

Croatia

Wastewater Pollution Reduction and Institutional Strengthening in Sensitive Coastal Areas of the Adriatic Sea

Cities along the Adriatic coastline of Croatia boast a sizable and fast-growing tourism industry that is one of the key pillars of the country's economy. However, the practice of discharging untreated sewage directly into the Adriatic Sea resulted in the serious threat of environmental degradation to coastal waters, in addition to constraining tourism-based economic development. From the project's start in 2009 to the project closure in 2015, the Coastal Cities Pollution Control Project 2 (CCPCP) supported the elimination of untreated wastewater discharge, piloted innovative wastewater treatment solutions, engaged in institutional strengthening, and improved seawater quality monitoring in the coastal area.



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Challenge

Tourism is a key pillar of the Croatian economy, representing around 20% of the country's gross domestic product in 2016. However, the inadequate disposal and management of wastewater in the coastal area was threatening the quality of the Adriatic Sea coastal waters and hindering sustainable economic development along the Adriatic coastline. In line with this, it was essential to reduce the amount of wastewater pollution loads entering the Adriatic Sea. It was particularly necessary to eliminate coastal zone pollution to improve the quality of coastal waters, reduce eutrophication, and reduce the risk of water-related diseases.

Importantly, wastewater services were far below European Union (EU) standards (Croatia joined the EU in 2013) and EU directives requirements. In 2009, only 44% of Croatians had adequate access to wastewater collection systems, and less than 25% of the population had any form of wastewater treatment. The lack of efficient and sustainable wastewater services in Croatian coastal municipalities posed a threat to inclusive and sustainable economic growth, public health, and environmental quality.

Approach

The government of Croatia requested the World Bank to help improve the sustainability of wastewater collection, as well as to advance treatment and disposal services for cities along the country's coastline. To fulfill this request, CCPCP was developed in 2004 to improve the provision of efficient and sustainable wastewater services in participating coastal municipalities. In addition, the project was designed to introduce innovative wastewater treatment solutions to support relevant coastal communities.

The project objectives were achieved by developing new wastewater treatment and collection systems, as well as by developing the capacity of the Ministry of Environmental Protection, the National Water Agency (*Hrvatske vode*; HV) and participating municipal water utilities in terms of project preparation, management, and efficient operations of newly acquired collection and treatment systems. With local implementation partners and strategic international support, CCPCP was created with an approach shaped by the overarching goals of improving seawater quality monitoring, strengthening institutions, and substantially investing in wastewater technology.

Results

The project (2009–15) strengthened water supply and sanitation (WSS) services across 23 municipalities by improving the provision of efficient and sustainable water services.

The following key results were observed during the life of the project:

- The project contributed to successfully reducing the wastewater pollution load entering Croatia's coastal waters;
- 14 new wastewater treatment facilities were constructed and put into operation, alongside improved knowledge of alternative nutrient reduction wastewater treatment technologies;
- 162 kilometers of wastewater treatment systems were constructed;
- The percentage of households in participating cities that were able to connect to wastewater services increased from 26% in 2009 to 72% in 2016;
- Capacity building of the Croatian government's wastewater management sector contributed to improved sustainability;
- 12 submarine outfalls were constructed;
- The project supported the strengthening of HV as the key institution for the management of wastewater services in Croatia, resulting in more efficient planning and project management of WSS services;
- 5 documentation packages for investments to be financed through EU structural funds were prepared, multiplying the project's financial and environmental impact;
- The Croatian line ministries responsible for environmental protection and HV were supported to prepare and implement a Water Management Strategy that aligned the Croatian wastewater sector with the EU's water directives.

We clean our water strictly just with biological microorganism, nothing else; it is a completely ecological type of cleaning of water. ... There is no smell and no swimming objects like we saw before.

—Branka Viduka, technologist at the new wastewater facility in Zadar

Bank Group Contribution

The World Bank provided the Republic of Croatia with an Adaptable Program Loan in the amount of US\$87.50 million. The Global Environmental Facility (GEF) co-financed the project with a grant in the amount of US\$6.4 million to help further reduce the nutrient loads entering Croatia's coastal waters and to pilot innovative wastewater treatment solutions in several smaller municipalities. The additional GEF financing allowed for the preparation of project applications and documentation for much larger EU structural funds, resulting in significant downstream nutrient removal. The project is the second project supported by a two-phase Adaptable Program Loan (APL) to help Croatia improve the quality of its coastal waters in line with applicable environmental standards.

Partners

The *Hrvatske Vode* (HV) is the main institutional player in the provision and management of wastewater services in Croatia, and served as a focal point for the project preparation and implementation. In addition, the Croatian Ministry of Environmental Protection was responsible for the implementation of the seawater quality monitoring project component.

Beneficiaries

More than 230,000 people directly benefitted from the project's interventions. Alenka Turkovic, a technologist at the Opatija wastewater plant noted, "The biggest problems are buildings which are directly on the coast, but not connected to the system, and which have their own outlets into the sea. With the construction of the wastewater treatment system, those have disappeared and the quality of the water where people bathe is excellent."



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—Alenka Turkovic, technologist at
Opatija Waste Water Plant

Moving Forward

The Croatian government continues its commitment to sustainable and reliable wastewater treatment, especially given the strategic role of coastal cities in the country's tourism industry. The sustainability of the development outcomes is also ensured by the government's willingness and obligation to meet agreed EU directives on wastewater collection and treatment related to the Adriatic Sea. HV continues to use the monitoring and benchmarking system developed under the project as a national benchmarking platform for improving WSS service quality and efficiency. This demonstrates strong ownership by the implementing agency and represents a significant long-term benefit brought about by the project with regard to supporting institutional improvement for the WSS utilities sector in Croatia.

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