



## 1. Project Data

<b>Project ID</b> P101190	<b>Project Name</b> WATER SUPPLY AND SANITATION	
<b>Country</b> Belarus	<b>Practice Area(Lead)</b> Water	
<b>L/C/TF Number(s)</b> IBRD-75890,IBRD-83520	<b>Closing Date (Original)</b> 30-Jun-2013	<b>Total Project Cost (USD)</b> 149,580,401.82
<b>Bank Approval Date</b> 30-Sep-2008	<b>Closing Date (Actual)</b> 31-Jul-2019	
	<b>IBRD/IDA (USD)</b>	<b>Grants (USD)</b>
Original Commitment	60,000,000.00	0.00
Revised Commitment	150,000,000.00	0.00
Actual	149,580,401.82	0.00

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## 2. Project Objectives and Components

### a. Objectives

**Original PDO:** The objective of the Project is to improve the quality, efficiency and sustainability of water supply and wastewater treatment services in six (6) participating Project oblasts of the Borrower (Loan Agreement dated October 21, 2008, Schedule 1).



The project objective, as stated in the PAD, was “The project development objective is to improve the quality, efficiency and sustainability of water supply and wastewater treatment services in six (6) participating Oblasts covering about 1.7 million consumers” (PAD, para. 20).

**Revised PDO:** The PDO underwent one substantive change. Under a level-one restructuring in 2012, the PDO was revised as follows: The objective of the project is to increase access to water supply services and to improve the quality of water supply and wastewater services in selected urban areas in all six Oblasts of the Borrower.

**Parsing of the PDO:** For the ICRR, the PDO were parsed as follows:

Original PDO:

- Improved quality of water supply services (Objective 1)
- Improved quality of wastewater treatment services (Objective 2)
- Improved efficiency of water supply services (Objective 3)
- Improved efficiency of wastewater treatment services (Objective 4)
- Improved sustainability of water supply and wastewater treatment services (Objective 5)

Revised PDO:

- Improved quality of water supply services (Objective 1 – carried forward from original PDO)
- Improved quality of wastewater treatment services (Objective 2 – carried forward from original PDO)
- Improved access to water supply services (Objective 6 – added at restructuring in 2012)

**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**

30-Sep-2008

**c. Will a split evaluation be undertaken?**

Yes

**d. Components**

**Component A: Rehabilitation of Water Supply and Sanitation Systems** (appraisal cost US\$ 53.60 million; additional financing US\$ 84.93 million; total estimated cost US\$ 138.53 million; actual cost at completion US\$142.79 million)

This component would finance investments in water supply and sanitation sector in six Oblasts. In water supply, it would include rehabilitation and improvements in water supply networks, conversion from surface water to groundwater supplies, installation of iron removal stations, other quality enhancement measures,



and installation of water meters. In wastewater systems, investments would include rehabilitation and reconstruction of wastewater treatment plants, including installation of pumping stations, sludge dewatering, collection networks, and modern equipment for monitoring stations and small laboratories.

**Component B: Support in the Preparation and Sustainability of Investments** (appraisal cost US\$ 6.05 million; additional financing US\$ 4.60 million; total estimated cost US\$ 10.65 million; actual cost at completion, US\$5.26 million)

This component would finance preparation of feasibility studies and detailed designs for subprojects selected for funding by the Ministry of Housing and Utilities (MHU). It would also finance construction management and investment monitoring.

**Component C: Project Implementation and Management:** (appraisal cost US\$ 0.20 million; additional financing US\$ 0.25 million; total estimated cost US\$ 0.45 million; actual at completion US\$0.17 million)

This component would fund the operations of a Project Coordination Team (PCT) to be established for the Project, including auditing, other fiduciary requirements and training of PCT staff. Staffing costs of the PCT would be covered by the Government.

**Revisions to components:** The project's components were revised as part of the AF in March 2014. The overall amount of the AF was US\$90 million. The AF was consistent with the original project but expanded the description of the project's three components as follows:

- Component A: Editorial changes were made to clarify that it would finance goods, works, and consultants' services.
- Component B: Scope was expanded to include development of a benchmarking system, and review of design norms and energy audits.
- Component C: Renamed as Capacity Building, Project Management, Monitoring and Evaluation. The scope was expanded to include strengthening accountability mechanisms (communication plans, information displays, and grievance redress mechanisms (GRM) in the participating utilities).

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

**Project Cost:** The original estimated project cost was US\$60 million. In 2014, under the AF, it was increased to US\$150 million. Actual cost at project completion was US\$148.60 million (about 99 percent of the total estimated cost including additional financing).

**Financing:** The project's cost was financed entirely through two IBRD loans totaling US\$150 million (US\$60 million for the original project and US\$90 million under the AF). At closing, a total of US\$149.58 million had been disbursed. There was no financing from the Borrower or from co-financiers.

**Dates:** The closing date for the original loan was June 30, 2013. It was extended under project restructurings: first to December 31, 2014 and then to December 31, 2016. The closing date for the AF was September, 2018, later extended under a restructuring to July 31, 2019.



**Restructurings:** During the 11 years (2008-2019) of the project's life span, it underwent four formal restructurings and was scaled up with the inclusion of additional financing (2014).

First Restructuring (December 2012): Rationale: This was a level-one restructuring under which revisions were made to the PDO and the Results Framework (RF) to better align them with the project activities. In view of the perceived limited government ownership of large-scale sectoral reform and unwillingness to borrow to finance such interventions, it was recognized that the project would have limited impact on efficiency and sustainability. Project outcomes were more 'realistically' framed in terms of delivering required physical infrastructure. Additional safeguard policies were triggered to address (a) resettlement issues – one subproject involved the displacement of one household; (b) a site-specific Resettlement Action Plan (RAP) was required for one subproject; and (c) the Operational Policy on Physical Cultural Resources (PCR) was triggered following the identification of PCR in one subproject.

Second Restructuring and Additional Financing (March 2014): Rationale: The AF was undertaken to scale up the project's impact with the inclusion of 10 subprojects (added to 22 subprojects under the original project). During the first project restructuring in December 2012, the project had been refocused on physical investments with the dropping of the efficiency and sustainability PDO. The AF followed a World Bank Municipal Water Sector Review (2013) and re-identified the need to foster efficiency and sustainability. Towards this end, it included the review of design norms and energy efficiency in service providers along with development of benchmarking for the utilities.

Third Restructuring (December 2014): Rationale: Changes were made to the outcome indicators to permit better measures for the project outcomes. The RF was aligned with an extended closing date.

Fourth Restructuring (June 2018): Rationale: By the time of the fourth restructuring, the number of subprojects had substantively increased (from 22 under the original project and 10 under the AF to 45). Depreciation of the local currency and overestimation of investment costs in the feasibility studies led to US\$40 million from the AF remaining unallocated. Funds were allocated to an additional 13 subprojects. (The final number of subprojects as reported in the ICR para.49 was 54 which differs from the figure of 45).

### 3. Relevance of Objectives

#### Rationale

**Country Context:** After its independence in 1991, Belarus undertook limited reforms, but it still maintains its highly centralized system of economic management. The water and sanitation sector has continued to be strictly regulated with utilities having relatively limited autonomy in terms of decision-making related to investments and operations. The Government has been giving priority to ensuring adequate quality of water supply services, particularly provision of potable drinking water to the population. The situation in Belarus is better than in most other countries in the region. Water supply and sewerage coverage reached 88 percent and 74 percent respectively in 2008 and reliability of services improved steadily particularly in urban areas. Belarus has relatively abundant supplies of water, particularly groundwater, but faces issues of high levels of mineral and chemical contamination, particularly iron and nitrate content, in the groundwater. Incidence of high iron content is particularly high in small towns and villages. Per capita consumption is high compared to Western countries, but this reflects also the effects of leakage due to



inadequate maintenance and wastage by consumers due to perceived quality problems. Issues that constrain capacity and efficiency in the sector include inadequate investment planning partly due to inappropriate design norms; maintenance and investment backlog leading to deteriorating facilities and resulting in inefficiencies with high losses, breakdowns and coverage gaps in water supply and high levels of nutrient pollution in wastewater; and institutional weaknesses at the utility level affecting performance. The Government has been undertaking national programs to improve the quality of water supply and wastewater services; principal objectives have included (a) uninterrupted supply of high-quality water and expansion of coverage; (b) implementation of new technologies; (c) institutional enhancement to improve service quality and financial status; and (d) cost reduction (energy conservation, optimization of assets and reduction of non-core costs). The WSSP was designed to align with these objectives, building on the Government's stated willingness to develop the sector. The Government has continued to expand on the achievements of these programs under its current new Water Strategy which will run to 2030.

**Alignment with Strategy:** The PDOs are aligned with the current Country Partnership Framework (CPF) for Belarus for FY18-FY22 (Report No. 123321-BY) and are consistent with the 'CPF Focus Area 3: Improving the contribution of infrastructure to climate change management, economic growth, and human development' (CPF, page 20) supplemented by a crosscutting theme related to greater use of data and access to information in public decision making (CPF, page 21). Under Focus Area 3, the Project contributes directly to the CPF Outcomes 'Improve access to quality water and sanitation services' (Objective 3B) which uses the outcome target of the Project (CPF, page 21). Under Focus Area 3, water and sanitation investment constitutes roughly 25 percent of total World Bank financing in the country, with direct reference to the WSSP as a key contributor (CPF, page 23). The proposed project also contributes to the crosscutting area of greater public access and use of data through benchmarking and social accountability mechanisms.

**Alignment with the Government Program:** The PDO are aligned with the Program for Socio-Economic Development for 2016-2020 specifically its 'Focus Area 4': Promotion of a green economy, sustainable natural resource management, and environmental protection' with the following national target actions: preventing surface water pollution by effluents, increasing capacities of water treatment facilities, and reducing health risks by supplying clean potable water. The PDOs also align with country's new Water Strategy, which will run to 2030, and whose focus areas include provision of universal access to clean and affordable water and access to adequate sanitation services, improvement in the quality of natural waters, and improvement in water-use efficiency.

**Prior Experience in the Sector:** The WSSP was the World Bank's first project in the water supply and sanitation sector and represented a re-engagement in the sector after an absence of over ten years. Consequently, at the time of project preparation, there was relatively limited specific sector-level knowledge and experience, including in regard to the Government's policy level priorities, to draw upon prior to the design of the project. This was reflected in some of the issues that emerged early on in project implementation.

**Rating: Substantial:** The project's objectives remain substantially relevant with the country's current development priorities and with the current World Bank country and sectoral assistance strategies. Modifications were made to the PDO which reduced the overall ambition of the project. These were framed to improve the PDOs' alignment with project activities and to capture outcomes (access and quality) that were more realistically framed and achievable than those addressing sectoral issues (efficiency



and sustainability) that were judged to require higher level policy changes beyond the ability of the project to deliver.

## Rating

Substantial

## 4. Achievement of Objectives (Efficacy)

### OBJECTIVE 1

#### Objective

Improved quality of water supply services

#### Rationale

**Overall Theory of Change and Results Chain:** The ICR provides a diagrammatic presentation of the project's Theory of Change (TOC) and Results Chain (RC). Based on the diagrammatic presentation, a summary is provided below for each subject area addressed under the project objectives.

Water Supply Services: In regard to quality of water supply (Objective 1), the principal areas to be addressed by the project were (i) improved quality of water supplied to the population, (ii) increased access to a piped water supply, and (iii) improved communications and relations between the utilities and their customers. Principal areas of focus for improvement in quality of water were identified as (i) reduction in chemical contamination, principally iron content, to meet the national standards for potable water, and (ii) replacement of unsatisfactory water sources (e.g. some wells) by better sources. This was to be achieved through appropriate investments in physical infrastructure: improvements in water treatment plants, pumping stations, iron removal plants, rehabilitation and construction of wells, and other water supply facilities. In regard to access to water supply services (Objective 6), the project's investments would result in (i) replacement/reconstruction of worn-out and defective transmission mains and distribution lines, and laying of new lines to expand access to water supply; and (ii) replacement of shallow wells and other sub-standard water sources by improved sources including deep wells and access to piped supply. In regard to improvement in efficiency in water supply services (Objective 3), the upgrading/modernization of water treatment plants and pumping stations was expected to result in improvements in operating efficiency, including energy efficiency. The improvements in quality of water supply services through investments in physical infrastructure were to be supplemented through provision of technical and financial support to the utilities/service providers, to help them strengthen selected aspects of operating efficiency (using benchmarking systems and improved design norms) and social accountability mechanisms (improved consumer access to information and reduction in consumer complaints).

Wastewater Collection and Treatment Services: In regard to quality of wastewater treatment services (Objective 2), the principal areas to be addressed by the project were (i) reduction in the levels of nutrient pollution in treated and discharged wastewater to meet national standards, and (ii) improving access of the population to sanitation services. Shortcomings in existing wastewater treatment plants and collection networks resulted in (a) high levels of nutrient pollution in the wastewater and (b) insufficient access to



sanitation facilities for a part of the population. High levels of nutrient pollution in treated wastewater led to contamination of water sources including rivers and streams. BOD-5, nitrogen and phosphorus content levels were selected as the principal areas of focus. Investments financed under the project would include (i) technological upgrading of wastewater treatment facilities to increase their capacities for nutrient removal, and (ii) replacement/reconstruction of sub-standard wastewater collection mains and laying of additional lines to increase access. In regard to improvement in efficiency of wastewater treatment services (Objective 4), the project's investments in upgrading of wastewater treatment plants and collection systems were expected to result in improving operating efficiency, including energy efficiency, of wastewater services.

**Objective 1:** The PAD (paras. 6 to 9) identified a number of issues in regard the quality of water supply services in Belarus: (reliability, safety, problems with water quality in regard to color, taste, odor, chemical and bacteriological contamination, groundwater contamination with iron and other minerals, technical losses in the distribution systems, high per capita consumption). However, the issue of high iron content in water supply was selected as a primary area of focus. At appraisal, 41 percent of the total funding was allocated to subprojects concerned with water supply services, primarily for subprojects concerned with iron removal (with the remaining 59 percent allocated to subprojects dealing wastewater related services). Improvement in quality of service, which can include many dimensions (security, timeliness, responsiveness to consumer needs), was not clearly defined either in the PAD or in subsequent restructurings. A single intermediate results indicator was utilized to monitor progress under this PDO: percentage of water effectively treated with iron content below 0.3 mg/l (based on regulatory water samplings). While this was a narrow definition in terms of judging improved quality in water supply services, this should be seen against the prevailing context in Belarus where, at the time, water with iron content exceeding WHO prescribed standards was being supplied to more than 20 percent of the population (AF Project Paper, para 6). The validation of the achievement of reduction in iron content targets was based on regulatory samplings carried out by the Government agencies concerned. While it is not explicitly stated in the ICR, the presumption during implementation seems to have been that the samplings met the other required national standards for potability of water.

**Outputs:** The project financed 32 subprojects related to improvement in water supply facilities, of which 22 subprojects focused on water treatment including iron removal and 10 subprojects focused on improvements in water supply networks (based on data in ICR Annex 5). Outputs, as reported in the ICR (para. 33), are limited to three intermediate results indicators:

- percentage of water effectively treated with iron content below 0.3 mg/liter: (target: 95 percent for eight of the monitored utilities and 46 percent for one; achieved levels (95 percent met or exceeded for eight and 75 percent for one); the targets were met for all nine;
- number of utilities/service providers supported under the project (target: 17 utilities and 4 service providers; achieved 32 utilities and 8 service providers); and
- consumer complaints addressed to the utilities and related to the quality of water supplied (target: not to exceed two; achieved; not exceeding two). (ICR para. 33)

Reporting of other relevant outputs (individual subproject costs at project completion, capacities of treatment plants and iron removal facilities, volumes of water treated and transmitted) would have helped a better understanding of the achievements. It is not clear to what extent this lack reflects on the capacity and ability of the M&E system (which had significant shortcomings – see Section 9 below).



**Outcomes:** Outcomes from water quality improvements were measured by the PDO indicator ‘population benefiting from improved quality of water supplied’. The original target was 307,300 persons, later revised to 324,000 under the 2014 AF restructuring; the achieved level was 611,766 persons (189 percent of the target) (ICR para. 32). It is not clear from the PAD or the ICR how this indicator was set or measured to capture the incremental effects of the project interventions. The supplementary intermediate results indicator was ‘percentage of produced water effectively treated with iron content below 0.3 mg/l’. Additional intermediate indicators were: (a) number of utilities/service providers supported under the project; and (b) consumer complaints addressed to the utilities and related to the quality of supplied water. The concerned targets were met or exceeded as indicated above.

For the utilities supported under the project, while the number of utilities utilizing the benchmarking system exceeded the targets, it is not clear from the ICR as to what extent individual utilities have been utilizing the system and how it contributed to an improvement in their operations. Other institutional strengthening efforts seem to have contributed to helping the utilities to improve, to some extent, their transparency and accountability vis a vis customers. The ICR reports (para. 61) that, based on interviews, public perception of service providers has improved, along with setting up mechanisms for managing enquiries and complaints that were previously non-existent. However, given that the objectives of the project were to improve the quality of water supply and wastewater services delivered to the population, validation of the achievement of the project outcomes would have benefited from beneficiary surveys that were systematically planned and carried out during implementation. It appears that this was not done during implementation. The ICR does not provide any details in regard to beneficiary surveys.

The overachievement of all the results indicators would normally have called for a High rating before and after the 2012 restructuring. However, given the lack of clarity in regard to the setting and measurement of the targets, and the absence of well-executed beneficiary surveys, as discussed above, the ICRR rating is set at Substantial.

**Rating**  
Substantial

## **OBJECTIVE 2**

### **Objective**

Improved quality of wastewater treatment services

### **Rationale**

**Outputs:** The project financed a total of 21 subprojects related to wastewater treatment facilities and collection systems, including 15 focused on treatment plants and 6 on wastewater collectors (based on data in the ICR, Annex 5). Outputs included reduction in BOD-5, phosphorus and nitrogen levels in wastewater discharged, and extensions to sewerage networks through wastewater collectors laid/replaced.

**Outcomes:** BOD-5, nitrogen and phosphorus nutrient levels were significantly reduced. The associated indicators and their achievement were as follows:



- volume of BOD-5 removed by treatment plants supported by the project (target 15,500 tpy; achieved 13,613 tpy; achievement 88%)
- volume of phosphorus pollution loads removed by the treatment plants supported under the project (target 330 tpy; achieved 215 tpy; achievement 65%); and
- volume of nitrogen pollution loads removed by treatment plants supported under the project (target 1,500 tpy; achieved 1,428 tpy; achievement 95%)

The project's impact on wastewater collection networks was measured by an additional PDO indicator 'reduced volume of BOD pollution loads transported in unreliable sewerage transmission systems. Achievements were as follows: (target 15,200 tpy or less; achieved 21,218 tpy; achievement - 27%).

Two related intermediate results indicators related to extension of the sewerage networks were:

- km of wastewater collectors laid (target 54 km; achieved 96 km; achievement 178%) and
- access to improved sanitation services (target 1,000 persons; achieved 47,520 persons; achievement 4752%). The ICR (para. 37) does not provide a clear explanation for this sharp increase in the number of beneficiaries.

The ICRR rating is based on substantial achievement of the targets before and after the 2012 restructuring.

## Rating

Substantial

## OBJECTIVE 3

### Objective

Improved efficiency of water supply services

### Rationale

Efficiency was not defined in the PAD. No PDO indicator was included to capture changes in efficiency in water supply. The ICR inferred that, based on the expected outcomes, efficiency was to be interpreted as energy efficiency (ICR, para. 39). The objective was dropped after the 2012 restructuring.

**Outputs:** Rehabilitation and modernization of treatment plants and networks, including associated pumping stations, financed under the project are likely to have resulted in some improvement in operational efficiency, including energy efficiency, to varying degrees in the different subprojects. However, this was not tracked under the project monitoring systems.

**Outcomes:** The limited impact the project had on efficiency was recognized in the 2012 restructuring in which efficiency was removed as a PDO. While energy efficiency was not measured during project implementation, data were collected for selected utilities as part of an IBNET (International Benchmarking Networking for Water Supply and Sanitation Utilities) database that was supported under the project. These data indicate that, for the years 2015 to 2018, for 15 utilities participating in the project, average electricity consumption (kWh per m3) decreased from 0.74 per m3 in 2015 to 0.67 per m3 in 2018. These values were



lower than the average electricity consumption (1.04 kWh per m<sup>3</sup>) in all water supply utilities in the database (ICR para. 39).

While the IBNET data indicate improvement in energy efficiency over time, the fact that project level results were not monitored, and the general lack of data make the results inconclusive. The ICRR rating is assessed as Negligible before the 2012 restructuring and dropped thereafter.

**Rating**  
Negligible

## **OBJECTIVE 4**

### **Objective**

Improved efficiency of wastewater treatment services

### **Rationale**

**Outputs:** Rehabilitation and modernization of wastewater systems (treatment plants, collectors) under the project are likely to have resulted in improved energy efficiency, to varying degrees, in the different participating utilities/providers.

**Outcomes:** As discussed above under PDO3, the limited impact the project had on efficiency was recognized in the 2012 restructuring in which efficiency was removed as a PDO. Baseline and target values were not defined in the PAD but were introduced three years into project implementation with baseline energy usage of 2.5 kWh per m<sup>3</sup> of wastewater treated and a target of 1.5 kWh per m<sup>3</sup>. During the 2012 restructuring, this PDO was removed and energy usage was not measured as an indicator. The ICR reports (para. 41) that data were collected for selected utilities as part of the IBNET database for the years 2015 to 2018. These data indicate that, for 13 utilities wastewater related utilities supported by the project, average electricity consumption (kWh per m<sup>3</sup>) increased from 0.78 per m<sup>3</sup> in 2015 to 0.83 per m<sup>3</sup> in 2018. These values were lower than the target of 1.5 kWh per m<sup>3</sup>. Average energy usage for wastewater treatment ranged from 0.41 to 0.87 kWh per m<sup>3</sup> treated, depending upon plant size.

While the IBNET database information indicates that energy usage, on average for the selected utilities, was lower than the target, it is not clear whether and to what extent these results can be attributed to the project since the project level results were not monitored during project implementation. The ICRR rating is therefore conservatively assessed as Modest before the 2012 restructuring and dropped thereafter.

**Rating**  
Modest



## **OBJECTIVE 5**

### **Objective**

Improved sustainability of water supply and wastewater treatment systems

### **Rationale**

**Outputs:** Rehabilitation and modernization investments, and institutional strengthening activities under the project, would likely have contributed to some improvement in financial sustainability through gains in operating cost efficiency, including energy efficiency.

**Outcomes:** The PDO indicator in the PAD was ‘operating cost coverage ratio (OCCR)’; the target, established three years into implementation was a ratio of not less than 1. The PDO indicator was dropped under the 2012 restructuring. The ICR reports (para. 43) that information from the IBNET database indicates that, for 21 utilities supported by the project, the average OCC was 1.37 in 2018 while for all utilities (37), it was 1.23. These values are substantially over the target ratio of at least 1.0 and a positive indicator for financial sustainability. While the interventions under the project, including rehabilitation and modernization investments and institutional efficiency would have made some contribution to sustainability, they cannot be assumed to be the sole contributors since other factors such as tariff adjustments by the Government would also have played a part.

While database information indicates that the target was exceeded at project completion, given the lack of project-level monitoring and the lack of clarity as to whether and to what extent the results can be attributed to the project, the ICRR rating is conservatively assessed as modest before the 2012 restructuring and dropped thereafter.

### **Rating**

Modest

## **OBJECTIVE 6**

### **Objective**

Increased access to water supply services

### **Rationale**

**Outputs:** Financing for investments for rehabilitation/ modernization investments and network extensions related to water supply was provided for a total of 28 subprojects of which 12 focused primarily on networks including extensions.

**Outcomes:** Access to improved water sources was measured by the PDO indicator ‘people provided with access to improved water supply’ (target 9,800 persons; achieved 7,390 persons; achievement 75 percent). A supporting intermediate results indicator was ‘km of distribution pipelines laid/replaced’ (target 60 km; achieved 154 km; achievement 257%).

As reported in the ICR (para. 45), there is some lack of clarity in regard to the calculation of the number of beneficiaries. The figures provided by the PIU increased dramatically towards the end of the project, first to



126,580 persons and later to 445,938 persons. Presumably this is based on a widening of the interpretation of the original PDO to include access to improved water supply services.

Given the lack of clarity in regard to the higher achievement numbers quoted towards the end of the project, the ICRR rating is based on the figure of 7,390 persons as more conservative in the circumstances.

**Rating**

Substantial

**OVERALL EFFICACY**

**Rationale**

The project delivered significant outcomes to its beneficiaries in terms of water quality, wastewater services, and access. Outcomes were modest in other areas such as efficiency and sustainability. Restructurings improved the project's outcome ratings by focusing its objectives on delivery of improved services and increased access.

Overall efficacy is rated Modest before the 2012 restructuring and Substantial thereafter with an overall rating of Substantial. The basis of the assessment is provided in the overall outcome ratings included in Section 6 below.

**Overall Efficacy Rating**

Substantial

**5. Efficiency**

**Administrative and Operational Efficiency**

**Implementation:** The project's implementation period was 11 years, including eight years for the original project but with a substantial scale-up of activities under the Additional Financing. The closing date was extended twice for the original project for a total of 3.5 years. Factors that contributed to implementation delays under the original project was the time taken to complete feasibility studies and detailed designs; procurement difficulties including limited response from suppliers and need for re-bidding in some cases; and delays in internal decision-making processes involving the PIU and other Government agencies. External factors that affected implementation were a period of macroeconomic difficulties in Belarus in the years 2011 and 2012. The closing date for the Additional Financing was extended once by nine months to allow for completion of ongoing projects and utilization of loan funds.

**Project Costs and Outputs:** The original project had an estimated cost of US\$60 million to finance 22 subprojects (average of US\$2.7 million per subproject). At completion, the project cost was US\$149.58 million



which financed 53 subprojects (average of US\$2.8 million per subproject). A significantly higher number of subprojects was financed (53 compared to 28 originally planned), primarily due to substantially lower costs than had been initially estimated under the Additional Financing. This resulted in a number of outcome targets being exceeded. This positive impact was, to some extent, fortuitous: partly due to costs having been overestimated under the Additional Financing and partly due to exchange rate movements (depreciation of the BYR resulted in costs in local currency being lower than the budgeted USD amounts). The ICR reports (ICR Annex 5 – the Borrower’s ICR) that all subprojects were completed at project closing and were either operational or awaiting licensing to commence operations.

**Economic and Financial Efficiency**

**Economic analysis:** Selection of subprojects for support under the project was based on their priority for inclusion as determined by the Government. While feasibility studies were carried out for the subprojects, they appear to have been limited largely to technical aspects, without any substantive assessment of economic and financial efficiency. This approach seems to have continued under the Additional Financing.

At appraisal of the original project, the analysis was based on a limited sample of subprojects (a wastewater treatment plant; a water treatment plant; a new trunk collector; and a wastewater system modernization subproject). It included cost-effectiveness analysis for the first subproject and cost-benefit analysis (CBA) for the other three subprojects. The ICR (paras. 49 to 51) indicates that data for the analysis were very limited or contradictory making the results questionable. The 2012 Restructuring Paper included cost-effectiveness estimates for a water supply network extension project. No economic analysis on a sample basis was carried out under the Additional Financing (the efficiency and sustainability PDO had been dropped earlier).

The ICR has creditably attempted to carry out an ex-post assessment for the same sample of subprojects based on the same methodology and assumptions as used at appraisal and the 2012 restructuring. It concluded that (a) cost-effectiveness was significantly less than appraised due to higher than estimated capital costs of the two subprojects concerned and (b) the per capita costs were substantially higher than benchmarks based on comparable international data (para. 50). Regarding the CBA, results were mixed: the ex-post estimates were higher than the appraisal in one case, lower in the second case, and inconclusive in the third case (ICR paras.49 to 52). The results are given below.

<b>Subproject</b>	<b>PAD/AF Paper</b>	<b>ICR</b>
Water quality improvement (city of Bobruisk)	ERR 21%	ERR 36%
Sewage collection works (city of Grodno)	NPV US\$ 2.07 million ERR 14%	NPV US\$ 5.8 million ERR -14%
Wastewater treatment plant (town of Rogachev)	NPV US\$ 0.39 million Per capita cost US\$ 128	NPV US\$ -2.8 million Per capita cost US\$ 276
Access to water supply services (town of Sharkovschina)	Per capita cost US\$ 396	Per capita cost US\$ 854



The ICR also notes that several economic benefits (e.g. time benefits, health benefits, reduction of coping costs) were not included in the original economic assessment or under the Additional Financing (para. 55).

**Financial analysis:** No financial analysis, at either the utility or the subproject level, was carried out under the original project and the Additional Financing.

The economic analysis under the project was limited and the results were based on questionable data. Although the project was scaled up under the Additional Financing and the subprojects yielded multiple benefits, no attempt was made to assess and quantify the economic impacts. No financial analysis was carried out under the original project or the Additional Financing. In part this was presumably due to the dropping of the efficiency and sustainability PDO at the 2012 restructuring.

### Efficiency Rating

Modest

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

The relevance of the PDO was Substantial under the original project and continued to remain Substantial at project closing. Overall, the project's efficacy was Substantial in terms of delivery of improved water supply and wastewater services to the population. The project's delivery of physical infrastructure exceeded that originally planned due to the impact of the significant scale-up under the Additional Financing. All financed subprojects were completed at project closing. The project's achievement in terms of efficiency and sustainability remained Modest throughout the implementation period with the relevant PDO being dropped after the 2012 restructuring.

Given the level-one restructuring in 2012 which reduced the ambition of the project with the dropping of the efficiency and sustainability PDO, and under which indicators were significantly revised, the ICRR undertook a split evaluation of the rating.

	<b>Before restructuring</b>	<b>After restructuring</b>
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<b>Relevance of PDOs</b>	<b>Substantial</b>	<b>Substantial</b>
<b>Efficacy</b>	<b>Modest</b>	<b>Substantial</b>
Objective 1	Substantial	Substantial
Objective 2	Substantial	Substantial
Objective 3	Negligible	-
Objective 4	Modest	-
Objective 5	Modest	-
Objective 6		Substantial
<b>Efficiency</b>	<b>Modest</b>	<b>Modest</b>
<b>Outcome ratings</b>	<b>Moderately Unsatisfactory</b>	<b>Moderately Satisfactory</b>
<b>Numerical value of outcome ratings</b>	<b>3</b>	<b>4</b>
<b>Disbursements</b>	<b>US\$ 19.98 million</b>	<b>US\$ 129.49 million</b>
<b>Share of disbursements</b>	<b>13%</b>	<b>87%</b>
<b>Weighted value of outcome ratings</b>	<b>0.39</b>	<b>3.48</b>
<b>Final outcome rating</b>	<b>Moderately Satisfactory</b> <b>(0.39+3.48 = 3.87 rounded to 4)</b>	

**a. Outcome Rating**

Moderately Satisfactory

**a. Outcome Rating**

Moderately Satisfactory

**7. Risk to Development Outcome**

Risks identified in the PAD and the mitigations measures proposed referred mainly to project management and co-financing. The main risks identified were in regard to the capacity of the PIU to undertake project implementation, including the procurement, financial management, internal controls, and reporting functions. With the completion of the project, the risk to the infrastructure put in place under the project not being used is low because the works at all the sites have been completed and are in the operating/licensing phase. The risk of Government support to the participating urban areas and utilities is considered relatively low. since the subproject sites were identified by the Government as priorities for intervention. Repayment of the debt financing for the project will be undertaken by the Government and the utilities concerned do not face this specific obligation. However, the main risk is in regard to the utilities not having adequate funds to carry out their technical and commercial operations satisfactorily, including adequate maintenance and repair of the physical assets. Sustainability of the infrastructure and satisfactory operations by the utilities concerned will depend significantly on the tariff and utility strengthening policies adopted by the Government in the future. Current tariff policies of the Government in regard to water supply and wastewater services



provide for relatively high levels of cross-subsidization between households and other consumers which can affect the financial situation of the utilities.

## 8. Assessment of Bank Performance

### a. Quality-at-Entry

**Design:** The initial design of the project attempted to be realistic in setting the level of ambition under the project. It recognized that large-scale reform efforts were not likely to be successfully tackled under the project. Accordingly, it focused more on project-level interventions that were more acceptable to the Government. However, a fundamental shortcoming in design was the inclusion of efficiency and sustainability as objectives, since their achievement depends to a significant extent on broader sectoral level policy actions by the Government whose commitment to undertake them had not been ascertained. These outcomes had to be dropped during subsequent restructurings and, in effect, reduced the ambition of the project. In regard to the Results Framework, PDO outcomes and indicators had to be adjusted during supervision to better align them with the activities under the project. Baseline values were missing in a significant number of cases or were determined to have been incorrect, necessitating adjustments during implementation.

**Economic and financial assessment:** Selection of subprojects for inclusion under the project was based on the Government's determination of their priority for support. No economic or financial analysis or efficiency thresholds were established in regard to eligibility of subprojects for support. Economic analysis (cost-effectiveness and CBA) was carried out for a small representative sample of subprojects but the results were made questionable by the validity of the underlying data. These weaknesses were carried through to subsequent restructurings including the Additional Financing.

**Risks:** Given that this was the first World Bank supported engagement of its kind in the water and sanitation sector in Ukraine, the risks in regard to implementation capacity were adequately defined along with the mitigation measures. The main risks identified were in regard to (i) the capacity of the PIU to carry out its functions satisfactorily, including the procurement, financial management, accounting, internal controls, and reporting aspects, and (ii) timely and adequate co-financing from the Borrower. The mitigation measures proposed were adequate. This is discussed further in Section 10.

**Safeguards:** The project was assigned a Category B for environmental assessment.. Environmental Assessments were prepared for all subprojects identified at entry. The project also triggered Projects on International Waterways (OP/BP7.50).

**Quality-at-Entry Rating**  
Moderately Satisfactory

### b. Quality of supervision



The World Bank team provided regular implementation support for the project. Over the implementation period (11 years), it undertook about 22 implementation support missions (averaging two per year). The project had five Task Team Leaders (TTLs) over its span, which resulted in some lack of continuity until each new TTL could effectively take over. The team was adequately staffed with the required specialists in regard to Procurement, Financial Management, Environment, and Safeguards.

The World Bank team was responsive to changing circumstances during implementation. It moved proactively to restructure the project, particularly under the first restructuring in 2012, to realign the PDOs to reflect more realistic objectives and to adjust indicators accordingly. Subsequent restructurings permitted successful completion of works and fuller utilization of the loan amounts.

Procurement related issues led to some delays, particularly in the earlier stages of implementation. Feasibility studies and detailed designs for most subprojects were not ready at project approval and added to the time required to start subproject implementation. Delays were also due, in part, to the various concerned parties having insufficient understanding of the World Bank's requirements and procedures. This was an ongoing concern and the team had to devote considerable time and effort to address these problems. A complicating factor was that the PIU was often not in a position to make a decision without inter-agency consultation within the Government. This contributed to delays despite the team's efforts to intervene.

Training and capacity building was provided, to varying extents, to the PIU, utilities and contractors. In regard to utilities, while site-specific trainings were given, it is not clear to what extent the utilities benefited from institutional strengthening efforts. The PIU was the recipient of the majority of the training and this was reflected in the progressive improvement in its performance. The impact on the Government's long-term capacity building was limited (ICR para.59).

Two areas where project implementation support seems to have been less successful were:

Ensuring adequate set-up and functioning of the M&E system: As discussed in the section below on the quality of the M&E system, it had several weaknesses over the project implementation period. Some significant weaknesses in the system remained even after 11 years of project implementation. In a number of cases, targets and baseline values were not set in a timely manner. Some incorrect baseline values were corrected relatively late in the implementation cycle. It is not clear from the ICR what specific efforts were made at different points of time to address the issues and strengthen capacity and delivery within the system. This relates particularly to the provision of adequate support to the PIU through engagement of M&E specialists on the project team and external consultants.

Ensuring proper organization and execution of beneficiary surveys: Since the project's principal aim was to improve the quality of water supply and sanitation services provided to the population, timely and well-executed beneficiary surveys would have contributed to reinforcing conclusions regarding achievement of the objectives. This area seems to have received inadequate attention during implementation.

The overall rating of Bank performance is based on the Moderately Satisfactory ratings for quality-at-entry and for quality of supervision.

## Quality of Supervision Rating



Moderately Satisfactory

### **Overall Bank Performance Rating**

Moderately Satisfactory

## **9. M&E Design, Implementation, & Utilization**

### **a. M&E Design**

The ICR (para. 77) reports significant shortcomings in the Results Framework (RF) and the associated M&E system:

- Indicators did not reflect all the PDOs, in part due to water supply and wastewater treatment services being grouped together.
- Baselines and targets were missing for a large number of PDOs and intermediate indicators.
- A clear link from activities to outcomes was not made.
- While intermediate indicators covered some of the gaps in the PDOs, they were incomplete.
- Access to sanitation was not included as a PDO but was included as an output indicator.
- Baseline values for PDO indicators measuring progress on the quality of wastewater services were incorrectly estimated.

### **b. M&E Implementation**

The ICR (para. 78) reports significant shortcomings:

- Tools proposed for M&E were unrealistic given the resources of the project and limited ownership from the MHU.
- Results-based M&E was to be utilized to measure quality of services and results of the annual consumer surveys, but no financing was provided for their implementation.
- The M&E approach relied fully on the PIU which lacked staff resources to carry out M&E functions adequately.
- Several baseline values remained unfilled relatively late into implementation.

The ICR also reports (para. 78) that the situation improved over time: the RF was improved to better assess project results and better reporting on project-level activities, outcomes and outputs.

### **c. M&E Utilization**

The ICR (para. 79) has assessed that:

- Limited utilization of M&E suggests that it was not used as a tool to support evidence based learning.
- As additional subprojects were added to the project's portfolio, the RF was not updated to include these.



- A significant error in baseline values was discovered only in the last ISR.

The ICRR rating is based on the significant shortcomings discussed above.

## M&E Quality Rating

Modest

## 10. Other Issues

### a. Safeguards

The project was assigned Category B (Partial Assessment) under both the original project and the Additional Financing. Four safeguard policies were triggered under the project: Environmental Assessment (OP/BP4.01); Physical Cultural Resources (OP/BP4.11); Involuntary Resettlement (OP/BP4.12); and Projects on International Waterways (OP/BP7.50). The ICR (para. 81) reports that the project was implemented in compliance with the World Bank's policies and national procedures, as well as with existing environmental, occupational health, and labor safety requirements. While the inference is that all applicable safeguard policies were complied with, the ICR does not specifically state this separately for each of the safeguard policies. The project closed with Satisfactory ratings for each of the identified policies triggered. Environmental and Social Management Plans were developed for subprojects. No significant and large-scale negative impacts were registered during project implementation. Site-specific Resettlement Action Plans (RAPs) were prepared including compensation measures. A project-level Grievance Address Mechanism (GRM) was set up based on Belarus domestic legislation. No complaints related to social and environmental safeguards were received by the GRM.

### b. Fiduciary Compliance

**FM:** The project closed with a Satisfactory FM rating with no pending FM actions. The ICR reports (para. 83) that, after a short period of capacity building and learning at the initial stages, the PIU carried out the FM and disbursement functions satisfactorily, and performance remained strong. Relevant training was provided to the PIU staff. Financial Monitoring Reports (FRMs) were submitted on time and were of satisfactory quality. Annual audits of project financial statements were carried out on time and the auditors offered clean opinions. No significant internal control issues were noted by the auditors.

**Procurement:** Procurement was implemented in accordance with the World Bank's Procurement and Consultant Guidelines and in accordance with the provisions of the Loan Agreement. From the beginning of the project (2008) until 2017, procurement performance was rated Moderately Satisfactory; quality improved thereafter, and, at closing, it was rated Satisfactory. Issues that led to delays included: low quality of preliminary designs used for preparation of tender documentation; lack of interest on part of contractors; time taken to effect amendments to construction contracts that were already signed; lack of counterpart funds to finance taxes related to contracts; client's refusal to sign contracts where the recommended bidder's price exceeded the approved cost estimate. Issues were progressively resolved as implementation proceeded (ICR para. 84).



**Gender:** The project was not originally designed to have a direct gender dimension. During the Additional Financing, a gender filter was introduced to measure the distribution of benefits of improved quality of water (but not for access) and a sub-indicator target (56 percent) was introduced. However, activities were not designed to target women or disadvantaged groups directly. The achievement figure of 54 percent was based on the gender share at a country-wide level and was not measured through surveys.

**c. Unintended impacts (Positive or Negative)**

No significant unintended impacts were identified.

**d. Other**

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**11. Ratings**

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	
Quality of M&E	Modest	Modest	
Quality of ICR	---	Substantial	

**12. Lessons**

The ICR (paras. 93 to 97) lists five lessons and recommendations all of which are relevant. For the ICRR, these have been re-organized and condensed into the following two lessons which have relevance to preparation and implementation of projects in similar environments.

**Balancing infrastructure investment with sector reform to deliver the right mix of results is difficult, and client ownership is paramount:** Projects that pursue delivery of physical infrastructure can also seek to advance a reform agenda. However, client ownership is paramount to successful delivery of reforms. The inclusion of an efficiency and sustainability agenda under the project were largely World Bank driven and proved somewhat premature in the prevailing circumstances. An alternative approach would have been to focus this project on successful and visible delivery of physical infrastructure investments, thereby building trust and paving the way for a progressive introduction of more complex reform agendas. The reform agenda should be embedded in the overall design of the project rather than tagged on as a separate element. Under the project, inclusion of efficiency and sustainability objectives were closely linked to subproject interventions. Finding a way to embed these objectives better in the design, and to evaluate their



impacts, may have demonstrated benefits while not requiring large-scale changes to the choice of subprojects.

**When engaging in a new country, teams should invest more effort in understanding the sector financing model and the Government’s policy vision in that regard:** While sustainability of development outcomes should be a key objective under any project, financial sustainability of utilities is an important means to that end. The approach taken in Belarus, with strong centralization of the WSS sector, ensures sector sustainability to a degree. However, the centralization of implementation through the PIU and the ministries can preclude the project team from the necessary degree of interaction with the utilities to understand and assess the financial and operational implications and risks at the level of the utilities. Efforts at institutional strengthening, at a utility level, may be constrained for this reason.

### 13. Assessment Recommended?

No

### 14. Comments on Quality of ICR

The ICR is well-written. It provides a candid and balanced assessment of the project’s achievements and shortcomings. The ICR provides a clear diagrammatic presentation of the theory of change and results chain. Overall, the quality of analysis is good and evidence-based although constrained to some extent by the availability or quality of the required information and the shortcomings of the project’s M&E system. The ICR includes detailed annexes in regard to the supporting information. There are some minor discrepancies: (a) in regard to project costs at completion, the ICR indicates different figures in the Data Sheet (US\$149.58 million) and in Annex 3 (US\$148.60 million); (b) in regard to the number of subprojects financed, it indicates different figures - 54 in para. 49 and 53 in Annex 5, Table 5.1. Overall, discrepancies in regard to figures and dates are minor and not significant. The lessons and recommendations it lists are relevant and have applicability for projects executed in similar environments.

#### a. Quality of ICR Rating

Substantial

