



MINISTERO DELL'AMBIENTE
E DELLA SICUREZZA ENERGETICA



Desalination in Italy

Regulatory framework, critical issues and future prospects

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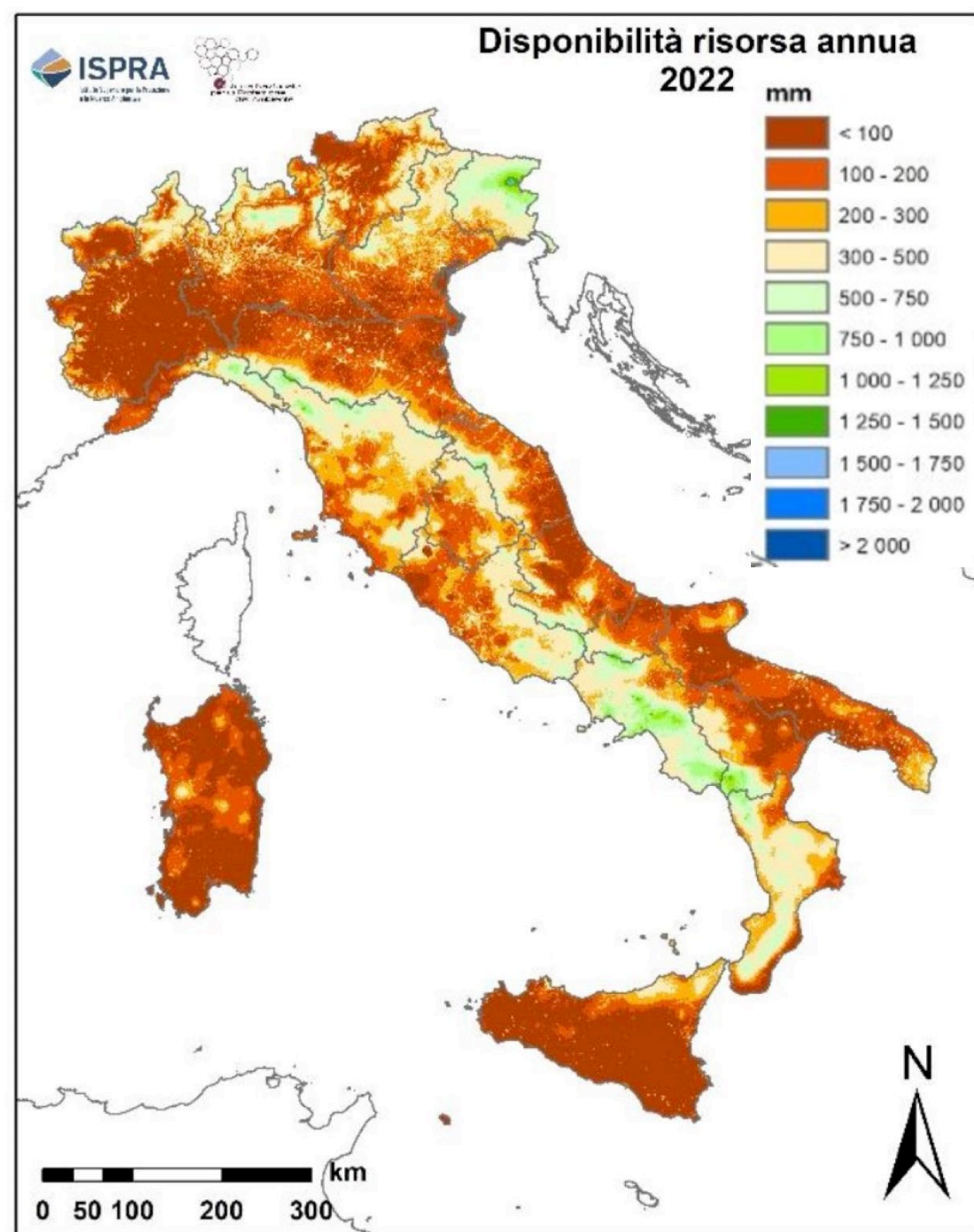
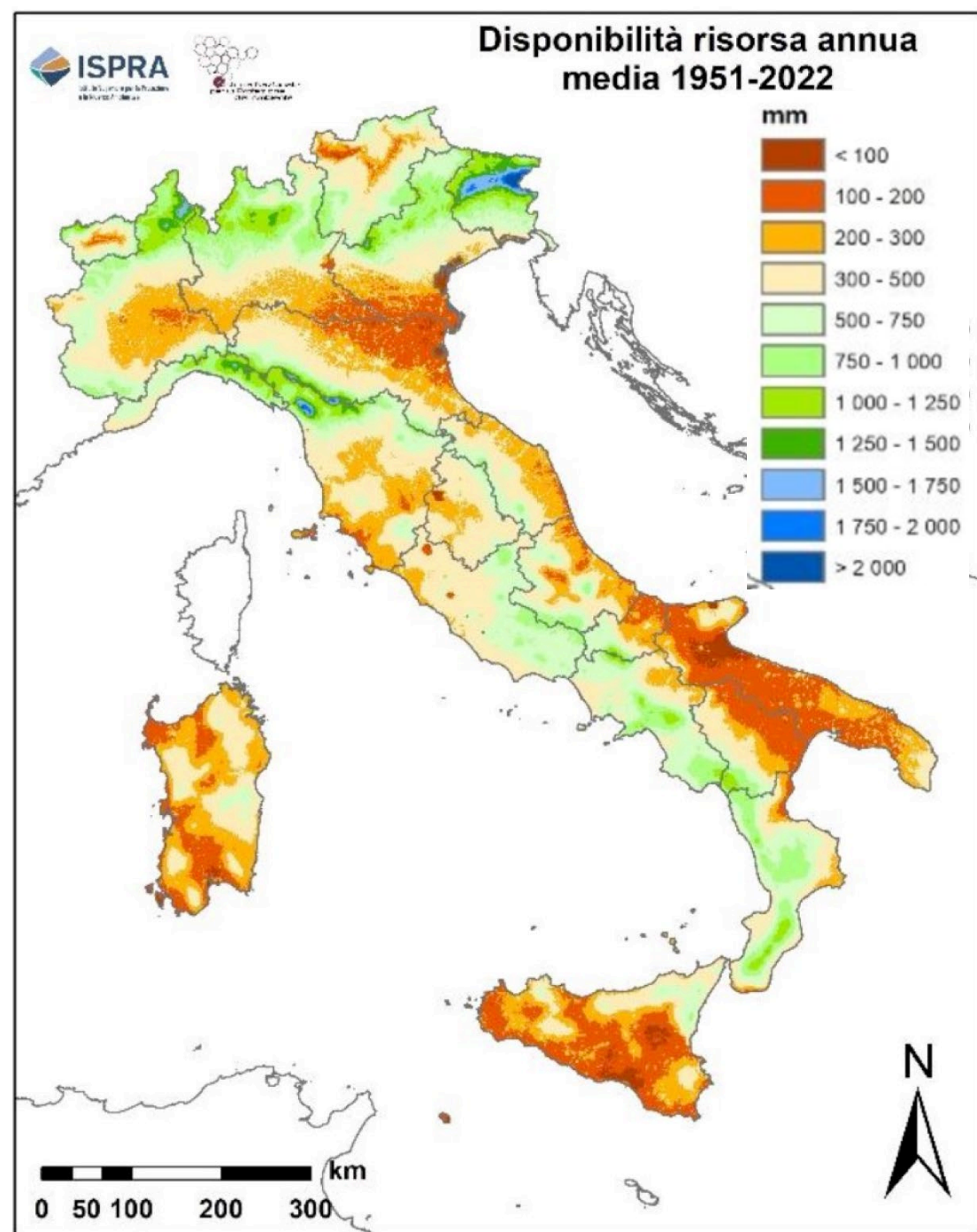
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How to tackle water scarcity in Italy?

- Improve **water infrastructures**
- Optimize **water retention** in ponds
- Increase **rainwater harvesting**
- Increase **wastewater reuse**
 - Promote sustainable **desalination**

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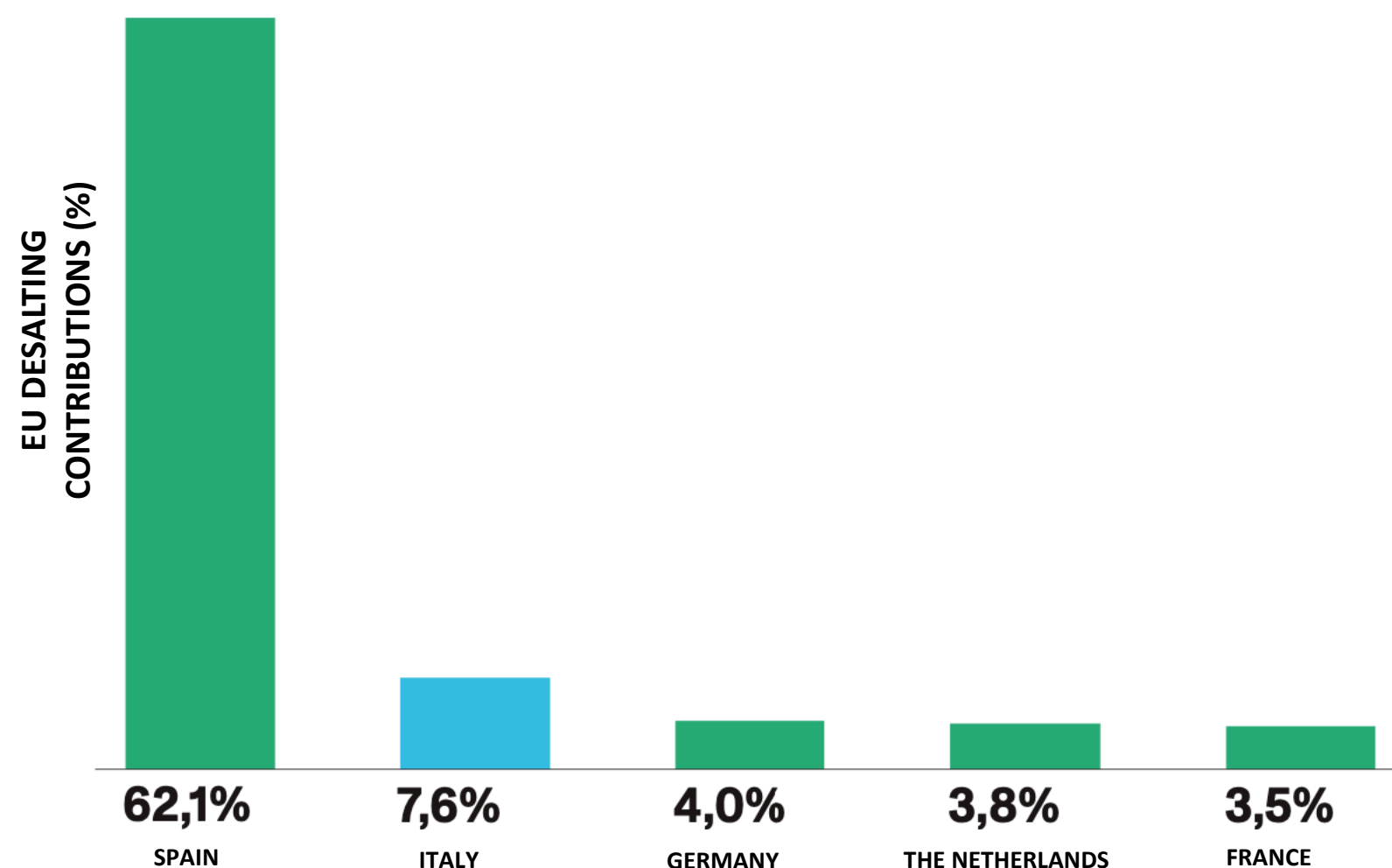
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Desalination in Italy was born as a support to industry.

Currently **71%** of the desalinated water produced is for industrial purposes, none is used in agriculture, and the remaining portion is allocated for drinking water (0,1 % of total drinking water available.)¹



Some of the largest suppliers of *Desalination* equipment are EU- based companies. a total of 413 large-scale companies headquartered in the EU-27 are active in the *Desalination* market value chain, as per their official trade description. Of these, 20.3% are located in **France** (84), followed by **Germany** (74) with 17.9%, **Spain** (59) with 14.3% **and Italy (42) with 10.2%.** ²

¹ Elaboration from The European House – Ambrosetti on data from EU commission and GWI 2024.

² the-eu-blue-economy-report-2024

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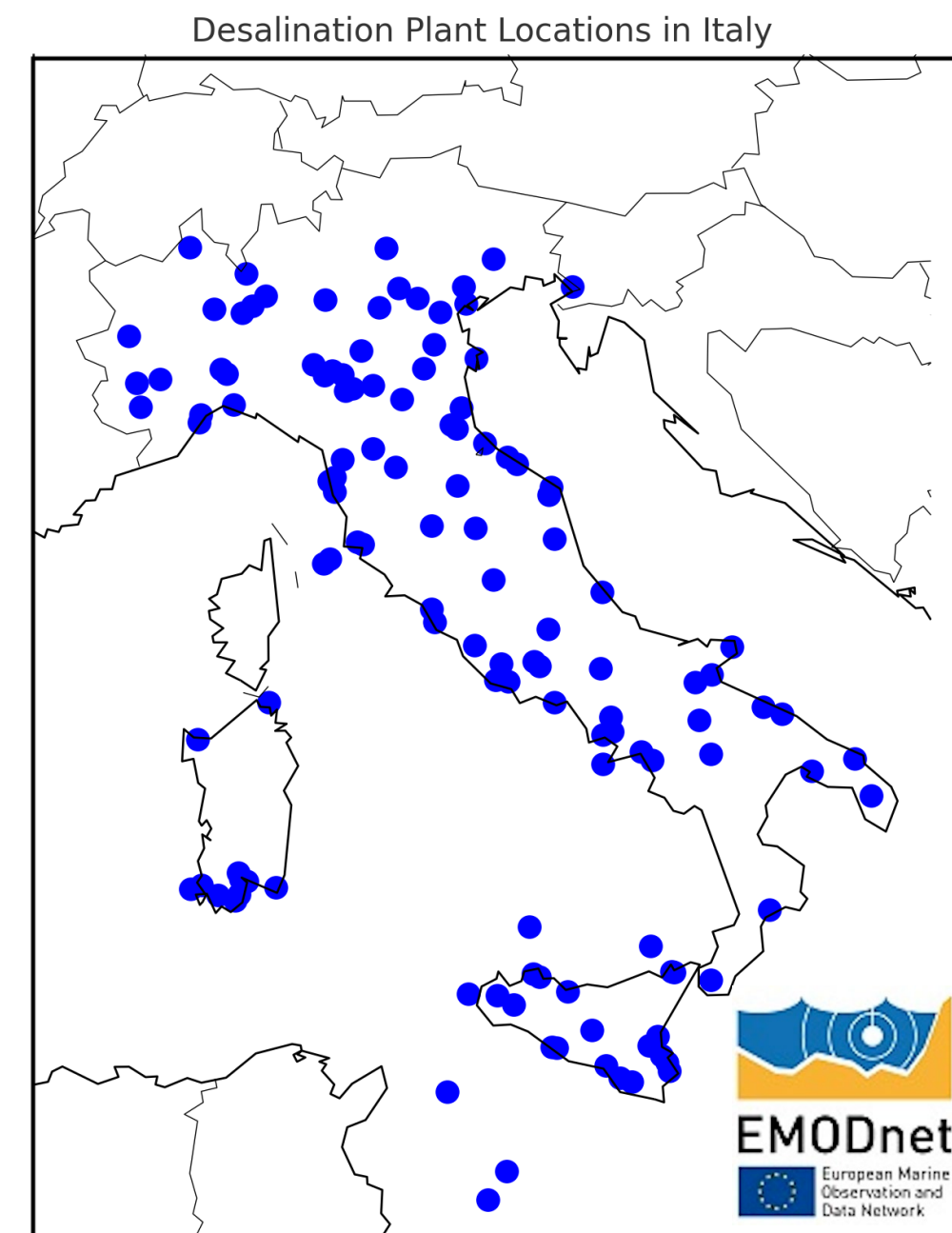
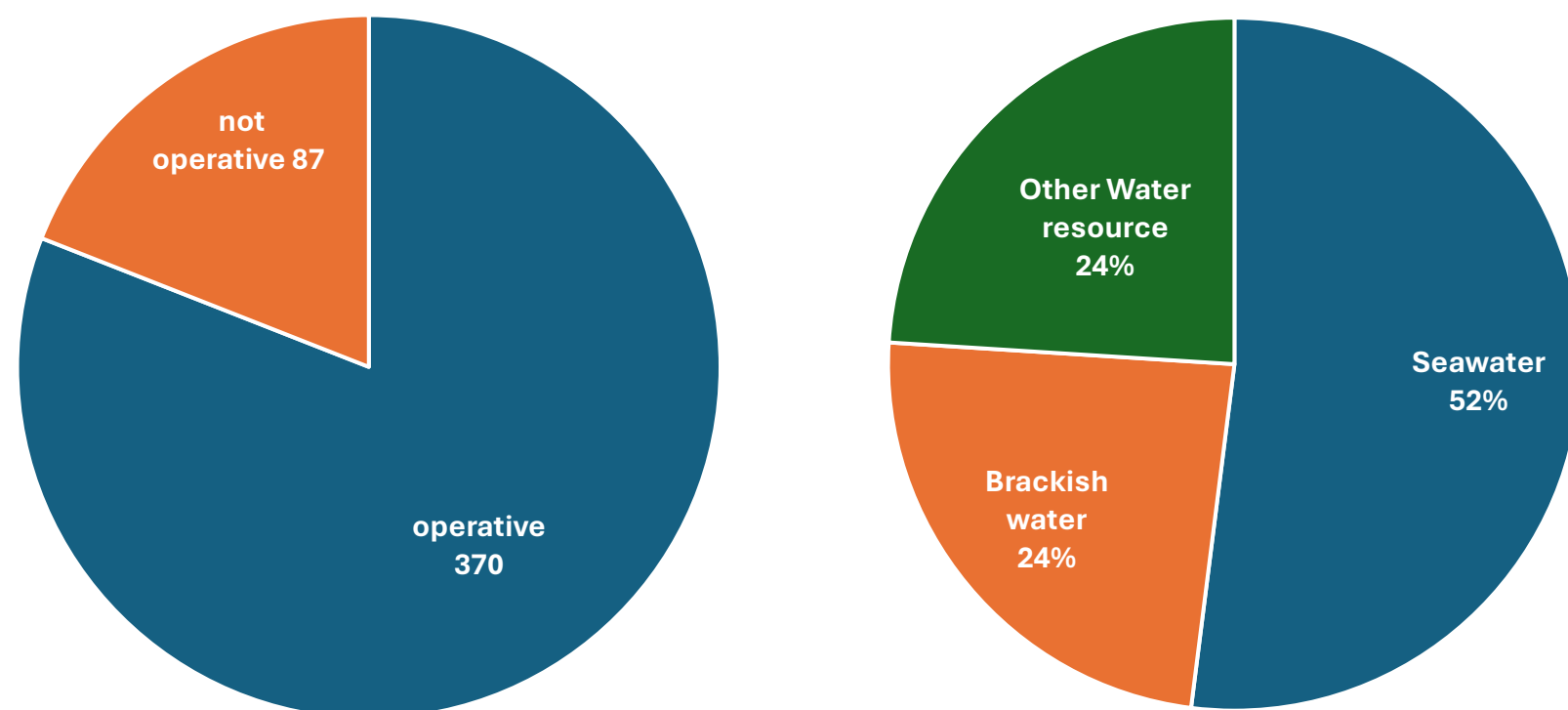
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In Italy there are about **461** desalination plants, but only a small number of them is treating marine water for drinking purposes.

The total daily capacity estimated is **712,000 m³/d**



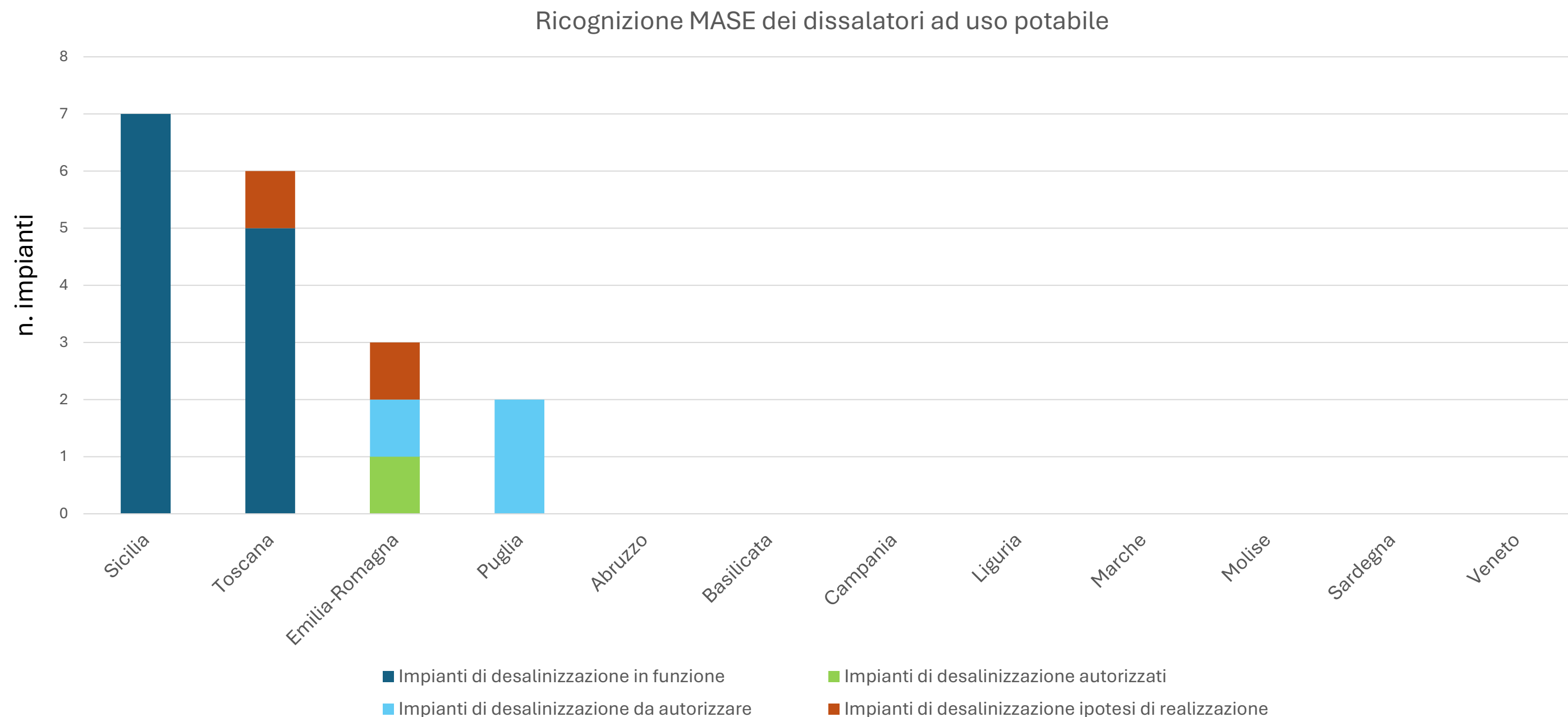
EmoDnet data and Blue-Book 2024

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In 2023, the Ministry of Environment and Energy Security conducted a survey to have information about the distribution of desalination plants for drinking use.

Data are not exhaustive



Italian legal framework on water pollution and desalination

Legislative Decree 152/2006

- It has implemented the **Water Framework Directive** and its daughter directives (**priority substances** and **groundwater** directive), **UWWTD** and **nitrate directive**
- It introduces measures to monitor, assess and improve the **quality of groundwater and surface water**
- It defines **limits for pollutants discharges**, setting specific parameters to monitor and prevent water quality degradation
- **Desalination was not clearly mentioned in the original text but muds and emulsions from desalting processes were identified as wastes**
- Monitoring is made by regional/local agencies.

Italian legal framework on water pollution and desalination

«Save the Sea» Law (n. 60, May 2022)

Art. 12: general criteria for the regulation of desalination plants

- Environmental Impact Assessment (**EIA**) is required for all desalination facilities
- It gives mandate to the Ministry of the environment to set specific prescriptions for **desalination plant discharges**, other the ones already foreseen by law 152/2006.
- It gives mandate to the Ministry of the environment to define specific parameter to **limit the environmental impact** of desalination plants for the **production of drinking water**.

Law 68/2023 (conversion into law of the «Draught decree»)

The **Draught decree** contains urgent provisions for combating water scarcity and strengthening and upgrading water infrastructure.

It simplifies the administrative procedure for the construction of desalination plants.

- **EIA** only for plants with a **capacity ≥ 200 L/s**
- Partnership between public and private subjects
- It widens the uses of desalinated water
- New Environmental Limit Values: **Salinity, Boron (in terms of % increase)**

Italian legal framework on water pollution and desalination

The Ministry on the environment is working on the definition of a **technical regulation** in order to **limit the environmental impacts** of desalination plants discharges, encouraging the use of alternative water resource, always bearing in mind:

Planning
Circularity
Sustainability

Environmental risk assessment

- Prescriptions for the design of the intake and discharge pipelines
- Prescriptions for **brine discharge preserving marine ecosystem**
- Promotion of **brine recovery** in a **circular economy** perspective

Health risk assessment

for drinking water production:

- Compliance with the **drinking water legislation**

Grazie per l'attenzione