



- 5 Schools
- 24 Departments
- 47 Graduate programs
- 2284 E-class courses
- 251 open courses

- 633 Professors
- 191 Scientific staff
- 357 Administrative staff
- 1598 Researchers
- 32,398 Students
- 1754 Graduate students
- 2027 PhD Students

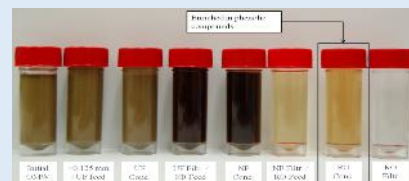
### Chemical Engineering Department

29 Professors, 21 Labs, 870 Students, ~90 Graduate and PhD students



<http://www.chemeng.upatras.gr/en/content/laboratory-transport-p>

### Laboratory of Transport Phenomena and Physicochemical Hydrodynamics



#### Research Activities:

- **Technologies and particle separation methods**
- **Water & waste water treatment methods, Design of water and wastewater treatment systems, Environmental Management and Protection.**
- **Separation Processes, wastewater treatment by membrane filtration technologies**
- Isolation and purification of bioactive compounds with high added value, from agro-industrial wastewaters.

### OBJECTIVES

- Introduction of environmentally-friendly sustainable technologies and processes to manage wastewater disposal systems.
- Improvement of actual waste water plants using environmentally friendly technologies with pilot and demonstration projects in the field of the reduction of marine pollution
- Reduction of marine pollution also with the introduction of reusing treated water for civil use
- Enhancement of knowledge and awareness of the stakeholders in the field of reduction of water pollution and of treated water management with cross-cutting measures.
- Comparison, in terms of cost and effluent quality, of a classical tertiary treatment train with a final UVC/H<sub>2</sub>O<sub>2</sub> treatment with the ultrafiltration.
- Design of new STPs or modernization of already existing STPs, which discharge their effluents in a marine environment sensitive as the ones of Ionian and Adriatic seas.
- RE-WATER aims to prevent marine pollution, will guarantee the quality of STP effluents, will reuse treated effluents, according to European regulations.

### PARTNERSHIP

- ✓ 1. Lead Beneficiary: Aquedotto Pugliese S.P.A. Represented by the Vice-President and Chief Executive Officer Nicola De Sanctis
- ✓ 2. Polytechnic University of Bari Represented by the Rector Eugenio Di Sciascio
- ✓ 3. Municipality of Gallipoli Represented by Stefano Minerva
- ✓ 4. University of Patras, represented by Demosthenes Polyzos
- ✓ 5. Municipality of Patras, Represented by the Mayor Peletidis Kostas

### Associated partners

- ✓ 1. Municipal Enterprise of water supply and Sewerage of Patras, represented by the president Andreas Papanikitas
- ✓ 2. Apulia Region –Water Resources Section, represented by the Section Manager Andrea Zotti.

### MUNICIPALITY OF PATRAS

Capital of Achaia Regional Unit and Region of Western Greece

The 3<sup>rd</sup> biggest city in Greece; 214.580 inhabitants; Area: 333.1 Km<sup>2</sup> (125.4 Km<sup>2</sup> urban area)

5 Municipal Units

- ✓ Since the Roman period, Patras has been a cosmopolitan centre of the eastern Mediterranean area
- ✓ It is a commercial hub and a busy port at a nodal geographical point for trade and communication, regarded as the “gate” of Greece with Western Europe.

Patras attracts a large student population (over 45.000 young people) and it is regarded as a major scientific center with a field of excellence in technology and innovation.

- Hellenic Open University (open distance learning – national level – the only one in Greece)
- University of Patras (active at EU level, ERASMUS exchanges, hosting student organizations such as BEST, AISEC, AEGEE)
- Technological Institute of Western Greece (active at EU level, operating as an entrepreneurship hub for innovation)
- Various research centers such as Patras Science Park, Institute of Science & Chemical Engineering (ICEHT), Computer Technology Institute and Press “Diophantus”, etc.

### KICK-OFF MEETING

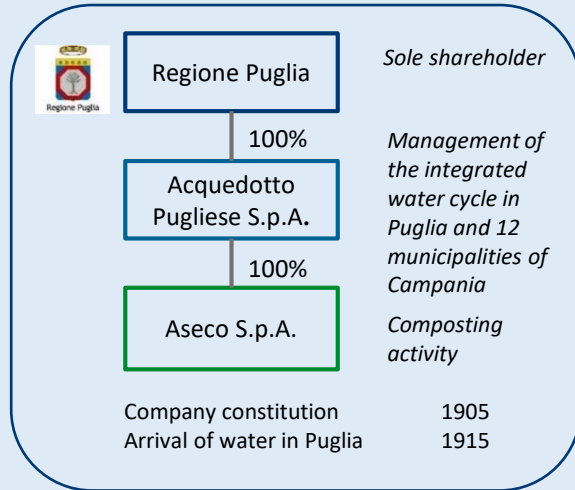
The kick-off meeting took place at Bari on 13<sup>th</sup> and 14<sup>th</sup> November 2018.



## ACQUEDOTTO PUFLIESE SpA

AQP provides for the management of the integrated water cycle in Puglia and 12 municipalities of Campania and through the subsidiary company Aseco SpA deals with the treatment of organic waste

### Company profile



### Water system

	Water networks	25,000 km
	Water supply	5,000 km
	Water distribution	20,000 km
	Water Treatment Plants	5
	Volume produced	>520 mln m3
	Volume billed	265 mln m3

### Water quality

	Laboratories	10
	Controls	>480,000

### Sewer

	Networks	16,000 km
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### Wastewater Treatment

	WWTPs	184
	Advanced treatments	5
	WWTP volume	275 mln m3
	Sludge production	245,000 ton

### Business budget

	Revenues	528 mln €
	Budget profit	19 mln €

### Human Resources

	Company staff	~2.000
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### Clients

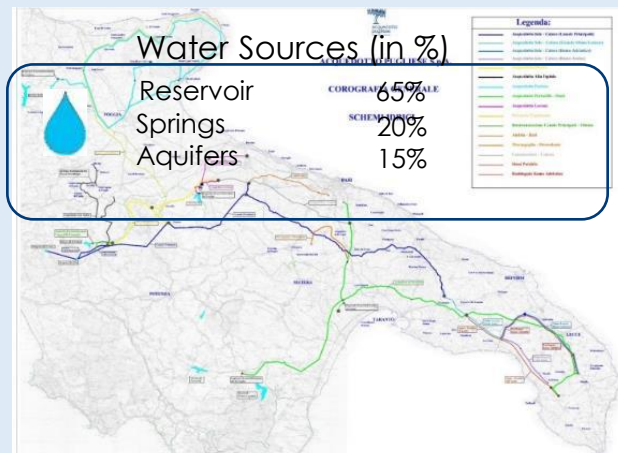
	Population	4 mln
	Municipalities	242
	Customers	1 mln

### Investments (mln €)

	<b>Total realized</b>	144
	• Water	40
	• Sewer	37
	• WWTPs	63
	• Other	4
	Public funding quota	55%

### Energy

	Energy	540 GWh
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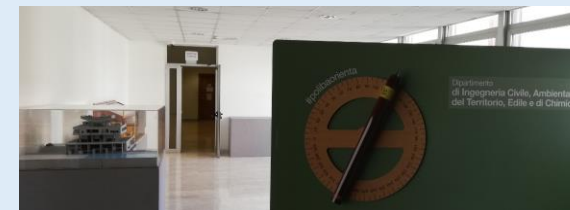


## POLYTECHNIC OF BARI



- 5 Departments
- 88 Laboratories
- 10 Three-year Degree courses
- 11 Two-year Degree courses
- 4 PhD courses
- 177 Professors
- 98 Researchers
- 128 PostDoc Researcher
- 252 Scientific and Administrative staff
- >10000 Students
- 1700 Graduate students
- 180 PhD Students

### Department of Civil, Environmental, Land, Building Engineering and Chemistry (DICATECh)



### Sanitary engineering laboratory

#### Research Activities:

- **Treatment of asbestos-containing wastes** by means of a sustainable bio-hydrothermal sequencing treatment.
- **Water and wastewater treatment processes** based on the adoption of waste materials (perlite from waste glass, olive pomace...).
- **Adoption of advanced oxidation processes** for the removal of persistent contaminants.



## MUNICIPALITY OF GALLIPOLI

The beautiful city of Gallipoli sits on the Ionian Sea. Its narrow streets are imbued with a sense of spirituality. The seaside town of Gallipoli, whose name means **Beautiful City**, rests like a mirage on the Ionian coast, roughly 40 km (25 miles) from Lecce.



<https://www.viaggiareinpuglia.it/at/144/localita/4239/en/Gallipoli>

## MUNICIPAL ENTERPRISE OF WATER SUPPLY AND SEWERAGE OF PATRAS

In Patras facilities we use **Primary sedimentation** preceding the **biological treatment** for the reduction of the organic load and also for the energy need for the aeration. Then we use the **extended aeration activated sludge** with the stabilization of the biological sludge. Also we have the **biological nitrification and denitrification**.



## APULIA REGION

The Apulia Region, regional public authority, carries out water organisms protection functions through the definition and the implementation of a **water protection plan**, surface water, underground water and **sea water monitoring**, as well as the definition of nitrates action plan and marine strategy related activities.

