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WATER POLLUTION IN ITALY AND HUMAN RIGHTS

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Water is an essential resource

- Agriculture and food production
- Economic Importance (energy production, cooling, cleaning)
- Human body is 70% water!

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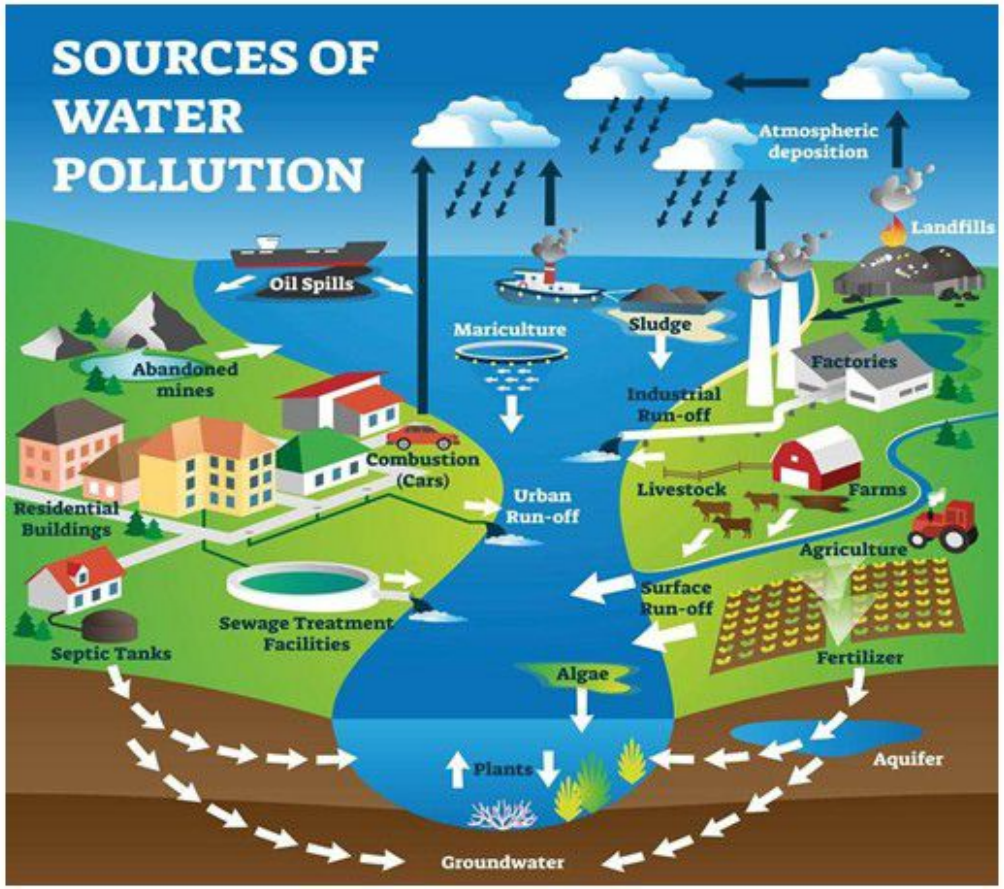
Main causes of water pollution in Italy

- Industry: chemical and heavy metal spills, especially in areas like Lombardia and Veneto
- Intensive agriculture: use of pesticides and fertilizers contaminating groundwater, particularly in Emilia-Romagna and Apulia
- Urban waste: obsolete sewage systems and untreated waste discharge in rural and peripheral areas



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Main causes of water pollution in Italy (cont.)

Heavy Metals: Italy's Po River, one of the longest rivers in the country, is known to have significant concentrations of heavy metals such as lead, cadmium, and mercury, which can pose serious health risks to humans and wildlife.

Plastic Pollution: Italy is also a major contributor to Mediterranean plastic pollution, adding around 34,000 tons of plastic each year, according to WWF. This is part of the global crisis, where millions of tons of plastic waste enter oceans annually.

Nitrate Pollution: In several regions, particularly in Northern Italy, groundwater nitrate levels exceed EU safety limits of 50 mg/L due to agricultural activities, raising concerns for drinking water safety.

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Consequences of water pollution in Italy

- **Public health:** Cases of heavy metal and nitrate contamination in drinking water, impacting respiratory and cancer-related diseases.

- **Environment:** Reduced biodiversity in Italy's aquatic ecosystems, particularly in the Po River and northern lakes.

- **Tourism:** Damage to the tourism image of polluted coasts and lakes.

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The Po River Basin Pollution

- It is the longest river in Italy and has been afflicted by high levels of nitrates , phosphates and heavy metals.

- The main problems are eutrophication and water quality

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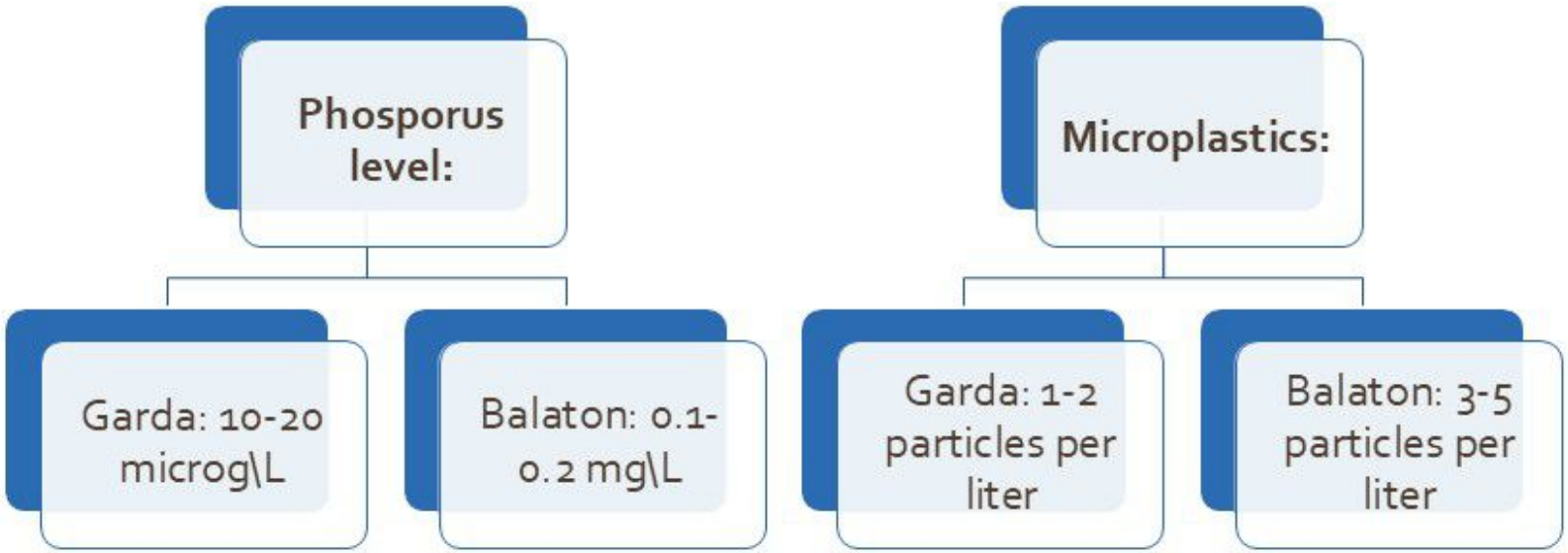
Garda and Balaton Lake: a fast comparison



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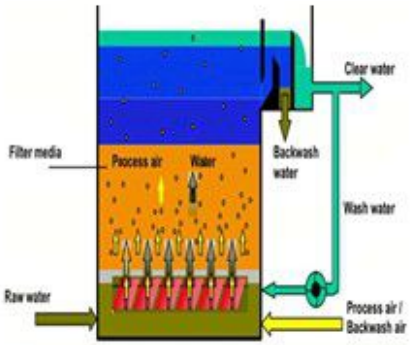
Other solutions



USE OF BIOFILTERS: BIOFILTERS, WHICH USE PLANTS AND MICROORGANISMS TO FILTER POLLUTANTS, ARE GAINING POPULARITY FOR TREATING URBAN AND AGRICULTURAL WASTEWATER.

RAINWATER HARVESTING AND REUSE SYSTEMS: THE INSTALLATION OF RAINWATER HARVESTING SYSTEMS IS ON THE RISE, ALLOWING FOR REDUCED CONSUMPTION OF DRINKING WATER AND IMPROVED MANAGEMENT OF WATER RESOURCES.

LAWS AND REGULATIONS: THE ITALIAN GOVERNMENT HAS INTRODUCED STRICTER REGULATIONS FOR CONTROLLING POLLUTANT EMISSIONS AND PROTECTING WATER RESOURCES, ENCOURAGING SUSTAINABLE PRACTICES AMONG BUSINESSES AND CITIZENS.

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Venice lagoon pollution

- Venice ecosystem has been under pressure from industrial activities
- The pollution in Venice has led to declining biodiversity and has impacted the aquaculture industry.

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Garda lake contamination

- It's Italy's largest lake.
- The key pollutants include agricultural pesticides, fertilizers- Efforts to manage and reduce pollution include stricter wastewater by the authorities

Lago	Regione	Comune	Prov	Località	Punto	2024
Garda	Veneto	Garda	VR		Foce torrente Gusa	Entro i limiti
Garda	Veneto	Bardolino	VR	Punta Cornicello	Foce torrente San Severo	Entro i limiti
Garda	Veneto	Lazise	VR		Foce torrente Marra	Fortemente inquinato
Garda	Veneto	Lazise	VR		Foce torrente Bosca	Fortemente inquinato
Garda	Veneto	Castelnuovo del Garda	VR	Ronchi	Foce Rio Dugale dei Ronchi	Entro i limiti
Garda	Veneto	Peschiera del Garda	VR		Foce torrente Rielo	Fortemente inquinato

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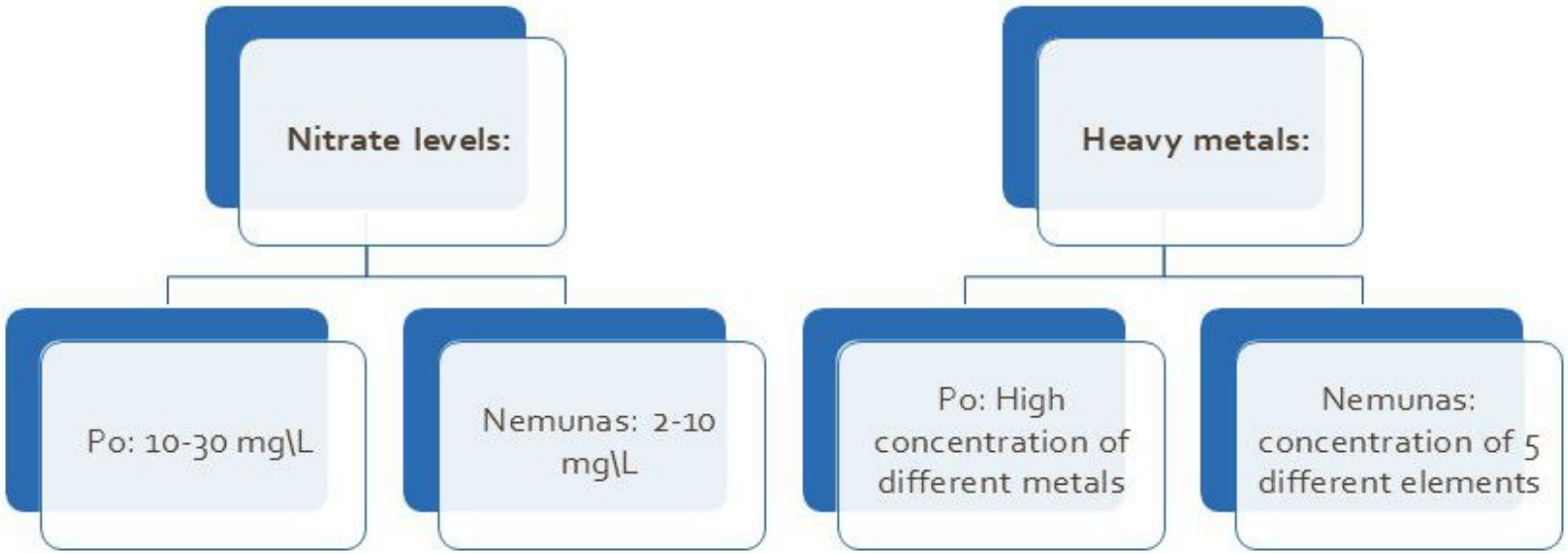
Po and Nemunas river comparison



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Ilva, Taranto Steel Plant

Taranto is a city in Apulia, one of the most beautiful regions in Italy
Ilva was a steel plant in Taranto and its production processes release a range of pollutants such as heavy metals, PAH, dioxins....

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Ionian sea and Baltic sea comparison

Nitrate concentrations in the Baltic can reach up to 10 mg/L

Ionian sea Nitrate levels are typically around 3–5 mg/L

Baltic sea 5,000–10,000 particles per square kilometer

Ionian sea 3,000-5,000 particles per square kilometer

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Right to Water in Italy

Italy has recognized access to water as a fundamental right and has regulated public water use through environmental laws, like Legislative Decree 152/2006.

However, challenges remain in ensuring clean water for all communities.

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Human right to water in Italy

In Italy, water pollution compromises the right to health and safe drinking water in some communities, especially in Southern Italy and industrialized areas. Protecting these rights is crucial for ensuring equity and public health.

Availability and Accessibility: Italian law states that water is a common good and should be accessible to all citizens. However, there are challenges related to distribution and water quality in certain regions.

Public and Private Management: In Italy, water services are managed by both public entities and private operators. Rates are regulated to ensure affordability, but there is an ongoing debate about the risks of privatization and its impact on fair access to water.

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Challenges and Issues in Italy

Pollution of Water Resources: In some areas, such as the Po basin and Veneto, water resources are threatened by industrial and agricultural pollutants, limiting access to clean and safe water.

Drought and Climate Change: Recent droughts and rising temperatures have exacerbated water scarcity, particularly in southern regions, affecting farmers and local communities.

Regional Disparities: There are significant disparities between northern and southern Italy in terms of access to quality water services. In the South, infrastructure is often outdated, and water supply is less reliable.

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Innovation and solutions against water pollution

Advanced Wastewater Treatment:

- Wastewater treatment plants are adopting more advanced technologies, such as membrane treatment systems and UV disinfection processes, to improve the quality of water returned to the environment.

Water Quality Monitoring:

- The use of smart sensors and IoT (Internet of Things) technologies allows for real-time monitoring of water quality. These systems can detect contaminants and alert local authorities immediately.

Restoration of Water Bodies:

- Remediation projects for contaminated rivers and lakes are underway, using techniques such as sediment removal and bioremediation to restore the health of aquatic ecosystems.

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Conclusions

In Italy, clean water is essential for protecting public health, environment sustainability, and citizens' fundamental rights. However, water pollution driven by agriculture, industry and urbanization poses a significant threat, impacting Italy's ability to ensure safe water access.

This issue reflects global pollution challenges with far-reaching implications for health and human rights. Addressing these concerns is crucial not only for Italy but also as part of a broader international commitment to improving water quality worldwide.