



Romanian Water allocation mechanisms at River Basin Scale

Department for Integrated Management and Water Resources
National Administration Romanian Waters



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NARW institutional @ organizational setup



Legal:

- Institution of national public interest since 2005
- Under coordination of Ministry of Environment, Water & Forests

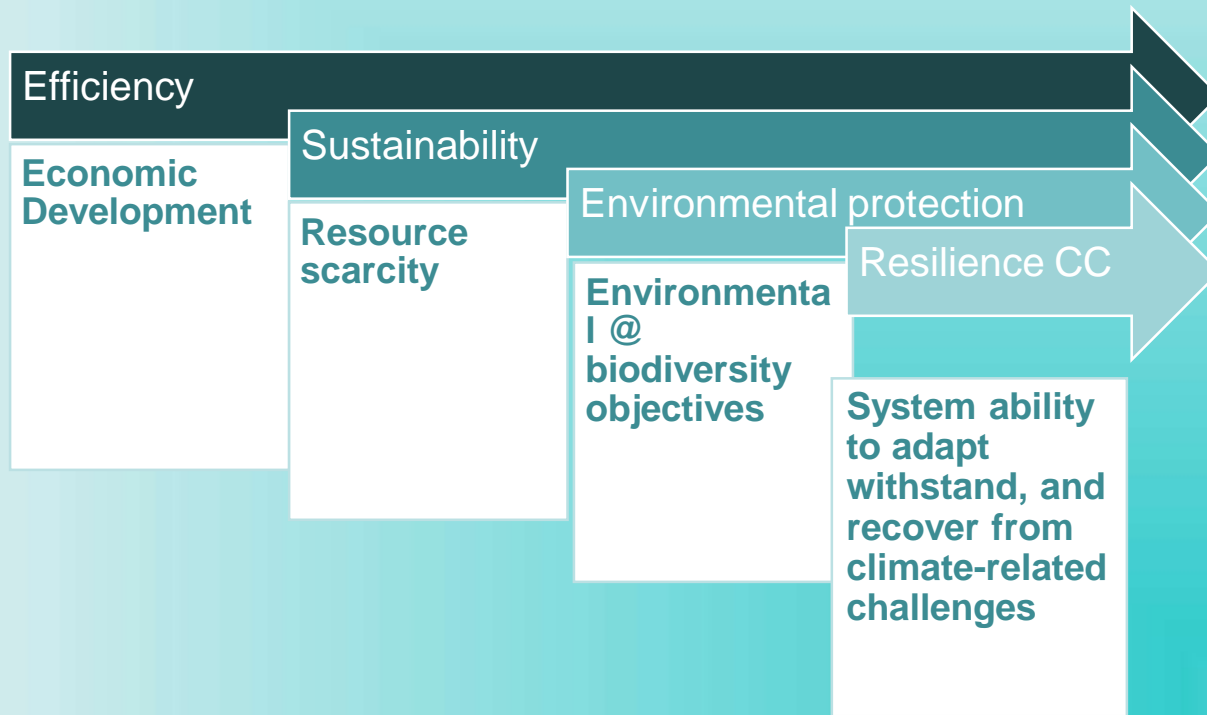
Administrative:

- Headquarter
- 11 R.B.A (Legal personality)
- NIHWM
- Stâncă-Costești Complex Hydrotechnical Works Management

Technical

- *Strategical Departments* – Integrated Management and Water Resources, Development & Investments
- *Operational Departments* – Management of Hydrotechnical Works, Emergency Situations

Principles and considerations

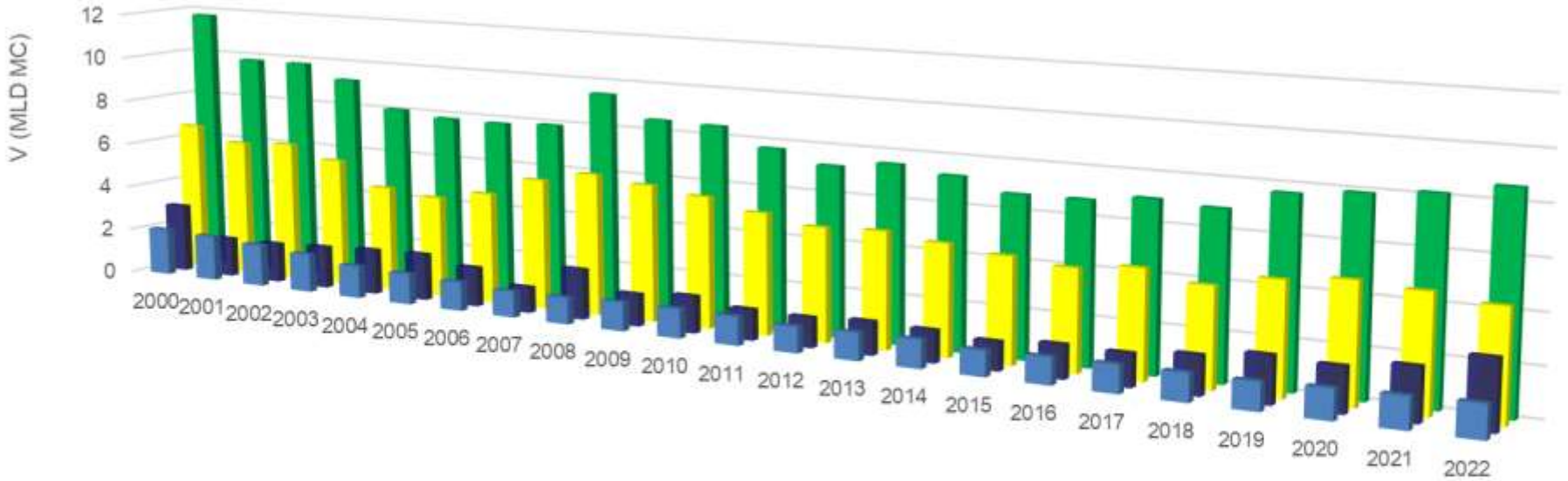


- ❖ Assessment of the **natural** (hydrological) **water resources**;
- ❖ Assessment of the **socio-economic water resources**, considering the ensuring of water demand in terms of a modified hydrological regime;
- ❖ Identifying **current water uses** and their **water demand**, as well as their **future water demand**;
- ❖ The **conditions** imposed by these uses to **meet water regulation requirements**.

Water demand @ Water abstractions – past & future



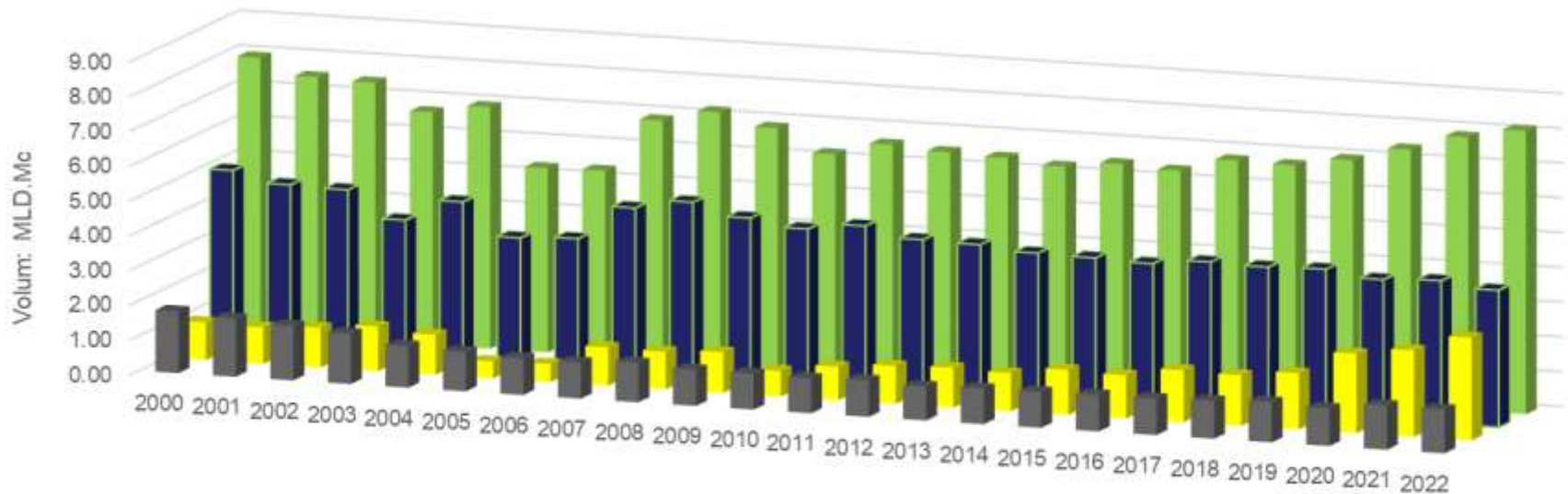
**TREND OF WATER DEMAND
2000-2022**



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Population	2.07	2.00	1.86	1.69	1.42	1.35	1.26	1.13	1.15	1.24	1.25	1.22	1.10	1.16	1.19	1.07	1.12	1.15	1.16	1.15	1.23	1.29	1.35
Agriculture	3.03	1.74	1.75	1.86	1.98	2.05	1.72	1.13	2.18	1.39	1.59	1.32	1.28	1.41	1.36	1.21	1.40	1.37	1.62	1.94	1.84	2.16	2.80
Industry	6.64	6.04	6.17	5.64	4.62	4.40	4.80	5.64	6.11	5.87	5.61	5.16	4.81	4.91	4.67	4.42	4.21	4.48	4.08	4.58	4.84	4.70	4.45
TOTAL	11.74	9.78	9.78	9.19	8.02	7.80	7.78	7.90	9.44	8.50	8.45	7.70	7.19	7.48	7.22	6.70	6.73	7.00	6.86	7.67	7.91	8.14	8.60



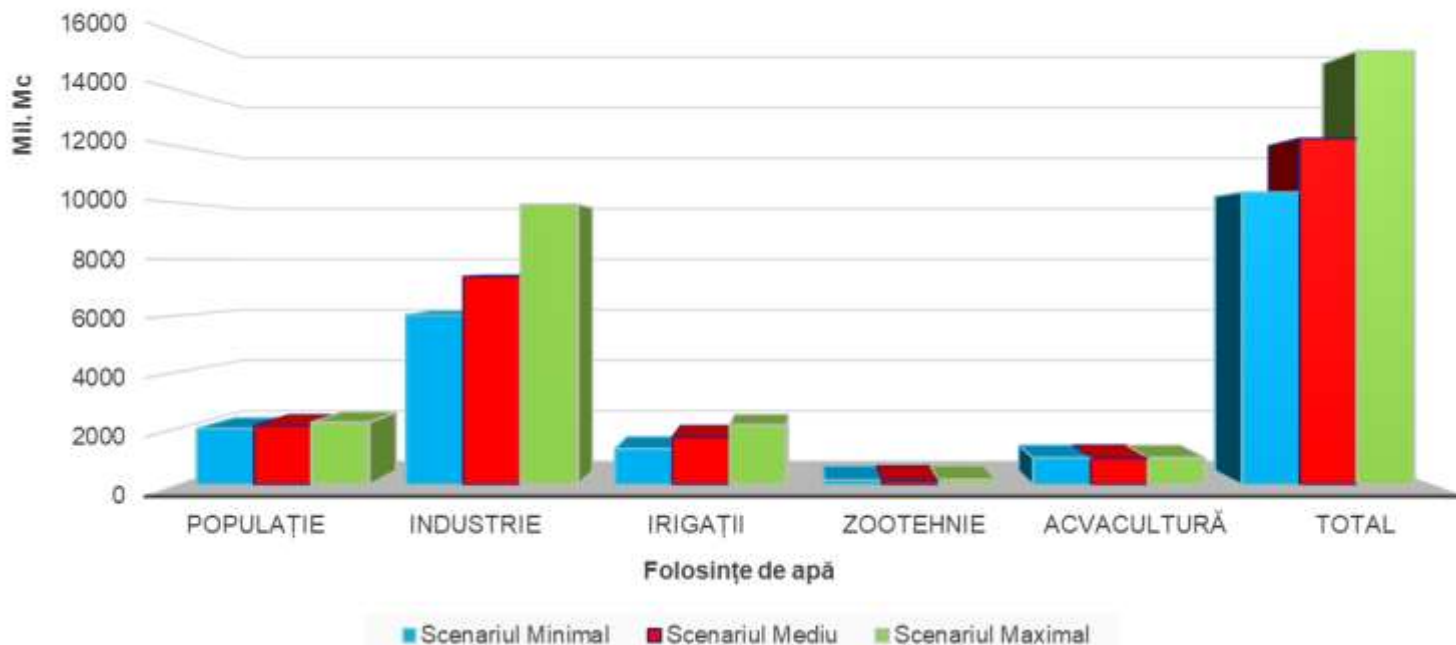
TREND OF WATER ABSTRACTION 2000-2022



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
■ Population	1.78	1.67	1.57	1.45	1.20	1.14	1.06	1.04	1.13	1.04	1.03	1.00	1.05	0.98	1.02	1.03	1.05	1.05	1.09	1.16	1.08	1.27	1.26
■ Agriculture	1.09	1.05	1.14	1.28	1.15	0.49	0.52	1.10	1.08	1.17	0.74	0.96	1.09	1.14	1.09	1.29	1.24	1.49	1.45	1.61	2.28	2.48	2.95
■ Industry	5.09	4.78	4.74	3.97	4.60	3.67	3.75	4.74	5.01	4.66	4.45	4.64	4.35	4.31	4.17	4.14	4.08	4.23	4.19	4.23	4.04	4.11	3.94
■ TOTAL	7.96	7.50	7.45	6.70	6.95	5.30	5.33	6.88	7.22	6.87	6.22	6.60	6.49	6.43	6.28	6.46	6.37	6.77	6.74	6.99	7.40	7.86	8.15



Water demand at national level - 2030

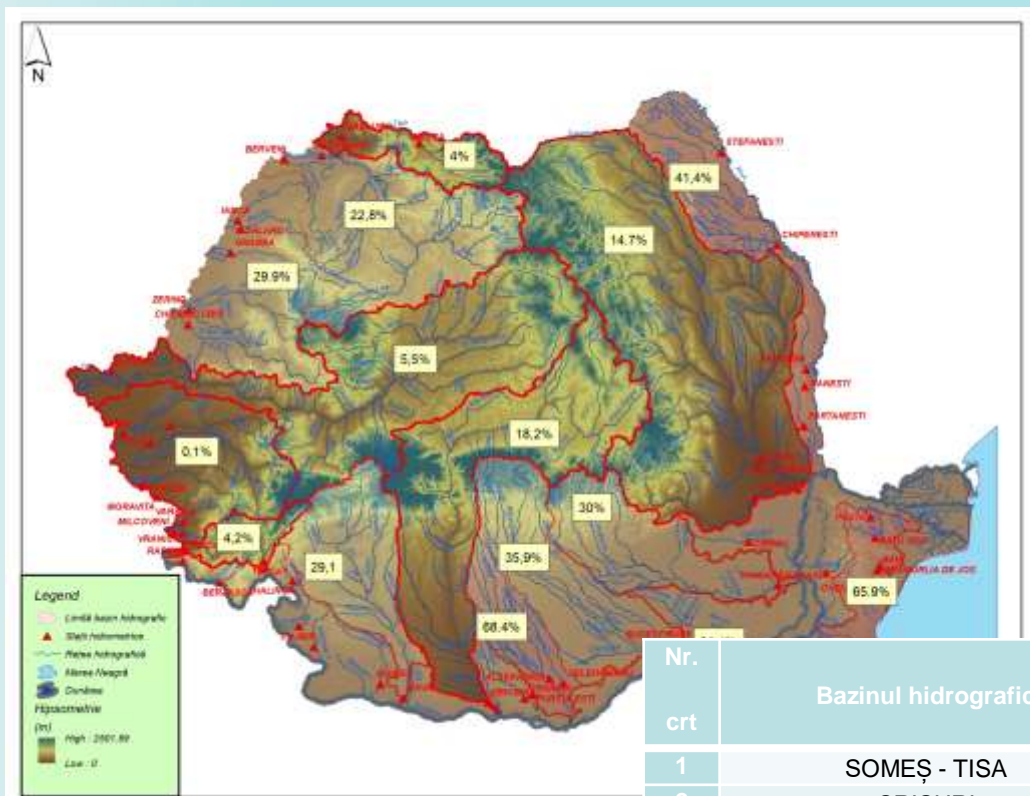


Folosința de apă	CERINȚA DE APĂ (mil. mc)		
	2030		
	Scenario Minimum	Scenario Medium	Scenario Maximum
Populație	1,986	2,097	2,208
Industrie	6,017	7,383	9,944
Irigații	1,267	1,689	2,112
Zootehnie	155	164	173
Acvacultură	949	949	949
Total	10,374	12,282	15,386

Water Exploitation Index



WEI



- Percentage distribution of the average stock for the year 2020 was compared to the reference period of 2015-2019 – GIS
- W RB under the alert threshold
- E RB water resource deficit

Water stress in SE WEI + 2020

Nr. crt	Bazinul hidrografic	F (km ²)	Volum utilizate	Volum medii de apă		WEI+ (%)
				2020		
1	SOMEȘ - TISA	22444	206.59	4503	4.59	
2	CRIȘURI	14942	44.78	1647.5	2.72	
3	MUREȘ	28527	437.40	4275	10.23	
4	BANAT	18324	111.74	3135	3.56	
5	JIU	167754	492.29	2861.4	17.20	
6	OLT	24945	449.66	4269	10.53	
7	ARGEȘ - VEDEA	21928	398.18	1821.6	21.86	
8	IALOMITA - BUZĂU	24453	256.60	1531.6	16.75	
9	SIRET	28646	162.75	5262.4	3.09	
10	PRUT - BĂRLAD	19927	291.01	337	86.35	
11	DOBROGEA	17480	33.21	61.5	53.99	
12	Total România fără fluviul Dunărea	238391	2.88	61.5	4.69	



Key aspects in RO water allocation system

- Water resource – demand balance**
- Water regulation**
- Outputs**



Key aspects in RO water allocation system

❑ **Water resource – demand balance**

- The **real abstraction potential** is based on the assessment of the **resource-demand balance**; The **resource-demand balance** is assessed at the level of each calculation section based on the data recorded at the hydrometric stations.
- The **water balance assessment** address to a **comparative analysis** of **inflow** with the **outflow** in the **specific calculation sections**, required to meet user's water demand uses, **as well as for the ecological flow**.
- The **water balance assessment** takes into account both the determination of flow **changes downstream** (*a successive balance assessment*) of each calculation section and the analysis of the overall impact (*cumulative balance*) of **upstream water use** on the considered calculation section.

Key aspects in RO water allocation system



□ Water regulation

➤ Acts - water permits, water license

Water license: conditions the technical and legal execution of works constructed on or related to water

Water permit: the technical and legal document that conditions the operation and exploitation of works constructed on or related to water

➤ Procedures

the technically approved design solutions, as part of the feasibility study (FS), are based on hydrological and hydrogeological studies – expertized by the NIHWM

FS a stage in the design procedure where environmental and water management regulations are obtained

Key aspects in RO water allocation system



❑ Water regulation procedure



Outputs



Water Management Annual Report

- provides a **synthesis** of information and data at the RB and national level, including **hydrological trends**, **water resource status**, water management **works**, water management requirements primarily consisting of meeting water demand needs, water use regulations, and water inspection activities

Water Balance

- ensures, at the RB and national level, the correlation between the demand and its availability according to regulations requirements

Register of Protected Areas.

- includes drinking water intakes established in water bodies that, on average, supply more than 10 m³/day & >50 people.
- These intakes are protected to prevent deterioration in their quality and to reduce the treatment level in the drinking water production process by establishing protection zones.

Plans for Water Restrictions and Use During Critical Periods

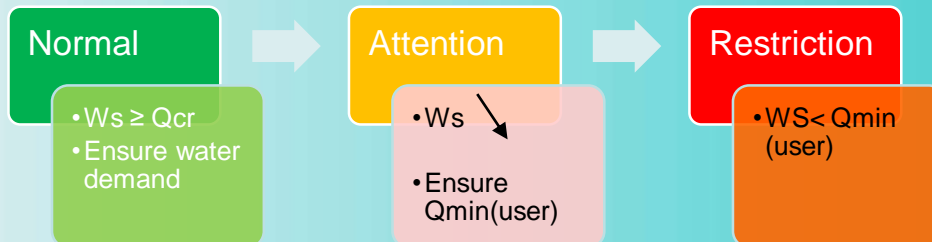


Ministerial Order 9/2006 incl. the methodology for development and implementation

- Gradual reduction of irrigation water supply (e.g. 50% field crops)
- Temporary reduction of E-flow to 50%
- Red. Water supply for fishery

- Reduction of water supply for industry, ac to USER Preliminary Restriction Program
- Partial or Total reduction of industrial polluters
- Intermittent reduction to population, public service units, as well as livestock facilities.

Plans for Water Restrictions and Use During Critical Periods (Phases)





Thank you for your attention!