Action funded by the EUROPEAN UNION

EUWI+ EU WATER INITIATIVE FOR EASTERN PARTNERSHIP

European Union Water Initiative Plus for the Eastern Partnership
(EUWI+ 4 EaP)

WATER FRAMEWORK DIRECTIVE: RIVER BASIN MANAGEMENT PLAN AND ECONOMIC ANALYSIS

Kyiv, 12th March 2019

UNECE

OECD BETTER POLICIES FOR BETTER LIVES

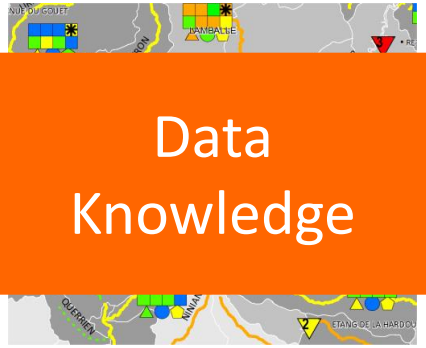
umweltbundesamt ENVIRONMENT AGENCY AUSTRIA

International Office for Water

FUNDATIONS OF A WATER POLICY

Political overview
Vision

Planning documents



Data
Knowledge

Steady economic process

Administrative management

Technical management

Project owners

Awareness actors

governance

Проект фінансується Європейським Союзом

Міністерство екології та природних ресурсів України

EUWI+ EU WATER INITIATIVE FOR EASTERN PARTNERSHIP

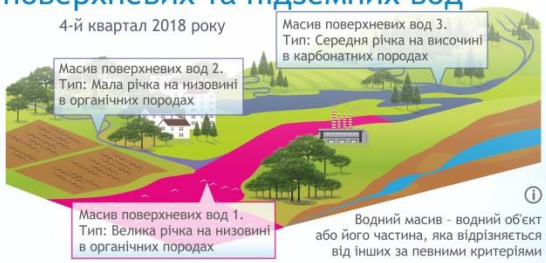
ПЛАН УПРАВЛІННЯ РАЙОНОМ РІЧКОВОГО БАСЕЙНУ ДНІПРА

1.1 Опис річкового басейну

4-й квартал 2018 року

1.2 Визначення масивів поверхневих та підземних вод

4-й квартал 2018 року



Водний масив – водний об'єкт або його частина, яка відрізняється від інших за певними критеріями

2. Визначення основних антропогенних впливів на стан вод

4-й квартал 2019 року

7. Розробка програми заходів.

як досягти доброго екологічного стану

КОНСУЛЬТАЦІЇ З ГРОМАДСЬКІСТЮ

4-й квартал 2024 року

згідно Угоди про Асоціацію Україна-ЄС

Головна мета Плану – забезпечення досягнення доброго екологічного та хімічного стану поверхневих та підземних водних масивів

6. Економічний аналіз

2-й квартал 2019 року

- економічний розвиток території басейну
- характеристика сучасного водокористування
- прогноз потреб у воді основних галузей економіки
- інструменти економічного контролю

5. Встановлення екологічних цілей

2-й квартал 2020 року

4. Картографування системи моніторингу поверхневих та підземних вод

3-й квартал 2019 року

система моніторингу, гідроморфологічна оцінка, встановлення хімічного та екологічного стану, екологічного потенціалу, оцінка об'єму/запасів підземних вод

пункти моніторингу

3. Визначення зон, які підлягають охороні

4-й квартал 2019 року

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- зони санітарної охорони
- зони охорони цінних видів водних біоресурсів
- води, які використовуються для рекреаційних, лікувальних, курортних та оздоровчих цілей, а також для купання
- зони, вразливі до (накопичення) нітратів

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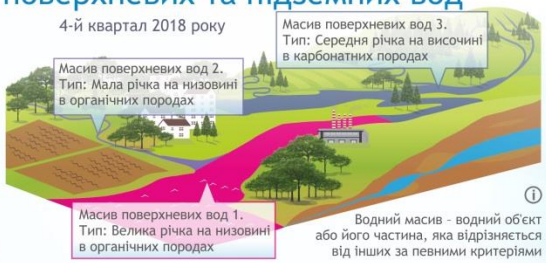

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WATER FRAMEWORK DIRECTIVE: RIVER BASIN MANAGEMENT PLAN CONTENT

annex 7 of the WFD and CMU Decree 18 May 2017 on River Basin Management Plan.

- River Basin Characterisation incl. water bodies delineation
- Pressures and impact of human activities on water ressources
- Identification and mapping of protected areas
- Monitoring programme
- Objectives (good status)
- Economic analysis
- Programme of measures

= River Basin Management Plan for 6 years cycle

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A specific chapter to concentrate inputs from other chapters

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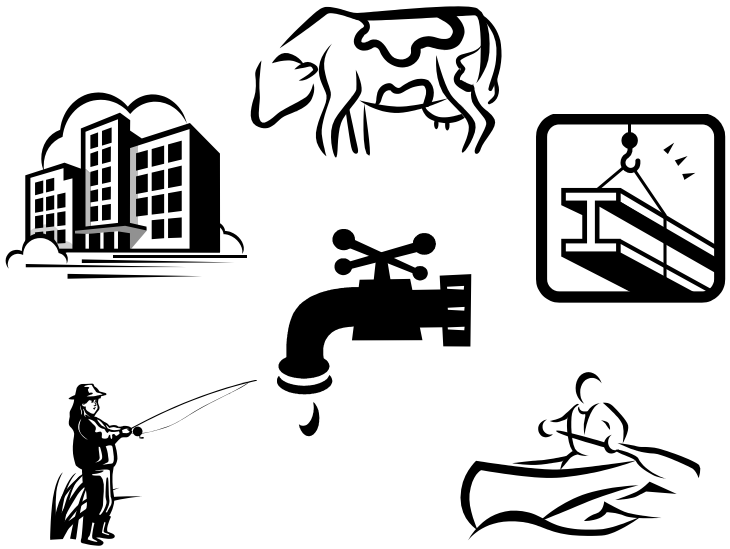
- River Basi

Article 5: economic analysis of water use

How important water is for the economy and socio-economic development of the River Basin District:
Identify water uses and services by socio-economic sector (agriculture, industry, households, and recreation)
Assess the relative socio-economic importance of water uses
Assess trends of socio-economic factors that are likely to affect pressures on water resources

Economic analysis of water use

Identify uses with an impact (pressures) over water resources (drivers)

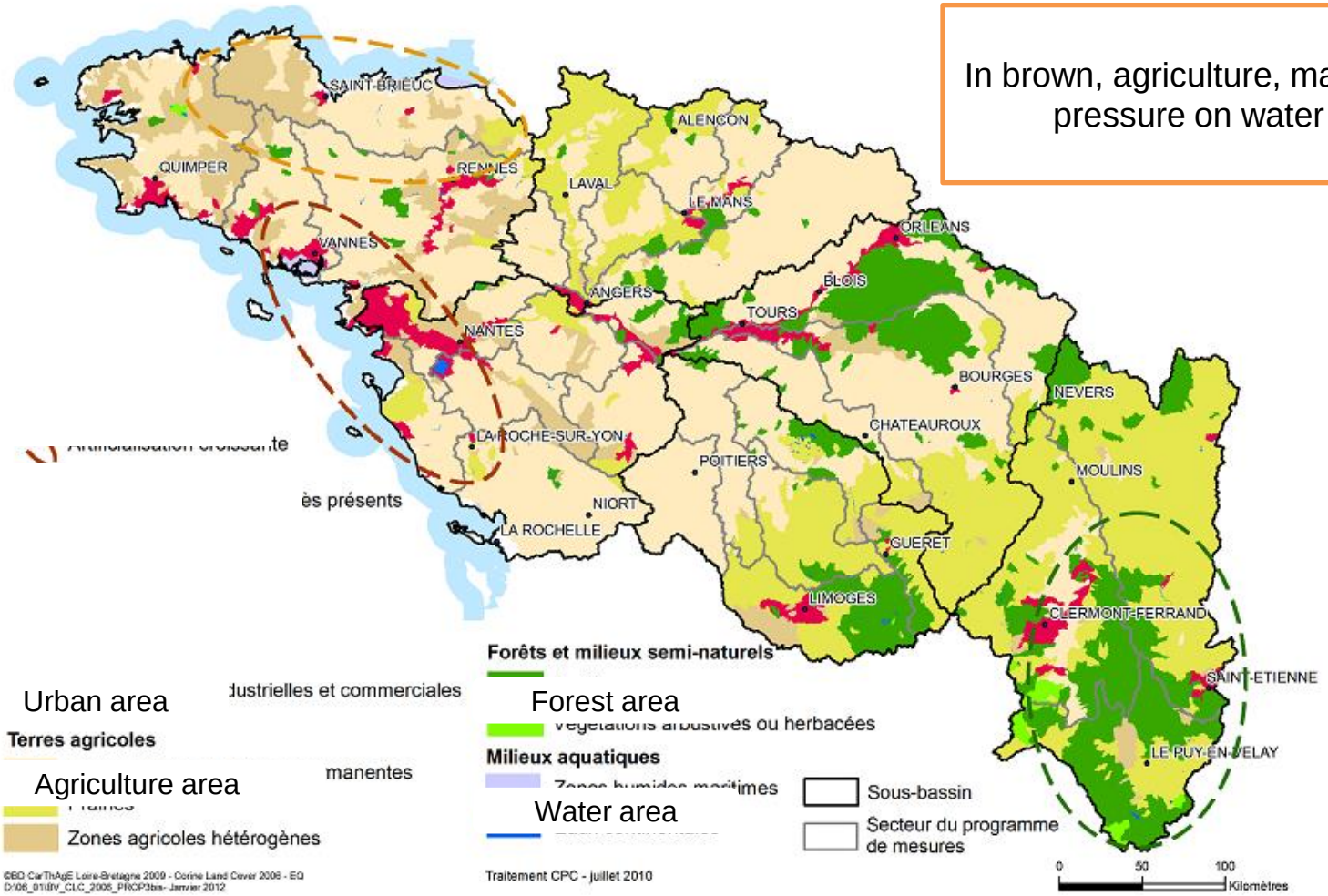


Abstractions & discharges

Land use

In red, urban areas with pressure on water supply

In brown, agriculture, main land user, pressure on water quality



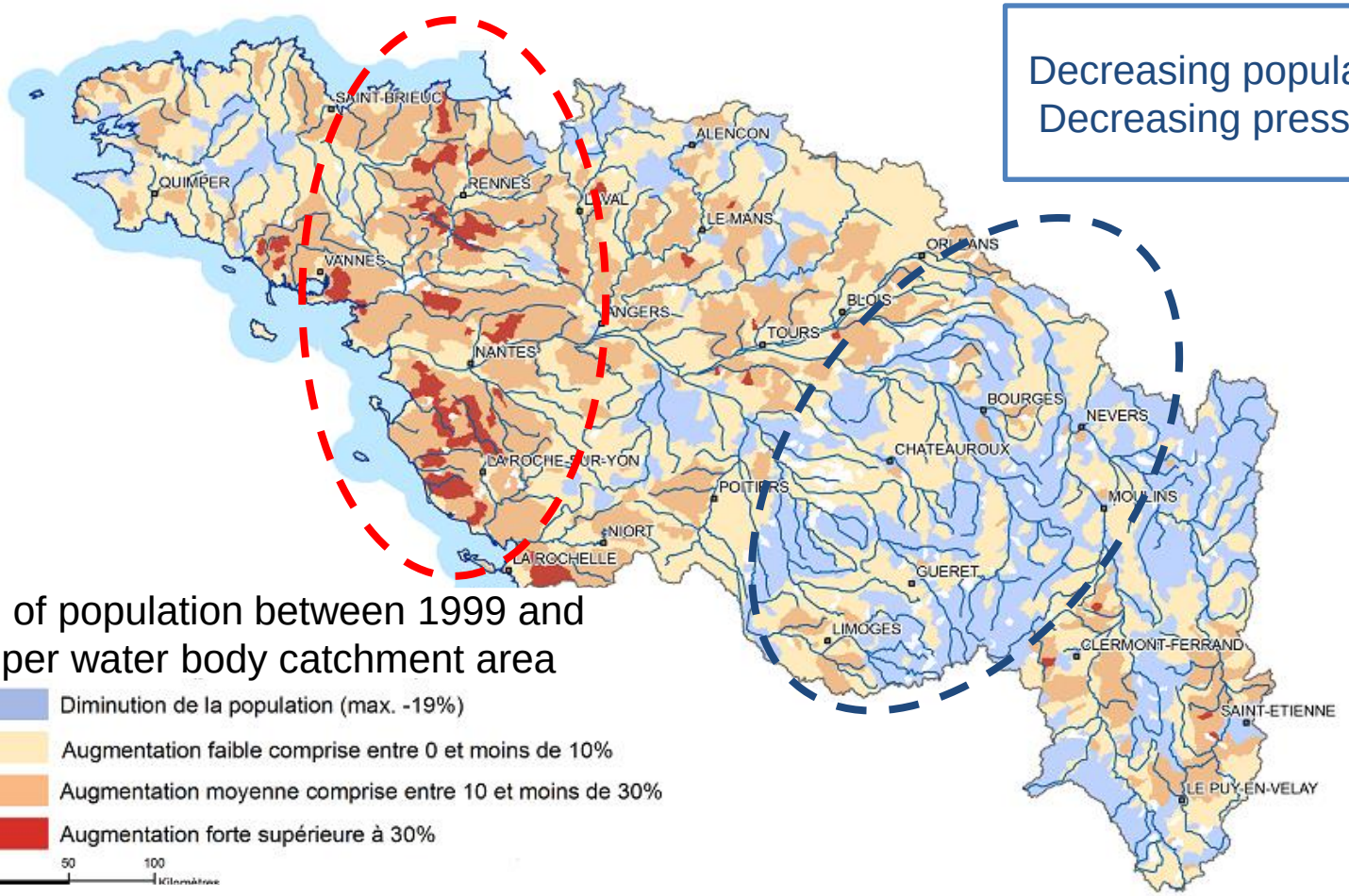
Loire-Bretagne: 156,400 km², 12 million inhabitants, 2,000 rivers water bodies

Baseline data

Population

Growth more than 30% in ten years: Growing pressures

Decreasing population: Decreasing pressures



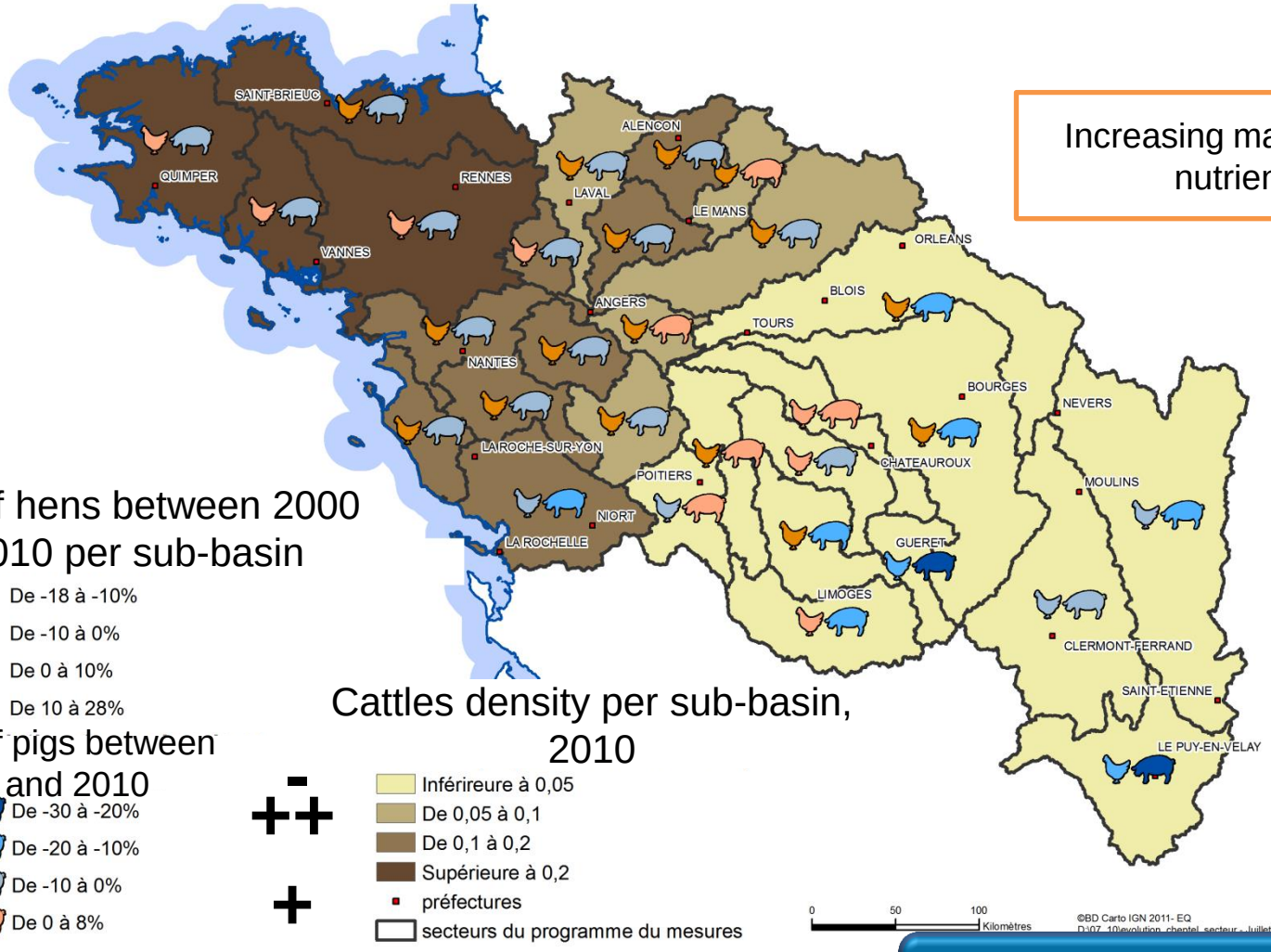
Loire-Bretagne: 156,400 km², 12 million inhabitants, 2,000 rivers water bodies

Baseline data

Agriculture - breeding

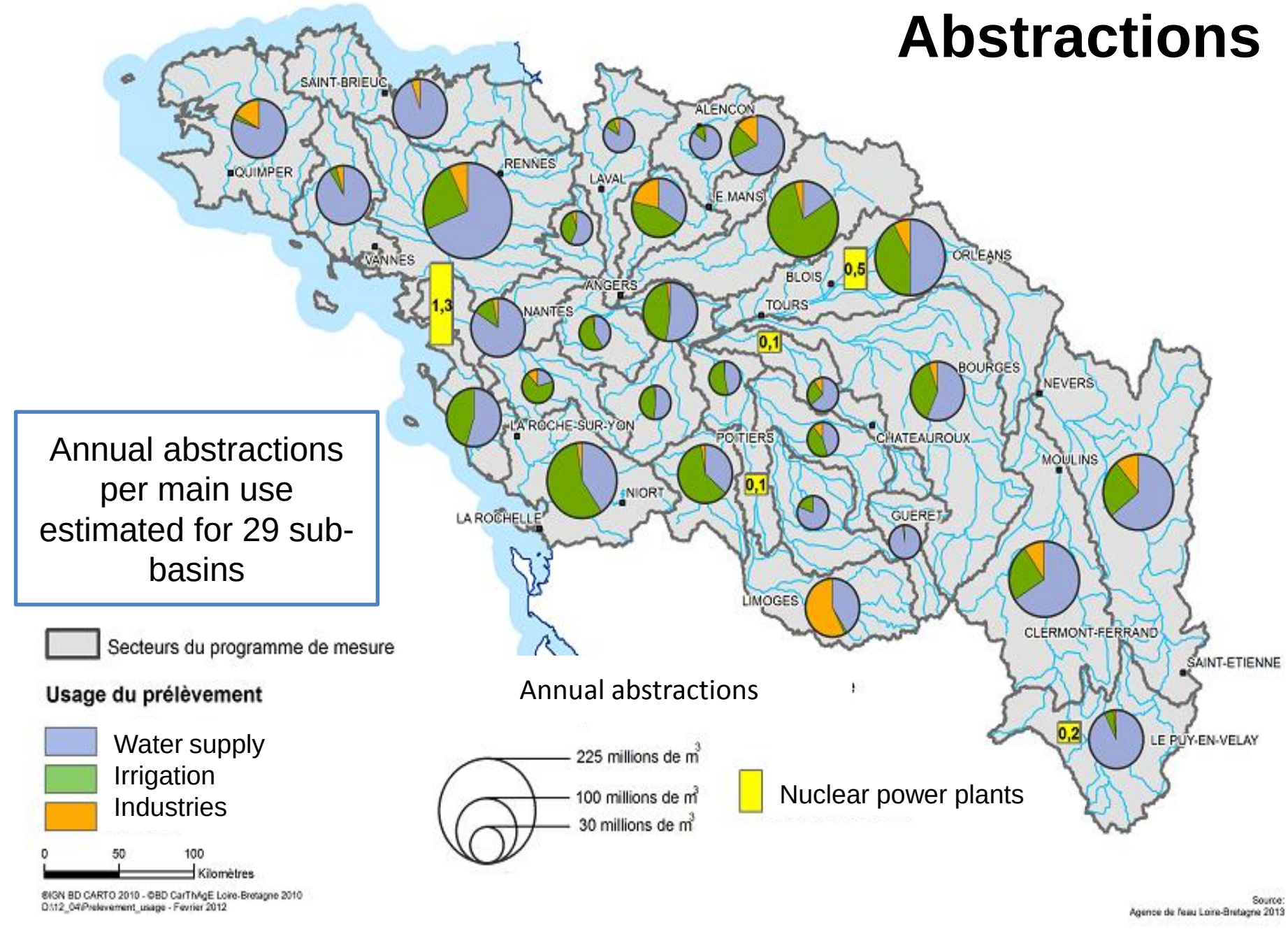
Concentration of animals in the western river basins

Increasing manure and nutrients

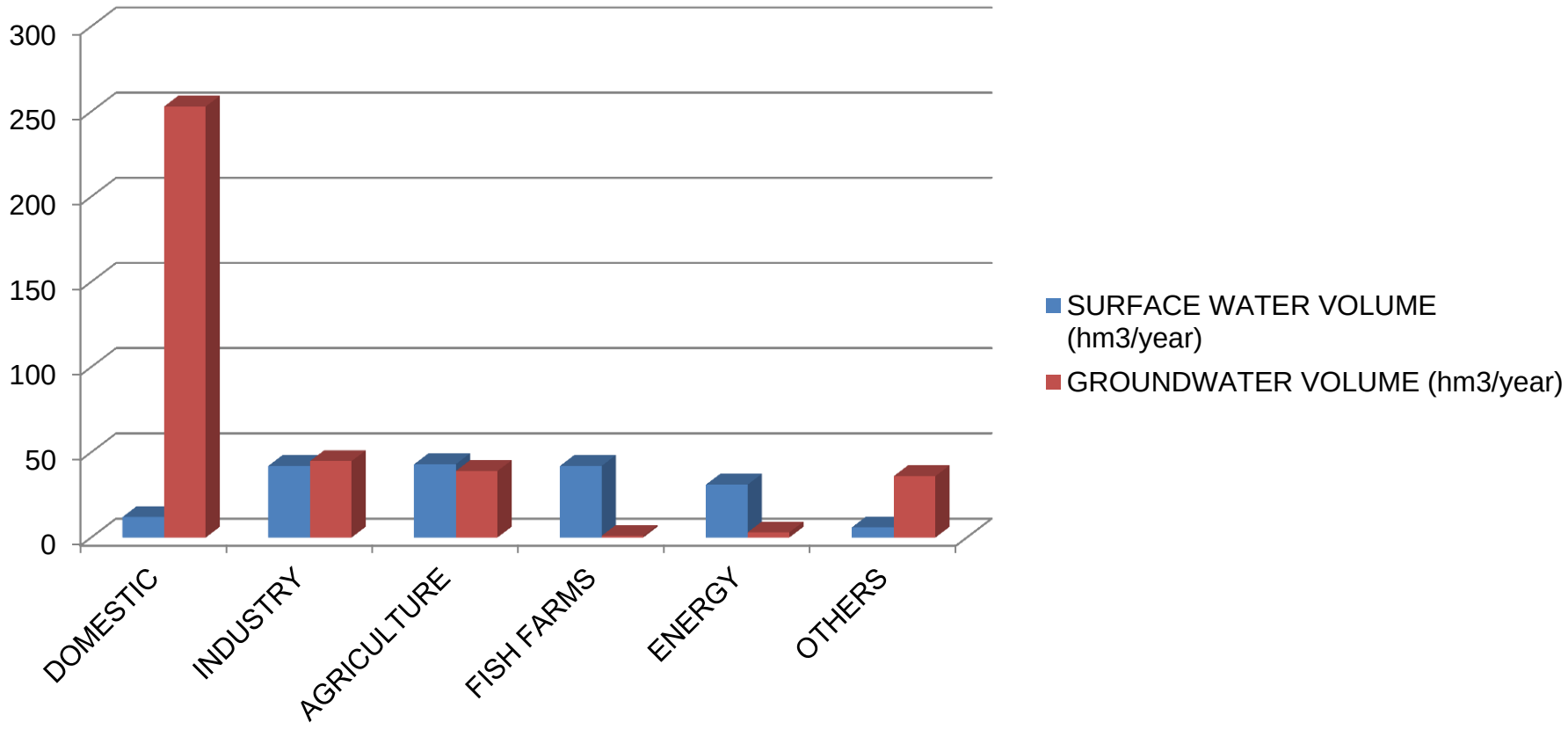


Baseline data

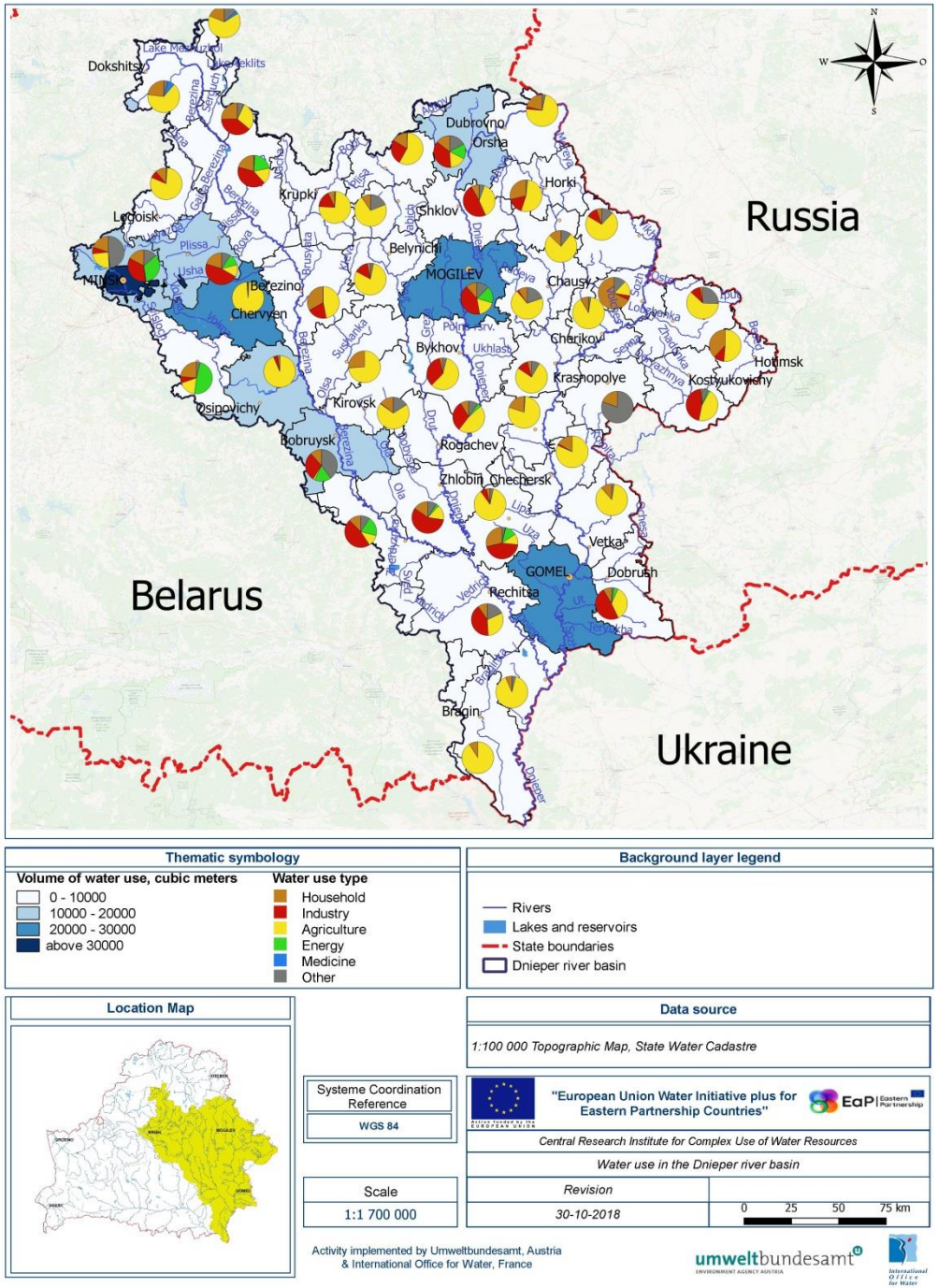
Abstractions



QUANTITATIVE PRESSURES
DNIEPER RIVER BASIN IN BELARUS (EUWI+, 2018)



QUANTITAT DNIEPER R 2018)



SOCIO-ECONOMIC ACTIVITIES IN A RIVER BASIN

Activities	population	water supply	agriculture	industries	fishfarms	energy	hydropower	tourism	aggregates	navigation
Weight of the activities in the River Basin compared to National data (estimated from statistics at the lower administrative unit)	Part of the national population concerned, part of national turnover, part of national production, part of the enterprises, etc									
Stakes in the basin	Number of jobs, number of enterprises, assets, revenues, added values, volume of water abstracted, etc.									
Trends	Growth, weakness, development, challenges, etc.									
Type of pressures and trends	Evolution of abstractions, discharges, hydro-morphological impacts, pressures on biodiversity, etc.									

SOCIO-ECONOMIC ACTIVITIES IN THE RIVER BASIN

Identify the current and the future stakes

Estimate their compliance with the WFD (to achieve a good status)

Estimate roughly the measures to be implemented

Numerous scales: collect the data at the lower administrative unit

Numerous indicators: focus on the most relevant indicators

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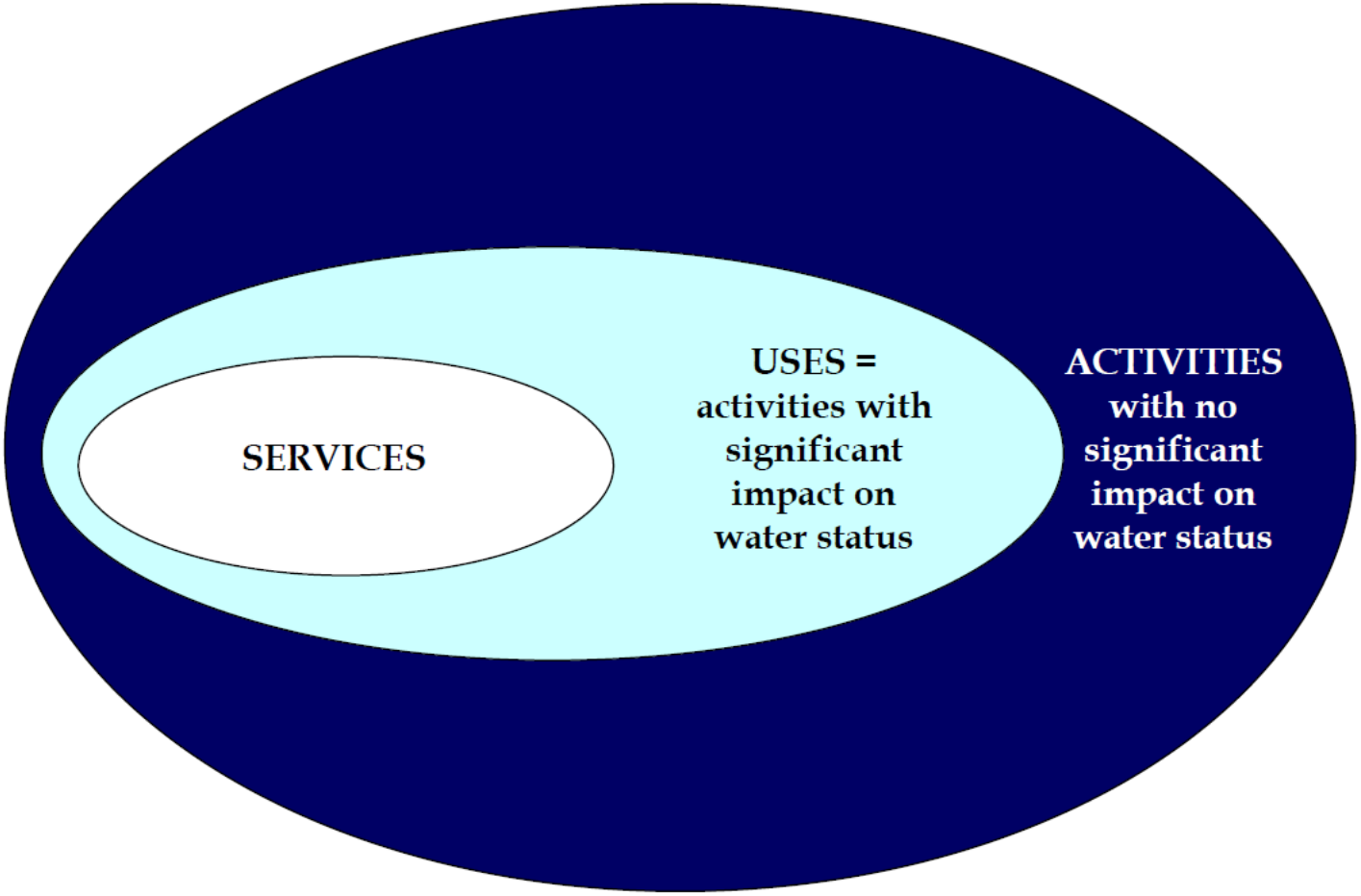
- Economic
- Programm
- River Basin

Article 9: Recovery of costs for water services

Inventory and evaluation of water-pricing from the different water users (volume, prices, costs)
Estimation of relevant investment incl. Forecasts of such investments

Estimate the recovery of the costs of water services, including environmental and resource costs, and in accordance in particular with the polluter pays principle
Water uses are involved in accordance with an adequate contribution

WATER SERVICES AND USES



Water Services include all services (public or private) of abstraction, storage, treatment and distribution of surface water or groundwater, along with wastewater collection and treatment facilities,

Water Uses are all activities that have a significant impact on water status,

Some activities with no significant impact on water status are neither water services nor water uses.

COST RECOVERY:
WATER FRAMEWORK DIRECTIVE ART. 9

This analysis must allow:

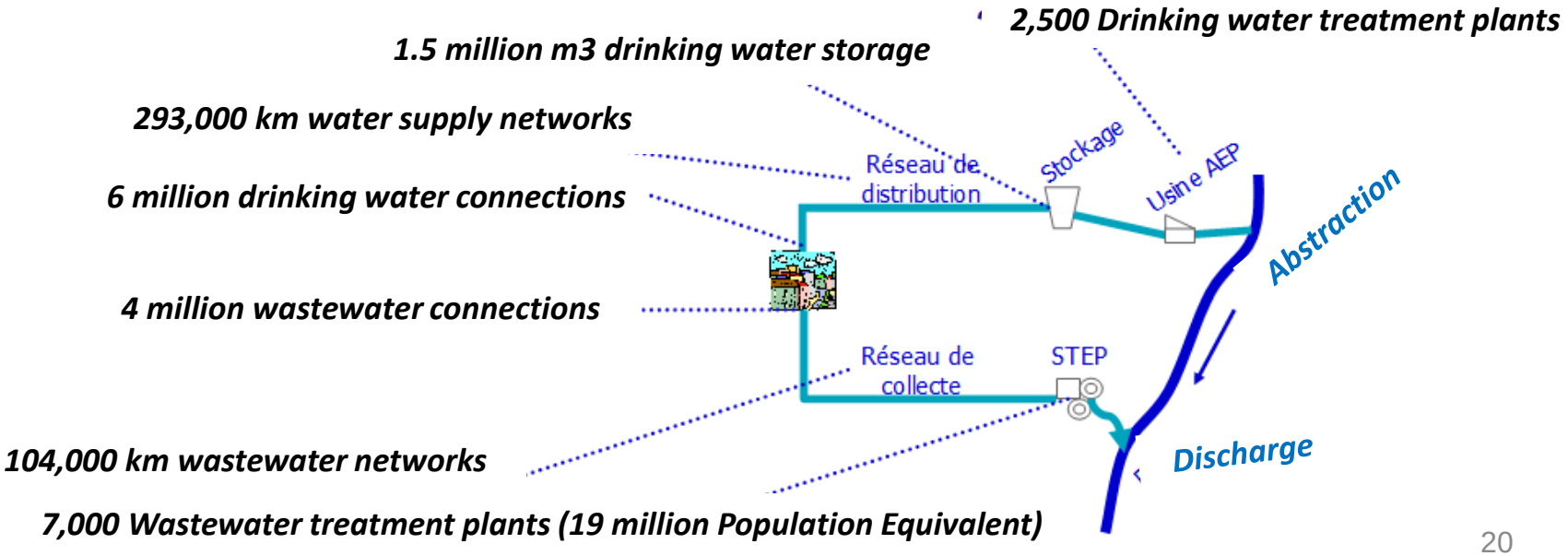
- To improve the transparency of water financing;
- To explain who bears the costs (households, industry, agriculture);
- To identify the financing arrangements.

Who pays for what?

Economic analysis main results:
Costs of services related to water services in Loire-Bretagne River Basin

The annual cost of water services is estimated at 3.5 billion €, including:

- 1.9 billion € in operating costs,
- 1.6 billion € of fixed capital consumption (obsolescence).



Economic analysis main results:
Costs of services related to water services in Loire-Bretagne River Basin

Informations techniques

N° compteur	Diamètre	Ancien index	Nouvel index	Date du relevé	Volume déterminé	Consommation	A déduire	Volume facturé
D10LA024815	15	601	691	26/09/2017	Par relevé	90 m³		90 m³

Votre Facture en détail		Quantité	Prix unitaire € HT	Montant € HT	Taux TVA	Montant € TTC
Potabilisation et distribution de l'eau				**153,91**		
Abonnement	du 01/04/17 au 30/09/18	3	23,9350	71,81	5,5 %	75,76
Consommation - Tranche 1 de 0 à 60 m3	du 16/09/16 au 31/12/16	17	0,7529	12,80	5,5 %	13,50
Consommation - Tranche 1 de 0 à 60 m3	du 01/01/17 au 26/09/17	43	0,7755	33,35	5,5 %	35,19
Consommation - Tranche 2 de 61 à 120 m3	du 16/09/16 au 31/12/16	9	0,9682	8,71	5,5 %	9,19
Consommation - Tranche 2 de 61 à 120 m3	du 01/01/17 au 26/09/17	21	0,9972	20,94	5,5 %	22,09
Préservation des ressources en eau	du 16/09/16 au 26/09/17	90	0,0700	6,30	5,5 %	6,65
Collecte et dépollution des eaux usées				**149,40**		
Redevance part métropolitaine	du 16/09/16 au 26/09/17	90	1,6600	149,40	10,0 %	164,35
Organismes publics				**40,06**		
Lutte contre la pollution	du 16/09/16 au 26/09/17	90	0,2900	26,10	5,5 %	27,53
Modernisation des réseaux	du 16/09/16 au 26/09/17	90	0,1550	13,96	10,0 %	15,36
	Total général			**343,37**		**369,62**

TVA : acquittée sur les débits
Dont TVA 5,5 % : 9,90 € sur la base 180,01 €
Dont TVA 10,0 % : 16,35 € sur la base 163,36 €

Détail des montants

Montant Total HT	Montant Total TVA	Montant Total TTC	Solde antérieur	Montant prélevé :
343,37 €	26,25 €	369,62 €	-22,07 €	**44,07 €**

Les étapes de la distribution de l'eau

Captage, potabilisation, distribution, services
La Métropole Nice Côte d'Azur est le responsable du service dans votre commune. Ce service est assuré par Eau d'Azur.

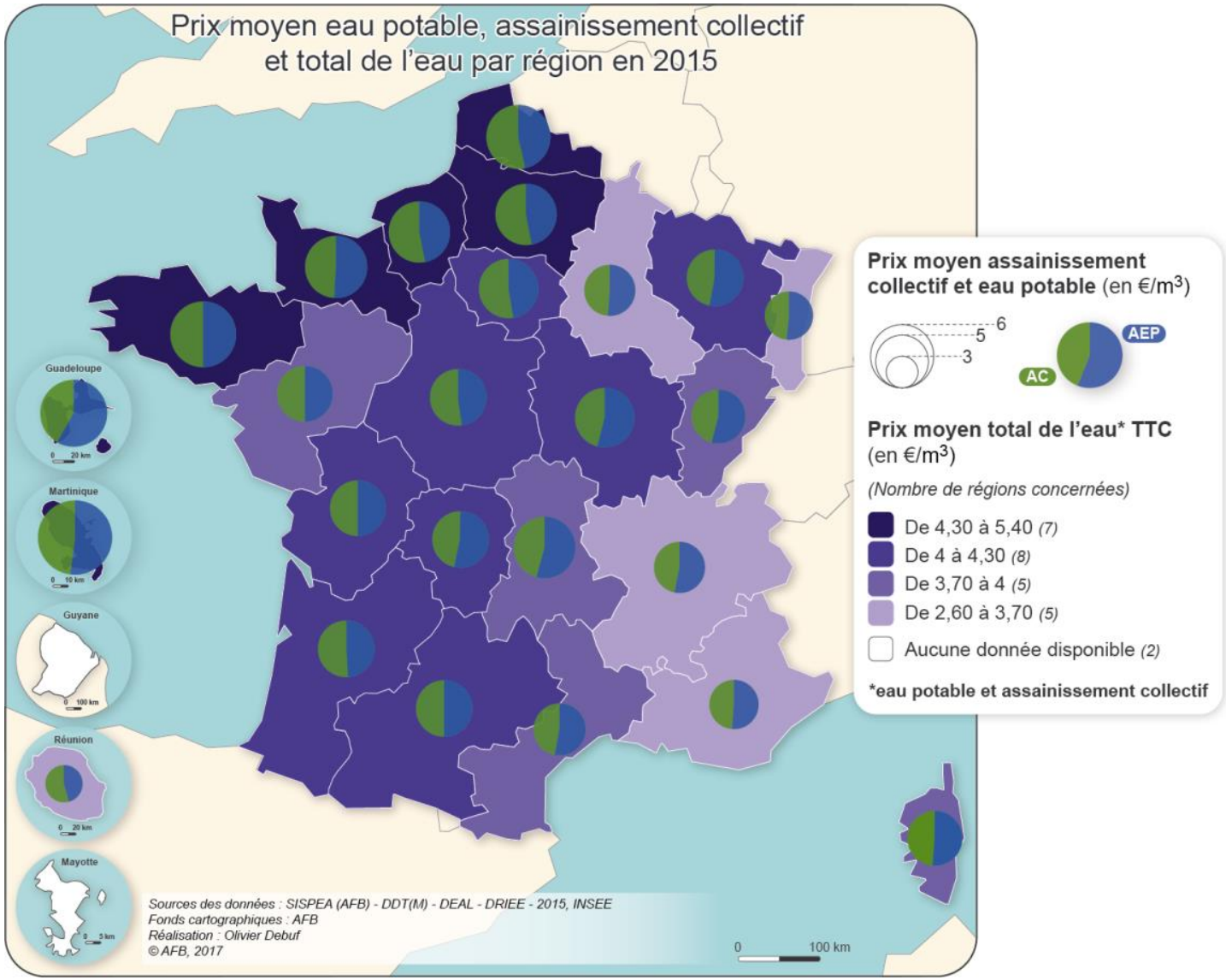
Collecte, dépollution et rejet
La Métropole Nice Côte d'Azur est responsable du service sur votre commune et en assure la gestion

Protection de l'environnement
Les Agences de l'Eau veillent à la préservation des ressources en eaux.

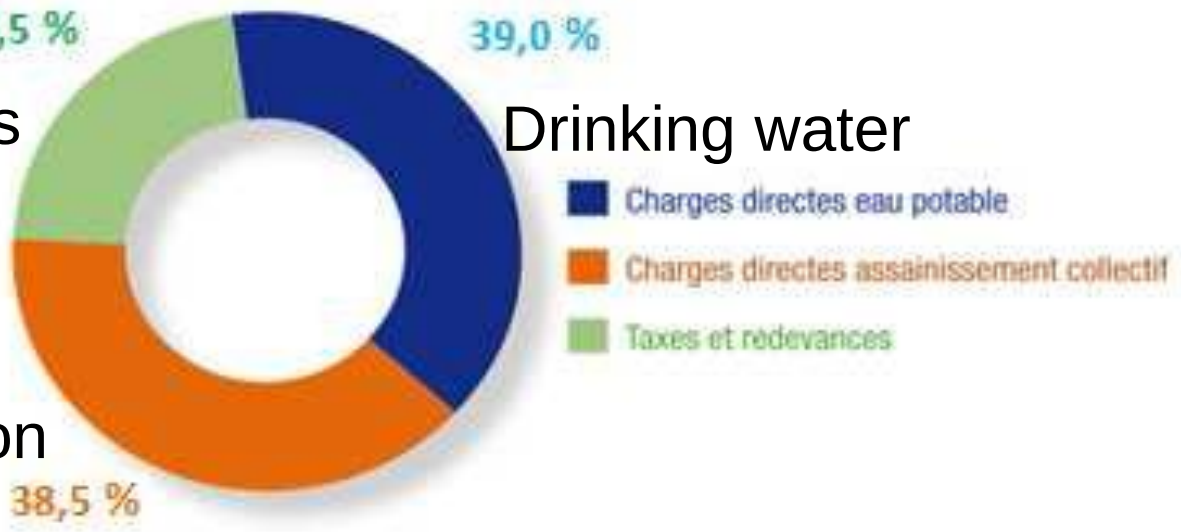
E.P.I.C RCS 802630608 NAF Régie Eau d'Azur N TVA FR17802630608 REGIE 10071 06000 00002006374

Most of this cost is paid by the water bills (water supply and sanitation)

HOUSEHOLDS WATER PRICES IN FRANCE (2015)



AVERAGE WATER PRICE IN FRANCE: 4,04 €/M3

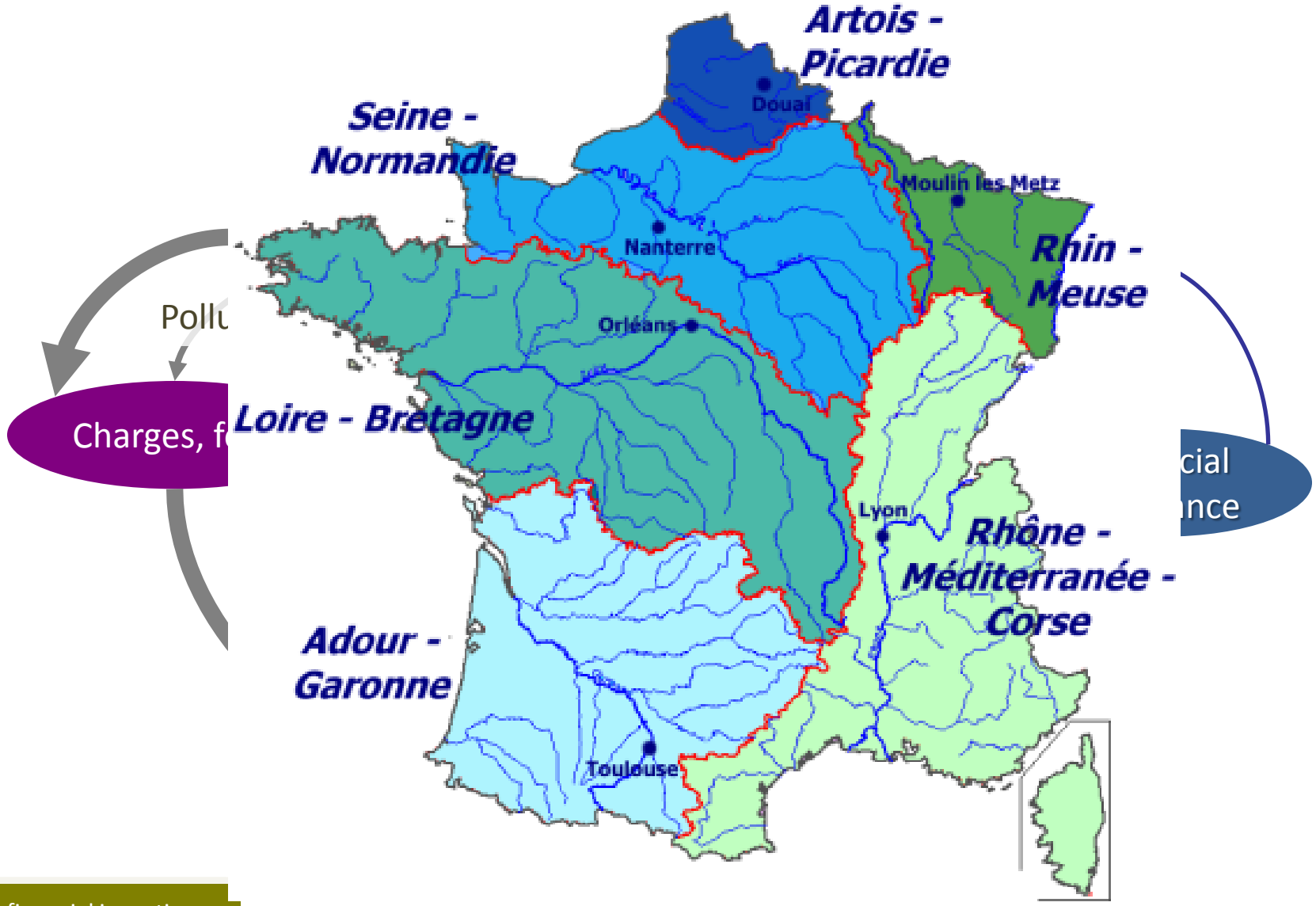


Taxes & fees

Drinking water

Sanitation

FINANCIAL FLOWS: WATER AGENCY FINANCIAL INCENTIVE



financial incentive

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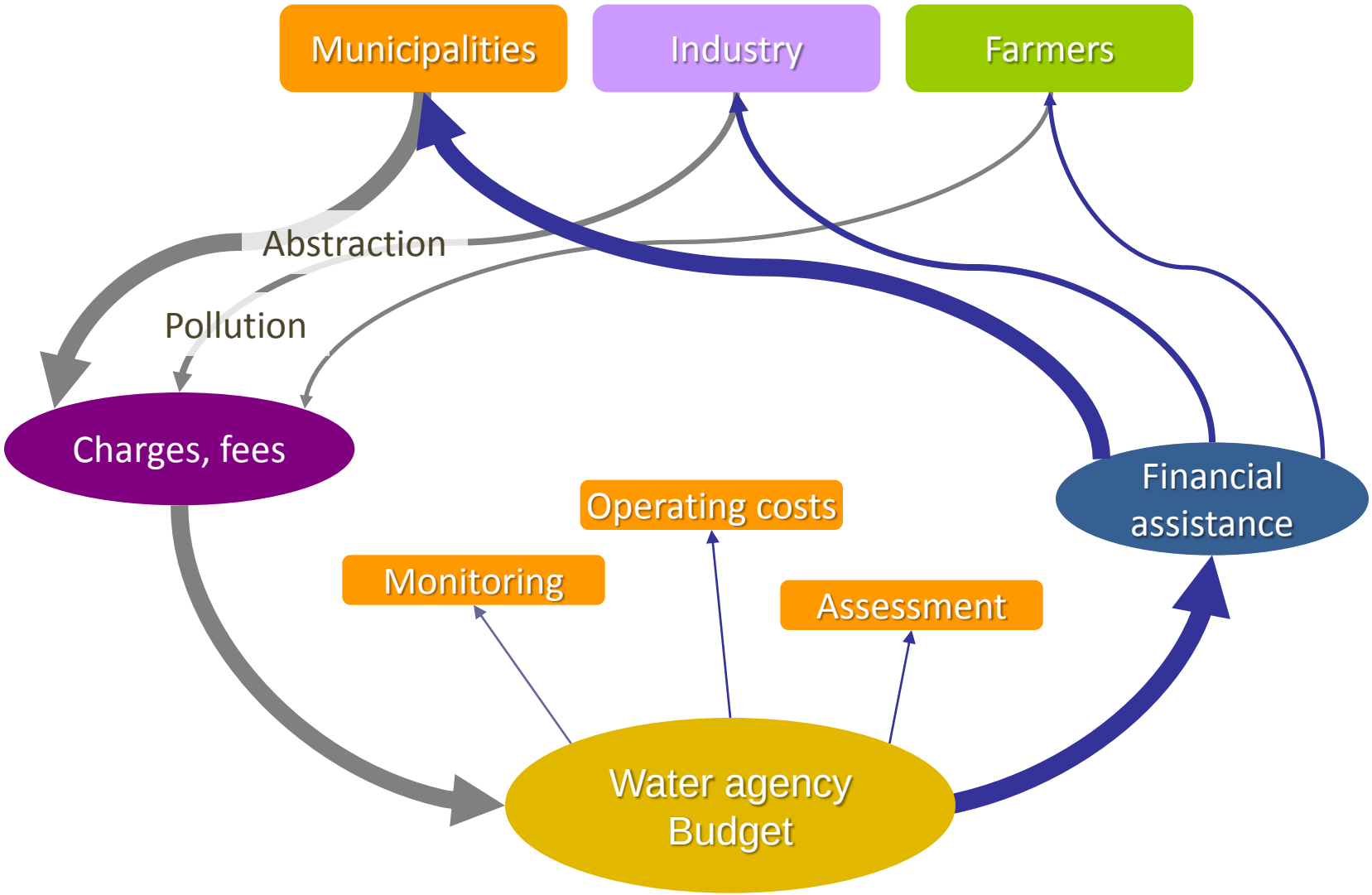
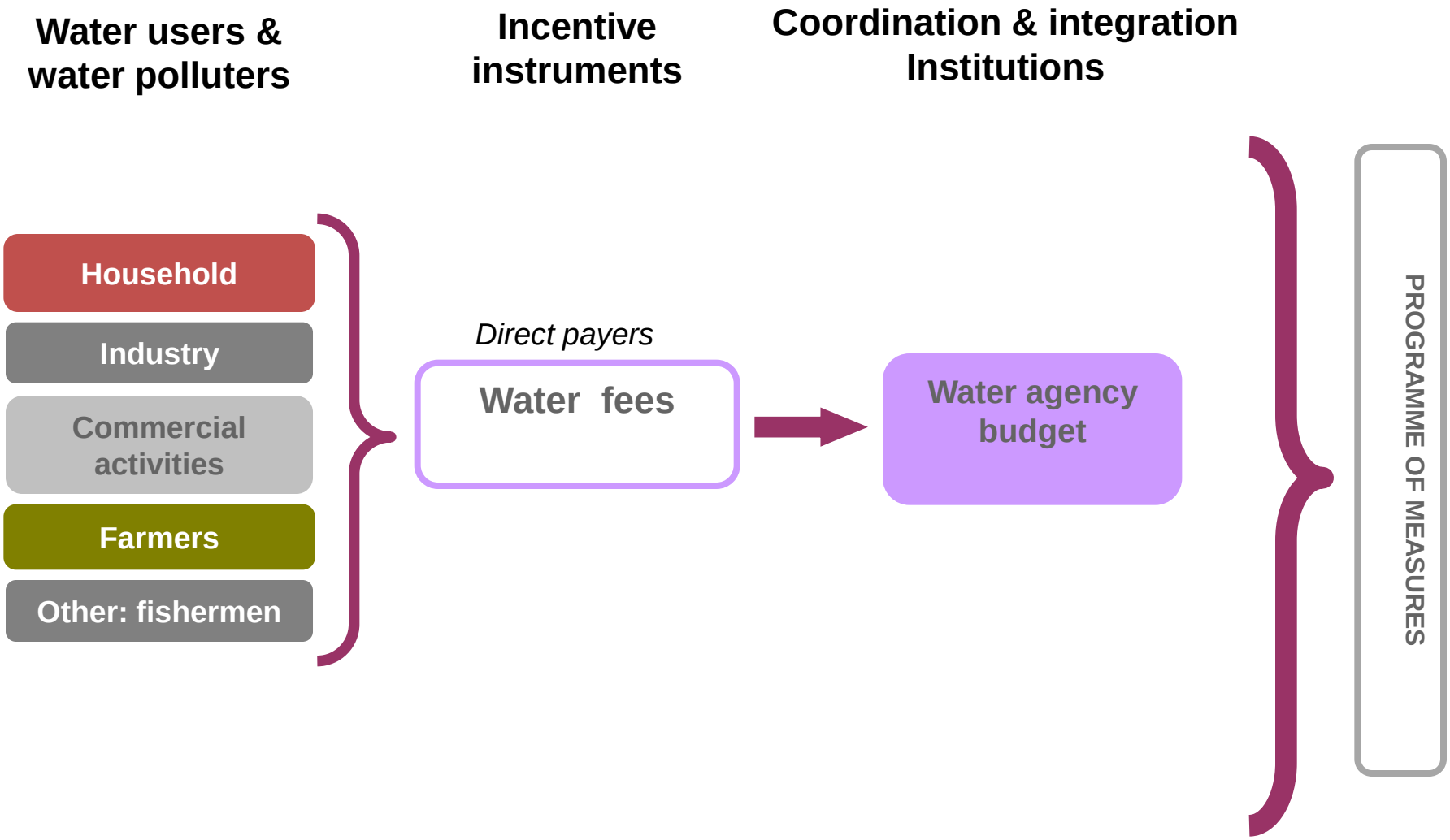


financial incentive

WHAT ARE THE CURRENT MECHANISMS TO FINANCE THE WATER POLICY?



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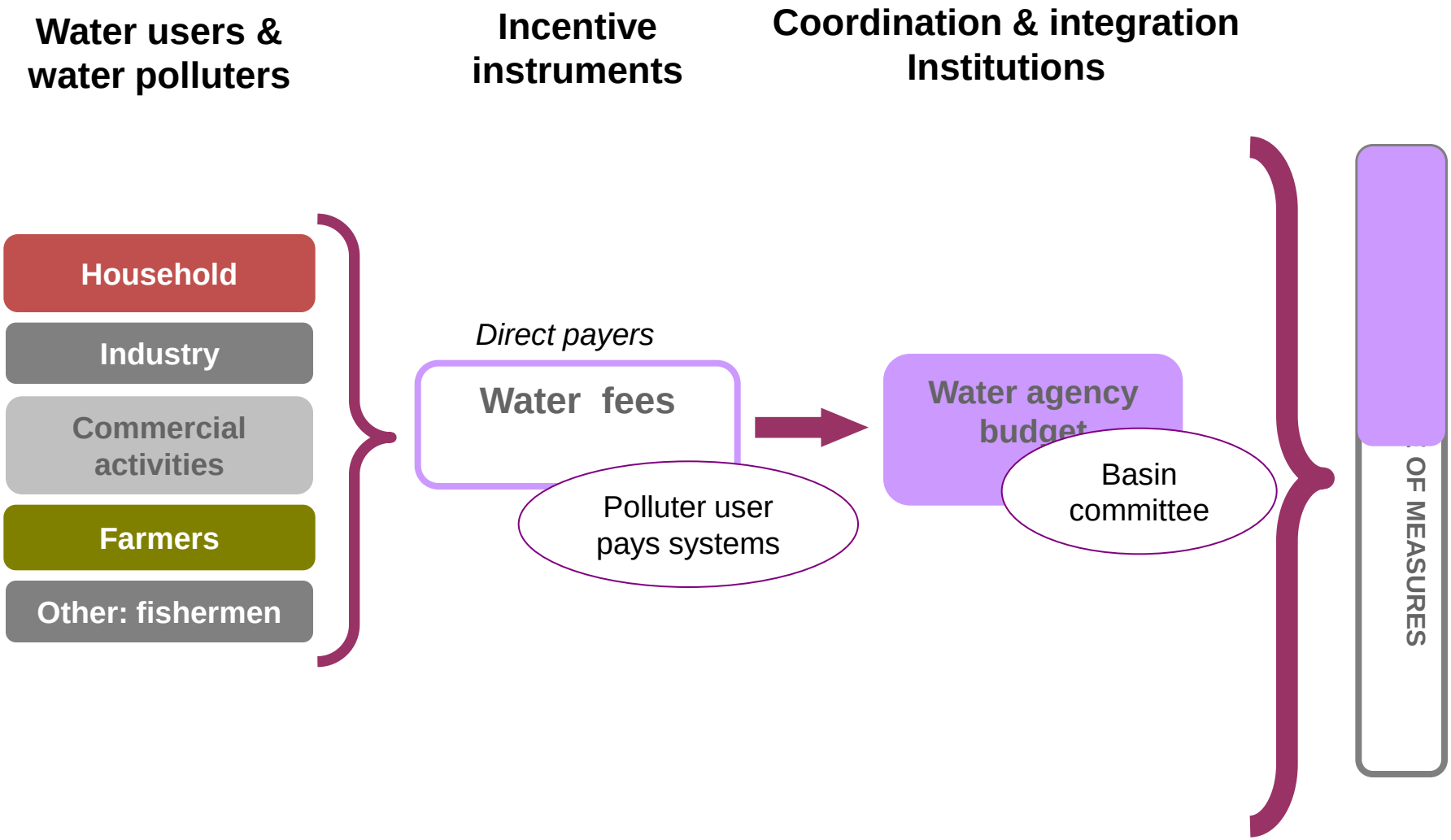

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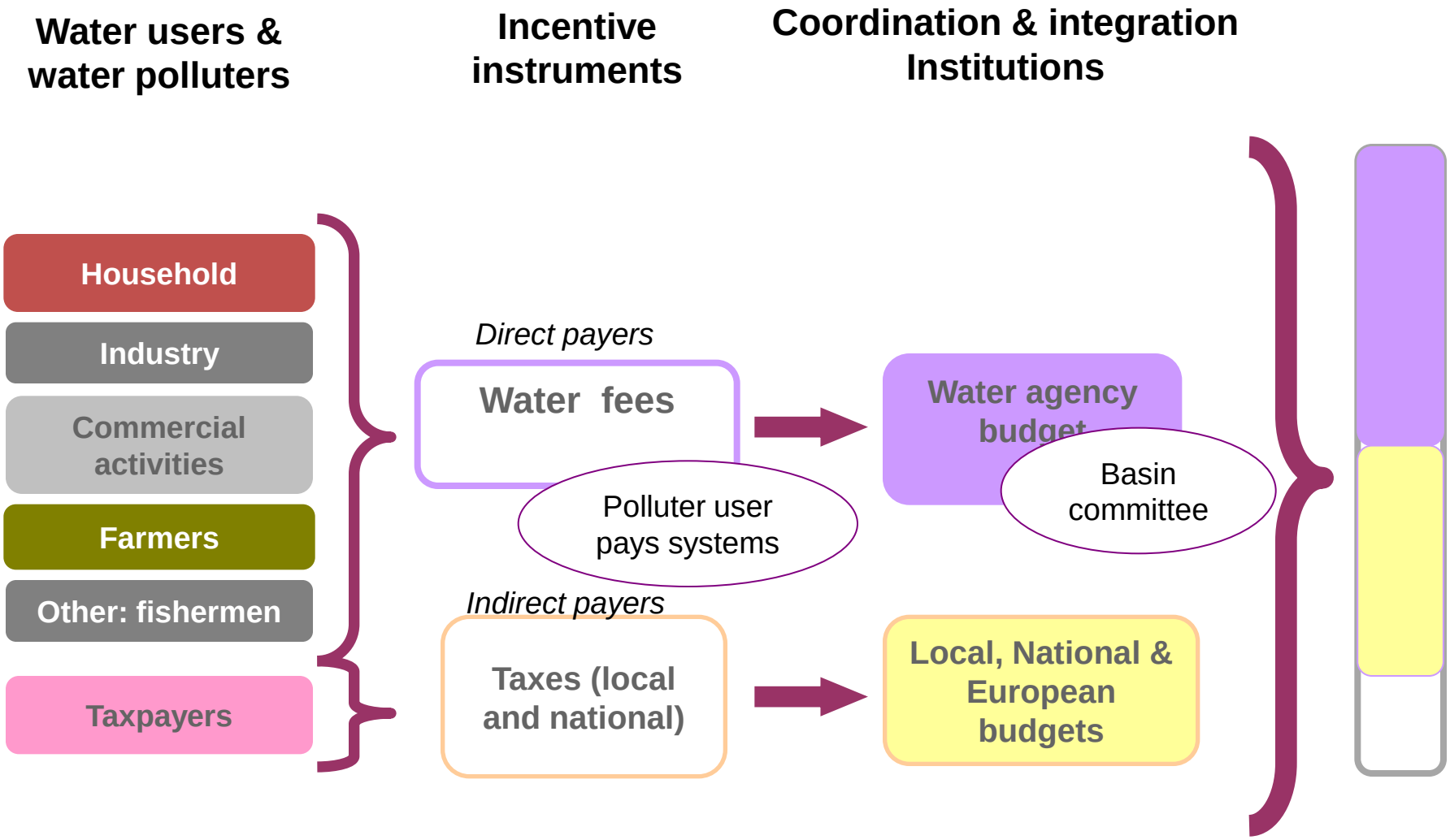

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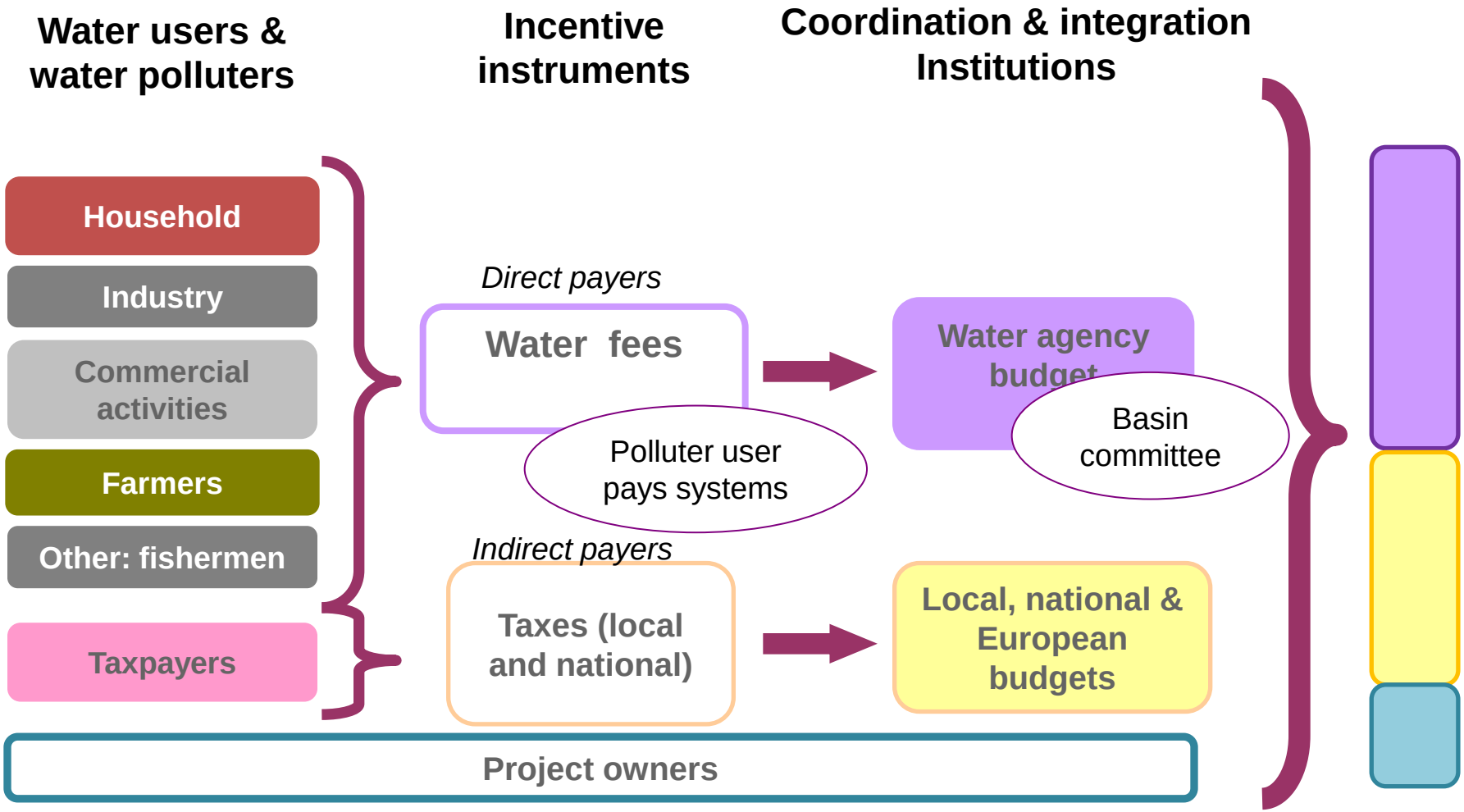
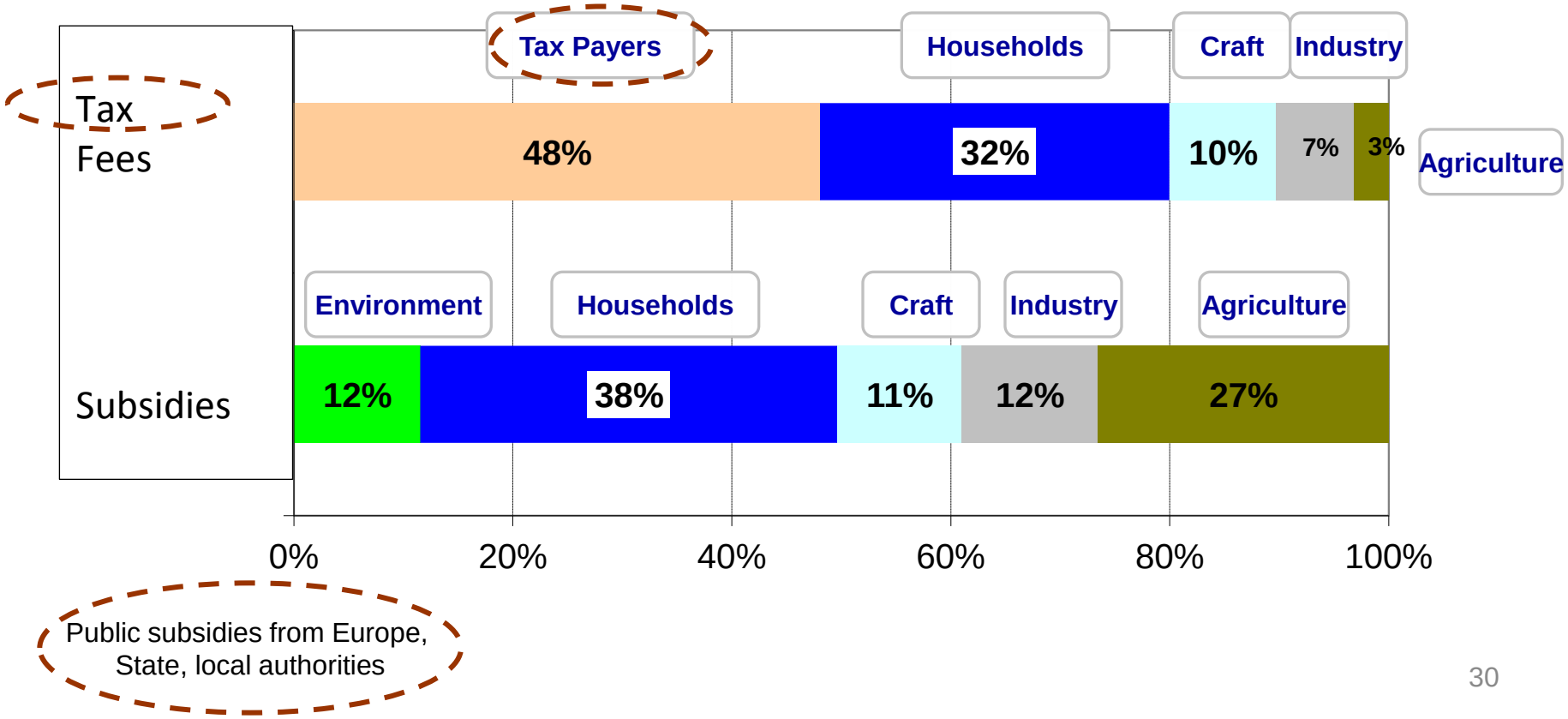


Economic analysis main results: financial transfers

Users & taxpayers

Water financing in Loire-Bretagne River Basin



COST RECOVERY

Amount of water prices paid by different users (households, industries, agriculture) in different territories

Amount of tariffs for discharges in different territories

Description of recipient of the funds and management principles

Global estimation of financial flows

Total expenditure for water supply and wastewater management

Part of National and local budgets invested in maintenance and investments

Amount of subsidies and grants

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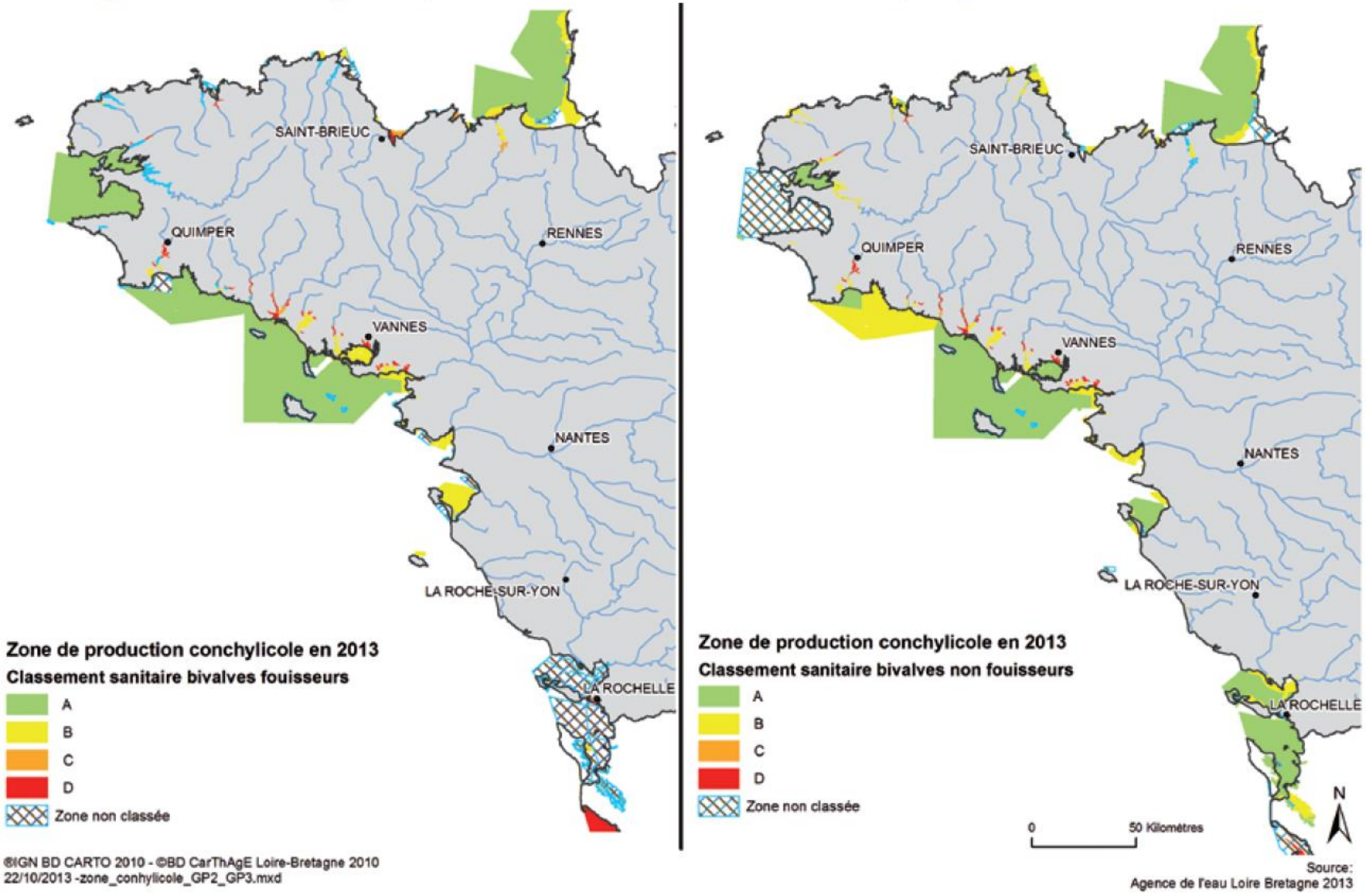
- River Basin Manage

Article 6: register of protected areas

Designate areas for the protection of econiomically significant aquatic species

SHELLFISH PRODUCTION

Zone de production conchylicole (bivalves fouisseurs et non fouisseurs) – Fig. IX-3



WATER FRAMEWORK DIRECTIVE: RIVER BASIN MANAGEMENT PLAN CONTENT

annex 7 of the WFD and CMU Decree 18 May 2017 on River Basin Management Plan.

- River Basin Ch
  delineation
- Pressures and
  ressources
- Identification an
- Monitoring programme
- Environmental objectives
- Economic analysis
- Programme of measures
- River Basin Management Plan for 6 years cycle

Article 4: Analysis of disproportionate costs

The deadline report to achieve environmental objectives must be justified for at least one of the following reasons: technical feasibility, disproportionately expensive costs, and/or natural conditions.

DISPROPORTIONATE COSTS

- Linked with article 11 about Programme of Measures

- In France: Cost-benefit analysis is used

Cost: investment + maintenance; period 30 years

Costs are compared to environmental benefits and to ability to pay (e.g. water price < 3% household incomes)

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Article 11: Costing the programme of measures

Estimate the potential costs of measures
Estimate the potential benefits
Make judgements about the cost-effective combination of measures in respect of water uses (annex III)

BASSIN LOIRE - BRETAGNE

Loire aval et Côtiers vendéens

secteur Estuaire Loire

Main issues

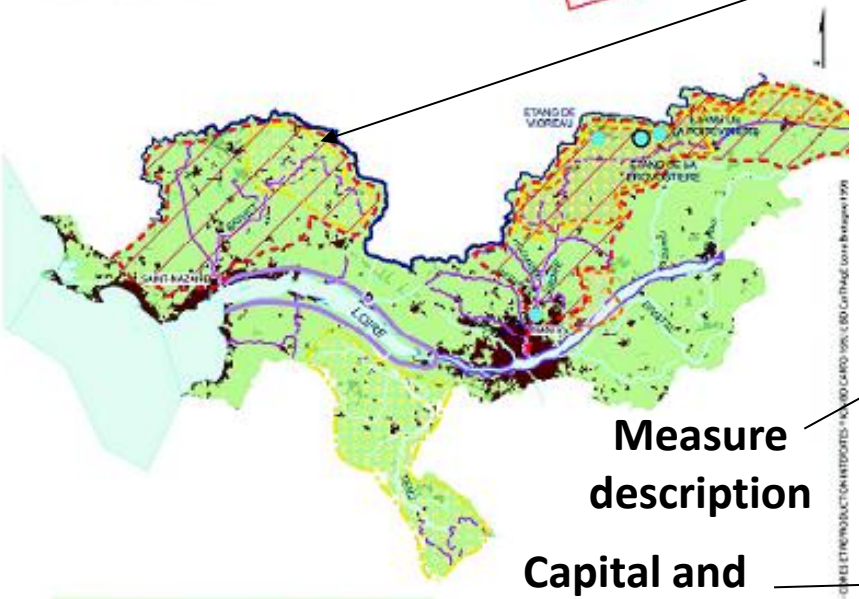
ENJEUX POUR LE PROGRAMME DE MESURES

Hydromorphologie - Restauration de l'Estuaire - La Loire : restauration de la ligne d'eau à l'étiage, restauration de la fonctionnalité de certaines annexes hydrauliques	**Maintien des usages littoraux** (baignade, conchyliculture...)
Axe migratoire majeur A l'échelle du bassin (saumon, anguille) à préserver (bouchon vaseux dans l'estuaire de la Loire)	**Zones humides** Importance des zones humides sur le territoire

Spécificités du secteur :

- Aval du bassin de la Loire, sommant les flux de nitrates, phosphore et pesticides de l'amont. L'atteinte des objectifs environnementaux sur la Loire estuarienne et l'embouchure nécessite l'application de mesures sur l'ensemble du bassin

document provisoi



SAGE Estuaire *en cours d'élaboration*

0 5 10 20 30 km

Plans d'eau
Cours d'eau
Masses d'eau côtière et de transition
AIE/FM
Occupation des sols (Corine Land Cover) IFEN - 1996
Zones artificialisées
Zones agricoles
Forêts et milieux semi-naturels

PROGRAMME DE MESURES 2010-2015

Mesures - clefs

secteur Estuaire Loire

Implementation area

Type of implementation

Measure description

Capital and functioning costs

Sector concerned

Zone application	Codes	MESURE Intitulé	Maîtrise d'ouvrage	Coût (M€)	Mise en œuvre	Echéances
POLLUTIONS COLLECTIVITES et INDUSTRIELS						
★	01B1	Améliorer la collecte, le stockage et transfert des eaux usées vers les stations d'épuration (temps de pluie)	Collectivités	27	R	2010-2015
	02C3 02C4	Améliorer le traitement des rejets collectifs des agglomérations < 2000 EH	Collectivités	4.4	R	2010-2015
PLANS D'EAU						
	05A1 05A2	Etudes et/ou mise en œuvre de mesures spécifiques sur les plans d'eau afin de réduire l'eutrophisation - Etude du fonctionnement du plan d'eau (définition des mesures préventives et curatives) - Gestion optimisée du plan d'eau	Collectivités /Propriétaires	0.04	C	2010-2015
POLLUTIONS D'ORIGINE AGRICOLE						
★	08B2	Equiper des exploitations agricoles pour maîtriser les pollutions ponctuelles par les pesticides	Agriculteurs	9.0	F	2010-2015
	08E30	Améliorer les pratiques agricoles - Implanter des cultures intermédiaires en période de risque - Limiter les transferts par des dispositifs tampon - Faire évoluer les systèmes de production (agriculture biologique, systèmes fourragers économes en intrants...)	Agriculteurs	2.8	F/C	2010-2015
MORPHOLOGIE						
	13A2	Restaurer la morphologie du lit mineur pour restaurer les habitats aquatiques	Collectivités /Propriétaires	10	C	2010-2015
	13G1 13G2 13G3	Intervenir sur les berges et la ripisylve - Gérer les espèces envahissantes, restaurer - Restaurer par génie végétal, reprofilage et stabilisation de berges, plantations	Collectivités /Propriétaires	11	C	2010-2015
	13D1	Améliorer la connectivité latérale Reconnecter et restaurer des bras morts, prairies humides, créer des frayères à brochet,...	Collectivités /Propriétaires	1.6	C	2010-2015
	13E1	Restaurer la fonctionnalité des rivières et leurs annexes Travaux globaux de restauration, de renaturation,...	Collectivités /Propriétaires	19	C	2010-2015
	13F1	Restauration de l'estuaire de la Loire en aval de Nantes	Collectivités /Propriétaires	18	C	2010-2015
	13F2	Relevé de la ligne d'eau de la Loire à l'étiage de l'amont de Nantes jusqu'à Bouchemaine	Collectivités /Propriétaires	6.0	C	2010-2015
ZONES HUMIDES						
	14C1 14C2 14D1	Gérer, entretenir et restaurer les zones humides - Mettre en place des conventions de gestion - contractualisation (dont mesures agro-environnementales zones humides) - Acquérir des zones humides - Mettre en [illegible] des zones humides	Collectivités/ Propriétaires/ Agriculteurs	7.8	C/F	2010-2015

★ Mesure non zonée à appliquer en fonction d'enjeux locaux spécifiques

Costing the program of measures

1) Choice of the right measures per water body or sub-basin to reach the objectives

2) Cost of each measure

Cost of measures

=

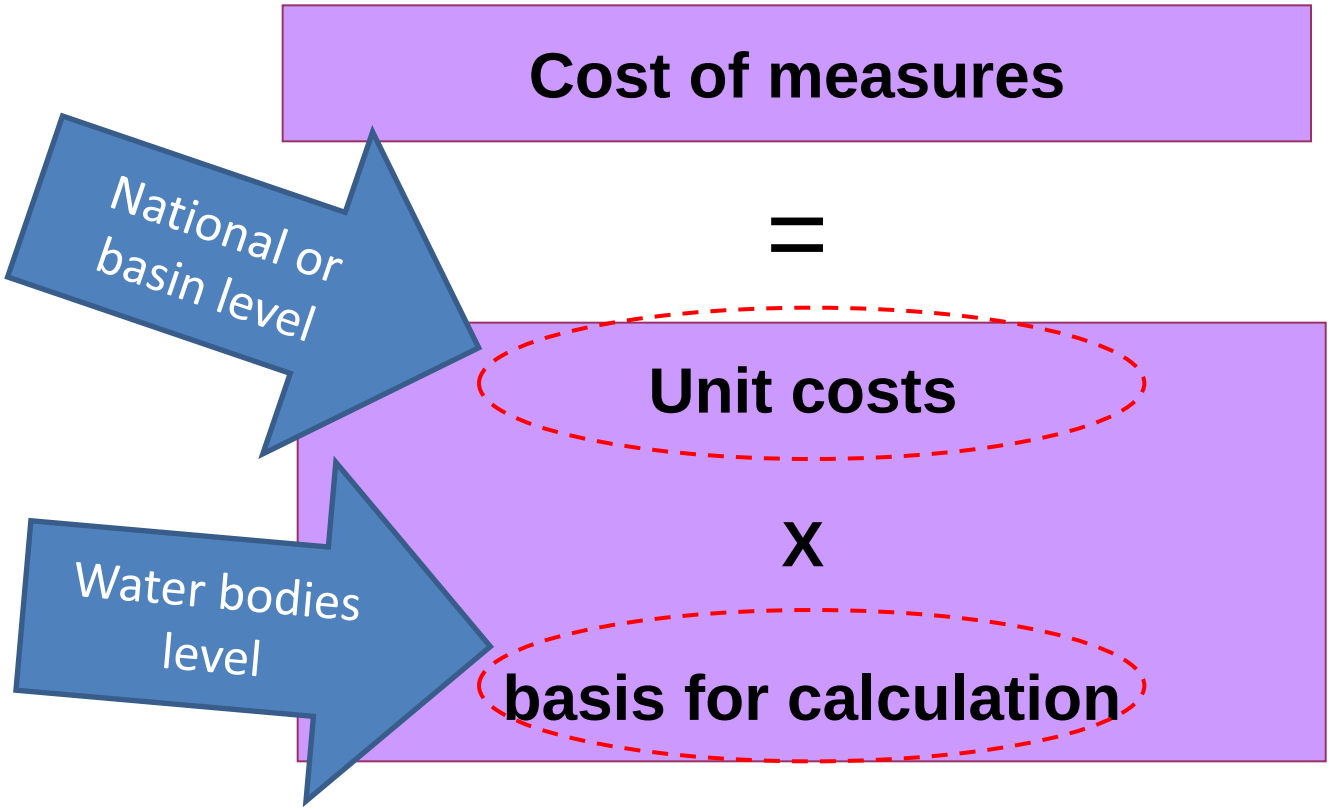
Unit costs

X

basis for calculation

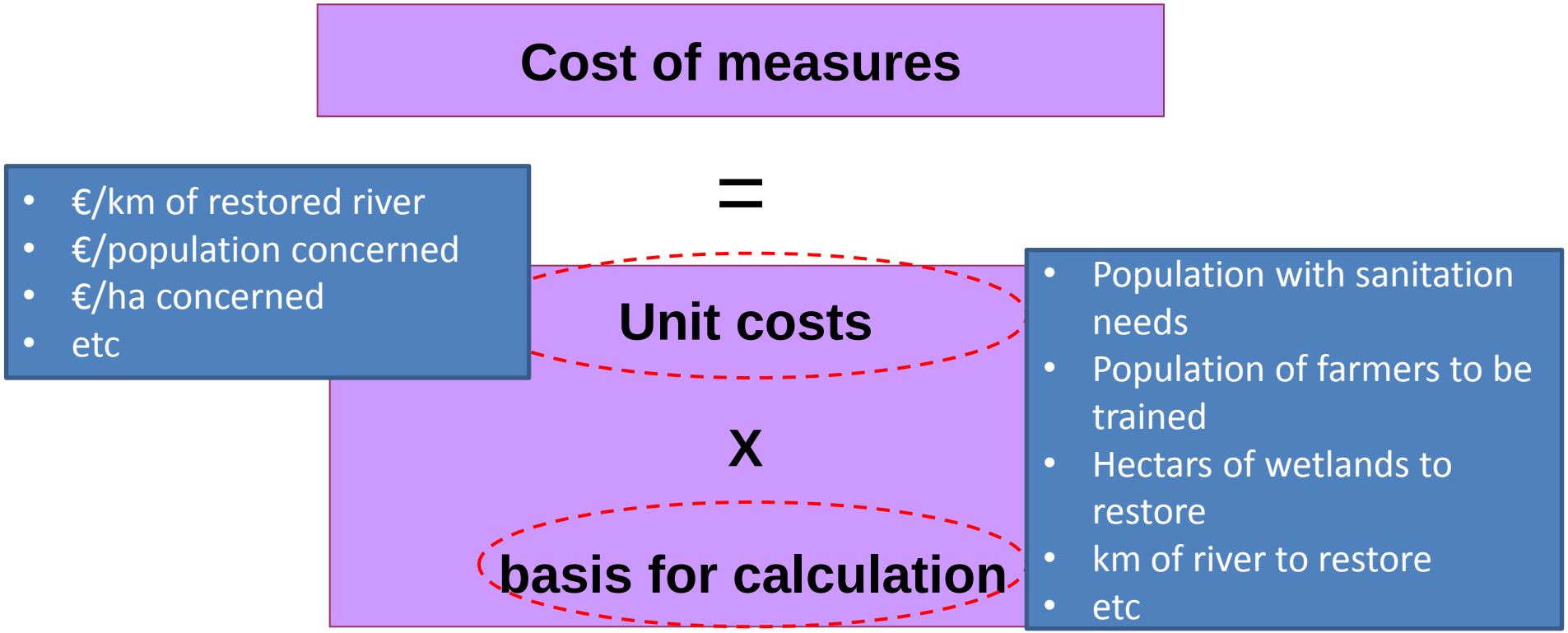
Costing the program of measures

Cost for investment and for maintenance (6 years)
Rough estimation of each measure



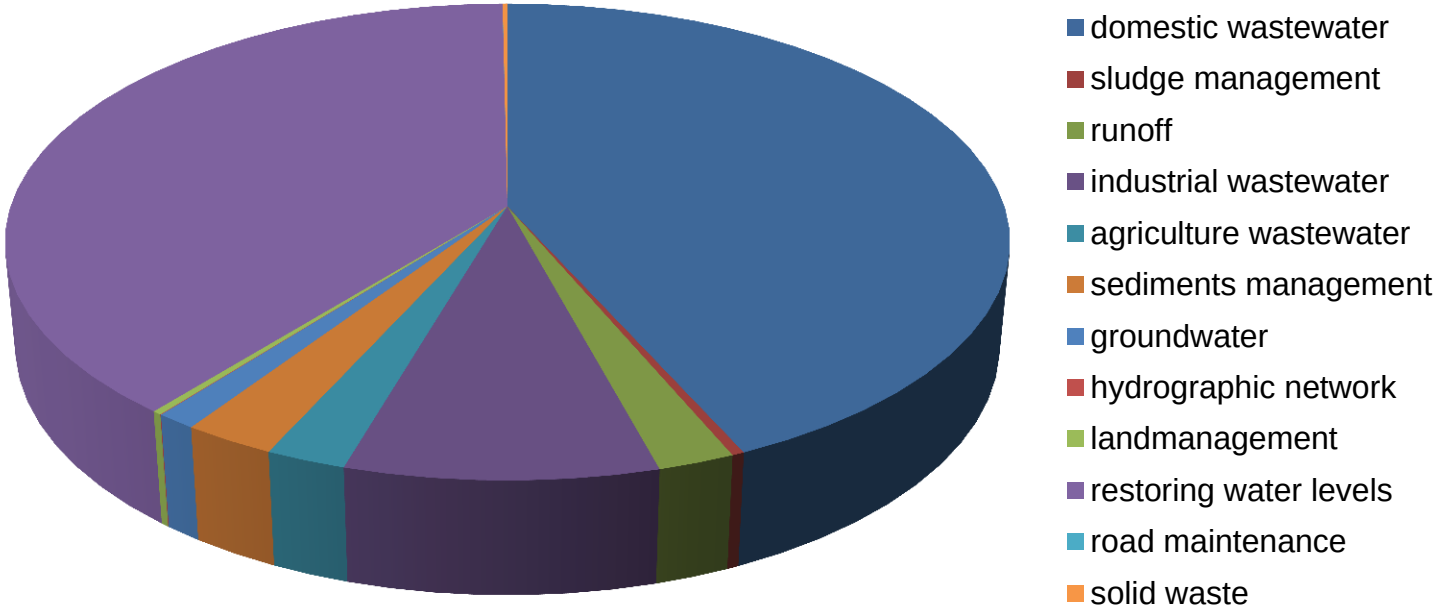
Costing the program of measures

Cost for investment and for maintenance (6 years)
Rough estimation of each measure



PROGRAMME OF MEASURES 2019-2024 DNIEPER RIVER BASIN IN BELARUS (EUWI+, 2018)

Without Minsk WWTP: allocation per thematic



Cycle 2019-2024: 233 million € including 168 million € for Minsk WWTP

< 0.2% GDP/year generated in the River Basin

10 €/inhabitant/year or 0,08 €/m3 abstracted/year

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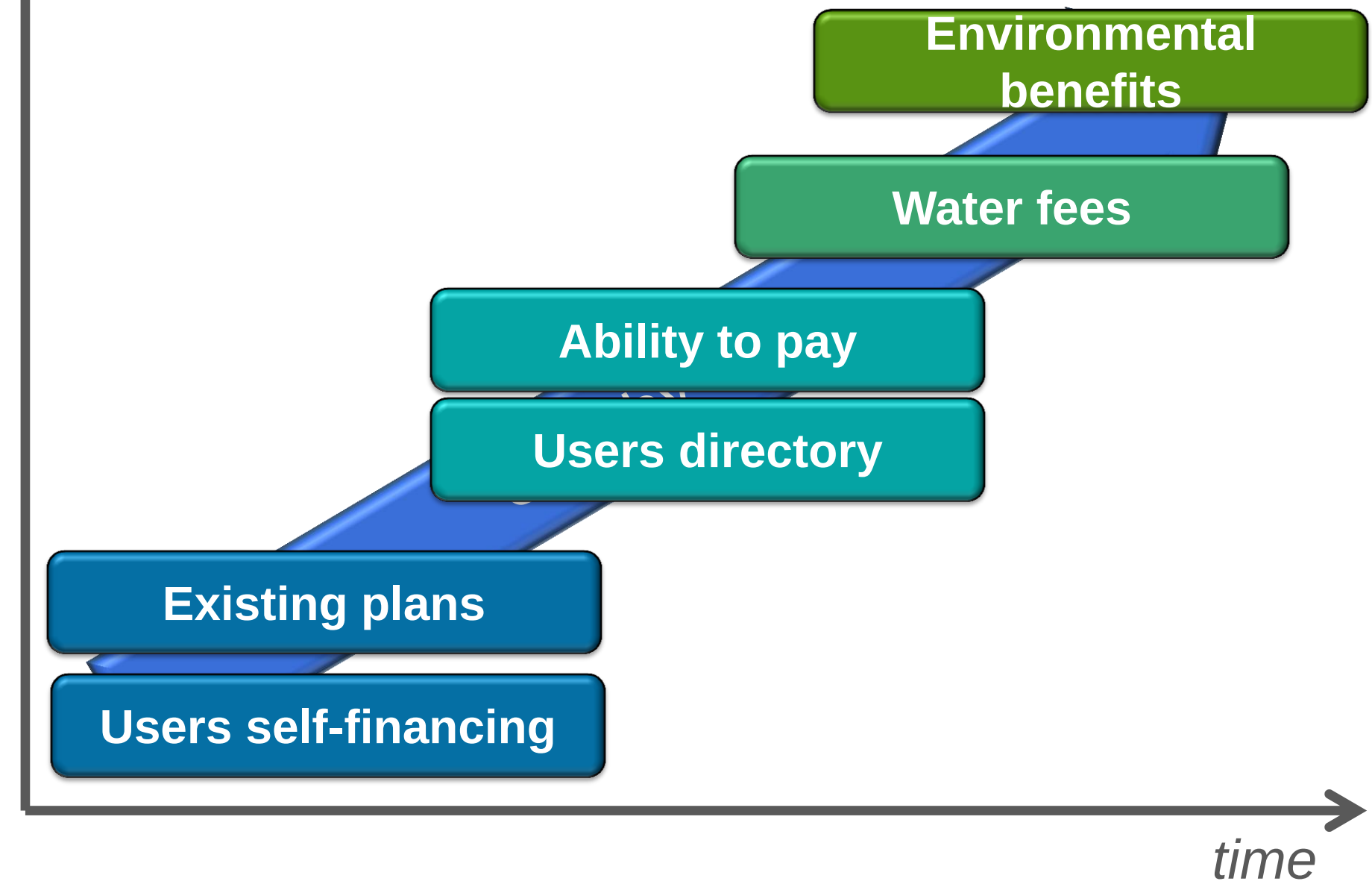
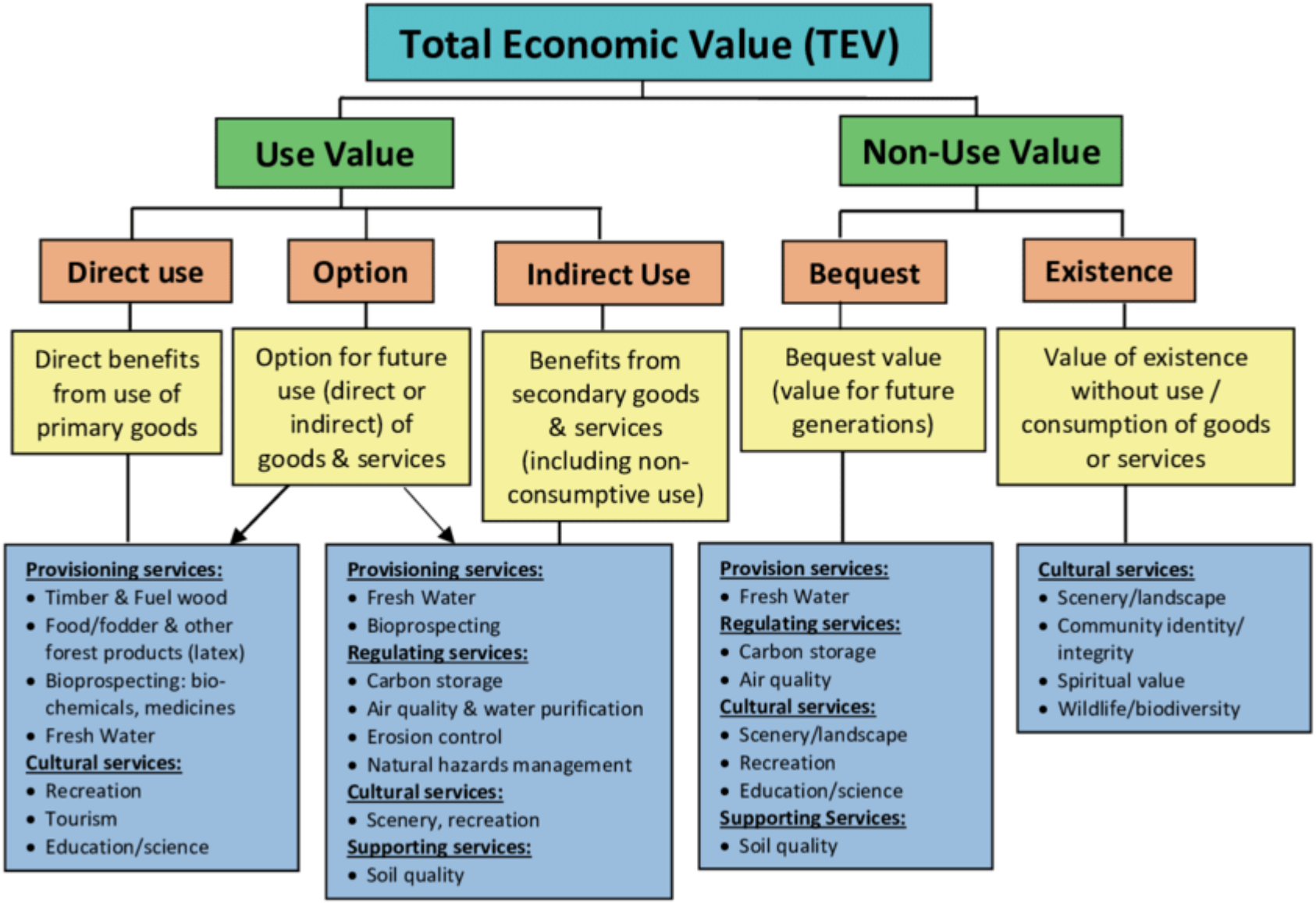
Article 11: Develop cost recovery

Report the practical steps and measures taken to apply the principle of recovery of the costs of the water use (annex VII)
Identify sources of funding

SUSTAINABLE FUNDING STRATEGY
WATER SOLIDARITY



TOTAL ECONOMIC VALUE AND ECOSYSTEM SERVICES



CONSTANZA, 1997 : BIOMES

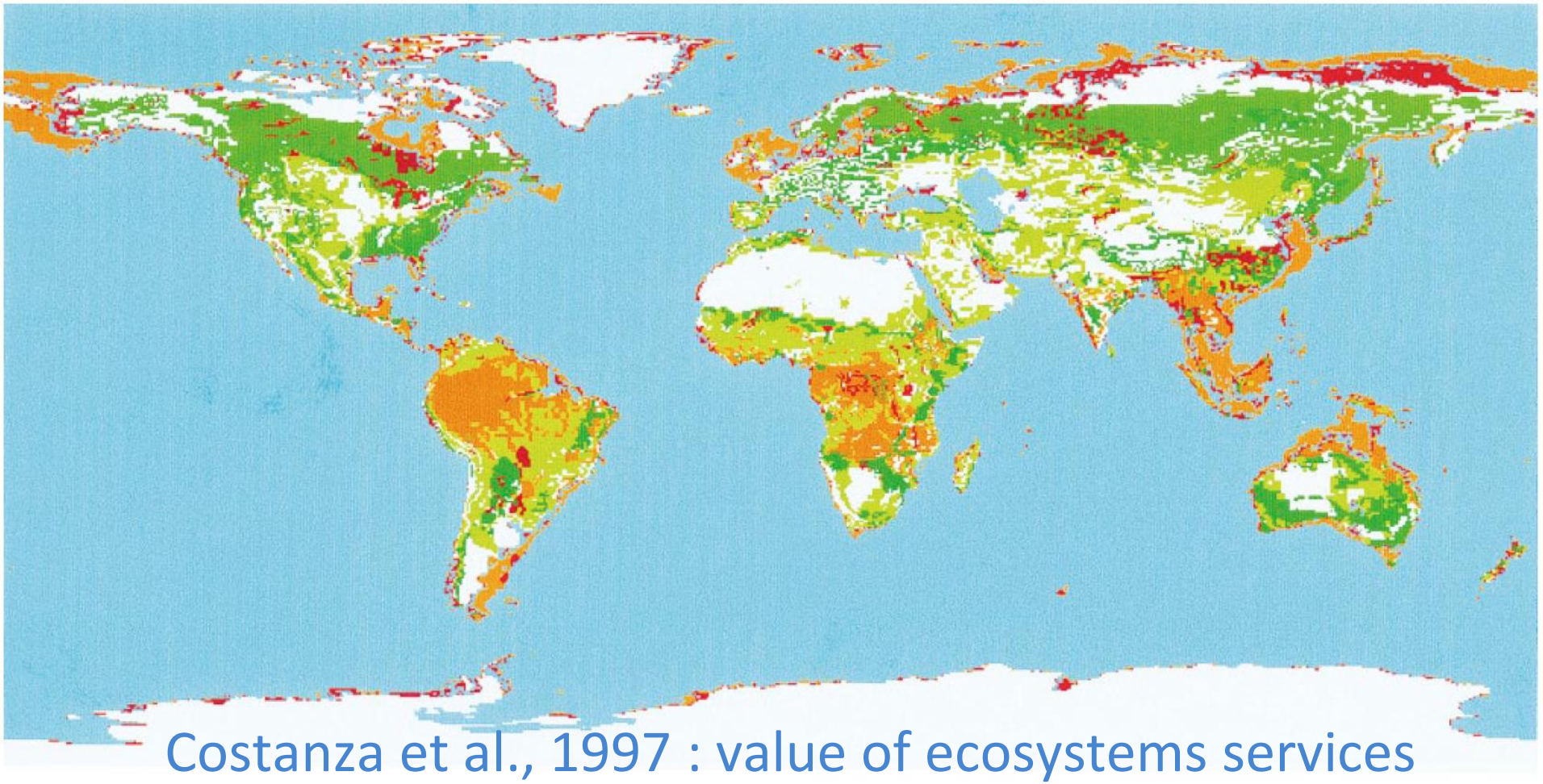
Marine
- Open ocean
- Coastal
  - Estuaries
  - Seagrass/ algae beds
  - Coral reefs
  - Shelf

Terrestrial
- Forest
  - Tropical
  - Temperate/boreal
- Grass/rangelands
- Wetlands
  - Tidal marsh/ mangroves
  - Swamps/ floodplains
- Lakes/rivers
- Desert
- Tundra
- Ice/rock
- Cropland
- Urban

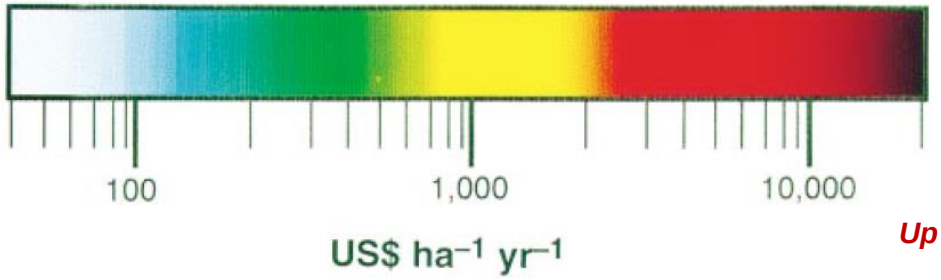
CONSTANZA, 1997 : ECOSYSTEMS SERVICES

1 Gas regulation	10 Pollination
2 Climate regulation	11 Biological control
3 Disturbance regulation	12 Refugia, habitat
4 Water regulation	13 Food production
5 Water supply	14 Raw materials
6 Erosion control, sediment retention	15 Genetic resources
7 Soil formation	16 Recreation
8 Nutrient cycling	17 Cultural
9 Waste treatment	

CONSTANZA AND AL., 1997



Costanza et al., 1997 : value of ecosystems services



Up to twice as much of World GDP!

BENEFITS FROM PROGRAMME OF MEASURES

Implementation of measures has a cost as well as inaction

Environment and ecosystems have a value and this value is significant

Economic valuations mixes monetary valuation and non-monetary units

A social process to construct values and prepare the future in a River Basin

EUWI+ TENDER: ECONOMIC ANALYSIS, PART 1 RELATED TO DNIPRO RIVER BASIN CHARACTERISATION

- Reminder (from the previous reports) of the importance of the water uses
- Economic weights by relevant water uses, socio-economic issues, main trends
- Water prices, tariffs for discharges by sector and by territory
- Description of recipient of the funds and management principles
- Funding sources (investment, maintenance) by sector
- Cost-recovery assessment of water and sanitation services (do revenues of services make possible to support the cost of services and its renewal?)

DEDICATED REGIONAL WORKSHOP

REGIONAL WORKSHOP

- To understand and master the steps of River Basin Management Plan development
- To clarify the objective and information needed related to economic analysis to complete:
  - River basin characterization step
  - Development of a financially balanced program of measures

27 MARCH & 28 MARCH MORNING KYIV

- French expert (EcoDecision)
- Representatives from Belarus, Moldova, Ukraine
- Contact for organisation:

oks_konovalenko@ukr.net

julia.gricaenko@euwipluseast.eu

CONTACT

Philippe SEGUIN
International Office for Water
p.seguin@oieau.fr

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