

# Shared Sustainability

6th Report  
by the 12 Utilities United in Viveracqua  
Year 2023



# In house, **together,** at scale

**12 local identities,** one efficient  
industrial entity.



# Shared Sustainability



**Sostenibilità  
Condivisa**  
PROTAGONISTI DEL CAMBIAMENTO

The responsibility of securing a future for the generations to come begins today.

For the 12 water utilities of Viveracqua, **sustainability** is a conscious choice and a **value** nurtured daily - a journey where **each one plays a role in creating a quality future**. Sustainable development is the goal to be pursued together, through concrete and daily actions.

From water resource management to energy use, and waste disposal: every process is geared towards **respecting the environment and the local area**.

# Contribution to the Sustainable Development Goals (SDGs)

The daily operations of the companies united under Viveracqua are inspired by the **Sustainable Development Goals (SDGs) set out in the United Nations' 2030 Agenda**. This sustainability strategy embraces the SDGs as drivers of all actions.

The 2030 Agenda for Sustainable Development is a global action plan for people, the planet, and prosperity, adopted by the UN General Assembly in 2015. The Agenda consists of 17 Sustainable Development Goals (SDGs), included in a large action pro-

gram that identifies as many as 169 targets or goals.

**The publicly owned utilities of the Veneto region** are particularly committed to actively contributing to the achievement of the following eleven specific SDGs:



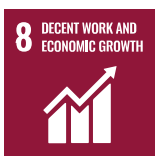
## “Clean water and sanitation”

By promoting access to safe drinking water through the supply of clean, high-quality water and an efficient level of service aimed at reducing water waste (e.g., limiting water abstraction, reducing losses), as well as by reclaiming and reusing wastewater



## “Health and well-being”

By providing services that protect the health and well-being of users, local communities, employees and collaborators.



## “Decent work and economic growth”

By generating sustainable and dignified employment opportunities, with a strong focus on staff training.



## “Industry, Innovation and Infrastructure”

By developing cutting-edge technologies to improve service delivery, with particular attention to detecting and reducing network losses.



## “Partnership for the Goals”

By fostering collaboration between public authorities, private enterprises and citizens in support of an economy that embraces opportunities tied to sustainable development.

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## “Sustainable Cities and Communities”



## “Responsible Consumption and Production”

By promoting responsible and sustainable behaviours within both local communities and the organisation itself, through awareness-raising activities and environmental education aimed at reducing waste.

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## “Life Below Water”



## “Life on Land”

By helping to safeguard the environment and reduce negative impacts on ecosystems and biodiversity in watercourses and groundwater, such as minimising the production of sludge from wastewater treatment.

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## “Affordable and Clean Energy”



## “Climate Action”

By actively contributing to the fight against climate change, supporting climate adaptation, and reducing atmospheric emissions through energy efficiency measures and the production of renewable energy from photovoltaic systems.

# About us

Viveracqua is a consortium that brings together **12 publicly owned water utilities based in the Veneto region and part of Friuli Venezia Giulia**, managing services including water abstraction, purification, distribution, as well as wastewater collection and treatment.

## 12

years ago, Viveracqua created a **large-scale industrial entity** capable of achieving **economies of scale and scope**, while allowing each individual utility to maintain its **local identity and operational independence**.

Viveracqua's mission is to foster dialogue and cooperation with **stakeholders beyond the local scope**, promote **highly innovative projects**, and consolidate a sustainable approach to water management, **protecting both the environment and communities**.

These goals are achieved by pooling and strengthening the competitive capabilities of member utilities, reducing management costs, promoting research and development, and building relationships with partners and stakeholders.

The consortium includes the following 12 public water utilities operating in Veneto and parts of Friuli Venezia Giulia: **Acque del Chiampo, acquevenete, Acque Veronesi, Azienda Gardesana Servizi, Alto Trevigiano Servizi, Etra, Bim Gsp, Livenza Tagliamento Acque, Medio Chiampo, Piave Servizi, Veritas, Viacqua**.

This network covers:

- ▶ 580 municipalities across Veneto and part of Friuli Venezia Giulia
- ▶ 4.7 million residents served
- ▶ a fluctuating population of around 1 million people.

All companies are fully publicly owned, managed with a clear industrial strategy, and together they generate an annual value of €934 million.

**12** water utilities

**100%** public ownership

**580** municipalities represented

**4.7** million residents served

**1** million fluctuating population

over **2** million direct water supply users

# Water system overview

## DRINKING WATER



**2,179**  
water abstraction points



**642 milioni**  
million cubic metres of water abstracted



**47,092 km**  
of water distribution network



around  
**16,000**  
internal samples taken from water intended for human consumption



over  
**515,000**  
parameters analysed from internal controls, performed on water distributed downstream of purification plants

## SEWERAGE



**21,602 km**  
of sewer network (combined and foul water)



**3,135**  
storm overflows



**5,593**  
sewage pumping stations



around  
**5,700**  
samples from the sewer network



over  
**86,000**  
parameters analysed

## WATER PURIFICATION



over  
**440 million**  
cubic metres of treated wastewater



over  
**24,000**  
samples of wastewater analysed



over  
**215,000**  
parameters analysed



over  
**500**  
wastewater treatment plants

# Collaborative Projects and Activities



Photo credits Alessandro Cirella

The companies united under Viveracqua manage the Integrated Water Service in Veneto, each within its respective area of jurisdiction, while **working together on specific projects and activities**.

These joint efforts ensure the **sharing of know-how and investment in research and development**, with a

strong focus on the **value of people**. Viveracqua's internal organisation is streamlined and flexible. **Working Groups**, made up of employees from the 12 member companies, pool together **best practices and specialist expertise** across a range of multidisciplinary fields.



# Social Chapter

## The Value of People

- ▶ Development, Training and Personal Growth
- ▶ Occupational Health and Safety
- ▶ Water and Environmental Education in Schools

## Inclusion and User Satisfaction

- ▶ Water Social Bonus
- ▶ Additional Supplementary Bonus
- ▶ Effective Services to Meet All Needs

# The Value of People

Over 3,000 individuals work for the utilities that are part of the Viveracqua network. As of 31 December 2023, the total number of employees stood at 3,215. The ongoing commitment to valuing our people led in 2023 to an **increase in human capital**:

- ▶ **3,215** sector employees
- ▶ **of which 801 are women** accounting for 25% of the total workforce.

Information on employee numbers, recruitment, terminations, and turnover is presented in the table below:

	2021	2022	2023
Number of employees as of 31.12	3,107	3,132	3,215
Of which women	740	769	801
Percentage of women in total workforce	23.8%	24.6%	24.9%
Number of employees hired during the year	260	228	262
Number of employees who left during the year	175	182	200
Turnover (entry)	8.4%	7.3%	8.1%
Turnover (exit)	5.6%	5.8%	6.2%

## DEVELOPMENT, TRAINING AND PERSONAL GROWTH

The water utilities within Viveracqua recognise **training as a key tool** to raise awareness among employees on fundamental topics that reflect the organisation's values and meet regulatory standards.

each person from discriminatory behaviour, respecting moral integrity, professional growth and **creating a fruitful dialogue with trade unions**.

The objectives of the training courses: **to listen to and involve** people so that they feel part of a meritocratic work context, **to create a positive impact** on the lives of employees by offering welfare solutions and **to promote their well-being**, protecting

**100,724** training hours in 2023  
**88,673** training hours in 2022

The average training hours per employee rose from 28.3 in 2022 to 31.3 in 2023.

# Internal training academy



Working in synergy also means **sharing knowledge and experience**. To this end, the **Viveracqua Academy** was established in **2022 to coordinate internal training efforts**.

Within the Academy, Viveracqua's over 3,000 employees share diverse company experiences and cultures, contributing to **process innovation** and the **enhancement of both soft and technical skills**. The shared objective is to **strengthen the professional capabilities of those working in the water service sector** and to **bridge the gap between labour demand and supply**, while addressing the challenges of the environmental transition.

## OPERATIONAL APPROACHES

### Networking

Opportunities for employees from different companies to connect and learn from one another, fostering inter-company collaboration.

### Career Support

Guidance and support for employees in planning and achieving their professional goals.

### Health and Welfare Services

Engagement with local associations to promote welfare initiatives. One example is the Pink Camper project, launched in collaboration with Amiche per la Pelle and local businesses, aimed at increasing access to early diagnosis for common health conditions among women.

### Training Programmes, Workshops and Seminars

Initiatives designed to develop both technical and soft skills, promote continuous learning, and encourage the exchange of ideas in the water sector.

Academy Activities in 2023:

- ▶ **inter-company onboarding programmes** for new hires across all Viveracqua member companies
- ▶ **experiential training** to improve the use of specific digital tools, delivered by internal staff who voluntarily shared their knowledge and "trade secrets" with colleagues
- ▶ **hybrid training focused on developing "soft hybrid skills"** for network operation managers, with the aim of enhancing transversal competencies such as effective communication
- ▶ **collaboration with Ca' Foscari University of Venice** for the design and delivery of the **first-level Master's Degree in "Protection and Management of Water Resources"**.



a multidisciplinary and high-level academic programme aimed at training future water service professionals

- ▶ support to technical teams in organising **specialised training days on topics** such as the new Public Contracts Code, the role of the RUP (Project Manager), anti-corruption and transparency, and Water Safety Plans
- ▶ organisation of the **Viveracqua**

**Day** - an annual training day that brings together employees, governance, and members of Viveracqua's working groups. **This event provides a valuable opportunity for exchange and dialogue**, strengthening the awareness that **teamwork** is not only an effective tool to achieve shared solutions and benefits, but above all, **an essential part of each company's identity**.

## INCLUSION AND DIVERSITY PROTECTION

The Viveracqua Academy actively promotes a **culture of inclusion and the recognition of diversity**, firmly opposing all forms of discrimination.

It places strong emphasis on **Diversity, Equity & Inclusion (DEI)**, encouraging projects, training programmes, and tools that integrate these values into the **operational culture of Viveracqua and all its member companies**.

In 2023, the Academy organised a **training initiative focused on preventing gender-based violence in the workplace**, which involved employees from all companies within the Viveracqua consortium.

With a clear commitment to gender equality and the promotion of diver-

sity in the workplace, **Viveracqua was awarded, in 2023, the UNI/PdR 125:2022 certification by Bureau Veritas** - the only national standard **on gender equality**, endorsed by the Italian National Recovery and Resilience Plan (PNRR).

As a first step in the certification process, an **Internal Steering Committee was established, accessible to all 12 member companies**. The Committee's role is to foster a corporate culture based on awareness, inclusion, and the promotion of gender equality, with the goal of **facilitating the certification journey for each utility within the consortium**.

## OCCUPATIONAL HEALTH AND SAFETY

Workplace safety and physical well-being are key priorities for all water utilities united under Viveracqua.

Each company is committed to safeguarding the health and safety of all individuals involved—both directly and indirectly—throughout the entire value chain. Ensuring safety calls for constant vigilance, careful management, and thorough monitoring. For this reason, the member companies **adopt a proactive approach to in-**

**spections and preventive maintenance**, with the goal of protecting the health of all workers.

**39,875** hours

on the **subject of security** equal to about 40% of the total.

Health and safety indicators	2021	2022	2023
Accidents (greater than one day, not in progress)	63	57	51
Frequency Index	11.7045	10.69	9.9
Severity Index	0.3241	0.316	0.253

**Training hours dedicated to the health and safety** of workers have maintained the positive trend of **more than 40% of the total hours** of training provided.

	2021	2022	2023
<b>TOTAL training hours per year</b>	<b>71,572</b>	<b>88,673</b>	<b>100,724</b>
Training hours for SAFETY	32,286	42,586	39,875
% hours safety training on total	45%	48%	40%
Average training hours per capita (out of total employees on 31.12)	23.04	28.3	31.3

## WATER AND ENVIRONMENTAL EDUCATION IN SCHOOLS

As part of an awareness strategy focused on the responsible management of water resources for future generations, the utilities within Viverracqua **organise educational activities in schools.**

They promote **educational projects for primary and secondary schools,** raising awareness among children

about the conscious use of water resources and explaining the concept of the integrated water cycle.

**Educating young people about water conservation and environmental respect** means looking to the future and helping to shape the responsible citizens of tomorrow.

	S.Y. 2021/2022	S.Y. 2022/2023	S.Y. 2023/2024
No. of students involved	37,122	41,586	47,222



# Academy for external education

To function effectively, the process of water abstraction, purification, distribution, treatment, and return to the environment requires not only the work of water service providers, but also the **awareness and engagement of end users—starting from the youngest.**

Viveracqua Academy is the **educational platform developed by the water utilities of Viveracqua. To bring knowledge of the integrated water service** into schools and support interactive, multimedia-based learning, the publicly owned utilities in Veneto have developed the platform **academy.viveracqua.it.**

The external education branch of Viveracqua Academy brings together, in a single digital tool, **educational projects, games, and learning materials to teach water and environmental education.**

Within the Academy that deals with water and environmental education, **during 2023** the platform was enri-

ched with new content.

**Edu\_Acqua was born, a project consisting of educational paths and a guide for teachers** for primary schools and first grade secondary schools. There were also **5 animated videos** on the integrated water service featuring two cute characters, **Watrix e Ale.** In addition, **"I Understand a Tube" and "Is There Water in My Sock?" were reprinted,** for a total of 20,000 copies. The books were distributed to schools in Veneto and parts of Friuli Venezia Giulia.

Additionally, in 2023, a dedicated educational day titled **"Tutti per l'acqua" ("All for Water")** was organised, **involving students from across the region.**



## Informing and raising awareness



The water utilities within Viveracqua, fully aware of their social responsibility, are committed to building public awareness about the value of water, promoting a culture of sustainability, and turning stakeholders into allies through **coordinated communication strategies**.

With the aim of **informing and engaging citizens on the topics of water conservation and environmental protection**, in 2023 **two communication campaigns** were launched by the **Viveracqua member companies in collaboration with AcegasApsAmga, a multi-utility company operating in North-Eastern Italy**.

► **Water Conservation Campaign**, aimed at encouraging responsible behaviour in the use of drinking water, particularly in the context of the **water crisis declared in the first half of 2023 by the Veneto Region and the state of national emergency** declared for water shortages in the Po River and Eastern Alps districts.

The campaign, disseminated via web, social media, print and radio, **reached over 1 million users**.

► **Sewer Network Protection Campaign**, organised in partnership with **waste management providers**, this campaign promoted responsible practices among citizens to ensure the proper functioning of sewerage and wastewater treatment systems. Disseminated through web, social media and print, the campaign **reached approximately 5,000 users**.

# Inclusion and User Satisfaction

Viveracqua's operators are actively committed to promoting the universal right to access water and water services.

## Water Bonus and Additional Support

To ensure that everyone has access to water under economically sustainable conditions and to meet the various needs of individuals, Viveracqua's operators implement specific support measures for users most vulnerable to economic hardship. The support tools available to users include the **national water social bonus and an additional, complementary bonus**.

## WATER SOCIAL BONUS

The Water Social Bonus (Bonus Sociale Idrico) is a measure designed to **reduce water service expenses for households experiencing economic and social hardship**. Eligibility for the water bonus depends on income level and type of water supply.

The bonus **provides a free annual allocation of**

For example, a household of three people is entitled to approximately 55 cubic metres of water per year at no charge. This quantity of 18.25 cubic metres was **established by the Prime Minister's Decree** of 13 October 2016 as the **minimum amount required to meet a person's basic needs**.

The bonus is applied to the variable charges of all three components of the integrated water service: water supply, sewerage and wastewater treatment.

# 18.25

**cubic metres of water per household member (equivalent to 50 litres per person per day).**





## ADDITIONAL SUPPLEMENTARY BONUS

Operators may also grant **users an additional or alternative economic benefit beyond the national water bonus.**

This is an **enhanced form of support, defined at the local level.** For instance, the local Area Governing Body (Ente di Governo dell'Ambito, EGA) may decide to provide a larger water bonus than that set at national level, under the same eligibility conditions, or improve access criteria by raising the maximum ISEE (Equivalent Economic Situation Indicator) threshold. **Eligibility requirements and the amount of the supplementary bonus** are therefore **determined local-**

**ly** and may differ from national standards.

In 2022, five operators were unable to distribute the bonus due to delays in receiving the necessary user data from the competent authority. As a result, 2022 data refers only to the bonuses granted by the remaining seven companies. In 2023, however, the data refers to all operators.

	2021	2022	2023
Number of Water Bonuses provided	46,521	44,134	125,251
Amount of Water Bonus disbursed (in euros)	1,429,359	1,283,091	4,951,602
Number of Supplementary Water Bonuses and other benefits disbursed	8,966	5,253	10,527
Amount of Supplementary Water Bonus and other benefits disbursed (in euros)	1,355,903	273,763	1,388,810
Number of instalments granted	34,973	40,911	19,366
Amount of instalments granted (in euros)	23,814,807	31,973,082	14,630,271

## EFFECTIVE SERVICES TO MEET ALL NEEDS

From digitalisation initiatives to personalised services, the operators united under Viveracqua are committed to building a **relationship of trust and transparency with users**, acknowledging their key role in shaping strategic actions towards a sustainable future. Values such as **inclusion, customer satisfaction and responsibility** towards the community are at the

heart of each company's mission.

The goal is to provide a high-quality service, **in line with the principles of transparency, fairness and innovation**. User satisfaction lies at the core of every initiative, while social responsibility drives the day-to-day actions of all operators.



approximately **60** main customer service offices open to the public



**162,697** users served at customer service counters  
118,255 in 2022 and 116,954 in 2021



**922,753** calls received by the call centre  
913,642 in 2022 and 972,168 in 2021



**185,633** calls received by the emergency toll-free number

(168,776 in 2022 and 173,111 in 2021), and 3,699 emergency interventions carried out (4,157 in 2022 and 4,408 in 2021)



over **300.000** contractual services

(excluding invoice issuance), such as estimates, water and sewer connections, activations and deactivations, meter and pressure checks, responses to complaints, and billing adjustments.

<b>Contract quality services</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Estimates for water connections, sewers and other works	17,693	16,507	15,708
Water connections	8,732	8,703	8,469
Sewer connections	1,497	1,465	1,470
Other work	1,294	1,325	1,240
Contractual operations such as activations, reactivations, and deactivations	74,598	72,745	67,337
Transfers	95,976	92,996	90,097
Replies to: complaints	4,008	3,670	3,512
Requests for information	33,761	35,008	32,788
Invoice adjustments	4,036	3,025	3,100
Invoices issued	8,038,240	8,225,235	8,463,963

**Contract quality levels:** the table shows the number of services provided and the corresponding average compliance rates for Viveracqua and the national Italian average.

Contractual quality indicators are divided into two main macro-categories:

- ▶ **MC1** Start and Termination of the Contractual Relationship: this includes basic indicators related to services such as quotations, execution of connections and works, and supply activation and deactivation.
- ▶ **MC2** Management of the Contractual Relationship and Service Accessibility: this includes basic indicators related to services such as appointment scheduling, billing, meter and pressure checks, responses to written requests, and the management of customer contact points.

<b>Viveracqua macro-indicator values</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
MC1	97.524%	98.023%	97.6%
MC2	97.312%	97.466%	97.5%

The national average values of the two macro-indicators are:

<b>Italy macro-indicator values</b>	<b>2022</b>	<b>2023</b>
MC1	96.3%	96.5%
MC2	95.3%	95.9%

# Participation in the "Bando Pozzi" call of the Veneto Region

The commitment of the publicly owned water utilities of the Veneto region, united under Viveracqua, goes far beyond the provision of services within their territories. Their strategic vision also includes actions aimed at **making water a true common good, accessible to all.**

Today, over one-third of the population in sub-Saharan Africa faces serious difficulties in accessing drinking water.

To address this issue, the **Veneto Region launched an experimental initiative to finance** - including through institutional financial partnerships - **small-scale interventions for the construction of wells in areas most affected by this emergency.**

This initiative is part of the call for proposals entitled **"Construction of Wells in Support of African Regions within the Framework of International Development Cooperation Initiatives"**, which will fund projects over the 2023–2025 period.

In collaboration with the Veneto Region, **Viveracqua co-financed micro-interventions aimed at constructing wells in African territories, with a total contribution of:**

**€62.000**

This funding supported **nine projects**, resulting in the construction of **52 wells**.

The initiatives involved both the regeneration of existing wells and the construction of new ones.

Through the Bando Pozzi, the following associations received regio-

nal funding: Aid4Mada, Incontro fra i Popoli, Fondazione Caritas Treviso, Progetto Dogon ODV, Asem Italia, Associazione Mwanga Onlus, Mano Amica, Amici di Angal, and Amici per l'Africa, which implemented projects in countries such as Madagascar, Cameroon, Mali (2 projects), Uganda (2 projects), Mozambique, Senegal, and the Central African Republic.





# Economic Chapter

## Initiatives that create value for the territory

- ▶ Economic value generated and distributed

## Investment and innovation in inclusive, sustainable and resilient infrastructure

- ▶ Average investments made per capita
- ▶ Impact on the territory

## The pricing method

- ▶ The rate

# Initiatives that create value for the territory

The day-to-day operations of Viveracqua's operators continually generate **growth opportunities** for the territory, local communities, institutions, businesses, and **society** as a whole.

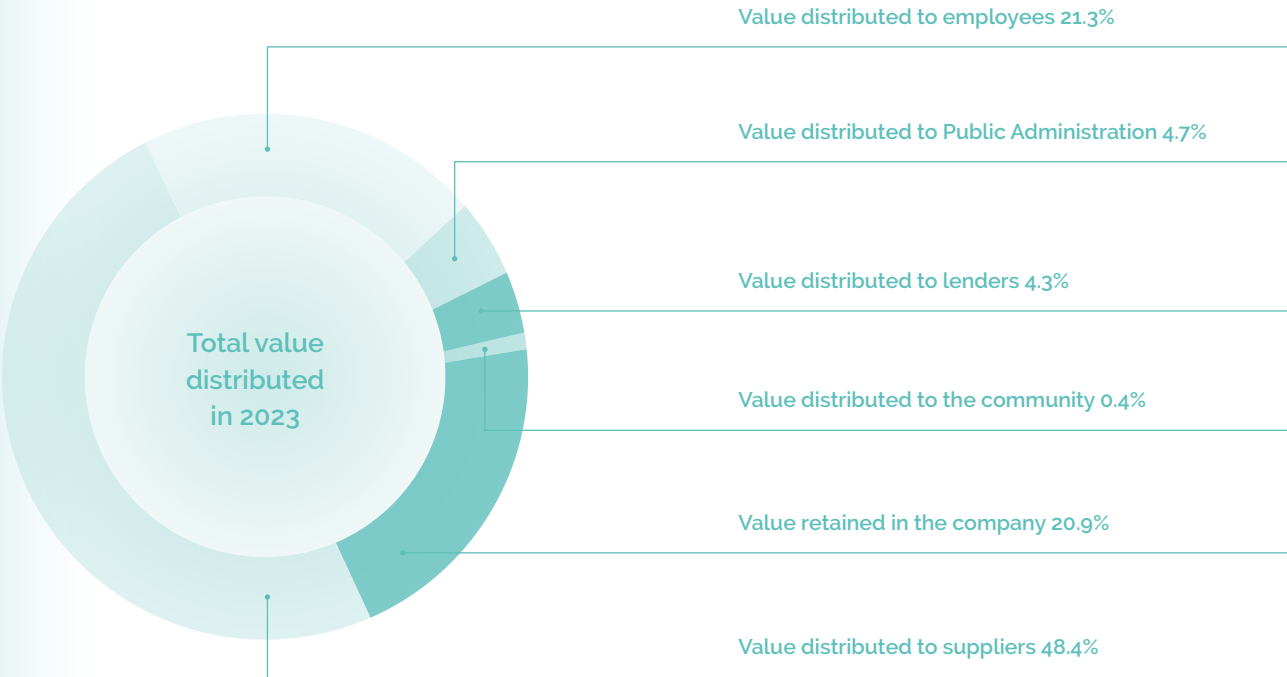
## ECONOMIC VALUE GENERATED AND DISTRIBUTED

The economic value generated, which amounts to € **933,945,581** in 2023 (948,400,218 in 2022 and **826,027,651 in 2021**), is distributed to stakeholders inside and outside the group according to the classification shown in the chart below. As can be seen from the graph, **the main stakeholders**, to whom the Viveracqua consortium has distributed its value, **are suppliers (48%) and employees (21%)**, proving that most of the value generated by the operators contributes directly and indirectly to the creation of resources for the local community.

The value retained within the companies amounts to approximately 21%, mainly reflecting the value of depreciation.

This is undoubtedly **a virtuous dynamic that**, starting with investment projects for the modernisation of facilities and infrastructure and through the enhancement of human resources, **contributes to the continuous improvement of service to citizens**, with a view to long-term sustainability.

Total value distributed to stakeholders: €920,764,764 of which:



## Central purchasing body

Since 2013, the 12 Viveracqua operators have also worked in synergy in the field of procurement. **Through the Central Purchasing Body, companies centralise their needs, tender procedures, and supplier selection processes.**

Over the years, this collaboration has led to significant savings thanks to enhanced bargaining power. The Viveracqua operators also have access to a regional supplier register, which can be used for any type of procurement procedure.

By operating collectively, the consortium members pursue key objectives, including:

**In 2023, procurement procedures worth €889 million were managed.**

- ▶ achieving **economies of scale**
- ▶ optimising general **management costs**
- ▶ improving **technical performance**
- ▶ increasing **competitive capacity**



Photo credits Giuseppe dall'Arche

# Investment and innovation in inclusive, sustainable and resilient infrastructure

Viveracqua's operators adopt **innovative and sustainable strategies** that not only improve infrastructure resilience, but **also ensure balanced and environmentally friendly urban development**.

They work to implement strategic initiatives aimed at **making the territories served better able to manage the impacts of climate change**.

To monitor the effectiveness of their actions in protecting the territory, all operators have implemented a plan with specific indicators in two main areas:

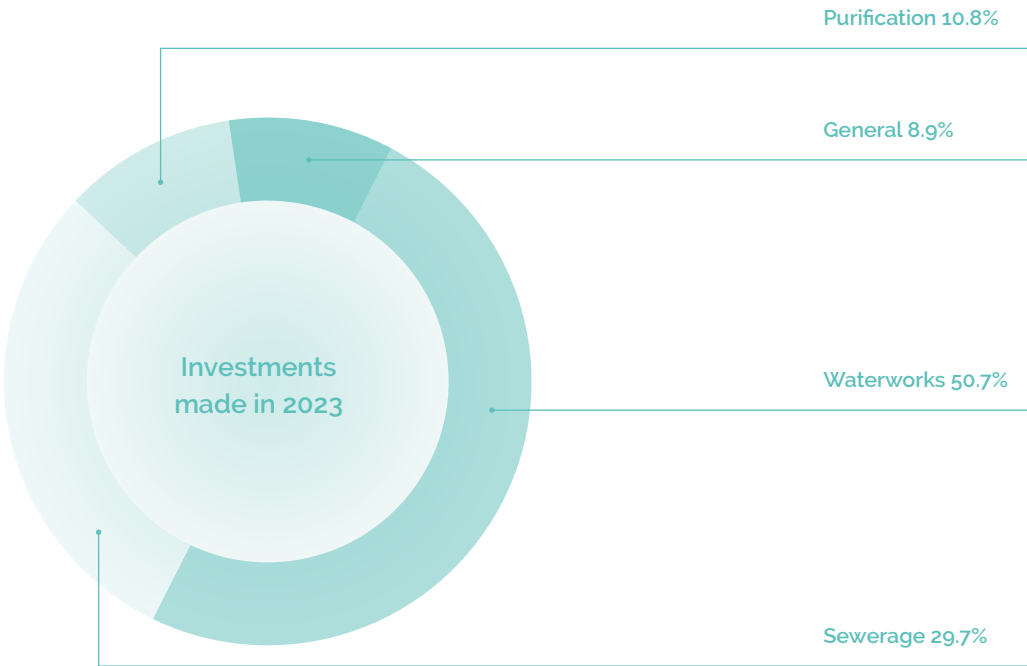
- ▶ **sewerage and wastewater treatment management:** cleaning of soakaway pits, inspection and cleaning of networks, ARERA compliance, mapping of stormwater networks, optimisation and up-

- grading of managed assets
- ▶ **sewerage planning and hydraulic invariance:** design and execution of works, and increasing drainage capacity.

In 2023, the following were carried out:

- ▶ **upgrades to water and sewer networks**, as set out in the Investment Plan
- ▶ **scheduling of routine infrastructure maintenance work**
- ▶ **modelling and calibration of the sewer network** to identify areas of criticality requiring intervention.

Total investments **in 2023** amounted to **€ 415,080,451** (compared to €327,360,345 in 2022 and €327,820,562 in 2021), divided among the areas of water supply, sewerage, wastewater treatment and general services



## AVERAGE INVESTMENTS MADE PER CAPITA

In 2023, the average per capita investment made by Viveracqua is **€87 per inhabitant** (€20 in 2022) higher than the national average (€65 per inhabitant).

## IMPACT ON THE TERRITORY

51% of the value of purchases is made within the territory of Viveracqua (Veneto Region).

	2021	2022	2023
Total purchases value	452.763.189	573.771.256	607.123.097
Purchases within the Viveracqua/Veneto Region territory 56%	254.069.804	318.715.257	311.007.915



# Hydrobond



In order to preserve the natural water cycle, adapt to climate change and ensure the continuity of the water service, it is necessary to resort to **investments** with a **significant impact on citizens and the entire territorial ecosystem**.

In 2023, the technical and regulatory procedures for the **fifth issue of hydrobonds** were initiated.

Since **2014**, with the use of this sustainable finance operation, **Viveracqua** has been supporting the **growth plans of operators** aiming to improve the efficiency of water networks in the Veneto region and to protect the environment and natural resources.

**Hydrobonds**, financial instruments with ESG-impact purposes, **allow local utilities to overcome difficulties in accessing financing** and directly access the capital market by attracting the interest of institutional investors such as the EIB (European Investment Bank) and CDP (Cassa Depositi e Prestiti).

**475** million euros  
2014 to 2020

**149** million euros  
issued in 2022

**1,588** million euros  
invested in Veneto



# The pricing method

Among its tasks, **ARERA** also has the task of **defining the cost components and the tariff method** for determining the tariff of the integrated water service, as well as of approving the tariffs proposed by the ambient government bodies or by the other competent bodies identified by the regional regulations.

From 2011 to date, the following regulatory periods of 4 years each have followed.



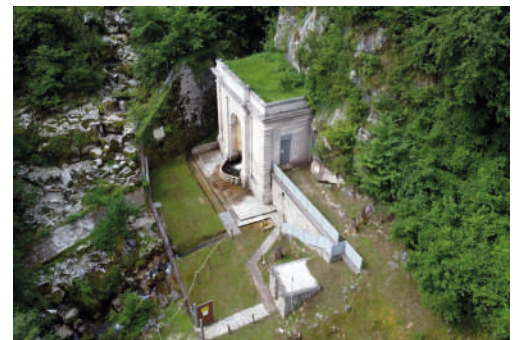
In the first regulatory period (2012-2015), the **Tariff Method 1 (MTI)** was introduced, with which the Authority urged the water system to rebalance the difference between costs and tariffs applied with a view to full cost recovery and to incentivise investments to fill the infrastructural gaps found so far. In the second regulatory period (2016- 2019) with **Tariff Method 2 (MTI-2)** and **its subsequent update (MTI-2-agg)**, the Technical Quality Regulation and the related macro-in-

dicators described in the previous chapter were introduced.

The two-year period covered by the data analysis in this report falls within the last year of the third regulatory period (2020-2023), **Tariff Method 3 (MTI-3)**, approved by Resolution 582/2019/R/idr and updated by Resolution 253/2020/R/idr to address the health emergency from Covid-19.

Among the main innovations that had been introduced were the following:

- ▶ the introduction of the **input-based regulatory system** based on the mechanism of efficiency gains in operating costs endogenous (i.e. those on which the operator has decision-making power), in this sense the operators are required to return in tariffs a share of any efficiency margins achieved in endogenous costs
- ▶ the introduction of the **output-based regulation system** based on rewards and penalties, which aims to evaluate the performance of operators on the basis of the achievement of the objectives defined in the Technical Quality Regulations (RQTI) and Contractual Quality Regulations (RQSII), measured by the respective indicators
- ▶ the definition of a **tariff scheme** according to which the classification of costs no longer takes place by evaluating only the per capita operating costs as in previous periods, but by evaluating the Constraint to Revenues of the Manager per capita, i.e. all operating and capital costs
- ▶ a new **electricity cost bonus** mechanism that provides for the retention by the operator of a share of the savings on the supply of electricity resulting from energy efficiency measures
- ▶ recognition of the **incremental cost** incurred by the operator for the transport and disposal of **sewage sludge**, taking into account the achievement of the quality objectives set out in the RQTI and the programming of dedicated interventions for the recovery of this waste
- ▶ greater recognition in favour of the operator on the margins of other water activities linked to energy and environmental **sustainability objectives**.



This tariff method also made explicit a series of measures aimed at **enhancing interventions for sustainability and resilience** in the face of climate change, identifying the following areas for action: **energy efficiency, reducing the use of plastic** through the promotion of drinking water consumption, **recovery of energy and raw materials** as well as the **diffusion of renewable energies** and **reuse of treated water**.

## THE RATE

The integrated water service rate in Italy is made up of **several components** and is developed in bands, so as to take into account all aspects: **I) management of the resource, II) environmental, III) management of the service, IV) equity in the use of the resource**, also including the needs of the most disadvantaged social strata and considering the need aspect of the good.

The components are:

- ▶ **Fixed fee** (€/year), is independent of actual consumption and must be paid even by those who consume nothing. This component serves **to cover the operating costs of networks and facilities** (e.g. maintenance costs of the water network). Even those who do not consume water, but are connected to the network, enjoy the benefit of having a functioning network.
  - ▶ **Variable quota** (€/mc) **of aqueduct**, calculated on **the basis of consumption** and divided into consumption bands that progressively penalise higher consumption. The progressivity of the variable quota by bands takes into account, on the one hand, the fact that water is a necessary good and therefore meets social equity requirements, and on the other hand, that it is a precious and potentially exhaustible resource that must be used sparingly.
  - ▶ **Variable quota** (€/mc) for sewerage **and purification**, calculated on the **basis of consumption** and spread over a single band for both services (the variable quota may however differ between sewerage and purification). This component takes into account the **costs necessary to operate the sewerage networks and treatment plants** and to restore the quality of the purified water returned to the environment.
- Finally, there are **equalisation charges**, introduced as of 2013 and to be added to the water, purification and sewerage tariffs, as described below:
- ▶ **Ul1 component**: earmarked to cover tariff concessions granted to **the populations affected by the earthquakes** (equal to 0.4 euros per cubic metre)
  - ▶ **Ul2 component**: **earmarked for promoting the contractual quality** of water, sewerage, and purification services (equal to 0.9 euros per cubic metre)
  - ▶ **Ul3 component**: earmarked to cover the costs of the **water bonus**
  - ▶ **Ul4 component**: earmarked to cover the operating costs of the **Guarantee Fund for water works**.
  - ▶ **Administrative charges** from municipal and provincial surcharges.

The costs covered by the tariff serve to cover all the aspects described above. In particular:

- ▶ **Costs** of the resource related to **supply and drinking water activities**, for the construction of new collection works or the upgrading of drinking water plants (including costs of leakage research, concession or derivation fees)
- ▶ **Environmental costs** related to **measures to restore the resource**, reduce or contain the damage produced, related to the purification activity
- ▶ **Operating costs**, which include fixed asset values and operating costs such as electricity, personnel, raw materials, sewage sludge disposal, laboratory analysis of drinking water, wastewater and purified water, and user relations management.

The average annual expenditure of a three-person family **with a consumption of 150 cubic metres per year in the Viveracqua area** is equal to: The table compares the average of Viveracqua with the average of the North East and the national average. 2023 data.

€342

(weighted figure for the resident population served by each operator). This corresponds to €2.28 per cubic metre.

	euros per cubic metre
<b>Viveracqua basis</b> (average of the managers weighted on residents, including VAT, equalisation and additional charges)	2.28 euro per cm
<b>North-East</b> (Arera data, including VAT only)	2.26 euro per cm
<b>In Italy</b> (Arera data, including VAT only)	2.30 euro per cm

Viveracqua and Arera data source (population-weighted average expenditure)

# Environmental Chapter

## The Territory

- ▶ Strategic environmental objectives
- ▶ Responsible water resource management
- ▶ Water quality controls

## Energy transition and climate change mitigation

- ▶ Energy

## Technical quality of the Integrated Water Service

- ▶ M0 Macro-indicator
- ▶ M1 Macro-indicator
- ▶ M2 Macro-indicator
- ▶ M3 Macro-indicator
- ▶ M4 Macro-indicator
- ▶ M5 Macro-indicator
- ▶ M6 Macro-indicator

# The Territory

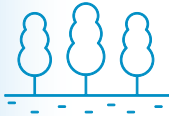
The territory over which Viveracqua's 12 member operators operate covers **the Veneto region and a part of Friuli-Venezia Giulia**, presenting a wide variety of characteristics, both in terms of environment and cultural landscape. 56% of the territory consists of flat areas, 29% of mountainous areas and 15% of hilly landscapes.

In addition to bordering the Venetian Lagoon and the Adriatic Sea, the area is also home to 5 Regional Parks, 1 National Park, 6 Regional Nature Reserves, 14 State Nature Reserves, 2 Wetlands of International Impor-

tance, 9 Regional State Forests and several Regional Parks and Reserves of Local and Community Interest.

It is therefore the responsibility of the member operators to **safeguard this valuable resource through balanced water withdrawals, state-of-the-art wastewater treatment systems, efficient plants and networks, and ongoing maintenance**. In this regard, the following chapters and related fact sheets will be dedicated to describing the main features of each operator.

## The territory served from the Dolomites to the sea



**56%** plains



**15%** hills



**29%** mountain areas



**6** Parks (5 regional and 1 national)



**20** nature reserves (14 state and 6 regional)

## STRATEGIC ENVIRONMENTAL OBJECTIVES



### 6.3

**By 2030, improve water quality** by eliminating dumping, reducing pollution and the release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally.

#### Objective 6: clean water and sanitation

Ensure the availability and sustainable management of water and sanitation for all.

med at ensuring the right to safe access to a vital resource such as water. Through processes of **purification and wastewater treatment**, as well as the **proper disposal of sludge**, waste and risks linked to improper resource management are minimised. This enables the closure of the urban water cycle within the environment, returning water to nature with characteristics that have no negative impact.

This goal is directly reflected in the activities carried out by all operators and by Viveracqua itself, which are ai-



### 14.1

**By 2025, prevent and significantly reduce marine pollution of all kinds**, in particular from land-based activities, including marine debris and nutrient pollution.

#### Objective 14: life below water

Conserve and sustainably use the oceans, seas and marine resources.

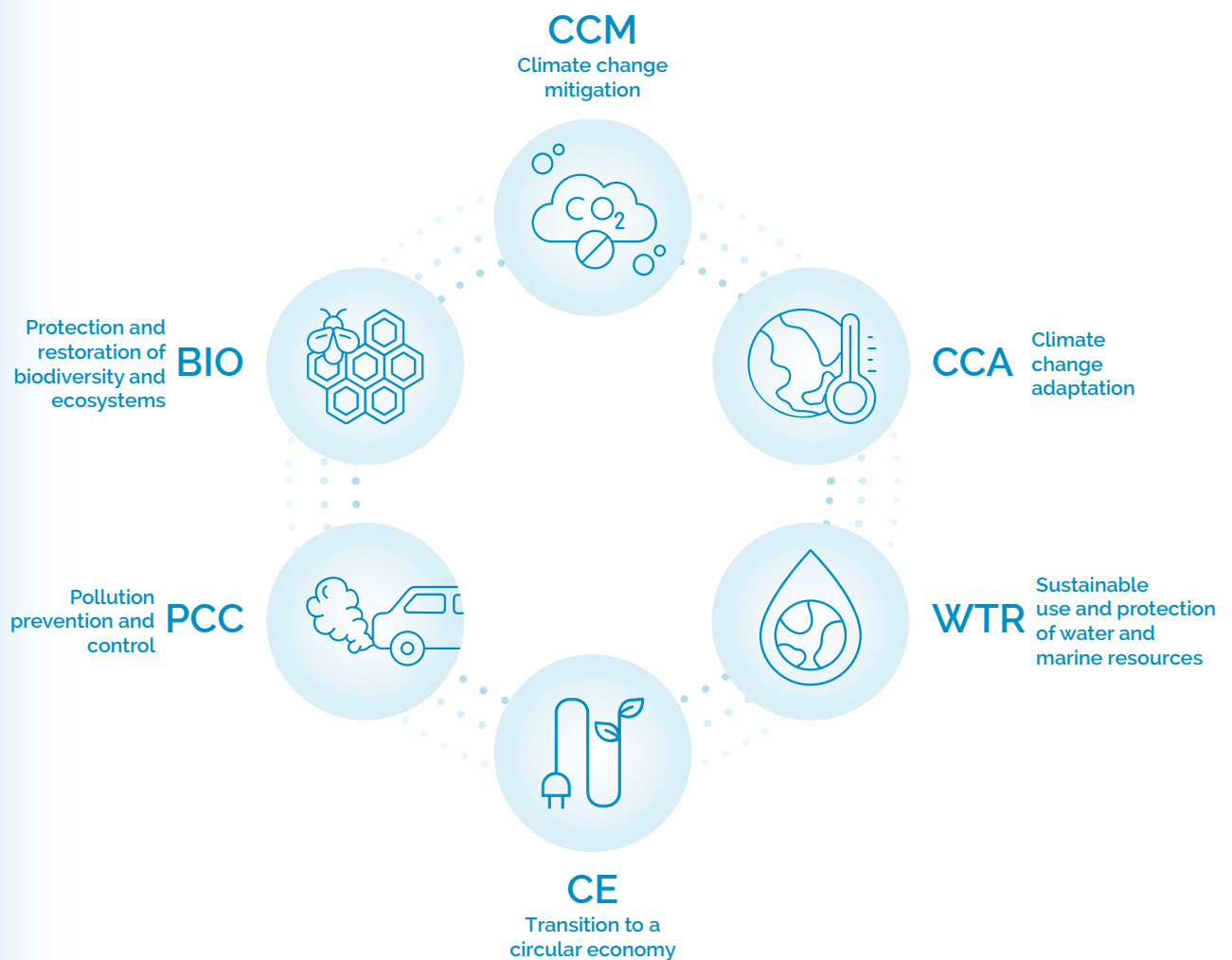
**water treatment activities** play an extremely important role across the vast territory covered by the 580 municipalities served by Viveracqua member companies. These activities make a substantial contribution to achieving Goal 14: Life below water.

In this context, the infrastructural connections between mountain and coastal areas, and the material exchanges between groundwater bodies, rivers, the Venetian Lagoon and the Adriatic Sea, create pressure on the quality of water resources that must be carefully managed. From the perspective of environmental conservation and protection,



## Six strategic environmental objectives

An additional topic connected to this effort is the EU Taxonomy for Sustainable Activities, i.e. the application of Regulation (EU) 2020/852, which promotes financing for investments aligned with the following environmental objectives:



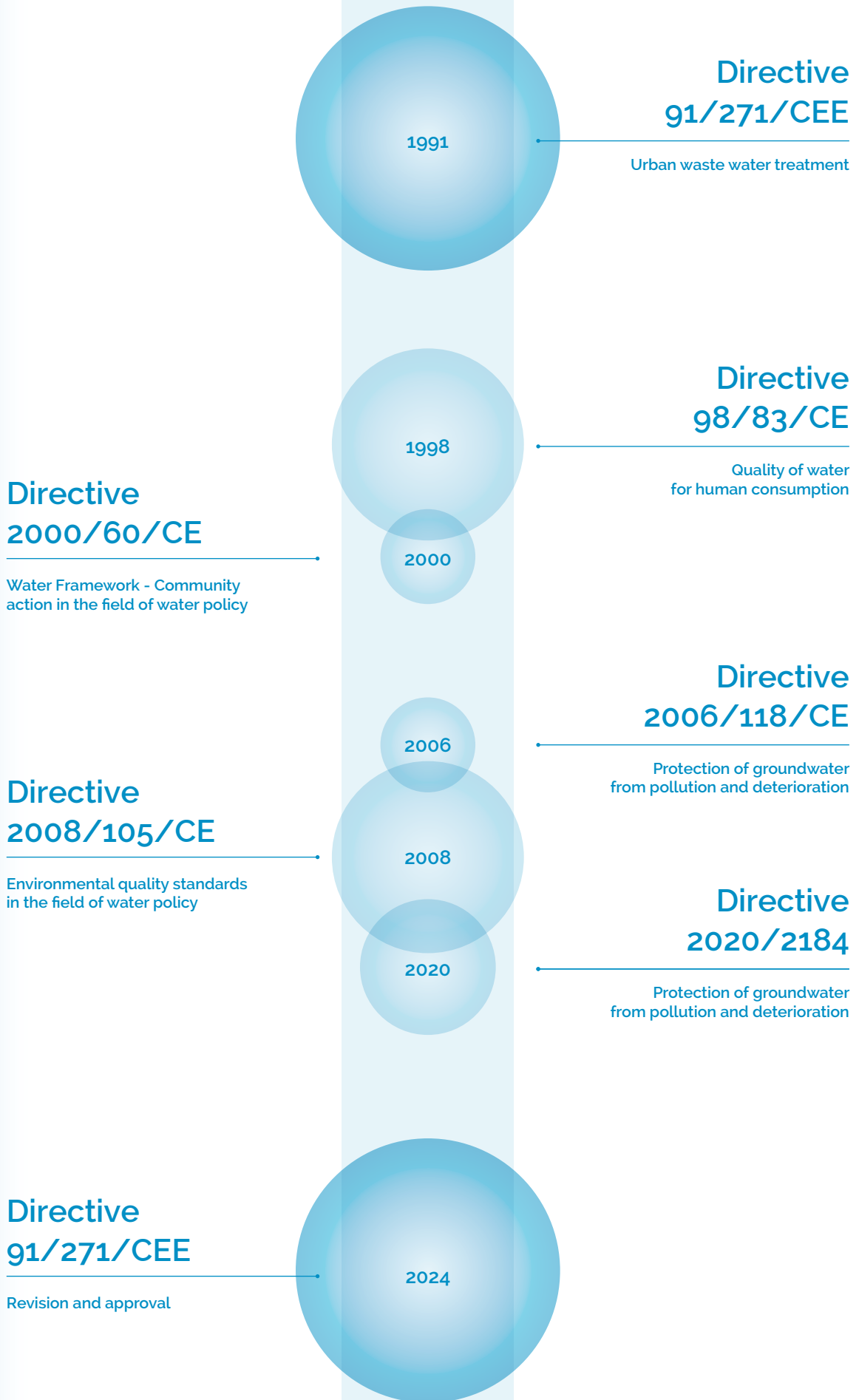
In this regard, considering the importance of directing investments in the integrated water service towards projects aimed at achieving these objectives, Viveracqua has launched a project to assess the eligibility of its member operators under the EU taxonomy framework.

## European Directives on Integrated Water Service

Water is an essential resource, vital for human survival. It also underpins economic and social prosperity, and plays a central role in natural ecosystems and climate regulation.

In this regard, Parliament and the European Council have defined a general framework for action in the field of water protection (**Directive 2000/60/EC**), wastewater collection and purification (**Directive 91/271/EEC**), and minimum quality of water intended for human consumption (**Directive 98/83/EC**). The **Water Framework Directive 2000/60/EC**, sets out ambitious goals for the prevention of environmental degradation (both quantitative and qualitative), the improvement of water quality, and the sustainable use of available water resources through long-term protection - encouraging public participation in decision-making. In 2020, more targeted directives are integrated into the Water Framework Directive, including:

- ▶ The **Groundwater Directive (2006/118/EC)** defines quality standards and monitoring measures to prevent groundwater pollution
- ▶ The **Revised Drinking Water Directive (EU) 2020/2184**, defines quality standards for water intended for human consumption and requires its continuous monitoring, in order to keep consumers regularly informed
- ▶ The **Environmental Quality Standards Directive (2008/105/EC)**, establishes concentration limits for certain priority substances that harm the marine environment
- ▶ The Urban Waste Water **Treatment Directive (91/271/EEC)**, concerning the treatment of waste water (UWWTD, *Urban Waste Water Treatment Directive*), on the collection, treatment, and discharge of urban waste water. This directive was reviewed and approved by the EU Parliament in March 2024 but to enter into force it must also be formally approved by the Council. This goes in the direction of *sunshine regulation*: a regulation tool applied by ARERA since 2015 based on the "naming and shaming" principle, the activation of a competitive mechanism among companies in the sector focused on the periodic publication of economic and technical data whose ultimate goal is to improve the transparency and quality of the service offered.



## RESPONSIBLE WATER RESOURCE MANAGEMENT

Ensuring access to safe, high-quality water, reducing waste, and improving service efficiency are core objectives for the companies united under Viveracqua: **12 integrated water service operators based in the Veneto region** and parts of Friuli Venezia Giulia. These companies are responsible for the management of public

services including water **abstraction, conveyance, treatment, and distribution for civil and industrial use, as well as sewerage and wastewater treatment.**

Below are some 2023 data on the main infrastructures of the members of Viveracqua:

	2023 data
Number of <b>water supply sources</b> for human consumption	2.179
Total number of <b>combined sewer overflows</b> managed	3.135
Total length of <b>water transmission and distribution pipelines</b> (excluding service connections)	47.092 km
Total length of <b>the main sewer network</b> (black and combined, excluding property connections)	21.602 km

**To meet the needs of the users, the Viveracqua members took 648,574,465 m<sup>3</sup> of water** from the territory, of which about 64% came from the aquifer, 26% from the springs and the remaining 10% The water taken is subjected to the appropriate treatments and then distributed to the users.

The collection of waste water through the sewage network and the reduction of its polluting load through purification are **fundamental activities to reduce the environmental impact** on the territory and protect the water resource.

# 359,473,377 m<sup>3</sup>

The total amount of **drinking water supplied to users in 2023** (353.343.649 in 2022).

# 441,455,396 m<sup>3</sup>

**of wastewater were purified** during 2023.

An important component of the purification activity is the management of sewage sludge. In 2023, 49,433 tonnes of sludge (dry weight) were produced. The contribution percentages are:

Sludge fate percentages	2022	2023
Total amount of sewage sludge leaving the plants (dry substance)	52,052	49,433
of which to landfill	27%	22%
of which for direct spreading in agriculture	2%	1%
of which to compost production	28%	27%
of which to waste-to-energy plant	6%	8%
of which mono-incinerated	0%	0%
of which for other purposes	37%	41%



## WATER QUALITY CONTROLS

Drinking water, as well as purified water, is constantly controlled by the internal laboratories of the managers and by the responsible bodies (Ulss and Arpav).

### Drinking water

**Over 16,000 internal controls** (downstream of any drinking water treatment plants) for 515,401 parameters analysed in 2023.

### Purified water

**Over 24,000 samples carried out on the wastewater** of the managers for 215,689 parameters analysed in 2023.

# ViveracquaLab



**ViveracquaLab is a network project** that combines laboratories and technicians and makes the skills and technologies available to different companies a common factor, **to analyse the quality of drinking water and wastewater, guarantee the protection of water resources, prevent the risks of environmental contamination, and ensure the health of citizens.**



The controls are constantly in step with the continuous regulatory evolutions that affect the entire supply chain, from the picking point to the tap, from the drainage to the outlet of the purifiers before the return in kind, thanks to the highly specialised skills of the staff and the technological equipment already present in the network.

In 2023, **more than 100,000 samples of various matrices** (water for human consumption and waste water) were analysed in ViveracquaLab for almost

**2**

**million parameters** in the year.

ViveracquaLab is also an **interlocutor of the Region for issues concerning the health aspects of the service**, with which collaboration continued in 2023 in the implementation of monitoring plans (SARI project, waste water-based epidemiology for SARS-CoV-2, and stand-by radioactivity detection network in the event of an accidental release of radionuclides). In addition, ViveracquaLab is engaged in the PHARMA project coordinated by CNR Roma and Utilitalia, for the

research of pharmaceutical residues and PFAS in wastewater from purifiers carried out in two laboratories of the network (project in progress).

The project is particularly relevant in view of the adoption of the new wastewater directive and more generally of the antibiotic resistance (AMR) issue on which the scientific community is placing extreme interest. The Network has complied with Directive 2020/2184/EU, transposed by Legislative Decree 18/2023, ensuring accredited analyses carried out in compliance with the spirit and indications of the new directive.

Thanks to the synergy created by the ViveracquaLab project, operators obtain **scale optimizations**, share the **dissemination of technological innovation, develop common methodologies for the search** for emerging contaminants.

**Founded in 2018**, ViveracquaLab currently has **five laboratories** (four of which are accredited pursuant to UNI EN ISO 17025) **distributed throughout the regional territory**.

## COLLABORATIVE PROJECTS AND ACTIVITIES

### Pfas

Change the sources of supply in the area contaminated by PFAS (perfluoroalkyl substances), **to provide all citizens with clean water.**

The water managers of Acquevenete, Acque Veronesi, Acque del Chiampo and Viacqua are working on the construction of works necessary for the definitive resolution of the problem:

**96 million**

**euros invested** in works already carried out and started.

An important commitment on the part of the operators, taken as soon as the pollution from PFAS emerged: many measures were promptly implemented, **starting with the installation of activated carbon filters** on

**the affected aqueducts to remove pollutants** and guarantee safe water to users. The ultimate goal is to guarantee a **substitute water supply to the territories most affected by the contamination**, creating interconnections between territorial aqueduct systems.

**154 million euros** of work to bring clean water

**68 million euros** of work carried out to date

## COLLABORATIVE PROJECTS AND ACTIVITIES

### Vaia

#### **Restoration of aqueduct springs.**

The Vaia storm of 2018 caused extensive damage, including numerous aqueduct installations in the province of Belluno, managed by Gestione Servizi Pubblici Spa. The extraordinary maintenance works on the affected springs received dedicated funding, followed by a formal measure through which the Delegated Commissioner for the Veneto Region appointed Viveracqua as the implementing body for **the project titled: "Completion of the restoration works initiated in 2020 on aqueduct springs damaged by the Vaia flood."** The project is supported by a total allocation of **€5 million.**

The intervention involves 95 spring concessions, corresponding to 212 water intake points. The location and prioritisation of these interventions formed the preparatory phase, which was carried out during 2023.



# Energy transition and climate change mitigation

## ENERGY

The commitment to reducing energy consumption and climate-altering emissions is part of the broader effort by publicly owned operators in the Veneto region to address the climate crisis.

Energy consumption is **one of the most impactful aspects within the management of the integrated water service, mainly related to the electricity used**. The water supply sector is especially energy-intensive due to the high power demands of the pumps used for water abstraction.

The operators gathered in Viveracqua contribute to the reduction of environmental impacts through the development of **plants powered** by renewable sources, with a particular focus on **photovoltaic** systems. These are installed on existing buildings, within plant grounds, or on external

sites made available by third parties. Key strategies to mitigate environmental impacts:

- ▶ **ground-mounted reversible plants**, which allow land to be restored to its original condition at the end of the plant's life cycle
- ▶ **Responsible decommissioning, managed** through dedicated recovery consortia
- ▶ **energy efficiency** measures aimed at reducing consumption, especially in water treatment processes
- ▶ **implementation of an energy efficiency plan** and increased reliance on renewable energy sources.

The following section presents aggregated data on electricity consumption

	kWh	% of total
Total electrical energy consumed (including consumption of premises and general overturning)	494.738.483	100%
Energy consumed from renewable sources	102.897.496	19%
Self-produced energy	21.495.006	4%



# 494,738,483 kWh of electricity

consumed overall in 2023 by the shareholders of Viveracqua, net of self-produced energy, divided by the phases of the service:



**56%** for the aqueduct  
of which 6% for Other water activities

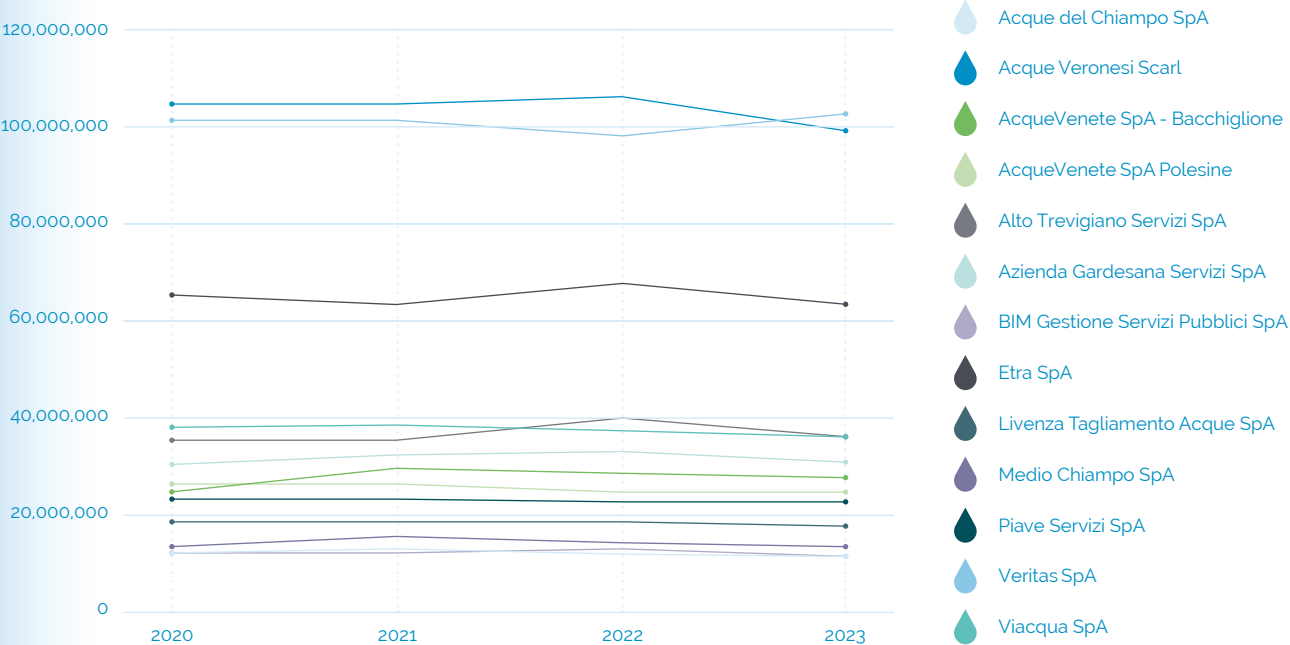


**9%** for sewerage

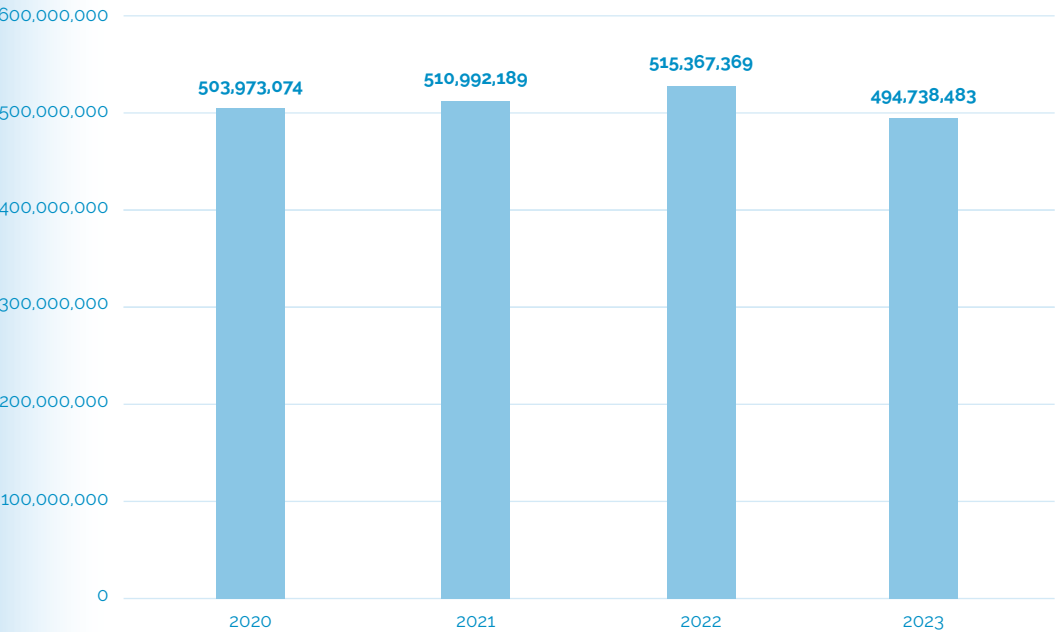


**35%** for purification

### Electricity consumption in kWh per operator (from 2020 to 2023)



### Electricity consumption in kWh of Viveracqua (from 2020 to 2023)



# National Plan for Infrastructure and Water Sector Safety (PNIISSI)

The managers gathered in Viveracqua worked together to define a plan of extraordinary interventions, as provided for by Interministerial Decree no. 350 of 25.10.2022 concerning the **updating of the National Plan for Infrastructure and Water Sector Safety (PNIISSI)**.

The interventions, proposed by the Basin Councils through the District Basin Authority of the Eastern Alps, were included by the managers of the integrated water service of the Veneto **in a unitary Venetian context**, of an overextended nature, considering the existence of the **Structural Model of the Aqueducts of the Veneto (MoSAV)** and its part in operation, the **Aqueduct System of the Central Veneto (SAVeC)**.

The initiative promoted by Viveracqua involved all water service operators in Veneto, not only publicly owned ones, and was based on the coordinated and integrated planning of the various proposals

in the future, with particular regard to the effects of **prolonged summer droughts** that have led to deep penetrations of salinity at the mouths of watercourses associated with the impossibility of withdrawing water from existing aqueduct wells and in general limitations on derivations from existing water sources

- ▶ **Expansion of interconnections** between water systems by exploiting the potential offered by the MoSAV, which identifies the outlines of the main aqueduct infrastructures necessary **to ensure the correct water supply** in the entire regional territory and to which the developments of the aqueduct works conform.

These interventions aim to extend and implement the MoSAV, and one of their primary goals is to achieve interconnection between existing aqueduct systems across the various ATO (Optimal Territorial Areas) within the regional framework. The implementation of each intervention will therefore **contribute to increasing the safety, reliability and resilience of the regional aqueduct system**.

over **740**

**million euros invested overall**, for a total of fifty-four interventions

structured around the main current challenges for water safety in the Veneto Region:

- ▶ **Development of infrastructure to address the presence of PFAS (per- and polyfluoroalkyl substances) in groundwater**
- ▶ **Adaptation of infrastructures to the climate changes** that have occurred and are foreseeable



# Technical quality of the Integrated Water Service

The transformation introduced by the European Taxonomy will support green finance by generating new opportunities for water utilities and guiding industrial planning and investments. In order to guide these investments towards the resolution of individual problems, the Authority introduced, already at the end of 2017, with resolution 917/2017/R/IDR, the **Regulation on the technical quality of the integrated water service (RQTI)**.

The resolution defines the minimum levels of service and the quality objectives to be achieved, adopting an incentive mechanism of premiums and penalties linked to **6 macro-indicators that describe the quality status of aqueduct, sewerage, and purification services** and that will allow promoting targeted investments. Based on these indicators, water service operators are placed into performance classes (from A to E), each associated with specific performance goals — or, in the case of the highest class (A), a requirement to maintain existing standards.

Resolution 637/2023/R/idr introduces a number of changes and additions to the previous framework. The most notable changes include a revised definition of objectives for each of the six macro-indicators and a classification of each indicator into five performance tiers, to improve comparability and consistency across indicators.

The most significant novelty is the introduction of a **new macro-indicator Mo**, designed to assess the resilience of water systems and to place greater emphasis on interventions aimed at **mitigating the impacts of climate change**.

Macro-indicator	Service	Description
M0	Water supply	Water resilience
M1	Aqueduct service	Network losses
M2	Aqueduct service	Total average duration of interruptions
M3	Aqueduct service	Quality of water supplied
M4	Sewer system	Adequacy of the sewer system
M5	Wastewater treatment	Disposal of sludge to landfill
M6	Wastewater treatment	Quality of purified water



## M0 MACRO-INDICATOR

### Water resilience

This macro-indicator was introduced to monitor the expected effectiveness of the overall water supply system in relation to future demand projections.

It is composed of two sub-indicators:

- ▶ **M0a: water resilience**, defined as "The ratio between total water consumption (including network losses) and the available water resources within the operator's service area."
- ▶ **M0b: supra-regional water resilience**, defined as "The ratio between total consumption for all

uses (including network losses) and the overall water availability in the considered region."

For M0b, from 2024 onwards, operators are required to provide an estimated value. A trial phase of monitoring and data collection is planned for 2025, with incentive mechanisms to be introduced starting 2026.



## M1 MACRO-INDICATOR

### Network losses

The governing body of the area, in order to define the class of belonging and the improvement/maintenance objective for the macro-indicator **M1** relating to the **conservation of water resources in the aqueduct service**, determines the following indicators:

- ▶ **M1a: linear water losses**, defined as "The ratio between total water losses and the total length of the water supply network (including service connections) in the reference year."

- ▶ **M0b: supra-regional water resilience**, defined as "The ratio between total consumption for all uses (including network losses) and the overall water availability in the considered region."



## M2 MACRO-INDICATOR

### Total average duration of interruptions

This macro-indicator relates to continuity of the water supply service. It is defined as: "The sum of the durations of both planned and unplanned annual interruptions, occurring within a given year, multiplied by the num-

ber of end users affected by each interruption, and divided by the total number of end users served by the operator."



## M3 MACRO-INDICATOR

### Quality of supplied water

The governing body of the area, in order to define the class of belonging and **the improvement/maintenance objective** that the manager is required to achieve **for the macro-indicator M3 relating to the quality of the water provided**, determines the following indicators:

- ▶ **M3a: incidence of non-potability ordinances**, defined as "The number of users affected by restrictions or suspensions of water use for drinking purposes, multiplied by the number of days such restrictions were in place, and divided by the total number of users connected to the water supply service."
- ▶ **M3b: rate of non-compliant samples from internal controls**, defined as "The number of water samples analysed by the operator (under internal control on the distribution network, downstream of any treatment plants) found to be non-compliant with one or more parameter values as defined by Legislative Decree 31/2001 and subsequent amend-

ments, or — from the date of entry into force of Legislative Decree 18/2023 — exceeding the limits set out in Annex I of the same decree, divided by the total number of samples analysed."

- ▶ **M3c: rate of non-compliant parameters from internal controls**, defined as "The number of parameter values that exceeded the limits set in Annex I, Parts A, B and/or C of Legislative Decree 31/2001 and, from the date of entry into force of Legislative Decree 18/2023, the exceeding of the limits laid down in Annex I, Part A and/or B and/or C and/or D of the same decree, in the water samples analysed during the year by the operator as part of the internal checks carried out on the distribution network downstream of any drinking water treatment plants, in relation to the total number of parameters analysed during the year by the operator as part of those internal checks."



## M4 MACRO-INDICATOR

### Adequacy of the sewer system

In order to define the macro-indicator M4 related to the adequacy of the sewerage system, each governing body of the scope determines the following indicators:

► **M4a: frequency of flooding and/or sewage spills**, defined as "The number of flooding events caused by combined or stormwater sewers (where included in the Integrated Water Service for tariff purposes as per Article 1.1 of Annex A to Resolution 664/2015/R/IDR - MTI-2 -, and blackwater sewer overflows, per 100 km of total sewer network managed."

► **M4b: regulatory compliance of the combined sewer overflows (CSO)**, defined as "The proportion of CSOs (or stormwater outfalls) that either:

1. are not proportioned to activate only at flow rates exceeding the diluted blackwater flow threshold to be treated at the wastewater treatment

plant, as established by relevant Water Protection Plans or regional regulations; or

2. are not equipped with devices required to retain suspended solids, where mandated by the current provisions contained in the reference Water Protection Plans or by specific regional regulations."

► **M4c: monitoring of combined sewer overflows (CSO)**, defined as "The proportion of CSOs that were not inspected by the operator during the year, or are not equipped with automatic activation detection systems."





## M5 MACRO-INDICATOR

### Disposal of sludge to landfill

The M5 macro-indicator has been introduced **to monitor the disposal in landfill of sludge resulting from the wastewater purification process** and is associated with the objective of minimizing the environmental impact associated with waste management. M5 is defined as "The percentage

ratio between the amount of sewage sludge (measured in dry matter) disposed of in landfill and the total amount of sewage sludge (dry matter) produced at all wastewater treatment plants within the operator's jurisdiction."



## M6 MACRO-INDICATOR

### Quality of purified water

The M6 macro-indicator has been introduced **to monitor the quality of purified water** and is associated with the objective of **minimising the environmental impact linked to the purified wastewater** leaving the plants. M6 is defined as "The percentage of samples exceeding one or more emission limit values for pollutant concentrations listed in Tables 1 and 2 of Annex 5, Part III, of Legislative Decree No. 152/2006 (as amended),

out of the total number of samples collected by the operator over the year. The analysis covers wastewater discharged from all treatment plants serving more than 2,000 PE or more than 10,000 PE if discharging into coastal waters, located within the operator's area as of 31 December."

### LEGEND

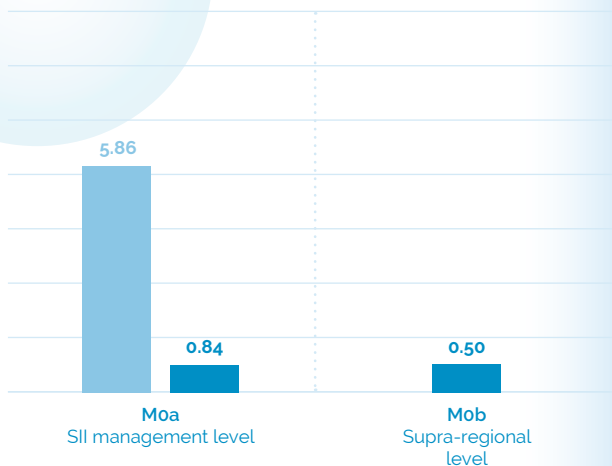
- Viveracqua Scarl 2022
- Viveracqua Scarl 2023
- North-East Italy 2023



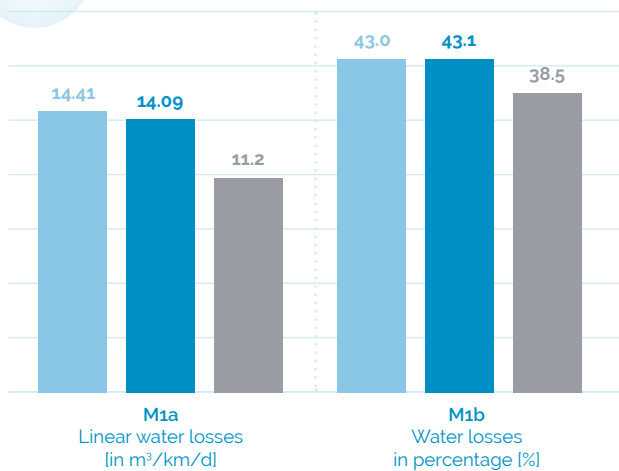
### TECHNICAL QUALITY CLASSES:

- Viveracqua Scarl year 2023

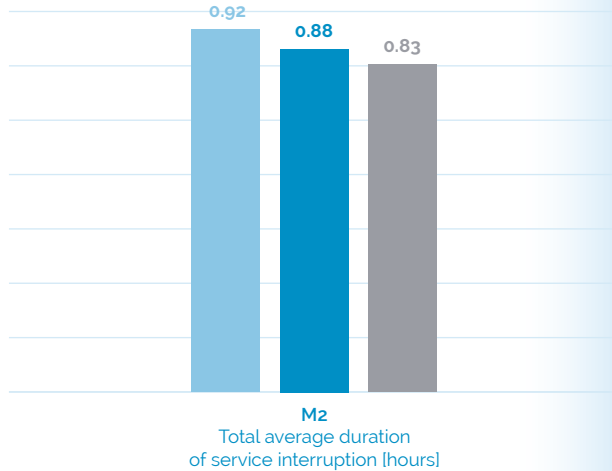
## Mo Water resilience



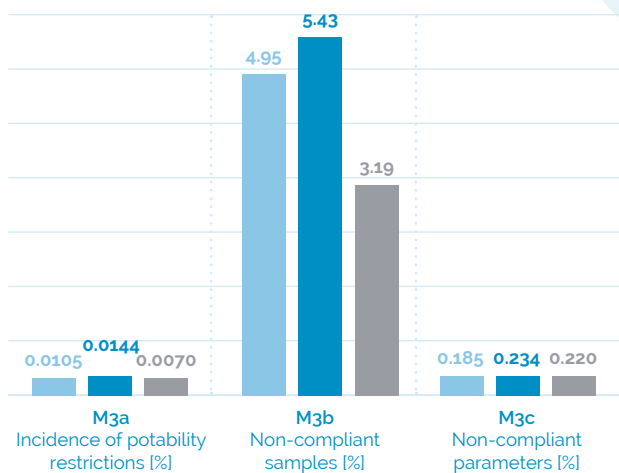
## M1 Water losses



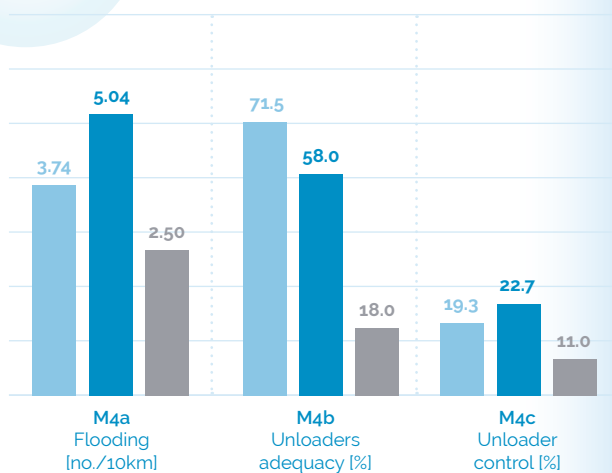
## M2 Continuity of service



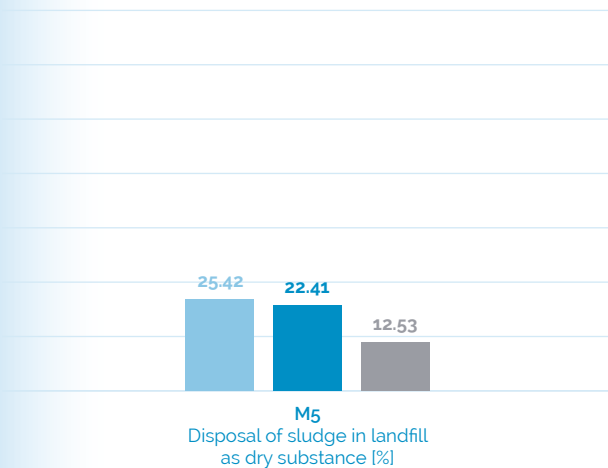
## M3 Quality of water supplied



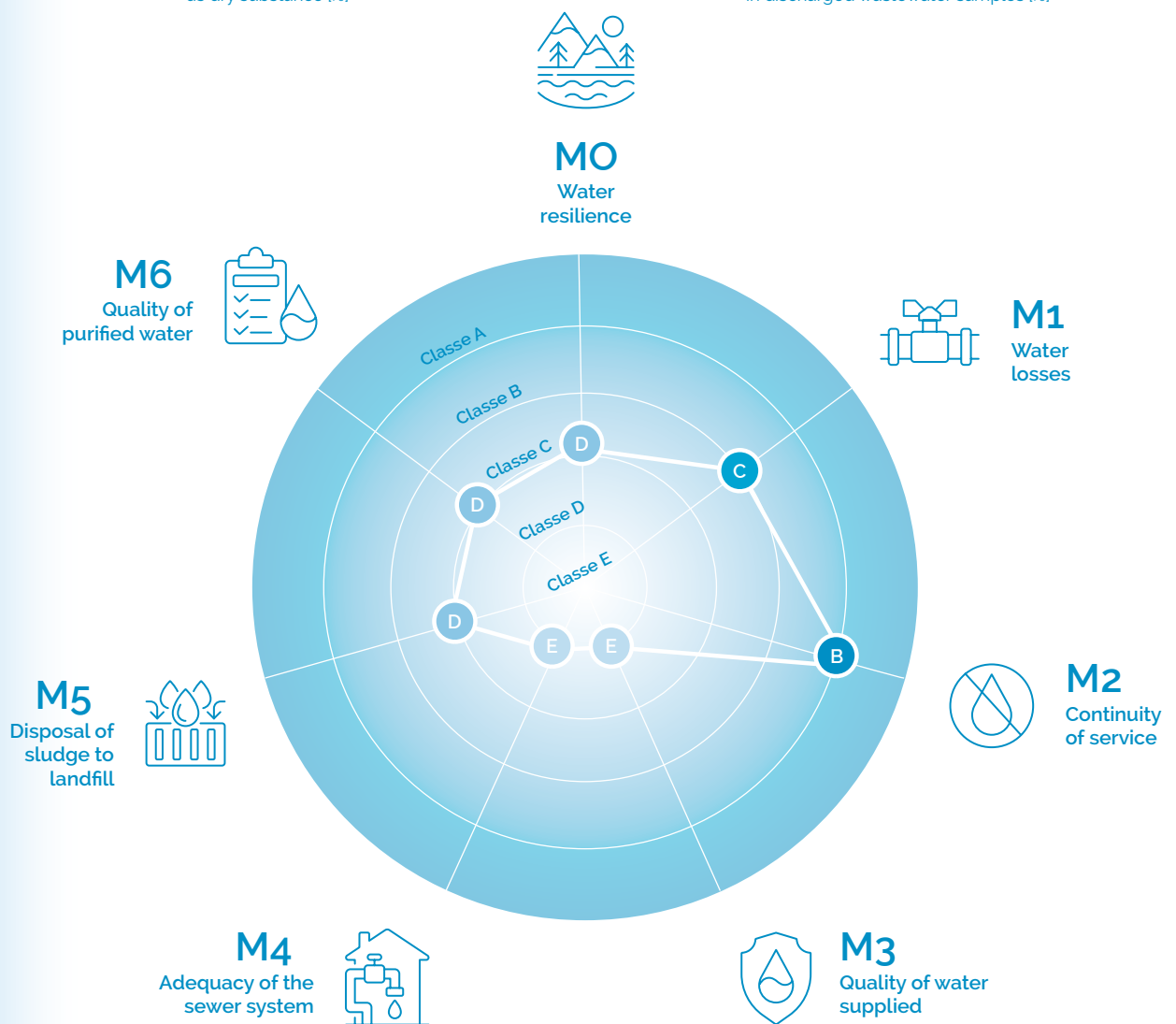
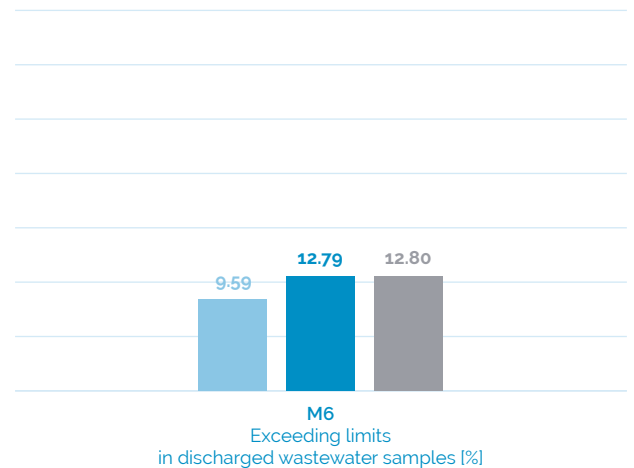
## M4 Adequacy of the sewer system



## M5 Disposal of sludge to landfill



## M6 Quality of purified water



The greatest investment efforts have been focused on water losses, the quality of the water delivered and the adequacy of the existing sewage system. The synergies created by the consortium company have made it possible to collect considerable results, making even more evident the importance of a structure capable of satisfying and streamlining needs common to all shareholders, as well as seeking and obtaining shared financing methods for the implementation of the investments provided for in the Scope Plans drawn up by the individual Basin Councils.

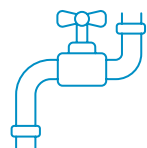
## Technical quality of the Integrated Water Service in 2023

### Electricity consumption



**494,738,483 kWh**

Annual electricity consumption net of self-produced energy equivalent to the annual consumption of a city with approximately **99,000 inhabitants**



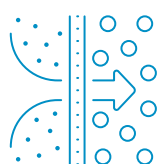
**43.40 kWh/inhabitant**

Electricity consumption per capita for **water supply service** (including non-resident population)



**9.04 kWh/inhabitant**

Electricity consumption for **sewerage service** per inhabitant served (including non-resident population)



**36.22 kWh/inhabitant**

Electricity consumption for the **purification service** per inhabitant served (including non-resident population)

### Total investments realised by members in €

Viveracqua - Gestori Idrici del Veneto		2022	2023
Water supply system	M1 - Network losses		
	M2 - Service interruptions	164.115.135.51	<b>210.316.414.46</b>
	M3 - Quality of water supplied		
Sewerage	M4 - Adequacy of the sewer system	90.830.797.73	<b>123.340.566.09</b>
Purification	M5 - Disposal of sludge in landfill	42.134.990.95	<b>44.634.332.98</b>
	M6 - Quality of purified water		
General		30.279.420.99	<b>36.789.138.15</b>
<b>TOTAL INVESTMENTS</b>		<b>327.360.345.18</b>	<b>415.080.451.68</b>
Investments for housing		70.13 €/inhab.	87.86 €/inhab.
Investments per user		152,50 €/user	193.52 €/user



Foto credits Enrico Campana

# Water Safety Plans

**Ensure the safety of the water supplied**, starting with the analysis and prevention of risk factors.

**This is the objective of the Water Safety Plans (PSA)**, or Water Safety Plan, which Viveracqua's 12 water managers are called upon to draw up **by 2025**, for the entire territory served. A precise mapping that identifies **the risk matrices for all sources of sampling, more than 2,000 between sources, aquifers and surface waters**, and along the entire aqueduct network, over 47,000 km.

more than **450**

**PSAs already under development** for Viveracqua managers: to be completed by 2025.

A complex and articulated project, which began with **the first Venetian PSA** (and one of the first to be completed in Italy), that **for the Lonigo aqueduct system** (26 municipalities with over 108,000 inhabitants between Vicenza, Verona and Padua), affected by PFAS contamination, today a reference model for the 12 mana-

gers of Viveracqua. A work that lasted a total of two years, in which national (Higher Institute of Health) and regional authorities (Regional Directorate of Health) participated and which made it possible to analyse the entire water distribution chain, identifying the potential dangers present in each segment and activating the necessary measures to prevent contamination risks. Synergy, for the 12 Venetian water managers, is **also in the training of skills**. To this end, in 2023 Viveracqua organised **a training course for the technical and operational staff of the aqueduct sector which saw the field training of 258 employees of the member companies, called upon to take care of the development, implementation, maintenance, verification and revision of the PSAs** that must be prepared for all the aqueduct systems of Veneto.



Photo credits Fabio Rossetto

# Reuse of sewage sludge with a view to circular economy



During 2023, Viveracqua kept the work table active to prepare a **report** that was the **reference for defining the strategic lines for the treatment of sewage sludge in the near future**.

On the basis of the evaluations contained, the **observations of the in-house management system of the SII of Veneto were presented to the Regional Waste Management Plan** so that the needs of the service were made clear to the legislator.

**The scenarios envisaged** are all based on some criteria:

- ▶ **the zeroing of the landfill**, without prejudice to the transition that precedes the stable structuring of the solutions that will actually be adopted

- ▶ **the maximum possible recovery in agriculture and in the wider green supply chain** including the possibility of using sludge as soil improvers for the environmental recomposition of depleted regional landfills
- ▶ **the waste-to-energy treatment of the residual part** by means of existing plants and mono-incineration to be carried out from scratch.

# European Project H2020

## B-WaterSmart

The European H2020 B-WaterSmart Project aims to promote the **transition towards "water-smart" economies and societies** in the coastal areas of Europe and is coordinated by the German research institute "IWW Water Centre". 36 partners from 7 European countries participate. In addition to Venice (€2.3 million out of a total of 15 funded), the case studies at the forefront of the implementation of the solutions developed are: Alicante (Spain), Bodø (Norway), Flanders (Belgium), Lisbon (Portugal) and East Friesland (Germany). Started in September 2020, the Project is expected to end in August 2024.

The role of **Viveracqua** is **representative of the entire Veneto sector** and offers an **extended and now consolidated possibility of dialogue with Europe, national and regional institutions, control bodies, representatives of the sector**. The consortium company is included in the database that sees the different territorial actors involved, from the authorities to the economic sectors involved, industry and agriculture in the first place, to research institutes, service and technology providers, and so on. **Viveracqua has joined the Community of Practice (CoP) created as part of the project** and which sees the active participation of different stakeholders. The project **primarily involves the managers Veritas and Etra**.

The objective is **to demonstrate the timeliness and sustainability of resource recovery logics connected to sewage treatment processes**, while identifying potential management models to overcome the barriers that hinder the closure of cycles and to create the conditions for stable and objective knowledge that favours the transition **towards the enhancement of resources and the creation of a circular economy**. In more detail, the project aims to:

- ▶ **demonstrate the opportunity to reuse the purified effluent** from the Fusina plant (with particular focus on nitrogen recovery)
- ▶ **support the enhancement of the sewage sludge of the entire Veneto sector**, with the definition of rules and processes that guarantee (also) a safe and controlled reuse of sludge in agriculture.



## Collaborations with associations and research organisations



Viveracqua actively collaborates with **Aqua Publica Europea**, the **European association of public operators of the integrated water service**. The association represents the voice of public managers in international decision-making, promotes exchanges through services, tools, and initiatives useful to members, unites and contributes to initiatives beyond water resources management.

This includes some 70 public operators of water and sewerage and/or purification services which, in total, invoice around 9 billion euro. **In 2023, Viveracqua hosted the association's general assembly in Verona.**

Viveracqua has also actively followed and contributed to **the activities of the REF Ricerche Laboratory**, an independent company that supports companies, institutions and government bodies by carrying out analysis, research and dissemination on the issues **of regulation, national and EU regulations for the water and environment sectors.**

Viveracqua is then **associated with Utilitalia**, the Federation that brings

together **companies operating in the public services of Water, Environment, Electricity and Gas**, representing them at national and European institutions. Within Utilitalia, Viveracqua **univocally represents the public integrated water service managers in Veneto** and plays a driving role with the coordination of the Drinking Water Commission, in whose technical table it actively participates.



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