



Session 7: Reuse of Treated Wastewater and Its Role in Enhancing Water Security and Irrigation Sustainability

Modern Technologies in Safe Reuse of Reclaimed Water and Related Regulations and Laws

S.E. Vice President Key Accounts & Group major projects

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There are several ways to reduce the extraction of resources



Dynamic Management of Ressources



Accurate Understanding of the usage



Improve Technical Performances

Networks

Treatment Plants

End consumer

Municipalities

Industries

Agricultural ind.



Less consumption



REUSE - TSE

Waste Water

Rain Water

Autonomous Building

Challenges and legislation

Everywhere the different governments have defined rules link to their sensitivity and scarcity risk exposure

- It explains clearly the different ratios of REUSE (country per country)
- The dynamic of the industries

Main uses

Agriculture
Irrigation
Green Spaces
Specific uses (Golf, Football stadium, ..)
Industries

Water shortage



Discharge costs & restrictions



Sustainable development goals



TSE for Drinking Water

Namibia : Windhoek – WWTP : 21 000 m3 / day

Singapore : low % of TSE, mixed with Drinking Water Supply (MF – RO – UV)

Drinking water from reuse is rarely authorized (only 2 countries to our knowledge)

- Namibia / Singapore

Fantastic potential

- Low ratio of REUSE (vs. volumes of WW) France (1%), Spain (14%), Italy (8%),
- 80 % of Waster Water are discharged without treatment or REUSE

Group Saur & REUSE / TSE

Key figures

2010 : First REUSE production site

2023 : 14 M M3 reused (France, Spain, Poland, Cyprus, Saudi Arabia)

2023 : Emergency Water Plan in France with 53 actions incl. REUSE strategy
- 2030 REUSE Target = - 10 % resource withdrawal

Current Main Uses

Green Spaces
Irrigation
Agriculture
WW Treatment Plant : Industrial Water (Chemical)
Industries

2022 - 2023 : A new dynamic & acceleration

More Territorial Projects > 3 to 4 MM3

Industrial needs
Ground Water recharges
Agriculture
Irrigation
Industries
...

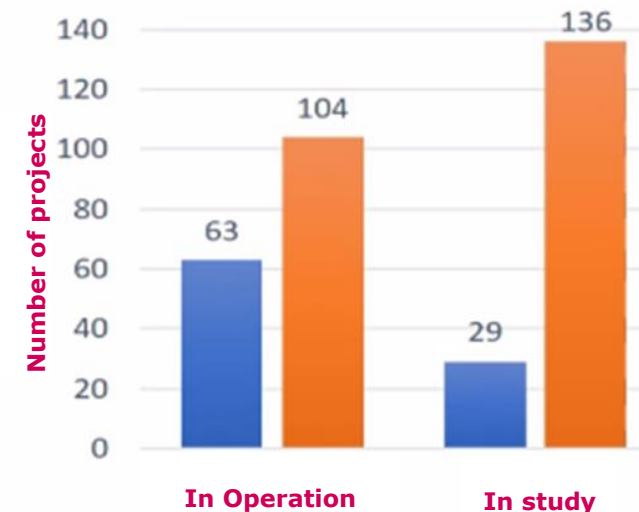
Urban Projects

Street Cleaning
WW Network cleaning
Waster Collection truck cleaning
Firefighting
...

Specific project

French Golf Federation (*)
Equestrian Centers (incl. Rainwater)
Industrial Projects (Rainwater)
...

Municipalities



ffgolf®

(*) Official convention signed on Dec 23

AUVERGNE-RHÔNE-ALPES



FÉDÉRATION FRANÇAISE D'ÉQUITATION
COMITÉ RÉGIONAL D'ÉQUITATION

Reuse Water Solution in Brief

? How it works ?

Municipal Solution :

- o lagoon third treatment / Filter (mechanical/sand/membrane/Carbo+) + UV + Storage/Chlorine

Industries : Biological treatment +

Nijhuis Membrane Solution-UF/NF :

- Superior barrier for viruses and bacteria removal
- Colloidal, micro plastics and TEP removal
- Reverse osmosis pre-treatment

Nijhuis Membrane Solution-RO applications:

- Removal of dissolved components (ions, heavy metals, TOC, viruses)
- Crossflow membrane filtration & spiral wound

CAPEX or OPEX (Rental solutions)

Civil work or Mobile/container solutions

📄 References

FR – Noirmoutier : 250 000 – 500 000 m³

SP – Las Palmas : 5 to 6 000 000 m³

FR – Royan : 3 000 000 m³

CY – 400 000 m³



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Water Reuse & Membrane Technologies



Ultrafiltration

NMS-UF



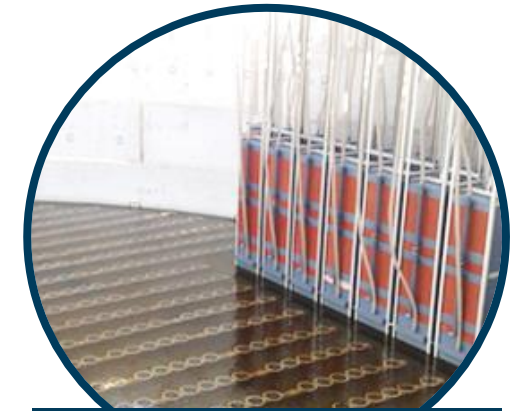
Direct Nanofiltration

NMS-dNF



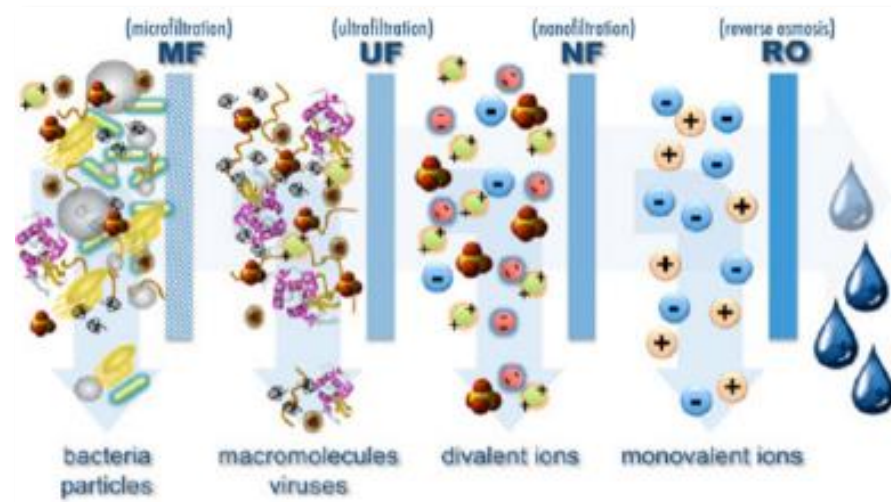
Reverse Osmosis

NMS-RO



MBR

Bioctor-MBR



L'ORÉAL | Poland

Client

L'Oreal Poland

Market

Cosmetics

Goal

To recycle the wastewater within the factory

Flow

400 m³/hr of cleaning water is processed and roughly 200 m³/hr is reused. (50% recovery)

Technologies

- Filtration- flocculation-flotation
- Continuous biological system with Crossflow MBR
- Reverse Osmosis with UV disinfection
- Sludge dewatering decanter

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ST Micro | France

Client

ST Micro Stel 2

Market

Microelectronics

Goal

Waster water treatment
with reuse for stel 2

Flow

60 m³/h of RO permeate

Technologies

- Continuous biological system
Crossflow MBR
- Reverse osmosis
(containerized)



Stonehenge | UK

Client

Stonehenge

Market

Municipal

Goal

Treat the yellow water from visitors for reuse

Flow

50 m³/day

Technologies

- Filtration
- MBR with submerged membranes
- Carbon filter





Thank you for your attention !

#missionwater