



Report Number : ICRR0020573

1. Project Data

Project ID
P102732

Project Name
COASTAL CITIES POLLUTION CONTROL 2

Country
Croatia

Practice Area(Lead)
Water

L/C/TF Number(s)
IBRD-76400

Closing Date (Original)
30-Sep-2014

Total Project Cost (USD)
277,400,000.00

Bank Approval Date
11-Dec-2008

Closing Date (Actual)
31-Dec-2015

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	87,500,000.00	0.00
Revised Commitment	85,339,250.82	0.00
Actual	75,057,232.43	0.00

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Project ID
P102395

Project Name
COSTAL CITIES POLL CTRL II (GEF) (P102395)

L/C/TF Number(s)
TF-92704

Closing Date (Original)
30-Sep-2014

Total Project Cost (USD)
100,642,000.00



Bank Approval Date	Closing Date (Actual)		
11-Dec-2008	31-May-2016		
		IBRD/IDA (USD)	Grants (USD)
Original Commitment		0.00	6,400,000.00
Revised Commitment		0.00	5,694,591.80
Actual		0.00	5,694,591.80

2. Project Objectives and Components

a. Objectives

The project is the second phase of a three-phase eleven-year Adaptable Program Loan (APL) 2004-2015 that supports the Government of Croatia’s comprehensive program to improve the provision of efficient and sustainable sanitation services in Croatia’s Coastal Cities and, thus, improve coastal water quality along the Adriatic Coast. The overall objective of the APL-supported Program is the improvement of ambient coastal water quality to meet European Union (EU) standards. The Phase-I APL aimed to establish the institutional framework, innovative financing mechanism, and piloting investment through subprojects. According to the Project Appraisal Document (PAD, p. 5) and the Loan Agreement (p.6) the objectives of the Phase-II APL were to:

“i) to improve the provision of efficient and sustainable wastewater services in participating coastal municipalities; and ii) to reduce the nutrient load entering Croatia’s coastal waters from, and pilot innovative wastewater treatment solutions in, selected municipalities”.

b. Were the project objectives/key associated outcome targets revised during implementation?
No

c. Will a split evaluation be undertaken?

d. Components

1: Wastewater Investments (appraisal estimate €108.30 million, actual €105.34 million, 97% of appraisal estimate; appraisal estimate for GEF financing US\$5.60 million, actual US\$4.90 million, 88% of appraisal estimate): This component was to finance equipment, civil works, and technical assistance to strengthen the HV monitoring systems, and the seawater quality monitoring system of the Ministry of Environment and Energy (formerly Ministry of Environmental Protection, Physical Planning and Construction (MEPPPC)).

2: Institutional Strengthening (appraisal estimate for IBRD financing €6.00 million, actual €6.00 million,



100% of appraisal estimate; appraisal estimate for GEF financing US\$0.40 million, actual US\$0.40 million, 100% of appraisal estimate): This component was to finance equipment, technical assistance, training, and studies in three sub-components: i) sector development to assist the Ministry of Regional Development, Forestry, and Water Management (MRDFWM), and the Agency for Water Management, Croatian Waters, (HW) in the implementation of the Water Management Strategy and further align the sector to EU accession priorities; institutional strengthening of the Municipal Water and Sewerage Company (MWSC); and support the Implementation Unit, HV Adriatic Project, in the implementation of the project.

3: Seawater Quality Monitoring (appraisal estimate for IBRD financing €5.70 million, actual €5.70 million, 100% of appraisal estimate; appraisal estimate for GEF financing US\$0.40 million, actual US\$0.40 million, 100% of appraisal estimate): This component was to finance equipment, civil works, and technical assistance to strengthen the HV monitoring systems, and the seawater quality monitoring systems of the Ministry of Environment and Energy (MEE).

e. **Comments on Project Cost, Financing, Borrower Contribution, and Dates**

Project Cost: All three phases of the APL were estimated to cost €280 million of which €140 million was to come from the World Bank, actual cost of the APL-II was €117.04 million.

Financing: The project was to be financed by a €60.00 million loan by the IBRD of which €1.48 million was cancelled. Therefore, net disbursement was €58.52 million. US\$6.40 million was to be financed by the Global Environment Facility (GEF) of which US\$0.71 million was cancelled resulting in a net disbursement of US\$5.70 million.

Borrower Contribution: The government was to contribute €60.00 million. Actual contribution was €58.52 million.

Dates: The project was restructured three times at Level-2:

- On March 30, 2012 the project was restructured to: i) redefine the scope of Component 2 to take into account that the in-depth study of investment needs and financing plan to meet EU requirements (which were already prepared by the government outside the project); ii) reallocate proceeds between loan and grant categories to reflect the needs of project implementation; iii) define a new date for the establishment of the monitoring and benchmarking system; and iv) modify the wording of result and intermediate results indicators in the Result Framework and Monitoring table to provide more accurate and measurable indicators.
- On June 11, 2014 the project was restructured to: i) extend the closing date of the loan and the GEF grant from September 30, 2014 to December 31, 2015 to allow for the completion of implementation of project activities; ii) reallocate loan and grant proceeds between different disbursement categories and project components to reflect the needs of project implementation; iii) partially cancel the GEF grant proceeds that would not be spent before the revised closing date; and iv) modify the target values of the GEF results indicator in the Results Framework and Monitoring table to reflect the reduction in number of WWTP with nutrient removal constructed from four to three, corresponding to the grant amount that was cancelled.
- On October 22, 2015 the GEF grant closing date was extended by five months from December 31, 2015 to May 31, 2016 and US\$100,000 was reallocated between categories to allow for the completion



of the ongoing investments financed by the GEF grant.

3. Relevance of Objectives & Design

a. Relevance of Objectives

The Adriatic coastline is of great importance to Croatia's economy. The disposal of untreated wastewater has a significant impact on the quality of seawater and is strongly linked to tourism. However, the quality and coverage of wastewater services in Croatia are much lower than in other countries in the European Union (EU). In 2007, only 44 percent of the population had appropriate wastewater collection systems and only 25 percent of the collected wastewater was treated. Croatia agreed, as part of its EU accession agreement, to meet EU environmental directives for wastewater management.

The project's objectives were in line with the government's Strategy Development Framework 2006-2013 which focused on full membership in the EU and addressed a key reform agenda to enhance the effectiveness of public spending by increasing the level of cost recovery from local governments and consumers. Also, the project was in line with the national Water Management Strategy which was adopted by the Croatian parliament in 2008.

The Bank had been supporting Croatia in coastal pollution reduction through its 2004 and 2009 Country Assistance Strategies and the APL. Furthermore, the project's objectives are relevant to the current Country Partnership Strategy's (2014-2017) third pillar which aims to maximize the benefits of EU membership while supporting compliance achievement. The project's objective is also consistent with the Global Environment Facility (GEF) Strategic Program 2 "Reducing Nutrient Over-enrichment from Land Based Sources" under GEF's International Water focal area.

Rating

High

b. Relevance of Design

The planned activities of the project and the GEF-financed activities were logically and plausibly linked to the achievement of the project objectives. Activities to improve the provision of efficient and sustainable wastewater services in participating coastal municipalities included the financing of equipment, technical assistance, training, and studies to strengthen the institutional capacity of the wastewater sector. Activities to reduce the nutrient load entering Croatia's coastal waters included the financing of new wastewater collection and treatment infrastructure and providing households with opportunities to connect to wastewater collection systems. Also, the project design included waste water solutions which were innovative for Croatia.



Rating

Substantial

4. Achievement of Objectives (Efficacy)

Objective 1

Objective

Improve the provision of efficient and sustainable wastewater services in participating coastal municipalities

Rationale

Outputs:

- 23 sub-loan agreements were signed in participating cities, achieving the revised target of 21 sub-loan agreements.
- Croatian Waters and municipalities prepared five projects for EU financing, surpassing the target of 4 projects.
- 19 Wastewater Treatment Plants were completed. Seven plants are conducting pretreatment, nine are providing mechanical treatment, and three are Constructed Wetlands.
- 176km of collectors were constructed.
- 83 pumping stations were completed.
- 13 submarine outfalls were completed.
- A benchmarking system (SIGMA 3) assessing the technical economic and financial performance of all Water Supply and Sanitation companies are up and running.
- A benchmarking methodology and report to measure Municipal Water and Sewerage Company's (MWSC) performance was developed.
- Training and workshops on using the benchmarking system were conducted.
- A technical and economic study on treatment and disposal of waste and waste sludge generated by the treatment of wastewater from public sewerage systems of towns and municipalities in Croatian counties was conducted.
- Five environmental projects were prepared for co-financing by the European Union.
- A monitoring and benchmarking system is designed and operational, achieving the target.
- The number of participating cities in which seawater quality monitoring systems are operational and baseline indicators are in place prior to completion of construction increased from 11 cities in 2009 to 22 cities in 2016, not achieving the original target of 37 cities but the revised target of 21 cities.

Outcomes:

- The percentage of households in participating cities which are able to connect to wastewater services increased from 46% in 2009 to 76% in 2016, achieving the target of 76%. i.e. wastewater collection has become more efficient.



- The operation ratio (expenses/revenues) of participating utilities improved from 1.13 to 0.84, achieving the target of being less than 1.
- The collection rate of participating Municipal Water and Sewerage Companies increased from 76% in 2009 to 90% in 2016, achieving the target of being higher than 86%, indicating financial sustainability of Municipal Water and Sewerage Companies.
- Corporate Governance and efficiency of Water Supply Sanitation utilities improved.
- Solutions for sludge utilization and positive environmental impact were developed.
- Grant funds for the environment by the European Union were increasingly absorbed.

Rating

Substantial

Objective 2

Objective

Reduce the nutrient load entering Croatia's coastal waters from , and pilot innovative wastewater treatment solutions in selected municipalities:

Rationale

Outputs:

- An Adriatic sea monitoring study was issued.
- Staff at HV, authorized laboratories, Municipal Water and Sewerage Companies and the Ministry of Environmental Protection, Physical Planning and Construction were trained in seawater quality monitoring.
- Laboratory equipment for measuring seawater quality was purchased.
- 176 kilometer of wastewater collection systems were constructed, surpassing the target of 150 kilometers.
- 19 wastewater treatment plants were commissioned, surpassing the target of 18 plants.
- 13 submarine outfalls were constructed, surpassing the original target of 4 outfalls and the revised target of 13 outfalls.
- Three enhanced nutrient reduction plants were commissioned, achieving the target.
- Three Wastewater Treatment Plants were constructed of which one was commissioned and therefore validated for satisfactory operation. A project design for two more Wastewater Treatment Plants was developed.

Outcomes:

- Pollution and nutrient load in cities with enhanced nutrient reduction wastewater treatment facilities was reduced by 80%, surpassing the target of a 50% reduction.
- The samples from bathing areas in participating towns complying with applicable seawater quality



standards increased from 98% in 2009 to 100% in 2015, achieving the target.

- The Chemical Oxygen Demand pollution load reduction had a volume of 370 tons/year, surpassing the target of 130 tons/year.

Rating

Substantial

5. Efficiency

Economic and Financial Efficiency

A traditional economic analysis was not undertaken at appraisal due to the difficulty of quantifying and attributing benefits such as improvement in the health of users, convenience, increased real estate values and positive environmental impacts to the project. According to the PAD, the main two economic benefits included improvements in tourism and meeting EU accession requirements and the benefits of membership therefrom.

At project completion the ICR identified project benefits related to fisheries, tourism, and improvements in health conditions. However, due to the lack of data only the impact on tourism could be estimated. The number of tourists coming to Croatia increased from 10.6 million in 2010 to 14.3 million in 2015. The analysis uses two coefficients to take into account that not all tourists (only 80%) go to the sea and that not the entire increase in tourism can be attributed to the project (only 60%). Data from similar projects was used to monetize the benefits from tourism. It was estimated that tourists in Croatia spend €72 per day with a value added of €36 per day. The ICR estimates that the contribution of tourism in the Adriatic Sea attributed to the project was approximately €25 million with a Net Present Value of €183 million at a five percent discount rate and an Economic Internal Rate of Return of 26 percent, indicating a good value for money.

A financial analysis was undertaken at appraisal and on completion. The ICR (p.15) estimates the Financial Internal Rate of Return (FIRR) of projects that were also included in the PAD's financial analysis. As the PAD, the ICR assumes a 5% discount rate and financial flows over 20 years. For three infrastructure investments, Cres-Mali Losinj the FIRR is 8% and the Net Present Value at HRK 6.708 million compared to the PAD's estimate of a FIRR of 6% and NPV of HRK 0.847 million. For Metkovic, the FIRR is 6% and the NPV is HRK 0.847 million compared to a FIRR of 5% and a NPV of HRK 0.340 million in the PAD. The financial analysis of the Cres—Mali Losinj, Hvar, and Metkovic Water Supply and Sanitation companies for the period 2013 to 2015 showed that the companies are constantly improving their profitability, financial performance and ratios but continue to receive subsidies. Furthermore, all three companies are charging a fee for the collected and treated wastewater, transferring a certain portion of the costs to the customers and contributing to a partial cost recovery of services.

According to the PAD (p. 68) the project entailed a fiscal cost due to direct contributions from Central Government through HV and Municipal Water and Sewerage Company. Also, the project was efficient at leveraging additional EU financing to Croatia.



Operational and Administrative Efficiency

The project experienced implementation delays and lack of disbursement at the beginning, indicative of inefficient use of financial resources.

Taking everything together, Efficiency is rated Substantial.

Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

Relevance of the objective was High given the importance of the water quality of the Adriatic sea to Croatia’s economy. Relevance of design was rated Substantial. The achievement of both objectives and Efficiency was rated Substantial. Taking everything together, the project’s outcome rating is Satisfactory. Even so, the expected APL-III was cancelled because of the availability of EU grants for Water Supply and Sanitation sector. The government expressed interest in continuous Bank cooperation in the reform of the water utility sector.

a. Outcome Rating

Satisfactory

7. Rationale for Risk to Development Outcome Rating

The government and all different levels of stakeholders continue to be committed to the sustainability of wastewater treatment, especially given its importance for the tourism industry. Local governments and utilities have been demonstrating their commitment also financially. All of the Municipal Water and Sewerage Companies have collected appropriate surcharges to the tariff to contribute financially to the investment and ensure that costs related to operations and maintenance would be covered. Furthermore, the sustainability of the development outcome is also ensured by the government’s willingness to meet agreed EU directives on the



water quality of the Adriatic Sea.

a. Risk to Development Outcome Rating

Negligible

8. Assessment of Bank Performance

a. Quality-at-Entry

The Bank team consisted of a variety of technical and sector experts. The team conducted extensive analytical work on technical, environmental, institutional, and social issues related to Croatia's coastal water during project preparation. Also lessons learned from the first phase of the project were included in the project design. Furthermore, the Bank was able to attract co-financing from the GEF which allowed for the construction of several WWTPs with nutrient removal and the provision of technical assistance for obtaining future funding for the sector by the EU.

The Bank team identified relevant risks during project preparation. These risks were related to procurement and financial management as the project was scattered among several local governments and municipal utilities. Also, weak implementation capacity within the municipalities and HVJP, and coordination with related municipal investments since households were not connected to the sewerage system, were identified as a substantial risk. Mitigation efforts to address procurement and weak implementation capacity were not adequate and led to implementation delays at the beginning of the project

Quality-at-Entry Rating

Moderately Satisfactory

b. Quality of supervision

The Bank conducted regular supervision missions and supported the counterpart with technical expertise in critical project areas. Mission Aide Memoires and Implementation Status Reports (ISR) were candid and ISR ratings were realistic. The Bank team worked with the counterpart to overcome the implementation and disbursement delays at the beginning of the project. Furthermore, the Bank successfully restructured the project twice in a timely manner to allow for project modifications.

Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Moderately Satisfactory

9. Assessment of Borrower Performance



a. Government Performance

The government was strongly committed to achieving the development objectives and was closely involved in the project preparation and implementation. Government supported the project through appropriate policies and financial investments and stakeholders including local and national nongovernmental organizations were involved in local-level community meetings.

The project experienced implementation delays at the beginning due to the understaffed PIU resulting from the overlap of activities that still had to be completed under Phase I and insufficient government budget allocations in 2009 and 2010. Due to the understaffing of the PIU the project did not disburse anything during the first year of implementation and only 1.7 percent of the loan by December 2010. Furthermore, the implementation of the seawater quality monitoring component was significantly delayed during the first year due to an unsuccessful procurement process and extensive time taken by the Ministry of Environment and Energy (MEE) to define the scope of activities to be performed by a consultant.

Government Performance Rating

Moderately Satisfactory

b. Implementing Agency Performance

The PIU for the project was HV. The PIU was committed to achieving the development objectives. However, as mentioned above, the project experienced initial implementation delays due to the PIU's lack of staff which resulted in zero disbursement during the first year of implementation. In the second half of 2010, once the PIU was fully staffed, implementation started to pick up and the managed to complete the project successfully. The PIU and its technical experts provided technical assistance and advice to the participating municipalities and their utilities. Furthermore, the PIU performed its technical, fiduciary, legal, and safeguard responsibilities adequately.

Implementing Agency Performance Rating

Satisfactory

Overall Borrower Performance Rating

Moderately Satisfactory

10. M&E Design, Implementation, & Utilization

a. M&E Design

The project's objective was clearly specified and well reflected in most indicators. The Results Framework included six PDO, two GEO and nine Intermediate Outcome Indicators, which were all measurable in terms of numbers, timing and location. However, actual removal of all untreated discharge points of wastewater to the sea from participating cities was not measured by the selected indicators.

The M&E design was based on lessons learned from Phase I of the APL. Lessons learned were the importance of collecting baseline values of indicators before project implementation and choosing relevant indicators. Also,



based on the experience from Phase I, monitoring was strengthened by including annual financial and operational monitoring of the Municipal Water and Sewerage Companies and monitoring of physical, fiduciary, and safeguard processes and results.

The PIU was responsible for the M&E activities of the overall program and the sub-projects.

b. M&E Implementation

M&E data were collected on a regular basis. In case targets of indicators were not met, recommendations were provided by supervision missions. HV had developed a monitoring and benchmarking system that allowed for the provision of systematic data on the Municipal Water and Sewage Companies' and sub-project's performance. This benchmarking system is now being used as a national benchmarking tool for the monitoring of the Water Supply and Sanitation sector performance.

The wording of three indicators was modified during the March 2012 project restructuring. Also, during the June 2014 restructuring the target values of the GEF results indicator were adapted to reflect the reduction of constructed WWTPs with nutrient removal from four to three, corresponding to the grant amount that was cancelled.

c. M&E Utilization

M&E data was used to inform decision making. The Ministry of Environment and Nature Protection continues to use the seawater quality monitoring system.

M&E Quality Rating

Substantial

11. Other Issues

a. Safeguards

The project was classified as Financial Intermediary (F) under OP/BP 4.01 (Environmental Assessment). Three other safeguards were invoked: OP/BP 4.12 (Involuntary Resettlement), OP/BP 4.11 (Physical Cultural Resources) and OP/BP 7.5 (International Waterways). Environmental Impact Assessments and Environmental Management Plans were conducted for all waste water treatment plants and delivered and implemented on time. Mitigation measures were fully executed during construction works. Temporary and minor non-compliance with the Environmental Management Plans such as short-term excess noise was immediately addressed. According to the ICR (p. 10, paragraph 41) all project related environmental requirements were followed in a satisfactory manner.

Furthermore, a Land Acquisition and Resettlement Policy Framework that was prepared and approved before project appraisal was updated and disclosed in a satisfactory manner (ICR p. 10, paragraph 42). Overall compliance was also satisfactory. In regards to safeguard policy OP 4.11, the Ministry of Culture identified possible archaeological sites and oversaw construction at those sites. The PIU submitted



progress reports with respect to archeological works for all project sites to document compliance with the safeguard policy.

b. Fiduciary Compliance

Financial Management

The Bank reviewed the project’s Financial Management arrangements on a regularly and found them to be satisfactory. The reporting and accounting procedures were adequate and interim unaudited financial statements were submitted regularly to the Bank and were accepted. No significant shortcomings were found and discrepancies were addressed quickly. The ICR states (p. 10, paragraph 46) that all audit reports were unqualified.

Procurement

The Bank’s procurement guidelines were followed in a satisfactory manner. The Bank reviewed regularly the project’s procurement arrangements and no serious deviations from the Bank’s guidelines were identified during the Bank’s post-reviews.

c. Unintended impacts (Positive or Negative)

N/A

d. Other

12. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	---
Risk to Development Outcome	Negligible	Negligible	---
Bank Performance	Satisfactory	Moderately Satisfactory	Mitigation efforts to address procurement and weak implementation capacity were not adequate and led to implementation delays.
Borrower Performance	Satisfactory	Moderately Satisfactory	Implementation delays during the first year due to an unsuccessful procurement



		process and extensive time taken by the Ministry of Environmental and Nature Protection to define the scope of activities to be performed by a consultant.
Quality of ICR	Substantial	---

Note

When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006. The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

13. Lessons

The ICR includes eight lessons and the three most relevant are:

- **Local ownership is greatly enhanced by transparent communications:** In this project, the Bank identified transparent communication as one of the key lesson learned from previous Bank engagement in Croatia. Therefore, the Bank hired special communication consultants to work with municipal officials and Municipal Water and Sewerage Companies to increase their interest and capacity in planning and delivering public awareness and information campaigns.
- **Building capacity at the local level is critical for a successful project implementation and for the sustainability of its outcomes.** In this project, capacity was built in small municipalities and utilities which allowed them to improve their daily operations and obtain knowledge to participate in other donor programs such as by the EU.
- **Customers are willing to pay for improved wastewater services.** In this project, customers were willing to pay an additional surcharge in order to receive wastewater collection and treatment services that would have a positive impact.

14. Assessment Recommended?

No

15. Comments on Quality of ICR

The ICR provides a good overview of project preparation and implementation. The ICR is internally consistent, candid and concise. The ICR does not provide a traditional Economic analysis but attempts to assess the project’s impact on tourism. The ICR provides useful lessons learned based on project outcomes.



a. Quality of ICR Rating
Substantial