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CONTENTS

Péter Miletics

GEOPOLITICAL HISTORY OF THE WESTERN BALKANS

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ABSTRACT: *The "landscape history" of rivalry over the power capacities necessary for territorial possession on the Balkan Peninsula unfolded in two dimensions – at the level of local actors and at that of macro-regional powers. Strategic processes were shaped by the morphological features of the Balkans: the vertical and horizontal characteristics of the geographical landscape determined the framework within which political and cultural space evolved. The cohesive potential of empires proved capable of counterbalancing the centrifugal forces of physical-geographical factors, leading the peninsula to become "dissolved" into an imperial space.*

The collapse of the bipolar world order highlighted the geopolitical complexity of the Balkans and the weaknesses in the spatial-retentive and cohesive capacities of its political entities. From the nineteenth century onwards – with the strengthening of regional nationalism and the decline of the Ottoman-Turkish Empire –, the strand of historiography analyzing modern great-power relations increasingly focused on the Balkan region. The so-called "Eastern Question" encompassed not only regional spatial-organizational ambitions but also the (geo)political perceptions of external powers regarding the peninsula. As one consequence of the mutually negating perceptions of rival state spaces, the emerging Balkan political entities came to rely on the support of geopolitical and geo-economic patrons. Following the disintegration of the European Concert of Great Powers, the "distant" great powers were, in certain situations, unable to keep their small-state allies under strategic control due to their conflicting interests. In the historical periods of the so-called imperial interregna, the balance of power in the region had (or would have had) to be maintained by the small states themselves, which defined one another as geo-strategic rivals. The ambitions of regional competitors could only be realized in part, and then only insofar as they aligned with the geopolitical support and current objectives of their respective great-power patrons. In certain phases of Balkan fragmentation, the relatively overt presence of intersecting interest-articulations by external powers was a defining feature.

This remains partly true today, as numerous analysts in the twenty-first century continue to apply the classical Great Game theory when examining the spatial hierarchy of global power. The Western Balkans – primarily through the challenges arising from the fragmentation of the Yugoslav space – came to the fore in the aftermath of the disintegration of the post-bipolar world order.

KEYWORDS: *geopolitics, regional status quo, imperial hiatus, small state, Great Game, Western Balkans, political entity, rival, great power*

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DEFINITION OF THE WESTERN BALKANS

A key criterion in the delineation of a geopolitical territory is the identification of its boundaries, which – ideally – correspond to natural geographical demarcation lines. In addition to this, region-forming factors encompass the analysis of spatial coherence and fragmentation – namely, the interplay of centrifugal and centripetal forces – alongside the geo-economic characteristics of socio-economic activity within the given area. Furthermore, a comprehensive definition requires the articulation of both internal and external spatial-structuring factors that shape the geostrategic orientation and determine the strategic priorities of the respective territorial unit.[1]

According to the perspective of critical geopolitics, geography constitutes the "landscape history" of the struggle for power capabilities required to control a given territory. In the case of the Balkan Peninsula, this rivalry has unfolded along two dimensions: at the local level and at the level of macro-regional power actors. Strategic processes have been shaped by the morphological features of the Balkans, as the vertical and horizontal characteristics of the geographical landscape have delineated the framework for the development of political, economic, and cultural space. The conglomerates of small territorial units were capable of being integrated into political and economic structures primarily by external geopolitical great powers endowed with empire-organizing capacities. The cohesive potential of these empires proved effective even in counterbalancing the centrifugal forces exerted by physical-geographical factors during the so-called imperial periods.[2]

In various perceptions of geopolitical and geostrategic spatial understanding, the Balkan Peninsula – and the Western Balkans in particular – did not necessarily appear as a distinct entity in the early phases of geopolitical thought. Within the geopolitical spatial frameworks of Mackinder and Spykman, these regions are not portrayed as sovereign territories with inherent strategic value; rather, they are seen as subordinate components of broader spatial structures embedded in the global – or at least interregional – power configuration. This interpretative approach also surfaces in certain Hungarian analyses, in which the peninsula as a whole is conceptually "dissolved" within a so-called macro-regional geopolitical structure.[3]

The regional consequences of the collapse of the bipolar world order highlighted the geopolitical complexity of the Balkan Peninsula – conceptualized in German geopolitical thought as the Südostraum,[4] a "complementary" territorial space in which the only cohesive component is spatiality itself. This complexity underscores the weak spatial-retentive and integrative (cohesive) capacities of the region's political entities. These dynamics contributed to the emergence of localized scholarly platforms dedicated to the study of the region. Recognizing the geopolitical significance of the Balkans, these academic initiatives have

[1] In this sense, we do not consider the definition of mesoterrains used by Hungarian geography to be valid. Szabó 2005; Győri 2005; Nemes Nagy 2016.

[2] Ó Tuathail 1996, 1.; Mazower 2004, 41–50.; Pap 2007, 17–18.; Glatz 2008, 26–27.; Nagy 2012; Kuus 2017; Reményi 2023.

[3] This view is still partly valid today, as many analysts in the 21st century continue to apply the classic Great Game theory when analyzing the spatial hierarchy of global power. Nijman 1994a; Nijman 1994b; Tsygankov 2010; Cohen 2015, 17–23., 26–27.; Mainul 2023; M. Takács 2023.

[4] Schumacher 1934, 156–176., 222–239.; Hantos 1938; Miletics – Pál 1998, 220.; Svatek 2010; Orosz 2015; Dövényi 2022.

focused on the strategic perceptions – formulated by both internal and external power actors –, as well as on the articulation of geo-economic interests related to the region's evolving political and economic landscape.[5]

A similar form of "belatedness" characterizes the historiographical school analyzing modern great power relations, which only began to focus on the Balkans region from the 19th century onward – coinciding with the rise of regional nationalism and the concomitant decline of the Ottoman-Turkish Empire. The so-called Eastern Question, associated with the national ambitions of this period, uniquely encompassed not only regional spatial-organizing aspirations but also the (geo)political perceptions of external powers regarding the peninsula. These perceptions were transformed into Realpolitik realities through the destabilization of the regional status quo. This process enabled the emergence of small-state geopolitical units within the region; however, it did not lead to geostrategic stability for either the peninsula or the Western Balkans. One of the consequences of the rival state-spaces' mutually exclusive perceptions was that the emerging Balkan political entities came to rely on the support of geopolitical and geo-economic patrons. Following the breakdown of the European Concert of Powers, the divergent interests of the "distant" great powers in some cases prevented them from maintaining strategic control over their small-state allies.[6]

All of this also implies that during the historical periods of the so-called imperial interregnums, the maintenance of the regional balance of power – including in the Western Balkans – fell to the small states that defined each other as geostrategic rivals. The ambitions of regional competitors could be realized only to the extent allowed by the geopolitical backing and current objectives of their respective great power patrons. In certain phases of the Balkan fragmentation, the intersecting articulations of interest by external powers were openly and visibly present in the region. When the geopolitical force fields of external great powers induce a regional status quo, they tend to restrain the strategic competition among Balkan states. At present, the geopolitical and geostrategic revaluation of the Western Balkans – linked to the broader regional consequences of the Russia–Ukraine War – is clearly observable. This is intensifying both the rivalry among external power competitors and the competition between them and local states, thereby increasing the potential for localized conflicts.[7]

From the perspective of descriptive physical geography, the Balkans constitute the eastern peninsula of the European continent; however, their delimitation is far from straightforward. Based on the region's geographical characteristics, its northern boundary is generally associated with the Central European region, though this does not represent an uncontested border – a clearly defined border between two territorially distinct units – but rather a frontier-type zone or belt, indicative, among other things, of the absence of natural boundaries. This ambiguity may be related to the fact that the demand for clear delimitation – and with

[5] Among others, the so-called Copenhagen School's RBK theory (regional security complex) is worth highlighting, which drew attention to the challenges arising from the fragmentation of the Balkans, primarily the Yugoslav space (later the Western Balkans). In Hungary, it was primarily the Balkan research workshops in Pécs and Budapest that became dominant after the collapse of the bipolar world order.

[6] Hobsbawm 2004, 147–169., 306–332.; Halecki 1993, 263–271., 281–289.; Kissinger 1998, 86–93.; Mazower 2004, 81–183.

[7] Reményi 2023; Dzankic et al. (eds.) 2023, 218.

it, the very concept of the Balkans – only emerged in the 19th century, in connection with the decline of the Ottoman-Turkish Empire. Initially, natural geographical and topographical elements predominated in defining the regional boundaries of the spatial structure, but over subsequent historical periods, the Balkans gradually acquired a negatively charged political connotation.[8]

The delimitation of the Balkans remains challenging due to the absence of clear natural geographical boundaries, and this dilemma remains unresolved to this day. Somewhat simplified physical geographic analyses have emphasized the boundary delineated by the rivers Soča, Sava, and Danube, while the Odessa–Trieste line has also been proposed. The delimitation controversy can only be partially explained by the region's geomorphological conditions; it is also influenced by geopolitical ambitions and the articulation of interests. Consequently, it is understandable that the definition of the Balkans' territorial extent is not exact, with estimates varying between 470,000 and 800,000 square kilometers.[9]

The increasing significance of the Balkans since the 19th century is reflected in the diverse – both geographical and historical – interpretations of its territory. These interpretations, pertaining to the region's political geography, as well as other geographical components, remain eclectic; for example, the German-derived term Southeast Europe is also used as an alternative designation. The delayed emergence of national consciousness (nationalism) on the peninsula, combined with the declining cohesion potential of the imperial powers aiming to maintain the status quo, destabilized the region, thereby creating opportunities for competing European great powers to assert their interests. The support of weak local small states further enhanced the geopolitical value of the Balkans, which became more pronounced than the region's mere geographical significance. This dynamic was clearly reflected in the 1878 Congress of Berlin and the subsequent period characterized by intensive great power strategic activity in the Balkans.[10] With the regional strengthening of political nationalism, the focus of defining the region shifted away from purely geographical considerations towards the complex geopolitical ambitions of both external core powers and emerging local small states with a broader regional outlook. This process laid the historical foundations for the pejorative notion of "Balkanization," which, fueled by conflicts arising from various causes and the fragmentation of political spaces, continues to burden the (Western) Balkans. Moreover, the absence of a geopolitical and spatial consensus among local ethnic, linguistic, and cultural identities further exacerbates the problems of the Western Balkans region. This is partly reflected in the fact that the region – or its individual political-geographical components – has historically been interpreted as serving different geopolitical functions: crossroads, powder keg, or a civilizational clash zone. Some analysts argue that the objective behind the Balkans – and the Western Balkans – being assigned geopolitical content is to sustain territorial fragmentation and small-state rivalries as a counterbalance to the negative influences exerted by great power centers.[11]

[8] Mazower 2004, 19–25.; Hajdú 2002, 189–192.; Tomic 2006, 35.; Varga – Kovács 2011, 13.; Konkoly 2016.

[9] Hajdú 2002, 191.; Stavrianos 2002, 1–14.; Van Houtum 2005; Sekulić 2008, 128–129.; Reményi 2009, 7–8.; Todorova 2009, 21–37.; Varga – Kovács 2011, 13.; Konkoly 2016; Duskalov 2017.

[10] Efe 2022.

[11] Zizek 1999; Vezenkov 2006; Bideleux – Jeffries 2007, 1–3.; Altić 2011; Somek 2015; Duskalov 2017; Vezenkov 2017; Hamiti – Sadiku 2020; Longley 2022; Sotirovic 2023.

The relatively rapid changes in Balkan borders have often outpaced the dynamics of local nation-building processes, with the territorial extent of political communities frequently undergoing modification. In an effort to expand the radius of political spatial organization, ruling elites – even up to the present day – have drawn upon both the German and French models of state-building.[12]

Due to the complex nature of regional dynamics, this study – somewhat simplistically – conceptualizes the Western Balkans, from an otherwise legitimate political-geographical perspective, as a geographical space composed of state territories. The region is part of a structure embedded within the historical-political-geographical space and is clearly a (geo)-political category. This is reinforced, among other things, by the fact that in the early period of the post-bipolar world order, the geopolitical and geostrategic dilemmas associated with regional transformations – particularly the disintegration of the Yugoslav state-space – constituted a distinct spatial-forming factor, even as classical physical-geographic and morphological dividing lines tend to narrow the spatial definition of the Western Balkans. The region is characterized by fragmentation, the emergence of new political entities, shifting borders, and attempts to deliberately demarcate ethno-cultural spaces – often accompanied by violent assimilation efforts. These developments reflect the intense experience of nation-building ambitions and the specific local perceptions of violence. The Western Balkans, composed of six statist actors – Albania, Bosnia and Herzegovina, North Macedonia, Kosovo, Montenegro, and Serbia – emerged as a civilizational-geopolitical conglomerate following the dissolution of the Yugoslav state-space, a process burdened by ethnic, religious, and historically-rooted grievances. The outbreak of successive conflicts drew attention to the geopolitical significance of the region's persistent challenges. In response, the Copenhagen School defined the area as a (Western) Balkan subcomplex. The authors Barry Buzan and Ole Wæver, based on the historical trajectory of the region, its unresolved demographic and ethnic problems, and the contested nature of state-building ambitions, did not rule out the possibility that the Western Balkans could detach from the broader European regional security complex. These developments disrupted the regional balance of power in much the same way as the Russo-Turkish War of 1877–78.[13] As a geostrategic consequence, the region – experiencing another historical phase of imperial interregnum – once again became a buffer zone for the competing geopolitical interests of external (great) powers. In the context of the Russia–Ukraine war, the localized Great Game among strategic rivals has acquired a unique civilizational, geostrategic, and geo-economic significance, making it a distinct spatial-forming factor in the contemporary configuration of the Western Balkans.[14]

[12] Linguistic and cultural identity, as well as the spatial organizing ideology of the national idea, required the development of an ethno-nationalist state model based on the logic of cuius regio, eius lingua and cuius regio, eius natio. Miletics 2002, 126–127.

[13] Historymaps 2024; Popek 2021.

[14] Kennedy 1992, 180–240.; Diószegi 1994, 110–112., 164–174., 219–236.; Kissinger 1998, 84–93., 129–195.; Hajdú 2002, 189–224.; Buzan – Waever 2003, 377–391.; Mazower 2004, 81–208.; Reményi 2009, 9–13.; Varga – Kovács 2011, 13–14.; Mező 2015, 12–31.; Marshall 2018, 129., 214.; Reményi 2023.

MAJOR HISTORICAL TURNING POINTS IN REGIONAL SPATIAL DEVELOPMENT

The (Western) Balkan region functioned as a crucial geographical corridor connecting the territory of the Fertile Crescent with Neolithic Europe. Along this route, the transmission and exchange of cultural products took place – products the adaptation of which facilitated the diffusion of an agrarian-pastoral civilizational model throughout the continental European space during the 7th millennium BCE (Figure 1). The cultural centers that emerged within this region constituted the earliest local core areas of civilization (notably the Starčevo and Vinča cultures), which are also associated with proto-writing systems.[15]

Figure 1 *The Neolithic Expansion and the Balkans*
Source: *https://www.scientificamerican.com/article/when-the-first-farmers-arrived-in-europe-inequality-evolved/*

The proto-literacy that emerged alongside socio-economic activity may already suggest a capacity for organizing political space – a phenomenon for which more tangible evidence can be traced to later historical periods. The ancestors of the ethnic communities currently inhabiting the Western Balkans were migrants who settled in the region following the Indo-European migration period. During the Bronze and Iron Ages, the tribal Lebensräume that developed in the Western Balkans – a region characterized by its dual migratory function as both a zone of reception and conflict – served as the territorial core areas of early local state formation. The so-called paleo-Balkan "micro-states" lacked the economic, military, demographic, and civilizational capacity necessary for the establishment of regional polit-

[15] Gimbutas 1963; D'lakonov 1984; Paliga 1993; Kovacevic et al. 2014; Kenanidis – Papakitsos 2015; Porčić et al. 2020; Porčić 2020; Marchi et al. 2022; Lazaridis et al. 2022; Davranoglou et al. 2023; Boroujerdi 2023.

ical integration. The regional conquest attempt by the Achaemenid (Old Persian) Empire in the 6th century BCE, and possibly the rise of Macedonian power in the 4th century BCE, may be interpreted as early imperial attempts at spatial integration. However, the territorial focus of the large-scale spatial organization led by Alexander III (Alexander the Great) was not the Balkan Peninsula; rather, his campaigns aimed to secure the strategic stability of the imperial hinterland.[16]

The process of local spatial organization remained largely unchanged during the Hellenistic period: local political entities, existing at varying levels of socio-economic development, were incorporated into a broader territorial framework by Roman power. The Imperium Romanum was the first external great power actor to possess the cohesive potential necessary to establish and maintain the political-geographical unity of the Western Balkans – and, more broadly, the Balkan Peninsula. The process of spatial integration, which began in the late 3rd century BCE, unfolded from both the west and the southeast, ultimately resulting in the formation of the administrative units of Illyricum, Dalmatia, and Macedonia.[17]

For centuries, the Roman Empire's ability to maintain territorial cohesion counterbalanced centrifugal geopolitical forces that threatened fragmentation. The crisis of the 3rd century CE[18] elevated the strategic importance of the Danube and Western Balkan provinces, yet despite the structural crisis, the Imperium Romanum's capacity to preserve its territorial integrity proved sustainable until the end of the following century. The political unity of the Roman Empire was founded upon the conglomerate of Hellenistic and Latin civilizations, the continuity of which was interrupted in 395 CE.[19] This political rupture accelerated the disintegration of the civilizational space, reaching its apex in the Great Schism of 1054.[20] The boundary line delineated by Emperor Theodosius I, which assigned the northern territories of the Western Balkans to the Western Roman Empire and the southern regions to the Eastern Empire, corresponds to the Jireček Line (Figure 2).[21] Even during Antiquity, the

[16] Scholarly research on the history of migration in the region assigns particular importance to economic, geographical-topographical, and ecological factors, as well as to one of the principal transversal corridors of the European continent: the Danube Valley. However, in analyzing patterns of human mobility, additional variables must also be considered, including shifts in the demographic weight of particular areas and climatic conditions that may have acted as catalysts for migratory processes. Within the Serbian sector of the Danube Basin and in the Central Balkans – particularly the Morava–Vardar watershed – other distinctive spatial features are also relevant: openness to the north toward the Pannonian Plain and natural linkages to the Eastern Mediterranean, most notably the Aegean region. A comprehensive reconstruction of all aspects of early migratory dynamics is, of course, unattainable. These dynamics encompassed localized movements, the seasonal or long-distance mobility of nomadic pastoralist communities, the diffusion of cultural traits, and military expeditions. From an archaeological standpoint, population movements are particularly significant due to the interaction and intermingling of material cultures and human groups. Such processes frequently occurred in successive waves, especially during the transitional phase between the Neolithic and the Metal Ages, though archaeological evidence also attests to both earlier and later episodes of migration. Olmstead 1948, 147–159.; Hammond – Walbank 1988, 32–55.; Olbrycht 2010, 342–345.; Tasić (ed.) 2014; Stefanovich 1989; Tasić 1989, 29–37.; Friedman 2022, 189–231.

[17] UNRV Roman History: Illyricum [no year]; Dzino 2010, 223.; UNRV Roman History: Macedonia [no year]; Roman History [no year].

[18] Dinabandhu Andrews College [no year]; Ziolkowski 2010, 114–133.; Vučković 2020.

[19] Bury 2011, 2.; Lawrence 2013, 9–10.

[20] Dennis 1990; Bremer 2017; Fairchild 2021; Cox 2018.

[21] Theoretical dividing line in the Balkans region of the Roman Empire between the Latin (Western: Roman) and the Greek (Eastern: Hellenistic) cultural-linguistic territories. Tamás 1935, 113., 128–129., 134., 151., 155.; Niederhauser 2001, 51.

Figure 2 *Jireček Line*

Source: *https://en.wikipedia.org/wiki/Jire%C4%8Dek_Line#/media/File:Language_influence_border_between_Latin_and_Hellenic.png*

Western Balkans – like the broader Balkan Peninsula – remained a significant part (zone of confrontation) of the European historical and spatial development process.[22]

The second historical turning point in the political spatial development of the Western Balkans was marked by the regional supremacy of the Eastern Roman (later Byzantine) Empire. The external imperial center of the previous period (Rome) was replaced by a new internal geopolitical hub (Constantinople). However, during the era of the Migration Period, the imperial limes/ripa was unable to maintain territorial order in all historical situations. The demographic consequences of the Hun, Germanic, and later Avar invasions in the 4th and 5th centuries facilitated the settlement of Slavic tribes, which significantly transformed the ethno-regional spatial structure of the Western Balkans (Figure 3).[23]

Although the Balkan Peninsula held high strategic value for the imperial center, the Eastern Roman-Byzantine conception of imperial territory typically perceived a larger geopolitical expanse. The more favorable geostrategic and geo-economic position of the eastern territories of the universal Roman Empire allowed Constantinople – despite the Slavic settlement that began in the 7th century and became widespread – to assert its cultural and civilizational territorial organization in the Western Balkans relatively persistently. During certain periods, it extended its political dominance over the entire Balkan geopolitical space.

[22] Vezenkov 2006; Olalde et al. 2023.

[23] Pohl 1988, 1–236.; Frakes 1989; Birnbaum 1989; Bugarski 2021; Kerényi 2022; Olalde et al. 2023; Dyck 2023.

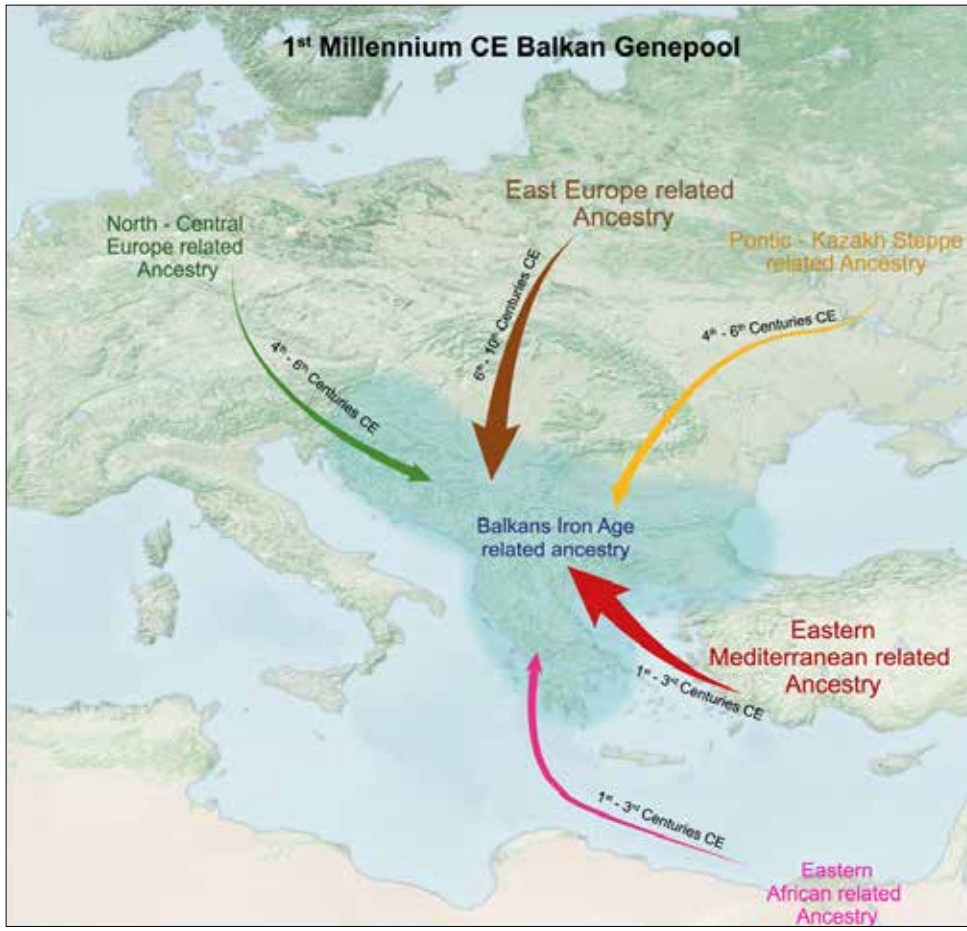

Figure 3 *The Migration Period and the Balkans*

Source: *https://www.cell.com/cms/10.1016/j.cell.2023.10.018/asset/eaceefce-7831-4e42-97c7-828dcf1e83f6/ main.assets/fx1_lrg.jpg*

The arrival of the Slavic tribes, along with the Bulgars/Onogurs,[24] triggered significant linguistic assimilation processes and transformed the previously Romanized and Hellenized imperial spatial structures. This also marked the beginning of the separation of the South Slavic ethnic and tribal settlement areas, which followed the region's geographical features. However, the power reconfiguration of the political space and the process of regional state formation remained dependent on the power potential of Byzantium until the fall of the Komnenos dynasty.[25]

[24] Fine 1991, 66–69.; Fiedler 2008; Kerényi 2022; Juhász 2024, 75–83.

[25] Stanoyevich 1919; Dragojlović 1989; Hajdú 2002, 194–196.; Ćirković 2004, 7–20.; Gregory 2010, 257–297.; Curtis 2012; Hupchick 2017; Harris 2020, 187–205.; Olalde et al. 2023; Roberts 2025.

The final fragmentation of the imperial space began with the Fourth Crusade,[26] an event that even the 1261 Palaiologos restoration[27] was unable to reverse. The Eastern Empire, which deviated permanently from the Western path in 1054, was relegated to the western periphery of Anatolia, while in the Balkans, it faced the state-building ambitions of the Slavs that had settled in the region. Instead of the unity of imperial space, local state-building and spatial organization became dominant in the Balkans and its western territories. Local states began to formulate their own territorial perceptions and great power (imperial) ambitions. During the first period of the historical phase of imperial transformation, the core territories of the Western Balkan states were formed. These states developed from local (tribal) centers of economic and social activity that functioned beneath the level of the Byzantine Empire, often within the framework of significant autonomy on the imperial periphery.[28]

The second period of the imperial hiatus (after 1204), with the exception of the Croatian territorial space,[29] marks the geopolitical peak of the states in the Western Balkans. The power vacuum in the Western Balkans was filled by local political entities, which perceived each other as strategic rivals. The geographical and geopolitical ambitions of local territorial organizations often intersected, resulting in a lack of imperial cohesion, which simultaneously signified an era of confrontation across the entire peninsula, including the Western Balkans. In the 13th and 14th centuries, with the intensification of dynastic ambitions and the geopolitical consequences of the religious heretical movements shaped within the conglomerate of regional cultures, such as the Bogomil/Patarene movements,[30] even the northern mid-power – the Kingdom of Hungary – sought to expand its sphere of influence. The territorial retention potential of the political entities in the Western Balkans, such as the Kingdom of Bosnia (1353–1463) and the Serbian Empire, gradually wore down due to ongoing conflicts, as none of the local political entities were able to stabilize the regional geopolitical status quo of the Western Balkans.[31]

The decline of local statist actors gradually created the geopolitical and geo-economic conditions for an external great power to undertake regional spatial organization. The end of the imperial hiatus – another historical turning point in the region's spatial development – was marked by the appearance of Ottoman-Turkish power in the Balkans (Gallipoli, 1354). The fragmented local political entities of the (Western) Balkans – briefly forming a buffer zone between Turkish and Hungarian powers[32] – were relatively swiftly integrated, leading to the emergence of an empire with a (renewed) dual geographical focus. The incorporation of the Balkans into the imperial spatial structure was completed by the second

[26] Nicolle 2011, 96.; Gregory 2010, 330–346.; Hegedűs 2023.

[27] Dumbarton Oaks [no year]; World History Edu 2024.

[28] Halecki 1993, 153–160.; Hajdú 2002, 194–196.; Gregory 2010, 257–297.; Curta 2019, 65–77., 307–340.

[29] The Catholicization of the areas inhabited by the Croats was likely facilitated by their incorporation into the influence of the Frankish Empire from the late 8th century. The monarchy was established in 925 through the unification of tribal political entities, and then, after a brief period of existence as a sovereign Slavic state, its sovereignty effectively dissolved in 1102, following a succession crisis. More specifically, the monarchy became closely integrated with the medieval Kingdom of Hungary through the person of the monarch. Fine 1991, 248–292.; Curtis 1992, 11–12.; Kristó 2002; Hajdú 2002, 187., 195.

[30] Dragojlović 1974; Peters (ed.) 1980, 104–109.; Hamilton 2004, 1–107.; Ciobanu 2021.

[31] Malcom 1994, 13–26.; Fine 1994; Hajdú 2002, 194–196.; Ćirković 2004, 20–85.; Bárány 2017, 344–345.; Gál 2013; Pap – Kltanics 2014, 219–220.

[32] Schmitt 2019, 25.

half of the 15th century. Thereafter, the Western Balkans region became part of a power-territorial system that, for several centuries, was able to maintain the regional geopolitical status quo through its capacity to retain territorial control until the 19th century. However, the spatial structure of the Ottoman Empire – which formulated both Mediterranean and Central European geo-strategic ambitions – represented a far broader geographical framework than the Balkans alone, whose conquest was carried out along historically established routes known from historical geography.[33]

The spatial-organizational ambitions of the Ottoman power were facilitated by the geopolitical fragmentation of the (Western) Balkans. The conquest of Constantinople in 1453[34] established an organic geographical nexus between the Empire's principal intercontinental territorial domains, Rumelia and Anatolia, thereby consolidating the imperial strategic position within the region. Although the ethnocultural populations of the Western Balkans did not, for the most part, regard the Ottoman presence as definitive, they nonetheless accepted, in their own differentiated modalities, the criteria of imperial spatial organization. The new great power, which redefined the equilibrium framework of the geopolitical order, extended to the Western Balkans the complex system of values upon which the Ottoman Empire rested, with particular emphasis on its geostrategic aspirations and the priorities of its military conception of space. For reasons partly attributable to these structural factors, and partly to the relatively weak demographic position of the Turkish population, neither the comprehensive Islamization of the Western Balkans nor the prospect of ethnic assimilation was realized. Ottoman dominance over the region – despite recurrent uprisings, often triggered by increases in fiscal burdens – proved durable, even though the Sunni Turkish population constituted only a pronounced minority. The spatial-retentive capacity of the central authority ensured the geopolitical continuity of imperial territory until the first third of the nineteenth century. The centrifugal tendencies were persistently counterbalanced by realist methods elaborated during the formative phase of Ottoman spatial governance, whose integrative potential – despite the ethnocultural diversity of the Western Balkans – secured the allegiance of the majority of local communities to the Ottoman Empire as the guarantor of the prevailing status quo.[35]

By the end of the eighteenth century, the signs of imperial decline had become unequivocal, a process further anticipated by the trend of wars and territorial losses in the eighteenth and nineteenth centuries. The transformation of an empire forced onto the defensive was rendered impossible by the belated development of its socio-economic structures.[36] Together with the strengthening of national(ist) ideologies in the Western Balkans, these factors eroded the spatial-retentive capacities of the Empire. In international relations, this process

[33] Key milestones of Ottoman-Turkish expansion in the Balkans that consolidated the Empire's dominion over the region include: Adrianople (Edirne) – 1369; Thessaloniki – 1387; the Battle of Kosovo or the First Battle of Rovine – 1389; Nikopol – 1396; the conquest of Serbia – 1439; Varna – 1444; Constantinople – 1453; Athens – 1458; Bosnia – 1463; Herzegovina – 1482; Montenegro – 1499. Perjés 1967, 865–866; Generál 1987, 5–77; Hajdú 2002, 196–199; Judah 2000, 9–34; Réti 2000, 13–24.

[34] Buc 2020.

[35] Kennedy 1992, 8–12; Halecki 1993, 199–206; Hajdú 2002, 196–199; Ágoston 2014, 15–37.

[36] The reasons for this lay partly in the frequency of wars and partly in the relative isolation from the new Atlantic centers of political and geo-economic development. McGowan 1994, 637–645; Quataert 1994, 759–776.

was defined as the "Eastern Question,"[37] accompanied by the characterization of the Ottoman Empire as "the sick man of Europe."[38] Consequently, the sovereignty aspirations of the ethnopolitical entities in the Western Balkans – typically expressed through the search for great-power protectors in accordance with the prevailing constellation of international relations – were directly intertwined with the Russo-Ottoman wars fought for geopolitical supremacy over the peninsula and the Straits (the Bosporus and the Dardanelles). The culmination of imperial regression in the nineteenth century was marked by the Balkan crisis of 1875–76, the Russo-Turkish War of 1877–78, and the ensuing Treaty of San Stefano.[39] These conflicts intensified the geopolitical interest of the European great powers in a strategically "vacant" territory expected to be populated by fragile states. As the power potential of the Porte gradually eroded, the challenge of maintaining the regional status quo increasingly fell upon external geostrategic actors, each articulating divergent spatial perceptions. The processes of Western Balkan state formation and great-power rivalry thus became interlinked. Local nationalisms undermined the regional supremacy of the Ottoman Empire while simultaneously facilitating the entrenchment of great-power influence. The Treaty of San Stefano threatened to destabilize the balance among external centers of power through the prospect of excessive Russian geopolitical gains. Under the pressure of the interested great powers – France, Britain, Germany, and the Austro-Hungarian Monarchy – Russia was compelled to accept new regional spatial arrangements (state borders) at the Congress of Berlin in 1878.[40] After 1878, the state-formation process in the Western Balkans became irreversible, while the restoration of a great-power equilibrium in the region was, at least temporarily, achieved. Yet the settlement failed to mitigate the geopolitical frustrations of the Western Balkan states. Their expansionist ambitions, driven by a territorially defined sense of mission and directed primarily at the expense of the Ottoman Empire, could not be contained by external actors after 1908. This was due to the underestimation of local irredentist ideologies and the collapse of the Three Emperors' League,[41] which had previously provided an adequate guarantee of the regional status quo.[42]

After 1890, great-power relations were characterized less by equilibrium and more by the search for geostrategic allies, which created an opportunity for the Western Balkan states to pursue their geopolitical ambitions, namely the realization of the great state (a national-imperial spatial construct). By the time of the two Balkan Wars, which served as preludes to the First World War, the Concert of Europe – a geopolitical pentarchy invested in preserving the continental and regional status quo – had ossified into two blocs, drastically narrowing down the possibilities of substantive diplomacy (and turning Realpolitik against itself). For the Western Balkans, the so-called "imperial interlude" entered its early stage: following the transformation of the political and territorial content of local space, the First

37 Bouquet 2022.

38 GobalSecurity.org [no year]; Ruggier 2018.

39 Mazower 2004, 125–144.; Jelavich 1983, 171–380.; Jelavich 1996, 7–19.; Kissinger 1998, 145–146.; Hajdú 2002, 201.

40 Van den Bogaert 2011; Ozkan 2022.

41 Goriainov 1918; Keleher – Imholte 2023.

42 At the great-power conference organized by Bismarck, the Russian variant of nationalism – Pan-Slavism – was ultimately contained. Tarján [no year]a; Tarján [no year]b; Kennedy 1992, 236–243.; Jelavich 1996, 88–93.; Kissinger 1998, 131–161.; Hajdú 2002, 203.; Mazower 2004, 135–157.; Papp 2006; Hall 2014.

World War commenced, in which, for example, Serbia and Montenegro committed themselves to the Entente powers.[43]

The protracted imperial interregnum following World War I fundamentally redrew the structures of the political geography of the Western Balkans: the diktats of the peace treaties, together with the spread of nationalist ideas, dismantled the empires that had previously exerted direct geopolitical influence over the region. The attempt to establish regional equilibrium commenced in connection with French strategic perceptions. The geostrategic constructs of the Cordon Sanitaire[44] and the Little Entente[45] were premised on the assumption that in the Western Balkans, the restoration of a balance previously maintained by great-power cooperation could be achieved through the emergence of a geopolitical middle power. The Kingdom of Serbs, Croats, and Slovenes – after 1929, Yugoslavia – was built upon the idea of the integration of the South Slavic peoples. Yet the centrifugal energies of the state's internal fault lines obstructed the formation of a Yugoslav ethnocultural unity, and thus the new polity proved unable to contain the resurgence of revisionism. The orientation dilemmas stemming from divergent historical and civilizational-religious "experiences" were, on occasion, addressed by the Belgrade government in accordance with the Greater Serbian idea.[46] The constitutional crisis of the state was brought to an end by the introduction of royal dictatorship, which, however, also failed to reinforce the state's spatial-retentive potential through the creation of national unity. Despite administrative reforms and the Serbian-Croatian agreement of 1939, the regional middle power, by the 1930s and in the context of a transformed geopolitical constellation, was no longer capable of preserving the Western Balkans status quo. The growing influence of the powers dissatisfied with the Versailles spatial order – namely the Third Reich and the Kingdom of Italy – decisively shaped the trajectory of regional development. As a consequence of the German-Italian ambitions of the Second World War, the Western Balkans were partitioned. Simultaneously, however, alongside resistance against the occupying powers, an ethnically driven quasi-civil war unfolded within Yugoslavia.[47]

In the post-war period, internal conflicts in the Western Balkans and geopolitical rivalries were temporarily "frozen" by the bipolar world order of the Cold War. Soon, however, both the Yugoslav and the Albanian state formulated their own strategic developmental priorities. Belgrade once again attempted to construct a territorial perception of Yugoslav identity, while the geopolitical "weightlessness" of isolated Albania did not affect the regional status quo. At the center of the Western Balkans' geopolitical focus stood Yugoslavia, the regional middle power, burdened by ethnic challenges – primarily Serbian, Croatian, and Bosnian – that worked against the state's spatial-retentive capacities. Demographic processes redrew the internal boundaries of ethnocultural territories, creating a complex source of tensions and

[43] Andrew 1967; Kennedy 1992, 186–260;. Jelavich 1996, 99–122.; Kissinger 1998, 162–212.; Keagan 2000; Galántai 2000; Réti 2000, 37–60.; Manatū Taonga – Ministry for Culture and Heritage 2014; Reviakin 2020, 40–47.; Keleher – Cooke 2023.

[44] Soutou 1974; Parker 1994, 52–53.; Kissinger 1998, 239.

[45] Magda 1993; Múlt-kor 2011; Gulyás 2011.

[46] Manetovic 2007; Melichárek 2015; Ljubomirović 2024.

[47] Kennedy 1992, 261–323.; Jelavich 1996, 123–264.; Kissinger 1998, 284–406.; Hajdú 2002, 203–210.; Mazower 2004, 163–183.; Ćirković 2004, 252–274.

laying new foundations for the rise of internal nationalisms. The 1974 constitution,[48] motivated by fears of Greater Serbian ambitions, proved incapable of managing these challenges. This was confirmed – alongside escalating economic problems – by the Kosovo dilemma from the 1980s onward, which resulted in nationalism becoming an integral part of the state's official policy by the end of the decade. In the early 1990s, with the collapse of the bipolar world order and simultaneous regional economic challenges, ethnocultural conflicts escalated, gradually eroding the state's spatial-retentive forces. The opportunity for a multipolar political order benefited nationalist parties in the constituent republics – parties that articulated "greater-space" perceptions[49] – which in turn undermined the integrity of the state territory. The process of geopolitical fragmentation entailed not only the emergence of new states and the redrawing of political dividing lines but also symbolized the disintegration of the previous equilibrium. According to some interpretations, the Western Balkan transformation could foster the homogenization of political territories; nevertheless, the era of diverse and overlapping territorial ambitions have by no means come to an end. In Albania, alongside the challenges of internal development, priority was given to questions of geopolitical orientation and to supporting Albanian communities living beyond the state's borders (although the project of "Greater Albania"[50] never became an element of official policy).[51]

The age of territorial revolution, however, did not render internal actors an absolutely decisive geopolitical force; the establishment of a new regional equilibrium required the involvement of external great-power players. Yet great-power interventions, together with traditional cultural and historical connections, in the absence of a sustained imperial presence, proved sufficient only for the freezing of conflicts. The internal challenges persisted, while certain external powers sought to exploit the geopolitical situation in accordance with their own strategic priorities. This was confirmed by the Russo-Ukrainian War: beyond local antagonisms, the Western Balkans remains burdened by the dilemmas of rivalry among southeastern, eastern, and western geopolitical centers (Figure 4). For the West, the integration of the region – conceived as part of the broader European "greater space" – represents a strategic priority, and its main trajectories can be discerned. What remains uncertain, however, is the orientation of the internal small-state actors, and the degree of their commitment either to the restoration or to the transformation of the political space.[52]

[48] Guzina 2000; Popovych et al. 2023.

[49] Ardolic 2009.

[50] Čanak 1998; Janjevic 2017; Karcic 2021.

[51] Jelavich 1996, 265–352.; Hajdú 2002, 211–221.; Mazower 2004, 183–196.; Ćirković 2004, 288–300.; Reményi 2009, 9–13.; Reményi 2023.

[52] Hajdú 2002, 221–223.; Mazower 2004, 197–208.; Khanna 2008; Abazi 2021; Reményi 2023; Sotirovic 2023; McBride 2023; Wunsch Gaarmann 2023; IISS 2024, 90–95.; Roán 2025; Zweers – Kelecevic 2025.

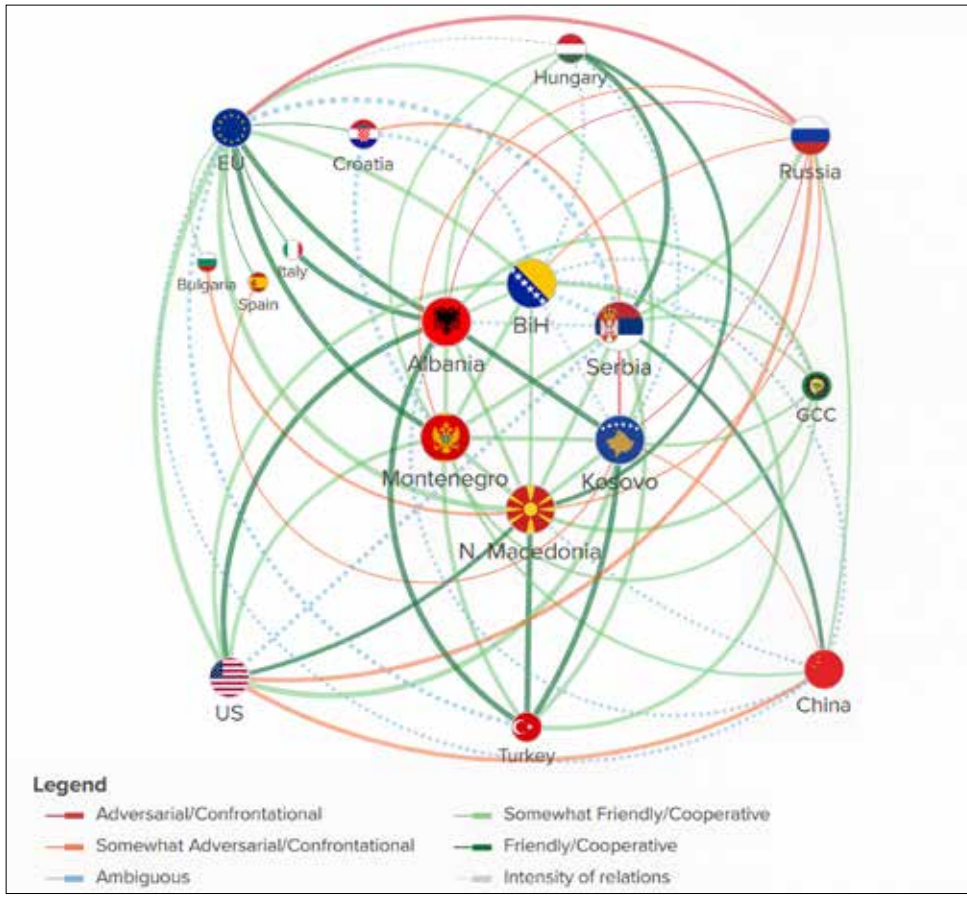

Figure 4 *A geopolitical mapping of the Western Balkans*
Source: *https://www.clingendael.org/sites/default/files/2025-08/geopolitically-mapping-the-western-balkans.pdf*

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HUSZÁROK – HUSSARS

The book can be purchased in the Zrínyi Publishing House's webshop (shop.hmzrinyi.hu) or bookstore (H-1024 Budapest, Fillér utca 14.).

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Dr. Mózes Csoma

THE LEGEND OF 'MAGYAR' – A HUNGARIAN BOMB EXPERT AMONG THE KOREAN FREEDOM FIGHTERS IN THE EARLY 1920s[1]

DOI: 10.35926/HDR.2025.2.2

ABSTRACT: *The Korean Peninsula commemorates the 80th anniversary of liberation from Japanese colonial rule in 2025. This anniversary makes a detailed investigation of a little-known legend relevant. According to a Korean patriotic book written in 1947, a Hungarian bomb expert provided assistance to Korean independence fighters in the 1920s. Based on the book, the person was a Hungarian prisoner of war during World War I in Russia, who later met a Korean independence activist in Mongolia and, at his persuasion, went to China, where he joined a Korean organization called Uiyoldan. This study attempts to investigate the truth behind the above legend and identify the mysterious 'Magyar' in the legend. The author collected and analyzed numerous archival sources to identify the wanted person.*

KEYWORDS: *Korea, Mongolia, China, independence fight, bomb factory, Hungarians, World War I, prisoners of war*

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INTRODUCTION

2025 marks the 80th anniversary of Korea's liberation from Japanese colonial rule. The liberation was preceded by 35 years of brutal colonial rule between 1910 and 1945, which Koreans consider the lowest point in their history. It was only recently that the legend that a foreign bomb expert known as 'Magyar' was active among the Korean independence fighters in the early 1920s became widely known. The story came to light thanks to the South Korean movie *Milchong* (Age of the Shadows), which was screened in Seoul in 2016. The film features a Hungarian bomb expert who had been a prisoner of war during World War I in Russia, then moved to China, where the members of the Korean freedom fighters (the Uiyoldan organization) acquired a large number of explosives from him. The film is based on the activities of a famous Korean independence fighter, named Kim Won-bong (1898–1958?), about whom a Korean writer, named Park Tae-won (1909–1986), wrote a patriotic book after the Japanese colonial rule. Since both the writer and the main character of the book left for North Korea before the outbreak of the Korean War, uncovering the

[1] This study is an expanded, scholarly version of an article published on the Orient Projekt platform for the history of Hungarian–Asian relations. https://doi.org/10.59608/pas2025a001.00

identity of the mysterious Hungarian bomb expert is not an easy task. This study aims to uncover the real events behind the legend.[2]

KEY PERSONS OF THE LEGEND

The largest uprising against the Japanese colonial rule broke out in Seoul on March 1, 1919, which history books call the March 1st Movement. Although the Japanese authorities crushed the uprising that lasted for weeks, many Korean independence activists went abroad, where they began intensive organization for the liberation of their homeland.[3] Many of them believed that the leaders of the independence movement had been too moderate and that more radical action was needed against the Japanese colonial rule. This goal was represented by the Uiyoldan organization, founded in 1919 in Jilin Province, Manchuria, led by Kim Won-bong. The independence fighter came from Miryang, Gyeongsang Province, and continued his early schooling in a *sodang,* a traditional Korean educational institution. Later, he continued his education in various modern schools, and his high school years coincided with the beginning of the Japanese colonial rule, which apparently contributed to his continuing his studies in China from 1916. During this time, he also learned German, which later enabled him to communicate with Europeans. In 1918, he enrolled at Nanjing University, but soon after, he trained at the Sinhyeong Military Academy, run by Korean émigrés.

The Uiyoldan organization sought to carry out targeted assassinations against individuals who maintained the colonial system, as well as targeted institutions and companies. Their goals included not only the liberation of Korea but also the elimination of social differences. Soon after the founding of the Uiyoldan, the organization's headquarters were moved from Jilin Province in Manchuria to Beijing, and prominent independence fighters, such as Kim Gu and Kim Gyu-sik, who were leaders of the Korean government-in-exile in Shanghai, and historian Shin Jae-ho, who was one of the main creators of modern Korean national identity, were active in the Uiyoldan environment.[4]

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[2] The author would like to express his gratitude to the following persons: Prof. Dr. Sándor Szakály (Károli Gáspár University of the Reformed Church in Hungary, Veritas Institute); Prof. Dr. Piotr Ostaszewski (former Ambassador of Poland to Seoul); Dr. Zsolt Szilágyi (HUN-REN Research Centre for the Humanities); Lieutenant Colonel Dr. Gábor Kiss (Vienna Branch of the Military History Archives); historian Bálint Jurászik.

[3] Csoma 2018, 121–125.

[4] Kim Gu (1876–1949): Korean politician, independence activist. Born in Haeju, in what is now the DPRK, he participated in pro-independence organizations from a young age and spent years in prison. In 1919, he participated in the March 1st Movement, then became a prominent leader of the Korean Provisional Government in exile in Shanghai, serving as its chairman in 1926–1927 and as its prime minister in 1930–1933. In the spring of 1948, he traveled to Pyongyang with a large political delegation to hold talks with Communist Party General Secretary Kim Il-sung on ending the division, but the meeting did not yield any real results. In 1949, he became the victim of an assassination attempt organized by the South Korean right wing. Kim Gyu-sik (1881–1950): Korean politician, independence activist. Born in Busan, he was initially educated by an American missionary. In 1897, he moved to the United States, where he attended Roanoke College and Princeton University. In 1919, he attended the Paris Peace Conference in an attempt to represent Korean interests. Kim Gyu-sik became a leading figure in the Provisional Korean Government in Shanghai, serving as its foreign minister. In 1948, he accompanied Kim Gu to North Korea to negotiate with Kim Il-sung to end the division. During the Korean War, he was taken north by communist troops and died near the Chinese border town of Manpo. Shin Jae-ho (1880–1936): Korean historian and independence activist. He studied at the Seonggyungwan Confucian Academy, but was forced into exile by the Japanese colonial rule. He organized the Korean independence movement in the Russian Far East and China. The patriotic historian was arrested by the Japanese authorities in 1928 and sentenced to ten years imprisonment. He died in prison in the eastern Chinese port city of Talien in 1936. A significant part of his legacy is kept in the so-called Great People's Studies Hall in Pyongyang, making it inaccessible to South Korean and foreign researchers.

During the initial operations of the Uiyoldan, the Japanese authorities arrested many Korean independence fighters, and the losses were too heavy for the achievements. Kim Won-bong thus decided that the fight had to be carried out differently, requiring 'precise planning and perfect preparation'. He identified the Japanese Governor-General's palace in Seoul as the target of the planned destruction, as well as the Chosun Bank, the Tongyang Company, the Seoul Electric Works, and the Seoul General Post Office, which were considered symbols of colonialism and capitalist oppression. He also planned to carry out bombing attacks on the Seoul–Pusan railway, the Seoul–Uiju line to the Chinese border, and the Seoul–Wonsan line to the east coast of present-day North Korea. According to the book *Yaksangwa Uiyoldan* written by Park Tae-won in 1947, dozens of independence fighters were available to carry out the attacks, but they did not have the appropriate weapons. Kim Won-bong thus decided to procure very powerful explosives.[5]

At that time, there were several foreigners in Beijing who were skilled in the use of explosives, and Kim Won-bong selected three of them: an Italian, an Austrian, and a German. The latter made the best explosives, although he was not perfect either. Meanwhile, another foreign bomb expert, who was in Mongolia and is referred to in the book *Yaksangwa Uiyoldan* as 'Magyar', came into Kim Won-bong's sight.

However, before attempting to identify the mysterious Hungarian bomb expert, we must mention another key figure in the legend, Dr. Lee Tae-jun (1883–1921). Lee studied at Severance Medical School in Seoul, where he met the independence activist Ahn Chang-ho, who was recovering there.[6] Lee was moved by Ahn's courage and commitment, and later joined the independence movement himself. He decided to move his headquarters to China for the independence struggle, but at the suggestion of independence fighter Kim Gyu-sik, he went to Mongolia instead.[7] The physician established a hospital in Mongolia and acted as a liaison to help Korean independence fighters get from Russia to China.

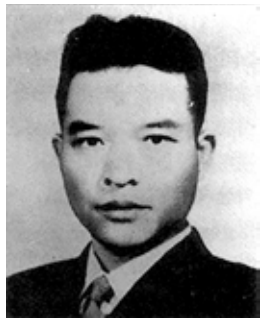


Figure 1 *Korean freedom fighter Kim Won-bong (1898–1958?)*
Source: *Public Commons*

Figure 2 *Korean writer Park Tae-won (1909–1986)*
Source: *Public Commons*

Figure 3 *Korean medical doctor and freedom fighter Dr. Lee Tae-jun (1883–1921)*
Source: *Public Commons*

5 Park 2015, 125–126.

6 Ahn Chang-ho (1878–1938): Korean independence activist. Born in what is now the DPRK, he studied in Seoul at a school run by Presbyterian missionaries. In 1902, he left for the United States with his wife, where they sought to unify the Korean colony. He returned to the Korean Peninsula several times. In 1919, he became a founding member of the Provisional Korean Government in Shanghai. He is one of the authors of the lyrics of the Korean national anthem.

7 Yang 2019, 155.

HUNGARIAN POWs IN SIBERIA AND THE HUNGARIAN BOMB FACTORY IN URGA

During the First World War, about half a million Hungarian soldiers were taken prisoners of war (POWs) in Russia, who were sent to various parts of the Tsarist Empire. Since the mysterious Hungarian bomb expert appeared in the sight of Korean independence fighters while in Mongolia, he was likely held in one of the POW camps in the Lake Baikal region. In 1917, the number of POWs in the possible camps was as follows: Krasnoyarsk 13,000; Achinsk 2,750; Kansk 6,000; Nizhny Novgorod 2,200; Irkutsk 8,800; Verkhne-Udinsk 8,500; Berezovka 27,500; Troitskosavsk 6,700; Chita 32,500; Streletsk 11,000; Nerchinsk 2,500; Dauriya 11,500 people.[8]

In the POW camps, the difference between officers and privates remained, and officers even received a monthly salary of 50–75 rubles. However, in the period following the October Revolution and with the outbreak of the Soviet-Russian Civil War, circumstances became increasingly unpredictable. The Hungarian press of the time often published desperate pleas for help from Hungarian prisoners of war languishing in the 'red hell' of Siberia, who wanted to get home to the Carpathian Basin. Detailed reports discussed the internal relations of Soviet Russia, which had fallen into anarchy, showing that it was unlikely that the Hungarians would be able to return to their homeland in any way.

"The country is dead. Nobody works. In addition to the unprecedented disorganization, in one governorate there is a famine, while in another border village there is great abundance. […] There is also great anarchy due to the fact that in addition to the Romanov, Kerensky, and Soviet money – of which each city issued different denominations – there are a lot of large banknotes. Besides the 250 and 10,000 rubles, you can hardly see any change, although there are also postage and document stamps in circulation."[9]

Many prisoners of war from the Lake Baikal region, hoping to escape the anarchic conditions and return home, headed for Mongolia, where conditions were also chaotic. The country was occupied by China in 1919, but at the end of 1920, as a sideline of the Soviet-Russian Civil War, the Asiatic Cavalry Division led by Baron Ungern-Sternberg invaded the country.[10] From the perspective of our research, it is not negligible – and this is where the very important connections begin – that a group of Hungarian prisoners of war operated a bomb factory in Urga (now Ulaanbaatar) between December 1920 and February 1921. The account of this can be read in the memoirs of József Geleta (1895–1965), a former prisoner of war and later a researcher of Mongolia.[11]

The young Hungarian man was taken prisoner of war by the Russians near Lemberg in 1916, and was imprisoned in Omsk and Krasnoyarsk.[12] In his memoirs, he describes in detail how he and his companions crossed the Russian–Mongolian border, which was also

[8] Pach et al. (eds.) 1978, 107–108.

[9] Mentsék meg lelkünket 1920, 2.

[10] Roman Fyodorovich Ungern-Sternberg (1886–1921): Tsarist Russian military officer, Mongolian warlord. A person of Estonian origin, he completed his military studies in St. Petersburg. From 1908, he served in Siberia, then participated in the battles of World War I in Eastern Europe and the Caucasus. After the October Revolution, he became one of the important leaders of the White troops in the southeastern part of Siberia, but from the autumn of 1920, he acted as an independent warlord. After entering Mongolia, he acted as a military dictator, his followers mystified him and considered him the reincarnation of Genghis Khan. In 1921, he launched an attack against the Soviet Red Army, but after initial successes, the Reds captured and executed him.

[11] Forbáth 1934, 118–122.

[12] Hazájától távol 1987, 8.

crossed by smuggling gangs.[13] Geleta arrived in the Mongolian capital just before November 1920, having already been in the city when Baron Ungern-Sternberg first attempted to besiege it.[14] According to his description, Urga – occupied by the Chinese – was in great chaos, and it was feared that the baron's troops would once again besiege the city. Although Ungern's troops were pushed back by the Chinese, the civil war situation still persisted, and the young Hungarian had to find an income-generating activity. First, he and a few of his comrades organized a sausage factory, and then, at the instigation of the Chinese, they established a bomb factory. The main purpose of the latter was to produce mine-like explosive devices, with which they could block the roads around Urga, in order to prevent a possible new attack by Baron Ungern. Geleta, therefore, became a member of the bomb-making factory, where, according to his description, the first explosive device was made using the following method: a hole was drilled in a fired artillery shell casing large enough to fit a car spark plug, the casing was then filled with gunpowder, and the explosion was achieved with an electric current. The entire Chinese officer corps was present at the test explosion, and the demonstration was so successful that Geleta was commissioned to be the designer of the bombs.[15]

The Chinese planned to make the casings for the explosive devices in an iron foundry, but this was not immediately available. Geleta therefore suggested filling metal petrol cans with gunpowder, placing the spark plug in them, and then sealing the cans with a soldering iron. The Chinese supported the idea, and the Hungarian prisoner of war was lodged in a nicely furnished house, which he shared with some Chinese officers. There was also a workshop, where, in addition to the mines being made, 60 kilograms of dynamite were stored. According to the Hungarian man's recollections, they spent three days soldering the petrol cans filled with gunpowder, while they could have exploded at any time. A total of 40 mines were made using this method, which the Chinese immediately used to block the roads leading to Urga.[16] The demonstration was very successful.[17] Perhaps it was then that Dr. Lee Tae-jun learned about the high-quality explosives produced in the Hungarian bomb factory.

At this point, it is important to highlight one of József Geleta's comments: speaking about the bomb factory, he states in one place that several Hungarian prisoners of war worked on making the mines, and he managed to agree with the Chinese leadership that in case 200 explosive device casings were manufactured well in the iron foundry, the Chinese would transport all Hungarians to Beijing by car.[18] It means that the Hungarians wanted to go to China, and Dr. Lee Tae-jun might have offered one of them to join the Uiyoldan organization, located in China.

However, developments turned out to be contrary to expectations. The primitive iron foundry did not meet expectations: instead of the metal, the bricks of the foundry melted. As a result, a decision was made to obtain fireproof bricks from the gold mine in Dzumodo (now Zuunmod), 40 kilometers from Urga. Since the first attempt to obtain bricks was unsuccessful, Geleta undertook to go to the scene himself with a Chinese escort. Shortly after

13 Forbáth 1934, 11.
14 Ibid 115–116.
15 Ibid 119–120.
16 Ibid 120–121.
17 Ibid 118–122.
18 Ibid 122.

Geleta left Urga, the siege of the city began, which ended in victory for the troops of Baron Ungern-Sternberg. The battle of Urga, as recorded in history books, took place between 1 and 4 February 1921, so Geleta could have left the city before 30 January.

Regarding Geleta's fate, it is necessary to mention that he learned in the gold mine in Dzumodo that the siege of Urga had begun. In the resulting chaos, he merged with the Chinese troops outside the city, who were fleeing towards the Russian border.[19] The Hungarian prisoner of war later became a symbolic figure of Hungarian–Mongolian relations. Upon his return to Hungary, he became a popularizer of the culture of the Inner Asian country. As early as 1955, he gave a lecture to high school students about his experiences in Mongolia.[20]

ALLEGATIONS ABOUT PARK TAE-WON'S BOOK

After the liberation from the Japanese colonial rule, shortly before he departed for North Korea, Korean writer Park Tae-won wrote his patriotic book *Yaksangwa Uiyoldan* (the name Yaksan refers to Kim Won-bong), which makes several claims about the mysterious Hungarian bomb expert. According to the book, the man was a Hungarian prisoner of war in Urga who did not have the money to return to Hungary. Doctor Lee Tae-jun met the man in Urga and promised Kim Won-bong, who was waiting in Beijing, that he would take the bomb expert from Urga to Beijing. Based on the book, Lee and 'Magyar' set off for Beijing, but before reaching the city of Zhangjiakou (Kalgan), they ran into 'Semyonov's soldiers' in the middle of the desert, which obviously refers to the troops of Baron Ungern-Sternberg. An officer named Kilchon recognized and shot Lee Tae-jun, who lost his life.[21]

Figure 4 *The entrance of Dr. Lee Tae-jun's Memorial Park in Ulaanbaatar, Mongolia*
Source: *photo by Dr. Zsolt Szilágyi*

[19] Forbáth 1934, 125.
[20] Beszámoló és filmvetítés Mongóliáról 1955, 6.
[21] Park 2015, 130, 132.

Kim Won-bong was unable to contact 'Magyar' following the incident, but soon after, he heard some strange news in Beijing. The news was about a young foreign man, addressing Koreans in Beijing pubs and looking for Kim Won-bong. As a result, Kim sought out the foreigner, who was really the Hungarian bomb expert. According to the book *Yaksangwa Uiyoldan,* the Hungarian man 'felt' that he should meet the Korean revolutionary who needed technical help. Based on the book, Lee Tae-jun was absolutely right when he recommended 'Magyar' to Kim, as the Hungarian man was a great technician and a committed revolutionary, who had not come to Beijing in the hope of financial compensation, but wanted to help liberate Korea.[22]

Figure 5 *Female Korean independence activist Hyon Gye-ok (1897–?)*
Source: *Public Commons*

Kim Won-bong and the bomb expert traveled from Beijing to Shanghai, where they acquired a European-style house through Kim's lawyer friends. The house was registered in the name of 'Magyar', who set up his workshop in the basement of the building, and a man named Lee Dong-hwa was at his disposal for the production of explosives. Lee Dong-hwa had lived in Vladivostok for a long time and spoke good Russian, so they had no communication difficulties with the Hungarian technician. Lee was disguised as the house's cook, which actually did not require much effort, because – based on the aforementioned book – he really enjoyed baking and cooking. A Korean woman, named Hyon Gye-ok, was also obtained for the Hungarian bomb expert. The woman was from Daegu, was a committed supporter of revolutionary goals, and spoke fluently in several foreign languages.[23] To outsiders, it must have looked like a European man living with a pretty Asian woman, and an Asian cook taking care of them.[24]

They wanted to obtain the raw materials for the bombs from a Japanese merchant in the Japanese concession area of Shanghai, but this proved impossible, as he refused to sell such parts and raw materials to the Koreans. Kim Won-bong therefore obtained the necessary things through a Chinese comrade and also bought ten revolvers. However, the latter were all unusable, as they had bad springs essential for the mechanics. Eventually, the raw materials were obtained, so 'Magyar' and Lee Dong-hwa could begin working together in the basement of the house. Kim only visited them every two or three days so as not to arouse suspicion. According to the book *Yaksangwa Uiyoldan,* when Kim visited, the workshop table was full of cartridge cases, which shows similarities to the conditions at the Urga bomb factory described by Geleta. 'Magyar' was cheerful, often singing Hungarian songs. Meanwhile, the other seemed sad to Kim.[25]

[22] Park 2015, 133.

[23] Hyon Gye-ok (1897–?): female Korean independence activist. Born into a poor family, she became a kisaeng – the Korean equivalent of a geisha – at the age of seventeen. After the collapse of the March 1st Movement, she followed the independence fighters to Shanghai. She became a close associate of Kim Won-bong and played an important role in transporting explosives. In 1928, she went to the Soviet Union and studied in Moscow. Her later fate is unknown.

[24] Park 2015, 134.

[25] Ibid 135–136.

After about two months, Kim Won-bong left the technician and his Korean assistant, and traveled to Beijing to consult with his comrades. Kim then held personal discussions with historian Shin Jae-ho, an important member of the Korean independence movement, whom he asked to write a Revolutionary Declaration for the Uiyoldan organization. Kim also invited the historian to travel with him to Shanghai and see the bomb-making process and where the bombs were tested. Shin accepted the invitation. According to the book *Yaksangwa Uiyoldan,* Kim and 'Magyar' sailed out to sea one morning with three or four 'comrades' and then carried out the test explosions on a small island 50 *ri* far from Shanghai. Three types of bombs were tested: those designed for assassinations, those designed to destroy buildings, and those designed to cause fires. The island was inhabited only by fishermen who had no contact with mainland civilization, so the independence fighters did not have to worry about their activities being discovered. The test explosions were successful; the bombs assembled by the Hungarian technician worked perfectly.[26]

These are the claims in Park Tae-won's book. The Uiyoldan organization acquired well-functioning bombs; however, they failed to achieve a breakthrough. The new explosive devices were smuggled into the occupied Korean peninsula by members of the Uiyoldan organization. In September 1921, independence fighter Kim Ik-sang detonated a bomb in the Colonial Government Building in Seoul, damaging part of the building. In January 1923, an independence fighter named Kim Sang-ok detonated a bomb in the Chongro district police station in downtown Seoul. It should be noted that there were also many internal conflicts within the Uiyoldan organization, with several members of the leadership – including Kim Won-bong – believing that the struggle for independence should be directed in a different direction, instead of less-impactful bomb detonations. All this contributed to the fact that in 1928, the Uiyoldan took a leftist turn and issued a document emphasizing cooperation with the Soviet Union, the so-called world revolution, and class struggle. However, this direction was also opposed by anarchists within the group, as well as nationalists who espoused non-communist principles; thus, the Uiyoldan essentially ceased to exist.

HUNGARIAN POWS WITH EXCELLENT TECHNICAL SKILLS

First of all, we must state that the only evidence of the existence of the wanted person is Park Tae-won's patriotic book; we have no other concrete source claiming that 'Magyar' really existed. The explanation for this is that the person in question practically worked as a bomb manufacturer in cooperation with the Uiyoldan organization, and he is indirectly responsible for the assassinations carried out by the organization. Obviously, no one likes to report on such activities unless the change in the political environment renders the actions more acceptable. Since the legend of the bomb expert 'Magyar' did not spread in either Hungary or North Korea after World War II, two possibilities can be concluded about him: 1, the person died before the end of World War II, so he did not have the opportunity to regard his previous activities as glorious in the changed political environment; 2, the person did not return to Hungary after World War II, but continued his life by keeping his former actions as a deep secret. The latter may also explain why Kim Won-bong – who later became Minister of Labor in North Korea – made no attempt to track down his old comrade-in-arms.

[26] Park 2015, 139–140.

We must continue to identify the person with two filter conditions. First of all, the Hungarian prisoner of war who was able to produce high-quality bombs had to have some technical training. Secondly, the person's location and route must have matched the conditions outlined in Park Tae-won's book. According to our current information, two Hungarian prisoners of war arrived in Beijing from Mongolia – that is, from the site of the Hungarian bomb factory in Urga – and both had technical knowledge.

One of them was Reserve Lieutenant Tibold Kregczy (1889–1959), who graduated as a mechanical engineer from the Budapest University of Technology and then worked as an engineer in the ironworks in Resicabánya.[27] That was the iron and steel metallurgy center of Hungary at the time, where 45 thousand tons of pig iron were produced annually. As mentioned above, in the Urga bomb factory, Hungarian prisoners of war began building a primitive ironworks to make the castings needed for explosive devices.[28] Although all the above information could support the possibility that Tibold Kregczy is the searched person, he arrived in Shanghai before Dr. Lee Tae-jun's death in February 1921, and according to a later letter, he had been there since November 1920.[29] Therefore, it seems he is not the person being sought.[30]

However, another Hungarian person who fits the search criteria appears in the reports of the Consulate General of the Netherlands in Shanghai. The young man was a technician named Gábor Magyar, who first appeared in the documents of the Dutch legation in Beijing. This means that he was previously in Mongolia, because the prisoners of war in the Lake Baikal region were all able to reach Beijing only through the Gobi Desert, and those around Khabarovsk and Vladivostok were transported directly by ships to Shanghai. We do not know exactly when Gábor Magyar arrived in Beijing, but the Dutch legation issued him a passport in February 1922, with which he traveled to Shanghai.[31] If Gábor Magyar is

Figure 6 *Hungarian engineer Tibold Kregczy, who was also in Mongolia and Shanghai, but it seems he is not the person wanted*

Source: *Hungarian National Archives, HU-MNL-OL-K 672.*

Figure 7 *Hungarian mechanic Gábor Magyar, who seems to be the person behind the legend of the mysterious 'Magyar'*

Source: *Hungarian National Archives, HU-MNL-OL-K 672.*

[27] Tibold Kregczy's qualification sheet 1952, 5.

[28] Forbáth 1934, 122.

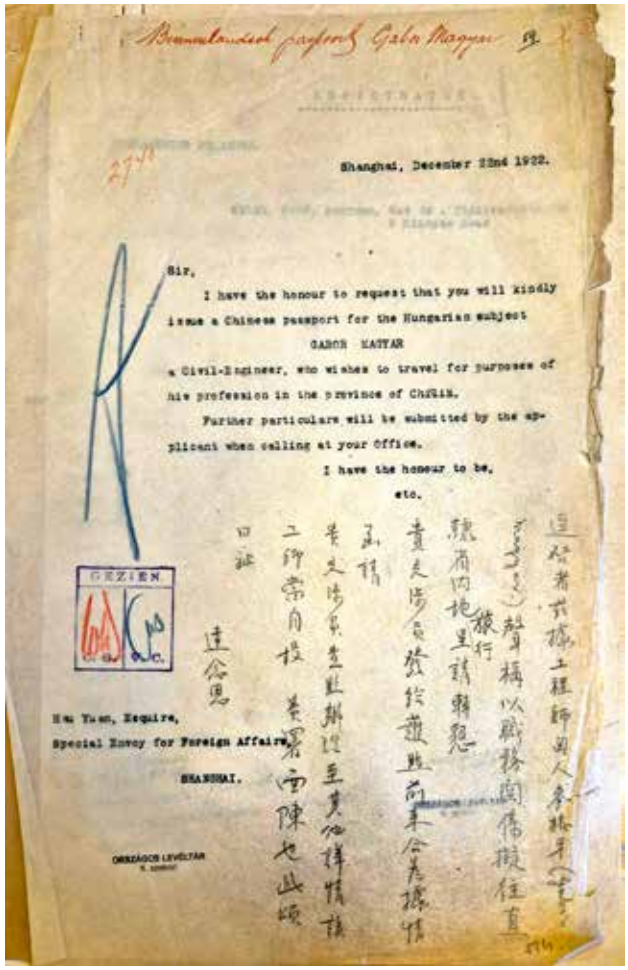
[29] Bestätigung, written on January 23, 1922. Documents of the Consulate General of the Netherlands in Shanghai, which protect the interests of Hungarians, 1917–1940. 1. cs. HU-MNL-OL-K 672.

[30] Very little information is available on Tibold Kregczy's later activities: he established a soda water factory in Shanghai and then an oil refinery. He ended the latter activity in 1946 and then left for Calcutta. Source: Chwaściński, B.: *Z dziejów taternictwa*, Sport i turystyka, Warsawa, 1979, 147.

[31] Temporary passport for Gábor Magyar issued on February 6, 1922. Documents of the Consulate General of the Netherlands in Shanghai, which protect the interests of Hungarians, 1917–1940. 1. cs. HU-MNL-OL-K 672.

the person we are looking for, this means that he went from the Chinese capital to Shanghai with Kim Won-bong, where they began operating the bomb factory. The young man had a technical education; various documents from the Dutch legation mention him as a technician or engineer. Furthermore, and here comes a significant detail, the man's family name is 'Magyar', which explains why the Korean patriotic book uses the word 'Magyar' to refer to him instead of 'Hyungari', which is what Koreans used at the time.

Gábor Magyar, therefore, probably arrived in Shanghai in early 1922, but at the end of the same year, an unexpected event occurred. The young man applied for a Chinese domestic passport at the Dutch Consulate General in Shanghai, not to leave the country, but to travel back to Beijing. According to the archive document, he wanted to travel to the northern Zhili (now Hebei) province "in connection with his engineering activities".[32] The question arises as to whether he intended to travel to the Korean Peninsula via Beijing with members of the Uiyoldan organization.



Shanghai, December 22nd 1922.

Sir,

I have the honour to request that you will kindly issue a Chinese passport for the Hungarian subject

GABOR MAGYAR

a Civil-Engineer, who wishes to travel for purposes of his profession in the province of Chihli.

Further particulars will be submitted by the applicant when calling at your Office.

I have the honour to be,

etc.

GEZIEN

Hsu Yuan, Esquire,
Special Envoy for Foreign Affairs,
SHANGHAI.

ORSZÁGOS LEVÉLTÁR

Figure 8 *Gábor Magyar's request for a Chinese domestic passport in December 1922 to travel back from Shanghai to Beijing "due to his engineering activities"*

Source: *Hungarian National Archives, HU-MNL-OL-K 672.*

[32] Letter to Hsu Yuan, written on December 22, 1922. Documents of the Consulate General of the Netherlands in Shanghai, which protect the interests of Hungarians, 1917–1940. 1. cs. HU-MNL-OL-K 672.

Three weeks later, in January 1923, the Uiyoldan organization carried out a successful bombing in colonial Korea. As mentioned above, an independence fighter named Kim Sang-ok detonated a bomb in the Chongro district police station in downtown Seoul. Although Kim Sang-ok successfully went into hiding, five days later, the Japanese police found his hideout and launched a manhunt to capture him. Kim first fled to Namsan Mountain and then barricaded himself in a house in Hyocha district. A few days later, hundreds of policemen surrounded the building, and Kim Sang-ok committed suicide.

THE REAL PERSON BEHIND THE LEGEND

It seems that Gábor Magyar matches all the filters in the search. According to his birth certificate preserved in the archives, Gábor Magyar (full name Gábor József Magyar) was born in Selmecbánya in 1896. During this research, I have not found any records regarding his military service in World War I, but it appears that he served with the Austro-Hungarian 44th Infantry Regiment. Based on his younger sister's later account, he was taken prisoner by the Russians in 1915 or 1916.[33] Details of Gábor Magyar's activities are, of course, not revealed in the documents preserved by the Dutch Consulate General in Shanghai. His only autobiography, written decades later in Shanghai for official purposes, shows that he was a machine gunner with the rank of platoon leader during World War I. He was sent to the POW camp in Troitskosavsk and then escaped to Mongolia.[34] We have only very limited information about his later life: in the summer of 1929, he married a Russian widow living in Shanghai and began his peaceful civilian life.[35] A year and a half later, in December 1930, a Hungarian prisoner of war named Tibor Parragh returned home from Shanghai and reported to Hungarian journalists that there were still many former Hungarian prisoners of war in Shanghai, among whom was the mechanic Gábor Magyar.[36] According to the newspaper article, briefly reporting on the Hungarians who remained in Shanghai, Gábor Magyar sent greetings to his younger sister, Zsófia Magyar, who was living in Budapest at the time. Following the news report, in March 1931, the Budapest police summoned the woman, who worked as a dental assistant, for questioning.[37] In the police report, the woman stated that she had been receiving letters from her brother sometimes, who was working as a mechanic in various factories in Shanghai. The address of his brother was the following: 125 Boone Rd., Shanghai.[38] The remaining documents of the Hungarian Legation in Tokyo reveal that the man became a pillar member of the Hungarian colony in Shanghai, working as a successful engineer for various companies. When Japanese troops occupied the inter-

[33] Record of the Budapest headquarters of the Royal Hungarian State Police on the interrogation of Zsófia Magyar on March 12, 1931. K 73 T12-HF-M-974.

[34] The only known autobiography of Gábor Magyar, written on April 15, 1943. MNL-OL-K 103 Hungarian Legation in Tokyo, 1939–1944.

[35] Marriage documents of Gábor Magyar and Klavdia Georgievna. Issued on July 27, 1929. Documents of the Consulate General of the Netherlands in Shanghai, which protect the interests of Hungarians, 1917–1940. 1. cs. HU-MNL-OL-K 672.

[36] Tizenöt év után hazajött egy magyar hadifogoly és üzenetet hozott a Kínában élő magyar hadifoglyokról, 1930, 13.

[37] Record of the Budapest headquarters of the Royal Hungarian State Police on the interrogation of Zsófia Magyar on March 12, 1931. K 73 T12-HF-M-974.

[38] Record of the Budapest headquarters of the Royal Hungarian State Police on the interrogation of Zsófia Magyar on March 12, 1931. K 73 T12-HF-M-974.

national part of Shanghai during World War II, Gábor Magyar once had a serious conflict with the Japanese military authorities, though it seems that this incident had no relation to his probable past.[39]

As mentioned above, after the liberation from the Japanese colonial rule, Kim Won-bong left for the northern part of the Korean Peninsula, where he became an important member of the communist regime. However, there is no evidence that Kim ever told the staff of the Hungarian mission in Pyongyang, established in April 1950, that he had worked with a Hungarian bomb expert during the 'Shanghai days'. Kim later served as the DPRK's Minister of Labor, and in early April 1955, he personally visited Hungary as part of a North Korean delegation that participated in the celebrations of the 10th anniversary of the liberation from the German occupation. Prior to the trip, Hungarian ambassador to Pyongyang Pál Szarvas invited the members of the delegation to a dinner, which took place on March 21, 1955, at 7 p.m. The dinner was attended by Deputy Prime Minister Choe Chang-ik, Kim Won-bong, and Hungarian Ambassador to Budapest Ahn Yong, who was currently in Pyongyang. As a practicing diplomat, the writer of these lines knows perfectly well that anecdotes proving the friendship and connection between the two faraway nations are usually discussed at such dinners, but – according to a foreign affairs note kept in the Hungarian National Archives – during the conversation, Kim Won-bong did not say a single word about his former Hungarian acquaintance. Although the similarities in the history of the Korean and Hungarian peoples and the parallels in the structure of the two languages were discussed, it was Deputy Prime Minister Choe Chang-ik who spoke, while Kim Won-bong remained silent.[40]

The delegation finally left Pyongyang two days later on a scheduled flight, arriving in Budapest almost a week later, on April 1, 1955.[41] As the press of the time reveals, delegations from all socialist countries also attended the reception of the Soviet embassy in Budapest in addition to the state celebrations; the summary of the party newspaper *Szabad Nép* mentioned that Kim Won-bong attended the event not only in his ministerial capacity, but also as the leader of the People's Republic Party of the North Korean state.[42] However, in contemporary articles and foreign affairs records, there is not a single remark on Kim Won-bong mentioning his former Hungarian comrade-in-arms.

NOT A HAPPY ENDING – THE FATE OF KIM WON-BONG AND PARK TAE-WON

An important question is why Kim Won-bong never mentioned his former Hungarian comrade-in-arms during his stay in Hungary. If 'Magyar' had died during the anti-Japanese struggle, perhaps during World War II, then Kim Won-bong could have proudly mentioned him as a martyr of the joint fight. It is much more likely that the former bomb expert's activities and possibly his lifestyle made him unworthy of ever being mentioned by Kim, who was deeply committed to the communist ideology. The reason for becoming unworthy could also be as simple as the fact that 'Magyar' later started a business venture, which thus turned him into an exploitative capitalist in Kim's eyes.

[39] Official Record. Written in the office of the Hungarian Association on August 7, 1942, at 10 a.m. MNL-OL-K 103 Hungarian Legation in Tokyo, 1939–1944.

[40] Report of Ambassador Pál Szarvas on March 24, 1955. MNL XIX-J-14 Box 6 50-159.

[41] Elutazott a koreai kormányküldöttség 1955, 1.

[42] Fogadás a szovjet nagykövetségen a Szovjetunió kormányküldöttségének tiszteletére 1955, 1.

The North Korean government delegation left Hungary on April 9, 1955.[43] As the report of the Hungarian mission in Pyongyang shows, the delegation arrived in Pyongyang on April 16, 1955, on a scheduled flight, and the charge d'affaires of the Hungarian embassy hosted a dinner in their honor shortly afterwards. The meeting provided an opportunity to share experiences and impressions gained in Hungary. Although this time, Deputy Prime Minister Choe Chang-ik spoke the most, praising the standard of living and culture of the Hungarian people, eventually, Kim Won-bong also had the floor. However, the Minister of Labor spoke only about the great influence that Hungarian factories and their social institutions, such as the resorts, had had on him. Kim added that he had learned a lot and hoped that he would be able to use what he had seen in the Korean environment. Based on the report, Deputy Prime Minister Choe Chang-ik then intervened, saying that Kim would be obliged to use what he had seen. The report said Choe Chang-ik's remark was 'half-joking', but it also points to the fault lines that were emerging in the DPRK leadership at the time.[44] The vice premier was removed from power in the fall of 1956 for 'factional behavior' and later executed; Kim was caught up in internal purges in 1958, and the exact circumstances of his death are unknown.

At this time, Gábor Magyar was already dead. According to archival documents, the man traveled to Europe with his passport issued in Shanghai in April 1949. At the end of 1949, he applied for an entry visa at the consulate of Brazil in Naples. His Russian-born wife, Klavdia, accompanied him on the trip.[45] It should not be overlooked that the couple left Shanghai when the outcome of the Chinese Civil War had already become clear, or, to simplify it, they fled to South America from communism. This again provides an indirect explanation for why the relationship between 'Magyar' and Kim Won-bong, who was deeply committed to the communist idea, was severed. The Hungarian man and his Russian-born wife finally received their entry visas to Brazil in Naples in January 1950. However, the couple did not enjoy the surroundings in South America for long: Gábor Magyar died in Rio de Janeiro during an operation in December 1953, and his remains were laid to rest in the cemetery of Petropolis.[46] The man's widow traveled to the United States in January 1956, where she settled in San Pedro, California. The woman outlived her husband by a long way, dying in October 1971, and her remains were buried in Indianapolis.[47]

Finally, the question may arise as to what the situation is with the writer Park Tae-won, whose book *Yaksangwa Uiyoldan* is the primary source regarding the existence of 'Magyar'. Why did Park Tae-won, who also left for North Korea in 1950, not talk about this 'Hungarian aspect' to the staff of the Hungarian embassy in Pyongyang? The reason for this is to be found in North Korea's internal circumstances: during the Korean War, there was apparently

43 Elutazott a koreai kormányküldöttség 1955, 1.

44 Report of charge d'affaires Dr. László Keresztes on April 20, 1955. MNL XIX-J-14 Box 6 50-159.

45 "Rio de Janeiro, Brazil records," images, FamilySearch (familysearch.org/ark:/61903/3:1:33S7-95B9-9GKN?view=index: June 5, 2025), image 28 of 203; Arquivo Nacional de Brasil (Rio de Janeiro), Image Group Number: 004915887 familysearch.org/ark:/61903/3:1:33S7-95B9-9GKN?view=index Thanks to Bálint Jurászik for the data.

46 "Rio de Janeiro, Brazil records," images, FamilySearch (familysearch.org/ark:/61903/3:1:33SQ-G5YW-LM6?view=index: June 6, 2025), image 54 of 203; Arquivo Nacional de Brasil (Rio de Janeiro), Image Group Number: 004910461 familysearch.org/ark:/61903/3:1:33SQ-G5YW-LM6?view=index Thanks to Bálint Jurászik for the data.

47 Klavdia Magyar: United States, Index to Alien Case Files, 1940–2003. 10488106. Thanks to Bálint Jurászik for the data.

no real opportunity for relation-building, and then, as a result of the show trials against communists of South Korean origin, Park Tae-won was sent to agricultural work. Between 1955 and 1960, he worked in an agricultural cooperative in the Kangso region of South Pyongan Province, and during his absence, the main character of his book, Kim Won-bong, was also subjected to internal purges. Although Park's health deteriorated, he later returned to the literary life of the DPRK, becoming the country's recognized historical novelist. However, at the time, it was obviously not appropriate to remember the book that featured the relationship between Kim Won-bong, who had been removed from power, and the mysterious Hungarian bomb expert.

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Patrik Szalkai

THE CHANGE IN THE ARCTIC'S STRATEGIC IMPORTANCE DURING THE COLD WAR

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ABSTRACT: *Today, Trump's Greenland policy has brought the (potential) strategic importance of the Arctic in the East-West confrontation to the fore. However, this is not unprecedented, as there were already a number of strategic visions for the region during the Cold War. This paper examines the role of the Arctic in Cold War missile defence and nuclear plans and theories. The paper discusses how strategic changes have affected military presence in the Arctic during the Cold War, primarily from the US perspective, and what lessons can be identified from this today. It concludes that the US and NATO Arctic presence during the Cold War was strongly influenced by (nuclear) theoretical innovations, strategic changes, and military technological developments. As for NATO, the study also draws attention to how, at the conceptual level, the importance of the Arctic region has changed and evolved, as well as how it has become an operational arena in its own right.*

KEYWORDS: *Arctic, Greenland, Cold War, nuclear defence, USA*

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INTRODUCTION

The impact of the Russo-Ukrainian War on the Arctic and Donald Trump's comments on Greenland have highlighted that, although direct conflict in the Arctic is still not the most likely scenario, military considerations have returned to the Arctic after more than three decades. While the Arctic was free of armed conflicts after the break-up of the Soviet Union, the European Arctic was a dominant part of the Cold War 'front line' until the late 1980s, and one of the largest concentrations of military forces in the world was located there.[1] This was mainly because nuclear weapons became the main deterrent, the shortest air route between the US and the USSR gave the region strategic importance for missile defence, and the fact that Alaska made the US and the USSR very close neighbours by sea and land, which was also not a negligible factor. Given that the military importance of the Arctic is once again coming to the fore today, it is important to know and understand the strategic aspects during the Cold War, because they may reappear in the face of great power confrontation, as we see in the case of Greenland.

[1] Åtland 2007, 7.

This paper examines how strategic changes affected military presence in the Arctic during the Cold War, primarily from the US perspective. It also discusses US considerations of the Arctic during the Second World War, how these changed during the Cold War, and how NATO's Arctic policy evolved.

THE SECOND WORLD WAR – THE BASE OF THE US ARCTIC PRESENCE

Although the Arctic began to be seen as a key strategic area during the Cold War, the foundations for this began to be laid during World War II. It was on these foundations that the US began to build during the Cold War, and these guidelines are still relevant today when we talk about the return of the Arctic to Cold War significance.

The United States, as early as 1940, opened a consulate in Godthaab (now Nuuk) and the US Coast Guard patrolled the coast. Subsequently, the US presence on the island was further strengthened, and in 1941, an agreement was signed with Denmark giving the US the right to build and maintain infrastructure to help maintain Greenland's status. By the end of the war, the US maintained 13 military bases and four additional naval bases in Greenland. If all other climate monitoring bases are taken into account, this number is even higher (see Figure 1).[2]

Figure 1 *Air bases, weather stations, and other posts in Greenland, 1940–1945*
Source: *Eger 2025.*

[2] Archer 2003, 128–129.

In light of today's political turns, it is important to point out that the US actually bypassed Copenhagen to reach an agreement on Greenland. Since Germany had invaded Denmark in June 1940, the USA considered that Denmark was not in a position to exercise its sovereign rights over Greenland, and so the Danish ambassador in Washington, Henrik Kauffman, with the support of the Greenland administration, played a key role in the negotiations and signed the 1941 agreement. After the agreement, Kauffman was dismissed by Danish Foreign Minister Erik Scavenius, and the agreement was ratified by the Danish parliament only after the war.[3] It is also relevant that the agreement mentions that Greenland is subject to the Monroe Doctrine.[4] Also linked to contemporary events, the US interests in Greenland in 1940–41 can be summarised in four main points:

– preventing enemy forces from entering North America;
– Greenland as a transit point to Europe, which was exploited to a considerable extent from 1942 onwards;
– meteorological information;
– a source of raw materials (Greenland's cryolite resources proved essential for US aluminium production).[5]

The strategic importance of Greenland, and thus the Arctic, for the US did not begin with the Cold War and the advent of nuclear weapons, but had already existed before. Although meteorological information may appear to be a somewhat negligible aspect at first sight, some authors wrote as early as 1950 that "Weather information is one of Greenland's most important exports, of interest to many countries, in peace as well as in war."[6] In addition, because of its raw material supplies and location, the US could not afford not to exercise control over it during the war, even if it had to overstep Danish sovereignty.

CHANGE OF US AND NATO STRATEGIC CONSIDERATIONS THAT INFLUENCED THE ARCTIC POSTURE

The post-war role of the Arctic reached a new level for the US, driven by fear of Soviet nuclear weapons[7] and its own deterrence-based nuclear strategy. To understand this, it is necessary to be familiar with the US thinking on nuclear weapons at the time.

Because of the unattainability of the goal set in the early years of the Cold War, namely to match the Soviet forces in numbers, NATO formally adopted the principle of mass retaliation by 1956, originally included in Eisenhower's 1953 New Look policy.[8] However, this strategy has proved divisive and has been criticised by many. One of these critics is Bernard Brodie, who in his 1959 book "Strategy in the Missile Age", gives a comprehensive overview of the thinking on nuclear strategy since the war and what he proposes as the main directions to follow.[9] According to Brodie, the atomic bomb has fundamentally changed defence, absolute security has disappeared, and a Soviet attack on the US would be catastrophic. Examining

3 Archer 2003, 129–130.
4 Agreement relating to the Defence of Greenland, signed at Washington, 1941, 111.
5 Archer 2003, 129.
6 Dunbar 1950, 138.
7 Archer 1988, 125.
8 Dyndal 2011, 564.
9 Brodie 1959.

the possible uses of the atomic bomb, he concludes that preventive war is not realistic as long as the US is a democracy. In the case of pre-emptive war, it is doubtful what would provide sufficient justification for a strike, so it is also not suitable to build a strategy on, while mass retaliation is only credible in the case of an attack directly on the US; otherwise, it is not realistic for the opposing sides to take it seriously, as the Korean War proved. Instead, Brodie proposes the deterrence strategy that the US would eventually pursue during the Cold War. As part of this deterrence, it is important to maintain a large force because it is necessary for retaliatory capability, and the nuclear strike force must have a diverse range of delivery platforms, some of which must be located in well-defended locations for credible deterrence and retaliation.[10] The possibility of using nuclear weapons also changed rapidly, with the principle of flexible response replacing mass retaliation, which became official for the US in 1961–62 and for NATO in 1967.[11] It was also during this period that the Arctic began to gain military value at the NATO level due to changes in concepts. In 1962, the NATO Atlantic Policy Advisory Group's assessment of the strategic role of Northern Europe (Scandinavia) could be summarised in three points:

1. to prevent the Soviet Union from gaining access to temperate waters;
2. to serve as a base for counter-attack operations;
3. its location is suitable for detection and warning.[12]

With this being said, at this time, protection of the flanks was still a lesser priority for NATO. The meaning of the NATO Northern Flank as a concept also changed significantly during this period. Until the second half of the 1960s, it primarily meant the Baltic and southern Scandinavia and was understood as the tactical flank of the Central Front, but after that, the term came to mean the Arctic, as NATO's Northern Flank took on a meaning of its own.[13] The upvaluation of the flanks was due to the "Flexible Response" strategy (MC 14/3) issued by NATO's Military Committee.[14]

Under this concept, NATO envisaged three types of responses in the event of aggression. The first is direct defence, which aims to stop aggression at the level at which it attacks. The second is deliberate escalation, which is designed to escalate the aspect of the conflict where the Alliance has the advantage, and finally, the third is general nuclear response, which envisages a nuclear retaliatory strike in response to a Soviet nuclear strike.[15] Its plausibility requires maintaining a credible nuclear strike capability at sea and in the air, as well as preparing to respond to smaller, limited incursions. This highlighted the flanks that had been previously considered less important.[16] The emergence of the Arctic as a key theatre of war in NATO thinking can be traced back to another document that is now publicly available, the 1968 Concept for External Reinforcement of the Flanks.[17] This directly followed from what was discussed above.

10 Brodie 1959.
11 Dyndal 2011, 565.
12 North Atlantic Council 1962, 7.
13 Dyndal 2011, 581.
14 Ibid 569.
15 North Atlantic Military Committee 1967, 10–11.
16 Dyndal 2011, 569.
17 North Atlantic Military Committee 1968.

This concept was central to NATO's strategy from the late 1960s onwards, a strategy that led to the modernisation of forces and infrastructures on the flanks.[18] So, by the 1970s, a perception emerged, which remained until the end of the Cold War, that the military significance of the Arctic could be understood in its own right and that its military build-up could have a tangible impact on the strategic level.

THE CHANGE IN THE US AND ALLIED STRATEGIC POSTURE AND PRESENCE IN THE ARCTIC DURING THE COLD WAR

The strategic revaluation of the Arctic during the Cold War was also reflected in its practical manifestations. According to some assessments, the creation of NATO was driven by the threat of Norway falling under Soviet influence.[19] This fear was not without foundation, as many Norwegians felt that they had been liberated by the Soviet Union after the war.[20] The United States explicitly steered Norway away from forming a third, neutral Scandinavian defence alliance, inviting it to join the emerging Western defence alliance instead. It did so by pointing out to the Norwegian government that it could not guarantee arms deliveries to a state outside its own alliance system.[21]

Greenland in the Cold War

The post-war US presence in the Arctic developed most rapidly in Greenland, logically, since US troops were already present there during the war. After the war, the United States sought a location for its base as close as possible to the Soviet Union, but with as little political opposition as possible. Iceland and Greenland were perfectly suited to this.[22]

Therefore, after the war, the Denmark–Greenland–USA agreement needed to be sorted out to make it suitable for long-term cooperation. However, this was not an easy process, as the Danish government initially wanted to dissolve the agreement, believing that the US presence in Greenland would encourage the Soviet Union to establish a base on the island of Bronholm, which Denmark had occupied during the war. Therefore, Denmark refrained from any agreement with the US until 1948.[23] The new agreement had to wait until 1951, when the Danish government took on a greater role than before. Ironically, this agreement was also signed by Kauffman, but now as a minister, because he had been rehabilitated after the war.[24] This agreement emphasised the role of NATO and the joint defence of Greenland by the US and Denmark.

The new Soviet threat, combined with new weapons, demanded a different presence from the US in Greenland. While the strategic interests of the previous era did not require a major air base, the chances of a direct naval attack from the Arctic were considered negligible by US planners. By the 1950s, the global nuclear strategy had assigned a completely different

[18] Dyndal 2011, 574.
[19] Allard 2001, 12.
[20] NATO [no year]; Haraldsen 1997, 45.
[21] Haraldsen 1997, 30–31.
[22] Weiss 2001, 32–33.
[23] Ibid 33.
[24] Defense of Greenland 1951.

role to the Greenland presence.[25] In 1950, the US Joint Chiefs of Staff expected that the role of the region would be to launch air strikes against Soviet targets, while the Army and Navy would defend against Soviet air attacks in the Arctic. However, it was also anticipated that the role of the region would change in the future due to the sources of raw materials and long-range missiles.[26] Accordingly, the role of the Greenland bases was important to the US in terms of the strategic bomber fleet, reconnaissance, and transport across the Atlantic.[27] During this period, B-47 strategic bombers were designed to be used against Soviet industrial centres, capable of reaching target areas with an aerial refuelling when launched from Thule base (see Figure 2).[28]

Figure 2 *Arctic distances between the US, Europe, and the Soviet Union*
Source: *Doel et al. 2014, 67.*

As the Soviet Union launched Sputnik and then developed intercontinental ballistic missiles in the second half of the 1950s, while the US developed long-range bombers, Greenland's role as a refuelling station decreased. Instead, it was used at this time to provide warning and communication and reduce the chances of the Soviet Union launching a surprise attack.[29] However, in reducing the nuclear threat, Greenland had another special role intended by the United States. As early as 1950, the Chief of the Joint Chiefs of Staff argued to the Secretary of Defense that it was necessary to obtain the right to store nuclear devices in Greenland, but the Military Liaison Committee of the Atomic Energy Commission and the Secretary of Defense rejected any mention of this in negotiations with the Danes. They argued that it would slow or stop the acquisition of other rights, and so the final agreement made no mention of nuclear weapons storage. This also meant that the agreement did not prohibit the storage of nuclear weapons.[30] After the 1951 settlement, the issue came back into focus as several strategic assessments questioned the effectiveness of the US nuclear

[25] Archer 1988, 128.
[26] Ibid 129.
[27] Archer 2003, 132.
[28] Archer 1988, 128.
[29] Archer 2003, 132.
[30] Weiss 2001, 33.

capability. In a 1956 report, the National Security Council (NSC) Net Evaluation Subcommittee (NESC) emphasized that:

"if the United States should fail to maintain adequate alert nuclear forces that cannot be destroyed by surprise attack, the USSR by a nuclear attack on the continental United States will emerge as the dominant world power in 24 hours."[31]

Also in 1958, at the 384th NSC meeting, it was highlighted that:

„recent Soviet technological advances and the concurrent qualitative reductions in U.S. forces have combined to diminish that margin of U.S. military superiority. If these trends continue, it is estimated that this superiority will be lost in the foreseeable future."[32]

In addition, Albert Wohlstetter and his colleagues at the RAND Corporation also argued during this period that it was necessary to protect a relatively large number of bombers and missiles to sustain a second strike and credible deterrence. This is very similar to what Brodie argued shortly afterwards in his book cited earlier. According to Wohlstetter and his colleagues, vulnerable strategic forces not only lack sufficient deterrent power, but their vulnerability invites and encourages a first strike.[33]

These arguments were certainly taken seriously by the United States when planning Greenland's post-Cold War role. Project Iceworm was an ultimately failed endeavour, but it illustrates the strategic vision that the US wanted to give space to in the Arctic. The idea was to reduce the vulnerability of the nuclear warheads stored in Greenland, which was – as you can see – very high according to the assessments of the time, by creating a nuclear missile base system under the ice, where the warheads would be transported by rail through tunnels drilled into the ice from one launching station to another. New tunnels could shift the configuration of the system year by year, and missile locations would change minute by minute. The ultimate goal was to establish 2,100 launch points under ice. The missiles launched from here would have been able to hit 80% of Soviet and Eastern European targets. The base network would have been indestructible by air strikes, as it was expected that an 8-megaton warhead would have meant the loss of only one missile, so the system could only have been neutralised by conventional naval and land attacks.[34] However, the creation of the system was constrained by a number of problems. The political problem was that it would have required the approval of Denmark and NATO before it could be operated publicly. There were also technical challenges, as the tunnels of the only element of the system built, Camp Century, could only be maintained by removing 30 tonnes of ice and snow per week. However, the most significant objection was ultimately a change of opinion about the IRBMs (intermediate-range ballistic missiles) themselves, which were to be deployed in the base network. Their opponents have pointed out that they are vulnerable, complicated to operate, and their response time makes them unsuitable for retaliatory strikes, which would be more of a call to attack than a deterrence, and thus an incentive to launch them first.[35] Taking these into account, the project was finally cancelled in 1966.

[31] Roman 1995, 25.
[32] Memorandum of Discussion at the 384th Meeting of the National Security Council, 1958.
[33] Dunn 1997, 9–11.
[34] Weiss 2001, 41–44.
[35] Ibid 49–56.

Development of missile warning systems

Another iconic Cold War Arctic project was the deployment of early warning radar networks, but this project was crowned with success, and its successor system is in operation today. The Arctic was deemed particularly important to the continental defence of the US (and Canada), with the Distant Early Warning System (DEW) deployed in the 1950s, which was able to predict Soviet strategic bombers. The 22-station radar chain was completed in 1957, but had the serious shortcoming of being ineffective against intercontinental and submarine-launched missiles. These missiles were the main threat during the Cold War, and the defence line was considered obsolete soon after its completion.[36] Further developments were therefore needed, resulting in the creation of the North American Aerospace Defense Command (NORAD) in 1957 and the Ballistic Missile Early Warning System (BMEWS), which could also predict ballistic missile launches, by 1961. Out of the system's three radar stations, one was deployed in Alaska, one in Greenland, and one in Britain.

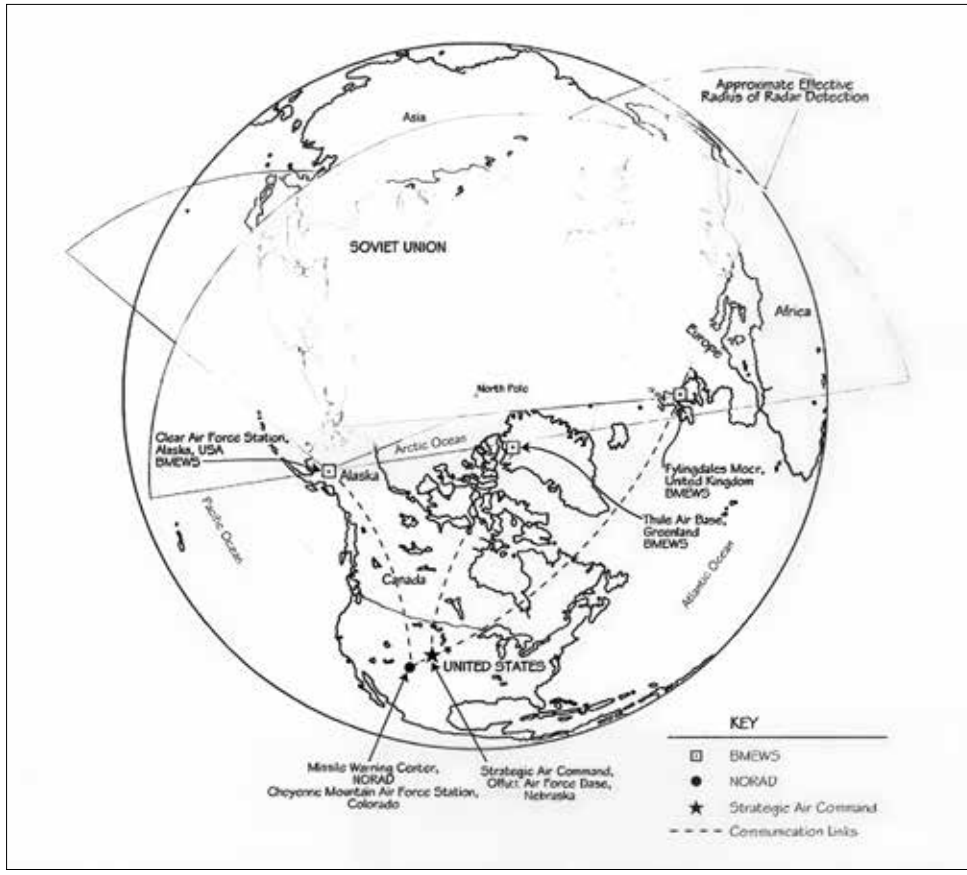

Figure 3 *Ballistic Missile Early Warning System (BMEWS)*
Source: *Historic American Engineering Record [no year].*

[36] Harris 2006.

Its strategic importance lay in the fact that it was able to signal the impact of missiles at least 15 minutes in advance, thus allowing counter-strikes to be ordered. This made it possible to apply the principle of mutually assured destruction in practice.[37] Greenland's role was again significantly revalued and transformed in the 1980s by the modernisation of the BMEWS, as the old system was replaced by a ground-based radar system and the Thule base took on an increasing role in missile warning, space surveillance, and C3I tasks, as well as in anti-submarine warfare for NATO.[38] In 1985, Canada and the United States signed an agreement on the modernisation of air defence. As part of this agreement, DEW was replaced by the North Warning System (NWS), a system of 47 automatic radars along the coasts of Alaska and Canada, including short- and long-range radars.[39]

GIUK Gap

In relation to Greenland, one cannot talk about the military importance of the Arctic in the Cold War without mentioning the GIUK gap. The GIUK gap is the sea gateway between Greenland, Iceland, and the UK, the main naval defence line between the mostly Russian (Soviet Union-) dominated Arctic and the NATO-controlled Atlantic region. This passage has become one of the most important routes since the beginning of the Cold War. It has significantly enhanced Iceland's strategic role and has been a key part of the US Atlantic strategy for decades.[40] In addition, in the early years of the Cold War, the US Navy identified the Barents Sea, the White Sea, and the Denmark Strait as the primary areas of operations for Soviet submarines, and therefore suggested they be defended by NATO.[41] In the early years of the Cold War, Soviet nuclear-powered ballistic missile submarines had to cross the GIUK to strike the United States, so NATO devoted considerable resources to monitoring the passage. In the 1950s and 1960s, the first line of defence at the waters off northern Norway consisted of nuclear-powered attack submarines (SSNs), NATO's carrier striking forces, ASW hunter-killer groups, and minelaying units. The GIUK Gap marked the second line of defence. Here, land-based patrol aircraft operating from Iceland and other locations, reinforced by sea-based aviation, were deployed.[42] In the 1970s, longer-range submarine-launched ballistic missiles (SLBMs) reduced the importance of crossing the GIUK Gateway for the purpose of attacking the continental US. With that being said, NATO's flexible response strategy at the time continued to give the Gateway strategic importance, as this posture required significant transatlantic support and continued to provide an incentive for Soviet submarines to break through the Gateway.[43]

In addition to Greenland, the Scandinavian Peninsula has also played a key role in the Arctic nuclear strategy. One reason is that from the beginning of the Cold War, it fell within the flight path of US nuclear strategic bombers (see Figure 2), while US aircraft carriers carried out force-projection missions in the Norwegian Sea.[44] However, it should be pointed

[37] Historic American Engineering Record [no year].
[38] Archer 2003, 135.
[39] Stone 2024.
[40] Orbaiceta 2023, 3–4.
[41] Allard 2001, 12.
[42] Ibid 16.
[43] The GIUK Gap's strategic significance, 2019, 1.
[44] Dyndal 2011, 563.

out that Norway was the only country on the peninsula that was a member of NATO then, and the only NATO member that had a land border with Russia. After joining NATO, Norway assured the Soviet Union that no foreign troops would be stationed on its territory in peacetime. However, for NATO, a possible attack on the Scandinavian peninsula appeared to be a real threat.[45]

CONCLUSION

So, as shown, US interests in Greenland and the wider Arctic did not start with Trump and will not end with him. During the Cold War, the region was primarily of military importance; economic considerations were not as important then as they are today. The end of the Cold War marked a sharp limit in the importance of the Arctic. Military considerations were pushed into the background, while economic issues came increasingly to the fore. The driving force behind this was that, with Russia weakening and US attention turning elsewhere after the Cold War, deterrence was no longer the focus of Russian–American relations.[46]

This study has only examined the military importance of the Arctic and the impact of larger strategic considerations on its regional implications, but it is important to bear in mind that by 2025, the Arctic has entered a new phase of strategic importance. Whereas military considerations dominated during the Cold War and economic considerations in the post-Cold War period until 2022, they now parallel each other. And since military considerations have been less prominent in the last 35 years, it is worth going back to the time when they were exclusively dominant, even if the Arctic operational environment today is different from that during the Cold War and is certain to change further in the future. It is enough to think that the Arctic is now shared exclusively between NATO and Russia, with no independent states in the region. This, if possible, raises the stakes even higher for the examination of military issues. A major difference in the actors present in the region is that during the Cold War, only the Arctic states were interested in the region, whereas today, many non-Arctic states, including the major powers, are also interested. Therefore, today we can no longer speak of a bipolar confrontation in the Arctic.

Another important difference is that the Arctic ice is retreating and is generally expected to continue to do so in the future. Although this trend did not start yesterday, it has a noticeable impact today, and its most profound strategic effects are yet to be seen. A completely ice-free Arctic, if it happens, will once again reshape the significance of the region. The final difference is caused by technological progress. While it can be argued that space technology and drone warfare may put to rest many aspects that were considered important in the Cold War, Greenland is the perfect case study of how technological advances have not removed the island's significance, merely redefined it.

Bearing in mind all these differences between the Cold War Arctic operational environment and today's Arctic, several lessons can still be identified. The first is that the US and NATO have a long-standing military interest in the region, which was not apparent after the Cold War, as military issues in the area have generally been relegated to the background. If military interests reappear, these old interests will also reemerge. Although economic

[45] NATO [no year].
[46] Huebert 2019.

considerations in general were not significant for the region at this time, Greenland was already an important source of raw materials for the US during the war, and the US military leadership anticipated the exploitation of these resources as early as the 1950s. The second lesson is that military presence in the Arctic has been fundamentally determined by ongoing technological developments. During the Cold War, this resulted in the periodically changing importance of a particular location and the transformation of its actual function. Nevertheless, the strategic positions and aspects that were important at the beginning of the Cold War, such as Greenland and the GIUK gap, have not lost their importance. Finally, an important lesson is that the Arctic confrontation during the Cold War was not primarily motivated by competition for the Arctic, but to secure areas (Greenland) from which to strike non-Arctic territories or to deter an attack from the Arctic (GIUK gap and warning system). This has been somewhat supplemented by the appreciation of resource deposits today, but in military terms, these considerations remain unchanged.

While the United States and NATO are the guardians of the status quo in the global international system and Russia and its allies are its challengers, the military significance of the Arctic is unwavering, given the pronounced proximity of the US and Russia to each other in the region. Therefore, the military significance of the Arctic today is the same as it was before, but different in nature.

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Norbert Daruka

OPPORTUNITIES AND RISKS OF THE TECHNOLOGICAL DEVELOPMENT OF THE HUNGARIAN DEFENCE FORCES IN THE LIGHT OF EMERGING AND DISRUPTIVE TECHNOLOGIES

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ABSTRACT: *The security environment of the 21st century is characterised by an unprecedented acceleration of scientific and technological progress. Emerging and Disruptive Technologies (EDTs) are fundamentally reshaping the nature of warfare, the structure of military capabilities, and the security landscape. For the Hungarian Defence Forces, the strategic importance of these technologies is twofold: on the one hand, they offer opportunities to enhance combat capabilities, maintain interoperability, and exploit national innovation potential; on the other hand, they pose serious challenges in terms of asymmetric threat propagation, ethical and legal dilemmas, and the risk of technological backwardness.*

The study provides a comprehensive overview of the main technology categories – artificial intelligence, autonomous systems, quantum technology, biotechnology, advanced materials, energy weapons, hypersonic systems, space technology, and new tools for cyber and information warfare – and analyses their military applications. Particular emphasis will be given to the strategic opportunities relevant to the Hungarian Defence Forces and the potential threats.

The aim of the publication is to contribute to the conscious shaping of the technological development of the Hungarian Defence Forces, their close integration into NATO and EU alliance frameworks, and the development of the Hungarian defence innovation ecosystem.

The analysis makes it clear that states that can proactively and consciously integrate EDTs into their military capabilities will retain their relevance in the security space in the future.

KEYWORDS: *emerging and disruptive technologies, quantum technology, artificial intelligence, military innovation*

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INTRODUCTION

One of the most important security policy features of the 21st century is the acceleration of scientific and technological progress. Emerging and Disruptive Technologies (EDTs) are bringing about a paradigm shift not only at the economic and societal levels, but also in the fundamental framework of warfare. Their specificity is that they are often derived from civilian developments and then become dual-use: this represents both an opportunity for

military adaptation (to find cost-effective solutions by ensuring economies of scale) and a risk for the proliferation of asymmetric threats.

Emerging technologies are based on the latest scientific advances. Although many are still at the experimental stage, they could soon have a breakthrough impact on military capabilities and societal functioning. By contrast, disruptive technologies are radical innovations that fundamentally obsolete existing systems and capabilities.

Already at its London Summit in 2019, NATO stressed that these technologies "have the potential to fundamentally transform the operational environment and define the warfare of the future".[1] This recognition led to the launch of the Defence Innovation Accelerator for the North Atlantic (DIANA)[2] program to support and connect allied innovation capabilities.[3] The EU has established the European Defence Fund (EDF) to support dual-use R&D with a similar objective.[4]

In NATO's understanding, EDTs contribute to the five main evolutionary requirements of the Basic Concept of Warfare: cognitive superiority, integrated multidimensional defence, multidisciplinary command, multi-level resilience, and broad projection of influence and power.[5]

The United States, China, and Russia play a dominant role in the global technological competition. Washington is seeking leadership in artificial intelligence (AI) and quantum technologies,[6] while Beijing is integrating its economic and military spheres through civil-military fusion,[7] but has recently devoted significant resources to AI- (and biotechnology-) based developments. Moscow, on the other hand, is building its advantage primarily on hypersonic weapons and electronic warfare.[8]

For the Hungarian Defence Forces, the integration of EDTs is not a luxury but a strategic imperative. Preserving NATO interoperability, addressing regional security challenges, and the development of the domestic defence industry all justify Hungary's emergence as a 'smart user' in the technological race.

For Hungary, as a medium-sized state, the challenge is twofold: the Hungarian Defence Forces cannot be at the forefront of all technologies, but falling behind can have serious consequences for interoperability, defence industrial development, and national security. The Zrínyi 2026 Defence and Military Development Program, as well as the National Security Strategy and the National Military Strategy, state that without the integration of modern military technology and innovative capabilities, the Hungarian Defence Forces cannot guarantee national defence and the fulfilment of alliance obligations.

The aim of this study is to provide an overview of the main EDT categories, analyse the opportunities and risks of their military application, and formulate recommendations for the technological development of the Hungarian Defence Forces.

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1 NATO 2019.

2 NATO 2022.

3 In fact, it is mostly about finding start-ups who might not otherwise be thinking about military development, but who can make their development dual-use, with financial support and economic and technological expertise – through accelerators and test centres.

4 European Commission 2021.

5 NATO 2021.

6 U.S. Department of Defense 2022.

7 Johnson 2020.

8 Biddle – Zirkle 1996.

TECHNOLOGICAL TRENDS AND MILITARY RELEVANCE

The military strategy of the 21st century is increasingly defined by emerging and disruptive technologies. Artificial intelligence, for example, offers breakthroughs by optimising logistics processes, supporting decision-making, and enabling rapid data processing in reconnaissance.[9]

Nevertheless, it poses serious ethical dilemmas for the operation of autonomous weapons systems.[10] Robotic solutions enable the machine-assisted takeover of dangerous tasks, while creating an asymmetric threat.[11]

Three fundamental dimensions of quantum technology – computation, communication, and sensing – could revolutionise encryption and navigation. While quantum communications can provide unbreakable data transmission,[12] quantum computers could compromise and render current encryption systems irrelevant.[13] NATO is therefore prioritising research and development related to quantum technologies.[14]

Biotechnology offers opportunities in military health, casualty care, and human performance enhancement,[15] but also raises bioethical and legal concerns, particularly in relation to genetic engineering and artificially enhancing human performance.

Advanced materials and nanotechnology promise lighter and stronger armour, self-repairing structures, and 3D-printed supply solutions that can significantly increase the performance and sustainability of military systems.[16] At the same time, these developments create new types of dependencies: access to and security of supply of rare earths and special alloying materials are key to long-term deployability. Although the developments are costly, they can be made available to the Hungarian Defence Forces through cooperation with NATO partner countries, provided that security of supply can be guaranteed.

Energy weapons and hypersonic systems pose new challenges: the former can provide a cost-effective alternative to drone threats, while the latter pose an almost insurmountable challenge for air defences.[17]

Space technology and next-generation communication networks have become indispensable in modern warfare, but space assets are vulnerable, and networks can be targets for cyber threats.[18]

Cyber and information warfare have become key theatres of modern conflicts. Cyberattacks and disinformation campaigns can have immediate and strategic effects that directly affect social cohesion and national resilience.[19]

The effectiveness of military logistics is as important as the development of combat capabilities in the war of the future. The digitalisation of the supply chain – through predictive analytics, digital twins, and automated warehouse management systems – will enable accurate tracking of inventories, forecasting of maintenance requirements, and optimisation

[9] Cummings 2017; Horowitz 2018.
[10] Scharre 2018.
[11] Johnson 2020.
[12] UNIDIR 2021a.
[13] OECD 2020.
[14] NATO 2021.
[15] Payne 2021.
[16] Ember 2023.
[17] Sechser 2019.
[18] WEF 2020a.
[19] Horowitz 2018; Johnson 2020.

of supply routes. For the Hungarian Defence Forces, it is particularly important to integrate solutions that reduce dependency on external suppliers and ensure continuous supply even in theatre conditions. 3D printing and the use of self-driving transport vehicles can open up a new dimension in logistics operations.

OPPORTUNITIES FOR THE HUNGARIAN DEFENCE FORCES

The application of emerging and disruptive technologies not only serves the technical modernisation of the Hungarian Defence Forces but can also open up a new strategic path. For example, the use of artificial intelligence and autonomous systems can accelerate decision-making, enhance intelligence capabilities, and make logistical processes more efficient.[20] It is important to highlight that many of these technologies have been in use for 7–8 years already, which suggests that these solutions are not merely future possibilities, but technologies that have been known, expected, and already in practice in certain countries (e.g., Israel, South Korea) or cyber defence systems for almost a decade. AI-based predictive maintenance systems can contribute to increasing the availability of military assets while reducing operational costs. Similarly, autonomous robotic solutions can perform hazardous tasks such as mine clearance or reconnaissance, reducing the risk to personnel.[21]

New technologies also offer benefits in terms of resource efficiency. The use of digital twins[22] and simulation systems can speed up selection enormously and offer a more cost-effective and flexible training solution than traditional training. An advanced simulation system can model different battlefield situations in which soldiers – even using their digital twins and AI to find the most effective solution by trying a virtually unlimited number of possible solutions – can practice reacting without risk, while AI adaptively shapes the simulation based on the behaviour of the users.[23] This not only makes training more realistic but also speeds up the learning process.

The integration of civil innovation and defence is also a significant opportunity. As the majority of EDTs are dual-use, it is imperative for the Hungarian Defence Forces to build close links with universities, research institutes, and technology companies.[24] This not only provides access to military developments but also contributes to the strengthening of the domestic defence industry.

The European Defence Fund, the European Defence Agency, the NATO Science and Technology Organization (STO), and the NATO DIANA program offer cooperation platforms that enable the Hungarian Defence Forces to be part of the international innovation ecosystem.[25]

Strengthening alliance interoperability is another strategic advantage. Technological cooperation with NATO and EU partners allows the Hungarian Defence Forces to access the latest developments while acquiring capabilities that are essential for effective participation

[20] Horowitz 2018; Cummings 2017.

[21] Scharre 2018; Kovács – Ember 2021.

[22] A digital twin is a virtual model that continuously reflects the state of a physical system, process, or device in real time. This model is not just a static replica, but a living, dynamic representation: it is constantly updated based on sensor data, measurement results, and other information related to the real object.

[23] Payne 2021.

[24] WEF 2020a.

[25] NATO 2022; European Commission 2021.

in joint operations.[26] This improves practical cooperation and enhances Hungary's strategic weight in alliance decision-making.

Finally, new technologies can help to increase resilience. In the field of cybersecurity, defence systems supported by artificial intelligence can respond instantly to threats, thus reducing the level of damage.[27] Advanced materials and nanotechnologies can be used to develop equipment that increases the protection not only of military assets but also of critical infrastructure.[28]

The introduction of new technologies can only be successful if the personnel of the Hungarian Defence Forces are able to manage and integrate them at a high level. Strengthening digital competencies and developing targeted training modules on cyber warfare and the military application of artificial intelligence are essential. Joint educational programs with NATO partners and the involvement of domestic higher education institutions will enable the Hungarian Defence Forces to have a cadre of officers and non-commissioned officers who can not only use but also develop and evaluate new technologies. The conscious training of human resources is thus a key pillar of technological development.

RESILIENCE AND CRITICAL INFRASTRUCTURE PROTECTION

One of the most defining characteristics of the modern security environment is the rise of hybrid threats that affect the military, economic, social, and information spheres simultaneously. In addition to military operations, there is a growing emphasis on attacks against critical infrastructure, not necessarily aimed at direct destruction, but at disrupting social stability and weakening national resilience. Resilience is the ability of a nation to withstand shocks, mitigate damage, and restore its basic functioning within a short timeframe in a crisis situation, be it military aggression, cyber-attack, energy disruption, or natural disaster.[29]

Therefore, for the Hungarian Defence Forces, law enforcement organisations, and cyber defence institutions, one of the key dimensions of technological development is resilience and critical infrastructure protection.[30] At the same time, the issue cannot be limited to the security sector: maintaining technological resilience is critical for the entire public administration system – both at governmental and municipal levels –, as well as for public service networks (energy, transport, water supply, health, and communications). It is a fundamental dimension of the national instruments of power, which can only be achieved through close cooperation among the military, government, and economic and social subsystems.

Critical infrastructures, such as energy networks, communication and data transmission systems, transport hubs, water supply, and health care systems, are particularly vulnerable in the age of digitalisation. Cyber and electronic warfare tools can be used to disrupt these systems at relatively low cost and with high efficiency, with consequences for the country's overall ability to function.[31]

Consequently, the Hungarian Defence Forces have a dual role: on the one hand, they must ensure the redundant and resilient operation of their own military systems, and on

[26] NATO 2021.
[27] Johnson 2020.
[28] Emerging and Disruptive Technologies 2023.
[29] NATO 2016.
[30] Szalkai 2025.
[31] WEF 2020a.

the other hand, they must participate in the protection of civilian critical infrastructures in cooperation with cyber defence organisations, government institutions, and public service organisations.

Emerging and disruptive technologies play a key role in increasing resilience. Artificial intelligence-based monitoring and decision support systems are capable of real-time data processing and rapid detection of anomalies, enabling critical infrastructures to detect attacks or failures sooner.[32] Quantum communications can provide unbreakable data transmission in the future, fundamentally enhancing the security of government, military, and public service communications.[33] Decentralised energy solutions and the use of microsystems reduce a country's dependence on central networks, mitigating vulnerabilities. In addition, redundant communication and supply networks built at multiple levels ensure that essential public services are maintained in the event of an attack or failure.

The federal dimension is also crucial. At the NATO Warsaw Summit in 2016, NATO declared resilience as a pillar of collective defence and made it mandatory for member states to protect critical infrastructure, ensure continuity of government operations and maintain essential supply capabilities.[34] For Hungary, this means that the Defence Forces must employ interoperable solutions and work closely with NATO partners, government agencies, and civilian service systems to ensure resilience, whether in the event of a cyber-attack, energy crisis, or disinformation operation.

The specificities of the domestic security environment make Hungary particularly vulnerable to energy imports, cyber-attacks, and information operations that undermine social cohesion.[35] Therefore, the Hungarian Defence Forces, cyber defence organisations, and public administrations should jointly focus on the following key tasks in increasing resilience: developing cyber defence capabilities and supporting civil sector protection; conducting regular critical infrastructure protection exercises; strengthening public information and protection against disinformation; and involving the defence industry, public administration, and the civil sector in the development of resilience technologies.[36]

In addition, there is a need for closer cooperation among the Hungarian Defence Forces, domestic national security services, the Counter Terrorism Centre, and other dedicated security and disaster management organisations. The complexity of the threats requires a multidisciplinary and inter-institutional response, which can only be ensured through concerted action by the entire national security and law enforcement community.

In sum, resilience and critical infrastructure protection are not only strategic elements of the technological development of the Hungarian Defence Forces but also the basis for the operational capability of the entire national security and public administration system. Military capabilities alone are not sufficient: they require a coordinated civil-military response, the involvement of public administration and public service providers, ensuring federal interoperability, and the conscious use of emerging and disruptive technologies. This is the only way to increase Hungary's resilience to the complex hybrid threats of the 21st century.

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32 Johnson 2019.
33 UNIDIR 2021b.
34 NATO 2016.
35 Hungary's National Security Strategy 2020.
36 Kovács-Gurály 2023.

RISKS AND THREATS

While emerging and disruptive technologies offer significant opportunities, they also carry equally significant risks. One of the most important risks is the rise of asymmetric threats. Low-cost, commercially available drones and other autonomous devices are already capable of wreaking serious havoc, as evidenced by the experience of conflicts in the Middle East and Ukraine.[37] Also, deepfake content produced by AI and coordinated disinformation campaigns can weaken social cohesion and undermine the legitimacy of political decision-making.[38] Attacks in cyberspace also pose a serious threat: they can be launched against critical infrastructure, military communication networks, and logistics systems, even in peacetime.[39]

Ethical and legal dilemmas are another challenge. Liability issues for the operation of autonomous weapons systems remain unsettled. If an AI-controlled system mistakenly attacks civilians, who is to take responsibility? This question fundamentally affects the applicability of the law of war and international humanitarian law.[40] Biotechnological developments also carry ethical risks, particularly in relation to the genetic modification and pharmacological performance enhancement of soldiers.[41] The current framework of international law has not kept pace with technological change, so regulatory gaps may be deliberately exploited by some states or non-state actors.[42]

The risk of technological lag is also a key factor. Hungary does not have the R&D capacities of the major powers, so there is a risk that the Hungarian Defence Forces will not be able to adapt the technologies already used by their alliance partners in time. This could not only cause interoperability problems but also lead to strategic vulnerability in the long term.[43] For example, in the field of quantum technology and cybersecurity, a single decade of lagging behind can cause a lasting disadvantage that is extremely difficult to catch up from.

Rapid technological progress in itself carries significant risks, as it can not only lead to accelerated obsolescence of devices and systems but also test economic sustainability.

The continuous adaptation of doctrines and deployment procedures places a heavy burden on decision-making. Additionally, slow procurement often means that by the time a new technology enters service, it already requires modernisation. This makes long-term planning particularly difficult and increases the risk that systems in service are already partially obsolete at the moment of introduction.

Moreover, many new devices and systems are being introduced in the experimental phase, when they are not yet fully mature, and may pose reliability problems.[44] The development of energy weapons and hypersonic systems, while promising, is costly and will take time to become widely deployed.[45]

37 Biddle – Zirkle 1996.
38 Johnson 2019.
39 Horowitz 2018.
40 Scharre 2018.
41 Payne 2021.
42 UNIDIR 2021b.
43 Sechser 2019.
44 WEF 2020b.
45 U.S. Department of Defense 2022.

In addition to autonomous weapons systems, quantum technology and biotechnology raise serious ethical and legal issues. The use of genetic modification for military purposes, military performance enhancement through pharmacological means,[46] and the role of artificial intelligence in decision-making are all areas where international regulation lags behind the pace of technological progress. A key issue for the Hungarian Defence Forces is to support the clarification of legislation in a federal framework and develop clear ethical guidelines for military applications.

Overall, the risks of EDTs for the Hungarian Defence Forces can be summarised in three main dimensions:

– the proliferation of asymmetric threats;
– the escalation of ethical and legal dilemmas;
– and the technological backlog and the difficulties of economic-organisational adaptation.

Together, these factors justify a conscious and forward-looking strategy for the Defence Forces to address the integration of new technologies, seeking both to exploit opportunities and mitigate risks.

STRATEGIC PROPOSALS, POSSIBLE DIRECTIONS FOR DEVELOPMENT

The integration of emerging and disruptive technologies can be successful for the Hungarian Defence Forces if it is implemented within a conscious strategic framework. One of the pillars of this is the institutionalisation of regular technology foresight and long-term trend monitoring, which allows for the timely identification and assessment of relevant trends.[47] However, proactive adaptation can only be successful if the Ministry of Defence works in close cooperation with the civilian sector, universities, and technology companies, as most dual-use technologies are originally developed by civilians. The European Defence Fund and NATO's DIANA program provide platforms for the Hungarian innovation ecosystem to engage in international collaborations, thus strengthening the long-term technological resilience and federal embeddedness of the Hungarian Defence Forces.

Another priority is to strengthen innovation partnerships with civil society. Cooperation with universities, research institutes, and technology companies is essential, as the majority of EDTs are initially civilian developments that later become dual-use.[48] The long-term development of the Hungarian defence industry depends on the ability of civilian digital, automation and robotics developments to be applied at the military level.

Pilot programs and pilot projects also play an important role. Field trials of new technologies on a small scale provide an opportunity for the Hungarian Defence Forces to test tools and systems in a real environment before they are widely deployed. This reduces risk while contributing to an innovation-friendly approach to military culture.[49]

[46] Payne 2021.
[47] OECD 2020.
[48] WEF 2020b.
[49] Payne 2021.

However, none of the strategic goals can be achieved without the development of human resources. The Hungarian Defence Forces must make military careers attractive to STEM-trained professionals and provide continuous training for existing personnel.[50] Of particular importance in this respect is the conscious development of the reserve system, which provides an opportunity to make researchers and engineers from the civilian sector available to the Defence Forces, albeit for a limited period of time.

This model ensures that professionals can keep their scientific and technological skills up to date in a civilian environment, while allowing their knowledge to be integrated into military systems and applied in a targeted way when needed.

Understanding the basics of digital competencies, cybersecurity skills, and artificial intelligence is key, as even the most advanced technology cannot be exploited without the right professionals.[51]

The Hungarian Defence Forces should adopt a 'smart user' approach, which means that they do not strive to be at the forefront of development in all areas, but consciously select technology segments where available resources can be most effectively utilised or which are essential for federal interoperability.[52] This selective but targeted strategy ensures that Hungary does not fall behind in key technologies, while realistically mitigating excessive resource strain.

SUMMARY

Emerging and disruptive technologies are the defining factors of 21st-century warfare and security policy. Artificial intelligence, quantum technology, robotics, biotechnology, advanced materials, energy weapons, space technology, and cyber warfare are all areas that have the potential to transform military capabilities in the short term.[53] At the same time, these technologies bring with them both opportunities and threats.

For the Hungarian Defence Forces, the greatest opportunities for integrating technological capabilities are to increase combat capability, enhance resilience, and ensure alliance interoperability. By adapting these innovations, the Defence Forces can acquire capabilities that will enable them to remain a relevant player in NATO and EU defence structures even as a small country force.[54]

At the same time, asymmetric threats, ethical and legal dilemmas, and the threat of technological backwardness pose a constant challenge.[55] These factors can only be addressed through a conscious, forward-looking strategy that draws on both the alliance framework and domestic innovation potential.

The key to success lies in proactive adaptation. Hungary needs to develop a strategy that integrates the benefits of international cooperation while strengthening the domestic defence industry and ensuring human resource readiness. States that are able to integrate EDTs into their military capabilities in a timely and deliberate manner will retain their

[50] Johnson 2019.
[51] Cummings 2017.
[52] Horowitz 2018.
[53] NATO 2021; UNIDIR 2021b.
[54] European Commission 2021; NATO 2022.
[55] Scharre 2018.

strategic relevance in the international security space in the long term.[56] For the Hungarian Defence Forces, therefore, the use of EDTs is not an option, but a key prerequisite for future-proof defence.

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[56] Biddle – Zirkle 1996; Horowitz 2018.

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THE GAMMA–JUHÁSZ PREDICTOR

Hungarian innovation abounds with great achievements. The period when the Gamma–Juhász predictor was constructed was far from ideal. At the same time, the rapid development of military aviation coerced responses to the aerial threats as well. The continuous development of the Gamma–Juhász predictor and its further modernization cycles were such responses. This was a constellation of creative energy, when the creative mind (István Juhász, the ingenious engineer), the defence industrial background (the Gamma Corporation, ahead of its time, and its creative spirit) and an unparalleled invention (the Gamma–Juhász predictor) came together to go down forever in the annals of the history of Hungarian military technology developments.

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Örs Vásárhelyi

THE ROLE OF INTEGRATED DATA SOURCES FOR ADVANCED MODELLING OF THE SPREAD OF HAZARDOUS SUBSTANCES

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ABSTRACT: *The number of industrial accidents in the developed world has been on a downward trend in recent decades, but the risk must still be considered. Therefore, modelling the atmospheric transport of hazardous substances is crucial to protect public health and the environment. Furthermore, it allows rapid and effective intervention in the event of an emergency, reducing the risk of negative health effects on the intervening personnel. In the 21st century, the availability of up-to-date information has become more valuable, and the development of information technology has created new opportunities for automated data collection and forecasting. This research aims to integrate a system providing real-time and predictive meteorological data with software for modelling the atmospheric dispersion of hazardous substances, which would increase the accuracy of modelling, reduce response times, and support decision-making processes around the incident.*

KEYWORDS: *disaster management, ALOHA, ESP32, meteorology, CBRN defence*

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INTRODUCTION

As the use and application of chemicals continue to grow, industrial accidents are likely to persist and their number may even increase due to key risk factors such as climate change, urban sprawl, and ageing industrial infrastructure. In parallel, maintaining current living standards and promoting sustainable development require the continued presence and advancement of the chemical industry, which forms the backbone of modern society. In the 21st century's information-driven world, the timely availability of reliable data is more crucial than ever, as information itself has become a key economic and social driver.

Industrial incidents involving hazardous substances not only pose direct health and environmental risks but can also lead to long-term socio-economic consequences. For this reason, the ability to accurately model the atmospheric dispersion of dangerous chemicals is of critical importance. Such models support rapid and informed decision-making during emergencies, allowing authorities to determine the most appropriate protective actions, such as evacuation or shelter-in-place measures, based on real-time risk assessments and the results of dispersion modelling. The integration of up-to-date meteorological data, including both real-time and forecasted conditions, significantly enhances the accuracy and usability of dispersion models, making them a vital component of effective disaster response and prevention strategies.

METHOD

The methodology of the research follows an applied, development-oriented approach based on four main pillars: document analysis, comparison of international practices, system development, and case study-based empirical validation. The author conducted a qualitative content analysis based on available documentation and information on US and European industrial security and propagation modelling tool systems. The study includes a comparative analysis of the principles of operation of a freely available US hazardous material spread modelling software and a comparative analysis of publicly available technical and policy documents of systems under the European Union's PESCO programme. This document analysis aimed to explore the potential for interoperability and the feasibility of decentralised, cost-effective solutions.

During the development phase, the author constructed a portable meteorological station based on an ESP32 microcontroller, capable of displaying real-time and predictive meteorological parameters and transmitting them in a format that free hazardous material atmospheric modelling software can process.

Following development, the author conducted a case study-based validation to test the system under different municipal scenarios and meteorological situations. The empirical testing aimed to demonstrate the applicability of the system to educational, decision support, and industrial safety practices. As part of the research, the author conducted a comparative literature analysis of artificial intelligence-based decision support systems, with a particular focus on the applicability of regression and deep learning models to population protection.

INTERNATIONAL PRACTICE IN THE INDUSTRIAL SAFETY REGULATORY ENVIRONMENT

This section examines industrial safety regulations in developed countries, with a focus on the United States of America and the member states of the European Union. In these regions, the prevention and management of industrial accidents is a high priority, yet despite a strict regulatory environment, hundreds of incidents occur each year, many of which have negative consequences, both environmentally and socially.

The European Union, as well as the United States, is paying particular attention to the safety of industrial facilities and their processes. In EU member states, hazardous substance plants are currently regulated by the SEVESO III Directive, which has been transposed into each member state's national legislation. Thanks to the Seveso Directives, the number of major industrial accidents has fallen significantly over the last two decades. According to statistics from the eMARS (electric Major Accident Reporting System), there are fewer than 30 major accidents per year in the EU. eMARS is a database operated by the European Commission that has been collecting data on major industrial accidents and near misses from EU member states and other participating countries since 1982.

In the EU, facilities dealing with dangerous substances are categorised into lower and upper tier establishments, depending on the quantity and type of dangerous substances they handle, store, or produce.

The United States has a safety framework like the Seveso Directive, called the Risk Management Program (RMP). The RMP is designed to reduce the number of major chemical accidents and to ensure that companies have adequate risk assessment, preventive measures,

and emergency plans in place. More than 12,000 high-risk establishments are covered by the RMP, similarly to the approximately 12,000 establishments covered by the EU Seveso Directive.

Every five years, regulated establishments are required to identify and report accidents with reportable impacts that have occurred in the previous five years. Reportable impacts include on-site deaths, injuries, and property damage, as well as off-site deaths, hospitalisations, persons requiring medical treatment, the number of evacuees, the number of persons sheltered-in-place, and finally, off-site property and environmental damage.

In the U.S., the U.S. Environmental Protection Agency (EPA) is responsible for supervising the establishments. According to a 2023 study by the National Center for Environmental Economics, an average of 202 accidents per year occurred between 2004 and 2019, with 66.8% of these accidents (i.e., about 135 per year) involving hazardous gases. Over the 15 years covered by the study, nearly a quarter of the accidents had a negative off-site impact.[1]

Hungary has set stricter requirements than the Seveso Directive. The Hungarian legislation requires not only lower and upper-tier hazardous establishments to prepare safety documentation, reports, and prevention measures, but also establishments below the lower tier, which are often exempted from safety requirements in other member states. The criterion for this category is that these establishments must have at least a quarter of the quantity of dangerous substances found in lower-tier establishments. This stricter approach will contribute to a more transparent and comprehensive management of risks in this area, as well as to a higher level of protection for the population and the environment.

Operators must ensure that they have an internal emergency plan and a major hazard emergency response plan (called SKET) for facilities under the lower tier. The Hungarian Government Decree 219/2011 (X.20.) on the internal protection plan for the protection against major accidental effects of dangerous substances defines the tasks related to the protection against major accidental effects of dangerous substances, which include detection and chemical detection planning.

According to the guidance issued by the Hungarian National Directorate General for Disaster Management,[2] the detection and calculation of the spread of chemicals are necessary primarily in the event of a major accident or malfunction involving hazardous substances, especially if toxic or flammable substances, like ammonia, are released into the environment. In such cases, on-site responders, such as designated organisational workers, plant or professional firefighters, carry out a reconnaissance to identify the location, intensity, and equipment involved. Where there is a risk that the chemical release could reach an inhabited area outside the plant, atmospheric dispersion modelling, taking into account the current meteorological conditions, becomes essential. Based on the model's results, informed decisions can be made to protect civilians.

TOOLS FOR THE DETECTION OF INDUSTRIAL ACCIDENTS

It should be noted that CBRN risks can occur not only as a consequence of industrial accidents but also through intentional human actions. This includes, for example, acts of terrorism and sabotage, which can deliberately create CBRN hazards.[3] In the event of a release of

1 Guignet et al. 2023, 5–8.
2 Mesics et al. 2018.
3 Dobor et al. 2024.

hazardous substances into the atmosphere, first responders in the United States and European Union member states use a variety of tools and techniques for detection and risk assessment. Responders and authorities in this region combine these tools and techniques to quickly and efficiently detect atmospheric releases of hazardous substances and take appropriate protective measures, while protecting the health and lives of first responders.

The U.S. EPA and other federal agencies use a variety of tools and technologies to detect and model atmospheric releases of hazardous substances, including:

ASPECT (Airborne Spectral Photometric Environmental Collection Technology) is EPA's unique aircraft-mounted system that can detect hazardous chemicals and radiological agents in real time, as well as function as an infrared and aerial imaging platform. It consists of sensors and software, mounted in a single-engine turboprop aircraft. It can provide scientifically-evaluated data in up to five minutes, including in a map format. It can start collecting data anywhere in the US within nine hours, making it a key tool for rapid detection of industrial accidents and emergencies.

The National Atmospheric Release Advisory Center (NARAC) is an advanced modelling centre that develops and operates a system for running atmospheric dispersion models at different scales (from local to global) to predict the effects of chemical, biological, and radiological releases. NARAC Modelling System is a closed, government-wide system developed and operated by the U.S. Lawrence Livermore National Laboratory (LLNL) for government and emergency response organisations. The system integrates real-time meteorological data, geographic and population databases, and health risk values (e.g., dose conversion factors, protection levels). Key features include weather forecasting, flexible spatial resolution, deposition and precipitation modelling, and even specific algorithms to simulate, for example, explosions or nuclear detonations.[4]

The European Union does not currently have a centralised system such as NARAC, but there are several regionally based systems to manage CBRN risks and support emergency response. In order to bridge these gaps, a comprehensive development has been launched within the European Union's Framework for Defence Cooperation (Permanent Structured Cooperation, PESCO) to create a single, modular, scalable, and flexible CBRN detection system. This system, known as CBRN SaaS (Surveillance as a Service), will provide CBRN surveillance and data collection capabilities as a service for operations, inside and outside the EU. The project is led by Austria, and Hungary is actively involved in its development. The primary objective of the system is to provide real-time situational awareness in a CBRN incident, including detection, sampling, and analytical processing. The resulting data will support common situation assessment and decision-making at the European level.[5]

In parallel, the EUROSIM project, which focuses specifically on training and simulation capacity building, aims to establish a common European simulation centre in Hungary, where the military, law enforcement, health, and cybersecurity organisations, and NGOs can jointly exercise crisis management. EUROSIM's IT system is based on a cloud-based infrastructure, complemented by edge computing, which distributes computing tasks between local computers (edge nodes) and the central cloud. This provides faster response times and lower latency, which is key for simulations.[6]

[4] Lawrence Livermore National Laboratory, [no year].
[5] European Defence Agency [no year].
[6] Ibid.

The EuroSIM system is based on the MSaaS (Modelling and Simulation as a Service) principle. The modelling and simulation capabilities are available to users as a service. The system operates with "mesh" functionality, i.e., national centres can communicate directly with each other, independent of a central server, thus providing high fault tolerance and reliability. The EuroSIM CBRN system is able to automatically collect, process, and interpret meteorological data, sensor data, space-based observation data, and GIS layers, such as population density. A key component of the EUROSIM system is the UrbanAware module, which specifically models and simulates CBRN hazards in urban environments.[7] The module can predict the spread of hazardous materials, designate protection zones, and provide real-time decision support to both responders through their mobile applications and command points at workstations. The system can be deployed globally as a cloud-based service or installed on-site.[8]

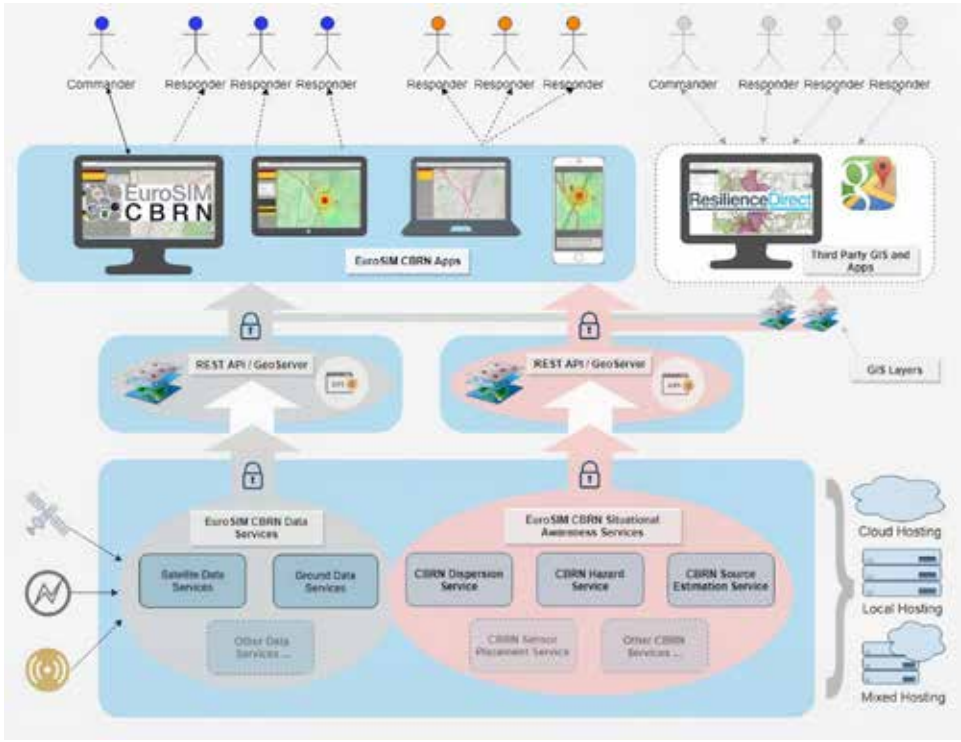

Figure 1 *High-level architecture of the system*

Source: *https://business.esa.int/projects/european-space-based-information-management-system-for-cbrn-eurosim-cbrn*

[7] ESA [no year].

[8] Riskaware [no year].

DEVELOPMENT OF OPEN-SOURCE MODELLING SOFTWARE

In selecting a modelling tool for the present research, a key consideration was the accessibility of the software to a broad professional and educational audience. While the Hungarian Defence Forces and the National Directorate General for Disaster Management employ advanced, validated, and multi-parameter consequence analysis systems, these are classified and not available for public or research use. Therefore, a direct comparison could not be undertaken, nor would it be permissible to disclose technical details in a scientific publication. For this reason, the ALOHA® (Areal Locations of Hazardous Atmospheres) software, developed by the United States EPA and the National Oceanic and Atmospheric Administration (NOAA), was chosen as the subject of this study. Although ALOHA is not the most advanced dispersion modelling tool available, it is free, internationally recognised, and characterised by low computational requirements, so it is deployable on a wide range of devices. The scientific novelty of the present work lies in demonstrating that established, decades-old software can be "modernised" through integration with contemporary microcontroller-based hardware, in this case, an ESP32-based portable meteorological station, thereby extending its functionality and improving its usability in a cost-effective and portable form. The software also has some limitations.[9] It basically uses two mathematical models to calculate the propagation: the Gaussian pulse model and the heavy gas model (Dense Gas Dispersion, DEGADIS).

The Gaussian pulse model is great for fast calculations and gives a good approximation for stable atmospheric motions. However, it is only good for stationary, homogeneous wind conditions on flat terrain, so the changing topography of urban environments is not taken into account. The model does not apply to explosive, pulse-like leaks. The DEGADIS model accounts for the propagation of heavy gases, the ALOHA software switches automatically if a heavier-than-air material is selected, but it takes a one-dimensional approach and does not account for time-dependent meteorological variations. The accuracy of DEGADIS is significantly reduced if the terrain is not smooth. An important limitation of both models is that ALOHA calculates up to a maximum of 10 km, which is not sufficient for large emissions. In addition, neither the Gaussian nor the DEGADIS model takes into account chemical reactions, temperature effects, soil moisture, radiative forcing, or explosive releases, which may cause discrepancies.[10]

A portable weather station (Station for Atmospheric Measurements, SAM) can be connected to the software to avoid manual data entry and to load the most accurate and up-to-date weather parameters. The primary objective of the author's research was to improve the preventive-detective capability of the ALOHA software by creating a digital SAM station that can provide forecast meteorological data in addition to current data, thus allowing a longer security incident to be better tracked and to produce propagation models of several future times at a single point in time. Finally, the software will have enhanced functionality.

The author used an ESP32 energy-efficient microcontroller as a "digital SAM station". The external portable physical device needs to be platform-independent. Another advantage of the ESP32 is that it is a very cost-effective solution, with Wi-Fi and Bluetooth capabilities. The device is programmed using the Arduino integrated development environment

[9] Office of Response and Restoration, NOAA [no year].

[10] U.S Environmental Protection Agency – National Oceanic and Atmospheric Administration 2007.

(IDE), which provides a programming environment optimised for microcontrollers based on the C++ language syntax.

In programming the ESP32, the author has taken into account a document published by the NOAA Emergency Response Division Office of Response and Restoration on portable weather station designing.[11] The purpose of the document is to define design guidelines for portable weather stations that can provide structured meteorological data for propagation modelling. Recommendations in the document include details on the required weather parameters, the format of data recording, and the characteristics of serial communication protocols. Based on this document, the author specified the baud rate, the data structure, and the minimum meteorological variables that the ESP32 had to provide to the ALOHA software.

In terms of the basic functionality of the tool, ESP32 runs an embedded web server, which allows the user to select a location and whether to retrieve current or forecast meteorological data by accessing a predefined local IP address via a web browser and using a graphical

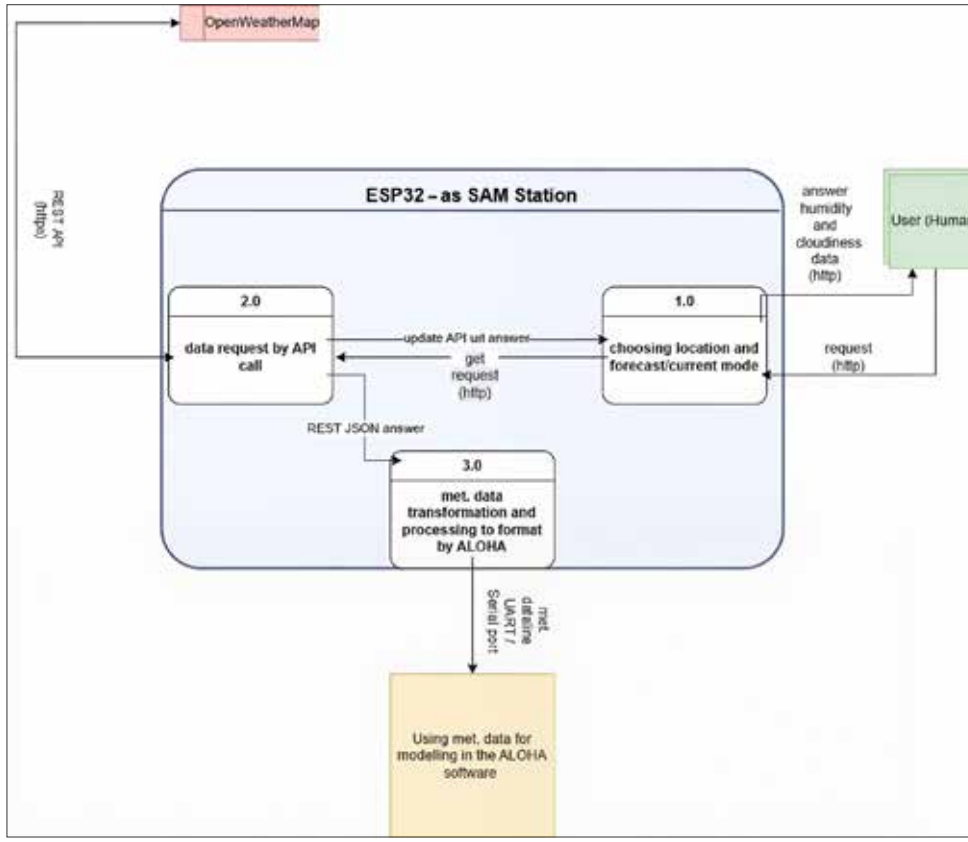

Figure 2 *"Digital SAM Station" operational processes*
Source: *author*

[11] Emergency Response Division, Office of Response and Restoration, National Oceanic and Atmospheric Administration 2011.

interface. ESP32 makes an API call to the meteorological data provider based on the selected parameters, using the APIs of openweathermap.org, which are received in JavaScript Object Notation (JSON) format. Finally, this data is transmitted to the software in a format that can be processed by ALOHA, which perceives it as if it were receiving data from a physical portable weather station via a serial port.

For successful operation, the author had to specify certain constants in the data set to be sent to the software, such as the device's battery voltage level and device ID, which are created data. Care had to be taken to ensure that the serial data rate was set correctly, which, for ALOHA, had to be set to 1200, and the number of bits was 8.

Furthermore, the tool also calculates the wind direction scatter; the wind direction is cyclic, so instead of using traditional scattering formulas, a method like Yamartino's was incorporated into the code line. This formula yields a deviation of +/– 2% in the worst case, which is very good accuracy for a simple and fast-to-calculate approximation.

Yamartino's method is as follows: $S = \frac{1}{N}\sum_{i=1}^{N} sin\theta i$; $C = \frac{1}{N}\sum_{i=1}^{N} cos\theta i$

$\sigma_\theta = arcsin\left(\varepsilon\right)\left[1 + \left(\frac{2}{\sqrt{3}} - 1\right)\varepsilon^3\right]$ where $\varepsilon = \sqrt{1 - (S^2 + C^2)}$

$\frac{2}{\sqrt{3}} - 1 = 0.1547$[12]

USAGE OF THE SYSTEM

The following section presents a fictional demonstration scenario to illustrate the operational workflow of the developed ESP32-based meteorological data acquisition system, integrated with the ALOHA® dispersion modelling software. The scenario is purely illustrative and does not represent an actual incident.

The scenario

A fictional chemical plant located along Soroksári Road in Budapest utilises liquefied sulfur dioxide (SO_2) as a feedstock in sulfuric acid production. The plant stores SO_2 in horizontal cylindrical steel pressure vessels positioned outdoors.

One such tank, with a capacity of 25 m³ (approximately 50 tonnes of liquefied SO_2), operating at around 3 bars under ambient temperature, suffers a gasket failure at a flange connection. This defect results in a continuous vapour release, lasting approximately 60 minutes. Part of the liquefied SO_2 escapes onto the concrete-based ground, forming a shallow pool (approx. 200 m² surface area, 0.02 m depth) that continues to evaporate after the primary release ends.

To demonstrate the added value of predictive meteorological data integration, two dispersion modelling runs are performed:

– Run 1: Current meteorological data at 22:35 (local time), with the primary source modelled as a vertical cylindrical tank leak.
– Run 2: +3-hour forecast meteorology, with the primary source modelled as an evaporating puddle, representing the secondary phase of the incident.

[12] Yamartino 1984.

Finally, a comparison will be presented illustrating how evolving wind direction and stability conditions can significantly alter the predicted hazard zones during an extended incident, and how forecast-enabled modelling supports proactive evacuation planning, responder positioning, and public protection measures.

Given that sulfur dioxide has a molecular weight approximately twice that of air, the ALOHA software automatically applies the DEGADIS dense gas dispersion model for this scenario, which more accurately represents the ground-hugging behaviour of heavier-than-air gas clouds.

System connection and data retrieval

When initiating the operation of the integrated system, the user first connects the ESP32-based meteorological station to a laptop's or desktop computer's USB port. The operating system automatically recognises the device and establishes a serial communication link via the assigned COM port. This allows users to run the ALOHA software in parallel.

The next step is to access the device's configuration interface by opening a standard web browser and entering the local IP address of the ESP32 into the browser's address bar. This launches the embedded web interface hosted by the microcontroller, allowing the operator to select the desired target location and the preferred meteorological data mode (Current or Forecast).

The user interface has been designed with simplicity and transparency in mind, so as not to disproportionately overload the ESP32's computing power.

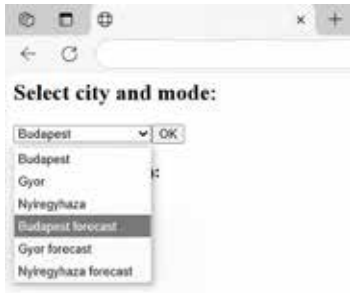

Figure 3 *User web interface drop-down list*
Source: *author*

Clear feedback is displayed in the user interface as soon as the user selects the desired settlement and the type of data request (current or forecast mode) from the drop-down menu. As the ALOHA software requires manual input of relative humidity and cloudiness values when using SAM Station, the frontend, powered by ESP32, automatically displays these values to the user, extracted directly from the API call response. This feature significantly speeds up the data entry process and reduces the possibility of errors.

In this research, the Forecast mode used is 3-hourly meteorological predictions for demonstration purposes, but the API also allows flexible adjustment of the forecast interval, enabling retrieval of shorter or longer time horizons, as needed. Multiple prediction modes can be set up in parallel for different scenarios. The ESP32 firmware also calculates a 5-minute moving average of the current meteorological parameters and updates its average data array with each new API query to provide stable, representative input values for ALOHA.

Results and visualisation in Google Earth Pro

Google Earth Pro was used to visualise the AEGL-based hazard zones generated by ALOHA as KML files. This platform enables georeferenced, high-resolution mapping of threat zones over real-world terrain and infrastructure, improving situational awareness for decision-makers. It also allows overlaying multiple scenarios (e.g., current vs. forecast meteorology) to directly compare plume behaviour under different conditions, which is valuable for both operational planning and training. In the ALOHA threat zone outputs, the wind direction confidence lines represent the directional uncertainty of the plume axis based on the variability in measured wind direction during the modelling period. In the present scenario, these lines are shown only for the longest threat zone, corresponding to the AEGL-1 (0.2 ppm) level, and indicate the possible lateral deviation of the hazard footprint. While they are not an additional threat zone, such indicators can be valuable in public protection planning.

Run 1: AEGL-based threat zones for SO_2 release from a fictional Soroksári Road industrial facility, modelled with current meteorological data (22:35). The plume extends west-northwest, with AEGL-1 reaching the sideline of Budaörs. The simulated release originated from a 2 cm diameter hole located at 55% of the tank height, resulting in a continuous vapour discharge for approximately 60 minutes.

Figure 4 *SO_2 tank release, which was modelled with current meteorological data*
Source: *author*

Run 2: The next figure is about the SO_2 puddle evaporation release from the same fictional facility, modelled with forecast meteorological data. The hazard footprint is broader due to different wind directions, temperature, and stability conditions. In the puddle evaporation scenario, the hazard footprint shifted northward compared to the initial tank release. This displacement reflects the influence of the forecasted change in wind direction.

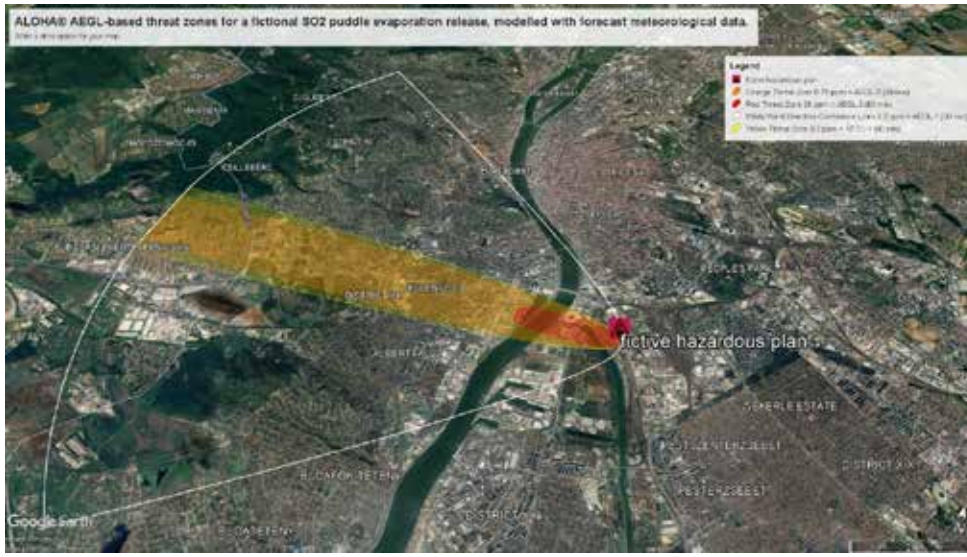

Figure 5 *Puddle evaporation with forecast meteorological data*
Source: *author*

How does the dispersion change if the same event occurs three hours later?
Compare AEGL-based threat zones for SO_2 release from a fictional Soroksári Road industrial facility, showing the effect of incident timing. The lower plume represents the dispersion modelled with current meteorological data (22:35), while the upper plume shows the same release parameters applied to an incident occurring three hours later, using forecast meteorology. The forecast scenario results in a northward-shifted hazard footprint, altering the potentially affected population and infrastructure. Notably, the AEGL-3 (red) threat zone in the forecast-based run extends by approximately 100 metres beyond the length calculated for the current meteorology scenario, and both the AEGL-2 (orange) and AEGL-1 (yellow) zones fully reach the built-up areas of Budaörs.

These visualisations demonstrate that forecast-enabled modelling can anticipate hazard shifts during prolonged or delayed incidents, enabling proactive evacuation planning, responder positioning, and public protection measures. Furthermore, integrating predictive meteorological data into dispersion modelling allows decision-makers to assess multiple potential incident timelines, compare their respective impacts, and optimise resource allocation. Even the use of a freely available, less complex modelling tool, such as ALOHA, is supported by the developed ESP32-based meteorological data integration system.

APPLICATION POSSIBILITIES

The development will primarily support educational applications, such as firefighting training, disaster management, or chemical workplace training, to demonstrate the potential for real-time or future applications of meteorological data. The system provides participants with the opportunity to experience how the dispersion characteristics of hazardous substances change under different weather conditions, using real-time and forecast meteorological data.

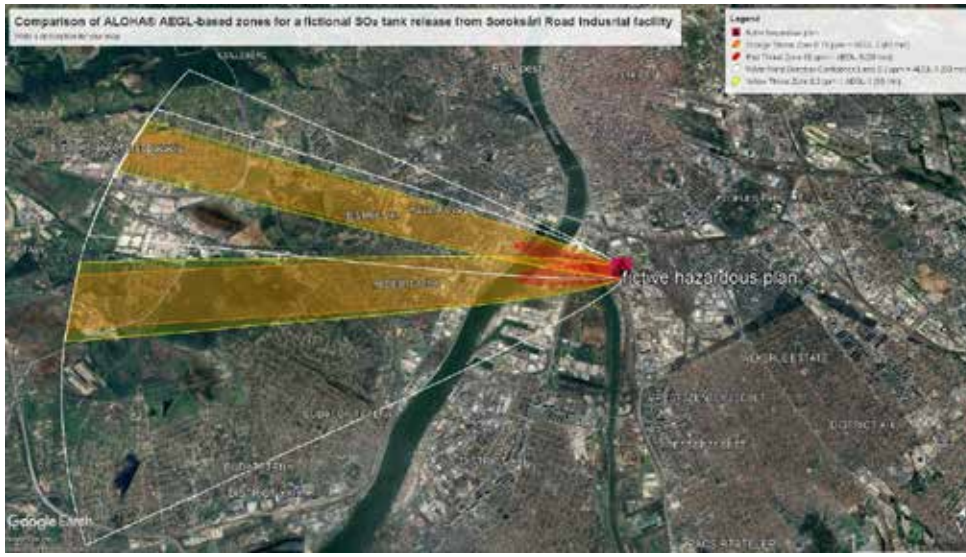

Figure 6 *Comparison of the same event, but with a different type of meteorological data*
Source: *author*

This aligns with recent disaster management research, emphasising the importance of integrating international and national best practices, technical innovations, and applied research findings into industrial safety education and capability development, in order to effectively reduce the risks associated with hazardous activities.[13]

A further use could be as a secondary, back-up system in addition to the primary system for professional intervention staff if, for some reason, the main system is not operational. It can even be used in smaller industrial organisations to simulate rescue exercises or to support the management of industrial accidents. Alternatively, it can provide a low-cost and easy-to-use solution for the operation of industrial facilities in third countries, as well as for disaster management, industrial safety authorities, and CBRN defence training or joint civil–military exercises. It should be emphasised that the ALOHA software, even with the proposed hardware integration, does not replace the high-precision, multi-variable hazardous substance dispersion modelling and analysis systems currently in operational use by the Hungarian Defence Forces and professional disaster management organisations.

In summary, this development adds additional functionality to the existing software, allowing the modelling of virtually any municipality with real meteorological or forecast data in the most cost-effective way possible. This can greatly assist decision-making, especially in the case of a prolonged release of a hazardous substance. The value of this research lies in its demonstration of a practical, low-cost enhancement to a legacy modelling tool, showing that real-time and forecast meteorological data integration can be achieved with readily available technology, thereby broadening the range of contexts in which such modelling can be applied.

[13] Vass et al. 2024.

FURTHER DEVELOPMENT OPPORTUNITIES

With the rise of advanced technologies, the use of artificial intelligence (AI) in environmental safety and emergency management is becoming increasingly important. The author of this paper, therefore, proposes the introduction of AI-based approaches that can facilitate predictive modelling of the spread of hazardous substances. Due to the working conditions of the disaster management response team, the author proposes a portable yet affordable device with higher computational power, such as the Raspberry Pi 5. This hardware family is also capable of running simpler supervised learning algorithms, such as regression models. The training process should preferably be performed on a system with higher computing power or in a cloud environment. In contrast, inference, i.e., model application, can be performed on the Raspberry Pi platform. The machine learning frameworks supported by Raspberry Pi, such as TensorFlow Lite, ONNX Runtime, or PyTorch Mobile, allow running optimised models in resource-constrained environments.[14]

The aim of the further development is to create a predictive system that is capable of interpreting the .kml-format propagation maps or .jpg dispersion images and meteorological inputs generated by ALOHA to formulate recommendations for protection zones and population protection measures. The concept of such systems is in line with state-of-the-art air pollution prediction models used in industrial and urban environments, where prediction is based on sensor data and meteorological information. CNN-LSTM architectures combining convolutional and recurrent neural networks are particularly promising for the joint treatment of spatial and temporal patterns, as they are able to handle both the complexity of spatial features (e.g., propagation maps) and the temporal dynamics of meteorological variables. Several studies confirm that such hybrid solutions provide explicitly high forecast accuracy for environmental systems, such as air quality prediction.[15] However, simpler regression models, such as Random Forest, can also be used to make estimations from actual meteorological data. These algorithms can be particularly advantageous on low-resource devices due to their faster learnability and lower computational requirements. Some studies have pointed out that in estimating certain environmental parameters, the random forest machine learning technique gives surprisingly accurate results, outperforming linear regression or SVM (Support Vector Machine) models.[16] However, the prediction accuracy of these machine learning techniques, especially when predicting temporal changes, is generally lower than the deep-mesh approach due to their inability to model temporal or spatio-temporal patterns efficiently. Therefore, CNN-LSTM models provide higher predictive performance for long-term forecasting tasks, while conventional models may be more suitable for rapid decision support and scenario-based analysis.

The further development of the system should also take into account population density-based estimation possibilities, as population protection measures must consider the number of affected people. The .kml files generated by ALOHA allow the geographical extent of the hazard zones to be determined at the coordinate level, and the system may be able to associate population density data with them. Population estimation can be based on a single, representative coordinate, such as the centroid of the zone, or on several randomly

[14] Tigadi – Rodrigues 2023.
[15] Bekkar et al. 2021.
[16] Meenal et al. 2021.

selected points, which can be structured using geohash-based spatial gridding. The aggregation (averaging or maximising) of the population density values that can be retrieved for the points thus defined can provide an estimate of the number of inhabitants in the danger zone.[17]

Population density data are available through various open-source Web APIs. These data sources are mostly based on official census data, disaggregated by satellite, land use, and light intensity data, and are available at a resolution of up to 30×30 m. The interpretation and use of population density based on AI to estimate the affected population of a given zone (polygon), for example, a hazard zone, is also not a new research direction. Previous studies have successfully used Random Forest[18] and deep learning models[19] to estimate the spatial distribution of permanent resident populations, typically from satellite imagery or remote sensing data. These approaches can also be adapted to decision-support systems where population density data provide an estimate of the population size that may be affected by a given hazard zone.

It is important to underline that such systems can only serve a decision-support function and that the final decision must always be taken by a human expert. Human validation ensures that the machine forecasts and recommendations are interpreted in the light of local specificities, operational options, and social context. This is particularly important in cases where the proposed measures have a direct impact on the safety and living conditions of the population.

CONCLUSION

Although the incidence of industrial accidents is decreasing in developed countries, they still pose a serious risk to the population, the health of first responders, and the environment. Appropriate protection measures are essential, supported by accurate modelling of the atmospheric dispersion of hazardous substances. The principal scientific contribution of this work is the functional enhancement of an established, widely used, but technically limited dispersion modelling software tool through the integration of a portable ESP32-based meteorological station capable of supplying both real-time and forecast data. This development demonstrates that even legacy software, originally designed in the 1980s, can be effectively adapted to meet modern information technology trends and operational needs. By enabling direct input of predictive meteorological parameters, the system can provide decision support not only under current conditions but also for anticipated changes in atmospheric variables during an incident.

While the system cannot match the accuracy and complexity of classified national consequence modelling and analysis tools, its portability, low cost, and open accessibility make it a valuable supplementary secondary asset for professional responders, a practical tool for operators of hazardous plants, and an effective platform for training purposes, such as simulation exercises. In addition, the architecture is adaptable for further development, so the research also suggests future directions for improvement, including the integration of machine learning models that could further increase the accuracy of predictions and the decision-support potential of the system.

[17] Troy 2008.
[18] Stevens et al. 2015.
[19] Doupe et al. 2016.

Overall, the presented development offers an easily adaptable, practice-oriented approach for modern, real-time, and forecast data modelling of hazardous substance dispersion, illustrating how accessible technologies can extend the usability of legacy modelling tools in contemporary operational contexts.

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Attila Novák, Zoltán Tibor Lantos, Csaba Nyakas

EPIDEMIOLOGICAL TRENDS, OBESITY, AND METABOLIC RISKS AFFECTING MILITARY READINESS AND TRAINING SYSTEMS – AN INTERNATIONAL PERSPECTIVE

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ABSTRACT: *Obesity and metabolic risk factors represent a growing challenge to military readiness worldwide, imposing a substantial burden on personnel health, training capacity, and operational capability. This study examines epidemiological data from France, Germany, Poland, the United Kingdom and global meta-analyses, highlighting prevalence rates of overweight and obesity, as well as cardiovascular and metabolic syndrome risks in military populations. Findings reveal that between 45.7 and 67.7% of servicemembers are overweight or obese, with 21–44% showing moderate to high cardiometabolic risk, often influenced by rank, unit type, and lifestyle factors. These conditions reduce fitness, increase injury and illness rates, and may accelerate attrition. The analysis underlines the urgent need for targeted prevention, structured lifestyle interventions, and integrated health monitoring to maintain a deployable force and to support training personnel.*

KEYWORDS: *military health, obesity, metabolic risk, readiness, training challenges*

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INTRODUCTION

Background and Problem Statement

Obesity and metabolic risk factors – such as hypertension, dyslipidaemia, insulin resistance, and metabolic syndrome – represent one of the most severe public health challenges of our time. According to the World Health Organization (WHO), more than one billion people worldwide were obese in 2022, and the prevalence is rising sharply in both developed and developing countries. Overweight and obesity not only increase the risk of chronic diseases, such as type 2 diabetes, cardiovascular disease, and musculoskeletal disorders, but also reduce productivity and quality of life among the working-age population.

For military organisations, the problem is of particular concern since physical fitness is one of the most essential prerequisites for operational readiness. General John M. Shalikashvili,[1] former Chairman of the U.S. Joint Chiefs of Staff, described obesity as a new national security threat in an interview with *The Washington Post*.[2] Declining physical performance, an increased susceptibility to injuries, and higher rates of sick leave associated with obesity and the metabolic syndrome directly undermine the operational capabilities of armed forces. In the United States, obesity imposes a particularly heavy burden on the military health system: obesity-related conditions are estimated to account for USD 1.1 billion in annual costs and approximately 658,000 lost duty days per year.[3] While the U.S. situation is well documented, similar trends are being increasingly reported in European armed forces as well.

Military Specificities

The health status of military personnel differs in several respects from that of the civilian population. Soldiers generally represent a younger and physically fitter cohort; however, military service itself exposes them to unique risk factors. Psychological stress, irregular sleep, lifestyle changes associated with overseas deployments, and dietary habits frequently exacerbate the risk of metabolic disorders. Military training and operational duties demand regular high-intensity physical exertion, which overweight and metabolically compromised soldiers can only meet to a limited extent. This creates additional challenges for training personnel, who are compelled to design differentiated, individualised training programmes to ensure that the minimum fitness standard required for deployability is met by all servicemembers.

Research Objectives

The aim of this study is to provide an overview, based on international literature, of the prevalence of obesity, overweight, and metabolic risk factors in military populations, with a particular focus on their impact on operational readiness and the effectiveness of training. The analysis draws on data from the United States, France, Germany, Poland, the United Kingdom, as well as global meta-analyses, since these forces have recently conducted large-scale epidemiological surveys. By comparing these data, the study seeks to identify common patterns and national specificities and to formulate recommendations for prevention and health promotion in the military context.

Methodological Approach

This study is based on a combined qualitative and quantitative literature review, analysing peer-reviewed publications indexed in scientific databases such as PubMed, Scopus, and Web of Science between 2018 and 2024. Special emphasis was placed on epidemiological investigations, as well as reports issued by NATO and national defence organisations. The analysis compares the prevalence of overweight, obesity, and metabolic syndrome and interprets the

[1] John M. Shalikashvili (June 27, 1936–July 23, 2011) was a United States Army general who served as Chairman of the Joint Chiefs of Staff from October 1993 to September 1997.

[2] Shalikashvili 2010.

[3] Dall 2007.

findings in terms of readiness and training dimensions. Finally, both short-term and long-term intervention strategies are proposed.

INTERNATIONAL EPIDEMIOLOGICAL OVERVIEW

United States

According to the U.S. Department of Defense, obesity is among the leading causes of disqualification from military service, accounting for more than 650,000 lost duty days annually and imposing considerable additional costs.[4] Data recently released by the U.S. Air Force show a dramatic rise in obesity rates during the COVID-19 pandemic: from approximately 18% prior to the pandemic to 26.9% in its later stages – a relative increase of 44.1%. Similar upward trends have been observed across the Navy, Army, and Marine Corps.[5]

The implications of obesity and metabolic risk factors for military readiness are multifaceted.

With respect to recruitment, fitness for duty, and retention, obesity constitutes a critical barrier: obese individuals demonstrate lower readiness levels and are more frequently discharged prematurely. In the U.S. National Guard and Reserve components, weight gain and obesity particularly undermine recruitment, retention, and deployability, with weight-related medical conditions frequently leading to exclusion or termination of service.[6]

France

The health status of French Armed Forces personnel has been examined in several large-scale surveys in recent years. A study published in 2024, encompassing more than 17,000 servicemembers, reported that 36.1% were overweight and 9.6% obese according to WHO Body Mass Index (BMI) criteria.[7] Overweight and obesity were more prevalent among non-commissioned officers and members of the Gendarmerie, while officers demonstrated somewhat lower prevalence rates. Male soldiers showed significantly higher mean BMI values than females. Notably, obesity risk was lower among soldiers than in the civilian population, and the socio-economic background appeared to play a lesser role.

An earlier study (2016–2017), based on 1,589 participants, yielded similar findings: 38.7% overweight and 10% obese.[8] The study demonstrated that the prevalence of obesity increases with age and is associated with higher rank and longer service duration. While French soldiers overall present a lower cardiometabolic risk profile than civilians, the data clearly indicate concerning trends from the perspective of operational readiness.

4 American Security Project 2025.
5 Merfeld et al. 2025.
6 American Security Project 2025.
7 Mannaioni et al. 2024.
8 Quertier et al. 2022.

Germany

Epidemiological analyses of the Bundeswehr also reveal significant risks. A large-scale study published in 2024, involving 43,214 servicemembers, found that 18% were obese. When BMI was combined with waist circumference, 44.4% of personnel were classified as having moderate to high cardiometabolic risk.[9] Male soldiers and officers exhibited higher rates of obesity, whereas combat unit personnel displayed more favourable outcomes compared with those in non-combat assignments.

Another study in 2023 highlighted that service duration correlates with BMI increase: the longer a soldier remains in service, the greater the likelihood of becoming overweight or obese.[10] This trend is particularly concerning given that experienced personnel play a critical role in training and leadership.

Poland

A survey conducted between 2018 and 2020 with 1,229 Polish soldiers revealed that 33% had normal weight, 49.7% were overweight, and 17.3% were obese.[11] The prevalence of metabolic syndrome was reported in 8.5%. The study found that obesity was closely associated with irregular sleep, stress-induced overeating, low levels of physical activity, and excessive screen time.

These findings indicate that in addition to physical demands, the psychosocial environment of military service also represents a significant risk factor. Polish researchers emphasised that metabolic risk prevalence was higher among soldiers with longer service duration, corroborating the German findings regarding the cumulative impact of years in service.

United Kingdom

In the UK Armed Forces, overweight and obesity represent major health challenges. Available epidemiological data indicate that approximately 56% of personnel are overweight (BMI 25–29.9) and 12% are obese (BMI ≥30). Taken together, nearly two-thirds (68%) of British servicemembers are at increased cardiometabolic risk based on BMI.[12]

The situation is particularly concerning among older age groups and personnel in supporting or logistics roles, where physical demands are lower. In contrast, high BMI poses training challenges among new recruits, with reports from recruitment centres highlighting that a proportion of enlistees require remedial physical training or drop out of programmes prematurely.[13]

This structural problem necessitates targeted interventions, as UK military readiness, similar to that of the United States, is strongly associated with BMI, physical performance, and metabolic risk factors. To address this issue, the Ministry of Defence has initiated several programmes and prevention strategies, including the DOfit pilot project aimed at weight management and lifestyle improvement.

[9] Scheit et al. 2024.
[10] Scheit et al. 2023.
[11] Gaździńska et al. 2022.
[12] Sanderson et al. 2018.
[13] Lewis 2019.

Global Meta-Analyses

A 2020 systematic review and meta-analysis of multiple military populations worldwide reported that the average prevalence of metabolic syndrome was 21%, with 35% overweight and 14% obese. The most common associated risk factors were elevated LDL cholesterol (32%), hypertension (26%), and insulin resistance.[14]

Other studies have estimated the prevalence of metabolic syndrome in military populations at 8–8.3%, with differences largely attributable to varying diagnostic criteria.[15] Nevertheless, global evidence clearly demonstrates that metabolic risks affect military personnel universally, irrespective of national specificities. The prevalence of overweight, obesity, and metabolic syndrome in the armed forces of the studied nations is summarised in Table 1.

Table 1 *Obesity, overweight, and metabolic syndrome prevalence rates among military personnel of some NATO member states (edited by Attila Novák, PhD)*

Country/ Region	Sample size	Overweight (%)	Obesity (%)	Metabolic Syndrome (%)	Source
USA	> 150,000	32–34	14–17	20–25	Pierce et al. 2019; ASP 2025
France	17,082	36.1	9.6	n.a.	Mannaioni et al. 2024
Germany	43,214	~26	18.0	44.4 (moderate/ high risk)	Scheit et al. 2024
Poland	1,229	49.7	17.3	8.5	Gaździńska et al. 2022
UK	~10,000	55.7	12.0	n.a.	Sanderson et al. 2018; Lewis 2019
Global meta-analysis	multi	35	14	21	Baygi et al. 2020
(n.a. = no available data)					

ANALYSIS: IMPLICATIONS FOR READINESS AND TRAINING

Physical Performance and Endurance

High levels of physical performance are among the fundamental requirements of military service. Obesity, however, significantly reduces endurance, muscular strength, and reaction speed. Excess body fat imposes mechanical strain on the joints, increases the incidence of orthopaedic injuries (e.g., knee and hip problems), and exacerbates the risk of heat stress

[14] Baygi et al. 2020.
[15] Rostami 2019.

and dehydration. Studies in the German Bundeswehr indicate that soldiers with moderate to high cardiometabolic risk perform significantly worse on physical fitness tests compared with peers of normal BMI.[16] Data from France and Poland further suggest that overweight and obesity are linked to higher dropout rates already during the initial phases of training. These trends not only jeopardise individual careers but also reduce training effectiveness and place considerable strain on training staff resources.

Injuries and Health Risks

Obese soldiers are at greater risk of injuries, particularly musculoskeletal and orthopaedic problems. U.S. studies indicate that obese recruits are 15–20% more likely to sustain injuries during basic training, resulting in lost duty time and, in many cases, premature discharge.[17]

Beyond mechanical issues, obesity is closely associated with cardiovascular disease and type 2 diabetes. Soldiers diagnosed with metabolic syndrome exhibit markedly higher prevalence of hypertension, lipid abnormalities, and insulin resistance compared with their normal-weight counterparts.[18] These conditions not only increase the burden on military healthcare systems but also reduce the proportion of deployable personnel.

Fitness for Duty and Attrition

Obesity and metabolic disorders are increasingly recognised as decisive determinants of military fitness for duty. In the United States, obesity is one of the leading causes of medical disqualification from service, contributing to thousands of premature discharges annually.[19] German and Polish findings similarly demonstrate that personnel with higher BMI are more frequently subject to temporary or permanent exemption from duty.[20]

The challenge is particularly acute in the reserve forces, where sedentary civilian lifestyles, stress, and unfavourable dietary patterns contribute to a higher prevalence of overweight and obesity. This undermines the rapid mobilisation and deployability of reserve units.[21]

Recruitment and Accession Challenges

Obesity also poses significant challenges at the recruitment stage. In several NATO countries – including the United States and the United Kingdom – 15–20% of applicants are automatically disqualified from military service due to excessive body weight. This problem has become even more pronounced in the aftermath of the COVID-19 pandemic.[22] While comparably detailed national data are lacking for Hungary and some European forces, the trend is clear: rising obesity in civilian populations directly threatens both the quality and quantity of military recruitment. According to the 2018 U.S. Department of Defense Health

16 Scheit et al. 2024; Scheit et al. 2023.
17 American Security Project 2025.
18 Pierce et al. 2019.
19 Sanderson et al. 2018.
20 Scheit et al. 2024; Scheit et al. 2023; Gaździńska et al. 2022.
21 American Security Project 2025.
22 Wuerdeman et al. 2023.

Related Behaviors Survey (HRBS),[23] among active component servicemembers, 52% were overweight and 16% obese.[24] Clinical data suggest that the prevalence of obesity increased further by 2020.

Training Burden on Instructors

The presence of overweight and obese personnel places additional burdens on training instructors. Standardised training programmes often need to be modified or individualised based on varying levels of physical capability. This not only decreases training efficiency but also increases workload and the risk of burnout among instructors.

Experiences from the German Bundeswehr and the Polish Armed Forces reveal that instructors are often compelled to implement remedial training programmes for soldiers at metabolic risk. While beneficial, these programmes are resource-intensive and time-consuming, further straining already limited training capacities.

Summary

The analysis clearly demonstrates that obesity and metabolic syndrome represent not only health concerns but also major readiness and human resource management challenges. Declining physical performance, greater susceptibility to injuries and illnesses, reduced fitness for duty, recruitment difficulties, and increased training burdens collectively exacerbate the operational risks facing military organisations.

Addressing these issues requires a comprehensive, multi-level approach grounded in prevention, regular monitoring, and targeted interventions.

PREVENTION AND INTERVENTION RECOMMENDATIONS

Lifestyle Interventions and Health Promotion

Among military personnel, the most effective prevention strategies are complex lifestyle interventions that simultaneously target nutrition, physical activity, and sleep quality. The U.S. Army's Performance Triad programme – built on the "Sleep, Activity, Nutrition" triad – has demonstrated that programmes combining education, individualised training plans, and nutritional counselling can reduce BMI and improve cardiometabolic outcomes. Soldiers participating in the programme achieved an average 5–7% reduction in body weight and significant improvements in VO_2 max within 12 months.[25]

In Europe, the German Bundeswehr introduced the Fit im Dienst initiative with similar objectives, offering structured training sessions, dietetic consultations, and lifestyle assess-

[23] The DoD HRBS is an abbreviation for the Department of Defense Health Related Behaviors Survey, a large-sample, representative survey commissioned by the US Department of Defense (DoD). DoD HRBS is conducted among active-duty military personnel approximately every 3–4 years (since the 1980s), and examines health status, dietary habits, physical activity, smoking, alcohol, drug use, mental health (e.g., depression, PTSD), and rates of overweight and obesity.

[24] Meadows et al. 2021; Knapik et al. 2023.

[25] U.S. Army Public Health Center 2020.

ments.[26] Evaluations revealed significant reductions in waist circumference and improved endurance performance among participants.[27]

Targeted Prevention Programmes

Evidence suggests that generalised health promotion programmes for the entire force are less effective than interventions focusing on high-risk groups. In France, a 12-week combined dietary and physical training programme implemented within the Gendarmerie yielded measurable BMI reduction and improved lipid profiles in 72% of participants.[28] In Poland, a pilot "Combat Ready" protocol incorporating functional training and high-intensity interval training (HIIT) significantly improved explosive strength, endurance, and body composition within a short period.[29]

These findings underscore that dedicated, individualised programmes for overweight and metabolically at-risk soldiers are more effective than standardised, one-size-fits-all approaches.

Health Monitoring and Screening

Routine health examinations are mandatory in military service, but current practice often emphasises general physical fitness over detailed monitoring of metabolic risks. Some national health protocols require regular health and fitness assessments that include BMI, blood pressure, and laboratory markers. Typically, these assessments are conducted annually or according to occupational role and age group, but there is no universal NATO-level requirement for biennial metabolic screening. In the United States, the annual Periodic Health Assessment (PHA) ensures regular monitoring, including BMI, blood pressure, and, where indicated, laboratory parameters such as lipid profile and blood glucose.[30] Similarly, the United Kingdom's JSP 950 Medical Policy mandates in-service medical assessments that include BMI and blood pressure measurements.[31]

The integration of modern technologies – such as wearable fitness monitors, sleep trackers, and digital health logs – enables continuous, real-time monitoring of soldiers' health. This allows for long-term tracking of individual performance and timely interventions when necessary.

Integration of Mental Health

Psychological stress, trauma, and sleep deprivation directly contribute to the development of metabolic disorders in military populations. Mental and physical health risks are mutually reinforcing. Data from the Millennium Cohort Study show that post-traumatic stress disorder (PTSD) is strongly associated with physical inactivity, overweight, and obesity. LeardMann et al. in a cohort of over 76,000 U.S. servicemembers, demonstrated that PTSD

[26] Bundeswehr 2015.
[27] Scheit et al. 2024; Scheit et al. 2023; Meadows et al. 2021.
[28] Mannaioni et al. 2024; Quertier et al. 2022.
[29] Gaździńska et al. 2022; Gaździńska et al. 2023.
[30] U.S. Department of Defense 2025; U.S. Army Human Resources Command 2024.
[31] UK Ministry of Defence 2022.

significantly increases the risk of obesity and metabolic disease while reducing physical activity levels. This highlights how impaired psychological well-being directly undermines operational readiness, with mental disorders often manifesting as metabolic syndrome, thereby reducing training efficiency and deployability.

Preventive programmes are most effective when psychological support is integrated alongside physical interventions.[32] Combined programmes – including stress-management techniques (e.g., breathing exercises, mindfulness training) and sleep hygiene education – offer more sustainable outcomes than those focusing exclusively on physical training or diet. Stress-management and sleep modules should therefore be incorporated into all training cycles, particularly for personnel preparing for deployment, where psychological and physical stressors are especially pronounced.[33]

Technological and Digital Solutions

Digital health monitoring and AI-based data analysis provide new opportunities for prevention. Wearable devices generate individual-level data that enable instructors to monitor soldiers' fitness, recovery, and metabolic risk in real time. Such tools facilitate the personalisation of training plans, early detection of overtraining, and prevention of injuries and chronic conditions. The key to effective prevention and intervention lies in a targeted, integrated, and data-driven approach. Alongside general health promotion, high-risk groups require focused attention, regular metabolic screening, and mental health support. International experience confirms that combined lifestyle interventions can sustainably improve health and readiness of military personnel.

RECOMMENDATIONS AND FUTURE RESEARCH DIRECTIONS

Short-Term Measures

Based on current epidemiological evidence, it is obvious that obesity and metabolic risk factors directly threaten military readiness. In the short term, such interventions should be introduced that specifically target the most vulnerable groups.

Risk-Based Intervention Programmes

Annual health assessments should be supplemented with screenings that identify high-risk individuals based on cardiometabolic indicators, such as BMI, waist circumference, lipid profile, blood pressure, and blood glucose. Identified personnel should be enrolled in 3–6-month personalised lifestyle programmes that integrate nutrition counselling, structured exercise, and psychological support.

Functional Training and HIIT Integration

In addition to traditional endurance and strength training, functional exercises and HIIT have proven more effective in improving body composition and reducing the risk of meta-

[32] LeardMann et al. 2011.

[33] U.S. Department of Defense 2025.

bolic syndrome. Numerous meta-analyses and clinical studies confirm that HIIT produces superior outcomes compared with continuous aerobic training, particularly in reducing blood glucose, blood pressure, and waist circumference, as well as improving insulin sensitivity and VO_2 max.[34] Incorporating these methods into basic training can yield measurable improvements in the short term.[35]

Long-Term Strategic Developments

The challenges of obesity and metabolic risk cannot be solved by short-term interventions alone. Comprehensive prevention and health promotion systems must become integral components of long-term military health policy.

Integrated Military Health Database

Data on physical performance, metabolic status, and mental health should be collected in a centralised digital health database. This would enable long-term monitoring of trends, facilitate individual progress assessment, and support evidence-based command decision-making.

Unit-Level Health Profiles

Each military unit should prepare an annual health report summarising the body composition, fitness, and metabolic risk profile of its personnel. Such tools would help commanders set training priorities and allocate resources effectively.

Strengthening the Reserve Component

Promoting health within the reserve forces is of strategic importance as their deployability is critical during mobilisation. Special programmes adapted to civilian lifestyles should be designed for reservists, focusing on balanced nutrition, physical activity, and stress management.

Future Research Priorities

1. Military-Specific Criteria for Metabolic Syndrome:
   Current civilian diagnostic criteria (e.g., WHO, IDF definitions) do not always accurately reflect the specific characteristics of military populations, particularly in personnel with high muscle mass. There is a need to develop military-specific criteria that account for the demands and lifestyle of servicemembers.

2. Longitudinal Cohort Studies:
   Most available data are cross-sectional. Prospective, multi-year cohort studies are needed to assess the long-term impact of obesity and metabolic syndrome on military careers, susceptibility to injuries, and attrition rates.

[34] Poon et al. 2024; Serrablo-Torrejón et al. 2020; Al-Mhanna et al. 2025.
[35] UK Ministry of Defence 2022.

3. Evaluation of Digital and Technological Interventions:
   The integration of wearable devices, biosensors, and digital training platforms represents a promising avenue. Rigorous scientific studies are needed to establish how effective these tools are in improving servicemembers' health and mitigating metabolic risks.

SUMMARY

The recommendations and research priorities presented here underline that addressing obesity and metabolic syndrome in military populations requires a systemic, multi-level approach. While short-term measures must focus on targeted interventions, long-term strategies should involve integrated health data systems, unit-level programmes, and multinational research collaborations. Only through such comprehensive approaches can armed forces maintain readiness, resilience, and operational capacity in the face of rising metabolic health challenges.

CONCLUSION

The findings of this study clearly demonstrate that obesity and metabolic syndrome are not only public health concerns but also significant **readiness and human resource management challenges** for modern armed forces. Declining physical performance, higher incidence of injuries and chronic diseases, reduced fitness for duty, difficulties in recruitment and retention, as well as increased burdens on training personnel collectively amplify operational risks.

Addressing these challenges requires a **comprehensive, multi-level strategy** that combines prevention, continuous monitoring, and targeted intervention. Evidence from international practice highlights the effectiveness of integrated lifestyle interventions, combining physical training, nutritional counselling, stress management, and sleep hygiene, in sustainably improving health and readiness of servicemembers.

In the short term, focused interventions are needed for high-risk groups. Meanwhile, in the long term, systemic solutions must be implemented, including integrated digital health databases, unit-level health profiling, and multinational research collaborations. Only through such approaches can armed forces effectively mitigate the growing impact of obesity and metabolic risk factors, thereby safeguarding their operational readiness and resilience.

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Márk Mazaray

HUNGARY'S MILITARY PRESENCE AND INTERESTS IN THE SAHEL

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ABSTRACT: *In the introduction, the main African migration routes and their impact on Europe, including Hungary, will be presented. This is followed by the activities of the European Union and Hungary in the region to curb migration. In the next section, the current location of Hungarian troops in the Sahel, the tasks of the Hungarian Defence Forces, the reason why they are there, and Hungarian interests in the region will be presented. The local allies and other powers in the region will be described. Finally, possible countries where the Hungarian Defence Forces could be present in the future will be outlined. The thesis will be concluded with a coherent summary where lessons learned will be drawn.*

KEYWORDS: *migration routes, Sahel region, activities of the Hungarian Defence Forces abroad*

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INTRODUCTION

Today, the situation in Africa is extremely heterogeneous. There are many problems, such as environmental degradation, the rise of jihadist organisations, shrinking economic opportunities, and the increasingly rapid and dangerous escalation of religious and ethnic conflicts.[1] While there are a few countries, such as Nigeria, South Africa, and Morocco, that are experiencing significant economic growth,[2] the same cannot be said for a good part of the continent. Inflation, desertification leading to rising food prices, foreign currency shortages, and mines and other resources falling into the hands of local armed groups do not help the situation.[3]

The Sahel region is no different. It is one of the most unique ecological regions in the world. It is about 5,400 kilometres long and stretches from Senegal to Eritrea in Central Africa, between the Sahara Desert in the north and the more fertile savannahs in the south.[4] There is more than one violent criminal and political movement going on in the region,

1 Mant et al. 2024.
2 List of African countries by GDP 2025.
3 Mant et al. 2024.
4 Sahel Region: Location, Countries, Significance & Issues – UPSC Notes 2025.

often in areas inaccessible to the state. The Sahel region also suffers from ethnic religious tensions, political instability, poverty, and natural disasters.[5]

Violent cross-border criminal organisations and political movements are gaining ground. Everything from ethno-religious tensions and political instability to poverty and natural disasters can be found in the region. In recent years, the region has also been home to religious terrorism, anti-state insurgencies, and trafficking in arms, drugs, and human beings.[6] Its stability is very important for regional and international security, mainly because of the emergence of extremist groups, but it is also very rich in raw materials such as uranium, gold, and oil.[7]

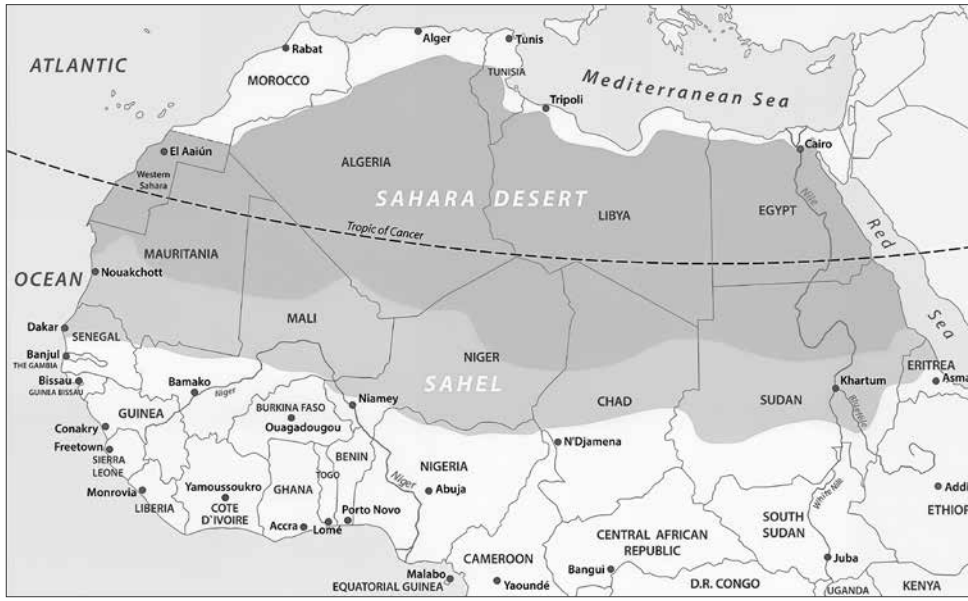

Figure 1 *Sahel region*
Source: *https://www.worldatlas.com/regions/sahel-of-africa.html*

AFRICA'S MAIN MIGRATION ROUTES AND THEIR IMPACT ON EUROPE

The destination for migrants in search of a better life is clearly Europe. They have made the Sahel states, especially Niger and Chad, both countries of origin and transit. Many people are leaving the region for economic, environmental, and political reasons, while these countries have also become important transit points for migration towards North Africa and Europe. EU migration policy, especially in Niger, has been aimed at reducing migration, which has diverted former open routes to underground and more dangerous des-

[5] Suleiman 2017.
[6] Muhammad 2017.
[7] Sahel Region: Location, Countries, Significance & Issues – UPSC Notes 2025.

tinations, partly towards Chad. This has increased the risks for migrants and destabilised local economies that were heavily dependent on migration-related activities.[8]

There are four main routes from Africa to Europe: the Western Mediterranean or Atlantic route, the Central Mediterranean, the Eastern Mediterranean, and the Eastern European route.[9]

Western Mediterranean/Atlantic route

Spain is one of the European countries through which most migrants and refugees fleeing from war, famine, epidemics, or for other reasons enter Europe illegally. Migrants can try to reach Spain in two ways, via the Western Mediterranean and the Canary Islands. Smaller numbers have tried to reach Spain by land in Ceuta and Melilla, two Spanish enclaves in Morocco.[10]

In 2023, the number of arrivals tripled. The largest numbers of arrivals were from Senegal, Morocco, and Mali. As some countries in the region have experienced increasing instability, such as military takeovers and socio-economic insecurity, further growth was expected on this route, which has not yet materialised.[11]

Central Mediterranean route

The Central Mediterranean route runs across the Mediterranean from North Africa to Italy and Malta. It is a major migration route to Europe. In the year 2023, the number of arrivals in the Central Mediterranean increased, and there were almost 158,000 irregular border crossings in total.[12] In 2024, the number of arrivals through the Central Mediterranean decreased significantly, by 59%. Despite the decrease, this route still accounted for around 67,000 crossings, the second highest of all routes. Bangladeshis, Syrians, and Tunisians were the most common nationalities to use this route.[13]

[8] Molenaar et al. 2018.
[9] MacGregor 2019.
[10] The main migration routes to the European Union 2021.
[11] Western African Route 2024.
[12] Central Mediterranean 2024.
[13] Migratory Routes 2024.

Figure 2 *The Central Mediterranean route to Europe (2018)*
Source: *MAP grafix https://www.clingendael.org/pub/2018/caught-in-the-middle/introduction/*

Eastern Mediterranean route

This migration route includes Cyprus, the Greek maritime borders, and the Bulgarian land border with Türkiye. Most people come from Afghanistan, Syria, Iraq, Türkiye, and Palestine, but Africans also use the route.[14] This route was the largest in 2015, when 885,000 refugees arrived in Europe, according to Frontex. Most of them were Syrians who had been forced to flee their country because of the civil war. Today, this route is much less frequented.[15] Just over 15,000 have arrived since the beginning of 2021. The dramatic drop in arrivals by this route is probably partly due to the controversial EU–Türkiye agreement, which has been heavily criticised by NGOs and has effectively closed the Aegean coast.[16]

[14] Eastern Mediterranean 2023.
[15] The main migration routes to the European Union 2021.
[16] Ibid.

Eastern European route

This route is a 6,000-kilometre land border between Belarus, Moldova, Ukraine, the Russian Federation, and EU Member States: Estonia, Finland, Hungary, Latvia, Lithuania, Norway, Poland, Slovakia, and Romania.[17]

The Russian Federation and its ally, Belarus, use illegal migration as a means of exerting pressure in view of the increasingly tense relations on the European Union's eastern border.[18] More than half of migrants and refugees were Iraqi, followed by Afghans, Syrians, and Congolese.[19]

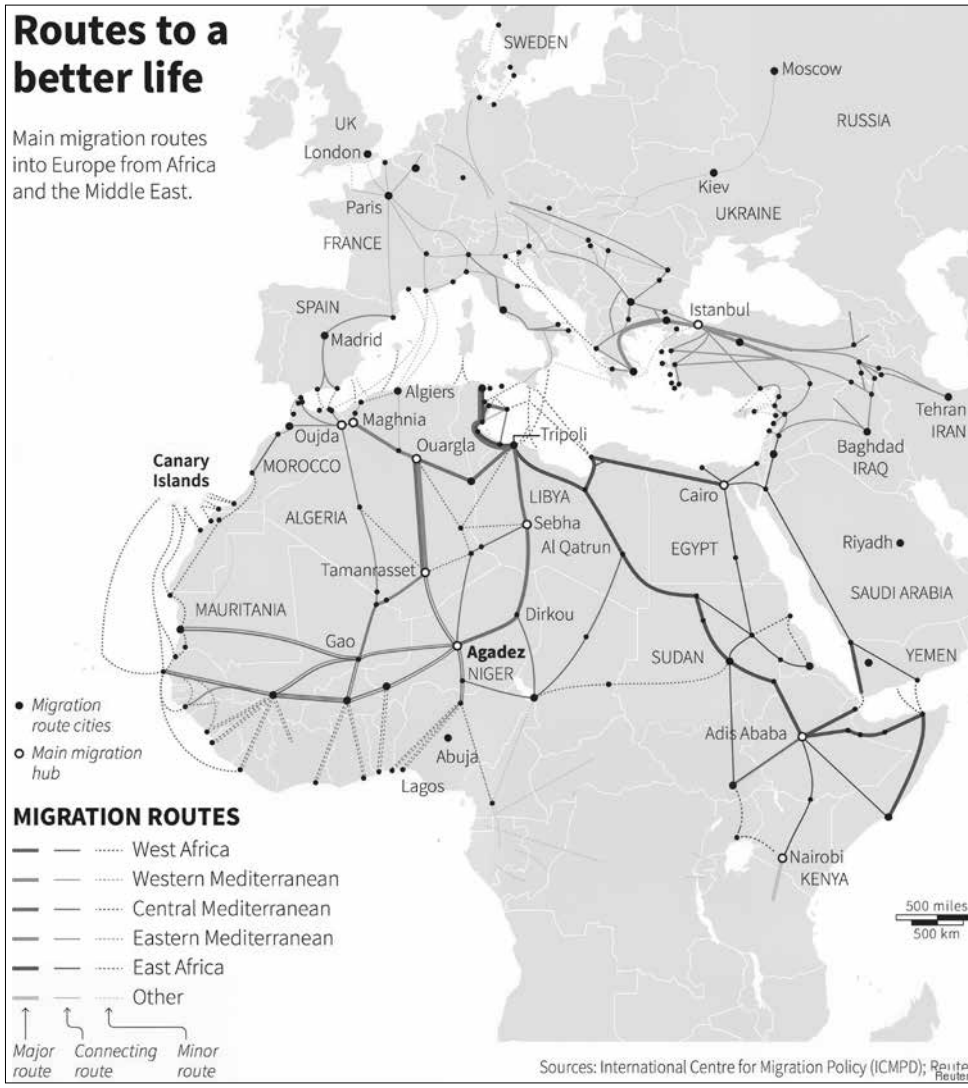

Figure 3 *Migration routes to Europe (11/01/2016)*
Source: *https://vividmaps.com/main-migration-routes-into-europe-fro/*

[17] Eastern Borders 2023.
[18] Ibid.
[19] The main migration routes to the European Union 2021.

IMPACTS ON EUROPE

With high unemployment, low wages, poor living conditions, political instability, armed conflicts, and climate change, it is no wonder that Africans want to leave their countries and come to Europe in search of a better life. Most African migrants are young men, most of whom arrive in Europe with low skills and in vulnerable situations that make it difficult for them to find work.[20]

They tend to settle in impoverished areas, abandoned industrial towns and their outskirts, where they can maintain family and tribal ties. Migrants bring their habits and way of life with them and therefore form closed communities. The Islamic religion has grown in proportion to the number of immigrants, which has led to further problems in a Europe that is far from being Muslim. More and more Islamic schools and mosques have been built, and Islamic clothing has gained ground. They often focus on nationality, are politically loyal to their country of origin, and bring tensions and conflicts to their new home countries, which exacerbate the situation.[21]

The challenges of social inclusion create tensions with the local population. This is why migration is a divisive issue in European societies, which easily fuels populist and anti-immigrant political movements.[22] The main role of immigrants is to alleviate labour shortages, especially in ageing societies. Demographic change in many EU countries is leading to a decline in the working-age population, which is a particular problem for developed economies.[23]

Less skilled migrants are mainly employed in sectors where the local labour force is not very willing to work. Examples include the construction, agriculture, and hospitality sectors. This also brings benefits for the state, as lower wages can reduce production costs and increase the competitiveness of the sector.[24]

Table 1 *In terms of occupations, non-EU citizens were over-represented in the above fields (28/05/2025)*
Source: *https://home-affairs.ec.europa.eu/policies/migration-and-asylum/statistics-migration-europe_en?utm_source=chatgpt.com#employment-of-immigrants*

Occupational group	Employement of non-EU citizens (%)	Employement of EU citizens (%)
Cleaners and helpers	11.4	2.9
Personal services workers	7.3	4.1
Personal care workers	5.5	3.0
Construction workers, excluding electricians	6.1	3.7
Workers in mining, construction, manufactoring and transport	6.0	2.5
Food preparation assistants	2.6	0.6
Agricultural, forestry and fishery workers	2.4	0.7

[20] Prof. Idemudia – Prof. Dr. Boehnke 2020.
[21] Ez lett a migráció eredménye Európában 2024.
[22] Prof. Idemudia – Prof. Dr. Boehnke 2020.
[23] Kancs – Lecca 2017.
[24] Ibid.

Curbing migration

Some states have increasingly seen migration from Africa to Europe as a security threat. As a result, stricter border controls and visa policies were introduced. These efforts have resulted in fewer African migrants reaching Europe, but have also had a number of unintended negative consequences.[25]

The European Parliament has adopted the Pact on Migration and Asylum, a comprehensive reform of the EU's border and migration rules. The main elements of the pact include a fast-track procedure, meaning border countries, such as Italy and Greece, are given more power to quickly remove those who are unlikely to be eligible for asylum, and a solidarity mechanism, which saw member states given the choice of accepting asylum seekers or providing financial contributions to countries that do so.[26]

The European Union then set up the African Emergency Fund, whose main aim was to reduce illegal migration from Africa to Europe. A total of €5 billion has been allocated to 27 African countries to create jobs, strengthen the resilience of local communities, improve migration management, and promote good governance and conflict prevention.[27]

According to the European Court of Auditors, the money has been spent in too many directions, with too many different objectives, and has not been effective enough in tackling the real causes of migration. Also, projects in Libya provided tools that inadvertently facilitated the transfer of migrants to detention camps, where human rights abuses took place.[28]

However, there was also a successful action by the African Emergency Fund, when the EU decided to focus on Agadez, a key route among West Africa, the Sahel, and the Maghreb regions, through which a large proportion of people travelling to Europe passed. The intervention resulted in a 75% reduction in the number of migrants flowing through Agadez in 2017, with 116,647 arrivals reported in 2018, 89% fewer than in 2015.[29]

Europe has, in turn, contributed to increasing regional destabilisation and the continued spread of smuggling. The livelihoods of its inhabitants have only become more difficult as destabilisation has also begun in the Sahel. Many young men turned to banditry to meet their needs. Worse still, some ended up with al-Qaeda. Europe's short-term migration priorities could thus undermine Africa's longer-term development goals. Yet, Sub-Saharan African migrants make up only 12.9% of Europe's migrant population. However, the EU remains committed to curbing migration from Africa and seeks broader cooperation with African countries on returning irregular immigrants and improving border control.[30]

HUNGARY AND THE SAHEL

Where Hungarian soldiers are located inside the Sahel

Earlier, in 2021, the National Assembly approved the participation of Hungarian soldiers in the French-initiated Takuba combat unit in Mali and Niger, where they mostly provided

[25] Abebe 2020.
[26] Usherwood 2024.
[27] Grün 2022.
[28] Gianna 2022.
[29] Abebe 2020.
[30] Ibid.

advisory and support services. However, Operation Takuba ended in 2022, and Hungarian soldiers withdrew from Mali and Niger.[31]

According to the latest information, the Hungarian Defence Forces should only be in Chad within the Sahel. In response to the "letter of invitation" of the President of the Republic of Chad of 19 September 2023, the Hungarian government decided to launch an independent military mission of up to 200 troops to Chad,[32] but this has been delayed for a year, as the Hungarian Defence Forces planned to deploy the military contingent to Chad in Central Africa in spring 2024, which has apparently not happened until today. There are several reasons for this, which will be explained in more detail later. At present, therefore, the Hungarian military presence in the Sahel would be limited to Chad.[33]

The aims and local tasks of the Hungarian Defence Forces

Africa is by no means unknown territory for the army. Over the past thirty years, Hungarian soldiers have participated in a relatively small number of missions and operations on the continent. Initially, these were within the UN framework, but soon EU involvement was added. Since the change of regime, Hungary has been steadily increasing its involvement in Africa, which is of growing importance in the global economic and political arena.[34]

Hungary's engagement in Chad is likely to be the most important task undertaken by the Hungarian Defence Forces in the 2020s, and perhaps in recent decades. Although Hungarian soldiers have been involved in a large number of other operations, both in the Western Balkans and Afghanistan, the big difference between the two is that in the latter cases, we needed our allies, for example, in logistics or intelligence, but this is different. Now we can talk about a completely independent Hungarian action. What this means in practice is that the Hungarian Defence Forces have to provide the entire backbone of the operation, its logistics, and other essential capabilities. All this is a major qualitative leap compared to our previous involvements.[35]

The mission of the Hungarian Defence Forces in Chad is a complex task, which aims not only to promote regional stability, but also to directly protect Hungary's national security interests. In particular, the Sahel region lies in an area of strategic importance for Chad, as it links North Africa with Central Africa and plays a key role in local illegal migration routes.[36]

Therefore, the primary task of our soldiers is to advise and mentor the Chadian armed forces. They also provide training to Chadian soldiers, focusing in particular on counter-terrorism, border protection, and operational tactics. Hungarian officers provide tactical and strategic advice to local commands, helping them to plan operations more effectively. Mentoring in the field does not involve direct combat participation, but rather includes preparation, assessment, and assistance in force coordination of operations.[37]

[31] Magyar katonai szerepvállalás a Száhel-övezetben 2021.
[32] Wilén 2024, 4.
[33] Lengyel 2023.
[34] Marsai 2024.
[35] Ibid.
[36] Csuhaj 2023.
[37] Magyarország átfogó stratégiai együttműködést épít fel Csáddal 2024.

The Sahel region is home to a number of Islamist terrorist organisations, such as local branches of Al-Qaeda and the Islamic State. The Hungarian contingent plays a supporting role in counter-terrorism operations by providing intelligence, logistical, and operational support to local forces.[38]

For Hungary, the Sahel region is a key transit area for migration. Therefore, during their presence, Hungarian soldiers contribute to the mapping and control of migration routes, the dismantling of human trafficking and smuggling routes, the improvement of local border protection capacities, and the management of the root causes of migration.[39]

One of the secondary tasks is to protect the Hungary Helps humanitarian mission, which is already operating outside. In more detail, this should be understood to mean creating a safe environment for aid workers and, if necessary, escorting and protecting the Hungarian civilians, or participating in the provision and protection of aid supplies.[40]

Under the mission, Hungarian soldiers are also entitled to evacuate Hungarian citizens in crisis situations, and may even act in neighbouring countries for such purposes if the legal and political conditions are right. The ultimate goal of our soldiers is to increase the Hungarian military experience and enhance recognition on the international stage.[41]

The mission of the Hungarian Defence Forces in Chad is not only military. It also has significant political, diplomatic, and humanitarian components. The aim is clear: to reduce the migration and security risks that could sooner or later affect Europe and Hungary, by providing assistance on the ground. The mission would have lasted until the end of 2025 and could have served as a model for future Hungarian military presence abroad.[42]

The specific environmental, logistical, and social conditions of the region can cause significant difficulties for the presence of Hungarian soldiers in Chad. The region has a very poor infrastructure: most of the roads are dirt roads, which can be difficult to negotiate, especially during the rainy season, and this can seriously hamper the movement of military units and the provision of supplies. In addition, supply chains are vulnerable to armed attacks and robberies, so their protection requires constant attention, and the situation is further complicated by the fact that logistics to Chad come from Hungary, where it is difficult to find safe, secure routes, as neither of its neighbours is a fully stable state. The extreme climate of the Sahel region exacerbates the situation. The heat, dust storms, and water shortages pose serious challenges for soldiers, both physically and health-wise. Communicable diseases such as malaria and cholera are common in the region.[43]

Hungarian interests in the region

The Hungarian Defence Forces' mission in Chad, announced in 2023, and the humanitarian and development activities that started at the same time, seem to have come as a surprise to the Hungarian public. However, as I have written before, our engagement in the Sahel

[38] Sarkadi 2023.
[39] Magyarország széles körű együttműködést indít Csáddal a régiós stabilitás erősítése céljából 2024.
[40] László 2024.
[41] Csuhaj 2023.
[42] László 2024.
[43] Improvements to Infrastructure in Chad Countering Extremism 2017.

region is by no means new; we have been present in the region for a decade, and this mission is also linked to Hungarian foreign, security, and defence policy in many ways.[1]

We have a security interest in stabilising the region and reducing migratory pressures from there. Jihadist groups' activities in the region contribute to migration and global instability, which is why the fight against terrorism is also important to us. It is also in our interest to increase Hungary's visibility on the global security map through our military engagement. According to the Ministry of Defence, the main objective of the mission is "to protect Hungarian interests on the ground". What is meant by this is a matter of conjecture. In the foreign press, there is a widespread theory that Hungary has entered into the Chad mission specifically for business interests, such as the hope of extracting raw materials. According to security analyst Fidel Amakye Owusu of Deutsche Welle, Hungary is interested in the raw materials found in the Sahel.[2]

"First, we need to look at what the possible factors are that could attract Budapest to the Sahel or Chad. In particular, these could include the abundant oil, uranium, gold, and other resources in the Sahel. Like all European countries, Hungary is becoming increasingly influential and would like to get its fair share of Africa's resources. Gold, cobalt, lithium, and other resources are important pull factors that could attract Budapest to the Sahel."[3]

Local allies

Our most important ally in the region was France. It had around 1,000 troops stationed in Chad, but in November 2024, the Chadian government announced the termination of the defence cooperation agreement, leading to the gradual withdrawal of French troops.[4] Sadly, the US military presence in Chad has also ended, but their experience in counter-terrorism operations can provide us with valuable backup.[5]

Following the French withdrawal, Türkiye has further increased its military presence, providing drone technology and advisory assistance to the Chadian forces. Ankara's strategic interest coincides with Budapest's goals of stabilising the region and strengthening relations with Africa.[6]

Several EU countries, in particular Italy[7] and Germany, are involved in various security missions in Africa. Coordination with these member states helps Hungary to integrate into common European defence and security mechanisms. If our interests are already aligned and there are many NATO allies in the area, it is not excluded that we can also carry out tasks together.[8]

1 Marsai 2024.
2 Magyarország széles körű együttműködést indít Csáddal a régiós stabilitás erősítése céljából 2024.
3 Marton 2024.
4 Egbejule 2024.
5 Reuters: Chad air force chief orders US to halt activities at army base, letter shows 2024.
6 Turkey Expands Military Presence in Chad Following French Withdrawal 2025.
7 Renoult 2024.
8 Reuters: Germany to keep military base in Niger open under temporary deal, Berlin says 2024.

The presence of major powers in the region

Russia has gradually increased its influence in Africa in recent years, particularly in the Sahel region. The Kremlin aims to increase its geopolitical weight on the continent, especially where the presence of Western powers such as France and the United States is weakening. For Russia, Africa is not only a source of raw materials, but also a source of political allies within the EU and the UN.[9]

Russia's main asset in the region is the private military company known as the Wagner Group, which has been active in several countries since 2023. Although there is no formal Russian military presence in Chad, Russian mercenaries and military advisors have been present in neighbouring countries such as Mali, Burkina Faso, Niger, and the Central African Republic for several years. These forces are often used to reinforce internal repressive regimes or to protect resources.[10]

China's presence in Africa is not small. Beijing has a long-term economic and diplomatic strategy. China aims to secure the supply of raw materials to the African continent and to increase its geopolitical weight in the global space.[11]

China's main instruments are loans, infrastructure investments, and trade partnerships. In 2017, the country opened its first overseas military base in Djibouti, strategically important for its access to the Red Sea, and although geographically distant from Chad, it is a sign of Beijing's security interests in the region. China is mainly active in water, transport, and energy investments in and around Chad, in Sudan, Ethiopia, and Nigeria. It is a great power in Africa that tries its best to avoid overt military or political interventions.[12]

In summary, the current geopolitical realignment in the Sahel region has opened the way for other major powers to enter the region with the departure of French and US troops. Russia is exploiting this space more and more aggressively, which is not necessarily in line with Hungary's objectives and is making them more difficult, while China is deepening its presence in the region through economic and diplomatic means. All this is creating a competition for influence that is indirectly affecting Chad and could have an impact on future regional stability.

Where could the Hungarian Defence Forces appear in the future?

The future role of the Hungarian Defence Forces in Africa could be focused primarily on those countries where security challenges, alliance opportunities, and Hungarian national interests are present at the same time. The Sahel region is of particular importance in this respect, especially, Niger, Burkina Faso, and Mali. In these countries, political instability and the jihadist threat are also present. The gradual withdrawal of France has created a security vacuum that Russia, mainly through the Wagner Group, is trying to fill.[13] However, the EU and NATO are also reassessing their presence in the region, and if new missions are established, Hungary could play a role in them. Participation offers opportunities to broaden military experience, deepen alliance cooperation, and address migration and security challenges.

[9] Terren et al. 2025.
[10] Terren et al. 2025.
[11] Etyang – Panyako 2020, 338–339.
[12] Ibid.
[13] Newly restructured, the Islamic State in the Sahel aims for regional expansion 2024.

Djibouti could also become an important destination in the Horn of Africa. Because of Djibouti's strategic location, with its access to the Red Sea, the armed forces of the United States, China, France, Japan, and other countries are already present.[14] A Hungarian contingent for logistics, observation, or training could join NATO partners to provide a diplomatic footprint in the region, while providing valuable experience in an international, complex theatre of operations.

Important actors for stability in East Africa, such as Uganda and its region, could also be considered. These countries are not only relatively stable politically, but are also actively involved in the continent's security and peacekeeping processes.[15] For Hungary, these would offer the opportunity to join EU or UN missions, either for peace support or training purposes, while opening new channels of cooperation in the region.

Overall, there are several strategic objectives behind the expansion of the Hungarian Defence Forces' presence in Africa: to broaden international military experience, strengthen cooperation with NATO and EU partners, address migration and terrorist threats at their origin, and increase the global military and diplomatic presence. Africa is one of the rare regions where military, economic, and diplomatic interests meet, and therefore, a Hungarian role there is not only possible but may also be strategically justified in the long term.

SUMMARY

It is clear from the above that Africa, and in particular the Sahel region, faces significant migration, security, and geopolitical challenges. Hungary is trying to address them as a priority, because they all have a major impact on Europe, including our small country.[16] The main lesson of the paper is that migration and security issues are not at all separable, especially when the starting point is linked to unstable regions affected by economic poverty, climate change, weak state institutions, and the rise of extremist groups. The European Union, including Hungary, sees increasing migration primarily as a security threat and is seeking to address it locally in the countries of origin.[17]

The document also highlights that external interventions to curb migration, while reducing migratory pressures on Europe in the short term, may destabilise the regions concerned in the long term. This is demonstrated in the Sahel, where European measures to restrict migration have indirectly contributed to a significant increase in violence and extremist organisations.[18]

Hungary's military engagement in the Sahel represents a new level. The planned independent Hungarian mission in Chad not only serves to stabilise the region, but also creates an opportunity for Hungary to strengthen its place on the international security map. The Hungarian presence is not only aimed at fighting terrorism, but also at easing migration pressure and training local armed forces, while serving political, diplomatic, and economic objectives.[19] The region's natural resources, such as uranium, gold, and oil, make it economically attractive and are likely to play a role in protecting Hungarian interests.[20]

[14] Pronk – Van der Graaf 2020.
[15] Nagar – Nganje 2016.
[16] Marton 2024.
[17] Usherwood 2024.
[18] Abebe 2020.
[19] Marsai 2024.
[20] Magyarország széles körű együttműködést indít Csáddal a régiós stabilitás erősítése céljából 2024.

On the other hand, there are a couple of factors that make it look like we will not go to Chad, or at least not now, in 2025. It is because local allies like France[21] and the United States of America have pulled out of the country and even the region in the last few months.[22] This would further complicate the task of the Hungarian Defence Forces, but it should also be mentioned that Hungary would also like to be completely self-sufficient in supplying the mission members, which is aggravated by the unstable situation in the surrounding countries, the lack of allied forces and bases, the expensive procurement of Hungarian equipment, and the difficulty of replacing it.[23] The main reason we did not go is that Mahamat Idriss Déby, the president of Chad, is currently blocking the launch of the Hungarian military mission, even though he himself had previously requested Hungary's participation in the African country.[24] The mission would require a bilateral status of Forces Agreement (SOFA), but this has not yet been ratified by the Chadian side. Déby had previously sent a letter of invitation to Budapest, but its contents were never made public, and it is unclear what it contained exactly. According to the Hungarian Ministry of Defence, the soldiers are already undergoing training, but the launch of the mission is "on hold for the time being", at the request of the Chadian side. Hungarian-Chadian military cooperation is therefore in limbo for the time being, as the Chadian president has not approved the legal and diplomatic conditions of the mission, meaning that the Hungarian contingent has still not been able to depart, even though we should have been there since the beginning of 2025.[25]

Last but not least, the lesson to be drawn from the paper is that Hungarian foreign and security policy is gradually moving away from a regional framework and towards a more global perspective. Africa, especially the Sahel, is a region where military, economic, and diplomatic interests are at stake simultaneously. The Hungarian military presence here will not only mark a new foreign policy direction, but also the coming of age of Hungarian defence policy, if it really successfully implements an independent mission with a complex remit and long-term strategic objectives. This intervention can strengthen Hungary's international role in a world where migration, terrorism, and geopolitical competition are redefining the role of states in the global space.[26]

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[21] Egbejule 2024.
[22] Reuters: Chad air force chief orders US to halt activities at army base, letter shows 2024.
[23] Marsai 2024.
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[25] Lengyel 2025.
[26] Marsai 2024.

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Mert Efe Özuygun

TÜRKIYE'S AFRICA OPENING: SOMALIA

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ABSTRACT: *This article analyses Türkiye's multidimensional engagement in Somalia through Barry Buzan's five-sector security model. It argues that Türkiye has positioned itself as a hybrid state-builder operating outside traditional Western and Gulf frameworks. The February 2024 Defence and Economic Cooperation Framework Agreement institutionalised Türkiye's role as both a security guarantor and economic partner amid growing instability in the Red Sea and Horn of Africa. Relying on open-source data, policy documents, and strategic commentary, the study highlights Türkiye's emphasis on bilateralism, religious affinity, and infrastructure-led development. While this approach enables rapid and visible influence-building, it also raises concerns over elite-centric governance, economic dependency, and regional polarization. For NATO and EU members – such as Hungary, which contributes to EUTM-Somalia – Türkiye's model offers insights into non-Western security partnerships in fragile states. The Somali case illustrates how emerging powers use integrated, sectoral strategies to expand influence, with long-term outcomes shaped by inclusivity, transparency, and local ownership.*

KEYWORDS: *Türkiye, Somalia, Barry Buzan, Geopolitical Strategy, Soft Power*

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INTRODUCTION

Over the past two decades, Türkiye's Africa policy has shifted from ad hoc aid to a coordinated, multidimensional strategy. This transformation is most visible in Somalia – a fragile yet strategically located state along key trade routes. This article explores how Türkiye employs a hybrid model – blending military assistance, economic investment, and cultural diplomacy – to reshape local governance.

These gains underpin Türkiye's hybrid state-building model in Somalia. This raises three questions: What tools does Türkiye use to project influence? How do they function across various sectors? What challenges do they face in a fragile federal state? Türkiye's model combines soft power – such as humanitarian aid, education, and religious diplomacy – with hard power, including military training and economic investment. It contrasts with Western donors focused on institutional reform and Gulf actors relying on financial patronage. Türkiye's use of bilateral agreements and direct investment enhances both its influence and Somalia's sovereignty, challenging conventional state-building paradigms.

Türkiye's Africa policy can be divided into three historical phases.[1] First, during the Ottoman era (16th–19th c.), when influence was mostly symbolic in North Africa. Second, under the Early Republic (1923–1998), Africa was largely sidelined. The third phase began

[1] Besenyő – Oláh 2012.

with the 1998 "Opening to Africa" Action Plan, which spurred a rapid expansion of embassies, trade, and defence exports.

Table 1 illustrates the dramatic growth in Türkiye–Africa ties from 2002 to 2022.

Table 1 *Türkiye's expanding presence in Africa, 2002–2022*
Source: *Özkan – Akgün 2010; MFA 2024, 2025.*

Aspect of Presence	Change Described	Start Year	End Year
Turkish embassies in Africa	Increased from 12 to 44	2002	2022
Bilateral trade volume	Increased eightfold	2003	2022
Defence industry exports	Raised by 653.53%	2015	2021
Turkish Airlines destinations	Grown by ~1140%	2005	Present day

This final phase brought a rapid expansion of diplomatic missions, economic ties, and security cooperation – most visibly in Somalia.[2] Since 2002, this has translated into more embassies, increased trade, and expanded defence partnerships. Ankara grew its diplomatic presence from 12 to over 44 embassies, boosted development aid, and fostered collaboration among state agencies, NGOs, and private firms.[3]

Somalia has become the flagship of Türkiye's Africa strategy. What began as humanitarian relief during the 2011 famine – marked by then-Prime Minister Erdoğan's visit – has evolved into a full-spectrum partnership encompassing military training, infrastructure development, and political alignment. Somalia thus serves as a test case for Türkiye's state-building doctrine.

Research Questions and Argument

Despite the growing interest in Türkiye's Africa policy, few studies offer a comprehensive analysis that integrates security, economic, and societal instruments through a multi-sectoral lens. This article fills that gap by using Buzan's framework to analyse how Türkiye's engagement in Somalia functions as a novel, hybrid model of middle-power state-building and strategic influence.[4] In bypassing multilateral frameworks in favour of bilateral agreements, Türkiye distinguishes itself from both Western and Gulf actors, positioning itself as a long-term strategic partner in one of Africa's most contested geopolitical theatres.[5]

To assess this hybrid model, the article addresses three questions:

1. *Coordination:* How does Türkiye integrate military, economic, and cultural instruments under a unified strategy?
2. *State Capacity:* To what extent has this engagement strengthened Somali state capacity in a fragile federal context?
3. *Broader Lessons:* What implications does the Somali case hold for middle-power diplomacy in fragile regions?

[2] Öztürk – Duman 2023.
[3] Özkan – Akgün 2010.
[4] Buzan 2007; TİKA 2022; Türkiye Diyanet Foundation 2022.
[5] Besenyő 2021.

By applying Buzan's five-sector framework to Somalia, this study offers the first integrated analysis of Türkiye's Africa policy that connects soft-power discourse with strategic state-building literature.

Ankara's approach exemplifies a novel middle-power intervention model – combining military cooperation with soft power instruments to reshape fragile-state governance. Unlike Western or Gulf actors, Türkiye bypasses multilateral aid structures in favour of bilateral military and economic agreements, positioning itself as a long-term strategic partner in the Horn of Africa.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

This article builds on Barry Buzan's five-sector security framework, which conceptualises security as a multidimensional construct – encompassing military, political, economic, societal, and environmental domains.[6] Unlike traditional realist or development models, Buzan's approach recognises that state influence and insecurity are shaped by both hard and soft power instruments. This lens is especially useful for analysing Türkiye's hybrid engagement in fragile contexts like Somalia.

Türkiye's Africa Policy and Strategic Behaviour

Türkiye's engagement in Africa has been widely interpreted through the lens of soft power, humanitarian diplomacy, and religious affinity.[7] Scholars often frame their role as a culturally sensitive alternative to Western donors, emphasising Islamic solidarity and fast, visible infrastructure projects. While some scholars frame this as a normative, values-driven outreach, others contend that it reflects pragmatic statecraft, designed to counterbalance Western and Gulf influence on the continent. However, some critics argue that Türkiye's bilateral projects often prioritise Turkish commercial interests, such as securing construction contracts or access to natural resources, over genuine capacity-building in recipient states, running the risk of creating neo-patronage networks. Others highlight Türkiye's use of humanitarianism to build geopolitical influence, arguing that soft power is inseparable from strategic interests.[8]

Despite a growing body of research, there has been limited examination of how Türkiye integrates its aforementioned diverse tools into a cohesive strategic framework.[9] By applying this framework to Somalia, the article contributes to the still-fragmented literature on non-Western intervention strategies and demonstrates how Türkiye acts not merely as a donor or partner but as a hybrid state-builder pursuing long-term geopolitical leverage through bilateral mechanisms.

[6] Buzan et al. 1998.
[7] Özkan – Akgün 2010; Sucuoğlu – Stearns 2016; Altunışık – Martin, 2023.
[8] Besenyő 2021; Çubukçuoğlu 2023b.
[9] Rossiter – Cannon 2019.

Theoretical Framework: Buzan's Sectoral Security Model in the Somali Context

This study applies the five-sector security model adapted through János Besenyő's regional lenses to capture the multidimensional nature of Türkiye's engagement in Somalia. Drawing on Besenyő's adaptation for the African context, we argue that Türkiye's engagement is not a collection of discrete initiatives but a coordinated strategy across all sectors.

Türkiye's initiatives in Somalia can be categorised into five sectors, as outlined in Table 2 (below), summarising the key actors, instruments, and strategic effects in each sector.

Table 2 *Türkiye's sectoral engagement in Somalia (adapted from Buzan's five-sector model)*

Sector	Engagement Examples	Key Actors	Strategic Purpose
Military	Training SNA (TURKSOM), defence agreements	TURKSOM, MoD, 2024 Defence Pact	Build military capacity, extend regional reach
Political	Support to the federal govt., diplomatic alignment	MFA,10 Embassy, Presidential visits	Shape governance, enable bilateral alignment
Economic	Airport/port ops, infrastructure, energy deals	TİKA, Turkish firms, Exim Bank, Kızılay	Reconstruction, market access, influence
Societal	Education, cultural diplomacy, Islamic outreach	Maarif, Diyanet, Yunus Emre Foundations	Cultivate soft power, elite networks
Environmental	Water projects, health services, sanitation	TİKA, Turkish Red Crescent	Human security, rural visibility

Table 3 lists milestone events marking Türkiye's deepening footprint in Somalia over time.

Table 3 *Key milestones in Türkiye's engagement in Somalia*

Year	Initiative	Domain	Description
2011	Erdoğan's famine visit	Humanitarian aid	Initiated Türkiye's large-scale engagement with Somalia
2017	Opening of the TURKSOM base	Military training	Established training for Somali National Army personnel
2020	Port & airport rehabilitation	Infrastructure	Turkish firms rebuilt critical trade infrastructure in Mogadishu
2024	Offshore energy exploration agreement	Energy cooperation	Began seismic surveys for oil/gas in Somalia's EEZ
2025	Onshore hydrocarbon exploration deal	Energy cooperation	Türkiye secured rights to explore/develop onshore hydrocarbon blocks

[10] MFA stands for Ministry of Foreign Affairs.

Milestones chart the evolution of Türkiye's influence, transitioning from a humanitarian entry point to a comprehensive partnership that encompasses military, economic, and governance domains. By framing Türkiye's engagement through Buzan's five-sector lens, we can appreciate the uniqueness of its bilateral, state-centric model. In contrast to Western multilateralism or Gulf patronage, Türkiye's strategy effectively combines security cooperation, infrastructure development, and cultural diplomacy to reshape governance in fragile states.

By framing Türkiye's engagement through this multidimensional lens, the article reveals how Ankara leverages sectoral synergies to recalibrate state-building and power projection in Somalia. The following section outlines the qualitative methods used to trace these dynamics empirically.

METHODOLOGY

Somalia is selected as a critical case because Türkiye's engagement there – spanning humanitarian aid, military cooperation, and economic investment – represents the most sustained application of its multidimensional Africa strategy in a fragile state. This study adopts a qualitative case study approach, analysing Türkiye's engagement in Somalia from 2011 to early 2025. The analysis follows Barry Buzan's five-sector security model. Data come from primary sources (Turkish ministries, Somali parliamentary records) and secondary sources (academic literature, UN reports, media analyses). To ensure reliability, these were triangulated with Somali press coverage and independent NGO assessments. Due to security and logistical challenges, field interviews were not conducted. As a result, Somali perspectives are inferred from secondary sources, which may not fully reflect on-the-ground sentiments.[11] To mitigate this, the research draws on a wide array of sources, including Somali media and independent NGO reports, to approximate local viewpoints.

To contextualise Türkiye's engagement, Somalia's socio-political landscape must be understood. Its post-independence history is marked by clan divisions, regionalism, and fragmented governance.[12] The 1960 unification of British and Italian Somaliland quickly encountered challenges, as clan loyalties outweighed national cohesion. Siad Barre's regime (1969–1991) promised unity but deepened divisions through military repression and clan favouritism. Following the collapse of Barre's regime, state fragmentation accelerated – Somaliland declared independence, and Puntland became semi-autonomous.[13] Despite repeated international state-building efforts, Somalia remains divided by clan, religion, and region.

Buzan's five-sector model captures both hard and soft power dynamics.[14] The study is further informed by Professor János Besenyő's adaptation for African contexts, positioning Türkiye's engagement as a hybrid model blending development and strategy. Comparative insights from hybrid state-building literature[15] frame Türkiye's approach alongside broader trends of non-Western influence in fragile states. Recent analyses of Türkiye's foreign policy[16] support this integrated perspective.

[11] George – Bennett 2005.
[12] Sinkó 2022.
[13] Ingiriis 2016.
[14] Buzan et al. 1998; Besenyő 2021.
[15] Duffield 2007; De Waal 2015.
[16] Fidan 2023.

Data were collected from a mix of primary and secondary sources. Primary materials include official statements from Türkiye's Ministry of Foreign Affairs, Ministry of Defence, TIKA (Türk İşbirliği ve Koordinasyon Ajansı Başkanlığı – Turkish Cooperation and Coordination Agency), and the Diyanet (Diyanet İşleri Başkanlığı – Presidency of Religious Affairs). Somali parliamentary records and press releases were also reviewed. Secondary sources comprise academic articles, international organization reports (UN, AU), and regional media analyses in English and Turkish.

By structuring the investigation around the three research questions, the study provides a systematic assessment of Türkiye's role in Somalia.

INSTRUMENTS OF TÜRKIYE'S SECTORAL ENGAGEMENT IN SOMALIA

Türkiye's growing presence in Somalia reflects a multifaceted strategy blending military cooperation, economic investment, societal outreach, and environmental governance – aimed at reinforcing Somali state capacity while advancing Ankara's geopolitical objectives. This engagement intensified following the February 2024 Defence and Economic Cooperation Framework Agreement, signed amid rising Red Sea tensions and the controversial Ethiopia–Somaliland maritime pact, which Somalia condemned as a breach of sovereignty.[17]

Framed as a strategic counterweight, the ten-year Türkiye–Somalia accord authorizes joint air, land, and naval operations, maritime infrastructure development, and protection of Somalia's Exclusive Economic Zone (EEZ).[18] Since its ratification, Somalia's alignment with Türkiye – especially in maritime sovereignty and regional security – has embedded the country more deeply in Ankara's regional calculus, raising concerns about entanglement in Red Sea and Gulf of Aden rivalries.

However, the agreement has also triggered domestic pushback. A Somali parliamentary committee opposed the deal, citing its lack of transparency, while civil society actors criticised the absence of regional consultation and warned that preferential hydrocarbon clauses and long-term naval access could weaken Somali sovereignty and future fiscal independence.[19]

Türkiye's expanding footprint has also triggered external reactions. EU and NATO members – including Hungary[20] – are increasingly confronted with the need to adapt to middle-power actors operating outside traditional Western security norms. Meanwhile, Somalia's Western partners have expressed concerns that Türkiye's preference for bilateral arrangements risks fragmenting multilateral frameworks such as the New Deal by duplicating efforts in sectors like health and education. Simultaneously, Türkiye's domestic opposition has ques-

[17] Abdurrazık 2024; Aguiar 2024.

[18] Oruç 2024; Şimşek 2024.

[19] Garowe Online 2025; Bojang 2025.

[20] Hungary has contributed to Somalia's stabilization via its participation in the EU Training Mission (EUTM) Somalia, which supports the Somali National Army through military training and strategic advisory roles under the EU's Common Security and Defence Policy (CSDP). See: European Union External Action Service (EEAS), CSDP Annual Report 2022–2023. 57–59. https://www.eutmsomalia.eu/wp-content/uploads/bsk-pdf-manager/2023/10/CSDP_Annual_Report_2022_2023_EN_v5-1.pdf

tioned the strategic logic and economic sustainability of this engagement – especially in light of the mounting inflation and the projected $2.3 billion cost.[21]

Ankara's multidimensional model – rooted in pragmatic bilateralism and Islamic solidarity – distinguishes it from both Western and Gulf approaches. While Western strategies emphasise donor conditionality and multilateral coordination, Türkiye's state-to-state diplomacy enables swifter implementation by bypassing NGOs and cumbersome oversight structures. In contrast to Gulf states like the UAE and Qatar, which rely more heavily on financial patronage and ideological alignment, Türkiye presents itself as a partner committed to sovereignty-building through physical and institutional reconstruction.

Although this model delivers speed and coherence, it faces growing criticism for reinforcing governance imbalances, marginalizing federal member states, such as Puntland and Jubaland, and creating structural dependency on Turkish firms and aid infrastructure. The Somali case, therefore, underscores both the strengths and the vulnerabilities of Türkiye's assertive engagement in fragile environments.

To explore these dynamics systematically, the following subsections provide a sector-by-sector analysis of Türkiye's influence in the five sectors defined by Buzan. This framework illustrates not only the strategic cohesion of Türkiye's approach but also the fragilities that emerge when state-building is pursued through highly centralised, bilateral channels.

Military Sector: Security Cooperation and Strategic Positioning

At the heart of Türkiye's security engagement in Somalia is Camp TURKSOM, established in 2017 and gaining heightened strategic significance under the 2024 Defence and Economic Cooperation Framework Agreement. Nonetheless, critics argue that Türkiye's coastal-centric model has limited reach in inland areas dominated by Al-Shabaab that retains control of 20–25% of Somali territory,[22] exploiting governance gaps in rural areas. While joint Turkish–Somali naval patrols have reduced piracy incidents by 63% since 2017, Türkiye's coastal-focused strategy struggles to counter inland insurgent control, revealing the limitations of a base-centric model in a fragmented state.

Türkiye's embedded military advisors now play direct roles in operational planning against Al-Shabaab, a transnational insurgent group that functions as a quasi-state – taxing citizens, delivering basic services, and maintaining a paramilitary force. Somalia's security landscape remains fractured, shaped not only by Al-Shabaab but also by regional and global intelligence services vying for influence.[23] In this context, Türkiye's military role is not just counterterrorism – it is a bid for broader influence and security governance in the Horn of Africa.

Beyond military training, Ankara oversees strategic civilian infrastructure, like Mogadishu's airport and seaport. This dual-use strategy supports economic resilience and logistics for defence operations, embodying Türkiye's hybrid model: security assistance paired with state-building.

Since 2009, Turkish warships have participated in anti-piracy operations in the Gulf of Aden. The 2024 agreement expands this role to full-spectrum cooperation, including joint patrols and naval infrastructure, yet inland gains remain modest. Despite SNA advances,

[21] Abdulkadir 2025; Marangio 2025.
[22] Military Africa 2022.
[23] Besenyő 2023.

Al-Shabaab still controls parts of southern Somalia, underlining the coastal limits of Türkiye's engagement. Türkiye's growing presence also raises concerns in Cairo and Abu Dhabi, where Ankara is viewed as a strategic rival competing over ports and maritime influence.[24]

Economic Sector: Energy Investments and Asymmetric Partnerships

Türkiye's economic engagement in Somalia centres on strategic infrastructure and untapped energy resources. Hydrocarbon reserves – onshore and offshore – have remained largely unexplored since the 1980s due to conflict, weak regulation, and institutional collapse post-1991. Türkiye's entry marks a renewed bid to integrate energy ambitions with geopolitical strategy.

On March 7, 2024, Türkiye and Somalia formalised a significant strategic partnership by signing two landmark agreements. These included the foundational Defence and Economic Cooperation Framework, which encompasses various economic aspects such as port development, as well as a specialized Energy and Strategic Cooperation Agreement. This latter agreement granted TPAO (Türkiye Petrolleri Anonim Ortaklığı – Turkish Petroleum Corporation) exploration licenses for three expansive offshore blocks (each spanning 5,000 km²) and an additional 16,000 km² onshore.[25] Demonstrating prompt operational intent, the Turkish research vessel MTA (Maden Tetkik ve Arama Genel Müdürlüğü – General Directorate of Mineral Research and Exploration) Oruç Reis promptly began 3D seismic surveys in Somali waters, reportedly completing over 75% of the initial survey work by early 2025.[26] These agreements, bolstered by Somalia's Petroleum Law (2020), underline Ankara's confidence in revitalizing Somalia's hydrocarbon sector and incorporating potential maritime resource revenues into the economic strategies of both nations. This dedication aligns with Türkiye's broader policy of forging resilient bilateral alliances in volatile regions, an approach emphasised in recent strategic analyses.

Under the 2024 hydrocarbon agreement, Türkiye secured significant privileges through the TPAO. The agreement allows TPAO to recover up to 90% of petroleum as 'cost petroleum', while Somalia's share is capped at 5%, well below international standards, which typically range between 10–25% for host countries. This asymmetry highlights the strategic leverage Türkiye exercises in Somalia's nascent energy sector.[27]

Highlighting the strategic significance of these initiatives, Türkiye's Energy Minister Alparslan Bayraktar has explicitly connected energy projects in Somalia to Türkiye's broader vision for energy security and regional influence. In public statements, he has underscored that Somalia's energy development aligns with Türkiye's overarching Africa strategy, as well as its "Blue Homeland" (Mavi Vatan), a geopolitical doctrine that asserts Türkiye's maritime rights in surrounding seas and extends its strategic reach across key sea lanes from the Mediterranean to the Indian Ocean. Therefore, investments in oil, gas, and potentially electricity and mining are not merely commercial pursuits; they are strategically crafted to enhance bilateral relations, project Turkish influence, and solidify Türkiye's role as a key player in the evolving energy corridors across the Horn of Africa and the Gulf of Aden.[28] This *'resources-for-security'* dynamic binds energy exploration to Türkiye's naval presence, creating

[24] Pirinççi – Demirtaş 2020.
[25] BBC News 2024.
[26] Demirtaş 2024.
[27] Kenez 2025.
[28] Demirtaş – Öncel 2024.

a self-reinforcing cycle: naval patrols protect Turkish energy assets, while energy revenues justify continued security investments.

Beyond hydrocarbons, Türkiye's economic presence is significantly rooted in strategic infrastructure. The Albayrak Group's 20-year concession to oversee Mogadishu's port – Somalia's primary source of revenue – is projected to double the current income of $5 million per month through modernization efforts, the addition of new berths, and enhanced customs collection.[29] While this improvement boosts efficiency and fiscal capacity, it also raises concerns about economic sovereignty and reliance on Turkish firms. The framework agreement, established in February 2024, explicitly links the development of the port and shipyard to broader defence-industrial integration, emphasising Türkiye's role not merely as a donor or contractor but as a long-term economic stakeholder in Somalia's post-conflict recovery.

In addition to direct investments in infrastructure and energy, Türkiye has also played a significant role in providing crucial financial assistance for Somalia's macroeconomic stability. In November 2020, Türkiye contributed to Somalia's debt relief efforts by settling a portion of its debt to the International Monetary Fund (IMF), a gesture that facilitated Somalia's eligibility for debt relief under the Heavily Indebted Poor Countries (HIPC) Initiative. This payment, reported as approximately $2.4 million by some sources,[30] while others indicated a slightly higher figure of $3.5 million,[31] was part of broader international initiatives to clear Somalia's outstanding financial obligations. This gesture underscores Türkiye's commitment not only to project-based aid but also to supporting Somalia's fiscal health and its integration into the global financial system.

Maritime Security, Environmental Sector, and the Blue Homeland Doctrine

Turkey's expanding naval presence in Somalia and the Horn of Africa underscores its ambition to exert influence across the Indian Ocean, in line with the Blue Homeland doctrine. This strategic approach positions Turkey as a maritime power, impacting crucial sea routes from the Eastern Mediterranean to the Arabian Sea. Somalia's pivotal location at the crossroads of the Red Sea and Indian Ocean serves as a geostrategic anchor for this vision, significantly extending Turkey's naval reach well beyond its immediate vicinity. The Defence Agreement, established in February 2024, formalises this partnership, granting Türkiye access to the potential development of Somali port facilities, thereby reinforcing its role in the region.

The deployment of Turkish naval vessels such as TCG[32] Anadolu and TCG Kınalıada may access Somali ports, while Ankara funds Somali coast-guard training and port modernization, though concerns persist about the long-term sustainability and whether these projects sufficiently involve Somali contractors or build local capacity. These actions showcase Türkiye's shipbuilding capabilities and blue-water reach, enhancing Somalia's capacity to govern its waters – an effort that connects both security and environmental imperatives.[33]

[29] Hagmann – Stepputat 2023.
[30] Biçer 2020; The New Arab 2020.
[31] Turkish Minute 2020.
[32] TCG stands for Türkiye Cumhuriyeti Gemisi (English: Turkish Republic Ship).
[33] Çubukçuoğlu 2023a.

By integrating naval deployments with capacity-building measures, Türkiye supports coast guard training, port modernization, and maritime law harmonization, reinforcing Somalia's capacity to govern its maritime space and defend against piracy, smuggling, and illegal fishing.

From a Somali perspective, the maritime partnership promises security, investment, and capacity-building in a region often overlooked by traditional powers. For Türkiye, it offers a foothold in a strategic transit corridor, enhancing its presence in the Red Sea, Gulf of Aden, and the broader Indo-Pacific security environment. While this approach bolsters Türkiye's identity as an independent actor in global geopolitics, it also increases its exposure to regional rivalries and volatile maritime disputes.

Together, these three dimensions – security cooperation, energy diplomacy, and maritime strategy – demonstrate how Türkiye's engagement in Somalia is not a fragmented set of activities, but rather an integrated approach to influence-building, resource access, and strategic depth in one of Africa's most geopolitically critical states.

Soft Power and Governance Tools

Türkiye's soft power strategy in Somalia integrates educational, religious, cultural, and humanitarian elements to foster long-term societal and political influence. Institutions such as the Maarif Foundation and the Yunus Emre Institute establish schools and cultural centres that promote the Turkish language, heritage, and values. Additionally, Diyanet funds the construction of mosques and supports Islamic education programs, thereby reinforcing a shared religious identity and enhancing Turkey's image as a fraternal and moral partner.[34]

More than 3,500 Somali students have been awarded scholarships by the Turkish government to pursue higher education in Türkiye, resulting in the establishment of a network of culturally aligned elites with strong institutional connections to Ankara. These graduates often assume prominent positions in public administration, civil society, and academia, thereby integrating Turkish soft power into Somalia's post-conflict leadership framework. Turkish aid is generally viewed as being more responsive and culturally attuned compared to Western donor assistance, which frequently faces challenges related to conditionality and slow implementation.[35]

Türkiye's support for Somali governance is visible not only in education but also in core state functions. Turkish advisors assist ministries in public administration, police training, and sectoral coordination. The Maarif Foundation has been instrumental in formalising Somali education by standardising curricula in Turkish-funded schools, while TIKA contributes to civil service and vocational training programs. This bilateral "delivery-first" model contrasts with the procedural benchmarks emphasised by Western donors, enabling faster execution but also concentrating influence within Mogadishu. Critics warn that such centralization risks excluding federal states from strategic planning and undermining broader governance legitimacy.

Türkiye has strategically positioned itself as the primary guarantor of sovereignty for Mogadishu. Its prompt response to the 2024 maritime agreement between Ethiopia and Somaliland – under which Ethiopia was granted commercial and military port access in Somaliland

[34] Özuygun 2024, 32–40.

[35] Sucuoğlu – Stearns 2016.

in exchange for possible recognition of its independence – highlights this alignment. This agreement poses a direct threat to Somalia's territorial integrity by legitimising Somaliland's de facto autonomy and setting a precedent that allows external actors to circumvent Mogadishu in regional negotiations.[36] Economically, it risks diverting maritime trade from Somali ports to Ethiopian-controlled facilities in Somaliland, potentially costing Mogadishu 12–15% of projected port revenues by 2030.[37] Türkiye countered by fast-tracking its Defence and Economic Cooperation Framework Agreement, reinforcing its role as Somalia's strategic counterweight.

Türkiye's governance strategies extend beyond soft power, providing direct support to Somali institutions. Turkish advisors are engaged in law enforcement, public administration, and education initiatives, while the Maarif Foundation works to standardise curricula in Turkish-sponsored schools. Additionally, Türkiye co-chaired the security pillar of the *New Deal* for Somalia (2013–2016), collaborating with the U.S. and EU to reform Somalia's armed forces and address issues such as displacement, food insecurity, and public health.[38] In contrast to multilateral initiatives that prioritise broad stakeholder consensus, Türkiye's approach focuses on achieving tangible results, deeply embedding itself within Somalia's political and societal framework.

This assertive strategy, however, faces its own set of challenges. Public rallies in Mogadishu celebrating Turkish–Somali cooperation reflect significant support within the capital; nonetheless, the absence of federal inclusion and transparent oversight mechanisms may threaten long-term sustainability. Critics argue that soft power cannot sufficiently substitute for the necessity of democratic legitimacy and inclusive governance. For Türkiye's involvement to retain its credibility and resilience, it must evolve from a centralised approach to one that acknowledges Somalia's internal diversity while promoting federal cohesion.

Türkiye's cultural influence is further enhanced through the media. Turkish state-backed outlets broadcasting in Somali bolster Ankara's narrative, reinforcing its role as a partner rooted in religious and post-colonial solidarity. Public perception of this partnership remains robust, as evidenced by mass pro-Türkiye demonstrations in Mogadishu in 2024. However, this growing closeness with the federal government has raised concerns among federal member states such as Puntland and Jubaland, which cite their exclusion from decision-making on security and resource management. For Türkiye's soft power model to remain sustainable, it must expand its inclusivity to embrace Somalia's internal political diversity and avoid reinforcing centralising tendencies.

Ultimately, Türkiye's societal and governance initiatives enhance its broader hybrid model – a combination of humanitarian efforts, religious affiliations, elite education, and institutional reforms designed to project influence and foster long-term alignment. This combination of collective workload positions Somalia not merely as a recipient of aid but as a crucial player in Türkiye's redefined geopolitical framework throughout the western Indian Ocean corridor.

[36] International Crisis Group 2024.
[37] Qadri 2024.
[38] Hall 2015.

CHALLENGES AND CRITICISMS

Table 4 *Key risks in Türkiye's Somalia engagement*
Sources: *Fahron-Hussey 2018; Military Africa 2022; Çubukçuoğlu 2024; SAFETY4SEA 2024; World Bank 2024.*

Challenge	Example/Metric
Overextension Risk	1,200+ Turkish advisors in Mogadishu; 45 % of infrastructure projects delayed by security concerns
Regional Rivalries	IGAD[39] warns of "mission creep" from unilateral Turkish naval drills under Mavi Vatan.
Elite-Centric Governance	Puntland excluded from 73% of bilateral talks, boycotted 2024 port-revenue negotiations.
Piracy & Maritime Security	Pirate attacks off Somalia fell from 236 in 2011 to only 2 in 2014, thanks to NATO's Operation Ocean Shield and international counter-piracy efforts.
Insurgency & Al-Shabaab	Al-Shabaab controls ~20–25% of the territory, despite intensified Turkish training.

Türkiye's expansive engagement in Somalia – while praised for its scope and speed – faces growing scrutiny on multiple fronts. These critiques centre around four key challenges: federal imbalances, strategic overreach, securitization, and regional backlash.

Elite-Centric Governance and Federal Exclusion

Türkiye's close alignment with the central government in Mogadishu has strengthened state capacity, but it has also raised concerns about elite consolidation at the expense of federal pluralism. By reinforcing the political centre, Türkiye risks inadvertently undermining Somalia's fragile federal architecture and sowing internal discord.

Transparency and Economic Dependency

Türkiye's long-term energy and infrastructure agreements, while essential for economic revitalization, have drawn criticism for lacking transparency and favoring Turkish firms disproportionately. Leaked details of the 2024 hydrocarbon deal suggest asymmetrical revenue-sharing provisions that limit Somalia's fiscal autonomy.[40] Critics argue that the growing presence of Turkish companies in key sectors, such as port and airport operations, may restrict local capacity development and embed structural dependencies.

[39] IGAD stands for Intergovernmental Authority on Development.
[40] Kenez 2025.

Security-First Approach and the Risk of Securitization

Türkiye's defence cooperation, symbolised by Camp TURKSOM and maritime patrols, has improved operational readiness against threats like piracy and Al-Shabaab. Yet this security-heavy model raises the risk of over-securitization, where military priorities overshadow broader civilian governance and development goals. Critics warn that this may lead to an unbalanced state-building process that favours coercive institutions over participatory or inclusive mechanisms.

Regional Rivalries and Strategic Blowback

Türkiye's growing maritime and military footprint has triggered anxiety among regional powers, such as Egypt, the UAE, and Ethiopia. These actors view Ankara's presence as part of a broader ideological and strategic contest for influence across the Red Sea corridor and the wider Horn of Africa. In particular, the 2024 Ethiopia–Somaliland memorandum and Türkiye's subsequent deepening of bilateral ties with Mogadishu have intensified concerns about geopolitical polarization. Some AMISOM (African Union Mission to Somalia) officials have also raised concerns about coordination gaps, mandate overlap, and the bypassing of multilateral peacekeeping frameworks.

Domestic and Multilateral Concerns

Domestically, segments of Türkiye's political opposition and civil society have questioned the sustainability and accountability of the Somalia strategy, arguing that strategic assertiveness abroad must not come at the expense of democratic oversight or domestic welfare. Meanwhile, Somalia's partners – including Western donors and regional blocs – have expressed reservations about Türkiye's preference for bilateral channels over multilateral mechanisms, warning that this may fragment broader coordination efforts.

Overextension and Strategic Tension

Despite its extensive scope, Türkiye's strategy in Somalia is at risk of overextension and strategic imbalance. The heavy reliance on Turkish trainers, contractors, and aid agencies could hinder the development of Somali self-sufficiency and expose Turkish personnel to ongoing threats from Al-Shabaab and clan-based conflict. Sustained deployments necessitate considerable financial and logistical commitments, which may divert resources from domestic priorities.

Moreover, while the integration of humanitarian assistance with strategic objectives is often lauded for its cultural sensitivity, it has raised concerns that projects might prioritise Turkish commercial or military interests over authentic local empowerment. In the absence of inclusive governance structures and transparent oversight, well-intentioned initiatives could be viewed as neo-imperial or self-serving.

Policy Recommendations

To ensure the long-term sustainability, legitimacy, and effectiveness of its Somalia engagement, Türkiye should consider the following policy measures:

Table 5 *Policy recommendations for Türkiye*

Challenge Addressed	Policy Recommendation
Federal Exclusion & Elite Capture	Establish joint security and development committees with Puntland, Jubaland, and other federal member states to share decision-making.
Lack of Multilateral Coordination	Work more closely with the AU, IGAD, and Combined Maritime Forces to align mandates, avoid duplication, and enhance diplomatic legitimacy.
Transparency Deficits	Publish clear, accessible summaries of major defence, energy, and infrastructure agreements to build Somali public trust and ensure accountability.
Economic Dependency & Local Capacity Gaps	Pair every Turkish project with structured training and clear handover plans for Somali personnel; consider mandating local subcontracting quotas.

Implementing these policy shifts can help Türkiye safeguard its long-term strategic interests while reinforcing its image as a cooperative and development-oriented partner in fragile state environments.

CONCLUSION

Türkiye's engagement in Somalia represents a distinctive model of middle-power statecraft in a fragile context. Through a coordinated deployment of military assistance, infrastructure investment, and cultural diplomacy, Türkiye has positioned itself as a key factor in Somalia's reconstruction, distinct from traditional Western or Gulf approaches. By prioritising bilateral partnerships, Ankara has achieved notable agility, enhanced its visibility, and cultivated ideological resonance, particularly through Islamic solidarity and shared post-colonial narratives to cultivate trust. This approach diverges sharply from Western donors' procedural conditionality and Gulf states' transactional patronage, positioning Türkiye as a hybrid actor blending developmental pragmatism with strategic ambition.

This article applies Barry Buzan's five-sector security framework to demonstrate how Türkiye's multidimensional presence spans military, economic, societal, political, and environmental domains. The central argument is that Türkiye's Somalia engagement is not merely a series of ad hoc interventions but rather a coherent, integrated strategy. This strategy aims not only to deliver development aid or bolster security but also to actively recalibrate regional power dynamics in the strategically vital Horn of Africa, thereby presenting an evolving model of assertive middle-power foreign policy. The landmark February 2024 Defence and Economic Cooperation Framework Agreement serves as a watershed in this endeavour, clearly signalling Türkiye's ambition to institutionalise its long-term role as both a comprehensive development partner and a pivotal security guarantor for Somalia. This bilateral pact not only counters Ethiopia's Somaliland port deal but also embeds Türkiye in the Indo-Pacific maritime corridor, aligning with its "Blue Homeland" doctrine.

Yet this model faces significant challenges. Persistent state fragility, elite-driven governance, and unresolved federal tensions risk undermining the inclusivity of Turkish initiatives. The centralization of partnerships in Mogadishu has alienated federal states like Puntland and Jubaland, while asymmetric energy agreements – granting Türkiye 90% cost of petroleum recovery – echo critiques of neocolonial resource extraction.[41] Moreover, Türkiye's growing footprint has triggered strategic anxieties among regional rivals, raising the risk of entanglement in Red Sea geopolitical rivalries. Pressing concerns regarding the potential for Somali dependency, a lack of full transparency in key bilateral agreements, and the undeniable securitization of aspects of its aid further complicate Türkiye's portrayal and acceptance purely as a benevolent international actor.

To maintain credibility and ensure sustainable progress, Türkiye must balance its assertive bilateral approach with inclusive engagement across Somalia's federal states, establish transparent governance mechanisms, and enhance coordination with multilateral actors. The establishment of joint committees with federal states, clearer public communication regarding the terms of agreements, and structured capacity-building initiatives could strengthen Somali ownership while gradually reducing external dependencies and reliance on Turkish personnel. Additionally, selective multilateral coordination – such as aligning port security efforts with AU mandates – would mitigate perceptions of unilateralism and address Western concerns about fragmented aid.

Ultimately, Türkiye's engagement offers lessons for middle powers in fragile environments. It exemplifies "strategic humanitarianism," blending soft and hard power. Replicability depends on context, but Somalia offers a critical case for future interventions.

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[41] Kenez 2025.

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Sándor Bence Ács

THE DIFFICULTIES OF DETECTING EXPLOSIVES LEFT IN WAR ZONES USING OPEN-SOURCE DATA ANALYSIS THROUGH THE EXAMPLE OF THE SYRIAN CIVIL WAR

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ABSTRACT: *The unexpected turn of events in December 2024 during the Syrian Civil War – the fall of President Bashar al-Assad – may inspire long-unseen hopes among the population of this war-ravaged country. However, detecting and removing the explosives left behind by the war will take many years, provide work for masses of specialists, and consume vast financial resources. In this article, the author illustrates how difficult it is to estimate the amount of unexploded ordnance remaining in war zones, even when relying on otherwise high-quality information.*

KEYWORDS: *Middle East, Syrian Civil War, explosive ordnance disposal, explosive devices*

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INTRODUCTION

The collapse of the Assad regime in December 2024 took the world by surprise: the dynasty that had ruled since 1970 survived the thirteen-year civil war, only to be ousted from power following a two-week blitz offensive. While the change in government undoubtedly offers new hope for the Middle Eastern state, the decreasing intensity of the fighting has also brought to light a long-swept-under-the-rug problem: the removal of vast quantities of explosives scattered throughout the country.

The detection, marking, and removal of explosive devices is a difficult task from multiple perspectives:[1] as we will see later, even high-quality studies produced through extensive research are unable to determine the exact number of remaining devices or the size of the contaminated areas. Today's popular open-source-based data analytics may offer some guidance in carrying out the task, but even so, it is impossible to achieve perfect results. The situation is further worsened by the fact that, although fighting between armed groups formerly under government control and various non-state actors seems to be subsiding, in a highly fragmented Syria, even a small spark is enough to ignite another armed conflict.

[1] Daruka – Szalkai 2024.

The clearance of explosives in the Middle Eastern state is, however, an urgent task: as the civil war has subsided, civilians who previously fled the country have begun to return, and it is likely that efforts to repair the damage, clear the rubble, and restore previously unusable farmland will soon begin. Yet the explosives, hidden among the debris for months or even years, still lie in wait for their victims.

DETERMINING THE NUMBER OF WEAPONS USED IN SYRIA

Efforts to detect and remove explosives left behind from the Syrian conflict critically depend on three key pieces of information: the spatial distribution, type, and quantity of these devices.

Spatial distribution

The approximate determination of the locations of explosive devices – while a formidable task in itself – is the easiest among the three factors. Different phases of the civil war affected various regions of the country to different extents, allowing conclusions to be drawn about which areas of Syria are the most contaminated.

The most comprehensive available estimate of unexploded ordnance in Syria was produced by The Carter Center. Their analysis, based primarily on open sources, seeks to determine the number of weapons used between 2012 and 2021, a period that coincides with the most intense phase of the conflict: from the escalation in 2012 to Türkiye's "Operation Spring Shield" in 2020,[2] and the ceasefire that followed in March of the same year.

The research reveals that during the first ten years of the civil war, the majority of explosives were concentrated in just five of Syria's fourteen governorates. In order, these areas were: Hama, Idlib, Aleppo, Rif Dimashq, and Daraa. Altogether, these five regions accounted for an estimated 79% of the explosives used in the country up to 2021 (see Table 1).

Table 1 *Approximate number of explosive weapons used in Syria by governorate (2012–2021)*[3]

Governorate	Number of recorded incidents	Percentage
Latakia	31,080	3.2%
Idlib	177,027	18.2%
Aleppo	172,039	17.7%
Raqqa	18,910	1.9%
Al-Hasakah	15,408	1.6%
Tartus	71	0.007%
Hama	188,994	19.4%
Deir ez-Zaur	39,951	4.1%
Homs	51,851	5.3%

[2] "Operation Spring Shield" was launched by the Turkish Armed Forces on February 27, 2020, against Syrian government forces and their allied militias in Idlib Governorate. The aim of the operation was to secure areas located near the Turkish border.

[3] The Carter Center, 2022, 24.

Governorate	Number of recorded incidents	Percentage
Damascus	31,744	3.3%
Rif Dimashq	153,042	15.7%
Quneitra	11,802	1.2%
Daraa	78,031	8.0%
Al-Suwayda	2,101	0.2%

The geographic distribution of explosive use naturally correlates with the main hot spots of the civil war. Daraa is one of Syria's poorest regions,[4] and the anti-government protests in 2011 also began in its center, which is likewise called Daraa.[5] As the conflict escalated, the area saw the emergence of the Islamic State and other armed groups opposing the state.

Rif Dimashq Governorate encompasses the areas surrounding the capital, making it the main stronghold of pro-Assad government forces. While fighting in this region had largely subsided by 2018, the six years following the 2012 escalation saw intense clashes.[6] It is also important to note that although the city of Damascus suffered "only" 3.3% of the explosive incidents estimated by The Carter Center, these events occurred within an area of just 118 square kilometers (for comparison, this is slightly more than one-quarter of the size of Budapest).

The spatial distribution of explosive device usage reveals that most such incidents occurred in three northern provinces of Syria: Hama (which was another focal point of the 2011 protests),[7] Idlib, and Aleppo. These three regions were the most severely affected areas of the civil war, where not only government forces, Russian peacekeepers allied with them, and anti-government militias clashed, but also Türkiye – possessing the region's largest military – intervened multiple times.

Between 2020 and 2024, the intensity of the civil war significantly declined. Although the Islamic State was not entirely destroyed, it lost a large portion of its territory, fighting subsided in the southern provinces, and government forces consolidated control over roughly two-thirds of the country. During this period, the only major confrontation broke out in October 2023, between the Turkish Armed Forces (and the militias they supported, concentrated mainly in Idlib in northwestern Syria) and the Syrian Democratic Forces (SDF),[8] which are predominantly Kurdish. The SDF control the northeastern third of Syria, beyond the Euphrates River, and Turkish artillery and air strikes primarily targeted the northern areas of Raqqa and Al-Hasakah governorates. According to opposition sources, between October 5 and 9, 2023, Turkish forces carried out approximately seventy air strikes and one artillery strike in those two governorates.[9]

4 Syrian Center for Policy Research, 2024, 7.
5 Yacoubian, 2021.
6 The Carter Center 2020a, 8–9.
7 Black – Ali, 2011.
8 The SDF (Syrian Democratic Forces) is a multiethnic but predominantly Kurdish-led secular paramilitary organization. Aside from the United States, it maintained a hostile relationship with every other prominent actor involved in the civil war. As of June 2025, negotiations have been going on between the SDF and the new government of Syria about a ceasefire.
9 Syrian Observatory for Human Rights, 2023.

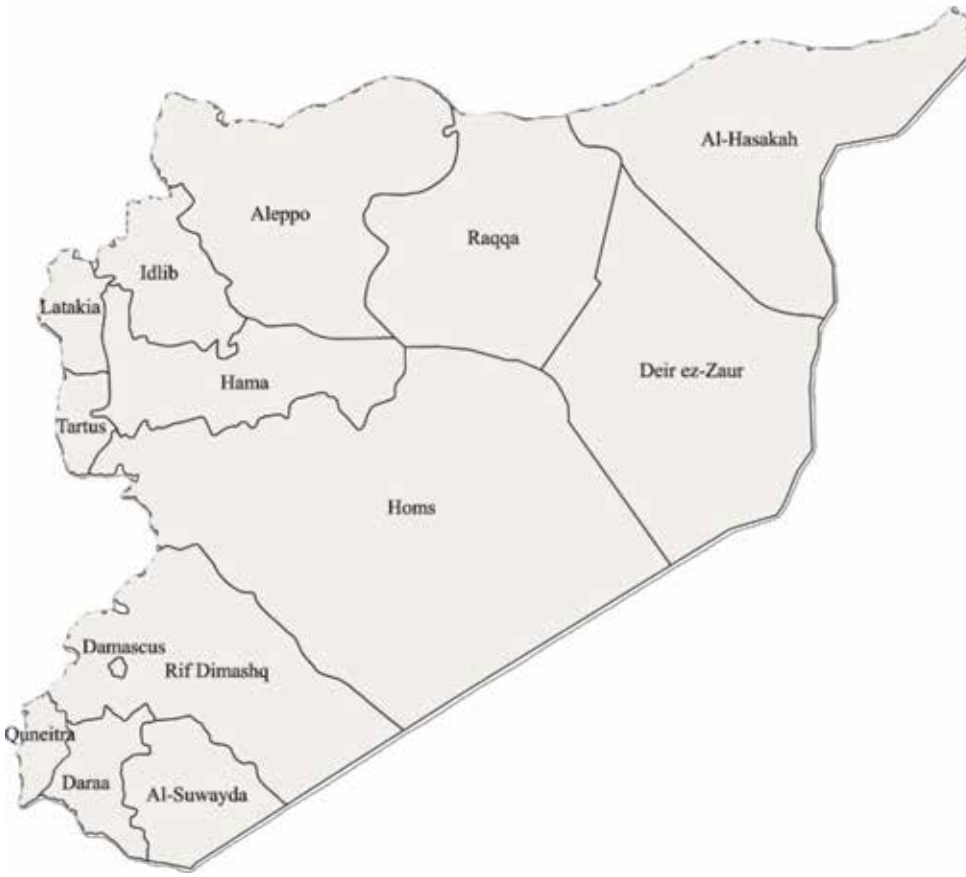

Figure 1 *The governorates of Syria*[10]

Due to the relative recency of the conflict, there is no reliable information available on the quantity of ammunition used during the December 2024 blitz offensive launched by anti-government forces, primarily Hayat Tahrir al-Sham (HTS).[11] However, based on the focal points of the fighting, it is possible to infer where the ratio of deployed – and potentially unexploded – explosives may have shifted, compared to previous analyses by the Carter Center.

The most intense battles occurred in the governorates of Aleppo and Hama, where Syrian government forces tried to halt the rebels, using artillery and air strikes, particularly around Idlib, a stronghold of HTS. The Turkish Armed Forces and the Syrian National Army

[10] Own work, original blank map by Siirski via Wikimedia Commons https://commons.wikimedia.org/wiki/File:Blank_Syria_map.svg

[11] Hayat Tahrir al-Sham is a radical Sunni Islamist political-military coalition and the successor organization to the al-Nusra Front, which was affiliated with al-Qaeda. During the civil war, its main adversary was the Assad regime, but it has clashed with every other actor in the conflict apart from Türkiye. Since December 2024, HTS has become the leading political power in Syria.

(SNA)[12] – currently allied with HTS – also clashed with SDF units stationed in Raqqa and Al-Hasakah. Additionally, the warring parties, including Iraqi militias aligned with the government, engaged in combat in Deir ez-Zor Governorate. In this region, the United States, which supports the SDF, bombed both Syrian government forces and remnants of the Islamic State. While Rif Dimashq and Damascus largely avoided the brunt of the fighting, these areas – as well as the remaining Syrian-controlled parts of Quneitra Governorate (much of which is occupied by Israel as part of the Golan Heights) – were bombed by the Israel Defense Forces (IDF). It is worth noting that the IDF air strikes primarily targeted Syrian military assets and thus likely reduced the overall number of explosive devices present in the country.

From the above, it can be inferred that compared to earlier estimates, the number of explosive devices left behind and posing potential danger to civilians increased most significantly in the already heavily contaminated governorates of Aleppo, Hama, and Idlib. However, Raqqa, Al-Hasakah, and Deir ez-Zor – particularly the areas along the Euphrates – now also contain a greater amount of unexploded ordnance.

PROBLEMS WITH THE USE OF OPEN-SOURCE INTELLIGENCE IN DETERMINING THE NUMBER OF EXPLOSIVE DEVICES

While the geographical distribution of potentially remaining unexploded ordnance (UXO) in Syria can be roughly outlined based on the intensity of the fighting and the known positions of the parties involved, estimating the exact number of weapons used is virtually impossible for several reasons.

Although it is almost certain that the regular armed forces involved in the conflict – such as Russia, Syrian government forces, and NATO member states – documented the quantity, type, and deployment areas of the weapons they used, these data are only partially accessible. Furthermore, the Syrian government forces, which likely expended the most ammunition, probably have incomplete records due to the chaos of the civil war and a general lack of discipline.

In the case of militias opposed to the government forces, even the existence of such documentation is questionable. While in general, effective combat against regular armed forces would require these groups to maintain a certain level of logistical organization, over the years of civil war, these formations frequently disbanded, split, or merged depending on current interests. Therefore, the likelihood that they have accurate records of the ammunition they used is minimal. For militias, the only probable source of such documentation might come from their supporting donor states; however, in this case, once again, there is a lack of publicly available information.

A less reliable, yet increasingly popular approach is the use of so-called open-source intelligence (OSINT), which involves analyzing various online materials, primarily those found on social media platforms, as well as personal accounts. However, OSINT by its very nature carries numerous sources of error: written and spoken reports are not particularly reliable. For example, a Syrian resident of Aleppo might state in a personal interview that a

[12] The Syrian National Army is an armed group supported by Türkiye, composed of several smaller militias. Throughout various phases of the civil war, it has fought against every participant except Ankara, though its primary enemy was the Assad regime. After December 2024, it officially merged into the new government forces dominated by HTS.

nearby apartment block was previously hit by something, but they could be mistaken about the date or, as a layperson, unable to identify the type of weapon used in military terms.

Analyzing various visual materials can provide a somewhat more accurate picture of the presumed location and type of explosives, but even this research method comes with difficult-to-eliminate issues.

When relying on open sources, a serious dilemma arises as early as in the process of mapping the spatial distribution of explosive devices, and it reappears when estimating their quantity and type: the quality of the information. As seen earlier, the available figures generally correspond to major hot spots of the civil war. It is logical to conclude that the more densely populated an area is, the more verbal, visual, or written reports are produced about the use of weapons there. Fighting near populated areas also receives much greater media coverage. This does not imply, for example, that fewer explosive attacks occurred in the relatively densely populated Idlib Governorate than reported, but rather that from many sparsely populated or remote areas, news of such incidents simply never reaches the outside world.

To illustrate the additional obstacles to determining the number and types of weapons used, it is useful to refer to the previously mentioned study by The Carter Center – specifically to the part that deals with the northwestern Syrian governorates, which were the most severely affected by the civil war. The analysis classifies the weapons used into four categories: those launched from the air, those fired from ground-based weaponry, those delivered via so-called cluster munitions, and those consisting of planted mines[13] or improvised explosive devices (IEDs).[14] Within these categories, researchers attempted to identify specific weapon types as precisely as possible.

Table 2 *Explosive weapons used in northwestern Syria by type (2013–2019)*[15]

Munitions category	Munitions type	No. of incidents recorded	% of total
Air-launched	Helicopter-launched	12,242	10.82%
	Fixed-wing aircraft-launched	40,914	36.17%
Ground-launched	Artillery shells	6,750	5.97%
	ATGM[16]	145	0.13%
	Cruise missiles	2	0.00%
	Hand and rifle grenades	51	0.05%
	Mortar shells	5,249	4.64%
	Ballistic missiles	8,016	7.09%
	RPGs[17]	1	0.00%
	Unknown munition	36,384	32.17%
	Tank shells	225	0.20%
Cluster	Air- and ground-launched	883	0.78%

[13] Kovács 2024.
[14] Kovács 2012, 2; Daruka 2013a, 2, 8; Daruka 2013b, 2.
[15] The Carter Center 2020b, 5.
[16] Anti-Tank Guided Missile.
[17] Rocket-Propelled Grenade.

Munitions category	Munitions type	No. of incidents recorded	% of total
Landmine, IED, UXO	IEDs, unknown explosives	1,438	1.27%
	Landmines	216	0.19%
	PBIEDs[18]	99	0.09%
	SVBIEDs[19]	95	0.08%
	UXO[20]	38	0.03%
	VBIEDs[21]	359	0.32%

From the table above, it can be seen that during the data collection period, a total of 30,425 incidents involving the use of explosive devices were identified, which are estimated to represent the deployment of at least 113,107 weapons. It is essential to highlight that while most similar studies count only one explosive per incident, The Carter Center records three munitions for any report that does not specify the number of weapons used but refers to them in the plural form. For example, in cases described as involving "intense artillery fire and air strikes," they register three artillery shells and three weapons launched from fixed-wing aircraft.[22] It is also important to note that in the case of cluster munitions containing multiple submunitions, the reported number refers to the containers, not the individual submunitions.[23]

It is also impossible to determine exactly what percentage of the ammunition used during combat ends up as UXO. Such anomalies depend on numerous factors, such as the specific circumstances of a weapon's deployment, the conditions under which it was stored prior to use, and the level of training of the personnel operating it. Added to this is the fact that different types of weapons have varying failure rates, data that manufacturers are understandably reluctant to disclose. A generally accepted rule of thumb is that 10–30% of explosive devices malfunction and become UXO.[24]

Although the researchers themselves emphasize that this method can only estimate an absolute minimum, overall findings of the four regional surveys correlate with reports about the intensity and locations of fighting in those areas.

Based on the documented incidents, in three of the four examined regions – Northwestern Syria (Aleppo, Hama, Idlib, Latakia, Tartus), Southern Syria (As-Suwayda, Daraa, Homs, Quneitra), and Central Syria (Damascus, Rif Dimashq) – ground-launched weapons were predominant, while in the northeast (Al-Hasakah, Raqqa, Deir ez-Zor), air-launched weapons were more commonly used (see Table 3).

[18] Person-Borne Improvised Explosive Device.
[19] Suicide Vest-Borne Improvised Explosive Device.
[20] Unexploded Ordnance.
[21] Vehicle-Borne Improvised Explosive Device.
[22] The Carter Center 2020a, 3–4.
[23] The Carter Center 2020b, 4.
[24] Feickert – Kerr 2024, 2.

Table 3 *Estimated percentage distribution of weapon categories used in Syria by regions (2013–2021)*[25]

Region	Air-launched	Ground-launched	Cluster	IED, UXO, unknown
Southern Syria	34.9%	64.3%	0.1%	0.7%
Central Syria	31.6%	68.0%	0.1%	0.2%
Northeastern Syria	38.1%	61.2%	0.2%	0.5%
Northwestern Syria	51.6%	45.1%	0.0%	3.3%

The reason why the proportion of air-launched weapons was higher in northwestern Syria compared to other parts of the country can be explained by the nature of the conflict: the region in question was considered a local stronghold of the Islamic State. The terrorist organization declared Raqqa to be its capital, and after losing it in 2017,[26] it retreated along the Euphrates and established new centers in towns located in Deir ez-Zor Governorate.[27] While in most other parts of the country the Syrian government forces – alongside supporting Russian troops and allied militias – fought mainly against anti-government armed groups, the Islamic State was treated as an enemy by every state actor in the region, including the United States, which primarily relied on its air force during the fighting. Therefore, the likely reason for the spike in air-launched weapon use in this region is that U.S. forces conducted their heaviest strikes here. In other parts of the country, ground-launched weapons were more prevalent. All in all, based on Table 4, the minimum number of UXO remaining in Syria in 2021 was estimated to be around 100,000, although the actual total may be significantly higher.

Table 4 *Estimated minimum number of explosive weapons used in the Syrian Civil War until 2022*[28]

Munitions category	Minimum No. of usage	% of total	No. of potential UXO
Air-launched	363,839	37.4%	36,500–109,250
Ground-launched	599,974	61.7%	60,000–180,000
Cluster	1,658	0.2%	150–450
Landmine, IED, UXO	6,633	0.7%	750–2,000

LIMITATIONS OF USING OPEN-SOURCE INTELLIGENCE TO DETERMINE THE TYPE OF WEAPONS DEPLOYED

However, the limitations of open-source-based analyses become evident when we examine the types of weapons used in the recorded incidents in more detail. A striking anomaly, for example, is that in the case of northern Syria, the study recorded only 145 anti-tank

[25] The Carter Center, 2022, 14–22.
[26] Raqqa 2017.
[27] Hassan 2017, 1–3.
[28] The Carter Center, 2022, 13.

guided missiles (ATGMs), 51 hand and rifle grenades, and just one rocket-propelled grenade (RPG). During the conflict, Syrian government forces extensively used 9M113 Konkurs,[29] 9M133 Kornet,[30] and 9K111 Fagot[31] ATGMs. RPGs of various kinds are popular worldwide, with the Soviet-developed RPG-7 being the most widely used handheld anti-armour weapon in the world, and hand grenades are now standard equipment in virtually all armed forces. Therefore, it initially seems anomalous that so few of these weapons were deployed in the region hardest hit by the civil war. It should be noted, however, that the ratio of such weapons was similarly low in the other areas; for example, only 123 hand and rifle grenades were recorded in Central Syria,[32] so this is by no means an isolated case.

The phenomenon, however, has a fairly straightforward explanation: a ballistic missile strike or an air strike is a "spectacular" event, involving a large, highly visible explosion that often results in numerous casualties. As a result, such incidents receive significantly more media coverage, even in a conflict zone where similar events may occur multiple times a day. In contrast, the use of various anti-tank weapons or hand grenades is such a routine occurrence that neither the combatants nor the media are likely to consider it important enough to document.

Naturally, this is also due to the fact that air-launched weapons or long-range ground-launched systems often strike deep behind the front lines, whereas smaller weapons are typically used at the heart of the fighting, places where journalists rarely venture, and where civilians, understandably, have no intention of taking the risk to record footage.

It is important to specifically address the issue of improvised explosive devices (IEDs). As shown by the investigations, the proportion of these weapons was highest in Northeastern Syria – the very region where the Islamic State, the group that used such devices most extensively,[33] had its strongholds. Documenting explosive devices that transition from IEDs to UXO is particularly difficult compared to other weapons used in Syria.

The challenge lies in the fact that, while conventional munitions ideally detonate upon impact, the very purpose of IEDs and landmines is to remain hidden until the moment of detonation. If the placement of such an explosive device is observed by civilians or enemy forces, the weapon loses its intended effect. As a result, if an IED fails to detonate, whether due to malfunction or some other reason, then, apart from those who placed it, others are unlikely to even be aware of its existence. This means that the proportion of IEDs or landmines that become UXO is likely higher than what open-source-based research is able to uncover, especially when compared to other types of explosive weapons.

CONCLUSION

Following the apparent end of the civil war in Syria, significant attention will undoubtedly be directed to locating and neutralizing the explosives left behind in the country. However, as has become clear, it is virtually impossible to produce a reliable estimate of the number of UXO remaining after such asymmetric conflicts as the one in Syria. In-depth analyses based on open sources – such as those conducted by The Carter Center – can provide an

[29] Lyamin et al. 2016.
[30] Smallwood 2014.
[31] Janovský 2018.
[32] The Carter Center 2020a, 5.
[33] Kovács 2024, 109.

estimate of the possible minimum number of unexploded weapons and can identify the most heavily contaminated areas with relative confidence. Nonetheless, the actual number of UXO is likely significantly higher than reported. Accurately identifying the model – or even the broader category – of these weapons poses major challenges, especially in the case of relatively small devices used close to front lines.

Since 2021, several programs have been launched to clear explosives from the country, most notably by the United Nations Mine Action Service (UNMAS). However, drawing on experiences in other conflict zones, complete clearance could take decades, assuming that the highly unstable country does not descend into civil war once again.

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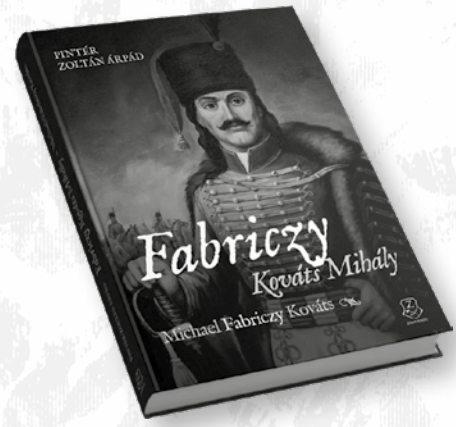
MICHAEL FABRICZY KOVÁTS

A Hungarian Hussar Officer on Two Continents

Author: Árpád Zoltán Pintér
Translation: Kosztasz Panajotu

This volume is a tribute to the character of Mihály Kováts and the previous work of researchers exploring his life. Meanwhile, it also opens a window on the world of 18th-century Hussar officers. Almost four decades have passed since the publication of the last academic book about our hero. Since then, new research materials and sources have appeared in domestic and foreign (Austrian, German and American) archives, making it possible to explore the life of Kováts.



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Levente Richárd Ollár

"TAIWAN FOR SURE IS NOT UKRAINE" – THE PRC'S COMPLEX RELATIONSHIP WITH THE RUSSO-UKRAINIAN WAR

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ABSTRACT: *This paper explores the multifaceted nature of the People's Republic of China's position regarding the Russo-Ukrainian War. It provides a comprehensive overview of China's strategic partnership with Russia, examines the evolution of Sino-Ukrainian relations prior to the conflict, and analyzes the shifting narrative from Beijing concerning the war. The analysis considers China's geopolitical balancing act, ideological positions, and economic interests, highlighting why China maintains a neutral stance while pursuing its long-term global ambitions. The paper concludes by assessing China's potential role in mediating a peace deal and the implications for Europe and international diplomacy.*

KEYWORDS: *China, Russia, Ukraine, strategic partnership, neutrality, diplomacy, geopolitical strategy*

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INTRODUCTORY THOUGHTS

"Taiwan for sure is not Ukraine" – said Chinese foreign ministry spokesperson Hua Chunying during a press conference on February 23, 2022.[1] This single line perfectly illustrates the delicate relationship of China with the Russo-Ukrainian War. Like any other geopolitical actor, the "Middle Kingdom"[2] cannot stop itself from seeing parallels between recent happenings in the world and current or historical Chinese events.[3] As always, the Chinese position in such an important situation is very much calculated and thought through. So why does the PRC seem so indifferent about the war between its closest strategic partner and one of Europe's biggest countries? Why does China not distance itself from Russia, or why does China not give Russia its full support? How could China influence the outcome of the war, and how would that affect Europe?

The purpose of this analysis is to try and answer those questions. The study will give a brief overview of the Russia–China strategic partnership, then explore the Sino-Ukrainian

1 Hua Chunying Press Conference 2022.

2 China in Mandarin Chinese is Zhōngguó (中国), meaning "middle country" or "middle kingdom," which perfectly captures the Chinese mindset of China being the main source of civilization, surrounded by barbarians.

3 Kopper – Peragovics 2019.

relationship before the war, and finally, it will dissect China's shifting narrative on the Russo-Ukrainian War, its role in a potential Ukrainian peace deal, and draw some conclusions.

In the selection of the topic, the author combined his interest in Chinese foreign affairs and the geopolitical landscape of Europe and formed them into a coherent whole. The relevance of China's relationship with the war cannot be overstated, since the PRC is one of the EU's largest trading partners, and its influence in Europe might have a significant impact in the near future – not just on the EU, but on Euro-Atlantic relations in general. That is why this topic is also of great importance to Hungary, as it is deeply integrated into both NATO and the EU. Understanding the interests of one of the most significant actors in the region in the largest European war since World War II is essential to the country for better diplomatic maneuvering and strategic planning.

THE CHINA–RUSSIA COMPREHENSIVE STRATEGIC PARTNERSHIP

When people look at Sino-Russian relations, they assume that the PRC and the Russian Federation are de facto allies[4] and have made a pact to overthrow the US-led world order and undermine the West. One can also find sources claiming that the Russians and the Chinese people hate each other, and their cooperation is very fragile[5] and not sustainable in the long term. During the research, the author concluded that the reality is somewhere in the middle. While Russia and China are far from a traditional alliance, their "comprehensive strategic partnership for a new era" is not something to be underestimated.[6]

China and Russia laid the foundations for their future relationship in 1994 with the creation of the China–Russia "Constructive Partnership". Then it evolved throughout the years: in 1996, with the "Strategic Partnership of Coordination for the 21th Century", in 2001, with the "Treaty of Good-Neighbourliness, Friendship, and Cooperation", in 2010, with the establishment of "Strategic Partnership of Cooperation", in 2012 with the "Comprehensive Strategic Cooperative Partnership Based on Equality and Mutual Trust", in 2013, with the "Win-win Cooperation and Deepening the Comprehensive Strategic Partnership of Coordination", in 2015, with the establishment of the "Comprehensive Energy Cooperation Partnership", and finally in 2019, with the "Comprehensive Strategic Partnership for the New Era". These treaties deepened the trust and cooperation between the two giants, but did not constrain them to any real obligation.[7]

This highlights an especially important feature of the China–Russia Strategic Partnership: its flexibility. It is not constrained to an extremely strict set of rules or obligations and does not limit the two countries' relationship with other powers, possibly their rivals.[8] It leaves room for negotiation, cooperation, and trade without excluding any state. An official alliance would be much more demanding and would not allow China to have a bilateral relationship with the EU and the USA while Russia is being sanctioned by them.

But how vital is this Comprehensive Strategic Partnership for the two partners? And if their cooperation is so important, then why not make it into a full-fledged alliance? Even though Beijing and Moscow might seem like natural allies against the US, and both powers

4 Lo 2008.
5 Huiyun Feng 2022.
6 Russian Ministry of Foreign Affairs 2019.
7 Rozman 2020.
8 Bolt – Cross 2018.

are definitely aware of this fact, there are several obstacles in the way. Russia still views itself as a superpower and fears that, in a formal alliance with China, it would become a secondary partner and lose the prestige and flexibility of a great power on the world stage.[9] Meanwhile, the PRC is afraid that a formal alliance with Russia would irreversibly ruin its relations with the West, which would thus be further united against Chinese interests. But the real question is what the two countries would gain from such an alliance. The answer is simple: not much. That is the beauty of the many forms of strategic partnerships between them: they gain all the advantages of an alliance that they currently require without the main disadvantages. Both powers can focus their efforts on furthering their interests without needing to worry about their neighbors.

Overall, the two countries clearly have common geopolitical goals and need the assurance of the other to support these, or at least remain neutral. China and Russia both need this assurance so that their flanks are covered, and they do not have to waste precious resources guarding them. The two powers work together in fields that do not go against their individual interests and keep their strategic partnership flexible and non-binding. They would only form an official alliance if the tensions between the PRC and the West deteriorated to the Cold War's level of hostility and if Russia were weakened so much that it needed and accepted a China-led alliance bloc. Right now, even with Trump's increasing efforts to decouple from China as soon as possible and the war in Ukraine dragging on, it is not likely that this scenario would present itself in the near future.

SINO-UKRAINIAN RELATIONS BEFORE THE OUTBREAK OF THE RUSSO-UKRAINIAN WAR

From the previous section, we might come to the conclusion that Russia is significantly more important to Chinese interests than Ukraine. We may not be too far from the truth, but we still should not underestimate the continued cooperation between the former Soviet state and the PRC.

China and Ukraine established formal diplomatic relations on January 4, 1992, shortly after Ukraine became independent from the Soviet Union. From the beginning, the relationship between the two countries has been characterized by mutual interest, particularly in economic cooperation and strategic asset exchanges.[10] Over the decades preceding the 2022 Russo-Ukrainian War, China–Ukraine relations evolved significantly.

One of the most important events in Sino-Ukrainian relations was Ukraine's sale of the unfinished aircraft carrier "Varyag" to China in 1998. The Varyag, which would later become China's first operational aircraft carrier, the Liaoning, symbolizes a critical turning point in China's naval ambitions. Ukraine sold the ship at a minimal cost (USD 20 million[11]) under the agreement that it would not be used for military purposes – a condition China eventually bypassed through reconstruction and reclassification of the vessel.[12] The Liaoning significantly enhanced China's naval power projection capabilities, highlighting Ukraine's innocent but crucial role in China's military modernization.

[9] Lo 2008.
[10] Embassy of Ukraine in the PRC 2022.
[11] Erickson – Goldstein 2007.
[12] Li – Weuve 2010.

Economic ties between China and Ukraine were strong and steadily growing prior to the conflict. Ukraine's rich natural resources and strategic position made it a valuable partner in China's expanding Belt and Road Initiative. According to data from the State Statistics Service of Ukraine, bilateral trade between Ukraine and China increased substantially, making China Ukraine's largest trading partner by 2019.[13] Their trade largely consisted of Ukrainian agricultural products, particularly grains and cereals, with China becoming increasingly dependent on Ukrainian corn and wheat exports to bolster its food security. China also invested significantly in the Ukrainian infrastructure and technology sectors. Chinese investment in Ukrainian ports, such as the construction of new terminals in Odessa and the expansion of cargo facilities in Mariupol,[14] is a great example of that. Furthermore, Huawei, China's biggest telecommunications company, was actively involved in upgrading Ukrainian telecommunications networks, reflecting China's strategic interests in Eastern Europe's technological landscape.[15]

Strategically, Ukraine occupied a very important position in China's broader geopolitical interests in Europe and Eurasia. As part of its efforts to secure energy routes and diversify its global investments, China saw Ukraine as a gateway to Europe, given Ukraine's geographical location adjacent to European Union member states and its proximity to key markets and transit routes.[16] The integration of Ukraine into the Belt and Road Initiative framework aimed to strengthen China's economic influence across the European continent. However, China's economic and strategic relations with Ukraine have not been without complications. Ukraine's geopolitical stance, particularly its willingness to join Western institutions like the EU and NATO, occasionally created conflict with China's diplomatic preferences. China's policy traditionally emphasizes non-interference and respects sovereign states' choices regarding international alignments. Yet, Ukraine's Western orientation increasingly complicated China's diplomatic balancing act between its partnership with Russia and economic ties with Ukraine.[17]

Moreover, China's position in Eastern Europe was not solely economic but also significantly political. China's strategic objective was to maintain stable diplomatic relations and avoid alienating either Russia or Ukraine, reflecting its broader diplomatic strategy of cautious neutrality and strategic ambiguity. Before the outbreak of the Russo-Ukrainian War, China's diplomatic language towards Ukraine emphasized friendship, partnership, and mutual benefit, avoiding explicit geopolitical alignments to maintain positive bilateral relations without antagonizing Moscow.[18] China's nuanced position towards Ukraine reflected broader Chinese foreign policy strategies, aiming at economic pragmatism and diplomatic flexibility. China aimed to deepen cooperation with Ukraine without compromising its long-standing strategic relationship with Russia. Ukraine's importance in China's European strategy could be viewed as part of China's attempts to enhance its global economic security and geopolitical leverage without provoking other major powers.[19]

[13] State Statistics Service of Ukraine 2020.
[14] Xinhua 2018.
[15] Reuters 2019.
[16] Legarda – Soong 2025.
[17] Gabuev 2021.
[18] Ministry of Foreign Affairs of the PRC 2021.
[19] Rozman 2020.

CHINA'S SHIFTING NARRATIVE ON THE RUSSO-UKRAINIAN WAR

When we first look at the war in Ukraine, we might think that this is an opportune time for Chinese diplomacy, since the West is occupied with Russia, and this gives a much-needed breathing room for the PRC to deal with its external and internal problems. We might think that while Western weapons are sent to the Ukrainian frontlines, the question of Taiwan could be solved diplomatically or otherwise in favor of the People's Republic. However, the truth could not be further from this preconception.

China has clear strategic goals:[20] "by 2049, the Chinese government aims 'to build a modern socialist country that is prosperous, strong, democratic, culturally advanced and harmonious'",[21] and by 2035, it plans to double its economic output and become a self-sustaining economy.[22] But to achieve these goals, the Chinese Communist Party (CCP) must make sure that China does not get isolated from the world, since without Western markets, the Chinese economy cannot develop into a self-sustaining market.[23] That is why the outbreak of the war was not good news for China. It started a trend of deglobalization and revived NATO from its grave. A unified West could be extremely dangerous for the PRC; the sanctions implemented against Russia would be much more detrimental to the Chinese economy.

From another perspective, China also has an ideological objection to Russia's war on Ukraine since Russia recognized, then annexed, the breakaway states of Donetsk People's Republic and Luhansk People's Republic[24] from the internationally recognized borders of Ukraine. This action makes a clear parallel to the PRC's relation with Taiwan, which infuriates the CCP in two different ways. First, Russia recognized breakaway states, which is anathema to the PRC.[25] Under the one-China policy, countries shall not recognize Taiwan as an independent state, since it is officially part of the one, CCP-ruled, Beijing-centered Chinese state. If China supported Russia's claims on these lands, then the PRC would go against its own policy, thus undermining it. Second, Russia set a bad example by justifying its "Special Military Operation" on historical claims, stating that Ukraine never existed as a nation, and its being an independent country is a historical tragedy that should not have happened.[26] China has a similar stance on Taiwan. It fears that, if tensions escalate and an armed conflict breaks out between the PRC and Taiwan, then the international community would condemn China as the aggressor, even though China considers the Taiwan issue as an internal matter. There might be an even greater chance of international condemnation now than there was in 2022, before the invasion of Ukraine. Most UN countries condemned Russia and stood against Israel in the Hamas war because they feared that normalizing the violent resolution of conflicts could destabilize the global system.

So, it seems that China is very much in a constrained position about Ukraine. If it supported Russia more openly, maybe even militarily, it would risk deepening cooperation among Western states against the PRC and accelerate decoupling, thus making the PRC's long-term economic goals impossible and further militarize the Taiwan question. It would

[20] National Development and Reform Commission 2024.
[21] Overseas Development Institute 2021.
[22] Godement – Pinhas 2025; Havrén 2021.
[23] Economist Intelligence Unit 2023.
[24] Putin 2022.
[25] Shulong 2001.
[26] Putin 2021.

also complicate China's relationship with other countries that support Ukraine's fight for its territorial sovereignty and condemn Russia as the clear aggressor, while not agreeing with the West either. In their eyes, China would fulfil the prophecy of the China Threat theory and would become the aggressive dictator that the West always warned about. Nevertheless, if China were to abandon its support and condemn Russia, it would create an adversary on its exceedingly long northern border, while not gaining much in return.[27] The West would still view the PRC as a strategic and ideological rival, and it would not stop the USA's enormous efforts to decouple and reindustrialize it.

Therefore, China is in a position where, if it moves in any direction, things could get much worse than they are right now. China can still decrease or increase its quiet economic support for Russia, make a statement condemning the West for its aggressive expansion of NATO, or declare solidarity for Ukraine, but these tools only allow an extremely limited flexibility for Beijing. China is forced into neutrality in the Ukraine War because of the current geopolitical environment. If it were to change course, it would have to sacrifice a lot to gain very little.

Is this constrained position reflected in the Chinese foreign policy? According to a study by You Xu and Xiru Zhao from Waseda University, Tokyo, China's Ministry of Foreign Affairs (MFA) made 688 statements about the War in Ukraine. Out of those posts, 123 were classified as pro-Russian, 151 as pro-Ukraine, and 414 were considered neutral.[28] A statement from the Chinese MFA is considered pro-Russian if it contains words and segments that reflect China's understanding of Moscow's "legitimate defensive measures" and criticizes the West for its aggressive expansion of NATO, its unilateral sanctions on Russia, and its military support for Ukraine. A pro-Ukrainian statement highlights that China supports a diplomatic resolution to the Ukrainian crisis, recognizes the Ukrainian government (while Russia does not), and mentions China's friendly relations with Ukraine. Meanwhile, a neutral stance reflects China's willingness to mediate in the conflict and uphold the international rule of law. From these actions, we can come to the conclusion that China is, in fact, in a precarious position when it comes to Ukraine, and the Chinese MFA tries to maintain this balance.

CHINA'S ROLE IN A POTENTIAL UKRAINIAN PEACE DEAL

China mentioned many times its willingness to mediate in the conflict.[29] But how realistic is a Beijing-negotiated end to hostilities? Could it hurt or improve the chances of peace? There are many obstacles in the way, and it might not even be worth the trouble for the PRC. In the following segment, these questions will be analyzed and answered.

First of all, we should ask ourselves: Is it in China's best interest to end the war in Ukraine? The answer should be obvious since Beijing has stated many times the need for a diplomatic resolution of the conflict.[30] However, official statements and positions are not always the best indicators of a country's true intentions. Even though China has made grand proposals, its actions have never exceeded wise words. Is this the case because of the reasons mentioned in the previous chapters, or does the PRC have an ulterior motive to continue the war? Let's see what China could win from a prolonged war.

[27] Huiyun Feng 2022.
[28] Xu – Zhao 2025.
[29] Ministry of Foreign Affairs of the PRC 2024.
[30] Ni 2022.

With the conflict continuing for years, the comprehensive strategic partnership between China and Russia could further evolve, and Russian economic dependency on China would most certainly deepen.[31] With Russia focusing more and more of its resources on Ukraine, China would be in a position to further develop its ties with the Central Asian STAN countries, thanks to Russia's weakened position in the region. Further cooperation with Russia could also mean that captured Western equipment could fall into Chinese hands and could be reverse-engineered, which would boost Chinese military development efforts significantly.[32]

Nevertheless, the continuation of the war would trigger relatively more negative effects for China. For example, even though the war would divert Western resources from other parts of the globe, it would not mean an overall Western withdrawal from Asia. Quite the contrary, there would be an ever-growing demand for Western weapons, which would facilitate the further expansion of the Western defense industry.[33] The ongoing war would also strengthen Western unity and NATO.[34] The question of Taiwan would also become much more complicated, since the probability of a united Western action against "Chinese aggression" has been growing every day since the war began.[35] The war also intensified the progress of deglobalization, which started during the COVID-19 pandemic. These trends all go against long-term Chinese strategies and would hamper decades of planning and development.[36]

All in all, we can safely conclude that China is indeed interested in ending the war in Ukraine. But how great a part could the PRC play in the peace talks? If China took a seat at the negotiations, then it would find itself once again in a very precarious situation. It would have to maintain a neutral presence, which might be very difficult.

On the one hand, the Western powers would need an extreme amount of convincing to accept the PRC as mediator since most Western countries, including the USA, see China as a primarily pro-Russian and not as a neutral party.[37] So, in order to appease Western concerns, China would need to abruptly stop all of its pro-Russian rhetoric (for example, not blame the West as a major contributor to the outbreak of the war with the aggressive eastern expansion of NATO), which would undoubtedly ruffle some feathers in Russia. On the other hand, Russia would expect greater gains from the war if China decided to mediate, and any concessions to the Ukrainian side would definitely mean a decline in future Russia–China relations. Thus, China would once again be in a position where it needs to support Russia to a certain extent to sustain their comprehensive strategic partnership, while not upsetting the West too much. Maintaining this complex position is fairly difficult for Beijing in the current geopolitical environment without getting involved in the conflict, but being the mediator would certainly make it even harder.[38]

This raises the question: why would the PRC want to mediate between Ukraine and Russia? What could China gain from being the mediator? Well, the risks absolutely outweigh the benefits. China could seem like a more mature and fairer superpower than the USA to

[31] Kashin 2024.
[32] Rakesh 2024.
[33] Council of the European Union 2024.
[34] Bishara 2023.
[35] Frauen 2023.
[36] Pei 2022.
[37] EU's Top Diplomat Says China Could Facilitate, Not Mediate, Peace in Ukraine 2023.
[38] Seiwert 2023.

the rest of the world if the negotiations bore fruit, but their success seems bleak. A failed Beijing-led peace negotiation could undermine China's prestige and deteriorate Western or Russian relations, possibly both.

For these reasons, we can conclude that even though it is in China's best interest to end the war as soon as possible, taking a leading part in the negotiations is not worthwhile for it.

CONCLUSION AND CLOSING THOUGHTS

Figure 1 *A Game of Balance*
Source: *author*

Chinese foreign policy seems to have found the most advantageous position on the subject of the Ukraine War. Its pseudo-neutral stance appears to satisfy Russian expectations deriving from their strategic partnership without upsetting the West and alienating itself from Western markets vital to Chinese long-term strategy (Figure 1). It looks like China does not plan to get involved directly in the war or the peace negotiations, even though a swift end to the conflict is its desired outcome. From the European perspective, China raised no objections to Ukraine's accession to the EU, since its geopolitical and economic strategy views the country as a gateway to Europe, and Ukraine's integration into the EU would further consolidate its economic influence over the bloc.

On July 2, 2025, Chinese Foreign Minister Wang Yi met with the EU's High Representative and Vice-President Kaja Kallas and was reported to have said that China "did not want to see a Russian loss in Ukraine because it feared the United States would then shift its whole focus to Beijing."[39] Could this mean that China finally revealed its support for Russia? Is this the big turning point in China's strategy regarding the Ukraine War? The answer to these questions is a definite no. Two days later, Foreign Ministry spokesperson Mao Ning commented on Wang Yi's alleged remark, saying, "China is not a party

[39] Bermingham 2025.

to the Ukraine issue. China's position on the Ukraine crisis is objective and consistent, that is, negotiation, ceasefire, and peace. A prolonged Ukraine crisis serves no one's interests. China supports a political settlement to the crisis as early as possible. Together with the international community and in light of the will of the parties concerned, we will continue playing a constructive role towards this end."[40] This official statement once again reaffirmed China's neutral stance on the Ukraine War.

China would not change its position without a major shift in the geopolitical landscape. If either of the two pillars (Russian cooperation and Western economic dependence) changes drastically, then Beijing would be inclined to change course. For example, if Russia were to shift its rhetoric to an anti-Chinese, US-friendly position, China could be more prone to cooperate with the EU and Ukraine. A more realistic scenario could be a completely decoupled West. While the USA, under the current Trump administration, took major steps towards that, without the complete cooperation of the EU, China would still have access to the European market. It can even be argued that a decoupled USA would make the PRC more dependent on European markets, so a shift towards Russia is even less probable.

All in all, we can conclude that China would not change its complex relationship to the Russo-Ukrainian War in the near future. It is forced into this role, but it maintains a high level of flexibility. China has the ability to slightly change its rhetoric to better adapt to the ever-changing geopolitical landscape, and if the PRC's interests dictate a drastic change in its attitude, then it could do so immediately. It shows that even now, Chinese foreign policy is rational rather than being dictated by an ideological standpoint, and China always positions itself to come out on top.

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Work by two authors	Surname, First name 1 – Surname, First name 2: *Title.* Publisher, place of publication, year of publication.	Cederberg, Aapo – Eronen, Pasi: *How can Societies be Defended against Hybrid Threats?* Geneva Centre for Security Policy, Geneva, 2015. Detraz, Nicole – Betsill, Michele M.: *Climate Change and Environment Security: For Whom the Discourse Shifts.* International Studies Perspectives, International Studies Association, 2009.	Cederberg – Eronen 2015. Detraz – Betsill 2009, 303–320.
Work by three or more authors	Surname, First name 1 – Surname, First name 2 – Surname, First name 3 – etc.: *Title.* Publisher, place of publication, year of publication.	Hill, Napoleon – Verma, Satish – Green, Don: *Adversity & Advantage: Achieving Success in the Face of Challenges.* Union Square & Co., New York, 2021.	Hill et al. 2021, 15.
Collection of papers (entire volume)	Surname, First name (ed.): *Title.* Publisher, place of publication, year of publication.	Graham, Hugh Davis – Gurr, Ted Robert (eds.): *The History of Violence in America: A Report to the National Commission on the Causes and Prevention of Violence.* Bantam Books, New York, 1969. Shaffer, Ryan (ed.): *The Handbook of African Intelligence Cultures.* Rowman and Littlefield, 2023.	Graham – Gurr (eds.) 1969, 55. Shaffer (ed.) 2023, 731–746.
Collection of papers (one paper cited), or book chapter	Surname, First name: *Title of paper or chapter.* In: Editor name (ed.): Book title. Publisher, place of publication, year of publication, page number range.	Kiss, Peter A.: *The Bear, the Eagle and the Elephant: The Counterinsurgency Doctrines of Russia, the United States and India.* In: Sahni, Ajay (ed.): The Fragility of Order: Essays in Honour of K.P.S. Gill, Kautilya Books, New Delhi, 2019, 21–38. Santy, Patricia A.: *Behavior and performance in the space environment.* In: Churchill, S. (ed.): Fundamentals of Space Life Sciences. Krieger Publishing Company, Malabar, Florida, 1997, 45–81.	Kiss 2019, 21–38. Santy 1997, 45–81.

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Journal article (printed)	Surname, First name: *Title of the paper.* Journal title, Volume, year/ number, page number range.	Talbot, Ian: *Partition of India: The Human Dimension.* Cultural and Social History, Volume 6, 2009 – Issue 4, pp. 403–410. The volume is shown with the same type of characters as the original (i.e. with the Arabic or Roman numerals as in the imprint or on the cover).	Talbot 2009, 403–410.
Journal article (electronic)	Surname, First name: *Title of the paper.* Title of periodical, year/ number, page number range. URL or DOI (Date of Download).	Halem, Harry: *Ukraine's Lessons for Future Combat: Unmanned Aerial Systems and Deep Strike.* Parameters, Vol. 53, No. 4 (2023), 21–34. https://press.armywarcollege.edu/cgi/view content.cgi?article=3257&context=parameters (Downloaded: 02/05/2024). Kundnani, Hans: *Germany as a Geo-economic Power.* The Washington Quarterly, Vol. XXXIV. 2011/3., 40–42. researchgate.net/publication/ 233448698_Germany_as_a_Geo-economic_ Power (Downloaded: 09/04/2018).	Halem 2023, 21–34. Kundnani 2011, 40–42.
Dissertation, term paper, manuscript, etc.	Surname, First name: *Title.* Nature of work, Institution, year.	Fabian, Sandor: *Professional Irregular Defense Forces: the other Side of COIN.* Master's Thesis, Naval Postgraduate School, 2012.	Fabian 2012, 10.
Electronic book	Surname, First name: *Title.* Publisher, place of publication, year of publication. URL (Date of Download).	Brown, William A.: *The Gilgit Rebellion 1947.* [PDF] Ibex, London, 1998. http://pahar.in/ pahar/1998-the-gilgit-rebellion-1947-by-brown-s-pdf/ (Downloaded: 02/04/2024). If the e-book is not available free of charge or at a public address, please indicate the wider source of purchase (e.g. amazon.com) if possible. If the source does not contain page numbers, the chapter, and public address, identify the place based on the paragraph, e.g., Chapter 1, paragraph 3. This should be indicated after the publication year, in the same place where the page range is used. If the material does not contain chapters, headings, or markings suitable for identifying the place, then the first few words of the part in question are quoted in quotation marks, e.g., "The question of profitability…"	Brown 1998, 44.
Blog entry	Surname, First name: *The title of the post.* Website address, publication date. URL (Date of Download).	Jenkins, Brian Michael: *Consequences of the War in Ukraine: The Economic Fallout.* TheRANDBlog, 03/27/2023. https://www.rand.org/pubs/commentary/2023/03/consequences-of-the-war-in-ukraine-the-economic-fallout.html (Downloaded: 02/04/2024).	Jenkins 2024.

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Internet content (general, not articles, not posts)	Author (if any): *Title.* Date (if applicable). URL (Date of Download).	Lincoln, Abraham: *The Gettysburg Address.* 11/19/1863. https://www.abrahamlincolnonline.org/lincoln/speeches/gettysburg.htm (Downloaded: 02/04/2024). *United States Declaration of Independence.* 1776. https://www.archives.gov/founding-docs/declaration-transcript (Downloaded: 02/04/2024).	Lincoln, 1863. US Declaration of Independence, 1776.
One author with several works from various years, within one footnote		Schmid, Johann: *Die Dialektik Von Angriff Und Verteidigung. Clausewitz und die stärkere Form des Kriegführens.* VS Verlag, Wiesbaden, 2011. Schmid, Johann: *Hybrid warfare on the Ukrainian battlefield: developing theory based on empirical evidence.* Journal on Baltic Security 5 (1): 5–15. 2019. In short references, the surname is not repeated, only the years of publication are placed next to each other, separated by semicolons.	Schmid 2011, 15.; 2019, 5–15.
One author with several works from the same year, within one footnote	Surname, First name: *Title.* Publisher, place of publication, year of publication [a, b, c…].	Lamb, Alastair: *The McMahon Line: A Study in the Relations between India, China and Tibet, 1904 to 1914. Volume I: Morley, Minto and Non-Interference in Tibet.* Routledge & Kegan Paul, London, 1966. Lamb, Alastair: *Crisis in Kashmir 1947 to 1966.* Routledge & Kegan Paul, London, 1966.	Lamb 1966a, 20. Lamb 1966b, 42.
Authors with the same last name, same publication year, within one footnote	Surname, First name: *Title.* Publisher, place of publication, year of publication.	Verma, Kunal: *1965: A Western Sunrise: India's War with Pakistan.* Aleph Book Company, New Delhi, 2021. Verma, Aparna: *The Boy with Fire.* New Degree Press, Potomac, 2021.	Verma, K. 2021. Verma, A. 2021. Initials of the first names. If those are identical, provide the full first name.
Authors with the same last name, different year of publication	Surname, First name: *Title.* Publisher, place of publication, year of publication.	Brown, Percy: *Picturesque Nepal.* Adam and Charles Black, London, 1912. Brown, William A.: *The Gilgit Rebellion 1947.* Ibex, London, 1998.	Brown, 1912. Brown, 1998. The year alone distinguishes the authors.

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Indicating original publication date (for facsimile or reprint edition)	Surname, First name: *Title*. Publisher, place of publication, year of publication [year of original publication].	Clausewitz, Carl von: *Vom Kriege*. Nikol Verlag, Hamburg, 2008 [1832].	
Hungarian, Japanese, Korean, Vietnamese, etc. author	Surname, First name: *Title*. Publisher, place of publication, year of publication.	Fabian, Sandor: *Professional Irregular Defense Forces: the other Side of COIN*. Master's Thesis, Naval Postgraduate School, 2012. The customary sequence of names in some countries (e.g., Hungary, Japan, etc.) is surname, given names. For consistency in the appearance of the bibliography, use a comma after the surname.	Fabian 2012.
Work of unknown/ unidentifiable author	*Title.* Publisher, place of publication, year of publication.	*Guide to the Sources of Asian History*. National Archives of India, New Delhi, 1997.	Sources of Asian History, 1997. Shorten the title, and do not italicise.
Published work with bibliographic datum missing	*Title.* Publisher, place of publication, year of publication.	Indicate the missing data with square brackets: [no publisher], [no place], [no year].	
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Radio Show/ Podcast	Host/Performer: *Program title.* Radio/Website, publication date. URL (Date of Download).	Lopez, Ashley: *After Nevada's primaries, voters in the state say they're frustrated.* National Public Radio. https://www.npr.org/2024/02/07/1229723059/after-nevadas-primaries-voters-in-the-state-say-they-re-frustrated 02/07/2024 (Downloaded: 02/05/2024).	Lopez: After Nevada… 2024. Shorten long titles.
TV show	*Program Title.* Channel Name, publication date. URL (Date of Download).	*The tiny German island with a population of 16*. BBC, 07/15/2019. https://www.bbc.com/reel/video/p07cjvmc/the-tiny-german-island-with-a-population-of-16 (Downloaded: 02/05/2024).	Tiny German Island… 2019. Shorten long titles.
YouTube	Username [@ nickname] (year of publication): *Title.* YouTube, publication date. URL (Date of Download).	Lindybeige [@lindybeige] (no year): *Republican Roman Soldiers of the Second Punic War*. YouTube, no date. https://www.youtube.com/watch?v=TeU8pXr0ucI (Downloaded: 02/05/2024).	Lindybeige: Republican Roman Soldiers… no year. Shorten long titles.

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Social media	User [@nickname]: *Title* or first few words of post. Media name, date of publication. URL (Date of Download).	NOELREPORTS [@NOELreports]: The US Army aims to double the production… Twitter, 02/06/2024. https://twitter.com/NOELreports/status/1754777264674254944 (Downloaded: 02/06/2024).	NOELREPORTS 02/06/2024
Movie	*Movie title.* (Genre) Reg. Director's name. Manufacturer, year of publication.	*Alphaville: A Strange Adventure of Lemmy Caution.* (distopian science fiction) Director: Jean-Luc Godard. Athos Films, 1965.	Alphaville 1965.
Laws, articles of law, decrees, ordinances		The Disturbed Areas (Special Courts) Act 1976, Act No. 77 of 1976. Article 3. Section (2). Act of the Parliament of the Republic of India. Title and number of the legislation, type of legislation, year of promulgation, article and section, as appropriate. Sequence the identifying information as close to the original as possible, use Roman or Arabic numerals as in the original.	Disturbed Areas Act 1976.

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