

# Status of the State Border of the Republic of Croatia

## Status der Staatsgrenze der Republik Kroatien

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### Summary

With Croatia's independence, defining state borders with neighboring countries became a key political issue. Except for Hungary, border disputes with former socialist republics remain unresolved. Croatia shares land borders with Slovenia, Hungary, Serbia, Bosnia and Herzegovina, and Montenegro. This paper outlines the border situation from 1991 to today. The introduction presents the constitutional, legal, and professional framework for resolving land border issues, followed by a chronological overview of each neighboring state's border situation. The conclusion offers an expert assessment of the current status. The aim is to provide guidelines for addressing open border questions through the development of Croatia's political, legal, and geodetic border framework.

**Keywords:** state border, border disputes, geodetic border framework

### Zusammenfassung

Mit der Unabhängigkeit Kroatiens wurde die Festlegung der Staatsgrenze zu den Nachbarländern zu einer zentralen politischen Frage. Kroatien grenzt an Slowenien, Ungarn, Serbien, Bosnien und Herzegowina sowie Montenegro. Mit Ausnahme von Ungarn sind Grenzstreitigkeiten mit den ehemaligen sozialistischen Republiken bis heute ungelöst. Der Beitrag beschreibt die Entwicklung der Grenzsituation zu den fünf Nachbarländern von 1991 bis in die Gegenwart. Einleitend werden die verfassungsrechtlichen, einfachgesetzlichen und fachlichen Vorgaben für die Lösung der Grenzkonflikte vorgestellt. Hieran schließt sich ein chronologischer Überblick über die jeweilige Grenzsituation zu den einzelnen Nachbarstaaten an. Abschließend wird eine fachliche Bewertung der aktuellen Situation gegeben. Ziel der Analyse ist es, Leitlinien für die Lösung offener Grenzfragen am Beispiel der kroatischen Staatsgrenze mit ihren politischen, rechtlichen und geodätischen Rahmenbedingungen zu geben.

**Schlüsselwörter:** Staatsgrenze, Grenzstreitigkeiten, geodätischer Grenzrahmen

## 1 Introduction

International boundary lines are crucial to states because they define jurisdiction, resource ownership, and carry major political and psychological weight (Blake 1995). Boundaries generally fall into four categories: hydrographic, orographic, geometric, and various other features such

as ethnic or infrastructural lines (Cosquer and Hangouët 2003). Border disputes have long been a source of instability and conflict. Today, more than a hundred disputes exist across all continents (Brunet-Jailly 2015). The ICOW project has recorded over 800 territorial disputes since 1816 (Hensel and McLaughlin Mitchell 2017). The breakup of states such as the USSR and SFRY in the late 20th century increased the number of international borders. Border delimitation relies on credible evidence and aims to produce a mutually acceptable boundary that respects local conditions-topography, population preferences, historical and ethnographic factors, and various military, political, or commercial interests. International law gives significant attention to border issues (Bakhashab 1996). Modern geodetic and geoinformation technologies enable precise spatial determination and clear cartographic representation of borders. Unclear or unmarked borders pose challenges to security, governance, and territorial integrity. While border negotiations remain a matter of state sovereignty, international organizations can facilitate the exchange of best practices for delimitation and demarcation. The United Nations views proper border marking as vital for peace, stability in post-conflict areas, and good neighborly relations (Kagawa 2013). Because neighboring states may have histories of mistrust, they sometimes rely on third-party mediation or arbitration. Borders serve multiple purposes and strongly influence local communities and national stability. Their establishment involves both »border architects« (politicians, diplomats, legal experts) and »border engineers« (surveyors specializing in geodesy, geoinformatics, and cartography) (Adler 1995). Surveyors provide essential technical data for negotiations and for applying agreements on the ground. Developing Croatia's political, legal, and geodetic framework for its borders can offer guidance for resolving border issues arising from state dissolution.

## 2 Methodology

The unresolved issues that emerged after the breakup of the SFRY can be grouped into three main areas: territorial, national minority, and economic. Territorial questions initially centered on redrawing borders along ethnic lines. After the Badinter Commission confirmed the former republican borders as state borders, major territorial claims stabilized, but new challenges arose in defining the precise border lines.

Analyzing Croatia's approach to organizing its state borders helps explain how borders are perceived, used, and managed in the post-Yugoslav space, and offers insight into resolving border disputes created by the formation of new states.

The research methodology focuses on examining the legal and geodetic frameworks governing Croatia's borders with its neighbors. It compares cadastral boundaries – used as demarcation lines – with how neighboring states interpret the same borders. The study uses materials that could serve as evidence before the Permanent Court of Arbitration (PCA), including historical, political, and geodetic sources, as well as Croatian and Slovenian submissions in the Hague proceedings (»Memorial«, »Counter-Memorial«, »Reply« of both states) and the PCA Final Award.

The experience of the Croatia-Slovenia arbitration is then used as a basis for describing Croatia's other borders with neighboring states.

### 3 Land state border of the Republic of Croatia

Building on its foundations as a unified democratic state, Croatia has continuously worked through diplomacy and government institutions to resolve open issues with neighboring countries, including state borders. On June 25, 1991, the Croatian Parliament declared independence and confirmed that the existing republican borders of the former SFRY became Croatia's state borders. This position was reaffirmed by the Badinter Commission in 1992, which stated that former federal unit borders became international borders under the principle of *uti possidetis*, changeable only by agreement.

Given Croatia's historical context, the border issue became highly sensitive and long-term. As Kresović-Rogulja noted, border questions are crucial for any state, especially a newly formed one, affecting both national stability and regional relations. Three decades later, several border issues with former Yugoslav republics remain unresolved and continue to influence Croatian politics, diplomacy, and bilateral relations. Since only the Croatian Parliament can change state borders, the coming period will be important for the historical resolution of these matters.

State borders define territorial sovereignty, and every modern state seeks secure and clearly regulated borders. Throughout history, border concepts have adapted to geopolitical changes – from World War II to the fall of the Berlin Wall. Borders may be natural or artificial, but in both cases must be defined by international agreements.

Croatian law defines the state border as a vertical plane separating Croatian territory (land, sea, internal waters, airspace, and subsoil) from neighboring states. While airspace sovereignty is addressed in the 1944 Chicago Convention, the depth of sovereignty below ground remains undefined in international law and is interpreted restrictively (Bradić 2014).

Croatia shares land borders with Slovenia, Hungary, Serbia, Bosnia and Herzegovina, and Montenegro – of which only the border with Hungary is regulated. It also shares sea borders with Slovenia, Bosnia and Herzegovina, Montenegro, and Italy. Early in statehood, Croatia established the State Border Commission (1993) and later the Border Office and Border Council (2001). Today, the Border Commission operates under the Government, with members from key ministries and the State Geodetic Administration (SGA).

The SGA is responsible for border marking, maintenance, restoration, and preparing Croatia's positions in negotiations or international dispute-resolution procedures. Because borders with most neighboring states are not yet agreed upon, published lengths of border lines (except with Hungary) remain provisional. Central European geodetic and cadastral records generally provide accurate representations of borders (Babić Sever et al. 2023).

Tab. 1 presents the lengths and status of Croatia's land borders, and Fig. 1 illustrates their course according to Croatia's official position.

Fig. 1 shows the land state border of the Republic of Croatia with neighboring countries. The extension of the state border shown in the Figure reflects the Croatian position.

#### 3.1 Republic of Slovenia

As early as 1992, it was agreed that geodetic and hydrographic experts should prepare professional documentation for resolving border issues between Croatia and Slovenia.

Tab. 1: State border of the Republic of Croatia on land (source: SGA 2019)

No.	Neighboring country	Length (km)	Status of the border	Notes
1.	Republic of Slovenia	658,5	unresolved	The arbitration was compromised.
2.	Hungary	355,3	regulated	Tripoints are not defined.
3.	Republic of Serbia	325,9	unresolved	significant disagreement
4.	Bosnia and Herzegovina	1001,4	provisionally applied	The 1999 agreement has not been ratified.
5.	Montenegro	19,5	unresolved	minor disagreement
	<b>Total</b>	<b>2360,6</b>		

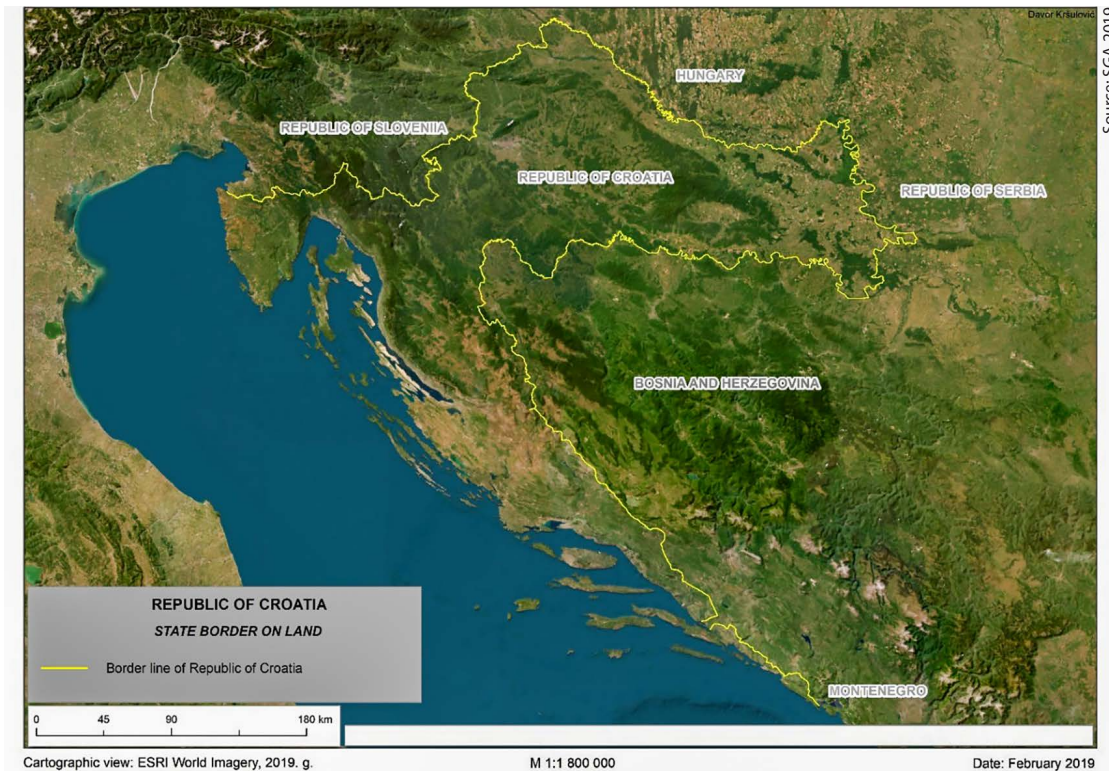


Fig. 1:  
The state border  
of the Republic of  
Croatia on land

The 1993 Agreement between the two governments established joint bodies for identifying and marking the border, creating the legal basis for regulating the shared state border. Croatia appointed a delegation to the Mixed Diplomatic Commission (MDK), whose task was to prepare border agreements, coordinate marking in the field, and produce relevant documentation. A Mixed Group of Experts and a Mixed Geodetic Group were also formed to develop technical bases, maps, and cartographic material.

From 1993 to 1997, geodetic experts analyzed and compared cadastral data using agreed criteria: deviations under 1 cm at scale 1:5000 were »harmonized«, 1 to 2 cm were »non-harmonized«, and deviations over 2 cm were »significant«. According to these criteria, 77 % of the land border was harmonized, 10 % non-harmonized, and 13 % showed significant discrepancies (Grgić and Kršulović 2016).

Unresolved segments – especially the lower Dragonja River area and the maritime border – remained contentious despite multiple technical and political attempts. In 2001, these issues were linked to a broader political »package« of open questions, but without success. After years of stalemate, Croatia and Slovenia signed an Arbitration Agreement on 4 November 2009, entrusting land and sea border resolution to an ad hoc Arbitration Tribunal. Croatia accepted the Agreement bona fide, ensuring that both borders would be determined according to international law (Articles 3.1.a and 4.a).

To support its case, Croatia prepared extensive legal-geodetic documentation between 2012 and 2014, submitting three written filings: the Memorial (February 2013), Counter-Memorial (November 2013), and Reply (March 2014). The Arbitration Agreement required impartiality and in-

dependence of arbitrators and prohibited either party from actions that could compromise the process. However, in 2015 it became evident that a Slovenian agent and an arbitrator had engaged in prohibited communications. Croatia concluded that Slovenia had violated the Agreement mala fide to such an extent that the arbitration's object and purpose were irreversibly compromised. Croatia therefore initiated procedures to terminate and cease applying the Agreement.

Despite this, the Tribunal continued its work – an action criticized for failing to uphold fundamental legal and ethical standards in international arbitration (Jutriša 2017). In June 2017, it issued a »decision« on the border dispute (PCA 2025), which Croatia does not recognize due to the tainted process. Although the ruling aligned with Croatia's position along 98 % of the land border (about 645 km), Croatia maintains that the remaining dispute is a matter of international law that must be resolved exclusively through negotiation and mutual agreement (Metelko-Zgombić 2018).

### 3.2 Hungary

The state border between Croatia and Hungary was established by the Trianon Peace Treaty of 1920 and reaffirmed by the Paris Peace Treaty of 1947. It extends from the Croatia–Hungary–Slovenia tripoint to the Croatia–Hungary–Serbia tripoint. The border line is defined by coordinates and marked with border pillars, with all data recorded in border documents – the border description and border plan – based on a new survey conducted between 1973

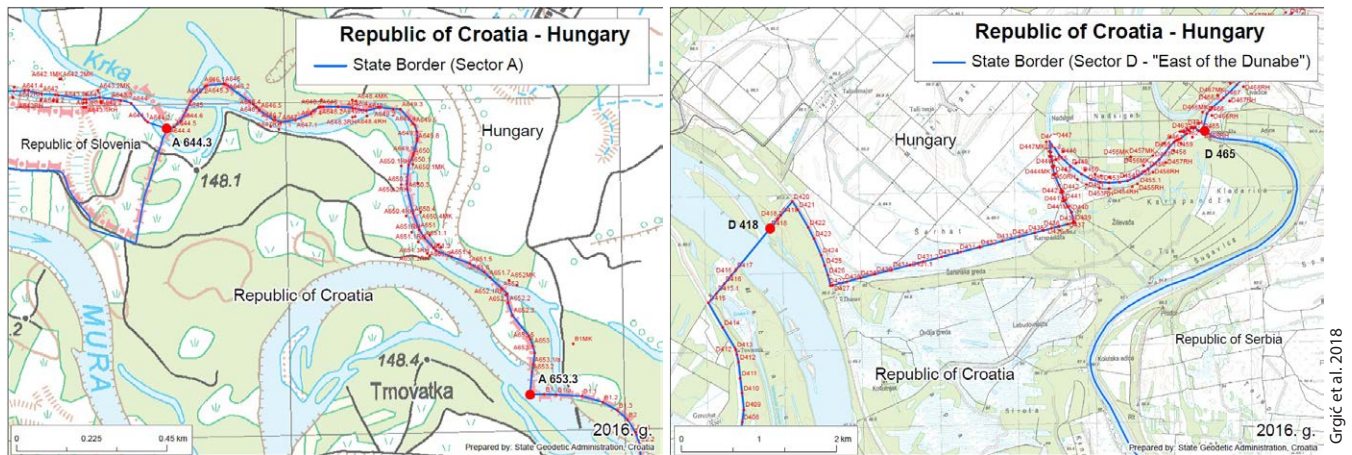


Fig. 2: Croatia lacks control over part of Sector A and Sector D

and 1979. These documents were approved in 1981, supplemented after border-marker restoration works in 1983–1984 and 1988–1989, and updated again after Croatia's independence.

Croatia and Hungary agreed that their state border is permanent and unchanged regardless of natural or artificial alterations, including shifts in watercourses. Both states confirmed that their shared border remains identical to the former SFRY–Hungary border.

The Croatian–Hungarian border is organized into four sectors:

- Sector A: from tripoint A644.3 (Croatia–Hungary–Slovenia) to marker B1 near the confluence of the Krka and Mura rivers,
- Sector B: from B1 to C1 near the Drava River bridge at Barč/Terezino Polje,
- Sector C: from C1 to D1 near the Drava River bridge at Drávaszabolcs/Donji Miholjac,
- Sector D: from D1 to D465 (Croatia–Hungary–Serbia tripoint).

Although Croatia and Hungary have no bilateral border disputes, Croatia cannot control certain areas due to unresolved borders with Slovenia and Serbia. This affects the definition and maintenance of both tripoints. Croatia lacks control over part of Sector A (A644.3–A653.3, Fig. 2 – left), and part of Sector D on the left bank of the Danube (Fig. 2 – right D418–D465), preventing restoration and upkeep of border markers in these zones.

Through the DE MINE II project (»De-contamination of war-affected territories«), part of the INTERREG V-A Hungary–Croatia 2014–2020 program, Croatia and Hungary cooperated to restore part of Sector D (D1–D417) in 2017–2018 – the first such work in 30 years. This also enabled comprehensive geodetic surveying of a large portion of the border for the first time in four decades, supporting the final stage of preparing new border documentation (Grgić et al. 2018).

### 3.3 Republic of Serbia

Regulating the state border between Croatia and Serbia remains one of Croatia's most important unresolved domestic and foreign policy issues. Relations between the two countries have long been complex, and the 1990s war of aggression against Croatia further deepened tensions. After Operations Bljesak (1995) and Oluja (1995), about 4.5 % of Croatian territory – parts of eastern Slavonia, western Srijem, and Baranja – remained under occupation (Sršan 2003). The peaceful reintegration of this area was enabled by the Erdut Agreement (12 November 1995).

UN Security Council Resolution 1037 (15 January 1996) established UNTAES, which administered the region until its handover to Croatia on 15 January 1998. Meanwhile, the 1996 Agreement on the Normalization of Relations between Croatia and the Federal Republic of Yugoslavia (FRY) confirmed mutual respect for sovereignty and territorial integrity and stated that borders would be resolved only by mutual agreement.

A State Border Commission established an Expert Group on 8 February 1996 to identify the Croatian–Serbian border, especially along the Danube. Contrary to common public usage, the border is not simply »on the Danube«; parts of Croatian territory lie on the river's left bank.

Following several border incidents, Croatia and FRY established an Interstate Diplomatic Commission (MDK) in late 2001 to prepare a draft border treaty. Both sides agreed that the former inter-republic border within the SFRY would serve as the basis for the state border and that cadastral and other relevant documentation should be used. Croatia submitted border lines strictly following the borders of 27 Croatian cadastral municipalities as they existed at the breakup of Yugoslavia. The FRY proposed adjustments, primarily placing the border in the middle of the Danube, which Croatia rejected as inconsistent with the former inter-republic border.

Croatia's position has remained consistent: Badinter Commission principles confirm that former republican borders became international borders; The border must follow

the former inter-republic line as it existed in 1991; Cadastral boundaries are the primary evidence; Property owners on the left bank of the Danube must be allowed to use their land.

Comparisons of cadastral documents in 2003–2004 showed major discrepancies: along 121.7 km of border in Srijem, 67.3 km (53 %) deviated between the two sides, with differences up to 125 m. Further technical exchanges in 2011 showed persistent disagreements along the entire boundary segment analyzed. Serbia's position would award it about 100 km<sup>2</sup> of territory – roughly 50 times the size of Monaco – which Croatia rejects.

In 2010, Serbia formally set out its position in an Aide-memoire, claiming its interpretation was legally and factually justified. Croatia's 2011 Response rejected these arguments and reaffirmed that the legal border follows cadastral municipality limits, which were recognized administrative boundaries in 1991.

The unresolved border issue has occasionally been exploited politically, including by individuals who declared pseudo-states (e.g., the so-called »Free Republic of Liberland«). Such claims have no legal basis under international law.

At the 2018 MDK session, expert groups again compared cadastral and border-line data. They concluded that deviations exist along the entire border, categorizing those less than 15 m as »minor« and those above 15 m as »major«. A detailed analysis of these inconsistencies remains necessary. In general, the Croatian position follows cadastral boundaries, while Serbia's position follows the Danube's current course.

Fig. 3 shows the position of the Republic of Croatia (red line) and the Republic of Serbia (blue line) regarding the

state border between the mentioned countries. The extension of the state border shown in the figure reflects the Croatian position based on the external borders of the peripheral cadastral municipalities. The position of the Republic of Serbia shown in the figure reflects the course of the Danube River.

### 3.4 Bosnia and Herzegovina

Bosnia and Herzegovina recognized Croatia as an independent and sovereign state on 24 January 1992, and diplomatic relations were established on 21 July 1992. Because of the war, it was not possible to establish the state border at that time.

Only after Operation »Oluja« (August 1995) the State Border Commission could begin preparing the border's determination within internationally recognized limits. A previously appointed Expert Commission also began gathering documentation. The first joint meeting was held in October 1996. Experts from both countries then collected and analyzed border-related materials, resulting in partial border documentation.

On 30 July 1999, Presidents Tuđman and Izetbegović signed the Border Treaty in Sarajevo. The treaty has been applied provisionally since its signing but has not yet been ratified by either parliament. It defines the border based on conditions at the dissolution of the SFRY in 1991 and the mutual recognition of the two states in 1992. The border is identified using 1:25,000 topographic maps, cadastral municipality boundaries, settlement boundaries from the 1991 census, and administrative lines between the former

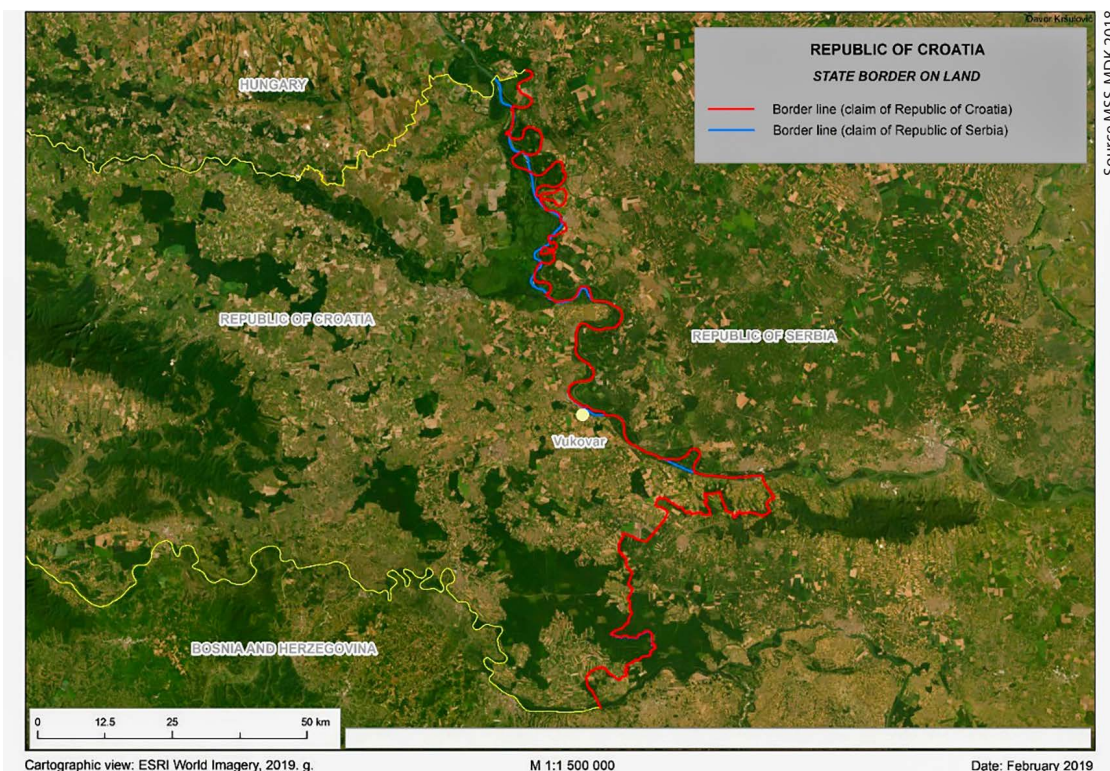


Fig. 3: The state border of the Republic of Croatia and the Republic of Serbia – the point of view of the two sides

socialist republics. The co-signed topographic maps are an integral part of the Treaty.

The Joint Expert Group continued its work and in 2005 produced the document »Description of the border line on TK25 from TK001 to TK086«, listing coordinates and minutes for processed localities. The group analyzed 35 localities – about 2 % of the total Croatia–Bosnia and Herzegovina border – and proposed corrections in 22 cases. Since neither the Border Treaty nor the new documentation has been ratified, the vectorized border line shown on the 1999 1:25,000 maps remains in temporary use.

### 3.5 Montenegro

After the breakup of the SFRY, Montenegro remained united with Serbia within the Federal Republic of Yugoslavia (later Serbia and Montenegro). The 1996 Agreement on the Normalization of Relations between Croatia and the FRY confirmed mutual respect for sovereignty, territorial integrity, and independence, and stated that borders would be regulated only by mutual agreement and disputes resolved peacefully. Article 4 specifically committed both parties to settle the Prevlaka dispute through negotiations, emphasizing the security of the Dubrovnik area and the Bay of Kotor region. To support border determination, Croatia's State Commission established an Expert Group for the Montenegro border.

On 10 December 2002, the two states signed the Protocol on the Temporary Regime along the Southern Border, which has been applied ever since. After Montenegro's independence in 2006, it became a party to the Protocol. The document defines provisional jurisdiction on land and at sea, including temporary maritime delimitation, and regulates border crossing, demilitarization, demining, and police and customs cooperation until a final Border Treaty is concluded.

Using the documentation of Croatia, the FRY, and Bosnia and Herzegovina, experts determined the coordinates of the northern and southern tripoints. The Protocol on the Determination of the Tripoint (Croatia–Bosnia and Herzegovina–Serbia and Montenegro), signed in Sarajevo on 2 October 2003, has been provisionally in force since signing.

Between 2003 and 2004, both sides compared their cadastral data, revealing areas with overlapping or missing records, which can be resolved through data harmonization during demarcation. In 2019, delegations from Croatia, Montenegro, and Bosnia and Herzegovina conducted a joint field visit near Igalo to determine the precise southern tripoint. An existing border marker was located and measured, and its coordinates were proposed as the tripoint position. A new Tripoint Protocol, including coordinates and a cartographic depiction, was agreed upon at the expert level in 2021.

Of the 19.5 km of compared border line between the southern tripoint and the point where the cadastral bound-

ary reaches the Adriatic Sea, differences were identified along 18.3 km (94 %), with deviations up to 220 m.

## 4 Tool for management of records and support for dispute resolution

The regulation of Croatia's state border – whether through bilateral negotiations or arbitration – requires extensive data, documents, and material evidence to determine its extent. Managing, processing, visualizing, and accessing these sources, particularly for resolving border disputes, incidents, or maintaining partially regulated borders (e.g., with Hungary), highlighted the need for a centralized, secure system.

A geoinformation system (GIS) serves as an essential tool for storing and managing border data, supporting documentation, and providing key information for negotiations by allowing different datasets to be displayed and compared. The Ministry of Regional Development and European Union Funds financed the project Geoinformation System of the State Border of the Republic of Croatia (GiSDG) under the Competitiveness and Cohesion Operational Programme 2014–2020 (Ref. KK.02.2.1.01.0007). Completed on 2 July 2020, the project produced an official model and database of Croatia's state border, along with an application offering e-services and functionalities to assist in resolving border issues, (Triplat Horvat et al. 2022).

The system, managed by the State Geodetic Administration (SGA), forms the foundation for integrated state border management.

## 5 Conclusion

The establishment of an independent Republic of Croatia required securing full international recognition and defining its state borders. Following the Homeland War of Liberation, resolving the unregulated state border became a central issue. Croatian authorities, expert groups, and diplomacy initiated measures to prepare for negotiations with neighboring countries.

Croatia–Slovenia: In the 1990s, experts from both countries collected and analyzed border documentation, aligning about 80 % of the border. Bilateral attempts to resolve the dispute in the early 2000s failed. The 2009 Arbitration Agreement temporarily handed the dispute to an ad hoc court. Due to Slovenia's gross violations of the agreement, Croatia withdrew and does not recognize the court's 2017 »decision«. Croatia maintains that the dispute should be settled through negotiations in line with international law.

Croatia–Hungary: This border, inherited from the former SFRY, is largely regulated and continuously maintained. However, the tripoints with Slovenia and Serbia remain unresolved. Croatia and Hungary agreed that a

new border agreement should await the settlement of these tripoints.

Croatia–Serbia: Relations are historically complex, intensified by the 1990s war. The 1996 normalization agreement and the 2001 Interstate Diplomatic Commission (MDK) initiated identification and determination of the border. Following the 2002 Protocol on Principles, the process follows the sequence: identification, determination, delineation, demarcation, and maintenance. Data comparisons (2002–2018) reveal significant differences, especially along the Danube River. Croatia asserts that former inter-republic borders are state borders, identified via cadastral records, and property rights on the left bank of the Danube should be respected.

Croatia–Bosnia and Herzegovina: After analyzing available border documentation, the 1999 Border Treaty was co-signed by national leaders but remains unratified. Its provisions are temporarily applied, and experts recommend full comparison of updated digital cadastral data to expedite future agreements.

Croatia–Montenegro: Following the 1996 normalization agreement and the 2002 Protocol on the temporary southern border, provisional jurisdiction was established for land and sea. The tripoint with Bosnia and Herzegovina and Montenegro (2003) is also temporarily applied. Cadastral comparisons reveal discrepancies along roughly 95 % of the land border, indicating the need for re-analysis and subsequent resolution.

For all borders, cadastral records provide the primary technical foundation. The geoinformation system (GiSDG) supports efficient data management and documentation. Considering the long-term nature and historical complexity of border regulation, it is recommended to re-establish a dedicated state administration body to manage professional, expert, and administrative tasks related to the state border.

This case study of Croatia's political, legal, and geodetic border status offers guidance for countries with unresolved borders and similar historical contexts.

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