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The Military-Industrial Complex in the Transnistrian Region: a Threat to the National Security of the Republic of Moldova

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Abstract

The military-industrial complex in the Transnistrian region of the Republic of Moldova, a territory outside the effective constitutional control of state authorities, constitutes a major risk factor to national security. This article analyzes the military, political, and geopolitical dimensions of this complex, highlighting its destabilizing impact on the security architecture of the Republic of Moldova and the South-Eastern European region. The article also examines the historic evolution and current activities of several industrial enterprises in the Transnistrian region involved in the unauthorized production and storage of weapons and ammunition, as well as the strategic relevance of the Cobasna military depot, considered one of the largest storage facilities for conventional ammunition in South-Eastern Europe. Thus, the research demonstrates that maintaining the military-industrial complex and significant ammunition stockpiles in the Transnistrian region generates persistent threats to the security of the Republic of Moldova, while also contributing to regional instability and increased risks to European security.

Keywords:
Transnistria; Military-Industrial Complex; National Security; Cobasna Depot; Ammunition; Russian Federation; Republic of Moldova.

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The national security environment of the Republic of Moldova is significantly shaped by the unresolved conflict in the Transnistrian region, which continues to generate structural vulnerabilities across political, military, economic, and societal levels. In this context, the military-industrial complex developed on the territory of the Transnistrian region represents a major risk factor that remains insufficiently analyzed in the specialized literature, yet has direct implications for the stability of the Republic of Moldova and for regional security. The persistence of industrial capacities with a military profile, inherited from the Soviet period and adapted to new geopolitical realities, contributes to the maintenance of a power imbalance and to the perpetuation of a climate of insecurity in the immediate vicinity of the Republic of Moldova's borders.

The military-industrial complex in the Transnistrian region is characterized by a high degree of institutional opacity, the absence of control by the constitutional authorities of the Republic of Moldova, and ambiguous connections with external state and non-state actors. It encompasses production, repair, and storage infrastructures for military equipment, as well as underground economic networks that may facilitate the illicit trafficking of weapons and dual-use technologies. In the absence of a functional legal and political framework for international monitoring, these industrial capacities may be instrumentalized both for military purposes and as levers of geopolitical pressure, thereby amplifying hybrid risks to the security of the Republic of Moldova.

Analyzing the Transnistrian military-industrial complex as a threat to national security requires an interdisciplinary approach that integrates perspectives from security studies, international relations, political economy, and international law. This research aims to highlight the role and functionality of this complex within the regional security architecture, to identify the mechanisms through which it undermines the sovereignty and defense capacity of the Republic of Moldova, and to contribute to the formulation of scientifically grounded public policies and security strategies. In a geopolitical context marked by instability and intensified strategic competition in Eastern Europe, the investigation of this topic becomes not only relevant but imperative for understanding current and future challenges to Moldovan statehood.

To conduct the present research on the military-industrial complex in the Transnistrian region as a potential threat to the security of the Republic of Moldova and to highlight the main repercussions it may generate for national security, a coherent set of general and specific research methods was employed. The adopted methodological approach seeks to explain the manner and extent to which the Transnistrian military-industrial complex constitutes a risk factor, moving beyond strictly descriptive approaches and orienting the analysis toward causal relationships, functional mechanisms, and systemic effects.

The examination of the military-industrial complex from both conceptual and operational perspectives was made possible by analytical and deductive methods, which facilitated the identification of the main dimensions of the threat to the Republic of Moldova's security. The analysis is grounded in an interdisciplinary theoretical framework situated at the intersection of security studies, critical political economy, and international relations, enabling the clarification of the conceptual benchmarks associated with the notion of the military-industrial complex. This interpretative framework allows for an understanding of the Transnistrian phenomenon not merely as a set of arms production or storage capacities, but as an informal politico-economic network integrated into a regional system of influence and control.

Documentary analysis constitutes the primary data collection method and focuses on relevant academic studies, open-source intelligence (OSINT), reports from international organizations, and investigative media materials. Complementarily, qualitative content analysis is applied to identify strategic narratives and security discourses associated with the Transnistrian military-industrial complex, thereby extracting latent meanings from official and unofficial sources and highlighting how this phenomenon is legitimized, minimized, or instrumentalized in political and media contexts. Furthermore, the research integrates *diachronic comparative analysis*, tracing the evolution of the region's military-industrial infrastructure in relation to post-Soviet geopolitical transformations and the dynamics of the frozen conflict in the Republic of Moldova. By correlating historical data with recent information, it was possible to formulate plausible inferences regarding the current function of this complex and its impact on regional security.

The case study is an essential component of the research, facilitating an in-depth analysis of the military-industrial complex's repercussions in the Transnistrian region on the security of the Republic of Moldova. This method enabled examination of interactions among military, economic, and political factors within an externally supported separatist space, including relevant sub-cases such as inherited Soviet-era military infrastructure and enterprises with military or dual-use profiles. To assess the impact on national security, *risk analysis* was employed, structured around three main dimensions: the probability of threat manifestation, its destructive or destabilizing potential, and the degree of control exercised by the constitutional authorities of the Republic of Moldova. This methodological approach allows for a transition from descriptive observations to the formulation of conclusions with strategic relevance.

Given the fact that, within the academic literature of the Republic of Moldova, there are no comprehensive studies dedicated to the analysis of the military-industrial complex in the Transnistrian region as a threat to state security, the *webographic method* was also applied. This method enabled examination of the subject at both theoretical and practical levels by using relevant online sources, contributing to a broader, more up-to-date understanding of the issue under investigation.

At the same time, the use of the *phenomenological method* enabled the analysis of the essential dimensions of the studied phenomenon, thereby facilitating the investigation of experiences, perceptions, and structures of meaning associated with the Transnistrian military-industrial complex. In the context of the war in Ukraine, triggered by the invasion of the Russian Federation, regional security concerns have regained heightened importance, bringing to the forefront the need to reassess the role of the military-industrial complex in the Transnistrian region. In this regard, the historical method made it possible to analyze the specific conditions of setting and the evolution of this complex, offering a diachronic perspective on its transformations and their implications for the security of the Republic of Moldova. Considering that the Russian Federation conceals certain data or provides misleading information regarding the military-industrial complex in the Transnistrian area, the methodology employed in the elaboration of this article was predominantly qualitative and inductive in nature, combining critical analysis of open sources with informational triangulation and comparative evaluation of official and alternative narratives. The adopted methodology provides a coherent framework for analyzing the military-industrial complex in the Transnistrian region of the Republic of Moldova and contributes to the development of security research in the Eastern European context. By integrating multiple qualitative methods, the study ensures a comprehensive and rigorous approach to the phenomenon under analysis.

„The military-industrial complex" — a conceptual and theoretical approach

For a better understanding of the issue concerning the military-industrial complex in the Transnistrian region of the Republic of Moldova, it is necessary to clarify the meaning of the concept of the military-industrial complex (MIC). The term "military-industrial complex" was famously used by U.S. President Dwight D. Eisenhower in his farewell address on January 17, 1961 (Britannica 2025). Eisenhower warned that the United States must "guard against the acquisition of unwarranted influence … by the military-industrial complex" (National Archives 1961). According to Eisenhower's perspective, the military-industrial complex tends to promote policies that may not align with the national interest (such as participation in a nuclear arms race), and he believed that its growing influence, if left unchecked, could undermine American democracy (Reaching Critical Will 2025).

Although this expression is commonly attributed to Eisenhower (Oxford 2001, 82), and many scholars initially regarded the phenomenon as novel, characteristics associated with the domestic and international military-industrial complex can be identified prior to his landmark speech. The term "military-industrial complex" was first employed by C. Wright Mills in 1956 (Mintz 1985), and elements of such a complex can be traced throughout the history of warfare, dating back to the earliest stages of civilization. As Keith Nelson notes in his work on the constitutive traditions of the military-industrial complex, "those traditions that hold rulers, soldiers,

and merchants responsible for war have pursued their separate paths over many centuries." Nevertheless, the first concrete roots of the modern military-industrial complex can be identified in the United States at the turn of the late nineteenth and early twentieth centuries (Salisbury 2024, 14–21).

The term "military-industrial complex" may also refer to the physical concentration of military production. Military expenditures generate spatial clusters of prime contractors, subcontractors, consultants, universities, skilled labor, and government facilities, all dedicated to research and development or the manufacture of military systems and technologies. Notable examples include the aerospace complex of Southern California, the shipbuilding complex along the southern coast of South Korea, and the isolated military research center of Akademgorodok in Siberia. National governments have often created such complexes in areas lacking a prior industrial tradition by guaranteeing large-scale migration of skilled labor. These areas came to resemble company towns, providing not only employment but also housing, healthcare, and education for workers and their families. During the Cold War, the military-industrial complex constituted a major center of power, and today its influence is even greater, serving as a critical link between the armed forces and the industries that manufacture military equipment. Koistinen argues that the MIC represents a recognized process through which multiple institutions—most notably the military and commercial enterprises—collaborate to provide the state with the operational capabilities required for warfare (Koistinen 1980, 1).

In the work *"Delta of Power",* Alex Roland presents a comprehensive history of the CMI from 1961, the Cold War, and the War on Terrorism, to the present. Roland contends that the MIC is now significantly different from the form it assumed when Eisenhower warned of its dangers, continuing to exert considerable, though diminished, influence over American life. Focusing on the three decades following the end of the Cold War in 1991, Roland explains how fragmentation, rapid change, and historical contingency transformed America's military-industrial institutions and infrastructure. He identifies five critical areas of transformation: civil–military relations; relations between industry and the state; inter-agency relations within government; relations between scientific-technological communities and the state; and the relationship between technology and society (Roland 2001).

At the core of any definition of the military-industrial complex lies the existence of a strong defense industrial base around which state interests may coalesce. The MIC becomes a self-generating structure (agency) that embodies the interests of various societal groups. The strength of entrenched interests and their competition for resources generates internal pressure for increased military spending, while external threats are often exaggerated to provide the necessary justification (Dunne and Sköns 2009).
Since Eisenhower's speech, the expression "military-industrial complex" has acquired multiple meanings. The Vietnam War context added its own nuances to

definitions developed during and after that period, and the end of the Cold War and the beginning of the "Global War on Terrorism" led to new changes in meaning. Nevertheless, the term is almost always employed pejoratively and serves as a useful analytical tool for many authors addressing broader structural tendencies. There are no entirely impartial analyses of the military-industrial complex; each approach contains a critique or series of critiques, through which the evolution of the concept over time must be discerned. As James Ledbetter observes, the military-industrial complex is "a rhetorical Rorschach blot — the meaning depends on the eye of the beholder" (Salisbury 2024, 14). The picture is also complicated by the fact that the suffix "industrial complex" has become a rather worn-out way of suggesting that policy in any field has been undermined by profit motives: in criminal justice, healthcare, and many others.

Other definitions of the military-industrial complex suggest that it encompasses the armed forces and all businesses and government agencies that support them. Weapons manufacturers and politicians who accept donations from such companies are considered part of the military-industrial complex. A company that produces weapons contributes to a politician's campaign; following elections, that legislator increases military funding, which is then used to purchase tanks, weapons, and ammunition from the same company (Vocabulary 2025). The military-industrial complex, initially considered an exclusively American phenomenon of the Cold War, was adapted to develop and produce military technologies at the level of the existential threat perceived as being represented by the Soviet Union. An informal yet robust relationship between the military and industry, the military-industrial complex pursued and won a race for technological development.

Thus, based on these interpretations, the military-industrial complex may be understood as the relationship among a country's military, its government, and the defense industry that supplies weapons and services. This concept highlights the way how these entities interact and mutually reinforce one another, shaping national policies and economic priorities, particularly during periods of intensified military engagement. The military-industrial complex became a significant factor in shaping both U.S. foreign and domestic policy during the Cold War and continues to play a role in contemporary governance (Fiveable 2025).

The military-industrial complex in the Transnistrian region

The security challenges of the Republic of Moldova cannot be rigorously examined without integrating the Transnistrian dimension, a territory that has remained outside the effective control of the constitutional authorities for more than three decades. The territory of the administrative unit on the left bank of the Dniester River covers approximately 4,000 km², representing approximately 12 percent of the Republic of Moldova's total area. From a factual perspective, the self-proclaimed entity known as the "Pridnestrovian Moldavian Republic" does not fully overlap

with the Transnistrian region, as six communes situated east of the Dniester River - Cocieri, Molovata Nouă, Corjova, Coșnița, Pârâta, and Doroțcaia - remain under the jurisdiction of the constitutional authorities of the Republic of Moldova. At the same time, the de facto administration in Tiraspol exercises control over the municipality of Bender (including the locality of Proteagailovca) and over the communes of Gâsca and Chițcani, located west of the Dniester River. In parallel, the Dubăsari district is administratively divided into two distinct entities: one under the authority of the constitutional government in Chișinău and the other under the separatist administration in Tiraspol (Țăranu 2024, 182).

This fragmented territorial-administrative configuration has not only political and legal implications but is also closely linked to the legacy and persistence of the military-industrial complex in the region. During the Soviet period, the Transnistrian space was designed as a strategic node of the defense industry, concentrating military production units, logistical infrastructure, and weapons storage facilities deliberately positioned near major transportation axes and along the western frontier of the Soviet Union. Following the dissolution of the USSR, these capacities were not fully dismantled; instead, they became one of the material pillars of the consolidation of the separatist regime, providing both economic resources and instruments of coercion. Enterprises associated with the military-industrial complex are located on the left bank of the Dniester, primarily in the cities of Tiraspol and Rîbnița (see *Figure* 1). The control exercised by the de facto authorities in Tiraspol over key localities on the right bank of the Dniester, such as the municipality of Bender, must also be interpreted through the lens of their strategic importance within the architecture of the former military-industrial complex, as these areas ensure access to critical infrastructure, communication routes, and industrial facilities with dual-use (civil–military) potential.

In this context, although the armed conflict on the Dniester formally ended in 1992, its structural effects cannot be dissociated from the security and industrial logic inherited from the Soviet period, which continues to shape local power relations and to significantly condition the prospects of state reintegration. One of the most sensitive and persistent elements of this legacy is the existence of a military-industrial complex derived from the strategic infrastructure of the former Soviet Union. This complex is not merely a historical relic but a functional reality with considerable destabilizing potential. The presence of the ammunition depots at Cobasna, industrial capacities dedicated to the production and repair of armaments, and the associated parallel economic networks transform the Transnistrian region into a vector of insecurity not only for the Republic of Moldova but also for the broader space of Southeast Europe. Over time, these resources have been instrumentalized both politically and economically, serving as mechanisms of strategic pressure, destabilizing factors, and potential sources of latent conflict with regional implications.

TIRASPOL
Industrial enterprises:
„Pribor", „Metalorucav",
„Kirov Electrical
Appliances".
The industrial complex
„Electromaș."

RÎBNIȚA
Metallurgical and hydraulic
industrial complex

Figura 1 The main locations of the military-industrial complex of the Transnistrian region
Source: based on research developed by the authors

The specialized literature and reports of international organizations converge in assessing the Transnistrian military infrastructure as a major security risk. Thus, Peterka-Benton (2012) emphasizes the region's traditional role as a hub within illicit small-arms trafficking networks, while analysis by the Global Initiative (2024) points to a reactivation of illicit arms flows following the outbreak of the war in Ukraine. This development once again places the Transnistrian region at the center of the regional security equation.

Within the same analytical framework, the Organization for Security and Co-operation in Europe (OSCE 2024) has repeatedly highlighted existing structural vulnerabilities and the need to strengthen the Republic of Moldova's institutional capacities to manage risks related to the proliferation of small arms and light weapons. Complementarily, internationally renowned media outlets, such as the Financial Times (Financial Times 2025), have underscored the geopolitical dimension of the issue, revealing how the military infrastructure of the Transnistrian region is used as an instrument of external pressure within the context of regional strategic competition.

Viewed from this perspective, the Transnistrian region transcends the status of a purely local problem and emerges as a constitutive element of a broader geopolitical puzzle, in which organized crime, illicit arms trafficking, and external political interests intersect and mutually reinforce one another. The threat generated by the

Transnistrian military-industrial complex can be conceptualized through several interconnected mechanisms:

Illegal production and repair of weapons. Industrial capacities inherited from the Soviet period, although significantly reduced compared to their original scale, continue to enable limited-scale production, modernization, and refurbishment of small arms. This reality keeps the region in a state of constant risk, facilitating its integration into illicit arms circuits and supplying regional black markets.

Ammunition depots. The Cobasna ammunition storage complex, which houses tens of thousands of tons of conventional ammunition, represents a permanent source of insecurity. The associated risks are manifold, ranging from the potential diversion of stockpiles into illicit trafficking networks to environmental and technogenic threats generated by the degradation of expired munitions and the possibility of major incidents with cross-border impact.

Smuggling networks and the parallel economy. The Transnistrian region is characterized by informal economic flows and a "grey" economy that also facilitates arms trafficking. These networks contribute to the consolidation of political and financial dependencies, perpetuate corrupt practices, and undermine the Republic of Moldova's capacity to exercise effective control over its own security space.

Politicization of military infrastructure. The Transnistrian military-industrial complex is not merely a technical or security-related issue but is deeply embedded within a political and geopolitical logic. Its existence and preservation serve as instruments of hybrid pressure, employed by both the de facto regime in Tiraspol and interested external actors, most notably the Russian Federation, to influence political decision-making in the Republic of Moldova and maintain a high degree of strategic uncertainty in the region.

The cumulative impact of these threats manifests across several interdependent dimensions. *At the level of internal security*, the proliferation and circulation of illegal weapons amplify risks associated with organized crime, undermine the rule of law, and generate persistent social vulnerabilities. *In terms of regional stability,* the existence and operation of trafficking channels may contribute to fueling armed conflicts in neighboring states, including the war in Ukraine, thereby intensifying the strategic volatility of the wider Black Sea region. *From an international image perspective, the Republic of Moldova's association* with a potential hub of arms trafficking and military insecurity negatively affects its European integration trajectory and its relations with international partners, eroding trust and diminishing willingness for deeper cooperation.

In essence, the military-industrial complex in the Transnistrian region constitutes a systemic threat with simultaneous internal and external implications, which cannot

be ignored in contemporary analyses of European security. Its multidimensional character - military, economic, and political - renders it a persistent source of vulnerability both for the Republic of Moldova and for the regional security architecture.

To mitigate these risks, several strategic courses of action can be outlined, addressed both to the political leadership in Chișinău and to international organizations and partners involved:

- *Inventory and international monitoring of armaments*. Active involvement of the OSCE and other relevant international actors in a transparent and verifiable process of monitoring weapons and ammunition stockpiles, with particular emphasis on sensitive depots in the Transnistrian region.
- *Strengthening border control.* Implementation of operational cooperation mechanisms with the European Union, based on advanced surveillance technologies, intelligence -sharing, and integrated inspection systems, aimed at reducing illicit flows.
- *Financial and economic control.* Identification and disruption of money-laundering channels linked to arms trafficking, alongside efforts to curb the region's parallel economy through financial, customs, and regulatory instruments.
- *Legislative and institutional reform.* Improvement of the national legal framework governing arms exports and dual-use goods, as well as the tightening of criminal sanctions for involvement in illegal schemes, in line with European and international standards.
- *Strategic communication and public diplomacy.* Systematic international exposure of illegal activities associated with the Transnistrian military-industrial complex, aimed at delegitimizing de facto structures and mobilizing political and technical support from external partners.

Accordingly, the military-industrial complex in the Transnistrian region is not a mere relic of the Soviet past but an active contemporary reality situated at the intersection of the military, economic, and political dimensions of insecurity. In the absence of effective and coordinated control and monitoring mechanisms, it continues to be a major source of instability for the Republic of Moldova and the broader Eastern European region.

Beyond the strictly military dimension, the issue under analysis also carries a profound human and societal dimension, as citizen security, social cohesion, and the prospects of European integration for the Republic of Moldova are directly conditioned by how this complex challenge is managed. The impact of threats posed by the Transnistrian military-industrial complex reverberates through internal stability and undermines the state's ability to construct a predictable security environment compatible with European standards.

The solutions identified are neither simple nor one-dimensional; they require coordinated international cooperation, coupled with sustained political will and long-term institutional perseverance. In this context, the analysis of the Transnistrian military-industrial complex goes beyond a purely academic endeavor, emerging as a practical and strategic necessity for safeguarding the national security of the Republic of Moldova and consolidating regional stability in Eastern European space.

A particularly relevant aspect requiring in-depth analysis concerns the activity of certain industrial enterprises located in the eastern part of the Republic of Moldova. Among the most notable are the enterprises "Pribor," "Metalorucav," "Kirov Electrical Appliances," the "Electromaș" industrial complex in the municipality of Tiraspol, as well as the metallurgical and hydraulic industrial complex in the city of Rîbnița. These economic entities, which officially operated under the guise of producing electrical appliances and household goods, were involved in illegal weapons production activities prior to the establishment of the European Union Border Assistance Mission to Moldova and Ukraine (EUBAM) (Cebotari 2023).

Available data indicate that the range of weapons illegally manufactured within these industrial complexes was diversified, encompassing both small arms and more complex weapons systems. Thus, weapons were clandestinely produced in the Transnistrian area, some of which were illegally traded in conflict zones such as Kosovo, Abkhazia, etc. (Sartori 2006). The types of weapons and ammunition illegally produced in the Transnistrian region are presented in Table 1.

These activities highlight the existence of an industrial infrastructure capable of sustaining the illegal production and distribution of weapons, with significant implications for regional and international security. In this context, a major strategic object is the Cobasna military depot, located near the city of Rîbnița in the northern part of the Transnistrian region. Covering an area of approximately 132 hectares, this facility has represented one of the largest storage sites for conventional weapons and ammunition in the post-Soviet space. According to available data, around 42,000 tons of weapons, ammunition, and military materiel originating from the former Soviet period were stored at Cobasna. The village of Cobasna is approximately 2 kilometers from the border with Ukraine, which further enhances its geopolitical and security relevance.

The ammunition depot primarily houses the armament legacy of the former 14th Army of the Soviet Union, as well as substantial quantities of military equipment originating from the former German Democratic Republic and Czechoslovakia. At present, more than 20,000 tonnes of ammunition are still stored within this perimeter. During the Soviet period, the Cobasna facility was known as Artillery Ammunition Depot No. 1411 and held the status of a strategic arsenal of the USSR's Southwestern Military District. A significant portion of the ammunition was transferred to and dismantled at this location after the withdrawal of Soviet troops from Central and

TABLE no. 1. Illegally produced weapons in the Transnistrian region of the Republic of Moldova

Weapon Category	Type/ Designation	Calibre/ General Characteristics	Platforme/ Use	Remarks
Multiple launch systems	Multiple launcher (20 tubes)	Not disclosed	ZIL131, Ural365 vehicles	Clandestinely produced; some units exported
Anti-tank launchers	SPIG-7	Anti-tanc	Man-portable	Illegal production
Anti-tank launchers	SPIG-9	Anti-tanc	Man-portable/ mountable	Illegal production
Mines	Artillery mines	82 mm, 120 mm	Artillery systems	Illegally manufactured
Mortar launchers	Katran	50 mm	Man-portable	Clandestine production
Small arms	PM revolver	9 mm	Individual weapon	Illegal production
Small arms	TT revolver	7,62 mm	Individual weapon	Illegal production
Small arms	PSM revolver	5,45 mm	Individual weapon	Illegal production
Assault weapons	AK-47 Kalașnikov	7,62 / 5,45 mm	Infantry	Multiple variants
Machine guns	Compact machine gun	9 mm	Infantry	Illegal production
Grenade launchers	Pcela	-	Man-portable	Illegally traded
Grenade launchers	Gnom	-	Man-portable	Illegally traded
Mortar systems	Vasileok	Vasileok	Vehicle-mounted	Some units were sold to rebel groups
Mobile launchers	Duga	-	Mobile	Illegal production
Grenade launchers	NPGM-40	40 mm	Mounted on AKS-74	Illegal production
Anti-personnel mines	PND	-	Ground-based/ wooden casing	Illegal production
Grenade launchers	GP-15	40 mm	Weapon-mounted	Illegal production

Source: Based on research conducted by the authors (Sartori 2006).

Eastern Europe, including the former German Democratic Republic, Czechoslovakia, and other member states of the former Warsaw Pact (Cebotari 2023, 122–127). The importance of this depot derives not only from the substantial volume of military stockpiles but also from its broader implications for regional security, geopolitical

stability, and the risks associated with the management, preservation, and potential neutralization of large quantities of obsolete ammunition (Digi24 2022).

As early as 2005, experts from the Academy of Sciences of Moldova (ASM) conducted a series of analyses and estimations based on available data concerning the composition, condition, and volume of ammunition stored on the left bank of the Dniester River. These assessments evaluated the potential risks posed by the long-term physical-chemical degradation of ammunition stored at the Cobasna military depot. According to the conclusions formulated by ASM specialists, under conditions of advanced degradation and an uncontrolled detonation, the energy released by an explosion could reach a level comparable, in terms of its destructive effects, to that of a tactical nuclear explosion. More specifically, the analyzed scenarios indicate that a potential explosion at the Cobasna depot could be energetically equivalent to the detonation of a nuclear bomb of approximately 10 kilotons, similar to the one used against the city of Hiroshima in 1945. This analogy is strictly comparative and illustrative in nature and is employed solely to highlight the potential magnitude of the effects of an accidental detonation of stored conventional ammunition, not to suggest the presence of nuclear materials at the site. At the same time, these assessments underscore the severity of the risks associated with maintaining massive quantities of ageing ammunition in an area characterized by high geopolitical sensitivity and in close proximity to densely populated localities (Timpul 2020).

A potential detonation of the ammunition depots could generate significant destructive effects on both the built environment and the population in adjacent areas. According to expert estimates, the resulting shockwave would be capable of destroying brick structures and reinforced concrete buildings located up to approximately 4–5 kilometers from the epicenter of the explosion (see *Figure* 2).

At the same time, a crater with an estimated radius of approximately 1.5 kilometers and a depth of up to 75 meters could be formed, indicating an extremely high level of released energy. Under the specific conditions of the Cobasna area, predominantly rural in character and characterized by relatively open terrain, the effects of the blast wave and the induced seismic vibrations could be felt over a much wider area, estimated at 40–50 kilometers. This would potentially affect settlements located at considerable distances, including the city of Orhei. From this perspective, the overall impact of such an explosion could be compared, in terms of its structural and geodynamic effects, to those generated by an earthquake with a magnitude ranging between 7.0 and 7.5 on the Richter scale. According to expert assessments, such an explosion would have severe consequences for the civilian population and would trigger a large-scale humanitarian and ecological catastrophe in the north-eastern region of the Republic of Moldova, with significant cross-border effects on Ukrainian territory. Depending on the scenario, the affected area could range between 500 and 3,000 square kilometers, influenced by the volume of ammunition involved and the physico-geographical conditions prevailing at the time of the event (Unimedia 2022).

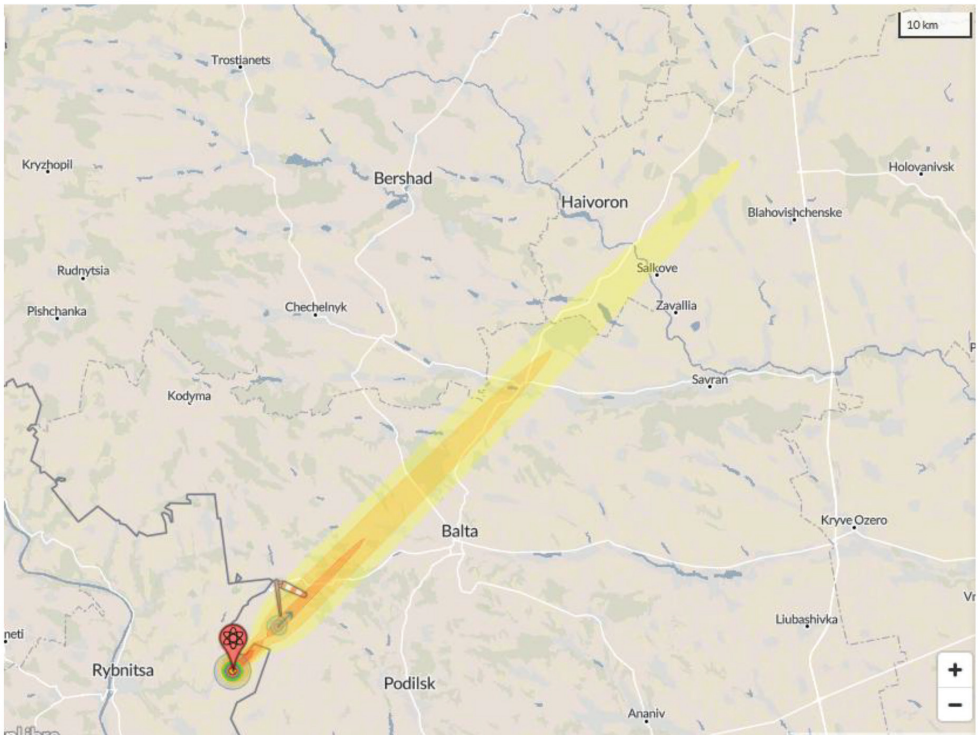

Figure 2 Simulation of the effects of detonation of a 10 kt nuclear charge (ground explosion) with the Cobasna center
Source: screenshot taken by the authors based on the detonation effects simulation application (NUKEMAP), accessed on 27.01.2026.

Thus, in the event of an accidental or deliberate detonation scenario, the associated risks are not confined to the strictly security-related dimension, but rather assume a complex, multidimensional character, with major implications for human security, regional stability, and environmental protection. The effects of a hypothetical scenario involving the detonation of a nuclear weapon with a yield of 10 kt TNT are presented in Table 2.

These data indicate that a nuclear-type detonation, even with a relatively low yield, would generate disproportionate systemic effects, simultaneously affecting human security, critical infrastructure, the environment, and regional stability, far exceeding the response and management capacities of a state the size of the Republic of Moldova. Such an eventuality would overwhelm the capabilities of local and national authorities, requiring coordinated international intervention, including in the fields of emergency management, humanitarian assistance, and long-term environmental damage assessment. In this sense, the continued existence of ammunition stockpiles in the Cobasna area represents not merely a material legacy of the Soviet military-industrial complex but also a structural vulnerability that reinforces the frozen character of the Transnistrian conflict and substantially complicates any effort toward a sustainable political settlement.

At present, the Russian Federation maintains approximately 20,000 tons of ammunition on the territory of the Transnistrian region, along with military

TABLE no. 2. Results of the simulation of the detonation of a nuclear weapon with a yield of 10 kt TNT (surface explosion) – Cobasna ammunition depot

Analytical dimension	Indicator	Technical Parameters	Estimated Impact / Interpretation
Scenario characteristics	Type of explosion	Surface nuclear explosion	Promotes soil radioactive contamination and extensive radioactive fallout
	Yield	10 kilotons of TNT	Comparable to tactical nuclear weapons
	Weather conditions (fallout)	Wind speed: 24 km/h	Spread accentuated in the wind direction
Direct human impact	Estimated deaths	~650 people	Majority in areas >5 psi and >500 rem
	Estimated injuries	~1.250 people	Mechanical trauma, burns, radiation exposure
	Population exposed to light blast (1 psi)	4.513 persoane /24 h	High risk of secondary injuries
Extreme thermal effects	Fireball radius	222 m	Total destruction of organic matter
	Fireball area	0.15 km²	Complete vaporization
Shockwave - Severe Damage	Overpressure	20 psi	Standard threshold for total destruction
	Affected radius	469 m	Structural collapse of reinforced concrete buildings
	Affected area	0.69 km²	Mortality near 100%
Shockwave - Moderate damage	Overpressure	5 psi	Threshold for major urban destruction
	Affected radius	0.99 km	Collapse of residential buildings
	Affected area	3.06 km²	Widespread injuries, multiple fires
Shockwave - Light damage	Overpressure	1 psi	Massive window breakage
	Affected radius	2.53 km	Frequent secondary injuries
	Affected area	20.2 km²	High number of injured
Acute radiological effects	Lethal dose (500 rem)	Acute exposure	Mortality within ~30 days
	Affected radius	1.25 km	High mortality
	Affected area	4.91 km²	Subsequent cancer risk (~15%)

Analytical dimension	Indicator	Technical Parameters	Estimated Impact / Interpretation
Thermal effects on population	Third-degree burns	≥8,44 cal/cm²	Full skin damage
	Affected radius	1.41 km	Permanent disability
	Affected area	6.22 km²	Requires major medical interventions
Radioactive fallout	1 rad/h contamination contour	98.7 km length; 7.46 km width	Extended regional contamination
	Affected area	~838 km²	Transboundary impact
	10 rad/h contamination contour	62.7 km; 4.48 km	Short-term dangerous doses
	Affected area	~386 km²	Severe access restrictions
	100 rad/h contamination contour	26.6 km; 1.5 km	Extremely dangerous doses
	Affected area	~104 km²	Uninhabitable
	1,000 rad/h contamination contour (stem fallout)	4.12 km; 0.82 km	Only column contamination
	Affected area	~5.29 km²	Not represented cartographically

Sursa: (NUKEMAP). The simulations were performed using the public application for modeling the effects of nuclear detonation, using standardized parameters and exclusively for analytical purposes.

contingents and associated infrastructure. In accordance with international commitments undertaken, these munitions and military forces were to be fully and unconditionally withdrawn from the territory of the Republic of Moldova by 2002, pursuant to the provisions of the Treaty on Conventional Armed Forces in Europe (CFE) and the Final Declaration of the 1999 Organization for Security and Co-operation in Europe (OSCE) Istanbul Summit (OSCE 1999). However, the withdrawal process was not completed. In 2007, the Russian Federation suspended its participation in the CFE Treaty and subsequently conditioned the full withdrawal of its munitions and troops on the political settlement of the Transnistrian conflict. This position contrasts with that of the authorities in Chișinău, which have consistently advocated for the total and unconditional withdrawal of foreign military forces and ammunition from the territory of the Republic of Moldova as a fundamental prerequisite for conflict resolution (Europa Liberă 2018).

A portion of the conventional armaments initially located in the region was withdrawn by the Russian Federation in previous years; however, there are indications

that some of these weapons may have been illicitly trafficked and sold to various regions of the world, raising additional regional and international security concerns. With regard to local military capabilities, the armed and paramilitary forces of the Transnistrian region comprise approximately 16,000 personnel, organized into four motorized infantry brigades, primarily deployed in Tiraspol, Rîbnița, and Dubăsari. These formations are equipped with modernized Soviet-era military equipment, including approximately 18 tanks, 107 armored vehicles, 73 artillery pieces, 46 anti-aircraft systems, and 173 anti-tank systems. The air component includes Mi-8T, Mi-24, and Mi-2 helicopters, as well as An-2, An-26, and Yak-18 aircraft. Officially, the Russian Federation declares the presence of around 1,200 military personnel in the area as part of the Operational Group of Russian Forces. However, in the context of the war in Ukraine, Ukrainian media outlets have advanced estimates suggesting that at least 5,000 Russian troops may be deployed in the Transnistrian region. This discrepancy between official figures and alternative assessments highlights significant transparency gaps and amplifies concerns regarding regional security stability (Cebotari 2023).

The analysis of external threats generated by the Transnistrian military-industrial complex cannot be separated from an assessment of the legislative and institutional framework governing the possession and circulation of weapons in the Republic of Moldova. Thus, national security is influenced not only by the existence of cross-border and geopolitical risks, but also by the state's ability to responsibly manage citizens' access to weapons and ammunition.

In the Republic of Moldova, the normative framework is regulated by the *Law on the Regime of Weapons and Ammunition for Civilian Use* (Legislative Portal 2012), which establishes the right to private ownership of firearms and related ammunition. According to official data from the State Weapons Register, approximately 69,400 lethal and non-lethal weapons subject to authorization are registered. Of this total, 396 legal entities own 5,231 weapons, while 55,464 private individuals own 64,169 weapons, including 19,467 rifled firearms, 41,932 smoothbore firearms, and 2,770 rubber-bullet pistols (Point 2015). According to the most recent police report, in 2024, approximately 81.6 thousand weapons were registered nationwide - an increase of 9% compared to 2023. Statistical data indicate that the number of residents of the Republic of Moldova legally owning firearms has increased, with nearly 65,000 individuals holding weapons lawfully, representing a 5% increase compared to 2024. The majority of these owners are aged between 35 and 50 years, including approximately 2,300 women (News Maker 2025). These figures illustrate a complex reality: although the legal regime is regulated and controlled, the overall volume of weapons circulating in the civilian sphere is significant. In the event of a crisis or armed conflict, this resource may become either a factor of security or one of vulnerability.

A particularly problematic aspect is that, in situations involving the declaration of a state of emergency, siege, or war, national legislation does not provide for a special regime

governing the use of weapons by lawful owners. In other words, current legislation establishes neither clear restrictions nor special rules for firearm holders under exceptional circumstances, potentially generating legal uncertainty and practical risks.

This gap becomes even more evident when examined in light of Ukraine's experience. In the context of the Russian Federation's invasion, Kyiv adopted the Law "On Ensuring the Participation of Civilians in the Defence of Ukraine" (Ligazakon 2022), which established a legal framework for the organized involvement of civilian volunteers in armed resistance. Confronted with the direct threat posed by the Transnistrian military-industrial complex and the risks associated with illegal arms trafficking, the Republic of Moldova requires a similar legislative approach, adapted to its national realities.

Accordingly, the issue of the weapons regime in the Republic of Moldova must be viewed in direct correlation with the risks generated by the Transnistrian military-industrial complex. While the Transnistrian region possesses a potential for the production and illicit trafficking of weapons, the Republic of Moldova already has a legal civilian base of weapons in circulation. In the absence of clear regulations for crises, a scenario may emerge in which legally owned weapons become sources of insecurity - through loss of control, theft, or secondary trafficking - or, conversely, are not effectively utilized as a defensive resource when national security so requires.

In this context, the following additional recommendations are proposed:

- *Amending legislation on the weapons regime,* by introducing clear provisions regarding the use of weapons by individuals and legal entities under exceptional circumstances (state of emergency, siege, or war).
- *Establishing a mechanism for integrating lawful weapons holders into the territorial defence system,* drawing inspiration from the Ukrainian experience while adapting it to the national legal and institutional framework.
- *Strengthening oversight of weapons holders*, alongside monitoring Transnistrian arms trafficking, through regular and rigorous verification of compliance with safety regulations by civilian owners.
- *Civic education and training,* including organizing training programs for legal holders to reduce accidental risks and prepare a responsible framework for the use of weapons.

Conclusions

The analysis of the military-industrial complex in the Transnistrian region, together with the large-scale storage of conventional ammunition and weapons in the Cobasna area, highlights the systemic and multidimensional nature of the risks involved, which extend well beyond the strictly military sphere and require an integrated approach encompassing diplomatic, information, military, and economic dimensions (DIME).

Diplomatic dimension. From a diplomatic perspective, the continued presence of Russian military forces and the maintenance of military-industrial infrastructure outside the constitutional control of the Republic of Moldova constitute an ongoing violation of the international commitments undertaken by the Russian Federation, including those within the OSCE framework and the conventional arms control regime. This situation undermines multilateral security mechanisms and erodes the credibility of the European arms control architecture. Strengthening diplomatic efforts, internationalizing the Cobasna issue, and revitalizing negotiation formats with the involvement of relevant international organizations remain essential for risk reduction and for identifying sustainable solutions.

Information dimension. In the information domain, the lack of transparency regarding the quantities, technical condition, and typology of stored weapons amplifies strategic uncertainty and facilitates disinformation at both national and regional levels. The absence of access for international observers and the lack of verified data create a permissive environment for the manipulation of security perceptions and the downplaying of real risks. The development of strategic communication mechanisms, supported by scientific expertise and independent assessments, is therefore necessary to underpin informed policy decisions and to properly inform the population about potential humanitarian and environmental consequences.

Military dimension. The military dimension remains the most visible and immediate component of risk. The storage of significant volumes of conventional ammunition—some of which has exceeded its service life—combined with the existence of clandestine weapons production and modification capabilities, increases the likelihood of accidental or deliberate explosions. The analyzed scenarios demonstrate that such an event could generate effects comparable to those of a major natural disaster or the use of a weapon of mass destruction, with severe consequences for the civilian population and critical infrastructure. In this context, the complete withdrawal of foreign troops, the demilitarization of the region, and the controlled neutralization of stored ammunition represent indispensable measures for mitigating military risks.

Economic dimension. From an economic standpoint, a major incident in the Cobasna area would generate extremely high direct and indirect costs associated with infrastructure destruction, agricultural land contamination, population displacement, and the management of a large-scale humanitarian crisis. The impact would extend beyond the borders of the Republic of Moldova, affecting regional economic chains and imposing substantial expenditures for decontamination and reconstruction. At the same time, the persistence of an illegal military-industrial complex distorts the local economic environment and fosters shadow economies and illicit arms flows.

Overall, the case of the military-industrial complex in the Transnistrian region illustrates the profound interdependence between the diplomatic, informational, military, and economic dimensions of security. Effective risk management cannot be achieved through isolated, sector-specific measures, but requires a coherent, multidimensional strategy oriented toward prevention, transparency, and international cooperation. The integration of the DIME framework provides the Republic of Moldova with an essential analytical tool for formulating coherent public policies aimed at safeguarding national interests and adapting to the regional security environment.

Finally, the case of the Transnistrian region underscores the need for further research into the interaction between frozen conflicts, military-industrial complexes, and national security, as well as for the development of specific policies to prevent the proliferation and accidental detonation of conventional weapons in sensitive regions.

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