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NEWSLETTER

SEAWARDS' STATE OF THE MATTER



SEAWARDS

“WATER IS NOT NECESSARY FOR LIFE, IT IS LIFE.”

A.Saint-Exupery

Dear readers,

As we face an unpredictable tomorrow, we are confronted with fundamental challenges that transcend mere innovation and touch the essence of our shared humanity. My journey has consistently been rooted in areas vital to human well-being. For over a decade, I have dedicated my professional life to improving food security and enhancing access to healthy, sustainable diets globally. Through this work, the interconnected challenges of farming and water scarcity have become painfully clear. The recent droughts in Argentina and subsequently in Uruguay have deepened my reflections on our collective priorities. The reality is stark: without water, there can be no food. Thus, in our pursuit of progress, we must never overlook fundamental human necessities, with water paramount among them. Antoine de Saint-Exupéry put it eloquently, “water is not necessary for life, it is life.”

Recent data from the World Resources Institute presents a grim outlook: four billion people grappling with water stress annually. Furthermore, the World Wildlife Fund warns of a looming scenario where, absent significant changes, two-thirds of the world's population might face water scarcity by 2025. These figures are not mere statistics; they stand as a clarion call for action.



My acknowledgment of this reality led me to join Seawards. Their commitment to sustainable water solutions aligns seamlessly with my long standing engagement to social justice and human development. It represents more than just a continuation of my work—it symbolizes a tangible beacon of hope for a shared brighter future. At Seawards, our mission extends beyond merely facilitating water access, we aim to lay a solid foundation to guarantee this access for everyone, operating under the belief that water isn't just a commodity, but a fundamental right.

As we champion sustainable water practices and advocate for climate resilience, I am honored to be a part of the Seawards team. Together, leveraging our collective expertise and pioneering engineering solutions, we aim to forge robust partnerships with both public and private entities. Our ambition transcends addressing water scarcity; we endeavor to initiate wider conversations on forming innovative alliances to tackle humanity's most pressing concerns sustainably.

I warmly invite you to align with us in this pivotal mission. Join a movement that acknowledges and addresses the core needs of every individual, envisioning a future where water is accessible to all.

With unwavering commitment and hope,

Eugénia Carrara,

*Member Seawards' Governance Committee
Head of Corporate Relations*



INTERNATIONAL & OUTRE-MER

MAYOTTE: THE ULTRA-MARINE IN SIGHTS

"Our vocation is to respond to all the water stress problems in the world. The current situation in Mayotte is the unfortunate embodiment of this," assures Hervé de Lanversin, co-founder of Seawards, who is also in discussions with Gilles Cantal, who is in charge of the water mission for the Prefect of Mayotte, to propose alternative solutions and respond to the crises facing the island.

In a context where the rainy season was the driest since 1997, the island of Mayotte, of which available water, 60% comes from surface water and 30% from groundwater, is now dry. "The exceptional drought Mayotte is experiencing is exacerbated by climate change, which is shortening the rainy season and reducing its intensity," independent hydrogeologist Emmanuel Soncourt told HuffPost.

This vulnerability is nothing new. In normal times, 30% of the population has no access to running water. And over the past five years, drinking water supplies have been interrupted "once or twice a week throughout the island at the end of the dry season and the beginning of the rainy season", reports the French channel Outre-mer La 1re.

Water shortages are further exacerbated by the lack of infrastructure and investment. All the more so as the network is failing. 35% of the water is lost through leaks; since then, the situation has deteriorated further, and the State has announced that it will pay the bills for the months of September to December. "A critical situation that could last until January," announced Philippe Vigier, Minister Delegate for Outre-Mers France. Similarly, the distribution of bottles to 50,000 people could be extended to 120,000. The government has also announced an increase in the capacity of the desalination plant and boreholes.

BREAKING NEWS

SEAWARDS PART OF COP 28

For a clean planet! Seawards will be on board to its voice heard for a respectful and accessible desalination tech. at the 28th Conference of the Parties on Climate Change (COP 28), to be held in Dubai from November 30 to December 12. This international meeting brings together the signatory countries of the United Nations Framework Convention on Climate Change, as well as players in the climate ecosystem.



REGION

NICE CLIMAT SUMMIT : WATER MUST REMAIN A PUBLIC ASSET.

With just under 1% of the world's oceans, but 10% of its species, the Mediterranean is more than ever an issue for the future. It's no coincidence that it was a key topic at the Nice Climate Summit organized by La Tribune on September 28 and 29 in the City of Angels.

The issues at stake included tropicalization, overexploitation and use of the resource. This meeting of experts was an opportunity to tackle a range of subjects, from those on which there is consensus to those that cause anger: the decarbonization of the aviation sector, so often singled out, and the "good" health of the ocean and its prospects for 2030. Experts from all walks of life - scientists, CEOs of major groups and start-ups, economists and political figures from France, Africa, Japan and Canada - contributed their knowledge and viewpoints, sharing their visions and also their limitations.

Among them, Seawards was on hand to present its breakthrough technology. Hubert Montcoudiol, co-founder, set the tone: "Desalination has become almost a dirty word in the world of environmental protection. The development of our process is a response to today's challenges. The technologies used pollute and are very expensive, so we need to produce water as economically as possible, while respecting the environment and making it accessible to as many people as possible". And to return to the risks of water stress generated in France. "It's not the water stock that has changed, it's the demographics and industrialization that have developed. It's a question of using an abundant resource and democratizing access to it.

Water must remain a public good," Hubert Montcoudiol continues, and goes on to outline Seawards' short-term objectives: to install a demonstrator in the port of Marseille, demonstrating the technology before finalizing a Series A to conclude the international partnerships currently in gestation.



Courtesy of The Tribune



R&D

STATE OF THE ART

The Seawards R&D team has overcome many obstacles. For several months now, it has been able to reproduce the production of fresh water at 0.25 gr. of salt/liter, from seawater. Our performance evaluation measures use the very best metrological equipment. In addition, an external water analysis specialist has also been called in to carry out complementary measurements and inter-comparison of results.

The mastery of several themes, including physical chemistry, chemistry, temperature and salinity metrology, mechanics, control command, thermodynamics and thermodynamics applied to our desalination process, enabled us to define the right cycles and parameter settings. As is often the case, a thorough understanding of the process has enabled us to address key issues to guarantee super performance. Many months of research were required to understand the phenomenological finesse and identify the best curves and parameter values. All stages of the process are important.



Our demonstrator is taking shape, as we are finalizing the location of its installation in the Grand Port of Marseille .



MODULES: C = CRYSTALLIZATION F = FLOTATION S = SEPARATION

The Seawards process comprises three key stages: crystallization, flotation and separation.

The first stage consists in producing a fluid containing solid-state water crystals of the right density. Next, a flotation stage carried out under very precise phenomenological conditions prepares the final operation of separating the fresh water from the brine. **The harmfulness of the brine and the machine's discharges will be reduced to a minimum or to an exemplary level.** It is highly likely that our solutions will become tomorrow's benchmark in terms of overall environmental respect.

The Seawards process is extremely robust with regard to the composition of the process water. This is a major technical advantage when it comes to preserving the marine environment. Indeed, in our case, the process water does not need to undergo severe chemical treatment and cleaning, unlike other technologies on the market.

The Seawards solution is flexible and versatile. It can be adapted to different energy sources, including alternative and renewable energies. The robustness of the Seawards process makes it possible to reduce the use of chemical elements or compounds whose production and associated logistics represent a considerable carbon footprint, in addition to their impact on the living marine environment.



TRIBUNE

MIRAGE OR MIRACLE ?

Desalination plants date back to the 1950s in the Middle East.

Today, the International Desalination Association lists over 22,800 worldwide. Every day, they produce 110 million cubic meters of water. The quantity produced varies according to the infrastructure. The fact remains that only 12% of the world's water-scarce population has access to this solution.

With frequent droughts since 2017, as noted by hydrologist Emma Haziza, population explosion and industrialization at every turn, **desalination has become a buzzword, but also a scary one.** First and foremost, it is said to have beneficial virtues, offering an alternative solution to the world's dwindling water resources by providing unlimited access to fresh water. In fact, the sector is booming, growing by 10% every year. Yet there is no shortage of pitfalls, as many associations and NGOs, as well as the World Bank and the UN, point out.

The reverse osmosis system used in 98% of cases is extremely energy-intensive.

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At issue is the fact that **the sector is still only partially powered by renewable energies.** The sector is responsible for emitting **120 million tonnes of CO2** into the atmosphere, a figure that could rise to 280 by 2050 according to World Bank estimates. And what about brine discharges?

The UN notes that **142 million m³ of chemical brine spilled every day** from this concentration of salt water settle on the seabed. As a result, many plants, such as the Posidonia meadow, which absorbs more CO2 than forests, are suffocating, according to hydrobiologist Christophe Mori, a university lecturer in Corsica, who deplores the **discharge of numerous chemicals**, including anti-corrosion products, nickel, copper and other anti-scaling agents that adjust the pH of the water.

Numerous studies are currently underway to balance the need for water against the environmental damage it causes. **Experts insist on the notion of good or bad desalination...** What would be the difference between the former, which requires little energy and produces no brine discharge... and the latter, whose environmental damage is no longer in doubt?

Unit size can also make a difference. Processes are also at stake.

Other technologies exist. Seawards proves it with "Cryo-Separation"...

Seawater desalination should not be thrown out with the bathwater, it is relevant but under acceptable conditions and with an environmentally-friendly process.

That's what Seawards is all about!

