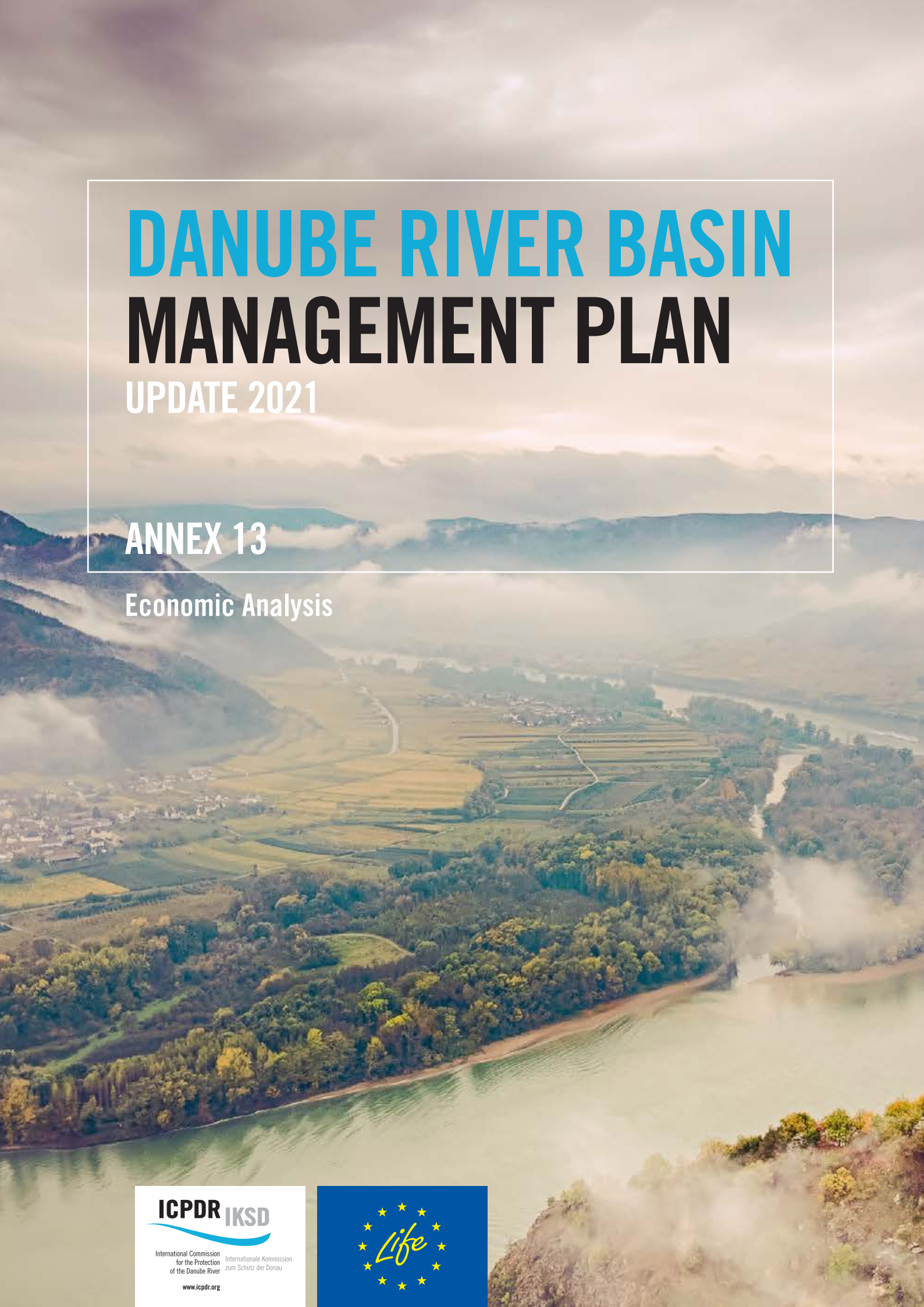
DANUBE RIVER BASIN MANAGEMENT PLAN

UPDATE 2021

ANNEX 13

Economic Analysis



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International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau
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Life

The economics analysis of the DRBMP Update 2021 is based on a questionnaire sent out to the Danube countries in autumn 2019 and spring 2020, for the collection of qualitative information on economics important in the framework of WFD implementation (e.g. cost recovery, water pricing, environmental and resource costs etc.). The questionnaire presented the data which was included in the DRBMP Update 2015, and asked the countries to update the information.

The tables in this Annex provide the updated information; the corresponding chapter 7 presents an overview of the approaches which are in place in the Danube countries in text form. Data from all countries are included, with the exception of the Republic of Moldova.

Note: Data from Serbia does not include data from the Autonomous Provinces Kosovo and Metohija.

Table 1: Investment costs for water supply and wastewater*

Country	Demand and Supply Costs[1] [EUR]	Only demand costs [EUR]	Only investment costs (without distinguishing) [EUR]
DE	-	-	Water supply services: 340 million EUR / year (National total in 2017 approx. 2.7 Billon EUR/year) Waste water services: Approx. 610 million EUR/year (National total in 2016 approx. 4.9 Billon EUR)
AT	-	-	3.3 billion (2013 - 2018)
CZ	-	Data not yet available	Data not yet available
SK	-	-	501.41 million EUR** (water supply + wastewater) of which: water supply: 36.52 million, wastewater: 464.89 million
HU***	-	-	Water supply: 59 646 million HUF 192.3 million EUR (2016-2021) Waste water: 300 579 million HUF 959 million EUR (2016-2021)
SI	-	-	**Water supply**: Investment costs in the period from 2013 to 2018: 816,6 million. EUR **Waste water treatment** Total investment costs in the period from 2013 to 2018: - for agglomerations above 2.000 PE for collection systems: 424 million. EUR - for UWWTPs with capacity above 2.000 PE (secondary and tertiary treatment): 225 million. EUR
HR	-	-	2,9 billion € for waste water; 335 million € for water supply; (investment Plan 2014-2023 for whole territory of Croatia)
BA	-	1.1 billion	Water supply services: 390.82 million EUR (2016-2021) Waste water services: 705.70 million EUR (2016-2021)

[1] According to the questionnaires: demand cost are the "total costs related to implementing the EU Directives"; supply costs are the investment costs that could be realistically covered.

ME	-	-	Urban Waste Water investment costs are estimated at € 350.4 million to be incurred prior to 2035. Drinking water Investment costs are estimated at € 71 Million to be incurred prior to 2025.
RS	-	-	Total investments for DWD approx. 1.4 billion EUR Total investments for UWWT approx. 4.5 billion EUR
RO			29.411.781 EUR – water supply and waste water infrastructure.
BG	-	883.9 mio. EUR (2016-2021; wastewater collection and treatment) Assessment of the investment costs for the time 2022-2027 is forthcoming task in the frame of RBMP updating process.	-
MD			
UA	-	-	Water supply + wastewater: 13.5 million EUR (DRBD). Capital investments for environmental protection expenditures on return water treatment – 0.25 million EUR (DRBD)

*Timescales: 2015-2021, if not noted otherwise.

** (SK): Data for the whole country (Danube part represents 96.23 % of the total territory of Slovakia) and for 2014-2020.

*** (HU): Drinking water supply includes both the protection of national water resources and the implementation of a drinking water quality improvement program. The public wastewater collection and treatment also includes sewerage, wastewater treatment (below and above 2000 PE) and sewage sludge treatment. The costs were planned on the basis of the relevant EU programs, so do not include reconstructions, only direct compliance with the EU Directives. (The applied EUR/HUF exchange rate for the period of the 2nd RBMP is 310.1)

Table 2: What are water services - what are water uses?

Country	Only water supply and wastewater	Water supply, wastewater AND others	Included in cost recovery calculations (Y/N/Partly)	Other definitions	Is the definition of water services included in the national water legislation (Y/N)
DE	✓		Y		Y
AT		✓	Y (based on estimation)		Y (Water services to which Article 9 par 1 second indent WFD is applied are defined. Other water services are regulated in the frame of water uses)
CZ		✓ Rivers and river basin management; surface water abstraction; GW abstraction; discharge of wastewater into surface water; discharge of wastewater into GW; impoundment for the energy production; navigation – only recreation	Y		Y (§ 2 let. a) of Decree No. 24/2011 Coll.) - Any activity which provides for abstraction, retention, collection, treatment and distribution of surface water or GW, or the removal and treatment of waste water with subsequent discharge into surface water, for households, public institutions or any economic activity
SK		✓ Use of hydro-energy potential of water-course; abstraction of energy water from watercourse; abstraction of surface water from water-course	Y (water supply, wastewater, use of hydroenergy potential, abstraction of energy water, abstraction of surface water)	Navigation is defined as a "public service - paid by the state"	Y
HU		✓ Public water supply, public wastewater collection and treatment,	Y	✓ (the other different water uses are taken into consideration as “water uses”	Y

		agricultural water supply (irrigation, fishponds, other), damming and storage for hydropower production, own water abstraction		(according to WFD Article 2 Definition 39))	
SI		✓	Partly		Y
HR	✓		Y	Additional definition of water activities has been enacted. Water activities are all activities that provide for households, public institutions or economic entities: a) abstraction, impoundment, storage, treatment and distribution of surface or groundwater, and b) collection and treatment of wastewater, subsequently discharged into the water. Water activities include but they are not limited to water services. CR calculation includes all water activities.	Y
BA		✓ 13 other water services defined	N		
ME	✓	-	-	-	✓
RS			N		N There is no definition of water services in WL, but WL sets the charges/fees for water abstraction and waste water disposal for different purposes (water use: public water supply, irrigation, industries,

					hydropower, bottling, etc., and waste water disposal: municipal, industrial, cooling, etc.), sediment abstraction, etc.
RO		✓ Contributions for using water resource for hydropower, thermal plants, nuclear power plant for aquaculture, irrigation, industry, households. Structured on type of water resource (surface and groundwater).	Y		Yes (Water Law)
BG	-	-	Y All costs considered(financial, environmental and resource costs)	✓ Public water supply; public collection of waste water; public treatment of wastewater; individual water supply in industry; individual water supply in agriculture for irrigation; individual water supply for stockbreeding; producing of electric power by water electric plant; protection of harmful impact of water; conservation of water; navigation and other activities connected with navigation; individual drinking water supply	Y
MD	n.a.				
UA	-	Water supply, wastewater collection and treatment; agricultural; fish farming; surface water abstraction;	Y	Water use - the use of water (water bodies) to meet the needs of the population, industry, agriculture,	Y Water Code

		use of hydro-energy potential.		transport and other sectors of the economy, including the right to water intake, wastewater discharge and other uses of water (water bodies).	

Table 3: Water pricing policies in place, and prices of water services/uses

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
DE	Water supply	ERC are considered in the recovery of the costs of water supply services (EUR/m³); they are not quantified individually		ERC are considered in the recovery of the costs of water supply services (EUR/m³); they are not quantified individually	
	Waste water treatment	ERC are considered in the recovery of the costs of waste water services; they are not quantified individually		ERC are considered in the recovery of the costs of waste water services; they are not quantified individually	
AT	Water supply	ERC are internalized in the price for drinking water (EUR/m³) but they are not yet quantified individually		Payments for ERC are internalized in the price for drinking water (EUR/m³) but they are not yet quantified individually	
	Waste water treatment	ERC are internalized in the price for wastewater treatment (EUR/m³) but they are not yet quantified individually		Payments for ERC are internalized in the price for wastewater treatment (EUR/m³) but they are not yet quantified individually	
	Others (e.g. hydropower for electricity production, navigation, aquaculture)	ERC are internalized in environmental requirements but they are not yet quantified individually		Payments are internalized in environmental requirements but they are not yet quantified individually	
CZ	Drinking water supply	ERC costs in the form of charges for groundwater and surface water abstraction is internalized in the price for drinking water (EUR/m3)		No separate payment exists. ERC recovery costs are internalized.	
	Wastewater treatment	ERC are in the form of charges for pollution and volume of discharged wastewater.		See the answer above.	
	Water storage and impoundment for energy production	ERC costs in the form of charges for impoundments are internalized in the price which is agreed between the customer and State Enterprises of River Basin Management(EUR/m³)		No separate payment exists. ERC recovery costs are internalized.	
	Navigation	Not assessed	Not assessed	No payment	No payment
SK	Water supply for households, industry and agriculture	Not assessed	Resource cost in the form of charges for groundwater abstraction as well as payments for surface water abstraction is internalized in the price for drinking water (EUR/m³)	No payment	No separate payment, only the internalized one
	Collection and treatment of wastewater	Environmental cost in the form of charges for discharge of wastewater is internalized in the price for the collection and treatment of wastewater (EUR/m³)	Not assessed	No separate payment, only the internalized one	No payment

Country	Water service	Environmental cost [EUR/m^3, EUR/?, not assessed]	Resource cost [EUR/m^3, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m^3, no payment]	Payment for resource cost recovery [EUR/m^3, no payment]
	Use of hydro-energy- potential of watercourse	Not assessed	Not assessed	No payment	No payment
	Abstraction of energy water from watercourse	Not assessed	Not assessed	No payment	No payment
	Abstraction of surface water from watercourse	Not assessed	Not assessed	No payment	The payment for surface water abstraction is determined in EUR/m^3 and is a component of the price for drinking water. This payment is considered as covering a part of resource costs.
HU	Public wastewater collection and treatment	EC were assessed in 2006-2007 based on the 2005 data. EC are partly internalized in the water load fee and wastewater fine and this is covered by the water price.	Not assessed	Unit water load fee (WLF) in average (depends on different loads) WLF: 4.4 HUF/m^3 (2018) Wastewater fine: 519.9 million HUF (2018) In the case of a wastewater fine, it does not make sense to calculate a specific m^3 for all wastewater volumes, because only a part of it is fined.	No payment Up to RBMP2, the water resource fee (WRF) could only been considered as an environmental cost, but since the WRF rate for water bodies in poor status differs from the others (20% higher), it can also be considered as a partial resource cost.
	Public water supply	EC were assessed in 2006-2007 based on the 2005 data. EC are partly internalised in the water resource fee and this is covered by the water price	Not assessed	2018 water resource fee (WRF) data: 4.42 HUF/m^3	No payment
	Own water abstraction	EC are partly internalized in water resource fee	Not assessed	2018 water resource fee (WRF) data: Industry and other economic sector: 2.43 HUF/m^3 Agriculture: 1.1 HUF/m^3 Others: 11.9 HUF/m^3	Water resource fee is partially serves as resource cost
	Agricultural water supply (irrigation, fishponds, other)	EC are partly internalized in water resource fee	Not assessed	2018 water resource fee (WRF) data:	Water resource fee is partially serves as resource cost

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
				Irrigation:1.15 HUF/m³ Fish pond: 0.045 HUF/m³ Rice production: 0.044 HUF/m³ Animal husbandry: 13.24 HUF/m³	
	Damming and storage for hydropower production	EC are partly internalized in water resource fee	Not assessed	2018 water resource fee (WRF) data: In situ water use: 0.0045 HUF/m³	Water resource fee is partially serves as resource cost
SI	Water supply	ERC are included in the price of drinking water supply service and waste water collection and treatment service. Additional assessments are in progress.		ERC are included in the price of drinking water supply service and waste water collection and treatment service. Additional assessments are in progress.	
	Waste water treatment				
HR	Water Services				
	Water supply	0,40 EUR/m3 - an estimation based on annual Financial Plan of Croatian Waters		water abstraction fee - 0,38 EUR/m3	
	Waste water collection and treatment	0.22 EUR/m3 - an estimation based on annual Financial Plan of Croatian Waters		water pollution charge - 0,18 EUR/m3 (subject to load coefficients for industrial waters discharge)	
	Other Water Services				
	Abstraction of surface water (excluding water supply and specified activities below)	not assessed (only internalized part was assessed, additional assessments are in progress)		water abstraction charge - 0,11, 0,09, 0,07 and 0,04 EUR/m3 depending on water status (very good, good, moderate, bad and very bad)	
	Abstraction of groundwater (excluding water supply and specified activities below)	not assessed (only internalized part was assessed, additional assessments are in progress)		water abstraction charge - 0,11 and 0,04 EUR/m3 depending on water status (good or bad) and 0,15 EUR/m3 for mineral, thermos-mineral and thermal waters	
	Water power for electricity production	not assessed (only internalized part was assessed, additional assessments are in progress)		water abstraction charge - 7.5% (for plants over 5 MW) or 5% (for plants up to 5MW) of the average price per 1 kWh electricity produced	

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
	Water power for plant operation (other than electricity production)	not assessed (only internalized part was assessed, additional assessments are in progress)		water abstraction charge - 0,26 EUR per 1 kWh of total installed capacity of the plant	
	Heating and cooling of households and offices	not assessed (only internalized part was assessed, additional assessments are in progress)		water abstraction charge - 0,013 EUR/m3	
	Rafting and canoeing (as business activities)	not assessed (only internalized part was assessed, additional assessments are in progress)		water abstraction charge - 6,57 EUR/yr per passenger seat	
	Anchoring floating vessels for catering and similar businesses	not assessed (only internalized part was assessed, additional assessments are in progress)		water abstraction charge - 13,14 EUR/yr per m2 of water surface occupied	
	Irrigation	not assessed (only internalized part was assessed, additional assessments are in progress)		65,68 EUR/yr per ha - if the quantity is not measured, if it is measured - the tariffs for surface water and groundwater abstraction apply	
	Water discharges (other than through public wastewater facilities)	not assessed (only internalized part was assessed, additional assessments are in progress)		water pollution charge (i) 0,18 EUR/m3 od water discharged (subject to load coefficients for industrial waters discharge), (ii) 0,000177 EUR/m3 of cooling water discharged and (iii) 0.000486 EUR/kg of nitrogen as active substance in mineral fertilizer	
BA	Public water supply	-	-	-	0.005 Euro/ m^3 of abstracted water
	Bottling of water & mineral water	-	-	-	1.00 Euro/ m^3 of abstracted water
	Water supply to industry and others (abstraction)	-	-	-	0.01/0.015 Euro/m^3 (RS/FBiH)
	Irrigation (abstraction)	-	-	-	0.001 Euro/m^3 (RS)
	Fish farming (abstract)	-	-	-	0.0005 Euro/m^3 (RS only) abstr. water
	Fish farming (pollution)	-	-	0.01/0.025 (RS/FBiH) Euro/kg produc. fish	-

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
	Electricity production	-	-	0.0005 Euro/kWh of produced electricity	-
	Wastewater discharge	-	-	1.00 Euro/PE	-
	Pollution caused by vehicles	-	-	1.00 Euro/PE	-
	Pollution caused by use of artificial fertilizer	-	-	0.0025 Euro/kg prod. / imported fertilizer	-
	Pollution caused by use of pesticides	-	-	0.04 Euro/kg of prod. / imported pesticides	-
	Sediment extraction	-	-	0.75 Euro/m³ of the extracted material	-
	General water charge	-	-	0.5% of the net salary (FBiH only)	0.5% of the net salary (FBiH only)
ME	For drinking and community water supply	-	-	-	0,015€/m³ delivered water
	For operational and technological needs 0.02 € / m3 of used water;	-	-	-	0.02 € / m3 of used water
	for irrigation	-	-	-	0.004 € / m3 of affected water;
	for bottling or packaging of mineral and natural waters	-	-	-	0,003 € / l bottled or packaged water
	for tanking of vessels	-	-	-	0.02 € / m3 of tanked water
	for drainage or delivery of water for commercial purposes	-	-	-	0.03 € / m3 of delivered water;
	for growing fish, crabs, shellfish and other seafood	-	--	-	0.01 € / kg of sea bream or sea bass produced 0.005€ / kg of trout produced 0,0075 € / kg of other fish species

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
					€ 0.0025 / kg of shellfish produced 0.01 € / kg of produced crustaceans and other seafood
	for electricity generation at the power plant threshold; for the use of water in extremely favorable natural conditions using hydro-accumulations; for other propulsion purposes	-	-	-	0,0001 €/kWh 0,0006 €/m3 0,00005 €/kW
	for rafting	-	-	-	0.5 € per person for one descent.
RS	Fee for water use (public utilities), population	-	-	-	Extracted amount 0.002
	Fee for water use (public utilities), legal entities	-	-	-	Extracted amount 0.004
	Fee for raw water use	-	-	-	0.003
	Fee for irrigation water use	-	-	-	0.001
	Fee for water bottling	-	-	-	0,010 (EUR/l)
	Fee for abstracted water for electricity production in hydropower plants below 10 MW	-	-	-	0.708 (EUR/MWh)
	Fee for abstracted water for electricity production in hydropower plants of 10 MW and above	-	-	-	0.772 (EUR/MWh)
	Fee for abstracted water for thermal power plants with recirculating cooling system	-	-	-	0.420 (EUR/MWh)

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
	Municipal waste water disposal	-	-	For the disposal of municipal waste water in general, as well as for the disposal of municipal wastewater into hydromelioration systems, there is methodology prescribed for calculation of environmental fee that takes into account certain parameters and their ELVs.	0.002
	Industrial waste water disposal (depending on type of industry)	-	-	For the disposal of industrial waste water in general, as well as for the disposal of industrial wastewater into hydromelioration systems, there is methodology prescribed for calculation of environmental fee that takes into account certain parameters and their ELVs.	0.044/0.026/0.024/0.012
	Fee for disposal of water from thermal power plants with runoff cooling system	-	-	-	0.420 (EUR/MWh)
	Fee for sediment extraction (depending on location of extraction point)	-	-	-	0.500/0.620/1.000
RO	Water supply	-	0 RC=foregone opportunities that other uses suffer due to the depletion of the resource beyond its natural rate of recharge or recovery based on the assessment of availability of the water resource in one section comparing to the present and future water demand	-	-0
	Wastewater treatment	0,43EUR/cm	-	0,43 EUR/cm	-

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
	(* includes sewerage)	Only Monitoring costs considered Approximated EC= costs of measures whose primary aim is to protect the water environment based on existing legal (environmental) standards			
	Water abstraction for households from surface waters				
	Water abstraction for industry from surface waters				
	Water abstraction for irrigation				
	Water abstraction for aquaculture				
	Water abstraction for hydropower				
	Water abstraction for thermo power plants				
	Water abstraction for households from groundwater waters				
	Navigation (lock)				
	Receive pollutants in the surface waters				
	Water supply and waste water treatment	Approximated by looking at the costs of measures whose primary aim is to protect the water environment based on existing legal (environmental) standards	Costs of foregone opportunities which other uses suffer due to the depletion of the resource beyond its natural rate of recharge or recovery (e.g. linked to the over-abstraction	Internalized in waste water treatment costs Level still in progress	Level still in progress

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
			of groundwater). Based on the assessment of availability of the water resource in one section comparing to the present and future water demand		
BG	Public water supply	105,837.42 EUR (2012) (According Methodology: Costs for removal of damages, caused by diffuse pollution from agriculture, stock-breeding and fish- breeding)	3,765,664.71 EUR (in 2012) 1.Costs connected with present lack of water 2.Costs connected with future lack of water	Recovery through water price paid by households, industry, agriculture and services Price for water supply by water companies/drinking water: 0.41 €/m3; Price for water supply for irrigation/supply by "Irrigation systems": 0.18 €/ m3	Recovery through water price paid by households, industry, agriculture and branch of services Price for water supply by water companies/drinking water: 0.41 €/ m3 Price for water supply for irrigation/supply by "Irrigation systems":0.18 €/ m3
	Public collection of waste water	13,260,866.23 EUR (in 2012) (Costs for removal of damages, caused by diffuse pollution from settlements without sewage system)	No identified resource costs	Recovery through prices of public collection of waste water Price for collection of waste water: 0.09 €/ m3	N
	Public treatment of waste water	27 240 608,85 EUR (in 2012) (1.Costs for removal of damages, caused by point pollution of waste water from households and industry /building of WWT-Plants 2. Costs for removal of damages, caused by diffuse pollution from landfills)	No identified resource costs	Recovery through prices of treatment of waste water Price for treatment of waste water: 0.14 €/ m3	N
	Individual water supply in industry	No identified environmental costs	Costs in case of future water scarcity (no resource costs for 2008-2012: 0 €/m3)	N	Recovery through fee for water use according to National Tariff for fees: 0.045€/m3 – surface water. 0.07€/m3 – ground water.

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
	Individual water supply in agriculture for irrigation	7,669.38 EUR (in 2012) (Costs for removal of damages, caused by diffuse pollution from agriculture)	Costs in case of future water scarcity (no resource costs for 2008-2012: 0 €/m3)	Recovery through fee for water use according to National Tariff for fees: 0.0005€/m3 – surface water 0.005€ m3 – ground water	Recovery through fee for water use according to National Tariff for fees 0.0005€/m3 – surface water 0.005€/m3 – ground water
	Individual water supply for stock-breeding and fish-breeding	750,065.19 EUR (in 2012) (Costs for removal of damages, caused by diffuse pollution from stock-breeding and fish-breeding)	Costs in case of future water scarcity (no resource costs for the period 2008-2012: 0 €/m3)	Recovery through fee for water use according to National Tariff for fees: 0.0005€/m3 – surface water 0.005€/m3 – ground water	Recovery through fee for water use according to National Tariff for fees 0.0005€/m3 – surface water 0.005€/m3 – ground water
	Producing of electric power by water electric plant	16,361.34 EUR (in 2012) (1.Costs for removal of damages, caused by drying of rivers due to water use of hydro power plants; 2. Costs for removal of damages, caused by interruption of continuation of the rivers due to water use of hydro power plants /costs for building of fish-passages)	Costs in case of future water scarcity, but no resource costs for the period 2008-2012: 0 €/ m3	Recovery through fee for water use according to National Tariff for fees: 0.0008 €/m3	Recovery through fee for water use according to National Tariff for fees: 0.0008 €/m3
	Protection of harmful impact of water	Costs for measures for recovery of damages due to gravel extraction: 2008-2012: 0 €/ m3	No identified resource costs	No fee. Cost recovery: - Own incomes of municipalities - State financing for “Irrigation systems” -State transfers Total amount for 2012: 20,577,453.03 EUR;	No
	Water conservation	No identified environmental costs (only financial costs)	No identified resource costs (only financial costs)	No fee. Cost recovery of financial costs only	No fee. Cost recovery of financial costs only

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
	Navigation and other activities connected with navigation	Costs for removal and prevention of damages, caused by navigation :2008-2012 for Danube - 0 €/m3	No identified resource costs	Cost recovery through harbor fees paid by shipping sector: 2008-2012 for Danube - 0 €/ m3	No
	Individual drinking water supply	No identified environmental costs	Costs in case of future water scarcity, but no resource costs for the period 2008-2012: 0 €/m3	No	Cost recovery through fees for issue of permits 0.02 €/m3 – surface water 0.75 €/m3 – ground water
MD					
UA	Water supply for industry			Recovery through water price paid by industry Tariff 0,25 – 0,75 €/ m3	Recovery through water price paid by industry Tariff 0,25 – 0,75 €/ m3
	Water supply for population			Recovery through water price paid by houshold Tariff 0,22 – 0,57 €/ m3	Recovery through water price paid by houshold Tariff 0,22 – 0,57 €/ m3
	Wastewater treatment for industry			Recovery through water price paid by industry Tariff 0,15– 0,69 €/ m3	Recovery through water price paid by industry Tariff 0,15– 0,69 €/ m3
	Wastewater treatment for population			Recovery through fee for water use according to National Tariff for fees: 0,16 – 0,48 €/ m3	Recovery through fee for water use according to National Tariff for fees: 0,16 – 0,48 €/ m3
	Wastewater treatment	ERC are in the form of charges for pollution and volume of discharged wastewater.			

Country	Water service	Environmental cost [EUR/m³, EUR/?, not assessed]	Resource cost [EUR/m³, EUR/?, not assessed]	Payment for environmental cost recovery [EUR/m³, no payment]	Payment for resource cost recovery [EUR/m³, no payment]
	Drinking water supply	ERC costs in the form of charges for groundwater and surface water abstraction is internalized in the price for drinking water		ERC are in the form of charges for pollution and volume of discharged wastewater.	Cost recovery through fees for issue of permits 1,74 €/m3 – surface water 2,02 €/m3 – ground water
	Producing of electric power by water electric plant		ERC are in the form of charges for pollution and volume of discharged wastewater.		Cost recovery through fees for issue of permits 0,36 €/10 ths m3 – surface water
	Fish farming		ERC are in the form of charges for pollution and volume of discharged wastewater.		Cost recovery through fees for issue of permits 1,87 €/10 ths m3 – surface water 2,24 €/ 10 ths m3 – ground water

Table 4: Use and calculation of ERC

Country	ERC estimations available [Y/N/partly]	Clear Methodology for calculating ERC [Y/N/partly]	Clear Methodology for cross subsidies [Y/N/partly]
DE	N	Partly - Issue of operationalizing the concept of ERC remains challenging.	N
AT	Partly The internalized parts of EC in AT are estimated through the quantified costs of measures.	Partly (expert judgment involved)	Y According to the polluter pays principle, water users pay the environmental costs they cause in form of water charges as well as implementation of technical measures in order to prevent cross subsidies.
CZ	Y	Partly The calculation of EC in CZ is based on the costs of renewal and saved costs. It determines the costs that would be necessary for compensation of impacts of water management services on environment, respectively for the compensation of the impacts disturbing the state of surface and GW from the quantitative, qualitative and hydromorphological point of view.	N (Subsidies do not play a role in CZ)
SK	N No "full estimations of ERC for single water services"; only the "internalized parts are quantified"[2].	Partly For the estimation of EC, the cost-based approach is used which involves the costs for certain groups of measures. The evaluation of RC is also based on a cost-based approach (e.g. construction of long-distance pipelines to areas failing to achieve good quantitative status of GWBs). As there have not been applied regulatory measures and restrictions, the RC which appear due to non-coverage of water requirements of specific sectors (foregone costs approach) is not yet actual.	Partly (subsidies play little role)
HU	Partly EC are partly quantified, only the internalized parts are quantified. EC were assessed in 2006-2007 based on the 2005 data for waste water and drinking water. Taking the international experience into account we chose the cost-based approach, so we consider the cost	Y EC calculation methodology is clear (cost-based methodology), but the cost of measures is missing. The Water Load Fee (WLF) and water resource fee is internalized of (a part of the) external environmental costs. The rate of the water load fee is defined by the product of: 1) the total	Y There are subsidies for covering a part of the financial cost for households when the service costs are extremely high, the cost are above a certain threshold.

[2] The share of the charges for the discharge of wastewater into the water courses on the total costs of water companies in providing of wastewater services (i.e. wastewater collection and treatment) is ca. 1,69 % (2018) – these charges are considered as environmental costs. Charges for groundwater abstraction and payments for surface water abstraction are considered as a part of the resource costs (which are paid by those who have the permission to use the water source). The share of these charges and payments for the abstraction on the total costs of water companies in providing of water supply service is about 17,96 % (2018). However, the abstraction of water could be also seen as a form of the environmental costs (because an abstraction represents one of the biggest pressures on water body)…The charges for discharge of wastewater do not represent full estimation of environmental costs. These charges are stipulated by the Decree of the Government and represent only a part (approximately 30%) of the real costs necessary for the wastewater treatment in the wastewater treatment plants.

Country	ERC estimations available [Y/N/partly]	Clear Methodology for calculating ERC [Y/N/partly]	Clear Methodology for cross subsidies [Y/N/partly]
	of the remaining measures needed in order to achieve "good status" as EC.	amount of the annual discharge of the contaminant measured in kilograms, 2) multiplied by a specific rate per pollutant, 3) a measure of area sensitivity and 4) sludge disposal factors. Water resource fee (abstraction fee) is depend on the water resource type and water uses (and some another element). New development: there is a new so called "overload factor" in the calculation, which depends on the quantitative status of each water body. In general, all water users have to pay the water resource fee (WRF) for the amount of water used. The paid amount is received by the state budget.	
SI	Partly	Partly (methodology for calculating ERC is in progress)	N
HR	Partly ERC are partly quantified, only the internalized parts are quantified.	Partly (cost-based approach) Assessment of ERC is ongoing.	N
BA	Partly ERC are partly quantified, only the internalized parts are quantified.	Partly (cost-based approach and expert judgment)	N
ME	Y	N	N
RS	N No "full estimations of ERC for each water service", but parts are included in charges/fees.	Partly (cost-based approach)	N
RO	Partly ERC are partly quantified, only the internalized parts are quantified.	Partly (cost-based approach) A revise of the assessment is ongoing.	No cross subsidy between different water uses is legally provided.
BG	Y ERC are quantified (2008-2012)	Y (Methodology is developed)	N
MD			
UA		Partly (cost-based approach)	

Table 5: Cost Recovery (CR)

Country	Prices and costs for water services available[3] [Y/N/partly]	Levels of CR stated [Y/N/partly]	Levels of CR for all defined water services [Y/N]	Clear methodology for calculating CR [Y/N/partly]
DE	Y (water supply and waste water services)	Y (water supply and waste water services)	Y	Y
AT	Y (total costs and total revenues of water services [water supply and wastewater treatment] are available, as well as bandwidths/ ranges of average water prices)	Y	Y	Y (based on expert judgement)
CZ	Y (abstraction, water supply and wastewater)	Partly (all O&M costs are fully covered, when including also subsidies on investment we would not reach 100% of cost recovery)	N (only water supply services and wastewater treatment)	N
SK	Y (for all five water services)	Y	Y	Partly (only financial costs, including depreciation and internalized part of environmental and resource costs are considered).
HU	Y Costs, prices, revenues are available for public water supply, for public waste water collection and treatment, agricultural water supply, damming and storage for hydropower production. Internalized ERC costs for industry, agriculture and other/own well.	Y	Yes for public water supply, public waste water collection and treatment, agricultural water supply, damming and storage for hydropower production Partly for public water supply for industry and agriculture/own well).	Y Financial cost recovery rates are calculated (including internationalized ERC costs) for water services (public water supply, public wastewater collection and treatment, agricultural water supply, damming and storage for hydropower production).
SI	Y (for several water services)	Partly (additional assessments are in progress)	N	Partly
HR	Partly (Y water supply for households and industry, N for other water activities)	Y	Y	Y (methodology and CR calculation will be included in National RBMP)
BA	Y	Y	Y	Partly

[3] For exact amounts, see table 3 above.

Country	Prices and costs for water services available[3] [Y/N/partly]	Levels of CR stated [Y/N/partly]	Levels of CR for all defined water services [Y/N]	Clear methodology for calculating CR [Y/N/partly]
	(water supply and wastewater, excluding treatment)			(depreciation, water loses, environmental and resource costs are not included)
ME	Y	-	-	N
RS	Partly (water supply for households and industry)	N	N	N
RO	Y	Y	Y	Partly. Clear methodology for Water supply and waste water services. Ongoing assessment for other services.
BG	Y (for all water services)	Y	Y	Y
MD				
UA	Y (water supply for households and industry and waste water services)	Y	Y	Y Resolutions of the Cabinet of Ministers of Ukraine

Table 6: The links between ERC and payments

Country	CR through fees/charges/taxes	CR through permits	CR through mitigation/supplementary measures	Clear definition of water services paying for RC and/or EC?
DE	✓	✓	✓	Concerted definition across Germany.
AT	✓	✓	Through the Programme of Measures the cost recovery regarding ERC was carried out.	Y (water supply and wastewater)
CZ	✓	-	(CR through mitigation/supplementary measures)	Y (water supply: RC; wastewater: EC)
SK	✓	-	✓ (CR through mitigation/supplementary measures)	Y (water supply: RC; wastewater: EC)
HU	✓	✓ (at least for abstraction)	✓	Y
SI	✓	✓	✓	Y (all water services)

Country	CR through fees/charges/taxes	CR through permits	CR through mitigation/supplementary measures	Clear definition of water services paying for RC and/or EC?
HR	✓	-	Through the PoM the cost recovery analysis regarding ERC was carried out	Y
BA	✓	-	-	Y (see table 3)
ME	✓	-	-	Y (see table 3)
RS	✓	✓	-	-
RO	✓	-	-	Y (wastewater: EC)
BG	✓ (for some water services)	N	-	Costs for some measures of the PoM will be covered by incomes of water services and fees
MD				
UA	✓	✓		

Table 7: CEA used on the national level (whether a cost-effectiveness analysis has been carried out for supporting the selection of measures proposed under the 2015-2021 PoM)

Country	No CEA was used	A qualitative CEA was used	A quantitative CEA was used	A combination of qualitative and quantitative CEA was used
Austria	N	Y	N	N
Bosnia and Herzegovina	Y	N	N	N
Bulgaria*	N	N	N	N
Croatia	N	N	N	N
Czech Republic	N	N	N	Y
Germany	N	N	N	Y
Hungary**	N	Y	N	N
Republic of Moldova	n.a.			
Montenegro	-	-	-	-
Romania	N	N	N	Y
Serbia	N	N	N	N
Slovakia	N	N	N	Y
Slovenia	N	N	Y	N
Ukraine	n.a.			

*Bulgaria: The lack of CEA for selection of measures in the RBMP 2015-2021 was identified as gap in the previous cycle. In the update of the economic analysis, the implementation of a CEA is included.

**Hungary: Hungary undertook a cost-effectiveness analysis for the first Programme of Measures, but this was not carried out at a water body level. Hungary clarified subsequently that cost effectiveness analysis (CEA) was not carried out in the second cycle because the measures did not change substantially and noted that a general description of the method of prioritisation could be found in chapter 7.2 of the RBMP2.

This question is also a reporting requirement according to the EC WFD Reporting Guidance 2022 (Version: FINAL DRAFT V4, dated 30-04-2020).

Table 8: Use of Disproportionality of Costs in the Danube countries

Country	"Disproportionality of costs" used as a justification for exemptions (Y/N)*	Disproportionality applied for justifying Article 4.4 exemptions (Y/N)*	Disproportionality applied for justifying Article 4.5 exemptions (Y/N)*	Methodology/analysis tools used#
Austria	Y	Y	N	CEA
Bosnia and Herzegovina	N (or partly)	-	-	-
Bulgaria	Y	Y	Y	Cost-benefit-Analyses Affordability*
Croatia	Y	Y	Y	Cost-benefit-Analyses Affordability, Cost-Effectiveness Analysis
Czech Republic	Y	Y	N	-
Germany (Danube RB)	Y	Y	N	Cost effectiveness analysis and in specific cases targeted evaluation of costs and benefits
Hungary	Y	Y	Y	Financial possibilities, Affordability for sectors, for households, for state budget in general, CBA in the case of Article 4.5 exemptions
Republic of Moldova	n.a.			
Montenegro	-	-	--	-
Romania	Y	Y	Y	Cost-benefit-Analyses Productivity loss (in case of restoring the longitudinal connectivity for hydropower chain assessment)
Serbia	-	-	-	-
Slovakia	Y	Y	Y	Affordability, Cost-Effectiveness Analysis
Slovenia	Currently unknown	Currently unknown	Currently unknown	Currently unknown
Ukraine	n.a.			

*Bulgaria: The approach to the analysis of disproportionality of costs is set out in the national "Methodology for application of the exemptions" but not used in 2nd RBMP cycle in Bulgaria.

Questions marked with * are reporting requirements for the next reporting period, as listed in the EC WFD Reporting Guidance 2022 (Version: FINAL DRAFT V4, dated 30-04-2020).

Questions marked with # are "conditional" reporting requirements, i.e. required if disproportionality of costs has been used (EC WFD Reporting Guidance 2022 (Version: FINAL DRAFT V4, dated 30-04-2020).

Table 9: Socio-economic Trends in Danube countries until 2027

Economic growth in general until 2027	Economic growth in agriculture until 2027	Economic growth in industry until 2027	Growth in electricity production (thermal) until 2027	Growth in electricity production (hydropower) until 2027 (change in GWh/a produced 2020-2027)	Growth in energy production (biomass) until 2027 (change in GWh/a produced 2020-2027)	Population growth until 2025 (changes in total population 2020-2025 at constant fertility rates)	Water demand per capita (development until 2027)
Austria							
Remark: changed situation due to "Corona".	Agricultural area will slightly decrease. Agricultural production output on a constant level.	Remark: changed situation due to "Corona".	-	< 5 %	-	+3% (2020 - 2027)	130l/day
Bosnia and Herzegovina							
Average economic growth: 3,5% p.a. until 2027. Overall economic output-growth: 3,8%	-	Average economic growth in industry until 2027: 1,6% (sp. Manufacturing industry)	Average economic growth in electricity production (thermal) until 2027: 1,1%	Average economic growth in el. production (hydropower) until 2027:1,89%	Average economic growth in energy production (Biomass) until 2027: 1,1%	Negative (2,6%)	506 l/capita/day
Bulgaria							
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Croatia							
2,4 % per/yr before Corona	No data	No data	Gas and coal: 2.923 GWh	HP: 7.012 Gwh Nuclear:	781 GWh	4.299,3 mil.	Decrease due to the decrease in population

			Geothermal, wind and solar: 5.789 GWh	2.683 GWh			
Czech Republic							
n.a.	Stagnation	Stagnation	Stagnation	Expected to remain on the current level	n.a.	241.000	89.2 l/cap/day
Germany							
expected to grow moderately	expected to remain on the current level	expected to grow moderately	expected to remain on the current level or to fall slightly	expected to remain on the current level	expected to remain on the current level	expected to grow moderately	Long term average expected to remain on the current level or to continue to fall
Hungary							
Official Projection 2020-2024 (Based on the Convergence Program) GDP growth per year (%) 2020: -3 2021: 4,8 2022: 4,6 2023: 4,3 2024: 4,2 According to the assumptions used in RBMP3, the growth rate will be similar until 2027, i.e. a minimum annual rate of 4%.	Economic growth in agriculture (in %) until 2027 is not available. The Hungarian Food Economics Concept (2017–2050) provides a detailed description of the expected development of the sector.	Economic growth in industry (in %) until 2027 is not available. The expected development of the sector is described in detail in the Convergence Program and the “Irinyi Plan”.	Together with other renewables, the growth is 329% 2020: 78 GWh/a 2027: 335 GWh/a According to Hungary's National Energy and Climate Plan.	0% growth, unchanged production 2020-2027: 244 GWh /a According to Hungary's National Energy and Climate Plan.	Biomass and renewable waste together increase by 30%: 2020: 2332 GWh/a 2027: 3029 GWh/a According to Hungary's National Energy and Climate Plan.	2.6% decrease is projected based on 1.6 constant fertility rates, according to the Central Statistics Office (CSO) "Population Forecast 2015"	During the preparation of the 3rd RBMP, based on the assumptions used in the socio-economic forecasts, an increase in the specific water consumption of households can be expected, but the growth rate does not reach the projected annual increase in household consumption (of

							around 4%) in the Convergence Program. The 96 liters/capita/day in 2018 could increase by 6% to 2027, i.e. to 102 liters/capita/day, taking into account the temporary decline expected in 2020 due to the epidemic.
Republic of Moldova							
n.a.							
Montenegro							
-	-	-	-	No information	Predviđena proizvonja el.energije iz biomase 188 GWh until 2030	+/- 0 %	217 l/c/d 2031-2061
Romania							
Medium term forecast – National commission for prognosis.- 2025 Estimated a yearly increase of GDP with	Medium term forecast – National commission for prognosis.- 2025	Medium term forecast – National commission for prognosis.- 2025 Estimated a yearly increase appr. 1.9%	Expected to remain on the current level or slightly decrease as result of new regulations	Expected to remain on the current level or slightly increase	According to National Energy Strategy an increasing with 10%-20% in biomass production is	In progress	A slightly decrease (appr. 5%) is estimated till 2030

an average appr. 1.8%	Estimated an yearly increase appr. 2%		regarding the air pollution		estimated till 2030		
Serbia							
+3.58% per year (2022-2023), +3.63% per year (2024-2027)	+0.66% per year (2022-2023), +1.52% per year (2024-2027)	+3.22% per year (2022-2023), +3.44% per year (2024-2027)	+0.97% per year (2022-2025), +1.38% per year (2026-2027)	+0.97% per year (2022-2025), +0.79% per year (2026-2027)	+1.35% per year (2022-2025), +1.39% per year (2026-2027)	-0.24% per year (2022-2026), -0.15% per year (2026-2027)	No changes
Slovakia							
According to the available forecast (June 2020, Ministry of Finance) for 2020- 2023 the Slovak economy will fall by 9.8% in 2020 due to the global pandemic (baseline scenario). In the second half of 2020, the economy should gradually recover, bringing GDP growth to 7.6% in 2021. However, the economy should not catch up with the pre-crisis level until the end of 2022 (but economic growth in	Economic growth in agriculture (in %) until 2027 is not available. The COVID-19 pandemic has also caused a crisis in the agricultural sector. In the current CAP reform, which was to apply from 2021, a transitional period of two years is	Economic growth in industry (in %) until 2027 is not available. For more particular information on the possible development of industry – see the separate part "Summary assessments of trends for some Danube countries".	Forecast of the share of disposable electricity production (*in fossil power plants)* according to expected development in electricity consumption of Slovakia in% is as follows: 2020: 23,3 % 2025: 13,4 % 2030: 13,8 %. The Ministry of Economy expects the	+7,19% (4,464 to 4,785 GWh/a) 2020: 4,464 GWh 2021: 4,467 GWh 2022: 4,470 GWh 2023: 4,473 GWh 2024: 4,476 GWh 2025: 4,507 Gwh 2026: 4,754 GWh 2027: 4,785 GWh All the data/information given above is at the national level.	+43,9% (1,848 to 2,660 GWh/a). Note: pumped storage power plants are eliminated) The data/information given above is at the national level.	+ 0,22 % The data given above is at the national level.	Changes in specific water consumption per capita 2020-2027: + 12,6% 2020: 79,3 liters 2021: 80,2 litres 2022: 81.3 liters p.c. 2023: 82.6 liters 2024: 84.0 liters 2025: 85.6 liters 2026: 87.4 liters 2027: 89.3 liters The data/information given above is at

2022 will reach only 1.8%). At the end of the forecast period (2023), economic growth will be supported by drawing on EU funds of the third programming period. The main negative risk to the forecast is the re-spread of the pandemic. Economic growth until 2027 is not available.	necessary to ensure stability. Support for farmers under the current legal framework will continue until the end of 2022. Over the next two years, the strategic plan in line with the new CAP legislation has to be prepared. The *strategic planning* can be considered as the biggest change in the CAP. More responsibility will shift to Member States to formulate a strategy that each state wants to achieve by		electricity consumption in Slovakia will increase. Thermal power plants will gradually lose importance. In the long term, the operation of the Nováky Thermal Power Plant (2x110 MW) is not planned any more, due to the termination of support for the production of electricity from domestic coal in 2023. As mentioned above, production in coal-fired power plants will gradually decrease. The share of power stations producing carbon-free electricity should be				the national level.

	2027. Through the CAP Strategic Plan, Member States have the opportunity to design their agricultural policy according to their needs. This plan is also approved by the European Commission. The main objectives and priorities of the agricultural sector in Slovakia for the period up to 2027 are mentioned in the separate part "Summary assessments of trends for		increased. More than 90% of electricity should be generated in Slovakia, of which 67% through nuclear power plants. The rest is renewable energy. All data/information above is at the national level.				

	some Danube countries".						
Slovenia							
-	-	-	-	July 2020 1,443GWh (Compared to July 2019 it increased by 7%)	-	-	-
Ukraine (for DRBD)							
Expected to grow moderately National level: GDP growth at 4.6% in 2021, 4.3% in 2022 and 4.7% in 2023 (Medium term forecast – Resolutuion of the Cabinet of Ministers of Ukraine of July 29, 2020 № 671, On approval of the Forecast of economic and social development of Ukraine for 2021-2023).	Average growth in agriculture until 2027: 1,5 %	Average economic growth in industry until 2027: 1,3% (sp. Manufacturing industry)	Expected to grow moderately	Expected to grow moderately	Expected to slightly increase	Expected to slightly increase	No changes

Summary Assessments of trends for some Danube countries

Slovakia

Agriculture:

Main objectives and priorities of the agricultural policy for the next period include: *sustainability of Slovak agriculture*, *food self-sufficiency* and *development and implementation of strategic plan*. However, the relevant documents currently being prepared by the management of the agricultural sector, linked to the CAP, will not be ready until next year (2021). Based on all previous knowledge optimal solutions should be applied.

The agro-sector identified ***increasing the food self-sufficiency of Slovakia*** as the main priority and committed itself to ***developing a long-term strategy for agriculture and the food industry***. (In May 2020, the European Commission presented two key strategies that will have a major impact on the agricultural sector: the Biodiversity Strategy to 2030 and the Farm-to-Table Strategy).

The goal is also changes in payment settings - e.g. not to support only the area itself, but producers of specific foods, i.e. to support production and farmers who want to contribute to the food basket (without division into small and large farmers). The aim is to link financial support from the 1st and 2nd pillars of the CAP to specific production. E.g. the 1st pillar itself has three parts: area payments, eco-schemas and the tying of money to production (coupled payments). Eco-schemas settings are also important, as they can also be linked to production. Tying money to production is a way to recover Slovak agriculture, while coupled payments need to be increased from Eurofunds, but own state participation is also necessary to increase the current low percentage of self-sufficiency (approximately 40%). It is desirable to achieve self-sufficiency, especially in basic commodities (poultry and pork, fruits, vegetables, potatoes), so the priority is to support special animal and plant production. There are also measures to support food production in Slovakia in the government's program statement, for which financial support is necessary (approximately EUR 1 billion must be invested in food production in the next five to seven years). It should be supported that the domestic food industry processes all raw materials grown and bred in Slovakia, as financial support for food processing has been underestimated in previous years. All major steps to increase and achieve food self-sufficiency should be included in ***The Strategic Plan*** and the so-called ***Intervention Strategy***.

Industry:

General statement: Slovak industry is currently not doing well (as in Germany; there is a great link between Slovak industry and Germany - for Slovakia, Germany is the largest trading partner).

The automotive industry has a decisive influence on the Slovak industry.

According to Ministry of Finance's February 2020 macroeconomic forecast, the Slovak economy under foreign influence continued to perform at a slower pace, but was still progressing. Cooling is particularly noticeable in the export-oriented industry. After reaching its peak in 2018, the Slovak economy slowed significantly in 2019 to an estimated 2.3% (Ministry of Finance´s forecast, February 2020). The unfavorable development of foreign demand was predominantly reflected in the Slovak export-oriented industry. The February forecast projected a continuation of the economic slowdown in 2020 with GDP growth of 2.2% and expected to support exports through new production at Jaguar Land Rover, whose dynamics were expected to be dampened by weaker external demand.

According to Statistical Office of the Slovak Republic industrial production in April 2020 reached an all-time low since the establishment of the independent Slovak Republic, falling by 42 percent year on year. The decrease was mainly due to a sharp drop in the production of means of transport by 78.9 percent. This situation was significantly affected by the stop or restriction of production at four Slovak car manufacturers, as well as production restrictions at subcontractors throughout the automotive industry, which responded to the measures taken against the spread of COVID-19 in Europe.

According to Eurostat, in May 2020, in a year-on-year comparison, Slovakia recorded the sharpest drop in industrial production within the EU countries, by 33.5 percent.

However, it should be noted that at present all car manufacturers have already carried out a partial resumption or are trying to fully resume production.

Due to the occurrence of the second wave of the pandemic, it is currently not possible to estimate future developments regarding the sector's performance.
The document "Low Carbon Strategy of Slovakia" was approved by the Slovak Government. This Strategy will include effective and cost-effective measures in the sectors of industry, energy, energy efficiency, transport, agriculture and forestry and waste management. The Strategy is a cross-cutting document across all sectors of the economy, which must pursue individual policies so as to complement each other towards the common goal of completely decarbonising Slovakia by 2050.
Energy:
With an estimated 1.23% year-on-year growth, electricity consumption in Slovakia will reach 36.4 TWh in 2030. In terms of electricity demand coverage, the focus will be on the completion of Units 3 and 4 of the Mochovce Nuclear Power Plant (2x471 MW). As mentioned above, by putting these units into operation, the balance between production and consumption of electricity in the ES SR should be changed to export. The export balance of Slovakia should be maintained even after the termination of operation of the Nováky thermal power plant (2x110 MW) in 2023 due to the termination of support for electricity production from domestic coal.

Bosnia and Herzegovina
By increase in capacity of the urban waste water treatment through construction and reconstruction of the WWTPs the water quality should be positively affected.
Also in Bosnia and Herzegovina there is in strategic document planned to increase development of hydropower –electricity production and it is planned till 2021 to grow agricultural sector.

Germany
No new analysis of future anthropogenic developments was performed for the period until 2027 as the analysis for the period 2015-2021 remains broadly valid. The development of the different sectors remains widely interconnected though economic growth and use of resources, like water, are decoupled in an economy largely based on the provision of services. Even though interactions clearly exist, changes of economic parameters don't necessarily induce direct changes of ecologic parameters, e.g. concerning the use of water resources and the hydrological balance.
Overall, the pressure situation due to the observable trends in anthropogenic activities in the considered timeframe can be expected to remain on the current level. More detailed information on the driving forces affecting pressures on water bodies and, consequently potentially affecting water status as well as updated figures on the provision of water services, can be obtained in the River Basin Management Plan for the German share of the Danube Basin.

Austria
Agriculture
Owing to the studied indicators of potential water pollution (livestock or landuse) and accordingly to the prognosis of the Austrian Institute of economic research (WIFO) in the background document for the Economic Analysis 2019 the following things are predicted till 2030:
- in regions with favourable conditions for the expansion of milk production a slight increase of the application of organic fertilizer will take place;
- an overall slight decrease of the agricultural area will happen;
- the reason for regional differences in the river basins of Rhine and Danube will be led back to structural facts in these regions.

The reason for the expected increase in beef production results from the increase of milk production. The impact of climate change could enhance an intensification in the coming decades. However, the agri-environmental program and conditions of the 1st pillar of the CAP weaken these trends.

Industry, Production of goods
Given the observed development of water intensity and the expected production growth, it should be expected, that industrial water consumption will slightly decline until 2030.
It is assumed that the amount of waste water will continue to develop in line with water use; a moderate reduction of amount of waste water is to be expected in the period to 2030.

Electricity generation
The electricity generation by hydro power (excluding Pumped storage power plants) will increase till 2025 by an annual average of 0.9% from 132 PJ (2010) to 152 PJ. The share of hydropower (excluding Pumped storage power plants) in domestic generation falls during this period from 54% to 52%. The share of fossil fuel power decreases from almost a quarter to 17%. The share of electricity produced from renewable energy sources (wind, photovoltaic, biomass) increases from 7% to almost 15%.
Due to WFD requirements it was assumed that production losses in small hydropower and run-of-river power (> 10 MW) occur from 2011 and increase linearly until 2027. The losses in storage power plants on the other hand will be limited until 2027. Furthermore, it was assumed that at the same time the existing potential for plant optimization for existing small hydro- and run-of-river power plants is used. Thus, the (2005) calculated losses are largely compensated.

Czech Republic
Water abstraction and waste water discharge for/from agriculture and industry in the Czech Republic are not expected to increase and the likely scenario (in abstraction and discharge) for the two sectors is stagnation. On the other hand, water abstraction and waste water discharge are expected to increase in case of households. Number of inhabitants supplied with water from water supply systems and inhabitants connected to sewerage systems and WWTPs is also expected to increase. Water quality should be positively affected by construction and improvements of WWTPs.

Romania
The trend of water demand for all water users has been assessed having in view the 2030-time horizon (with 2011 as the reference year). A specific methodology has been developed as basis for the 2nd and 3rd RBMPs.
The methodology comprises of prognosis methods of water demand for population, industry, aquaculture, livestock farms, animal breeding and irrigation. It is based on 3 scenarios (base scenario-medium, minimal and optimistic scenario):
The prognosis of water demand for population considered the population trend at national/county/local level. The prognosis of water demand for irrigation considered the abstraction water for irrigation based on future irrigated area and irrigation specific values according to the type of crops. The prognosis of water demand for livestock considered the water demand based on different livestock specific values of water consumption. The prognosis of water demand for aquaculture considered the related aquaculture surface and related volume.

Trends values Medium Scenario:
- Total demand: 12300 mil. cm;
- Population: 2100 mil. cm;
- Industry: 7400 mil. cm;
- Irrigation: 1700 mil. cm.

Trends values Optimistic Scenario:
- Total demand: 15500 mil. cm (an increase of 26% compared to the medium scenario trend);
- Industry: increase of 34% compared to the medium scenario;
- Irrigation: increase of 25% compared to the medium scenario;
- For population, livestock and aquaculture the optimistic scenario indicates a relatively stable demand compared to the medium scenario.

Hungary
Agriculture: By the Governmental Decision 1335/2017 (VI. 9.), the Government approved Hungary's Food Economics Concept for 2017–2050.
With 5.4 million hectares of agricultural land and 2 million hectares of forest, Hungary has a food production potential that is far from being exploited. According to professional estimates, the Hungarian food economy has a 60% higher production potential by more efficient organization of domestic production and the market, by increasing processing and by purposefully responding to the solvent demand in the world. Hungary's strategic goal is a competitive, economically, environmentally and

socially sustainable food economy, which actively contributes to the development of the national economy and the growth of jobs in rural areas through the continuous growth of its performance and added value, guarantees the country's secure food supply and maintains GMOs. -protect our natural values, preserve biodiversity, protect the environment and manage natural resources in a sustainable way. In the course of its development, agriculture must preserve the natural values of our landscapes, the fertility of the soil, the purity of water resources, protect forests and other important ecosystems, and maintain the ecological balance. Increased state involvement and intervention are needed in the management and conservation of key scarce natural resources, such as land and water.
In the case of consistent adherence to the directions formulated in the Concept and the implementation of the set tasks, there is a reasonable expectation that in 2050 the added value of agribusiness sector within the national economy will reach 25%.
According to the Concept, the conditions for efficient agricultural irrigation must be created in Hungary, thus increasing the proportion of irrigable areas, partly by reducing the damage related to water scarcity, partly by the safety of growing water-intensive, high value-added crops (seeds, field vegetables, fruits) and for more efficient farming in areas with good and medium production conditions but often exposed to droughts. In addition to the water demand of the given crop type, the water demand of agriculture is determined by the size of the area to be irrigated and the development of the irrigation infrastructure.
According to the Concept, farmers can reduce the negative effects of climate change to the crop production by improving soil water management, soil-friendly farming, selecting the appropriate form of land use according to the current condition of the site, using water-saving and soil-retaining cultivation methods and by using micro-irrigation at a higher rate. In animal husbandry, the same goal can be achieved by developing husbandry technology.
Industry: Hungary's reindustrialization strategy is the "Irinyi Plan" on defining the directions of innovative industrial development. The Plan supports energy and material-efficient production, employment and vocational training, the use of renewable energy sources (mainly biomass and geothermal energy), transport development, and the production of second-generation biofuels. Under the “Irinyi Plan”, export capacity should be increased and the development of a higher value-added industrial structure should be encouraged. Domestic raw materials must also be processed with high added value. The Irinyi Plan emphasizes the circular economy with zero waste, which also mitigates the effects of climate change.
As stated in the "Irinyi Plan", significant demand can be generated by state funds for the manufacture of vehicles (public transport), the defense industry, the construction industry, the textile industry and the production of medical devices.
As described in the "Hungary's Convergence Program (2020-2024)", the already announced and implemented in the coming years, with a total value of more than HUF 4,000 billion in corporate investment and manufacturing developments, will grow more dynamically than average the food industry, the chemical industry, metal processing, mechanical engineering (especially the automotive industry).
As a result of the developments, Hungary's export performance may increase by 34-56% after the implementation of the developments, and in the coming years they may add a 12-16 percentage point boost to the growth rate of the Hungarian economy. In addition to large investments, a 30-50% non-repayable investment subsidy was made available by a decree of the Ministry of Foreign Affairs and Trade on the competitiveness-enhancing subsidy required as a result of the coronavirus epidemic. The total value of the investments that have been supported so far and will be completed by 30 June 2021 is HUF 377 billion.
Electricity production: In January 2020, the Government adopted the new National Energy Strategy, which sets Hungary's energy and climate policy priorities until 2030, with a 2040 perspective.
According to the strategy, our final energy consumption - while maintaining dynamic economic growth - in 2030 will not exceed the 2005 level of 785 PJ. After 2030, the source of the increase in final energy consumption can only be a carbon-neutral energy source. The cumulative end-use energy saving obligation for the period from 2021 to the end of 2030 is 331.23 PJ, which assumes a steady saving of 0.8% per year. The share of our renewable energy use within gross final energy consumption will increase to a minimum of 21%.
In Hungary, the installed electricity capacity of hydropower production has been 57 MW since 2013, and according to the latest factual data, its production in 2018 was 234.4 GWh. According to Hungary's

National Energy and Climate Plan (ITM 2020), the electricity generation capacity of hydropower will continue to be 57 MW in 2027, and its production will be 244 GWh / year.
According to the WAM (with additional measures) scenario, the combined capacity of biomass and renewable waste will increase from 519 MW in 2020 to 796 MW by 2027, and its production from 2332 GWh to 3029 GWh. According to the WEM (with existing measures) scenario, there is a forecast only for 2020, 2025 and 2030, but the value for 2020 does not reach the actual data for 2018 below, so we use the WAM forecast.
The Hungarian Energy and Utilities Regulatory Authority "Report on the use of renewable energy in Hungary 2010-2018" , the installed electricity capacity of biomass in 2018 was 461 MW (solid 385, biogas 76 MW), its production was 2134 GWh (solid 1799, biogas 335 GWh). The use of geothermal energy is currently typical in the heating sector, with 3.35 MW of installed capacity entering electricity generation in 2017, and with production 1 GWh in 2017 and 12 GWh in 2018. There is no specific target for the application to electricity generation, only with other renewables in total, but according to Hungary's National Energy and Climate Plan, a slight increase in geothermal capacity is expected (with built-in capacity 60 MW by 2030 and 104 MW by 2040).
The spread of electricity-producing geothermal power plants covered by the Swiss-Hungarian Cooperation Program II is planned from 2020 onwards, which may be encouraged by the pilot project for the Geothermal Guarantee Fund.
According to the 2018 report "Medium- and long-term source capacity development of the Hungarian electricity system" of MAVÍR Zrt., the use of geothermal energy is constantly increasing, reaching 4.8 PJ by 2016. By the end of 2016, geothermal energy was used for district heating in 13 settlements in Hungary (which was 56% of geothermal energy consumption). Of this, the agricultural sector mainly utilizes the extracted geothermal energy for heating greenhouses (29%), and the commercial and public service sector for the supply of spas, hospitals and other public institutions (14%).

Ukraine
The forecast of economic and social development of Ukraine for 2021-2023 was approved by the resolution of the Cabinet of Ministers of Ukraine (CMU) from 29.07.2020 №671 "About approval of the Forecast of economic and social development of Ukraine for 2021-2023". The baseline scenario envisages a resumption of the positive trend of economic development after significant losses caused by the global COVID-19 pandemic in 2020, and GDP growth at 4.6% in 2021, 4.3% in 2022 and 4.7% in 2023.
In August 2020 CMU was approved the State Strategy for Regional Development for 2021-2027. The priority tasks of the new regional policy are to accelerate the economic growth of the regions, increase their competitiveness. A number of measures are envisaged in the direction of "Development of the territories of the Ukrainian part of the Danube region and cross-border cooperation". In particular

- taking into account in the sectoral strategies the priorities of the EU Strategy for the Danube Region in the areas of transport sector development, agricultural production, environmental protection, tourism development, promotion and protection of cultural heritage, etc .;
- promoting international technical assistance and international financial organizations to promote regional development, in particular in the Danube River Basin;
- introduction of mechanisms to support cross-border industrial and technological parks, economic and industrial zones on the territory of Ukraine in order to stimulate regional economic development;
- creating conditions for socio-economic and environmental development of the Ukrainian part of the Danube region, which includes, in particular, the development of transport infrastructure with the Danube countries and crossing the state border, addressing the issue of quality water supply and flood protection.

In Danube region the volume indices of industrial and agricultural production (as a percentage of the previous year) will maintain positive dynamics and in 2027 will reach the level of 103.3 and 104.0 interest respectively. Further development of agriculture is envisaged. In the context of smart specialization, a significant effect can be given by strengthening the link between agriculture and the food industry, which will increase the added value of the final product. Agricultural production will grow by an average of 1.5% per year.
The volume of sold industrial products (goods, services) will gradually increase.

The foundations for the formation of a forest cluster on the basis of deep wood processing and increase in value added, furniture production will be laid. Under the implementation of the optimistic scenario with an emphasis on innovative modernization, the volume of industrial production will increase at least 3 times, which will increase jobs 2 times.
High rates of capacity modernization will also be observed in the food industry, sectors related to wood processing.
The growth of the tourism industry is forecast. The revenue from the tourist tax to local budgets will increase significantly - almost 1.7 times.
Significant growth of investments in the region's economy is forecast. Thus, fixed capital investment should more than double, and foreign direct investment by one-fifth.