

DIKTAS II

Implementation of the strategic action program (SAP) of the Dinaric karst aquifer system:
improving groundwater governance and sustainability of related ecosystems.



2nd STEERING COMMITTEE MEETING

and

1st in-person EXPERT MEETING

8-10 JULY 2025

Trebinje, Bosnia and Herzegovina



TDA Update and Priority activities- HYDROGEOLOGY

DIKTAS I 2010-2014. In that time, only Croatia had RBMP (1st 2013-2016).

But 10 yrs later, BIH, Montenegro and Albania as applicants for EU membership made substantial progress in water legislation and its implementation through RBMP.

National RBMP should be used as data base in DIKTAS II.

It should be noted that WFD and GWD did not recognized /addressed the specificity of karst terrain, and this should be one of the goals of DIKTAS II- especially regarding groundwater monitoring in karst terrains.



TRANSBOUNDARY DIAGNOSTIC ANALYSIS (TDA)



Protection and Sustainable Use of the Dinaric Karst Transboundary Aquifer System



Transboundary Diagnostic Analysis

December 2013



1. Una
2. Cetina
3. Neretva
4. Trebišnjica
5. Bilećko Lake & Piva
6. Cemi/Cijevna

- 1 Water Management Strategies and River Basin Management Plans update
- 2 Groundwater monitoring
- 3 Sanitary protection zones
- 4 Priority activities

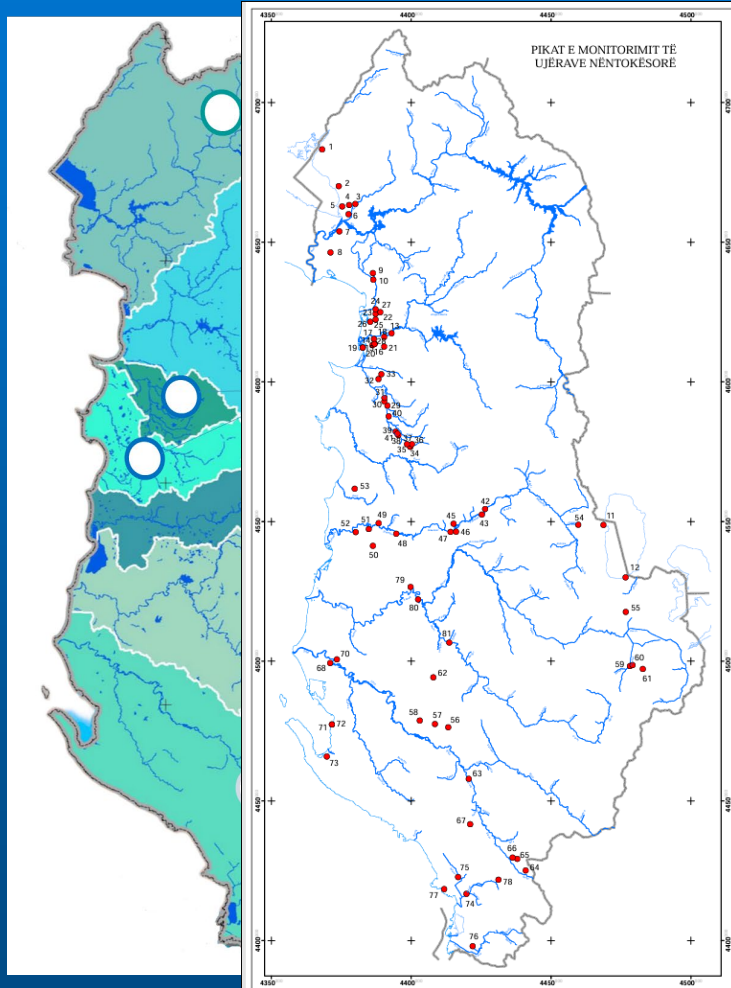
Substantial progress in all countries since DIKTAS I

COUNTRY	Name	Valid	www
ALBANIA	National Strategy of Water Resources Integrated Management	2018-2027	
BOSNIA AND HERCEGOVINA	Water Management Strategy of FB & H	2022-2032	https://fmpvs.gov.ba/strategija-voda/
	Strategy for Integrated Water Resources Management of Republica Srpska	2015-2024	http://www.voders.org/upravljanje-vodama/projekti/gis-portali/?lang=lat
CROATIA	Water Management Strategy of RH	2008-2038	https://www.voda.hr/hr/strategija-upravljanja-vodama
MONTENEGRO	Water Management Strategy of Montenegro	2017-2035	https://www.gov.me/dokumenta/3ad3da88-dc4f-492e-b3fc-d8ce694f763b

Substantial progress in all countries since DIKTAS I

COUNTRY	Name	Valid	www
ALBANIA	6 RBMP (Drini, Mati, Ishëm-Erzenand Seman Basin, Shkumbin and Vjosa).	2022-2027	
BOSNIA AND HERCEGOVINA	1. Plan upravljanja vodama za vodno područje Jadranskog mora u Federaciji Bosne i Hercegovine (2022.-2027.) 2. Plan upravljanja vodama za vodno područje rijeke Save u Federaciji Bosne i Hercegovine (2022.-2027.)	2022-2027	https://fmpvs.gov.ba/strategija-voda/
	River Basin Management Plan for Trebišnjica River Basin (district) – 2017-2021, RS	2017-2021	http://www.voders.org/upravljani-e-vodama/planski-dokumenti/?lang=lat
CROATIA	Plan upravljanja vodnim područjima do 2027	2022-2027	https://www.voda.hr/hr/plan-2022-2027
MONTENEGRO	Planovi upravljanja vodama na vodnom području Dunavskog i Jadranskog sliva 2021 sa priložima	2022-2027	https://www.gov.me/dokumenta/91ffc8ea-bcf5-4c45-b805-855f2bb446d6

ALBANIA



6 RBMP for 2022-2027 (2nd RBMP):

- 2 finished: Mati, Ishëm-Erzen
- 2 almost finished (Drin-Buna and Semani rivers)
- 2 more in progress (Shkumbini and Vjosa).
- Progress in water legislation- in compliance with EU
- The lack of specific policies and regulations for the karst environment has resulted in the failure to define the actual protected sanitary area

MONITORING

- Monitoring of GW quality and quantity is at the low level, 40 new GW monitoring stations are planned until 2027
- Existing monitoring concentrated on 81 wells and springs for water supply, mainly in Albanian Lowland.

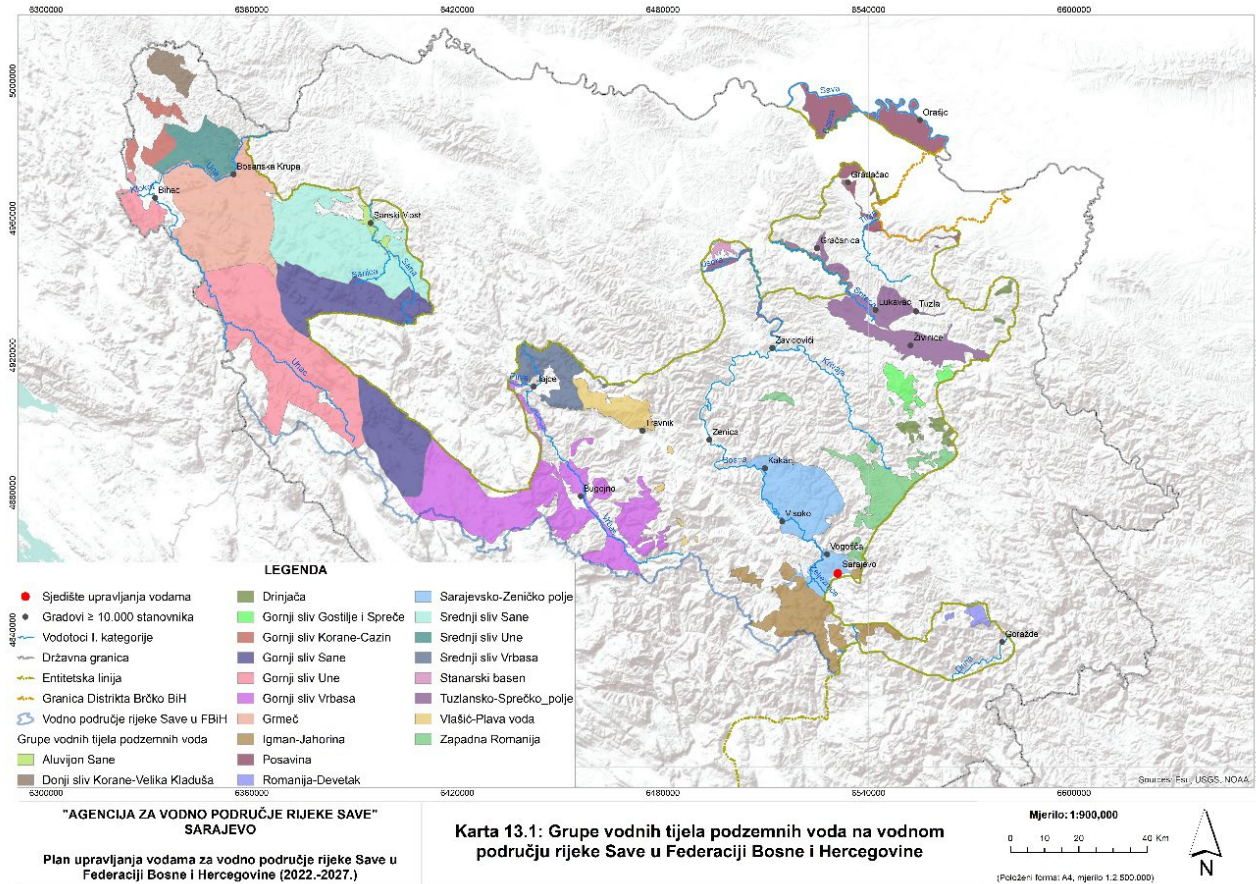
BOSNIA AND HERCEGOVINA

Progress in RBM planning

- FB&H- 2nd RBMP (2022-2027)
 - SAVA RBMP- 20 GROUPED GWB (5 alluvial +15 karst) – 2 TBA (Korana, Una)
 - ADRIATIC RBMP- 37 productive + 7 non productive GWB
- RS -1st RBMP for Trebišnjica 2017-2021

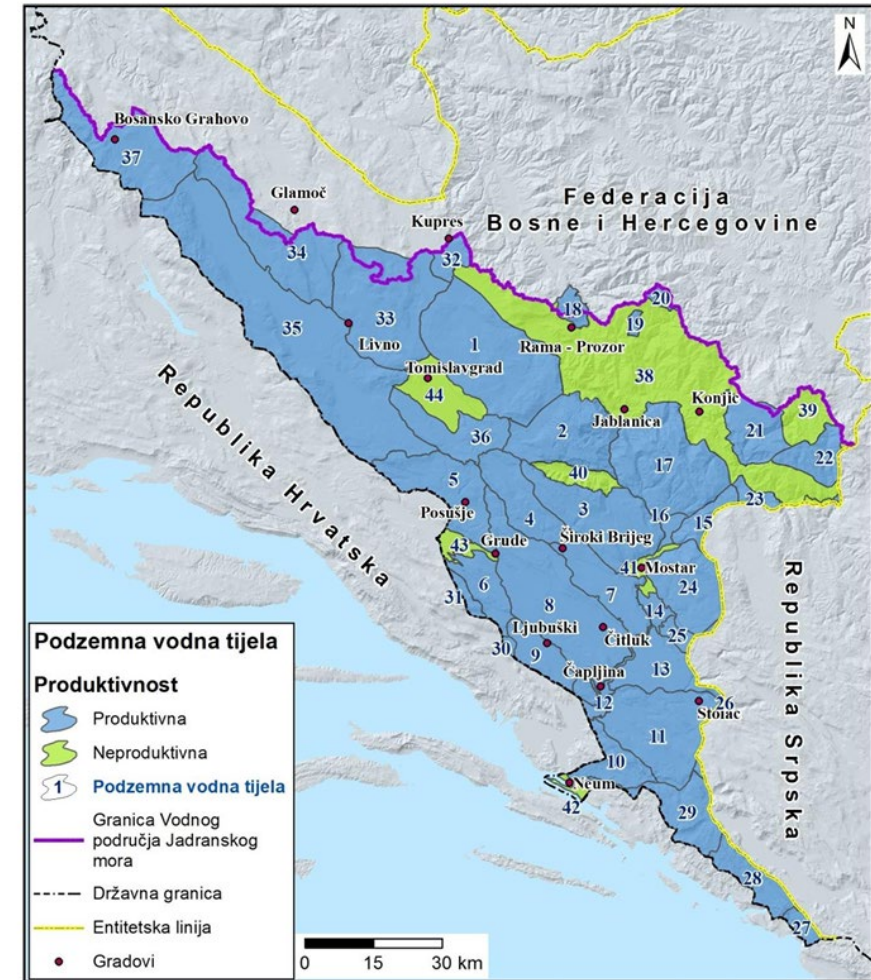
MONITORING:

- FB&H
 - SAVA RBMP: 12 automatic stations (GW level and temp), Klokot
 - ADRIATIC RBMP: 35 surveillance monitoring + 2 operational (mostly water supply springs/wells)
- RS- RBMP FOR TREBIŠNJICA
 - proposed monitoring in accordance with WFD, but no activities up to 2025
 - Existing GW monitoring: Bilećko lake: quality monitoring "Dejanova pećina", HPP Trebinje 10 piezometers, Trebišnjica: quality monitoring of spring Oko and 2 monitoring stations of IAEA project/ Geological Survey of the Republica Srpska



Oktobar, 2021.

SAVA RBMP



ADRIATIC RBMP

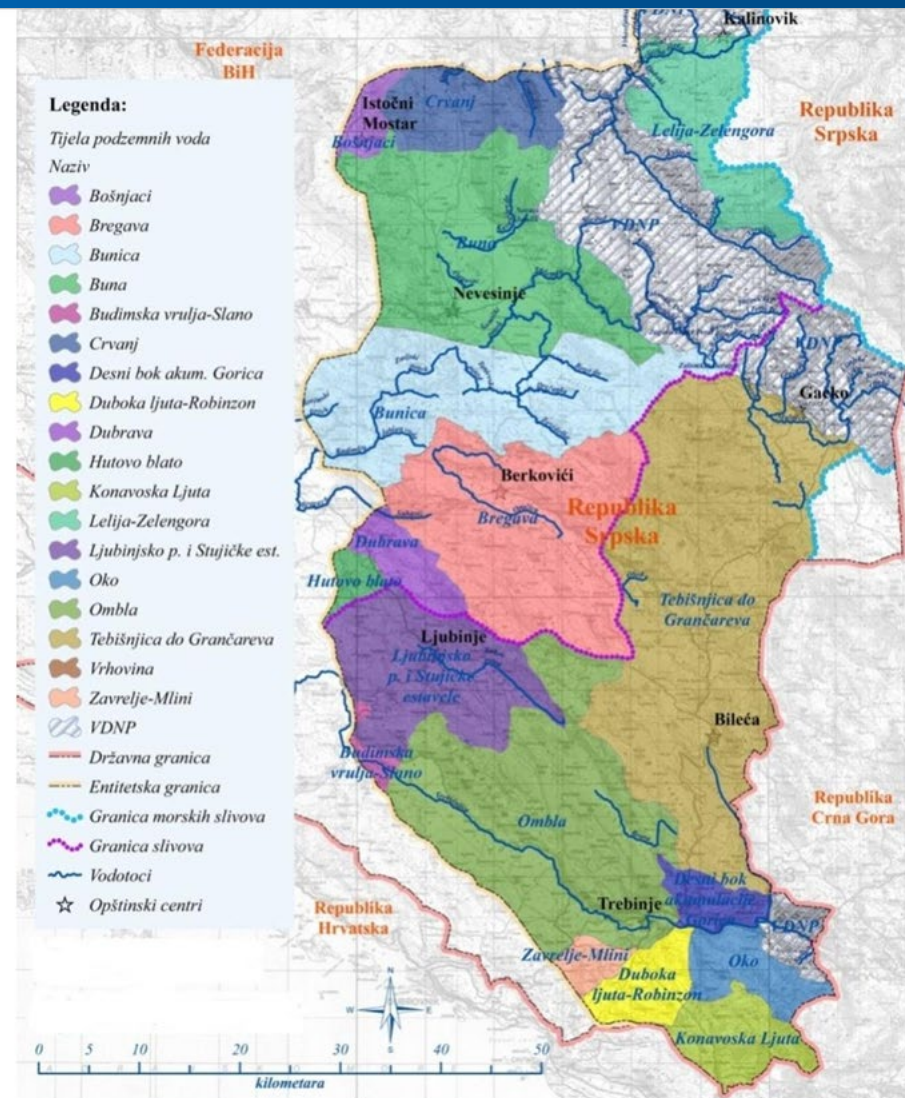


РЕПУБЛИКА СРПСКА
ЈАВНА УСТАНОВА „ВОДЕ СРПСКЕ“

ПЛАН УПРАВЉАЊА ОБЛАСНИМ РИЈЕЧНИМ
СЛИВОМ (ДИСТРИКТОМ) РИЈЕКЕ ТРЕБИШЊИЦЕ РЕПУБЛИКЕ СРПСКЕ
(2017-2021)

Новембар, 2017. године

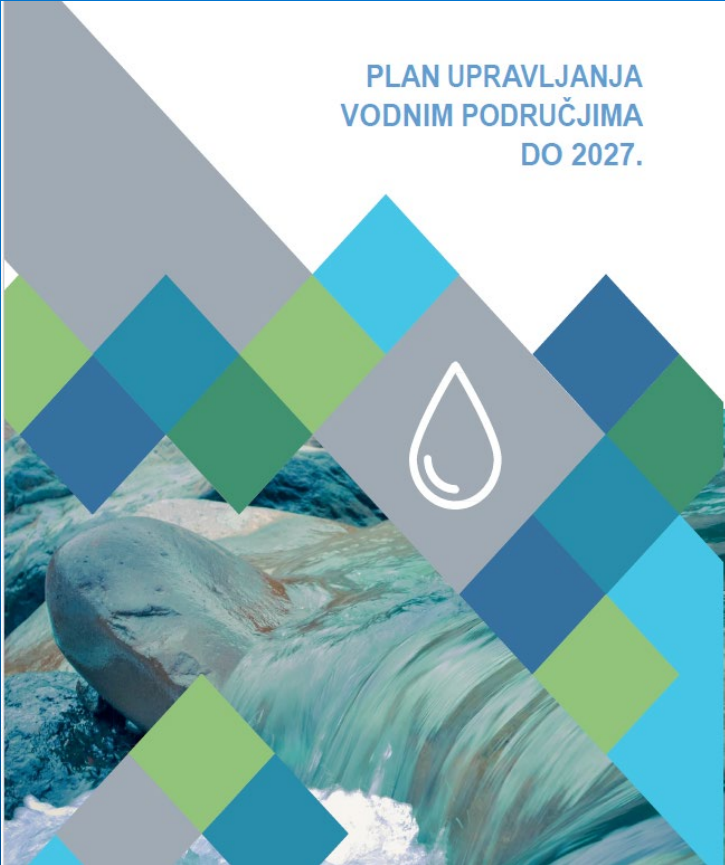
TREBIŠNJICA RBMP



Слика 7: - Груписана водна тијела подземних вода обласног ријечног слива (дистрикта) ријеке

CROATIA

PLAN UPRAVLJANJA
VODNIM PODRUČJIMA
DO 2027.

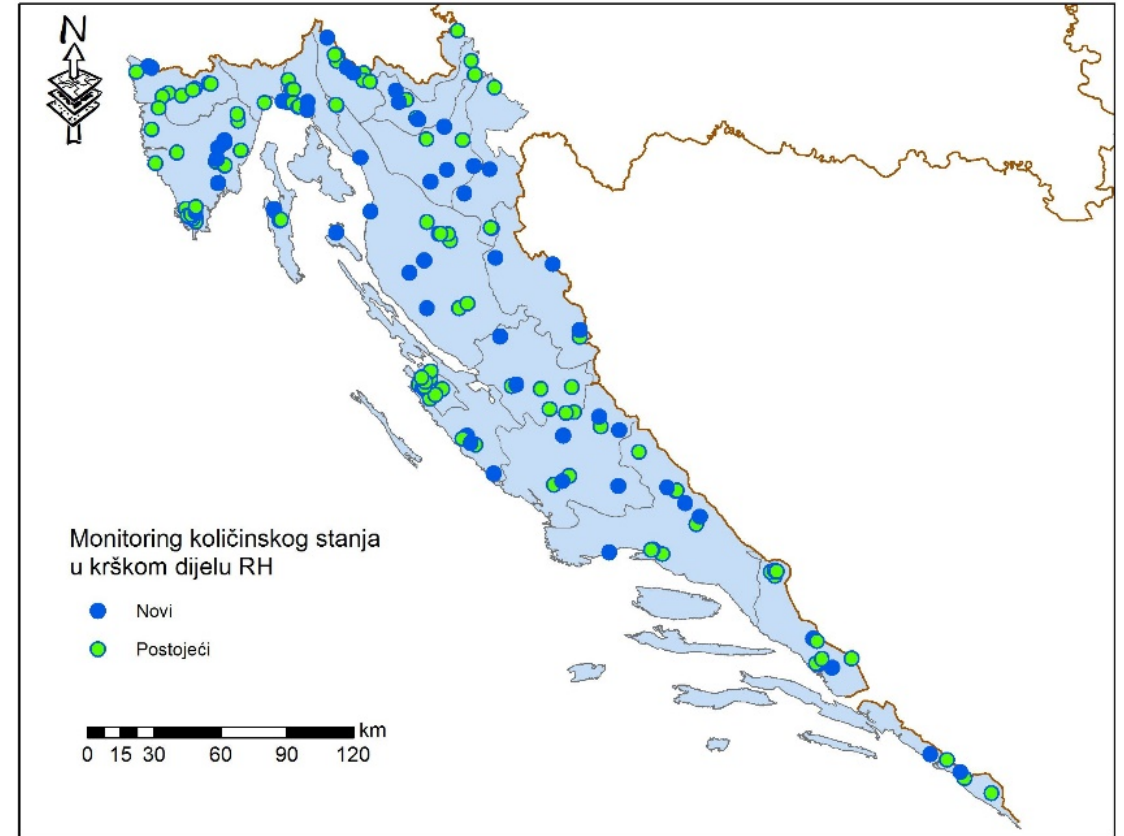


Progress in RBM planning: 3rd RBMP (2022-2027)

- In Adriatic RBMP: 13 GGWB – Adriatic and 5 GGWB - Black sea catchment

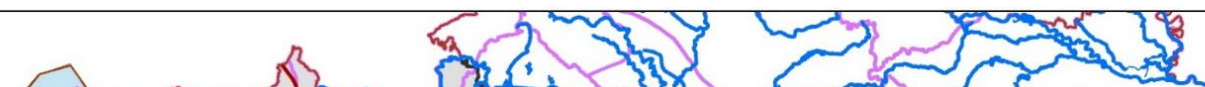
MONITORING

- Quality
- Quantity



GROUPED GWB

- Una
- Cetina
- Neretva



Tablica 6.1-1. Izračun BL vrijednosti za krške CPV u Republici Hrvatskoj

CPV	Crpilišta	Otopljeni kisik mg/l (median)	pH (median)	CND $\mu\text{S/cm}$ (median)	Nitrati mg/l NO ₃ (median)	Kloridi mg/l (median)	Sulfati mg/l (median)
Una	Joševica	11,08	7,80	401	1,15	1,30	3,14
	Krbavica	12,00	7,60	429	1,92	1,11	1,85
	Loskun	10,68	7,58	561	2,21	34,97	18,47
	Koreničko vrelo	12,59	7,70	437	2,53	1,26	2,58
Cetina	Vukovića vrelo	10,30	7,72	339	1,72	4,05	3,59
	Kosinac	-	7,70	312	1,32	4,20	5,50
	Mala Ruda	-	7,80	299	1,38	2,75	14,30
	Žrnovnica	10,00	8,10	363	1,64	9,00	6,40
	Jadro	10,20	8,06	394	2,63	8,00	7,30
	Baška voda	8,24	7,54	464	7,09	12,40	10,75
Neretva	Opačac	9,50	7,75	391	1,58	6,00	9,90
	Butina	8,40	7,66	462	4,46	6,20	54,00
	Palata	-	7,69	350	1,95	9,15	2,80
	Zavelje	-	7,80	361	2,00	8,25	2,00
	Ombla	9,70	7,81	349	2,18	6,00	3,80
	Konavoska Ljuta	10,30	8,16	287	1,32	5,50	2,41
	Studenac	-	7,40	551	1,00	15,10	11,05
	Klokun	-	7,60	438	3,20	7,30	30,75
	Modro oko	-	7,65	447	3,00	10,35	34,00
	Duboka Ljuta	-	7,70	311	2,00	7,70	2,50

MONTENEGRO

Progress in RBM planning: 1st RBMP (2022-2027)

- Sava RBMP- 13 GWB
- ADRIATIC RBMP- 17 GWB

Monitoring on 32 monitoring stations

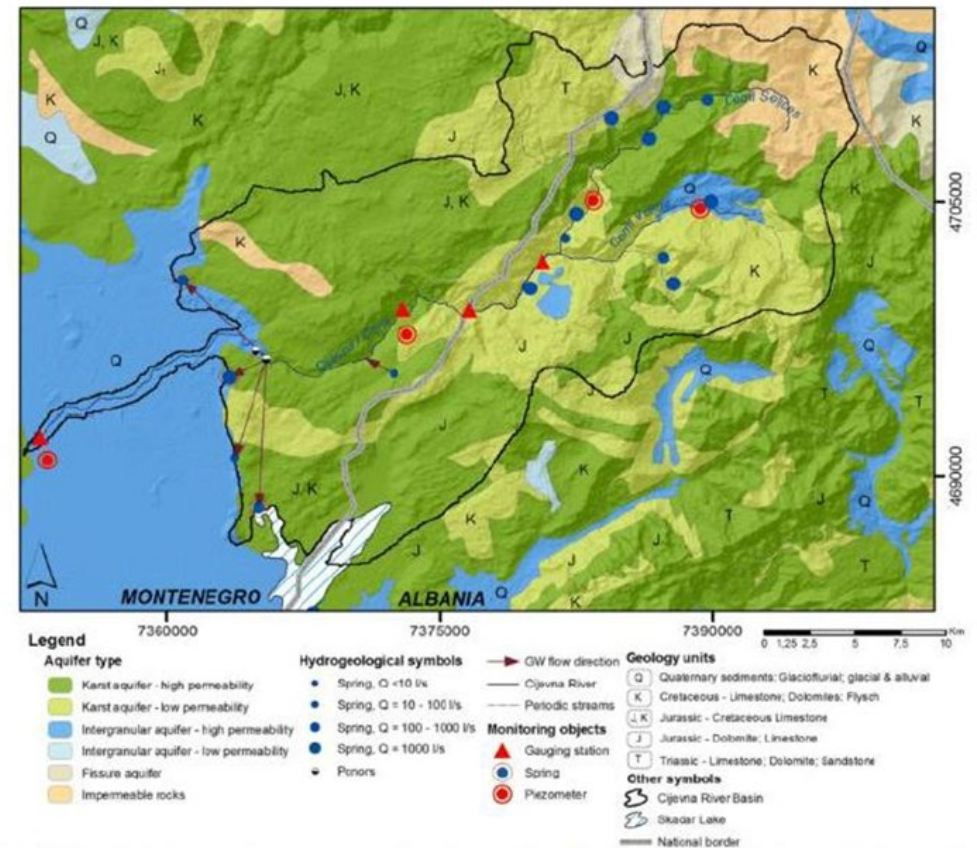


Figure 1. Proposed Monitoring Network on the Cijevna River Basin (Transboundary groundwater resource management: needs for monitoring the Cijevna River Basin (Montenegro–Albania), Blagojevic M., Stevanovic Z., Radulovic M. et al., 2020)

“Prijedlog sustava zaštite i metode istraživanja za zaštitu krških vodonosnika u graničnim područjima Bosne i Hercegovine i Hrvatske“ iz 2010. godine.

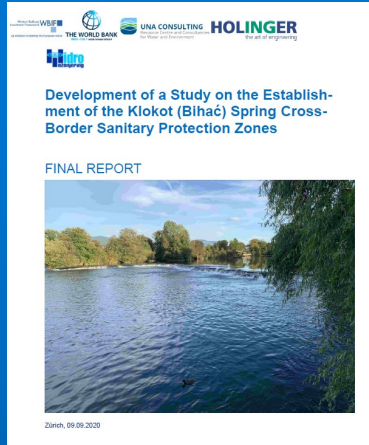
“Recommendation of the Protection System and Investigation Methods for Protection of the Karstic Aquifers in the Border Areas of Bosnia and Herzegovina and the Republic of Croatia”

- ▶ Working group for the update of the document was established in 2024

PRIJEDLOG SUSTAVA ZAŠTITE KRŠKIH VODONOSNIKA U GRANIČNIM PODRUČJIMA BOSNE I HERCEGOVINE I HRVATSKE, 2024.

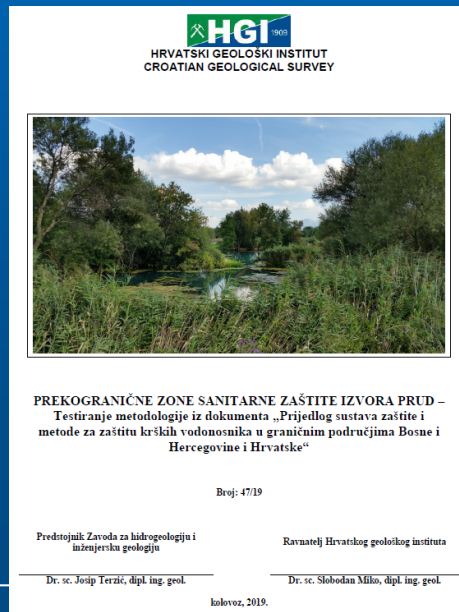
Recommendation of the Protection System for Protection of the Karstic Aquifers in the Border Areas of Bosnia and Herzegovina and the Republic of Croatia

KLOKOT, UNA

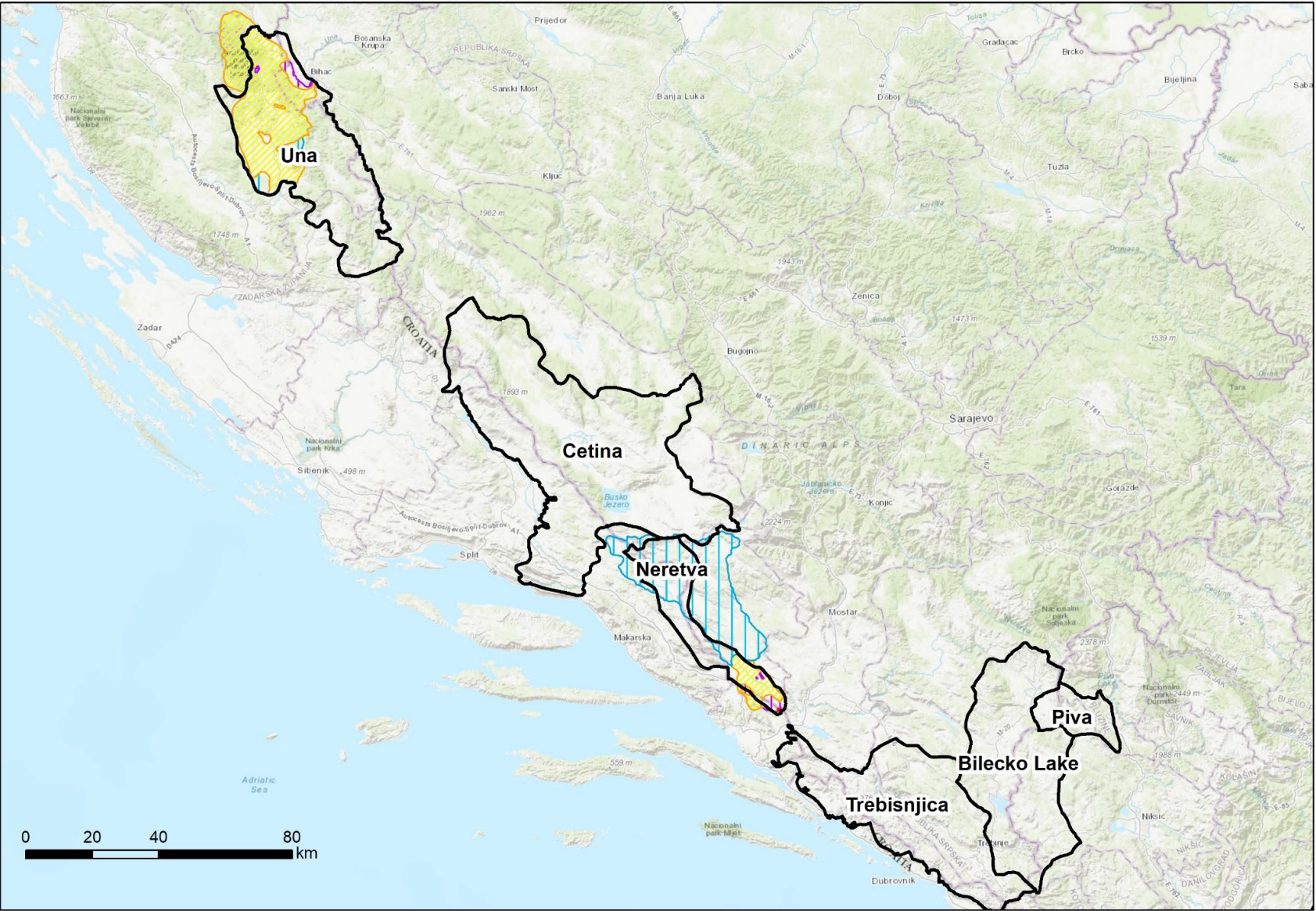


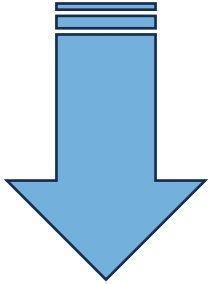
Development of a Study on the Establishment of the Klokot (Bihać) Spring Cross-Border Sanitary Protection Zones, 2020, financed by WB

PRUD, NERETVA

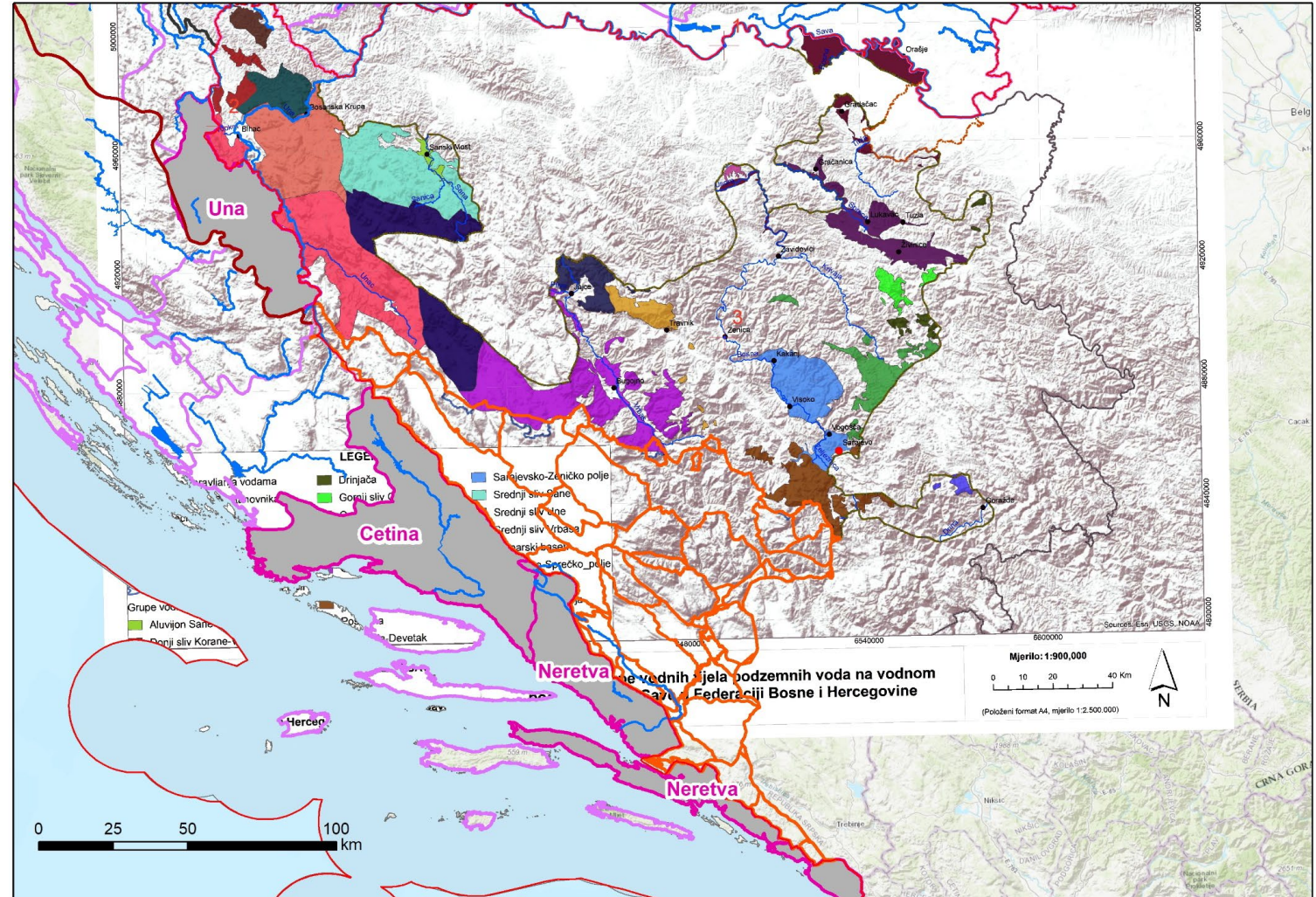


PREKOGRANIČNE ZONE SANITARNE ZAŠTITE IZVORA PRUD – Testiranje metodologije iz dokumenta „Prijedlog sustava zaštite i metode za zaštitu krških vodonosnika u graničnim područjima Bosne i Hercegovine i Hrvatske“, HGI 2019. Financed by CW





- TBA's boundaries delineation in Dinaric karst and further boundaries harmonization
- GW monitoring
- GW Risk assesment
- Sanitary Protection zones



- **TBA's boundaries delineation in Dinaric karst and further boundaries harmonization**
 - GW monitoring
 - GW Risk assesment
 - Sanitary Protection zones
- GIS project: coordinate system, scale, accuracy
- Data collection:
 - HYDROGEOLOGICAL MAP (M 1:300.000 ?)
 - Springs
 - Tracing data (tracer, quantity, results, etc)
 - National RBMP input data (watersheds, catchment boundaries, hydrologic network data, polluters cadastre, GW monitoring, etc)
 - Vulnerability and risk of pollution

Proposed ganthogram of activities during project:

Activity	1 st	2 nd	3 rd	4 th	5 th
Data collection update & GIS					
TBA DELINEATION update					
MONITORING					
GWR assessment					
Sanitary Protection Zones					

Thank you

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