Armenia: Fostering the Long-Term Financial Viability and Sustainability of the Armenian Water and Sewerage Company

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The ADB Central and West Asia Department (CWRD) Working Paper Series is a forum for stimulating discussion and eliciting feedback on ongoing and recently completed economic, sector, and policy work undertaken by ADB staff members, consultants, or resource persons in the context of the operational work of CWRD. The series deals with economic and development issues in Central and West Asia, and aims to improve the knowledge of Central and West Asia’s development and policy challenges, strengthen subregional and country operations, and contribute to national and regional policy dialogue.

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ABSTRACT

In 2007, the Asian Development Bank (ADB) approved a loan of $36 million to Armenia to help improve public health and the environment for 576,000 people in 16 towns by (i) revitalizing and rehabilitating the existing water infrastructure, and (ii) increasing the capacity of the water supply and sanitation service providers. While this project had positive implementation results, the need to address pressing issues, including capital investments for upgrading of the network and the long-term financial sustainability of the Armenian Water and Sewerage Company (AWSC), remained. Thus, in 2012, ADB approved the Government of Armenia’s request for $40 million in additional financing to continue and expand the improvements delivered by the initial project.

This paper outlines ADB’s interventions to improve water supply and sanitation services in Armenia through the initial project and the additional financing. It also highlights the rationale behind the structure of a new tariff regime, which is aimed at fostering the long-term financial sustainability of AWSC.
I. INTRODUCTION

1. Geographically situated in the mountainous Southern Caucasus region, Armenia is a landlocked country surrounded by Azerbaijan, Georgia, Iran, and Turkey. It has a land area of 28,700 square kilometers. Politically, the country has 10 marzes (administrative divisions), which are subdivided into districts, consisting of towns and villages. About 64% of the country’s population resides in urban areas.

2. Armenia has an abundance of water resources, with most of the water supplied to the urban areas sourced from alpine mountain ranges within the country’s boundaries. During the Soviet period, large investments were made into Armenia’s water supply and sanitation sector to deliver modern water and wastewater services to its population. However, water management and consumption were not monitored appropriately, and relevant water assets and infrastructure were neither routinely maintained nor upgraded. Furthermore, investments in the sector diminished when the Soviet Union collapsed. Much-needed repairs and upgrades to support increasing demand could not be funded, and assets and resources were misused. Despite Armenia’s abundance of water, the population’s supply needs could not be met, as a significant proportion had access to drinking water for just a few hours per day.

3. To address these issues, the Government of Armenia has sought to improve the water supply and sanitation sector through various policy and legislative reforms and capital investments with support from international institutions, such as the Asian Development Bank (ADB), and with private participation through public–private partnerships (PPPs).

II. KEY SECTOR CHALLENGES

A. Outdated and Dilapidated Infrastructure

4. Armenia’s water supply networks and systems are in need of major repairs and upgrades. The absence of investments over the years, coupled with the lack of routine maintenance, has resulted in deteriorated infrastructure that is unable to deliver the appropriate level of service to its users.

B. High Levels of Nonrevenue Water

5. A World Bank report suggested that the level of nonrevenue water (estimated at 85%) in Armenia is one of the highest in the world. The poor state of the water supply network contributes significantly to this high level, with more than 50% of nonrevenue water levels due to leaks from old pipes. Commercial losses have also been high due to water theft and inaccurate billing. In addition, water providers do not have the appropriate equipment or operational setup to effectively manage these losses.

C. Low Tariffs

6. The water tariff level in Armenia remains around AMD200 per cubic meter, which is considered low compared to regional and international norms of around AMD400 per cubic

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1 Other donors include the European Union, Global Environmental Facility, United Nations Development Programme, United Nations Economic Commission for Europe, United States Agency for International Development, and the World Bank.

meter. Such a low level, in addition to poor collection rates, provides inadequate funding for water providers to rehabilitate assets. In fact, the current tariff levels are not even sufficient to cover operation and maintenance costs incurred by the water providers (Figure 1).

**Figure 1: Revenue and Operational Cost Profiles of the Armenian Water and Sewerage Company**

Notes: Other Expenses (1) include selling expenses and other administration expenses. Other Expenses (2) include financial expenses and financial gains and losses. Cost of Sales includes items such as electricity, salaries, materials expenditure, social security payments, ecology fees, purchased water expenses, and natural resource utilization fees. Source: Data and cost categories are based on the audited statements of the Armenian Water and Sewerage Company as of June 2010.

### III. POLICY, INSTITUTIONAL, AND LEGAL REFORMS

7. In 2002, the government adopted the Water Code, which helps institute appropriate mechanisms for efficient management, protection, and operation of Armenia’s water supply and sanitation systems. It establishes the conservation and protection of water resources and ensures adequate monitoring of water standards. The code also provides an institutional framework for water companies to procure water assets and services under PPPs.
8. In 2005, the Law of Fundamental Provisions of the National Water Policy was adopted. The objectives of the policy include (i) the provision of potable water and sanitation services to meet the basic needs of the population, and (ii) the implementation of appropriate water pricing criteria that will ensure proper management of water resources and systems.

9. In 2006, the National Water Program was established to ensure coordination between agencies and to improve consistency among laws, regulations, by-laws, and decrees adopted by the government and water providers. Government agencies were also established to support these reforms, including the Public Services Regulatory Commission (PSRC) and the State Committee for Water Economy (SCWE). PSRC is responsible for economic regulation and tariff-setting compliance, while SCWE acts as an independent body responsible for implementing tariff policies and overseeing the operation and management of water providers.

10. As part of the decentralization objectives of the water supply and sanitation sector reform, five state-owned enterprises were established to manage and administer the water systems in different areas of Armenia. These include the Armenian Water and Sewerage Company (AWSC), which serves over 600,000 people in over 300 villages outside of Yerevan; Lori; Nor Akunq; Shirak; and Yerevan Djur, which serves about 1 million people in Yerevan and 33 nearby villages. Currently, all are engaged in some form of PPP arrangement with various international operators, and these arrangements are managed by SCWE.

11. AWSC is currently managed and operated by Saur, a French utility company, under a management contract with SCWE. The fee-based contract had an original term of 5 years but was recently extended for an additional year (i.e., until 31 December 2013) with the expectation that a more long-term arrangement (e.g., a lease agreement) could be structured prior to the expiration of the management contract. AWSC’s aging infrastructure is spread out across the country. As previously stated, the need for urgent repair, combined with the abundance of water resources that have been traditionally seen as a free resource in rural areas, makes resource management a difficult task.

IV. ADB SUPPORT TO ARMENIA’S WATER SUPPLY AND SANITATION SECTOR

12. Armenia became an ADB member country in 2005. As of December 2011, ADB approved $1.2 billion in financing to the country. In 2009, Armenia was greatly affected by the global financial crisis, which hindered its efforts to mitigate widespread poverty. Post-crisis poverty reduction strategies have been highlighted in its country operations business plan, 2012–2013.

13. To facilitate ADB loans related to the water supply and sanitation sector, the Water Supply and Sanitation Sector Project was approved in 2007, amounting to $36 million. The project aimed to improve public health and the environment for about 576,000 people in 16 towns and 125 villages managed by AWSC. The project’s related benefits included time and cost savings from purchasing, fetching, treating, and storing water; improved hygiene and health; reduced medical outlays; and increased productive days for the population.

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6 The project was designed and approved by ADB’s Board of Directors in 2007 to serve 16 towns and 125 villages. The review in October 2011 reported that the project is serving 21 towns and 97 villages.
14. With the project obtaining positive implementation results, the government, through SCWE, requested for the expansion of the project through additional financing. On 12 April 2012, ADB approved an additional $40 million in financing to continue the rehabilitation of the water supply distribution networks in targeted subprojects in Armenia. The additional financing aimed to rehabilitate an additional 10 subprojects in 8 towns and 63 villages covered by AWSC, bringing the total to 29 towns and 160 villages benefiting from the project. This financing also hoped to provide the necessary upgrades to facilities, infrastructure, and services, and further improve the operational capacity of AWSC.

15. Operationally, the project has increased potable water supply by at least 12 hours to more than 600,000 residents (exceeding the baseline target of 576,000 residents) of subproject communities. Tariff collection also increased from 61% in 2008 to 74% in 2010, driven by the installation of water meters and an ongoing community program to raise awareness of water use and management. Further, several reforms have been implemented to improve the financial management and operational efficiency of AWSC.

16. Despite the positive improvements delivered by the project, however, key issues still need to be addressed for AWSC to attain long-term financial sustainability. These include (i) further reduction in nonrevenue water, which is still relatively high at 83% (as of June 2012) due largely to technical losses caused by leaks from the dilapidated network and commercial losses from illegal connections; and (ii) low tariffs, which have remain unchanged since the project’s commencement.

17. AWSC acknowledges that nonrevenue water is staggeringly high. To address the issue, it is suggesting, with Saur, that it (i) utilize large capital investments (including those from ADB) to replace and upgrade aging infrastructure and decrease leaks in the network; (ii) install about 19,000 C-class water meters for residential properties and 1,000 electronic water meters for high-rise buildings to better account for water use; (iii) install better flow meters to account for more accurate flow values; and (iv) place more attention and efforts on decreasing the incidence of illegal connections through better community consultation and active monitoring.

18. Further, Saur is contractually incentivized to address nonrevenue water. Unlike the previous management contract arrangement, the revised arrangement includes provisions not just for bonuses (of up to 25% of the annual base management fixed fee—€1,110,000 per year—to be paid to Saur) but also for penalties (up to 20% of the annual base management fixed fee to be paid by Saur). In addition, its performance indicators have been revised under the new management contract to include provisions targeting AWSC’s operational (i.e., in terms of service duration, water quality, and water losses) and financial performance. These revised indicators are aimed at promoting better operational efficiency, in particular, with increased focus on reducing nonrevenue water and the long-term financial viability and sustainability of AWSC.

19. Efforts are now under way to expand the improvements delivered by the project to other towns and villages serviced by AWSC under the additional financing. As per the previous actions taken by AWSC, it is expected that any savings made by AWSC under the additional financing (e.g., through earlier completion of subprojects and savings on utilization of third-party

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8 Target nonrevenue water is 75% by 2013 and 70% by 2014.
consultants and contractors) will be applied to fixing other segments of the network outside the project towns. Priority is given to segments where pumping is required, to minimize such associated costs.

V. TARIFF REFORM AS A KEY COVENANT IN THE ADDITIONAL FINANCING

20. The low water tariff has been a key concern because it negatively impacts AWSC’s overall financial performance. As previously stated, there have been no tariff increases since the project’s commencement in 2007, creating a continued operating shortfall for AWSC. Although revenue has improved and operating expenses have decreased since 2007, AWSC is not generating a surplus to cover major maintenance and replacement costs. ADB’s recent financial management review has raised concerns that continued losses will eventually diminish AWSC’s capital and consequently pose a threat to the company’s solvency in the long term (Figure 1).

21. The project team associated with the additional financing reviewed the latest available audited AWSC financial accounts. These showed that the company’s income sources do not provide full recovery of operating and capital replacement costs. Similar operating losses were incurred in the previous year’s financial statements. ADB believes that the losses depleted the company’s retained earnings and equity and will impact the company’s commercial sustainability, solvency, and long-term viability.

22. In formulating an appropriate tariff covenant, the project team first reviewed the tariff provision under the initial project:

The Borrower shall ensure that (a) a tariff plan is prepared for annual tariff settings that take into account the service costs including inflation, which will be implemented by 10 January 2009; and (b) the tariff to be adopted in January 2010 fully covers the operating cost.

Despite the operational success of the project, this covenant was not fully delivered.10

23. Knowing that the previous tariff covenant was not complied with and understanding the political sensitivity of such a tariff increase on users, the project team was mindful that an appropriate revised tariff covenant should not only achieve cost recovery status for AWSC over 5 years11 of implementation. Further, implementation should be gradual and palatable to the public. Thus, government subsidy was factored in for the immediate term but is expected to fall away over time.

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10 For various reasons, the government was not able to comply with this covenant, which was subsequently waived by ADB. The political sensitivity of increasing the overall tariff was the cause of noncompliance. Further, the government believed that it would have been inequitable for users to absorb tariff increases to minimize AWSC’s funding gap driven largely by an inefficient, dilapidated network, which requires significant capital investments.
11 To match the terms of the additional financing project implementation.
24. In addition, the project team examined other similar interventions that would have been relevant. In particular, the team looked into the provision of a transition support funding mechanism, which was implemented in the Sindh Cities Improvement Investment Program. Under this funding mechanism, a separate loan facility is made available to the government, and proceeds from this medium-term facility are also made available to bridge any operating cash flow shortfall to achieve operational sustainability in the short to medium term. The availability of this funding is incentive-based, which is aimed at fostering efficiency and reducing the need for subsidy.

25. The Government of Armenia was comfortable in funding the subsidy offered to AWSC; therefore, there was no need to introduce a separate facility. Instead, a new tariff covenant was introduced that would not only encourage the government to develop a tariff plan in consultation with ADB but also introduce a tariff that is inflation-indexed, facilitating gradual increases in tariff over time and consequently reducing the need for ongoing government subsidy in the future.

26. Consequently, the tariff provision under the additional financing was revised as follows:

By no later than the end of the first quarter of 2014, the Borrower shall ensure that a tariff plan ("Proposed Tariff Plan") has been submitted and recommended to the Borrower's Public Services Regulatory Commission ("PSRC") for the PSRC's consideration and approval which such Proposed Tariff Plan shall promote the achievement of long-term financial sustainability and commercial viability of AWSC's business and ensure a gradual reduction in the government subsidy to AWSC over time. Without limiting the generality of the foregoing, the Proposed Tariff Plan, and each subsequent tariff plan submitted to the PSRC, shall include an adjustment to the applicable tariff to take into account consumer price index ("CPI") increases in Armenia, calculated based on the CPI increase in Armenia during the previous calendar year as determined by the National Statistical Service of Armenia. The Borrower and AWSC shall consult with the ADB on the contents of the Proposed Tariff Plan prior to its submission to the PSRC. In the event the PSRC does not adopt the Proposed Tariff Plan in the form submitted to the PSRC, the Borrower and AWSC shall engage in discussions with ADB to discuss the contents of subsequent tariff plans to be proposed to the PSRC for the next tariff review cycle.”

27. By increasing the tariff to match the annual consumer price index, thereby implementing gradual increases, the tariff will be able to cover cost of goods sold, selling and administration costs, and other costs including required capital replacement costs after 5 years of implementation. The need for ongoing government subsidy will thus be reduced, and long-term financial viability and sustainability for AWSC will be promoted.

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13 Based on the 5-year average annual consumer price index of 5% per year.

14 Based on the assumption that key cost components remain constant over that period.
VI. LESSONS LEARNED

A. Need for Further Capital Investment

28. Much of the ASWC network spread across the country requires upgrades and repairs after decades of neglect. The abundance of water in the country, which is almost considered unlimited by its users, also contributes to its misuse. ADB loans to date will assist in the network upgrade in 29 towns and 160 villages. These loans are still insufficient to rehabilitate the entire network and immediately address the high level of nonrevenue water. However, there is evidence of improvements, and the issue of nonrevenue water is being managed proactively and will be addressed gradually through performance requirements under the additional ADB financing and the revised management contract between Saur and SCWE. AWSC is also prioritizing repairs to allocate limited funding resources efficiently.

B. Need for an Equitable, Gradual Tariff Increase

29. The noncompliance of the borrower in terms of tariff reform shows the difficulty and sensitivity of imposing such tariff increases on the public, especially if the associated service is intermittent. To some degree, it is difficult to rationalize that users will need to shoulder the financial burden to fill the funding gap of the operator. The tariff reform condition under the additional financing is structured so that it will allow for a more market-based tariff increase to reach a tariff level over time that will match cost recovery. This gradual increase will not only be more agreeable for users, but it will also match the service improvements delivered by AWSC through various infrastructure upgrades and overall management improvements under the PPP arrangement with Saur (Figure 2).

![Figure 2: Revenue and Cost Profiles of the Armenian Water and Sewerage Company (2012–2017)](image)

Admin = administration, COGS = cost of goods sold, m³ = cubic meter.
VII. THE NEXT CHAPTER FOR THE ARMENIAN WATER AND SEWERAGE COMPANY

30. It is expected that the revised tariff covenant will be adhered to under the additional financing, and together with further operational efficiencies, this will pave the way for gradual improvements in AWSC’s financial position. The project team from ADB, together with AWSC, will regularly monitor not just AWSC’s project progress and operational performance but also its ongoing position toward long-term financial viability and sustainability.
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