



1. Project Data

Project ID	Project Name		
P110679	ARP II-INTEGRAT'D SOLID WASTE MGT		
Country	Practice Area(Lead)		Additional Financing
Azerbaijan	Social, Urban, Rural and Resilience Global Practice		P144279
L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)	
IBRD-75490,IBRD-82740	30-Sep-2013	76,574,424.14	
Bank Approval Date	Closing Date (Actual)		
17-Jun-2008	31-Aug-2018		
	IBRD/IDA (USD)	Grants (USD)	
Original Commitment	29,500,000.00	0.00	
Revised Commitment	76,600,000.00	0.00	
Actual	76,600,000.00	0.00	
Prepared by	Reviewed by	ICR Review Coordinator	Group
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2. Project Objectives and Components

a. Objectives

Original Objective

The Project Development Objectives (PDOs) as stated in Loan Agreement (Schedule 1, page 6):

"To support the reform of the Greater Baku solid waste collection and disposal operations into an effective and sustainable system."

The PDO's as stated in the Project Appraisal Document (PAD, page 5-6) was similar, but provided more details.



"To support the reforms of the Greater Baku solid waste collection and disposal operations into an effective and sustainable system in the fields of (i) improving environmental conditions at the existing waste disposal sites; (ii) building-up operational, management and communication capabilities; (iii) rollout of collection services; and (iv) data collection and planning."

Revised Objective

The original PDO was revised following the Additional Financing (AF) approved on June 27, 2013. The revised PDO was:

"To support (i) improving solid waste disposal management; (ii) increasing waste collection coverage; and (iii) enhancing waste data information and financial management capacity in the Greater Baku area." (AF Loan Agreement, Schedule 1, page 6).

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?

Yes

Date of Board Approval

27-Jun-2013

c. Will a split evaluation be undertaken?

No

d. Components

There were five components (PAD, pages 7-8). The actual cost of project components is from the Implementation Completion Results Report. The team clarified that the figures provided in Table 2 were the actual expenditures for the original and AF projects.

1. Institutional reform, capacity building and project management. Appraisal estimate US\$7.66 million. AF US\$2.12 million. Actual cost US\$10.23 million. This component supported capacity building activities for completing the strategic solid waste management plan and establishing the legal and organizational framework for the new joint stock solid waste management company (SWMC) for consolidating waste collection and disposal systems in one new entity. There were four sub-components: (i) analytical work for preparing an implementation plan for SWMC; (ii) capacity building of the SWMC; (III) public awareness campaigns and communication program; and (iv) strengthening the project management unit. With AF, additional funds were allocated to this component to cover project management expenses.

2. Balakhani landfill rehabilitation and management. Appraisal estimate US\$12.64 million. AF US\$48.14 million. Actual cost US\$54.28 million. This component aimed at upgrading operations at the Balakhani site in Greater Baku and addressing issues associated with negative environmental impacts



from site operations. The original project envisaged closing the Balakhani dump due to negative environmental impacts, however, as the environmental management works under the original project proved successful, the government decided to rehabilitate the dump for sanitary disposal for another 20 years and requested AF. The AF was for rehabilitation of the Balakhani landfill for long-term waste disposal rather than closing the dump. This scope of this activity was expanded through the AF. Added activities included: (i) full closure of the old waste disposal parts of the site; (ii) installing water and leachate controls; (iii) opening new waste cells at the existing site; and (iv) installing a methane gas capture system.

3. Closure and management of other dumps. Appraisal estimate US\$7.55 million. AF US\$0.00 million. Actual cost US\$14.96 million. This component aimed at closing and cleaning informal dumps and improving the management of formal sites to minimize the negative environmental effects associated with non-sanitary waste disposal.

4. Urgent collection equipment for under-served Baku districts. Appraisal estimate US\$5.90 million. AF US\$0.00 million. Actual cost US\$6.40 million. This component aimed at increasing service quality throughout the region, including in the most acutely underserved areas of Greater Baku that lacked effective collection services.

5. Technical preparation of post-project investments. Appraisal estimate US\$2.24 million. AF US\$5.31 million. Actual cost US\$7.56 million. This component financed feasibility studies and environmental impact assessments. Activities were scaled up with AF to include: (i) feasibility studies for regional waste management systems and regional landfills outside the Greater Baku area; (ii) preparing a national solid waste management strategy; and (iii) preparing a national legal framework for improving sector performance.

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

Project cost. The appraisal estimate (including physical contingencies) was US\$41.50 million that increased to US\$97.10 million to finance additional activities. Actual cost is reported US\$97.10 million.

Project financing. The project was financed by an IBRD loan of US\$29.50 million. AF of US\$47.10 million. Cumulative Bank financing US\$76.60 million. The amount disbursed US\$76.60 million. There was parallel financing for complementary activities associated with regulatory strengthening in the solid waste sector and environmental work on the Balakhani landfill from the United Nations Development Program and a pre-feasibility study of the sector was financed by the European Bank for Reconstruction and Development (ICR, page 20).

Borrower contribution. The appraisal commitment was US\$12.00 million. The team clarified that the borrower financed the Value Added Tax amounting to US\$20.50 million.



Dates. The original project was approved on June 17, 2008, became effective on July 31, 2009 and was scheduled to close on September 30, 2012. These changes were made with the AF in June 2013. (i) The PDO was changed; (ii) The results framework was revised to include additional activities and revise targets accordingly; (iii) Outcome indicators were revised for better clarity, and core indicators were added; (iv) The activities under three components were scaled up; (iv) The closing date for the original project was extended by three years to complete the additional activities. After the AF project restructuring in 2013, the project was restructured twice. The first restructuring on June 6, 2016 extended the closing date by 16 months for completing ongoing activities that were delayed due to unfavorable weather conditions and permit delays. The second restructuring on November 14, 2017 extended the closing date by five months for completing ongoing activities associated with the second phase of the Balakhani landfill and delays in completion of technical assistance support. The project closed on August 31, 2018.

Split rating. While the PDO was revised, a split rating is not used for the assessment, as the PDO was revised for clarifying the specific areas of support. The PDO was revised at the time of AF when US\$23.89 million or 31 percent of the total loan was disbursed.

3. Relevance of Objectives

Rationale

This project was conceived as part of the Absheron Rehabilitation Program (ARP), a programmatic series of projects and advisory services, that responded to the Government of Azerbaijan's request for World Bank support for the Environmental State Program (ESP). This project was one of three projects, aimed at supporting the first stage in a long-term collaboration (PAD, pages 2-4).

The original PDO was highly relevant to the government priorities. The sanitation and solid waste management systems had deteriorated significantly in the Absheron peninsula, surrounding the capital city of Baku. The primary challenges for the solid waste sector were inadequate coverage, poor service delivery, and lack of options for safe disposal. The government's Environment State Program on Improving the Environmental Situation in Azerbaijan for 2006-2010, instituted by the Presidential Decree (no 1697) in 2006, envisioned a comprehensive approach for addressing critical environmental risks, through renovating facilities and improving laws and regulations. The ESP launched an ambitious agenda to change the existing practice of Solid Waste Management (SWM) throughout the country, with the initial emphasis on Greater Baku. This reform agenda was driven by a comprehensive operational, financial and legal restructuring of the sector in the Baku area, including significant investments in collection and disposal infrastructure. The PDO was well aligned with two pillars of the Bank's Country Partnership Strategy (CPS) for the 2007-2010 period at appraisal: (i) improving environmental management and furthering the climate change agenda (pillar IV); and (ii) supporting sustainable and balanced growth of the non-oil economy (Pillar II).

The revised PDO was narrowed to clarify a set of specific actions supported by the project and dropped the reference to a 'reform'. The revised PDO was monitorable and clear, as to what was expected by way of intended outcomes. Also, the reference to the discontinued "Absheron Rehabilitation Program" was removed from the project name.



The revised PDO was relevant to the government's Third State Program of Social and Economic Development of Regions for 2014-2018, aimed at reducing regional inequalities and providing households with reliable public services (including for solid waste collection). The revised PDO remained relevant to the objectives of the Country Partnership Framework for 2016-2020 that aims to contribute to improved human development outcomes through better access to water, sanitation, and communal services.

Rating

High

4. Achievement of Objectives (Efficacy)

Objective 1

Objective

To improve solid waste disposal management.

Rationale

Theory of change. Upgrading operations at the Balakhani site for operating in an environmentally sound manner, rehabilitation of the landfill, closure and clearing informal dumps, improving management of the sites and capacity building of the solid waste management company were relevant to the PDO of improving disposal of solid waste.

Outputs (ICR, pages 13 and 14 and pages 25-38).

These activities were completed as targeted at project closure.

- Balakhani landfill was rehabilitated for a 20-year lifespan. The landfill site was fully fenced to restrict access to unauthorized staff.
- The Leachate /runoff water management system was operational.
- The landfill gas collection system was operational at the Balakhani landfill.
- Eight feasibility studies and environmental impact assessments for new solid waste management systems were completed at project closure as targeted.
- The National Waste Management Plan was developed as targeted.
- Tamir Shahar, a Solid Waste Management Company, was created as planned.
- All waste loads entering Balakhani landfill were weighed and registered in the landfill computer database and the waste information system at Tamiz Shahar as targeted at project closure.

Outcomes

- 9.7 million tons of landfill capacity was created at project closure as targeted.
- 132 dump sites (corresponding to 199 hectares) were closed at project closure. This exceeded the revised target of 50 dumps (154.18 hectares).



Rating
Substantial

Objective 2

Objective

To increase waste collection coverage.

Rationale

Theory of change. Deploying bins in Baku's outer regions and creating new collection points were relevant for increasing waste collection coverage.

Outputs (ICR, pages 14 and 15 and pages 25-38).

- 6345 bins were distributed in five outer districts of Baku at project closure. This exceeded the revised target of 6000 bins.
- Equipment for solid waste collection was provided in Baku's outer districts as targeted.
- Five contaminated dump sites were cleaned, as planned.

Outcomes

- 2,774,416 beneficiaries received solid waste collection services regularly at project closure. This exceeded the revised target of 2,700,000 beneficiaries. Of these, 1,414,952 of the beneficiaries were females. This exceeded the revised target of 1,350,000.
- According to the third service level and customer satisfaction survey, 68 percent of the population expressed satisfaction with the improved solid waste collection services at project closure. This was slightly short of the revised target of 70 percent.
- The ICR (page 23) states that illegal dumping of waste still remains a challenge and the main deterrent to bringing waste to Balkhani is the longer distance. To that end, the Government decided to construct two transfer stations to reduce the transportation for primary collection. The detailed designs for the two transfer stations were developed under the project and approved by the relevant authorities. The government however still needs to address the issue of how to provide incentives for transporting waste to the transfer stations for the waste currently being dumped.

Rating
Substantial



Objective 3

Objective

To enhance waste data information and financial management capacity in the Greater Baku area.

Rationale

Theory of change. Capacity building activities for improved waste management, development of data and financial systems for waste management and its financing, were to enhance waste data information and financial management capacity in the Greater Baku area.

Outputs (ICR, page 15 and 16 and pages 25-38).

- As indicated above, the National Waste Management Plan was developed as targeted. The Plan was approved by the President (the highest level of authority in the country), under a Presidential Decree for the 2018-2022 period, on November 1, 2018. This plan mandated that the tariff for solid waste management to be increased in a phased approach over the course of the plan implementation. The plan also mandated that the solid waste management tariff be included in the utility bill, instead of being collected separately, for ensuring that the collected resources are channeled back into the waste sector. Tamiz Shahr, the new Solid Waste Management Company, was created as targeted.
- The central waste data information system was installed as targeted.
- The studies on waste generators and payments for waste collection aimed at analyzing the overall fiscal impact of various tariff scenarios were completed as targeted.
- For collecting information on waste data, the project installed: (i) four weighbridges at the Balakhani landfill (the weighbridges calculated the weight of the truck and waste entering and exiting each facility to estimate the flow of waste, which was documented along with the truck information and the fees collected for dumping); (ii) the materials recovery facility; (iii) the Waste-to-Energy facility; and (iv) the Industrial Eco park (The park consisted of companies using recyclables from the materials recovery facility).

Outcomes.

- Six facilities were providing regular information to the waste data information system at project closure as targeted.
- About 70 percent of the population were paying for waste collection services as per the revised target at project closure as compared to 37 percent at the baseline. This was short of the original target of 80 percent.
- The ICR (page 17) notes that the system still needs to address issues pertaining to sustainability in terms of use and financing.

Rating



Substantial

Rationale

The overall efficacy of the three objectives is rated substantial, as the outcomes were largely realized.

Overall Efficacy Rating

Substantial

5. Efficiency

Economic analysis. There was no economic analysis either at appraisal or for the AF project. An economic analysis was conducted at closure for components two to four investment activities, accounting for 78 percent of the project cost. The quantitative benefits were to come from improved land value of the surrounding areas and benefits due to greenhouse-gas emission and leachate pollution (ICR, page 17). The Net Present Value of the project was US\$85.00 million and the Economic Internal Rate of Return (EIRR) was estimated at 20 percent. The ICR did conduct a financial analysis, but it reports (page 17) that Tamiz Shahr is subsidized for the waste management services they provide.

Administrative and Operational issues. The project experienced delays in the initial phase, with an effectiveness delay of more than a year after Bank approval. Delays associated with rehabilitation works at the Balakhani site led to the extension of the closing date for the original project. Further, there were time overruns for the activities associated with AF related to permit delays for the Balakhani landfill works as well as the finalization of studies.

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	✓	20.00	78.00 <input type="checkbox"/> Not Applicable



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

6. Outcome

The objectives were highly relevant to the government and the Bank strategy. Efficacy of the three original objectives - to improve solid waste management system, to improve solid waste disposal system and to enhance waste data information and financial management capacity in the Greater Baku area- is rated substantial, as the outcomes were largely realized. Efficiency is rated substantial, in view of the project's economic viability at closure, albeit minor delays in completion. Outcome is assessed as satisfactory.

a. Outcome Rating

Satisfactory

7. Risk to Development Outcome

Environmental risk. There are environmental risks, given illegal dumping of waste, mainly in remote parts of Greater Baku with the longest distance to the Balakhani landfill. The ICR (page 23) notes that the government intends to construct two transfer stations as part of its Social Waste Management strategy to reduce the transportation cost for primary collection. Given that the two transfer stations are yet to be constructed, there is environmental risk to ongoing project benefits. The ICR reports (page 23) that there is a misalignment between the quantity of waste collected and the quantity of waste received for disposal.

Financial risk. There are financial risks, given that Tamiz Shahar depends on government subsidies. The ICR (page 16) notes that issues associated with financial sustainability are to be addressed through the National Waste Management Plan, adopted by the Presidential decree. This decree mandates tariff increases in a phased approach over the course of the implementation of this plan. According to the information provided by the team, this decree also mandated that the solid waste management tariff be included in the utility bill (instead of being collected separately), to ensure that the collected resources are channeled back into the waste sector.

8. Assessment of Bank Performance

a. Quality-at-Entry

This project was prepared based on the experience of prior Bank-financed projects (Azerbaijan Urgent Environmental Investment Project and the Tashkent Solid Waste Management Project. Lessons incorporated at design, included complementing capacity building activities with investments, sequencing of activities with capacity building activities for municipal solid waste management preceding investments, and linking service improvements on solid waste management to higher payment rates for financial sustainability (PAD, para 20). Several risks were identified at appraisal, including substantial fiduciary



risks, given the limited experience of the implementing agency in projects financed by international financial organizations. Several mitigation measures were incorporated at design, including recruiting a procurement specialist with experience in Bank-funded projects and continuous training of fiduciary staff during implementation (PAD, pages 13-14). The implementation arrangements were appropriate, with the Project Management Unit located with the Ministry of Economic Development, the agency responsible for implementing the project (PAD, para 26). The arrangements made at appraisal for M&E (discussed in section 9a) and safeguards and fiduciary compliance, were appropriate (discussed in section 10).

Quality-at-Entry Rating

Satisfactory

b. Quality of supervision

Supervision missions were held twice a year, with 20 Implementation Status Results (ISR) reports filed over a ten-year project implementation period (ICR, page 3). The continuity of leadership was more or less maintained, with four Task Team Leaders over the project implementation period (ICR, page 23). The team also brought additional resources and sector experience for a broader policy dialogue. For instance, the team secured grant funding from the Public Private Infrastructure Advisory Facility to support analysis and policy recommendations for improving solid waste management infrastructure, service levels and financial sustainability through options of increased private sector participation (ICR, page 20). The supervision team raised issues of concerns in a timely manner for resolution. For instance, in the wake of the concern raised by the team regarding financial sustainability, the government conducted a financial study during the project to understand the system better and after the project closed the government incorporated the key recommendations of the study into the Presidential Decree. Likewise, according to the information provided by the team, during the construction of the landfill, the team noticed defects on construction works and these were adjusted and addressed before the next mission. The support provided by the team aided in fiduciary and safeguards compliance (discussed in section 10).

Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design



The five original outcome indicators were appropriate for monitoring performance. The indicators pertaining to closing informal dump sites and creating landfill capacity created were appropriate for monitoring performance with respect to improving solid waste disposal. The indicator pertaining to the percentage of population served by the formal solid waste management system was appropriate for monitoring performance with respect to increasing waste collection coverage. The indicator pertaining to the increased number of households paying for garbage collection was appropriate for monitoring performance with respect to the financial management capacity in the Greater Baku area.

As existing data systems were weak and some basic information such as the weight of solid waste disposal was lacking at appraisal, the project envisaged substantial support for developing the data systems for measuring solid waste streams (weighing bridges at disposal sites) and financial performance (billing and payment ratios) (PAD, para 30). The ICR notes (page 21) that the information available at appraisal was largely qualitative.

The Project Management Unit was in charge of monitoring project performance, with assistance from the Ministry of Economic Development.

b. M&E Implementation

The results framework was substantially revised to clarify the indicators at the time of AF in 2013. Baselines and targets were revisited as a result of more accurate data available from the analytical studies. Core sector indicators were added. These included: increase in the number of people in urban areas who were provided with access to regular solid waste collection, the number of contaminated dump sites closed under the project and the water disposal capacity created under the project. The ICR (page 21) notes that data was regularly collected during implementation.

c. M&E Utilization

The M&E indicators were utilized for monitoring project progress and used as inputs for designing the National Solid Waste Management Strategy. The ICR (page 21) notes that the waste information systems are now being used for the daily operations of the entire system (not only for the Balakhani Landfill, but also of the materials recovery facility and waste-to-energy facility).

M&E Quality Rating

Substantial

10. Other Issues

a. Safeguards

The project was classified as a Category B project for environmental purposes. Other than Environmental Assessment (OP/BP 4.01), Involuntary Resettlement (OP/BP 4.12) was triggered.



Environmental assessment. The project expected negative environmental impacts of rehabilitation work such as traffic and noise generated by vehicles, temporary pollution of air, soil, ground and surface water, and potential disturbance of fauna and flora ecosystems (PAD, para 56). An Environmental Impact Assessment was conducted at appraisal and an Environmental Management Plan was prepared and publicly-disclosed (PAD, para 57). The ICR (page 21) notes that there were no adverse environmental issues during implementation and there was compliance with environmental safeguards.

Involuntary Resettlement. The PAD (para 49) reported that about six Internally Displaced Person families (families supporting themselves by collecting waste for resale), lived at the Balakhani landfill in self-built small structures. A Social Impact Assessment was conducted at appraisal to explore project impacts on the "resident" and "nonresident" waste pickers who lived nearby and came to the landfill to pick waste (PAD para 49). A Resettlement Policy Framework was prepared at appraisal and a Resettlement Action Plan was to be prepared for implementing activities associated with income restoration of waste pickers (PAD, para 51). The ICR notes that there were 144 Project Affected People according to a survey in 2011 (including six families living by the site). Those living by the site were offered apartments in Baku and those with affected livelihoods were offered employment. The ICR (page 22) reports that the project was in full compliance with OP 4.12 and the Resettlement Action Plan.

b. Fiduciary Compliance

Financial management. An assessment was done at appraisal of the implementing agency's capacity to address financial management issues (PAD, para 46). The financial management risk was rated as substantial at appraisal, in view of the implementing agency's limited experience in executing Bank-funded projects. Mitigation measures were incorporated at design, such as hiring an external consultant with experience on Bank-funded projects (PAD, page 45). The ICR (page 22) notes that the financial management was satisfactory during implementation. The ICR (page 22) notes that annual project audits were submitted on a timely fashion during implementation. The team clarified that all the audits were unqualified.

Procurement. An assessment was made at appraisal to judge the implementing agency's ability for procurement management. Given that the agency had no prior experience with Bank-funded projects, the project management unit was to recruit a procurement specialist with experience in Bank-funded projects (PAD, para 47). The procurement management was satisfactory during implementation.

c. Unintended impacts (Positive or Negative)



d. Other

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Highly Satisfactory	Satisfactory	IEG agrees with the ICR's rating of the overall efficacy as substantial (ICR, page 16). With high relevance of objectives, substantial efficacy and efficiency, the overall rating becomes Satisfactory.
Bank Performance	Satisfactory	Satisfactory	---
Quality of M&E	Substantial	Substantial	---
Quality of ICR		Substantial	---

12. Lessons

IEG selected three lessons from the ICR, with some adaptation of the language:

(1) Broadening solid waste management dialogue beyond environmental issues to financial sustainability allows for holistic sector engagement. This project was initially driven by environmental issues. However, by broadening the dialogue over time to include financial sustainability, the Bank team was able to support the Government in thinking beyond the waste sector technically. The dialogue and technical support on financial sustainability led to a more holistic engagement in terms of policy, planning and strategy, institutional aspects, technical design, environmental and social aspects.

(2) Working with waste pickers beyond resettlement and compensation can lead to safer and secure livelihoods. In addition to physical resettlement and compensation through a special state agency, the project developed a comprehensive livelihood restoration plan which included options for the waste pickers and families residing by the site. The options included apartments in Baku for those being relocated from the Balakhani site and full-time employment with benefits at the materials recovery facility for those affected, in addition to trainings and safer, more secure conditions at the Balakhani Landfill.

(3) Revamping of the solid waste management sector takes time. With the Government strong commitment and support, the approved national solid waste management strategy, capacity building and infrastructure investments, the experience of this project shows that it takes time to develop and sustain the solid waste management sector.



13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR is well-written, and the narrative is clear. The ICR offers good discussion on the issues of environmental and financial sustainability. Lessons are based on the project's experience. The ICR would have benefited from a more in-depth analysis of the solid waste sector development during a 10-year project implementation, in particular as the project originally envisaged to support the reform agenda driven by a comprehensive operational, financial and legal restructuring of the sector in the Baku area. The team was able to respond promptly to a few areas where clarifications were required.

A few editorial inconsistencies include, i.e., (i) Annex 3, Table Project Cost by Component is missing the amounts at approval. (ii) AF approval date is indicated as January 10, 2014 in Data Sheet (page 2) and June 27, 2013 in the main text (pages 9-10); (iii) the ICR rates the project outcome as Satisfactory on page 17 but Highly Satisfactory in Data Sheet (page 3).

a. Quality of ICR Rating Substantial