal Matters

For decades, climate action focused almost exclusively on limiting new emissions — transitioning to renewable energy, improving efficiency, and protecting forests. These remain the backbone of any credible climate strategy. But scientific assessments, particularly from the Intergovernmental Panel on Climate Change (IPCC), now underscore a sobering reality: even the most aggressive emissions cuts will likely fall short of keeping global warming below 1.5°C without large-scale carbon removal.

This threshold — 1.5°C above pre-industrial levels — is not arbitrary. It represents a line between severe disruption and potentially irreversible damage. Crossing it risks triggering cascading effects: collapsing ecosystems, intensifying extreme weather, and amplifying social and economic instability.

To stay within this limit, the world may need to remove between 7 and 9 billion metric tonnes of carbon dioxide annually by mid-century. To put that into perspective, that is roughly equivalent to the total annual greenhouse gas emissions of the United States today. The scale is staggering — and it underscores how deeply embedded carbon is in modern life.

Crucially, the slower we are in reducing emissions now, the more heavily we will have to rely on removal later. That trade-off is not merely technical; it is ethical, economic, and political.

The Many Paths to Carbon Removal

Carbon dioxide removal is not a single technology or strategy but a broad portfolio of approaches — some as old as forests, others as futuristic as machines that pull carbon directly from the air. Each comes with its own promise, limitations, and consequences.

1. Trees and Forests: Nature's Proven Allies

Forests have long served as the planet's natural carbon sinks. Through photosynthesis, trees absorb carbon dioxide and store it in their trunks, branches, roots, and surrounding soil. Expanding and restoring forests is perhaps the most intuitive and cost-effective way to remove carbon from the atmosphere.
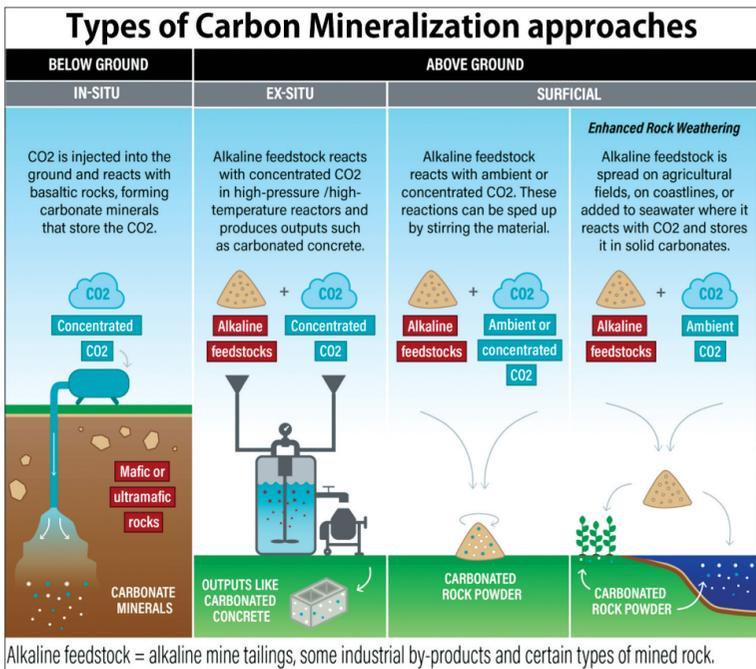
Reforestation, better forest management, and integrating trees into agricultural landscapes — through agroforestry or silvopasture — can significantly enhance this natural process. Urban tree planting, too, offers dual benefits: cooling cities while capturing carbon.

But this seemingly straightforward solution hides complexities. Land is finite, and expanding forests must not come at the expense of food production or existing ecosystems. Clearing one forest to plant another elsewhere defeats the purpose. Moreover, forests are vulnerable to fires, pests, and climate shifts, raising questions about how permanent their carbon storage truly is.

Still, when done thoughtfully, forests remain one of the most immediate and affordable tools available.

2. Biomass Carbon Removal: Extending Nature's Work

If forests are nature's carbon reservoirs, biomass technologies aim to make that storage more durable. Plants absorb carbon as they grow, but when they die and decompose, much of that carbon returns to the atmosphere. Biomass carbon removal seeks to interrupt that cycle.

Methods such as producing biochar — a charcoal-like substance added to soil — or converting biomass into bio-oil for underground storage can lock carbon

Types of Carbon Mineralization approaches

Alkaline feedstock = alkaline mine tailings, some industrial by-products and certain types of mined rock.

away for longer periods. Another approach, known as bioenergy with carbon capture and storage (BECCS), generates energy from biomass while capturing and storing the resulting emissions.

Yet here, too, trade-offs emerge. Growing crops specifically for carbon removal could compete with food production and drive deforestation elsewhere. The most sustainable path lies in using waste biomass — agricultural residues, forestry byproducts, or even algae — rather than purpose-grown crops.

The promise is real, but so is the risk of unintended consequences if deployed without safeguards.

3. Direct Air Capture: Engineering a Solution

Among the most talked-about innovations is direct air capture (DAC) — a technology that quite literally pulls carbon dioxide from the air using chemical processes.

Once captured, the carbon can be stored deep underground or embedded in products like concrete. The appeal of DAC lies in its precision: emissions removed can be accurately measured, making it attractive for carbon accounting.

But the technology is still in its infancy. It is expensive — with costs ranging widely — and energy-intensive. Running DAC systems at scale would require vast amounts of clean energy, raising the paradox of using energy to undo the consequences of energy use.

Despite these hurdles, investment is surging. Dozens of companies are experimenting with DAC across continents, and governments are beginning to offer incentives. If costs fall and clean energy expands, DAC could become a critical piece of the climate puzzle.

4. Carbon Mineralization: Turning Gas into Stone

Some of the most intriguing solutions lie not in biology or machinery, but in geology. Certain minerals naturally react with carbon dioxide, transforming it into solid carbonate — effectively locking it away for millennia.

This process, known as carbon mineralization, occurs naturally but very slowly. Scientists are now exploring ways to accelerate it — by spreading crushed rock over farmland, injecting CO_2 into reactive rock formations, or incorporating mineralization into building materials like concrete.

The durability of this method is its greatest strength: once carbon is mineralized, it is effectively permanent. However, scaling it requires mining, transporting, and processing vast quantities of material — all of which carry environmental and economic costs.

As with many climate solutions, the challenge is not feasibility but scalability.

5. The Ocean's Potential — and Uncertainty

The world's oceans already absorb a significant portion of atmospheric carbon dioxide. Enhancing this natural function is an area of growing interest, though it remains scientifically uncertain.

Approaches range from cultivating seaweed and restoring coastal ecosystems like mangroves, to more experimental techniques such as adding minerals to seawater or stimulating phytoplankton growth.

These methods could offer co-benefits — restoring marine ecosystems, supporting fisheries, and even reducing ocean acidification locally. But the ocean is a complex and interconnected system. Intervening at scale without fully understanding the consequences could create new problems even as it solves others.

For now, marine carbon removal remains a frontier — promising, but requiring careful study and governance.

6. Soils: The Overlooked Reservoir

Beneath our feet lies one of the planet's largest carbon stores: soil. Yet modern agricultural practices — frequent ploughing, overgrazing, and erosion — have depleted this reservoir.

By adopting practices such as cover cropping, reduced tillage, compost application, and improved grazing management, farmers can rebuild soil carbon while enhancing fertility and resilience.

The appeal is clear: healthier soils, better yields, and carbon removal in one package. But measuring and verifying how much carbon is actually stored — and for how long — remains a challenge. Soil systems are dynamic, influenced by weather, geography, and management practices.

Scaling these solutions will require not just science, but incentives — policies and markets that reward farmers for stewardship as much as production.

The Trade-Offs We Cannot Ignore

It is tempting to view carbon removal as a silver bullet — a technological escape hatch from decades of inaction. That would be a grave mistake.

Every method of carbon removal comes with trade-offs. Some require vast land areas, others demand enormous energy inputs. Some risk disrupting ecosystems, while others raise questions about cost and equity. None can substitute for deep, immediate emissions cuts.

Indeed, the greatest danger is not that carbon removal will fail, but that it will be used as an excuse to delay the harder work of transforming energy systems, industries, and consumption patterns.

The lesson from decades of climate policy is clear: solutions that look simple rarely are.

A Portfolio Approach: Strength in Diversity

Given these complexities, experts increasingly advocate for a portfolio approach — deploying multiple carbon removal strategies simultaneously rather than betting on a single solution.

Nature-based approaches like forests and soils can deliver near-term benefits at relatively low cost. Technological solutions like direct air capture and mineralization, though expensive today, offer scalability and permanence. Emerging methods, particularly in the oceans, may expand the toolkit further.

The goal is not to find the perfect solution, but to build a resilient system of solutions — one that balances effectiveness, cost, and environmental integrity.

The Role of Governments and Markets

Scaling carbon removal is not merely a scientific challenge; it is a political and economic one. Unlike renewable energy, which generates revenue through electricity sales, carbon removal produces a public good — cleaner air — that markets alone may undervalue.

Governments therefore have a critical role to play. Policies can drive demand through carbon pricing, subsidies, or procurement commitments. Regulations can ensure that projects are safe, equitable, and environmentally sound. Public investment can accelerate research and development.

At the same time, private sector involvement is growing, particularly through voluntary carbon markets and corporate climate commitments. But these efforts must be guided by robust standards to avoid greenwashing and ensure genuine impact.

The Road Ahead: Urgency Without Illusion

Carbon removal is no longer a fringe idea. It has moved from academic debate to policy agendas, from pilot projects to billion-dollar investments. Yet, for all the progress, current efforts remain far below what is needed.

The path forward demands urgency — but also humility. There are no shortcuts to stabilizing the climate. Removing carbon from the atmosphere is harder, costlier, and more uncertain than preventing it from being emitted in the first place.

The priority, therefore, must remain clear: reduce emissions as rapidly as possible. Carbon removal is not a replacement for that task, but a necessary complement — a way to correct past excesses and hedge against future uncertainties.

In the end, the challenge is not just technological but moral. The atmosphere we have altered is shared by all, and its restoration will require collective action on an unprecedented scale.

History may judge this moment not by how quickly we acknowledged the problem, but by how decisively — and honestly — we acted to solve it.