

WATER SUPPLY PROJECT IN CAPE VERDE ARCHIPELAGO

Giving hope by being both sustainable and profitable

*Water, water, every where,
And all the boards did shrink;
Water, water, every where,
Nor any drop to drink.*

Samuel Taylor Coleridge, The Rime of the Ancient Mariner



←
from wind to water project

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Man has both a right to healthy world around
and a solemn responsibility
to protect and improve
the environs for the next generation.

Stockholm Conference (1972)

Lachesi develops systems for the management and treatment of water resources worldwide, with a specialization on Hybrid Modules for the production of **water from desalination process by inverse osmosis**. INVERSE OSMOSIS is the most effective and cheapest way to obtain de-mineralized water. This process is based on the artificial inversion of the osmotic effect occurring in nature between two solutions with different concentration and separated by a semi-permeable membrane. Salt content is reduced on average from 96 to 99.5%. Removal of organic matter and bacteria is reduced by 99%.

W2W Project is a **water supply** project which foresees the construction of two plants for the production of drinkable water in **Santiago**, the biggest island of **Cabo Verde** archipelago. The water will be produced **from desalination process by inverse osmosis** by means of a wind power hybrid system.

The Republic of Cape Verde is an island country, spanning an archipelago located off the western coast of Africa, opposite Mauritania and Senegal. It is slightly more than 1,500 sq mi in area with an estimated population of over 500,000. Cape Verde attained independence from Portugal in 1975. Cape Verde is classified as a developing country. About 20% of the population lives on less than USD1.25 a day. Water availability in Cape Verde is 3 gal p.p. per day, (while in US normally 65 gal per person per day are consumed).

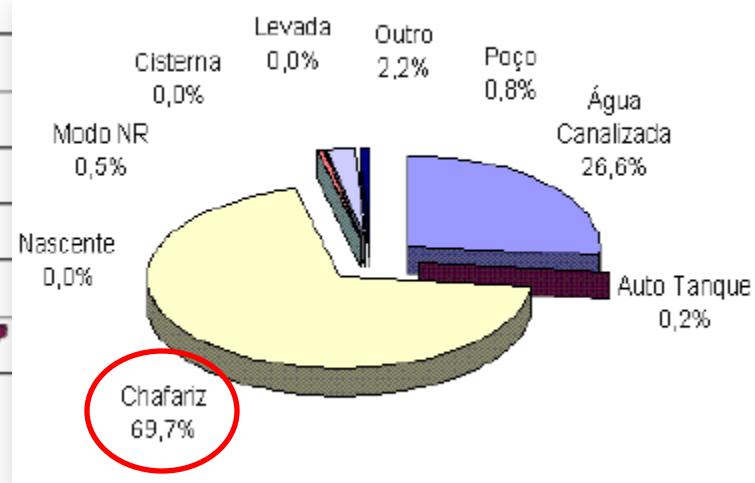
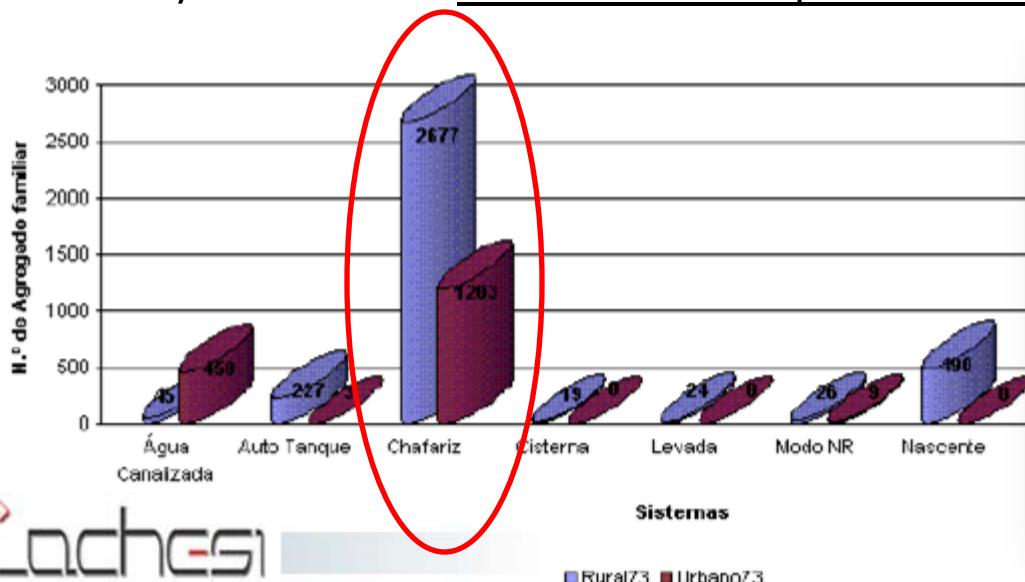


IRRIGATION WATER USE

In Cape Verde more than 1/3 of the population dedicate themselves to agriculture. Water's request increases at a annual rate of 8-15% -> the available ground water table has been over utilized in the last years -> the over utilization has caused wells' deterioration and unintentional mixing with sea water -> artesian water, historically used for agriculture, has become too salty -> such water has destroyed entire harvests -> the only source of income for many inhabitants has been lost.

DRINKING WATER

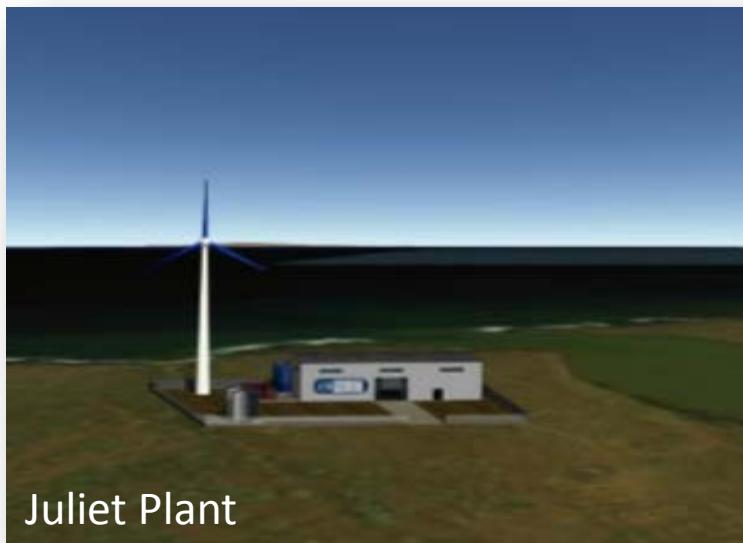
About 70% of the population draw drinking water from fountains, which supply water for only few hours a day. The price of drinking water transported by tank truck is about USD15.00 / m³ -> about 20 times more expensive than in US or Europe.



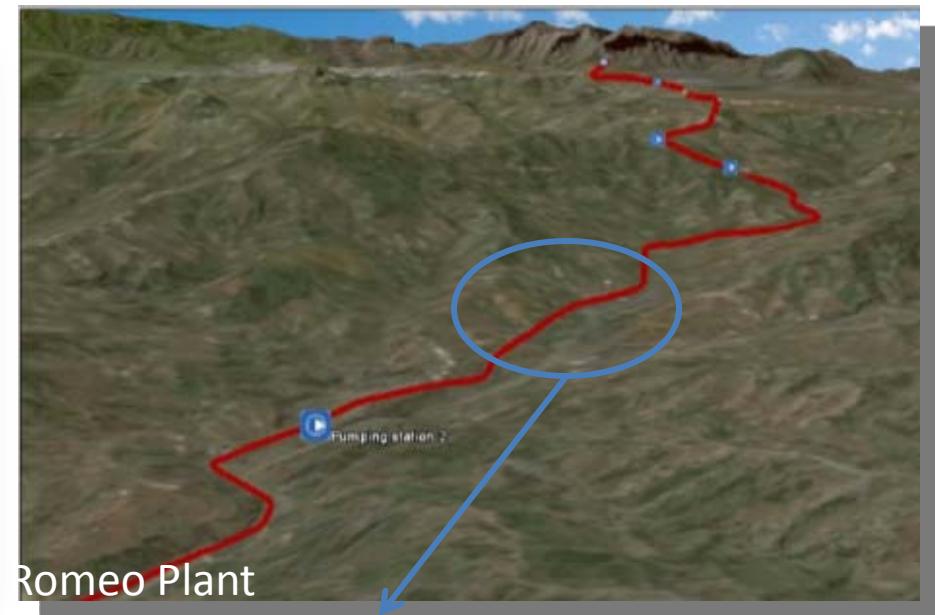
DESALINATION UNITS BASED ON RENEWABLE ENERGY SYSTEMS (WIND POWER)

Lachesi's technological approach, which is compatible with protected green areas, will consist in building two plants made by batteries for the Reverse-Osmosis desalination of seawater powered by Wind Power hybrid modules (wind-diesel).

Lachesi's policy foresees the utilization of the [ground water table wells for irrigation](#), while the [produced water will be used for human use](#). The water price will be about \$4.05 /m³ (Cost of production: USD3.375 /m³).

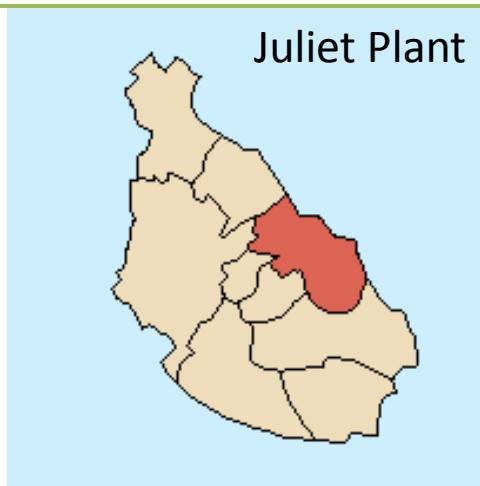


Juliet Plant

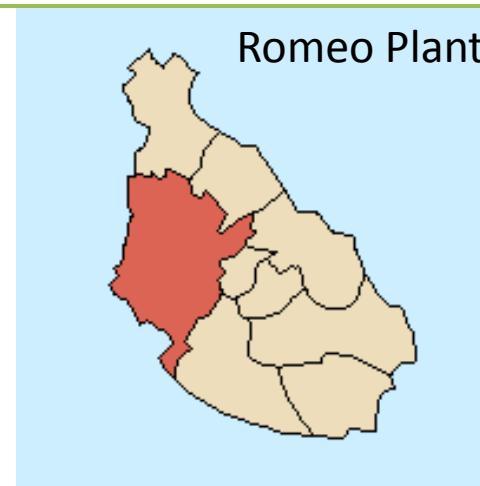


Romeo Plant

A new urban settlement (5000 people) will rise along the main pipeline (Romeo Plant) in order to create new opportunities for agriculture and for the local rural economy.



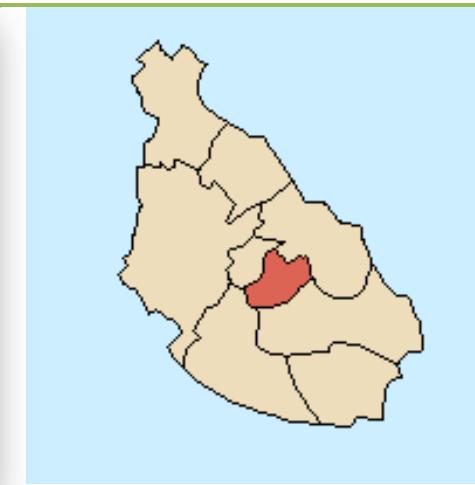
Population: 34.000



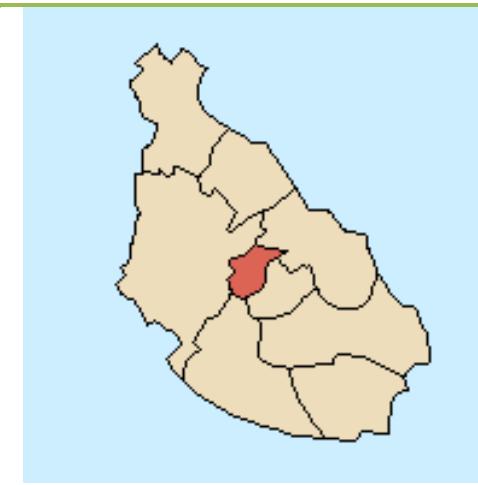
Population: 52.000



Population: 17.000

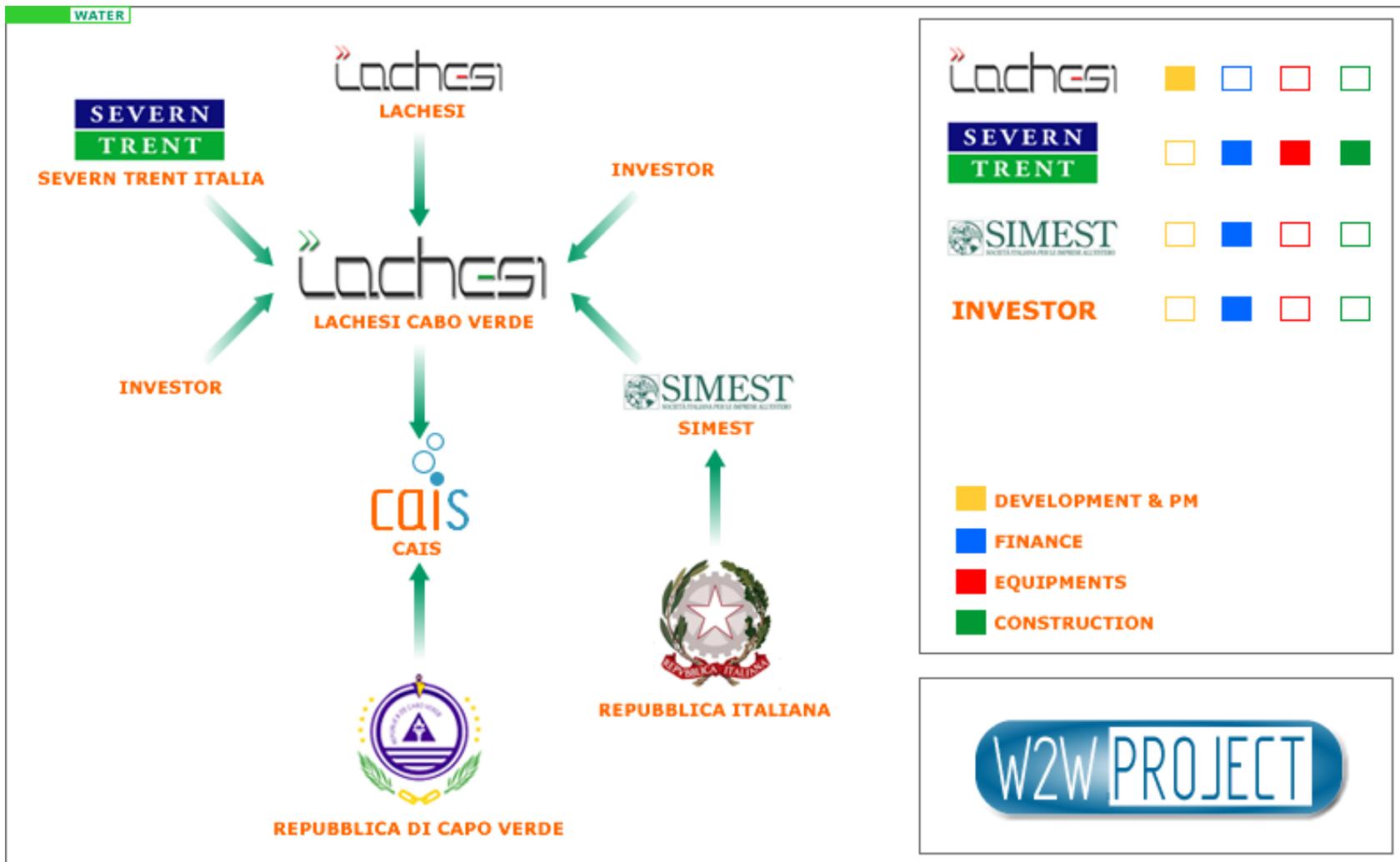


Population: 9.000

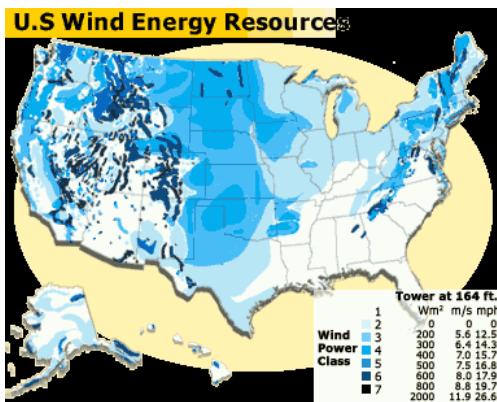


Population: 10.500

CAIS is the 90% private / 10% public company which will produce and sell drinking water.



- Water shortages can be addressed by developing new water sources, such as from brackish aquifers and sea water.
- Desalination can be utilized by coastal cities as well as inland municipalities with access to brackish and sea water sources.
- Many growing cities with high energy costs have good to excellent wind resources.
- The U.S. is home to 20% of the world's desalination facilities.
- Wind power is the lowest cost renewable power source and is a desirable option for integration with desalination technologies, like reverse osmosis.
- Desalination systems can be installed off-grid, powered by wind or hybrid systems (such as wind-diesel).
- THE PROJECT DEMONSTRATES THAT IT IS POSSIBLE TO GIVE HOPE BY BEING BOTH SUSTAINABLE AND PROFITABLE.





companhia de água de ilha de santiago

CONTACTS

W2W PROJECT



Water is **MAYBE** the most important thing



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