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MAOISTS' IED WARFARE

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Abstract

The use of improvised explosive device (IED) warfare by Maoists is examined in this issue brief as a persistent and evolving threat to India's internal security situation. It contends that the employment of IEDs by Maoists has changed from simple pressure-activated devices to more tactical and adaptable techniques such as command-wire, remote-controlled, buried anti-vehicle, and fragmentation-enhanced devices. Insurgents can target predictable movement patterns, take advantage of geography, and cause disproportionate deaths at a minimal cost. This issue brief traces the evolution and the operational reasoning for Maoist dependence on IEDs, and thus the issue is placed within broader trends of left-wing extremism in India. The state's counter-IED response, including route-opening procedures, specialised units, forensic attribution, intelligence sharing, and institutional changes like the Institute of IED Management (IIEM), the National Security Guard's National IED Data Management System (NIDMS), and the Multi-Agency Centre (MAC), is also evaluated. But it discovers that enduring gaps still exist in forensic consistency, intelligence verification, interagency cooperation, and HUMINT sustainability. In order to lessen the effectiveness of Maoist IEDs and improve internal security, the brief concludes that India needs a more comprehensive and proactive counter-IED doctrine that integrates operational discipline, technological competence, forensic support, and community-based intelligence.

Keywords: Maoist insurgency, improvised explosive devices, IED warfare, left-wing extremism, counter-IED operations, internal security, forensic attribution, doctrine.

Introduction

Improvised Explosive Devices (IEDs) remain among the most serious asymmetric threats in India's internal security landscape. They are low-cost, concealed, difficult to detect, and highly effective in causing casualties, restricting mobility, and exploiting terrain. Their use has persisted across multiple conflict theatres in India,[1] for example, in Jammu and Kashmir, vehicle-borne IEDs have been used by terrorists against security-force convoys.[2] In left-wing extremism-affected areas, Maoists have relied increasingly on command-wire IED ambushes to target security-force movement.[3] In the Northeast, pressure-plate and remote-controlled IEDs have been used against patrols.[4]

The South Asia Terrorism Portal (SATP) figures show that Maoists orchestrated 22 incidents of IED blasts in 2020, 16 in 2021, 32 in 2022, 62 in 2023, 42 in 2024, and 53 in 2025;[5] they had already carried out at least twelve IED incidents in the current 2026 year (as of March 22, 2026).[6] Bijapur has emerged as India's IED epicentre,[7] with increasingly sophisticated variants such as pressure-pull devices and beer-bottle fragmentation IEDs. There has been a discernible rise in these attacks during periods of heightened security operations, such as Tactical Counter-Offensive Campaigns (TCOC),[8] when Maoists seek to exploit operational tempo and security-force movement.

Maoists disrupt formations, target predictable routes, and channel forces with command-wire and pressure-activated IEDs. Their continued reliance on these IED devices is a sign of strategic thinking that is based on a low-cost, high-return method. This paper primarily focuses on left-wing extremism-affected regions, where IEDs account for a substantial proportion of security force fatalities and continue to pose a major challenge to the state even after the government's March 31, 2026 deadline[9] to make India Maoist-free had passed.

Overall, the paper discusses IEDs as an attrition tool used by Maoists in India's internal security arena. It traces their evolution from pressure-plate techniques adopted from

the Liberation Tigers of Tamil Eelam (LTTE) to complex command-wire variations, highlights the reasons behind the increasing deployment of IEDs, assesses security force responses and their shortcomings in counter-process, and suggests a proactive counter-IED policy.

Historical Evolution

IEDs originated in the10th century, when Chinese gunpowder devices in bamboo or paper casings first appeared.[10] They then evolved into European clockwork mechanisms in the 16th century, as seen in 1585 Antwerp ship bombing, which claimed almost 1,000 lives.[11] The term Improvised Explosive devices (IEDs) originated within the British Army in the 1970s when explosives were constructed by the Provisional Irish Republican Army (IRA) with the help of agricultural fertiliser smuggled from Libya to make booby-trap devices or remote-controlled bombs.[12] The IRA pioneered the use of IEDs as weapons for guerrillas, using an infrared beam to trigger an IED, and perfected the art of using mobile phones as modes of initiation.[13] Later in India, Maoists adopted IEDs in the early 2000s after learning techniques from Sri Lanka's Liberation Tigers of Tamil Eelam (LTTE).[14]

Gradual Development of IED Use by Maoists

Maoist IED development progressed gradually from basic landmines and explosive traps to advanced foxhole (deep road-tunnelling for undetectable burial) and Claymore-style (directional fragmentation) methods. This evolution stems from ongoing field experiments, enabling insurgents to match IED placement to specific locations, adapt to local terrain, align triggers with security force patterns, and hide devices effectively against routine sweeps. They achieve this by using everyday materials efficiently, selecting environment-specific triggers, varying burial depths, customising explosive loads for road types, and chaining devices in ambushes. The breaking of the networks behind repeated IED production and placement matters more than just neutralising single devices.[15]

IED Components and Maoist Adaptation

Improvised Explosive Devices (IEDs) consist of four core components: an explosive charge (often commercial fertilisers or industrial explosives like TNT), detonator, power supply, and triggering mechanism,[16] enabling diverse designs such as

command-wire, victim-operated, pressure-switch, and radio-controlled variants. Maoists adapted these from observing LTTE tactics[17] rather than direct training, deploying systematic IEDs along supply lines, choke points, and jungle highways since the early 2000s. Early examples include the September 2005 Dantewada attack, where a 40 kg IED destroyed a mine-protected vehicle carrying 24 security forces,[18] and the 2007 tiffin-container IED blast at BJP MLA Vikram Usendi's Kanker residence, demonstrating innovative use.[19] Over time, Maoist techniques advanced from basic pressure-activated devices to sophisticated foxhole-buried and Claymore-style directional IEDs, as seen in recent Chhattisgarh ambushes.[20]

IED Typology in Maoist Operations

Maoists prefer IEDs due to their low production costs, low cadre exposure during deployment, efficient terrain exploitation, and ability to cause a disproportionate number of security force casualties. There are different typologies used to carry out IED attacks.

Pressure-Activated IEDs

These are victim-operated devices that detonate upon physical contact, optimally deployed along predictable patrol routes and choke points in forested terrain. The incident in May 2025 in Bijapur, during 'Mission Sankalp' in Karregutta forests, showed the presence of pressure-activated IEDs.[21] The 'Mission Sankalp' operation, in which over 4,000 personnel from the STF, CRPF (Central Reserve Police Force), and DRG (District Reserve Guard) were involved in flushing out Naxal elements, recovered nearly 120 IEDs.[22] During the mission, two Special Task Force (STF) personnel were seriously injured when a pressure-triggered improvised explosive device (IED), suspected to have been planted by Maoist insurgents, detonated as the team advanced through a dense forest trail.

Similarly, the incident of September 2025 in Dantewada wounded two CRPF jawans (CoBRA 206 Bn) with pressure-activated IEDs at Malewahi during an anti-Maoist operation.[23]

Command- Wire/Electric-Wire IEDs

These are remotely initiated through concealed wiring, providing Maoists with tactical flexibility and an observation advantage prior to detonation. The 6 January 2025 Bijapur attack featured a 60-70 kg device with grass-covered wires (planted 1.5-2 months prior), manually triggered to kill 8 DRG personnel and 1 driver on Kutru-Ambeli road.[24] The Road Opening Party (ROP) protocols had checked the route just prior to the convoy's arrival; even the vehicle that was targeted was the seventh in the cavalcade of eight vehicles. The then Dantewada DIG Kamlochan Kashyap confirmed the incident was carried out by a command IED, one that is triggered manually by Maoists with a switch wired to the bomb.[25] These observer-initiated devices, emplaced for prolonged operational windows, exemplify Maoist preference for tactical timing over victim-operated triggers in layered ambushes.

Remote-Controlled IEDs (RCIEDs)

These are radio or mobile-triggered variants exhibiting marked proliferation, particularly suited to dense jungle environments. The case of March 2025 in Chhattisgarh featured pressure-cooker RCIEDs with beer-bottle shrapnel.[26] The CRPF official confirmed that the device, kept under a tree, was fitted with two empty beer bottles to inflict injuries on the troops. It had a small wire-connected antenna to facilitate detonation from a distance. Intelligence also shows that the insurgents are now focusing more on unleashing pressure-cooker, remote-controlled IEDs on security personnel inside forests in Chhattisgarh rather than engaging in gunfights.[27] These devices complement command-wire tactics, enabling precise timing from concealed positions in dense terrain.

Buried Anti-Vehicle Charges

These are high explosives targeting mine-protected vehicles through deep sub-surface emplacement. The foxhole mechanism is a way to plant the IEDs beneath the road by digging a tunnel through a 'foxhole mechanism' so that detection of the IED is not possible. The Dantewada 2023 blast[28] was purely carried out through a foxhole mechanism, wherein the IEDs were planted by the Maoists two months prior to the attack. This ambush featured advance-planted devices via a foxhole mechanism with

electric-wire initiation along anticipated return routes, causing 10 District Reserve Guard (DRG) personnel fatalities.[29]

Directional Claymore-Style IEDs

The other mechanism is the Claymore-style directional IEDs and tree-fitted variants that Maoists extensively use. An improvised Claymore type describes an IED main charge that has been enhanced by the addition of fragmentation (nails, ball bearings, bolts, etc.) with the intention of propelling that fragmentation in a certain direction. The extensive use of such a style by Maoists was confirmed after a major intelligence-based operation by police and security forces that seized claymore mines from the Tipagad area of the Gadchiroli district of Maharashtra,[30] which confirmed the presence of claymore-style IED devices.

India's Counter-IED Strategy

India's counter-IED approach supports executing counter-operations, specialized deployments of security forces, use of technological interventions, and forensic capabilities to degrade Maoist use of Improvised Explosive Devices (IEDs).

Field Tactics and Operational Protocols

Counter-IED operations in Maoist-affected areas begin with road-opening parties (ROPs) that secure routes before security-force convoy movement.[31] The Central Reserve Police Force (CRPF) uses route-clearance measures such as jammers, sniffer dogs, ground-based detection tools, etc., to reduce exposure to pressure-plate, command-wire, and foxhole IEDs. The objective is to create a temporary safe corridor through high-risk terrain and minimise the chances of convoy ambush or detonation. The 6 January 2025 Bijapur attack illustrates the operational cost of route-clearance failure,[32] since reporting indicated that an IED went undetected despite ROP checks.

Specialised Counter-Insurgency Formations

India’s counter-IED response also relies on specialised formations such as CoBRA[33] and the District Reserve Guard (DRG).[34] CoBRA units are trained for aggressive jungle operations and deep-area domination in Maoist terrain, where mobility, endurance, and tactical familiarity are essential. The DRG complements its role by

drawing on local recruits, surrendered insurgents, and terrain-specific knowledge that external forces often lack. Together, these formations combine patrolling, local intelligence, and area control to disrupt IED emplacement by Maoist groups.

Institutional and Technological Reforms

A major institutional response has been the creation of the Institute of IED Management (IIEM), Pune,[35] which the CRPF describes as a dedicated centre for IED research and training. In addition to it is the recent National Security Guard's National IED Data Management System (NIDMS) establishment.[36] NIDMS centralises blast-related forensic information, circuit patterns, and modus operandi data to support trend analysis and signature identification. The revamped Multi-Agency Centre (MAC)[37] strengthens inter-agency intelligence sharing and improves the speed of information flow across central and state-level actors. These reforms indicate that India's counter-IED approach is no longer purely tactical; it is increasingly institutional and data-driven.

Capabilities for Forensic Attribution

An essential component of India's counter-IED strategy is post-blast forensic work. Forensic teams have investigated blast sites and gathered tangible evidence for chemical analysis of explosive remnants in Maoist IED attacks, demonstrating that post-blast reconstruction is a legitimate investigation technique. According to scientific research, trace evidence can endure on IED pieces, which in certain situations allows for DNA recovery and STR profiling.[38] [39] Low-level biological material can be recovered using touch DNA (also known as Contact DNA)[40] techniques from handled components, including switches, batteries, and circuit parts; however, the effectiveness of these techniques depends on the kind of component, blast intensity, and environmental factors. By extracting biological markers from internal circuit components, forensic scientists can potentially link a specific manufacturer to a device even after a high-order explosion.[41] For example, the Narayanpur blast investigation[42] found evidence of black gunpowder and ammonium nitrate in crater soil and damaged car parts, demonstrating how post-blast forensics may greatly improve identification and reconstruction. This shows explosive residues and device construction aspects have been shown to be identifiable through forensic investigation.

Persisting Challenges in Counter-IED Operations

Several operational and structural challenges persist in India's counter-IED approach against Maoist threats and require attention for enhanced efficacy.

Intelligence Verification Constraints

One of the major problems in Maoist-affected regions is the gap between suspicion and verification. Intelligence about possible IED emplacement often emerges from areas with poor roads, weak communication links, and high operational risk, making rapid verification difficult. An ITBP officer highlights the intelligence collection limitations with the Abujhmad region in Chhattisgarh.[43] The technology, like jammers, is not used by SFs, and only drone-based surveillance is considered, but the drone technologies have their own limitations due to distance, view, weather, and terrain. As a result, forces in these regions often have warnings but do not always have the actionable certainty to act safely. In such environments, establishing safe routes and executing successful operations demands verified, actionable intelligence rather than preliminary indicators.

Fragmentation Across Agencies

Even though numerous agencies participate in counter-IED operations, they do not usually follow a single common protocol. Although the skills of state police, CAPFs, NSG-linked systems, and specialized units may overlap, lessons do not always transfer easily between agencies. Organisational silos, inconsistent standards, and a lack of accountability for procedural errors result from this. Tactical knowledge with inconsistent institutional memory is the end effect.

Human Intelligence Sustainability Issues

The sustainability of HUMINT networks constitutes a critical determinant in counter-IED effectiveness. There is a “trust deficit,” mainly between local tribal communities and the security forces. The community pressure and Maoist retaliation create a climate of fear, resulting in weakened source networks, reduced willingness of locals to cooperate with security forces, and sharply limited human intelligence flow.[44]

Technological Implementation Constraints

Field reporting must be precise, consistent, and timely for systems like NIDMS to be effective. The database's value drastically decreases if agencies use inconsistent categories, submit inadequate information, or postpone post-blast paperwork. In a similar vein, MAC only enhances coordination when agencies exchange intelligence in a timely manner. Although technology makes the system stronger, implementation issues are not always resolved by it.

Forensic Attribution Variability

Forensic tools are valuable, but they are not equally effective in every blast scenario. DNA recovery from IED components varies depending on the type of explosive, degree of fragmentation, moisture, heat, and contamination.[45] That means forensic attribution should be treated as a supporting capability, not the core prevention mechanism. It helps after an incident, but it cannot replace field-level security measures.

Policy Recommendations

- **Compliance and Oversight**
  An oversight mechanism can be considered to monitor SOP compliance, review route-clearance failures, and ensure that lessons are formally circulated within different forces. Though there is a mechanism of periodical review by the Cabinet Committee on Security (CCS) of the Naxal situation, the Standing Committee of the Chief Ministers of the Naxal-affected states chaired by the Union Home Minister, and the monthly Task Force meetings of Nodal Officers of Naxal-affected states/Central agencies chaired by Special Secretary (IS), MHA.[46] But a compliance structure within these high committees specifically for IEDs could help in eradicating Maoist-led IED attacks from the root. A compliance authority for IEDs may include a bunch of people from all institutions that are working on IEDs, like people from the Institute of IED Management (IIEM), officers from COBRA, the officers from intelligence units, the forensic experts, the DRG personnel, etc. Thus, some experts from all units act under one umbrella. Such an “IED compliance and oversight cell” should study every IED attack thoroughly and directly report to the Cabinet Committee

on Security (CCS). Such a mechanism would not replace field command; instead, it would make procedural discipline more enforceable. Oversight should include state-level participation so that the system does not become overly centralised or detached from ground realities. The key is auditability, not bureaucracy.

- **National Counter-IED Policy**

  India needs a unified national counter-IED policy/doctrine that treats Maoist IEDs as part of a wider operational network rather than an isolated device. The focus should move beyond clearing routes to targeting the full fabrication ecosystem: bomb-makers, precursor suppliers, storage points, reconnaissance teams, and logistical facilitators. Such a doctrine would standardise core procedures while still allowing adaptation to local terrain and threat conditions. Even the former DG of NSG highlighted the need for the establishment of a counter-IED policy.[47]

- **HUMINT Strengthening**

  The human intelligence network in Maoist areas needs protection, incentive, and continuity. Secure communication channels, better source protection, and deeper community trust-building can help sustain early warning systems. As is the case with DRG, which works effectively because of its social and linguistic embeddedness.[48] HUMINT remains essential because Maoist IEDs are often hidden, delayed, and terrain-specific. CAPFs carry Civic Action Programmes (CAP) and CAP medical camps that help to encounter propaganda spread by Naxals against SFs. It gives security forces a chance to interact with villagers. Some beneficiary villagers of CAP also give hints to avoid such tracks where IEDs are planted.[49] Also, more emphasis must be given to the economic and cultural rights of the Naxal-affected people.[50]

- **Enhance Post-Blast Forensic Capability**

  In order to retrieve biological and trace evidence prior to contamination or environmental damage, India should invest in blast-scene preservation protocols, rapid-response forensic teams, and standardised evidence-collection kits. To develop a layered attribution model, forensic results should be combined with HUMINT, technical information, and operational reporting. This would lessen the over-reliance on DNA recovery alone and guarantee that

investigations can continue based on combined intelligence and field evidence even in cases when forensic yield is minimal.

Conclusion

From basic pressure-triggered and victim-operated devices to more complex command-wire, remote-controlled, buried, and fragmentation-enhanced versions, Maoist IED methods have gradually changed. IEDs are currently among the most deadly and durable weapons in the Maoist arsenal, allowing insurgents to use terrain, avoid direct confrontation, and seriously harm government forces. India's increasingly intricate counter-response includes route-clearance procedures, specialised counter-insurgency personnel, intelligence-sharing platforms, forensic attribution, and institutional initiatives like IIEM, NIDMS, and MAC. Nevertheless, persistent problems continue to impede the effectiveness of counter-IEDs. These include inconsistent forensic findings, poor intelligence verification, fragmented doctrinal frameworks, and restricted HUMINT. To close these gaps, a coordinated operational architecture that integrates institutional control, intelligence, technical capabilities, and field security can be effective.

DISCLAIMER

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