

# *Managing Water Quality for Public Health*

***SMAT : the point of view of a water utility***

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# SMAT WITHIN ATO 3 TERRITORY

Today

	Served City Councils	Inhabitants
SMA Torino	292	2,275,365
ATO 3 Torinese	306	2,297,917
	<b>95,42%</b>	<b>99,02%</b>



# The Optimal Territorial Area - ATO 3 - TORINESE



➤ SERVED POPULATION	2,230,372
➤ TERRITORY	6,713 SQKm
➤ CITY COUNCILS	306
➤ MOUNTAIN COMMUNITIES	6
➤ INFRASTRUCTURAL INVESTMENT PLAN	1,290 €/mio/20y 2,310 €/mio/30y

# About SMAT

- 100% PUBLIC OWNED COMPANY
- JOINT-STOCK COMPANY - CORPORATION



## About SMAT

- Group of Companies
- About 1,000 employees  
(SMAT plus Group Companies)
- Turnover: 313,1 mio/€
- EBITDA 117,1 mio/€
- Operating income 2014: 67 mio/€



# ESSENTIAL DATA

- WATER PIPING 11,971 KM
- SEWERS 8,550 KM
- DRINKING WATER PLANTS 82
- WWTPs 410



*RIVER PO PLANT*



*CASTIGLIONE WWTP*

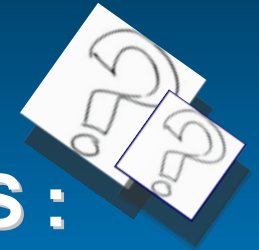
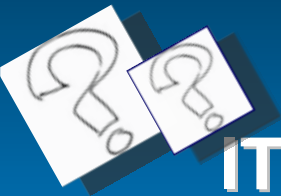
# Water management, distribution and quality? Infrastructures!

## INVESTMENTS



## INNOVATION





# ITALIAN WATER SERVICE MANAGERS : INNOVATION IS NOT AT THE TOP OF THEIR LIST

- Average Italian investments  $\longrightarrow$  about 34 € /inhabitant/year
- Needed investment ~~90 € /inhabitant/year~~  $\longrightarrow$
- AEEGSI investment plan  $\longrightarrow$  65 € bil investment = 5 € bil investment/year
- GDP equivalence ~~10 € billions/year~~  $\longrightarrow$
- Jobs equivalence  $\longrightarrow$  16,000 each € billion = 80,000 jobs/year



## SMAT INNOVATION PATH

- Foundation of the SMAT Research Center ( 2008 )
- Strategic agreements with HERA and IREN
- Access to funding for research



# SMAT RESEARCH CENTER

## THE RESEARCH CENTER

SMAT operates through its Research Center to improve processing and technologies



- 13 applied research projects with Turin Polytechnic
- 5 applied research projects with Turin University
- 6 projects with private partners

# SMAT HIGHLIGHTS: RESEARCH CENTER NETWORK

**University/  
Research Centers**

**Associations,  
Entities/Enterprises**

**Industrial Partners**

Università di Torino (I)  
Politecnico di Torino (I)  
Politecnico di Milano (I)  
Università di Roma (I)  
Università di Brescia (I)  
Università di Genova (I)  
Università di Pavia (I)  
CNR Institute for Advanced Energy Technologies (I)  
Consorzio per l'Area di Ricerca Scientifica e Tecnologica di Trieste (I)  
Università di Wuhan (CN)  
Hamburg University of Technology (D)  
Technische Universität Munchen (D)  
Technical Research Center of Finland (FI)

Istituto Superiore di Sanità (I)  
Federutility (I)  
Fondazione AMGA (I)  
HYDROAID (I)  
ARIN (I)  
CAP HOLDING (I)  
HERA (I)  
IREN (I)  
PUBLIACQUA (I)  
RQP (I)  
EUREAU (EU)  
Deutscher Verein des Gas und Wasserfaches e V. (D)  
Polish Instytut Energetyki (PL)

Thales Alenia Space Italia (I)  
Hydrodata (I)  
SYSTEA (I)  
ALTEC (I)  
Centro Inox (I)  
Talit (I)  
DHI Italia (I)  
Aviotec (I)  
SIAD (I)  
ENI Istituto Donegani (I)  
MATGAS 2000 A.L.E. (E)  
Acquadect (NL)  
Topsoe Fuel Cell A/S (DK)  
Thermo Fisher Scientific (USA)

# STRATEGIC ALLIANCE FOR RESEARCH



31 ONGOING PROJECTS  
15 STARTING PROJECT  
5 UE CANDIDATURES

## PARTNERSHIP

- ▶ Turin Polytechnic and University
- ▶ Italian and foreign industrial partners (Thales Alenia, ENI, HERA, IREN, etc.)



EU CANDIDATURES

LINDO

PERSEO

BIOWYSE

Sustainable Smart Water

Smart Water Ideas

Pathogenic Protozoa

Waste Water Sensors

Advanced Sludge Treatment

SOFCOM

Super Punto Acqua

Big Data

Smart Desinfection

Demand Forecasting and Water Balance

Turin Network Provisional Forecast

River Po Water Quality

DEMOSOFC

Manholes Maintenance

Complaints

Cromium VI Treatments

Undergoing Research Projects

Cromium VI in Distributed Water

Nitrates

Security

1/10/2014

EZ

Third Millenium SCADA

IoTibevo

Ferrate

Endocrine disruptors

Network anomalies

BIOFUEL

Water Safety Plans

Idraulica II

Valley Acqueduct

LAPIS

LEGENDA

- TLC
- Networks
- Quality
- Treatments
- Energy

UNDER CONTRACT

Advanced Sludge Treatment III

DWT e WWT modelling

CrVI Membranes

Turin Network hydraulic model

Cavitation for disinfection

AOP and solar concentrators

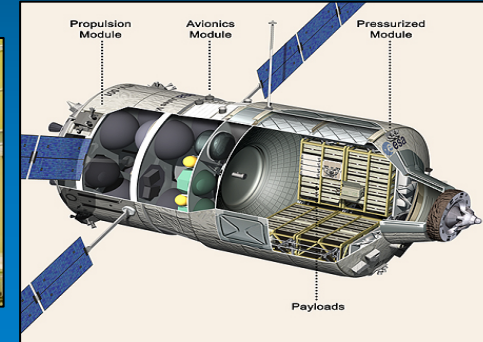
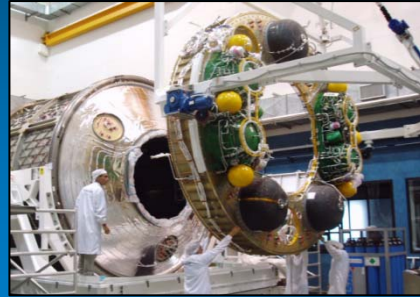
Algae

## IN THE PIPELINE

- SUSTAINABLE AND SMART WATER ( 1st phase )
- BIOWYSE ( negotiation )
- DEMOSOFC ( awarded )



# ... THE EARTH WAS NOT ENOUGH



## ... THE EARTH WAS NOT ENOUGH

Project in cooperation with Thales Alenia Space - Italy  
Supply of two different waters for the ISS

 **Water for astronauts:  
lightly mineralized  
iodine disinfected**

 **Water for cosmonauts:  
regularly mineralized  
silver disinfected**







# BIOCIDE MANAGEMENT FOR LONG-TERM STORAGE

SMAT, Aero Sekur, Thales Alenia Space and CNR won a tender for the selection and optimization of the disinfection process for human water use during long – range space missions (Mars)

FINANCER: EUROPEAN SPACE AGENCY (ESA)

A full-page background image showing two astronauts in white space suits with 'smat' logos on their arms. They are standing on a reddish, rocky, and cracked surface, likely Mars. The sky is a deep orange-red with some white clouds. The astronaut in the foreground is on the left, and the one in the background is on the right.

**Future space missions to Mars will last from 6 months to 3 years.**

**Advanced systems will be needed to support human life and it may be necessary to change the disinfections method be used in space.**

**BUONA  
NELLO SPAZIO**

**BUONA  
A CASA TUA**



**È L'ACQUA DI TORINO**

[www.smatorino.it](http://www.smatorino.it)

**THANK YOU FOR YOUR ATTENTION**