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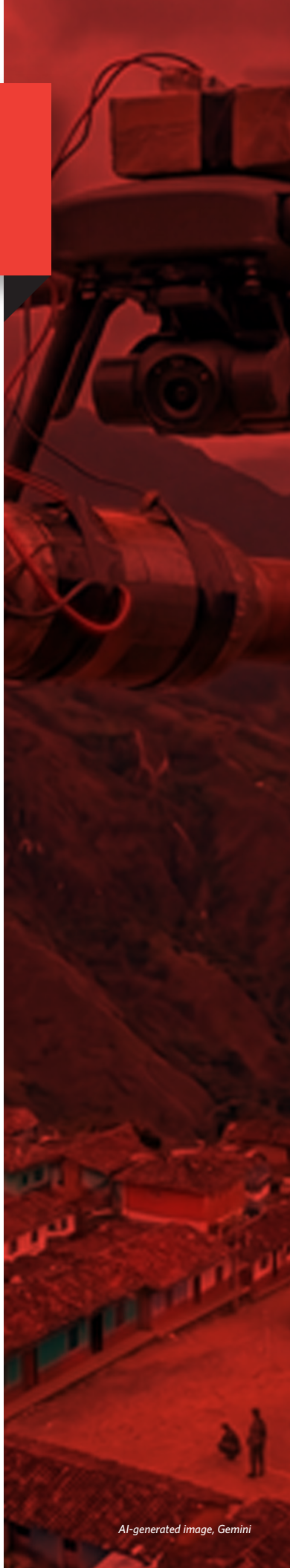
Uncrewed[1] aircraft systems with explosive payloads: emerging threats and challenges for Colombia

Abstract:

Since 2017, there has been evidence of the use of commercial Uncrewed Aerial Vehicles or Systems (UAVs/UASs), commonly referred to as drones, in the Latin American and Caribbean (LAC) region, associated with criminal organizations' activities. In Colombia, their use for surveillance purposes has been observed since 2018, and since 2019, there has been evidence of their use with explosive payloads. This paper seeks to address an analytical gap considering growing concern over the increasing use of UAVs/UASs carrying explosive payloads in the country. Through a review of documentary sources and interviews with key stakeholders, UNMAS Colombia presents a brief analysis of the situation to inform efforts to mitigate the effects of this phenomenon on the civilian population. The paper highlights the concentration of the phenomenon in the border areas such as Norte de Santander, Nariño and Putumayo departments, as well as throughout the territory bordering the Pacific Ocean. This phenomenon is not isolated, but it is associated with an increase in other humanitarian crises, such as the rise in victims of explosive devices or the growing number of terrorist attacks officially registered by the Colombian State. Currently, while the State response is primarily focused on strengthening the capacity of the security and defense sector to address the problem, the humanitarian sector and victim assistance organizations address the effects at the community level. Among the paper's conclusions, UNMAS highlights the increased risk posed by the use of explosive devices in urban environments and emphasizes the need to reinforce and adapt prevention messages for communities in at-risk areas and humanitarian personnel.

Key words: *Drones, UAVs, UASs, Explosive Ordnance, victims, risk, security, humanitarian, Colombia, UNMAS.*



AI-generated image, Gemini

1 *In this paper, the use of the gender-neutral term "uncrewed" is replacing the term "unmanned" that is normally used in the industry and by the International Civil Aviation Organization (ICAO).*

Fast facts to December 2025

Sustained increase in the use of UASs carrying explosive payloads by NSAG in Colombia since 2019.

The expanded territorial attacks are more evident for 2024-2025 with contamination reported in Arauca, Bolívar, Caquetá, Cauca, Cesar, Chocó, Guaviare, Nariño, Norte de Santander, Putumayo, Tolima, and Valle del Cauca departments.

445% increase in attacks using UASs with explosive payload registered by the Ministry of Defense between 2024 and 2025.

102% increase in casualties among members of the Military Forces between 2023 and 2025.

Other related phenomena (e.g. terrorist attacks, APL victims, forced displacement, and confinement) also show an increasing tendency since 2016.

In July 2025, a national law project was presented by the Ministry of Defense and the Ministry of Information and Communications Technologies, aiming to regulate importation, commercialization, use, and registration of UAVs/UAS in Colombia.

For 2026, MoD is advancing into the "Anti-Drone Shield" project to acquire new defense technology.

There is a lack of a coordinated, multi-sectoral response to address the humanitarian consequences arising from the use of weaponized drones in Colombia.

Introducción

Following global trends, the Uncrewed Aircraft Vehicles (UAV) and Uncrewed Aerial Systems (UAS) business in Colombia is experiencing rapid growth, with a notable expansion into commercial applications in various industries, including aerial filming and photography, agriculture, inspection and maintenance, mapping and surveying, and delivery and logistics[2].

Alongside this commercial expansion, an alarming trend has emerged due to the exponential increase in the use of Uncrewed Aircraft Vehicles/Systems (UAV/UAS) with explosive payloads by Non-State Armed Groups (NSAGs) in recent years. This issue has also raised regional concerns as reports indicate the use of explosive-laden UAS for criminal and violent activities across the LAC region.

Since 2017, UAS with explosive payloads have been used in Brazil, Colombia, Ecuador, Mexico, Peru, and Venezuela, by diverse criminal organizations[3]. In Haiti, weaponized drones have been used to hit gangs in Port-au-Prince as part of an operation organized by the office of the interim Prime Minister[4].

In Colombia, the Colombian Aerospace Force (FAC) has been using Remotely Piloted Aircraft (RPA) for reconnaissance, surveillance, environmental monitoring, disaster relief, and critical area patrol missions since 2005. For 2014, the FAC opened a training center specialized in RPA located in Atlántico Department, at the north of the country, that to date continues training Army, AirForce and Navy officials.

The use of UAS by NSAG began in 2018 in Tumaco municipality, a border town close to Ecuador and the Pacific Ocean, where local communities reported their deployment for monitoring and controlling illegal coca crops. In 2019, in the same town, the Military Forces reported the neutralization of two UAV carrying a 600g explosive payload, marking the first documented case of UAV being adopted as an offensive weapon in the country.

Six years later, in 2025, there's growing awareness of this emerging threat due to its long-term impact that transcends the military sphere to affect civilian communities, critical infrastructure, and strategic corridors linked to illicit economies. Regarding this matter, UNMAS Colombia aims to present an initial report on the current situation, analyzing its implications for the humanitarian and protection context, and offering recommendations based on UNMAS' global experience in mitigating anti-personnel landmines (APL) and improvised explosive devices (IED).

LAC region:
UAVs + explosives reported countries

2 *Since 2013, the European Commission has included the UAS/Remotely piloted aircraft systems (RPAS) into its Aviation Strategy for the European Union, and into the 2022 release of the Drone Strategy for Europe 2.0 as a regulatory framework that merges the civil, defense, and space industries.*

3 *Insight Crime. Drones Fuel Criminal Arms Race in Latin America.* https://insightcrime.org/news/drones-fuel-criminal-arms-race-latin-america/

4 *Insight Crime. Drone Strikes Shake Haiti's Gangs but Leave Legal and Strategic Questions.* https://insightcrime.org/news/drone-strikes-shake-haiti-gangs-leave-legal-strategic-questions/

This paper focuses on the humanitarian risks posed to civilians by the use of explosive-laden drones by NSAGs, in the context of their rapid expansion and increasing sophistication in Colombia. It also examines how these actors have adapted asymmetric warfare tactics following the 2016 Peace Agreement, as well as the impact of this phenomenon on conflict dynamics, territorial control, and illicit economies. However, the study does not comprehensively address the use of UAS in the country as part of national security policy.

Transformation of the Phenomenon in Colombia

The exponential increase in the use and territorial spread of UAS deployed to deliver explosive payloads demonstrates the ability of NSAGs to adapt their combat tactics, leveraging expertise in handling explosives developed during the Colombian armed conflict from 1964 to 2016. The media coverage between 2024 and 2025 led some to believe that this was a recent phenomenon, although it recycled experience in the use of explosives following the 2016 Final Peace Agreement and among former combatants who joined dissident groups.

By December 2024, the Ombudsman's Office reported the presence of NSAGs in 71% of Colombia's municipalities. Following the 2016 Peace Agreement, guerrilla dissident factions recruited former explosives experts and adapted their knowledge to new tactics for confronting rival NSAGs and Military Forces. This practice introduced a new modality of asymmetric warfare in Colombia, reinforcing the use of IEDs and raising concerns about the potential development of autonomous capabilities.

In 2024, the scale of the problem became more evident, with 119 officially reported incidents in the departments of Arauca, Cauca, Caquetá, Guaviare, Nariño, Norte de Santander, Putumayo, Tolima, and Valle del Cauca. A total of 21 municipalities were affected, with a notable concentration in three towns in Cauca: Argelia, Suarez, and El Tambo. This phenomenon is likely linked to the suspension of the bilateral ceasefire in March 2024. The Ministry of Defense also confirmed that the sustained increase in the use of UAS by NSAG represents a relevant threat for public forces.

Early 2026, the Minister of Defense, Mr. Pedro Sanchez, reported 333 weaponized drones' effective attacks against the public force in 2025. This data represents a +445% increase compared to 61 effective attacks registered in 2024. According to the Ministry of Defense declaration, 63% of the attacks were concentrated in Nariño, Cauca, and Valle del Cauca Departments in the south of the country, and 7% in the North Santander/Catatumbo region[5]. Incidents have also been recorded in three additional northern departments: Bolívar, Cesar, and Chocó.

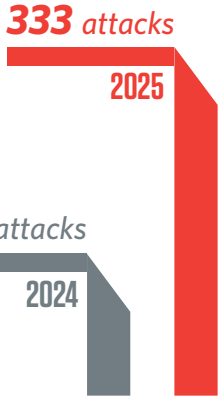
Previously and according to ICRC data, casualties related to explosive devices reached 524 between January and May 2025, representing a 145% increase compared to the same period in 2024. Similarly, OCHA Colombia reports that in 2025, humanitarian impacts increased dramatically with more than 1,6 million people affected by violence and armed conflict, three times more than in 2024. OCHA also reports the sharp rise in the use of Improvised Explosive Devices (IEDs), with at least 414 recorded incidents in 2025, compared to 167 in 2024.

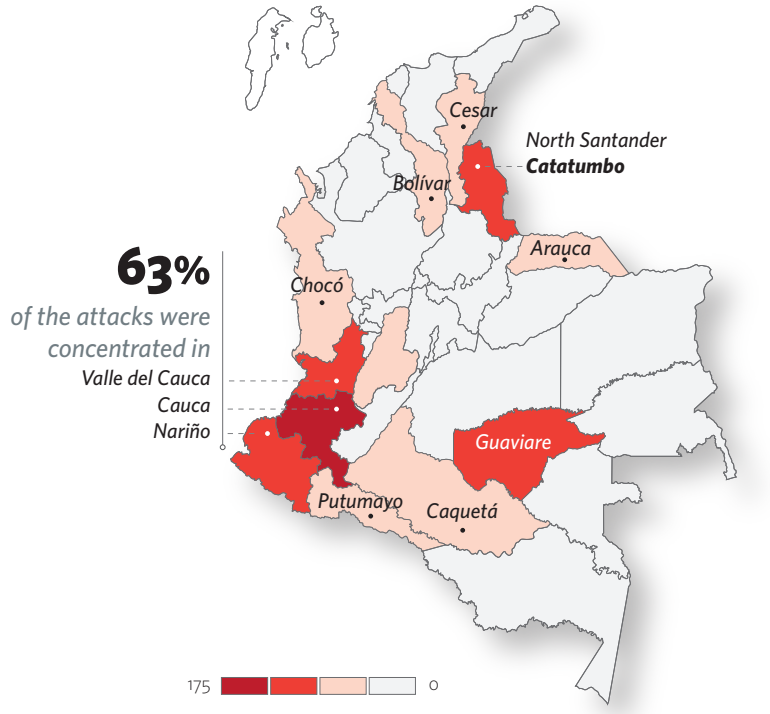
5 *Intervention Ministry of National Defense, Mr. Pedro Sánchez, during the Senate extra-ordinary plenary defending the Economic Emergency National Decree debate. January 27, 2026. (Minute 6:54:30).* https://www.youtube.com/watch?v=wYnXCja16Es&t=25677s

Reported UAS incidents with explosive payloads across departments, 2024-2025

445%

effective attacks with UAS by Non-State Armed Groups increased.





Although there are no official statistics on civilian fatalities and injuries specifically caused by UAS carrying explosive payloads, open-source monitoring and media reports confirm the intensification of the phenomenon. On the other hand, official data indicates a 102% increase in casualties among Military Forces personnel between 2023 (464) and 2025 (938), due to this cause[6].

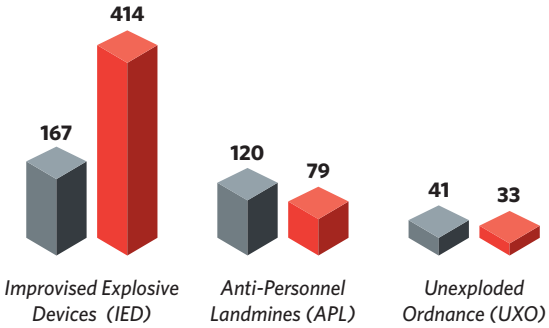
Since 2011, the National Victims' Unit (UARIV) has developed a national capacity to record victims and victimizing events linked to the Colombian armed conflict. The government officially classifies civilian victims into 15 categories. Among these, the classification of terrorist acts, attacks, clashes, engagements, and harassment, showed a downward trend between 2016 and 2020, with 5312 registered victims, but has risen between 2021 and 2025, with 16,116 new victims.

The category of personal psychological injuries also showed a marked increase for the period 2020-2024. With respect to APL, the number of victims grew from 93 in 2016 to 153 in 2024. Complementary, UN estimates of People in Need (PIN) of Mine Action protection measures in Colombia have increased by 33%, from 607,910 in 2024 to 812,966 for 2026.

Notwithstanding the apparent downward trend observed for 2025 in *Graph 1*, consulted field sources consistently indicate that this may reflect underreporting rather than a genuine decrease in cases.

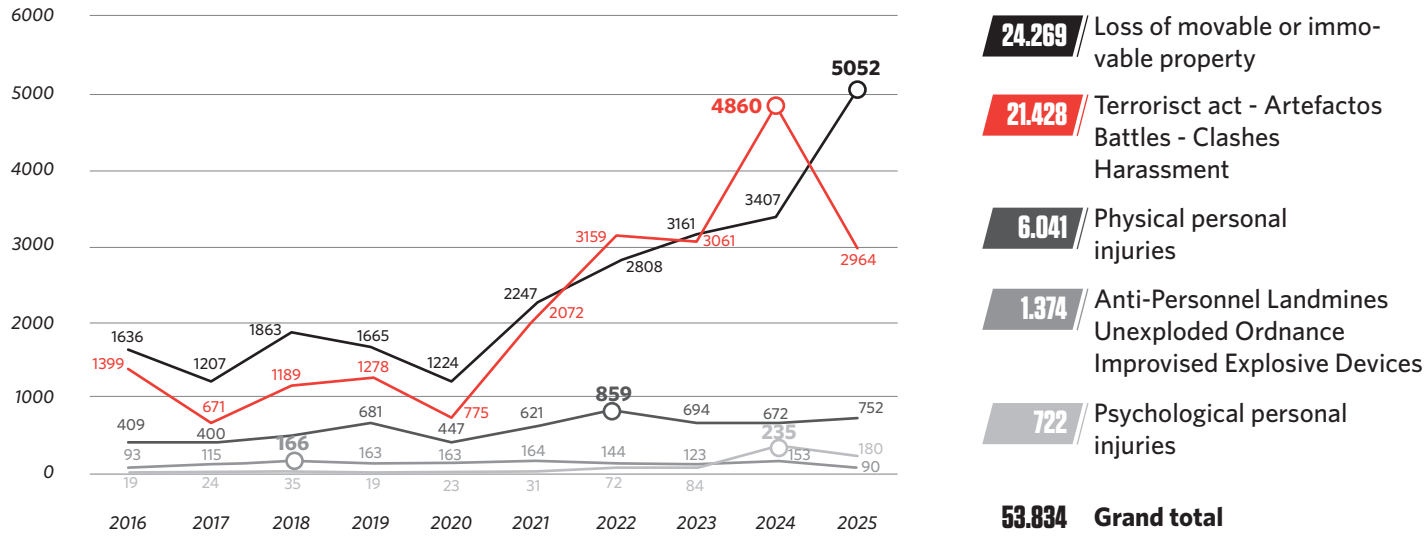
Events with the hightest occurrence involving the use of explosive ordnance

2024 vs 2025



6 *Colombia Ministry of Defense Statistical Information to 31 December 2025.* https://www.mindefensa.gov.co/defensa-y-seguridad/datos-y-cifras/informacion-estadistica

Graph 1: ***Terrorist attacks and APL victims registered 2016-2024***



Source: UNMAS Col on Victims for Unit (UARIV) data for December 2025

Associated phenomena such as forced displacement have also escalated, with the number of victims doubling between 2020 and 2024 from 112,240 to 252,517. The opposite phenomenon, such as confinement, has also shown a steady upward trend during the same period, increasing from 46,646 incidents in 2020 to 67,559 events in 2024.

The Ombudsman's Office's Imminent Risk Report No.015/2025, focused on the Department of Vichada, reported the use of UAV/UAS for surveillance and monitoring along the border with Venezuela, and the Imminent Risk Report No.017/2025 related the use of these weaponized drones with internal displacement and confinement.

The logic behind the drones with explosive payloads, does not appear to be aimed at militarily defeating State security forces, but rather at controlling strategic corridors for NSAG illicit economies, such as drug trafficking and illegal mining[7]. This pattern is reflected in attacks against police at urban police stations, while the Army has been more heavily affected in rural corridors, including riverine attacks targeting the Navy in the Putumayo department in August, 2025[8]. These attacks have affected both securiy forces and civilians, damaging homes, police stations, hospitals, and schools, and causing casualties and material losses.

One of the most significant incidents occurred on 20 July 2025 in the municipality of Tibú, near the Venezuelan border, where a UAS attack using grenade payloads killed a minor and injured 11 civilians during clashes between two NSAGs. A month later, on 21 August, a National Police helicopter conducting counter-narcotics operations was downed, resulting in the deaths of 13 police officers and injuries to 3 others.

The incident is believed to have been caused either by an explosive UAS attack or a minefield laid at an improvised helipad. Additionally, in October 2025, eight students aged 11 to 13 and four other civilians were injured in an attack registered in the El Plateado sector, Argelia, Cauca[9].

In 2026, new attacks have been recorded in the previously affected departments of Arauca, Bolívar, Cauca, Chocó, Norte de Santander, and Valle del Cauca, confirming the continued use of these devices as part of NSAG territorial control strategies.

7 *PARES 2025.*

8 *Buque de la Armada fue atacado con dron cargado con explosivos en zona rural de Puerto Leguízamo.* https://www.eltiempo.com/justicia/conflicto-y-narcotrafico/buque-de-la-armada-fue-atacada-con-dron-cargado-con-explosivos-en-zona-rural-de-puerto-leguizamo-3484177

3 UAV/UAS Modalities of use

As attacks become more frequent, coordinated, and technically advanced, NSAGs demonstrate adaptability and growing access to advanced technical capabilities. NSAGs also use their economic resources to acquire this technology due to the proliferation of suppliers and through black-market channels. The wide availability of a diverse range of drones in commerce also allows them to expand their usage and train "drone operators" using basic non-professional models.

International reports also indicate the infiltration by members of LAC criminal organizations, mainly Mexican and Colombian volunteers, into the Ukrainian International Legion, trying to receive comprehensive UAS training.

The easy acquisition of low-cost commercial drones and their availability on the market allow NSAGs to adapt and extend their use with constant adjustments to routes, altitudes, frequency, payload weight and modes of use of these devices. Some of the main characteristics of these systems have been described in *Table 1*.

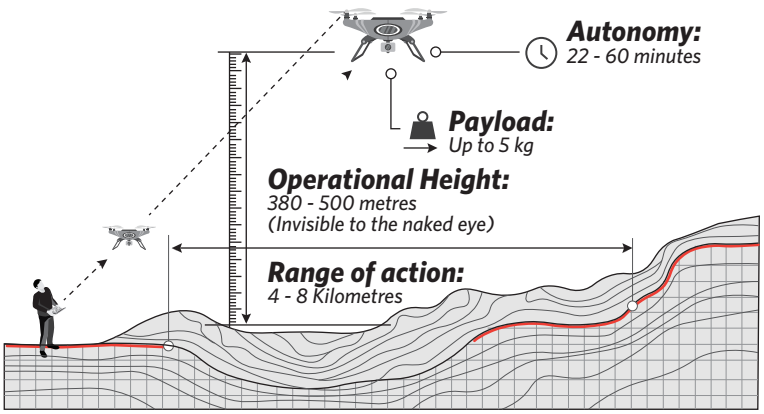
In Colombia, the type of contamination corresponds mainly to Class I UAS, as shown in *Graphic 2* that describes the standard specifications observed in commercially available systems adapted to be used in the Colombian context. These metrics represent a baseline threshold for the use of high-end technologies, IEDs or long-range transmission systems can significantly affect autonomy, payload capacity, and operational range beyond the parameters illustrated here.

Table 1: ***UAS types and features***

UAS	CLASS 1	CLASS 2	CLASS 3	CLASS 4
Size	Small, mini, micro	Tactical UAS	Medium Altitude Long Endurance (MALE) High-Altitude Long Endurance (HALE).	Autonomous aircraft system, small, mini or micro.
Altitude	Max 10.000 ft AGL	Max 20.000 ft AGL	45.000 to 65.000 AGL	10.000 AGL
Weight	1 – 25 kg Micro UAS max. 2 kg	Max take-off weight (MTOW) 150 kg – 600 kg	+ 600 kg	100 kg
Radio	Radio Line of Sight (RLOS) max. 100 Kms	RLOS max. 500 Kms	Beyond Radio Line of Sight (BRLOS) Use a satellite for flight control.	
Additional info	Highly portable EO camera Does not require launcher or recovery equipment.	Requires launcher, operator, and fixed ground control station, EO camera, Sensors.	Large and expensive military use, armed with advanced air-to-surface munitions, EO camera/infrared camera, sensors.	Operated with no human involvement.

Source: UNMAS on UN/DOS/DPO Guidelines Counter Unmanned Aircraft Systems. Ref.2025.16

Graphic 2: ***Operational capabilities GANE***



Source: UNMAS Col with the support of UNDSS

According to consulted sources, explosive-laden UAS operated by NSAGs in Colombia are designed so that the explosive payload (IED) is released via a remote click mechanism. However, this control is not always precise, as payloads sometimes exceed the drone's maneuverability, leading to accidental releases. The explosive payloads are often improvised and adjusted to the desired weight, using, for example, PVC tubes filled with ANFO and shrapnel.

Following global trends, Colombia is likely to experience the continued use of weaponized drones, increasingly integrated into multi-vector attacks targeting the Colombian Armed Forces and employed in confrontations among different NSAGs competing for territorial control.

UAVs with explisive charges in Colombia

Technology: Mainly remote operated
System: Hardware, airframe payload,
Application: Expand mechanisms of control and intimidation over rural communities.
Surveillance and intelligence over Security Forces routes and positions.
24-hour operations enabled by night-vision models.
Weight: Mostly Class I: 1 to 25 Kg.
Logic of confrontation:
Fewer combatants on the ground, more lethal attacks. Reduced operational risks for their operators.
Low-cost "air force". Training of "drone operators" with basic models.
Recruit or hire technicians and specialized operators capable of modifying drones and hacking factory software restrictions.

Photo: pucara.org

Colombia State Response

The Colombian State, through the Ministry of Defense, is advancing efforts to characterize this phenomenon. Among the measures adopted, negotiations for the acquisition of signal jammers stand out, although these measures carry collateral effects, such as disrupting civilian communications.

In July 2025, the Ministry of National Defense presented the Reconnaissance and Guided Attack Drone for Military Operations – DRAGOM (by its Spanish acronym), a domestically produced attack drone developed by the national defense industry for reconnaissance and guided strike missions in military operations. This model has a 90-minute flight autonomy and can operate in manual, semi-autonomous, and autonomous modes.

For July, 2025, the Ministry of Defense, Ministry of Transport, and Ministry of Information and Communications Technologies introduced a legislative proposal that aims to regulate the importation, commercialization, use, and registration of UAV/UAS. Key measures include mandatory registration and certification of users, regulation of operating frequency bands and controlled interference, criminalization of drones equipped with explosives, and the requirement for remote identification

Cortesy. Ministry Of Defense

systems. As of October 2025, the Senate Law Project #75 remains under review despite being submitted with an urgent message by the mentioned Ministries.

These legislative measures will gain relevance due to the rapid increase in registered UAS pilots -from 12 in 2023 to 4.497 in 2025- and registered UAV, which grew from 55 in 2022 to 7,291 in 2025, according to Civil Aviation Authority data. The same entity also recorded a 980% surge in flight requests, from 220 in 2017 to 2,376 in 2025[11].

In October 2025, the National Army informed about the creation of its first Uncrewed Aircraft Battalion (BANOT) that incorporates four companies and nearly 250 specialized personnel dotted with radio spectrum interference technology (Hunter Skyfend).

> ***The Ministry of National Defense presented the Reconnaissance and Guided Attack Drone for Military Operations – DRAGOM (by its Spanish acronym), a domestically produced attack drone developed by the national defense industry for reconnaissance and guided strike missions in military operations.***

11 *Colombia´s current regulations do not require authorization for UAS with a maximum take-off weight between 250g and 25 kg, as it is considered a low risk. UAS with over 150 kg take-off weight always require authorization from the Civil Aeronautics entity.* https://www.aerocivil.gov.co/autoridad_aeronautica/publicaciones/3958/aviacion-no-tripulada-uasdrones/

Photo: pucara.org

The Ministry of National Defense announced in December 2025 the development of the "Anti-Drone Shield" project, which aims to acquire C-UAVs, including fixed, semi-fixed, vehicle-mounted, surface-mounted, and portable UAS detectors. For March 2026, an invitation to 117 companies from 27 countries has been issued to submit bids. The project has an estimated total cost of US$1,690 millions[12].

Nevertheless, regulatory gaps, technological limitations, and a lack of comprehensive public policy persist. Civilian protection remains weakt: in many territories, the only available defense is the visual and the acoustic detection by recognizing the distinctive "buzzing" sound of drones and attempting to flee.

The situation also increases psychological distress within affected communities, as the use of UAV/UAS triggers anticipatory fear and anxiety. Not all drones signal an imminent attack; however, there is no reliable way for civilians to distinguish between surveillance and weaponized devices.

For 2026, strengthening the understanding of this phenomenon will require the reinforcement of early warning systems, alongside the defeat and mitigation measures already prioritized by the Colombian National government. Institutional responses should also consider the deployment of rapid response teams in the field, the expansion of risk education initiatives in the most affected communities and enhanced regional and international cooperation to facilitate data sharing among States.

AI-generated image, Gemini

12 Ministry of Defense. Official statement. March 19, 2026. https://www.mindefensa.gov.co/prensa/noticia-visualizacion/comunicado_oficial_escudo_nacional_antidrones

5 Conclusions

UNMAS program in Colombia has been supporting the implementation of the 2016 Final Peace Agreement, noting that during the negotiation phase (2012-2016), APL victims drastically decreased by 80%, followed by a renewed upward trend of 51% since 2016.

The transitional justice non-repetition warranties approach used by the transitional restorative justice in Colombia has shown a positive impact on the commitment of ex-combatants from the former FARC guerrilla. However, it also underscores the persistent challenge of achieving peace with dissident factions and other NSAGs competing for territorial control and illicit economies. Colombia's peace and security policy will be updated this year following the presidential elections scheduled for May (First round) and June (Second round) 2026. Meanwhile, a deeper understanding of these phenomena and their regional variations is highly relevant.

For UNMAS Colombia, the adaptation of weaponized UAS for urban environments is a serious concern, as they can be easily employed by criminal gangs, amplifying harm to civilians in densely populated areas. It raises concerns on the risks of violating the principles of distinction and proportionality under International Humanitarian Law (IHL).

The challenge ahead lies in tailoring prevention activities to the needs of communities in affected regions and ensuring a more coordinated response from national and regional authorities. Strengthening institutional capacities is imperative to guide the design and implementation of protection measures for communities in high-risk areas.

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In Colombia, programme activities are implemented by the United Nations Office for Project Services, providing operational delivery support to the United Nations Mine Action Service.

AI-generated image, Gemini

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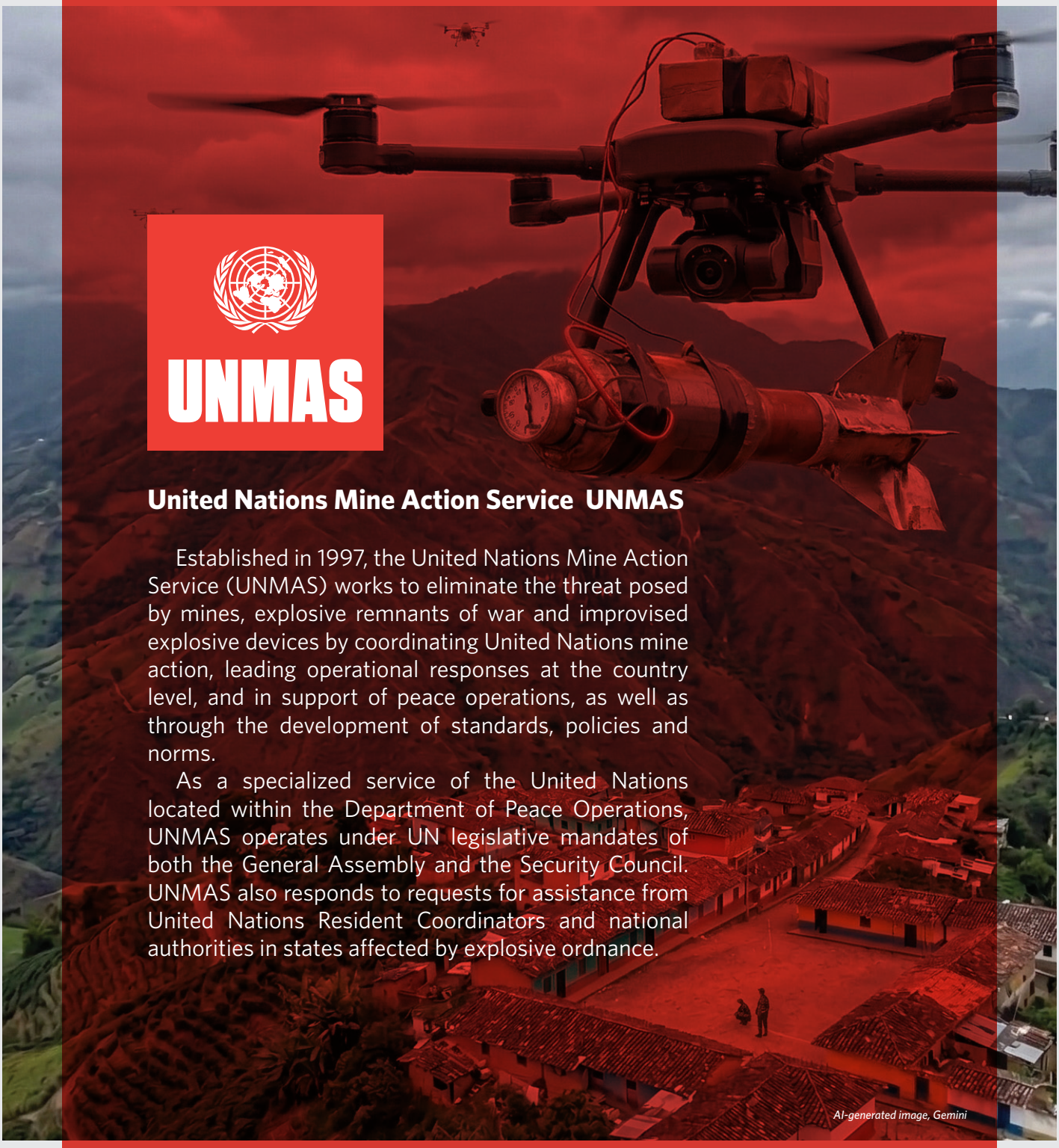

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United Nations Mine Action Service UNMAS

Established in 1997, the United Nations Mine Action Service (UNMAS) works to eliminate the threat posed by mines, explosive remnants of war and improvised explosive devices by coordinating United Nations mine action, leading operational responses at the country level, and in support of peace operations, as well as through the development of standards, policies and norms.

As a specialized service of the United Nations located within the Department of Peace Operations, UNMAS operates under UN legislative mandates of both the General Assembly and the Security Council. UNMAS also responds to requests for assistance from United Nations Resident Coordinators and national authorities in states affected by explosive ordnance.

AI-generated image, Gemini

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