

THE BLUE BASTION: THE DANUBE AS A RESILIENCE LINE – PRELIMINARY CONSIDERATIONS IN NATIONAL DEFENCE ARCHITECTURE –

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In the context of recent developments in the regional and global security environment, the Danube stands out as a strategic element of major importance for Romania. Positioned at the intersection of Europe’s commercial, energy, and military corridors, the river plays a vital role both in supporting national resilience and in strengthening collective security within NATO and the European Union. Its dual nature – as a natural barrier and a mobility axis – turns it into a bastion of defence against both conventional and hybrid threats. This study examines how the Danube contributes to the architecture of national defence through the integration of civilian and military capabilities, the protection of critical infrastructure, and rapid adaptation to new forms of aggression. The proposed analysis combines the theoretical perspective of military art with operational lessons drawn from recent conflicts, highlighting the need for a proactive, coordinated, and multidimensional approach to managing the Danube region.

Keywords: strategic resilience; national defence; hybrid security; critical infrastructure; international cooperation;

INTRODUCTION

The dramatic changes in the international security environment over the past two decades have fundamentally transformed the way states conceive their national defence. The Black Sea region, once peripheral in the strategies of great powers, has today become an epicentre of geopolitical tensions. The war in Ukraine, which began in 2014 and escalated dramatically in February 2022, has shifted the parameters of regional security and highlighted the importance of strategic infrastructure for national resilience (NATO, 2021).

In this context, the Danube, with its 1,075 km course through Romanian territory, emerges as a key element in the defensive architecture. The river represents not only a source of resources and a communication route but also a natural barrier with a deterrence role, a highly valuable logistics corridor, and a symbol of Romania's strategic identity.

The concept of *strategic resilience*, developed within NATO and adapted in national strategic documents, implies a state's ability to resist and adapt to major shocks while maintaining the functionality of vital institutions and social cohesion (EACR, 2022). Applied to the Danube region, this concept acquires a particular dimension, where geography, economy, and military security intertwine inseparably.

THE DANUBE – ROMANIA'S GEOSTRATEGIC AXIS

Historical and Military Context

Throughout history, the Danube has witnessed decisive confrontations. In Antiquity, it was the limes of the Roman Empire, the boundary separating the province of Moesia from the "barbarian" territories. In the Middle Ages, it became both a vital trade route and a space of confrontation between the Ottoman, Habsburg, and local powers. During the War of Independence in 1877-1878, the crossing of the Danube by Romanian troops held major strategic and symbolic significance (Giurescu, 2007).

In the 20th century, during both World Wars, the river served as a logistical corridor for the transport of troops, weapons, and supplies. During the Cold War, the Danube was an important element in the Warsaw Pact's defence system but also a bridge to the West.

Geoeconomic and Infrastructural Dimension

Today, the Danube is integrated into the Pan-European Transport Corridor VII, connecting the port of Constanța with the Central- and Western-European river and rail networks. The ports of Galați, Brăila, Tulcea, and Giurgiu are multimodal hubs that allow for the rapid transfer of goods between river, rail, and road transport (European Commission, 2020). This infrastructure serves dual purposes: civil and military, making it a major strategic asset.

Relevance to NATO and the EU

Romania's strategic position on the eastern flank of the North Atlantic Alliance, combined with its direct access to the Danube and the Black Sea, gives it an essential logistical role in collective security and defence efforts. This geostrategic position not only ensures the ability to respond quickly to regional threats, but also contributes to the stability and interoperability of the Alliance in the Black Sea region and the Danube basin.

The military mobility on the Danube is a key element in the adaptive defence strategies, being integrated in the crisis preparedness and response plans. The Romanian sector of the river and its ports become critical infrastructures for logistics, facilitating the rapid transit of equipment, materials and forces during multinational exercises and operations, as well as supporting emergency response actions.

This capacity for mobilization and logistics is supported by research in the field of logistics engineering and resource management, which highlights the importance of port infrastructure, transport networks and communication technologies to ensure a fast and efficient response. In addition, the use of Romanian ports for transit of equipment and materials underlines their strategic role in strengthening regional resilience and supporting multinational security efforts.

In the context of the European Union, this position provides the opportunity to coordinate and implement common defence, infrastructure development and risk management policies, thereby contributing to strengthening resilience and promoting stability in the region, in a multidimensional and inter-institutional framework.

By concluding, Romania's position on NATO's eastern flank, combined with access to the Danube and the Black Sea, gives it a crucial logistical role in supporting allied forces. Military mobility on the Danube is already part of the collective defence plans, and Romanian ports have been used for the transit of equipment and materials during multinational exercises and operations (M.Ap.N., 2019).

STRATEGIC RESILIENCE IN THE DANUBE REGION

Resilience in the Danube area means more than just resistance to shocks or disturbances. It involves a complex ability to adapt to changes, whether natural or generated by human activities, as well as the ability to respond and recover quickly in the face of these challenges. In this context, resilience includes:

❖ *Adaptability*: the ability of systems and communities to adjust processes, infrastructure and behaviour to new conditions, such as rising water levels, changes in flows or emerging risks. It requires constant monitoring and flexibility in planning, as well as the use of modelling and simulation technologies to anticipate changes.

❖ *Redundance*: the existence of alternative resources and infrastructures so that, in the event of an incident or failure, critical systems can continue to operate without major disruption. For example, diversification of transport routes, strategic resource reserves and redundant communication infrastructure are essential elements for creating a resilient system.

❖ *Quick restoration capability*: ability to restore essential functions and return to a normal state in the shortest possible time after a disruption. It requires effective intervention plans, sufficient resources and optimal coordination between different components of society, including authorities, communities and the private sector.

Scientifically, these components are fundamental in systems resilience theory, which emphasizes that not only shock resistance, but also the ability to learn and adapt, are key to long-term sustainability. In the case of the Danube, this holistic approach provides more robust protection against various risks, such as extreme hydrological events, pollution or geopolitical threats, contributing to the stability and security of the region.

Protecting critical infrastructure is essential: ports, bridges, power plants, communication systems, and railways in the vicinity of the river must be secured against sabotage and cyberattacks (OSCE, 2021). Additionally, modern surveillance systems – coastal radars, patrol drones, underwater sensors – can ensure early detection of threats.

The river serves as a delaying line in the case of a land offensive, giving defensive forces time to organize their response. At the same time, it is a platform for power projection, allowing for the rapid deployment of ships and supporting ground operations in the riverine areas. The Riverine Flotilla has essential missions of patrolling, escorting, and traffic control, integrating into NATO's plans for defending the eastern flank (ISPI, 2023).

HYBRID THREATS TO THE DANUBE REGION

Hybrid threats combine military and non-military actions to undermine the security of a state without formally declaring war. In the case of the Danube, these may take the form of:

- Sabotage of port infrastructure or navigable channels;
- Cyberattacks on river traffic management systems;
- Disinformation campaigns to erode public trust;
- Economic pressures through control of trade routes.

The conflict in Ukraine has shown that river infrastructure is vulnerable to drone attacks, long-range artillery, and special operations. Sabotages of port warehouses and attacks on commercial convoys in the Black Sea region had direct effects on Danube traffic (European Centre of Excellence for Countering Hybrid Threats, 2021). Recent lessons from this conflict highlight the importance of logistical redundancy, interoperability, and rapid mobility of forces. At the same time, climate change and global economic pressures will bring new challenges for the navigability and security of the Danube, necessitating long-term strategic planning.

LEGAL AND INSTITUTIONAL FRAMEWORK FOR WATERWAY SECURITY

The security of the Danube is governed by a complex set of international and national norms. The *Belgrade Convention* (1948) regulates navigation on the Danube, ensuring free access for riparian states. At the EU level, the *EU Strategy for the Danube Region* includes security objectives, infrastructure protection, and economic cooperation.

In Romania, waterway security involves the Ministry of National Defence, the Ministry of Internal Affairs, the Romanian Naval Authority, and other institutions. The coordination of their actions is vital for preventing and managing incidents.

THE ECONOMIC DIMENSION OF STRATEGIC RESILIENCE

The Danube is a major economic artery. River transport is cheaper and more energy-efficient than road or rail transport, making it essential for Romania's exports and imports. Blocking navigation on the river would have severe economic effects: commercial losses, increased transportation costs, and a decrease in industrial competitiveness (INS, 2021).

Thus, waterway security is not only a military issue but also an economic one. Romania's economic resilience is directly dependent on the uninterrupted functioning of the Danube corridor.

REGIONAL AND INTERNATIONAL COOPERATION ON THE DANUBE

Romania cooperates with riparian states through various formats: the *EU Strategy for the Danube Region*, the *Three Seas Initiative*, and bilateral agreements with Bulgaria, Serbia, and Ukraine. In the security domain, partnerships with NATO and the OSCE are essential for information exchange and coordinating responses to threats (MAE, 2020).

Joint exercises, mixed patrols, and regional command centres are practical ways to increase interoperability and strengthen mutual trust.

FROM PLANNING TO ACTION: MEASURES FOR STRENGTHENING RESILIENCE

Strengthening strategic resilience on the Danube involves the implementation of multidisciplinary measures, based on research in the field of security, engineering and risk management. They aim to increase the capacity to adapt and respond quickly to disruptions, including those generated by climate change and geopolitical conflicts, as follows:

- *Modernisation of the River Flotilla* by introducing state-of-the-art multifunctional vessels and technological equipment, integrated with autonomous navigation systems and environmental monitoring sensors, to ensure the speed and efficiency of interventions in crisis or infrastructure degradation situations.
- *Implementation of an integrated river security system* based on advanced sensing technologies, such as risk detection sensors and air surveillance drones, which enable real-time monitoring of hydrological, environmental and security parameters, thus reducing vulnerabilities and facilitating informed decision making.
- *Creation of logistical continuity plans* based on predictive models and risk analysis to ensure the uninterrupted flow of essential resources and services in crisis or disruption of transport routes.
- *Joint training of the armed and civilian forces*, using scenario-based simulations and exercises, to develop coordination and response skills in complex contexts, in line with best practices in the field of emergency management and national security.
- *Education campaigns for the population in riparian areas*, based on research in the field of social behaviour and strategic communication, to increase the resilience of local communities and create a culture of preparedness and adaptation to multiple risks (M.Ap.N., 2022).

These complementary and synergistic measures will help develop an adaptable resilience system that can effectively respond to emerging challenges and protect the strategic resources of the nation.

CONCLUSIONS

The Danube retains its status as Romania's "blue bastion", representing much more than a natural resource or a transport route. It is a pillar of strategic identity and a force multiplier in the equation of national and regional security. From its historical role as a natural frontier and communications corridor to its current function as a logistics artery integrated into NATO and EU networks, the river has consistently proven it can decisively influence both military balance and economic resilience.

The analysis confirms that the strategic value of the Danube derives from its dual character – a natural barrier and a mobility axis. In conventional conflict scenarios, the river can delay and channel the adversary's advance, giving time for defence mobilization. In the context of hybrid threats, the Danube becomes critical infrastructure that must be protected from cyberattacks, sabotage, disinformation, and economic pressures. This complexity means that the security of the Danube region is not exclusively a military matter but one where the political, economic, technological, and societal dimensions inevitably intersect.

From the perspective of military theory and art, the Danube represents a special strategic space, constituting a privileged land for the implementation of the concept of integrated defence. In this context, the river fleet, port infrastructure, law enforcement, civil authorities and international partners must operate as a unified and coordinated system, capable of ensuring early detection, prevention and effective countering of any forms of aggression or disturbance. Moreover, the concept of resilience in this framework is not limited to mere resistance to threats, but also includes the ability to quickly restore the functionality of critical infrastructures and systems, and to adapt operational strategies in crisis conditions. This holistic approach, based on interoperability and flexibility, becomes essential to ensure sustainable security in the Danube region, given the complexity and dynamics of contemporary threats, including hybrid and cyber threats.

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