

# Water Supply and Wastewater Treatment and Disposal in Berlenga

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Fresh water consumption data (survey period: 12 weeks, this summer): 16 containers, 8 m<sup>3</sup> each (128 m<sup>3</sup>). Unit cost for transportation  $\approx$  30 euros. Fresh water is pumped from boat to main reservoir ( $\approx$  70 m<sup>3</sup>). Main reservoir also receives water coming from roofs and pavements.

From reservoir water is pumped to small containers (4, with a total volume of 4 m<sup>3</sup>). From the same reservoir, water is also pumped to another small container located at camping site, connected to a collective tap managed by local operator.

The first set of small containers connect to a network, that delivers water to 3 collective taps managed by local operator, restaurant, park facilities and one private household.

Drinking water needs are met with bottled water.

Sea water is pumped to another set of small containers, allocated as follows: restaurant and respective inn – 3 (6 m<sup>3</sup>); private households – 4 (3 m<sup>3</sup>); public fish preparation and kitchen sinks – 4 (3 m<sup>3</sup>); public bathrooms – 5 (5 m<sup>3</sup>); park facilities – 4 (4 m<sup>3</sup>).

Sea water is also delivered to a collective tap, to a small drugstore and to wastewater pumping station.

There is no flow measurement. However, it is known that sea water is pumped during 3 h/day in June and September and during 4 h/day in July and August.

Wastewater is collected at several facilities: restaurant and respective inn; private household; public fish preparation and kitchen sinks; public bathrooms; park facilities.

Food residues are grinded and discharged into wastewater network.

Wastewater is transported to a pumping station, from where it is elevated to a outfall.

Mandatory guidelines for water and wastewater systems' design and operation:

DL 207/94

DR 23/95

Quality requirements, regulators' competences and permits:

CD 98/83/CE, DL 243/01, DL 306/07 (drinking water)

CD 91/271/CE, DL 152/97, DL 149/04 (wastewater treatment)

Price setting in water and wastewater services:

DC 2000/60/CE, L 55/05

L 2/07

Private entities participation in water and wastewater services:

DL 372/93, DL 379/93, L 88-A/97

Municipality has the legal mandate to built and operate water and wastewater systems, as well as to charge for those services. One or several of those legal obligations can be transferred to a third party, always for a limited period, in the general case, by means of a public procurement process (in special cases, it can be done by means of a government legal initiative).

Innovative approaches are not just technology. They also refer to a balance considering:

- site specificities
- regulator's perspective
- land use planning instruments
- costs and benefits

Short peak season and long period of extremely low needs (and human presence in the island)

If cost allocation policy is to remain at it is, the new solutions' complexity and costs have to meet local operator possibilities. Otherwise we will be raising expectations that will not be met, increasing liability risks of the Municipality and wasting financial resources.

One critical aspect is to built a common perspective between local operator views and regulators' perspective, for permits to be issued in a balanced way.

The use of sea water, that will most probably be a part of tomorrow's solution, restricts many options in wastewater treatment.

### Wastewater:

It is legally possible and technically good practice for situations like Berlenga to discharge wastewater after a preliminary treatment. Anyway, most treatment technologies are inhibited at significant salinity concentrations. And the island will hardly do without a sea water network.

Modeling studies will be done to define wastewater treatment and discharge requirements, so that no harm will result for the environment and no water use will be in jeopardy.

Studies will be presented to the regulator, to confirm that we will be working in the right direction.



Water:

Besides water transportation from mainland, the obvious solution is desalination.

ITB suggested a rather interesting equipment, that could be available for tests.

That equipment can be of use for island autonomy in water production, if water consumption patterns do not change. That requires that local operator keeps present water demand management practices.

Results from tests will be relevant for permit application.