eco-design of a desalination plant, 10 000m³/d in mayotte (976) - France



industrial site, Hoe® approach : Desalination Plant

CLIENT LOCATION Project	Les eaux de Mayotte Mayotte (976) Construction of a water purification plant by desalination in Ironi Bé Mayotte
CONSULTANT Mission	OSMOSUN, AR ARCHITECTES, SETEC HYDRATEC, AQUAMATCH 10,000 m ³ /d
	10 000 11 / 4
surface	9 603 m² (plot) 2 001 m² (buildings)
BUDGet	86 955 182 euros
TimeLine	Competition 2024



Plant stratums treated in the program



Perspective view of the desalination plant integrated into its environment

NATUR'OSMOSE© is a project with a low environmental impact, presenting itself as a unified element highlighting the desalination plant process and its industrial identity while facilitating its integration into the landscaping context of the Mahorese cliff.

Indeed, the project respects the **existing plant strata**, namely the **mangrove**, the **low vegetation**, the **palm and banana groves** as well as **the forest**, to blend them into the environment. The future site of the Grande Terre desalination plant in Ironi Bé is thus located in a location close to a protected natural area as well as an important road infrastructure, namely the Mamoudzou N2 national road.

The plant will treat **22 500m³/d of salt water** to produce **10 000m³/d of drinking water** with a discharge of **12 500m³/d of brack water**.



West Elevation view



East Elevation view



High Environmental Quality® section

Hoe® torgets

target 1 : Harmonious relationship of the building with its environment

• Facade treatment using recycled and sustainable materials such as **aluminium**.

• Architectural integration of the buildings with their immediate surroundings and landscaping.

target 2 : integrated choices for materials and construction process

- · Metal frame structure.
- · Aluminium metal cladding.
- · Metal sheet on the roof.
- · Optimal corrosion protection.

target 4 : energy management

- **Bioclimatic architecture :** Solar protection system on roofs to maximise summer and winter comfort.
- · Natural ventilation by fixed blinds.
- Natural light allowed by the skylights on the roof.

• Interior lighting supply provided by photovoltaic panels.

target 5 : Water management

- Management of runoff water using "evergreen" vegetated slabs allowing the drainage of rainwater into the ground.
- The overflow of water is collected by green ditches.

target 7 : maintenance management

- Construction materials for buildings as well as infrastructure are low maintenance.
- Landscaping with local species allowing low maintenance and the development of **biodiversity**.

target 10 : Visual confort

• **Rustic gardens** are planted all around the plant, creating harmonious relationship between the infrastructure and its surroundings.

• Shades inspired by the color chart of the site's landscape are used on roofs and facades to improve the visual comfort of users and residents.





Metal frame Aluminium cladding

Metal sheet roof with anti-corrosion treatment

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