Overview

Armenia, a small landlocked country in the Caucasus, made a call to its development partners for assistance in maintaining its extensive but severely underfunded road and water networks. Only ADB responded.

The issue was partially rooted in a stalemate between concerned government ministries who proposed competing solutions. Other international development agencies only pursued their own projects and there was some complementarity between their programs that could be exploited further. Similarly, within the ADB, different specialists saw different problems and solutions. If the problem was unaddressed, an inefficient road network enabled regional imbalances to persist by reducing access to markets, labor force mobility, and economic integration between peri-urban and rural areas. Reduced access to a reliable and potable water supply increased the incidence of health problems, increasing medical costs while reducing disposable incomes. More time was devoted to fetching water from distant sources instead of livelihood activities.

As the team lead assigned to this program, you were asked to find a lasting solution on how to offer the people of Armenia reliable infrastructure services. Without it, Armenians continued to have reduced access to basic services, employment centers, and social services.

Keywords: Social Development and Poverty, Governance and Public Management, Transport, Water

Case Details

Armenia is a small landlocked and mountainous country in the Caucasus that has experienced fast economic growth since its independence in 1991. GDP per capita tripled in constant US dollar terms, making considerable progress towards poverty reduction. The economy was based on industrial manufacturing due to its membership in the Soviet Union. After independence, the economy shifted to the export and trade of its mineral resources such as gold, copper and zinc. Industries such as tourism and ICT emerged as new growth engines, coupled with the growth of remittances from Armenians working in the Russian Federation. Yet, significant development challenges still existed including regional and global integration, economic risks, and governance problems. In order to facilitate faster economic growth, the government identified improving infrastructure development as a priority.

In 2012, the Armenian government made a call to its development partners asking for assistance in maintaining their extensive but underfunded road and water network. Out of the numerous development institutions working in Armenia, only ADB responded to their call. You were assigned as the team leader to conduct the preliminary diagnostics assessment. Your team included a public management specialist, an urban development specialist, a financial sector specialist, water and sanitation specialists, transport specialists, a forensic accountant, and an economist.

Road Network Conditions

On your first few days, your team focused on studying the road networks, which heavily impact economic outcomes of any country. Armenia's almost 8,000 km of republic, interstate, and local roads connected citizens to markets, hospitals, and schools. They facilitated trade with the country's neighbors and created opportunities for the integration of peri-urban areas. Unfortunately, as local road managers told you, these roads are quickly deteriorated due to frequent seismic activity and sharp seasonal temperature variations. It made construction and maintenance costly and difficult. Under-funding was also a serious problem. New roads were primarily financed when international development assistance was available, which could not meet the current demand. From your sector analysis, you learned that Armenia needed to spend about 1% of its GDP to fund road maintenance but could only allocate 0.25%. It translated to funds being allocated to merely 10% of the roads that need maintenance.

Management of the road networks was also problematic. Approximately 3,500 km of roads were managed by the central government, while the rest were delegated to similarly underfunded provinces and local communities. Overall there were more than 500 national, regional, and local road managers in Armenia, all with different levels of expertise and capacity. A highly segmented road management system undermined connectivity between communities. Economies of scale and value optimization were limited due to the differences between one organization to another. Some of the road managers also shared with you their inability to gather qualitative data and monitor road maintenance by public and private service providers. A more in-depth analysis shows that the Armenian government had no data on more than half of their road network. It made sound investment decisions much more difficult.

After a full day of meetings, you decided to go to the market to buy some fruits on your way back to the hotel. There you met Dukagic who sold these large and colorful heirloom tomatoes. You started to ask him about his farm, which you learned was approximately 20 km away from the market. You heard about the care and hard work he puts in growing and harvesting his tomatoes. What surprised you though was that he regularly lost about a third of his harvest due to the pothole-filled journey his tomatoes make on the way to the market. You thanked him for the conversation and made your way back to your room, all the while thinking of how much produce Dukagic lost every year.

Water Network Conditions

Your team then moved on to studying the water network. Armenia has made great progress in providing households access to a reliable and clean water supply. Approximately 97% of households in urban areas and 72.8% in rural areas had access to a centralized system by 2005. Access in urban areas increased to 99.3%, while in rural communities, it increased to 89.7% by 2011. Yet the length of access was still limited. Only half of households received 24 hr access to water, while another 20% only had less than 5 hours a day. Another 560 rural and peri-urban communities were still not connected to the water network.

The system was similarly underfunded where commercial and technical water losses exceeded 85%. Initial assessments indicated that about half of the existing network needs to be

renovated. Another estimate argued for $279 million or 2.8% of GDP was needed for capital investments in the main water grid over the next 5 years. A consolidated, complete and current asset database was also missing, something that should inform investment decisions. The Armenian government involved the private sector through management and lease contracts, while development agencies also made investments in improving the system. Unfortunately, these efforts have not been enough to meet the increasing needs of Armenians and the deteriorating water network.

After your day was over, you decided to walk around the neighborhood where you were staying. You passed by an elementary school where children were playing in the hot afternoon sun. You noticed three ornately carved structures in one corner, which turned out to be water fountains. You ask one of the students if they drank from those water fountains. After catching her breath, a young girl brightly said, "sometimes, when there's water." A friend of hers added, "they're only useful in the morning. That's when the water comes." As they continued on with their game, you started to think about how important having access to a reliable and clean water supply was.

Ministries and Government Agencies

After your field visits, you and your team met with officials from the Ministry of Transportation and Communication (MOTC) who oversaw the management of the road network. They argued that many of the problems they faced would be solved by receiving a larger budget allocation. It would help to keep more roads open by providing more funds for maintenance. Another issue raised was the procurement guidelines which made the process for getting private contractors too difficult and time-consuming. Officials wanted to make changes but were unable to since these guidelines were set by the Ministry of Finance (MOF).

You also met with the MOF since they managed the national budget. You relayed the issues raised from your previous meeting but MOF officials argued that this was a resource management issue. For them, the MOTC budget was not being spent efficiently where investments could make the most impact. Road improvements needed to be implemented within their budget before any increases would be discussed. At the same time, MOF officials said that the procurement guidelines should have been adequate if only MOTC used them properly. When asked if they had experience in working with road contractors, they responded with "none".

You brought back MOF's comments to MOTC, which were unfortunately not received well. They sad they already hired contractors to perform maintenance work with what little budget they have. Contractors were monitored by MOTC and local government officials on a road by road, contract by contract basis. You asked them, "who sets the service standards for these contracts?" They said, "we do."

For the water sector, you met with the State Committee for Water Economy (SCWE) who laid out how the water sector was managed. They were responsible for carrying out policy and strategies, while the Public Services Regulatory Commission (PSRC) regulates public and private owners of water assets. You asked them about their plans to connect the additional 560 communities or 1/3 of the Armenian population to the water network. They said none, since those communities were outside their mandate. By law, they had no obligation to bring water

services to those communities. Besides, the national budget did not have any explicit financial support for the water sector. Financial reporting had also been irregular or incomplete due to the inability to monitor subsidies. You started to wonder with whom residents talked to demand water services.

You approached some of the private water companies to ask about the very high level of water losses. They said it was something that they were working on. Reducing water losses was only a recent addition to their service contracts with the PSRC. The water tariffs though were too low to make any reasonable return on investments in reducing water losses. The national government has not even discussed a water loss reduction program. The water company executives said their focus was primarily on cost recovery as much as possible and tariff collection. Any shortfalls they might have had were backstopped by subsidies from the national government.

At the end of your meetings, you and your team realized that the situation was more complex than you imagined. Armenia needed more than just financing for infrastructure maintenance. There were also institutional obstacles that needed to be resolved for a lasting solution to be reached.

Development Partners and ADB Team

After your return to headquarters, you and your team met to debrief about the diagnostics and to chart a plan in drafting a proposal. The transport and water specialists on your team concluded that the primary issue was an inadequate budget. Without proper financing and funding, much of Armenia's road and water infrastructure would continue to deteriorate at an even faster pace. Any delay merely resulted in more expensive maintenance costs in the future. The urban development specialist argued that there was a public management gap that needed to be addressed before any changes in spending were made. The economist in your team added that government agencies had a difficult time tracking and monitoring their resources, both physical and financial. Without systems and frameworks, any new funding would be lost and unaccounted for. The forensic accountant echoed the sentiment but asked for more in-depth investigation. There were too many loose ends, especially in the water sector, to make any changes sustainable in the long-run.

As you hear the arguments from both sides, you started to feel that you and your team were arriving at an impasse that was eerily familiar. You realize that your team was reflecting the same fault lines that were present within the Armenian government. You concluded that you needed to find out how to address the issues within your team first before you can ask the same from your Armenian partners.

After your meeting, you learned that the same challenges were also experienced by other development agencies who had projects and programmes in the same sectors. You started to contact your colleagues at other development agencies to see if they were interested in collaborating across sectors and with your team. ADB had great partnerships with other organizations regarding previous public financial management reforms, and support for the water and road sectors. You initially expected they would be interested in working together. Surprisingly, they only expressed polite interest in your work. They were more interested in

sharing their frustration with the Armenian government since their own projects were unable to move at a satisfactory pace. You started to wonder how could you help the government could develop and support a "sustainable" solution.

Overview

Armenia, a small landlocked country in the Caucasus, made out a call to its development partners for assistance in maintaining its extensive but severely underfunded road and water network. Only the ADB responded to their call.

The challenge was to institutionalize coordination and cross-accountability within road and water development, not only between Armenian government agencies but also with ADB teams and other development partners. The ADB team adopted the "One ADB Approach", where a multidisciplinary and multisector analysis of the problem at hand. A common language between stakeholders needed to be developed through a series of meetings and working groups.

This bottom-up approach resulted in multi-agency solutions that harnessed each stakeholder's comparative advantage. A Road Council was established and brought together relevant government ministries through regular meetings. A functional review of the water sector was initiated, bringing together all agencies involved in supporting water infrastructure. All stakeholders, from local community residents, to government officials were enlisted in ensuring services were delivered on time. Lastly, renewed country support programs from development partners became more complimentary with each other. These efforts brought a clear division of responsibilities and fostered joint reinforcement of common development targets and accountability for delivering shared goals.

Action Issues

Diagnosing the Problem

Even in the beginning of the program development process, the ADB team adopted a multidisciplinary and multisectoral approach to diagnosing Armenia's infrastructure problem. The team was composed of a public management specialist, an urban development specialist, financial sector specialists, water and sanitation specialists, an economist, transport specialists

and a forensic accountant. Each contributed their own expertise and experience to diagnose a different facet of the problem.

Besides funding and investment issues, the road sector had other related challenges that needed to be brought out. There was a lack of information on road conditions compounded by a large number of road managers. The Ministry of Transport and Communications (MOTC) also performed multiple roles in the sector (i.e. policy and strategy making, roads management, contractor management, and regulator). An independent regulator that enforced good practices was missing. A displacement effect was also occurring in budgetary allocations. Significant donor funding effectively offset reductions in maintenance allocations in the national budget. It enabled the government to maintain spending levels while diverting funding to other priority policy areas. In 2008, budgetary allocations for maintenance and rehabilitation works were at approximately AMD30 billion, while donor funding amounted to approximately AMD15 billion. By 2013, budgetary allocations dropped to just over AMD10 billion and donor funding increased significantly to AMD60 billion.

Investments in the water sector were hampered by different challenges. Government agencies lacked the legislated mandate to extend water services to those outside its grid. This prevented regular updates to the service standards for water supply and wastewater services. Any changes again needed to be legislated. The State Committee for Water Economy (SCWE), although very capable, did not have the capacity for long-term investment planning as well as managing and monitoring future PPP projects. Water loss was also a significant problem, while water meters were highly inaccurate. SCWE-approved water tariffs were too low to cover operational expenses or any water loss reduction strategies. The government covered the worsening losses for water companies, effectively subsidizing all users regardless of income.

Developing a Common Language

Before any progress was to be made, a common language needed to be developed between all relevant stakeholders. Instead of doing it independently, the ADB project team worked together with their Armenian sector counterparts to conduct stakeholder and issue mapping exercises. Numerous meetings were held between ADB's transport and public sector management experts, MOTC, and the Ministry of Finance (MOF). Similar meetings were also organized with

ADB's water sector specialists and water agencies in Armenia. Four questions were regularly asked:

- What do you want?
- Are you getting what you want?
- How do you communicate your wants?
- Are you getting a satisfactory response?

The meetings were initially resisted by members of the ADB Team themselves. They had to meet and discuss with more stakeholders, some of whom they had no prior relationships or outside their expertise. They learned new ways of understanding a problem in order to be able to competently discuss and propose solutions to counterparts from different ministries. Everyone collaboratively mapped how information flowed from one stakeholder to another: from local communities, to civil society, to ministries, to groups who delivered services. It was important to draw out not only formal processes but also implicit relationships within and across groups.

These meetings helped in developing a common understanding of the issues, but there was still some reluctance to set joint priorities and common action plans at the ministerial level. Bilateral working groups were then formed at the department head level between the MOF and the MOTC, as well as between MOF and the water agencies. Department heads knew firsthand the operational issues plaguing the road and water networks but also had access to their respective ministers. Once they were convinced themselves, they could in turn convince their ministers. This was exactly what happened.

A common language emerged and took root as a result of these meetings and bilateral working groups. ADB's program was being developed from the bottom up, anchored by what has been considered to be relevant, realistic, and achievable by relevant stakeholders. Other development partners started to attend meetings together with the ADB team and their sector counterparts.

Multi-Agency Solution

The comparative advantages of ADB, the Armenian ministries and agencies, and other development partners were being harnessed for a more complimentary and coordinated approach. Effective multi-agency solutions were formed such as:

- a biministerial group brought together MOTC and the Ministry of Territorial Administration (MOTA) to represent roads management and policy at the central and local government levels respectively;
- a set of key performance indicators and targets were jointly developed by MOF and MOTC, which became the basis of future results-based budget negotiations;
- the consolidation of capital expenditures, operational expenses, and expenditures at the community level for the road sector between MOF and MOTC;
- the Road Council brought together the MOF and the MOTC in regular meetings;
- a functional review of the water sector, a collaboration between all concerned supporting agencies, was initiated.

More importantly, Armenia's development partners integrated complementary components and conditions into their own country support programs. For instance:

- **Subsidy Monitoring and Reporting**
  - IMF was supporting the Ministry of Finance to monitor subsidies;
  - ADB was supporting better monitoring and reporting frameworks for the Armenian government's subsidies to the water sector as well as the capacity of government agencies and private utilities to use these frameworks;
- **Road Data Collection and Asset Management System**
  - The World Bank provided technical assistance in purchasing road data collection equipment, which will feed data into a road asset management system;
  - ADB was also supporting the hardware procurement for the road asset management system and the building of staff capacity to use the system effectively;
- **Internal Audit Capacity Building**

- The European Union Delegation has been supporting MOF to increase their internal audit capacity through twinning arrangements;
- GIZ developed detailed training modules for the professional development of internal auditors;
- ADB has been customizing GIZ's training materials for road and water sector internal auditors with 6 months on-site support.

Monitoring included an "all-hands-on-deck" approach to address the limited capacity. A complaint/grievance redressal system was setup where detailed information on related regulations, services provided, and mechanisms for service delivery failure were provided online and telephone hotlines were set up for those who required further information. National consultants under the program tested the client response and grievance redressal systems. It enabled actual road and water users to have their voices heard by decision-makers and get clear, reliable information on their rights as service users.

This "One ADB Approach" enabled the ADB team (one resident mission, three communities of practice, and four divisions) to work together with six Armenian government ministries and seven development partners for a sustainable and comprehensive strategy and mechanisms to maintain the road and water network in Armenia.

A New Approach

The "One ADB Approach" ushered in new procedures that proved to be more effective and lasting. Public management tools were given a "reality check" by local sector counterparts as well as the Armenian Resident Mission. Development partners jointly reinforced the core reforms being proposed in the road and water sectors. Armenian government agencies have now adopted a joint accountability approach to projects. Responsibility was shared across agencies. The program team would hear them declare "It's our roads, it's our responsibility" and "we plan, we budget, we build, we monitor". The One ADB approach was also extended to mean "One Government" and, " One Donor". Pathways were built across silos within the government machinery, in ADB and among the donor community working in Armenia.

This integrated approach was fully embraced by the Armenian government as they saw results from the new framework. More than a third of program requirements and conditions were met

before the program was considered by the ADB Board. The second tranche of the program was implemented successfully in 2015 as well. And the Armenian government has since requested the application of this approach in other sectors through a second program in 2016-2017. Lessons learned from Armenia's experience were:

- longer-term infrastructure solutions required an integrated multidisciplinary and multisectoral approach;
- shared goals were fostered through a clear division of responsibilities and encourage cross-accountability between agencies;
- stronger public management systems in infrastructure sectors improved service delivery;
- ADB delivered better development results with the "One ADB Approach".

Contents

1. Roads Sector

Roads Administration Responsibilities

Table 1.1: Roads Administration Responsibilities - Armenia (As of July 2012)

Responsible Government Agency	Road Length (Km)	Interstate	Republican	Local
Ministry of Transport and Communication	3,465.60	1,686.00	1,779.60	0.00
Regional Administration (Marz)	3,338.00	0.00	1,755.70	1,582.30
Local Communities	900.70	0.00	521.00	379.70
Total Road Length (Km)	**7,704.30**	**1,686.00**	**4,056.30**	**1,962.00**

Source: ARD, MOTC

Table 1.2: Roads Administration Responsibilities - Armenia (As of July 2015)

Responsible Government Agency	Road Length (Km)	Interstate	Republican	Local
Ministry of Transport and Communication	3,669.45	1,714.40	1,955.05	0.00
Regional Administration (Marz)	3,805.70	0.00	0.00	3,805.70
Local Communities	55.20	44.40	10.80	0.00
Total Road Length (Km)	**7,530.35**	**1,758.80**	**1,965.85**	**3,805.70**

Source: Governmental decree 265-N, dated 13.02.2014

Road Conditions Survey

Table 2.1: Road Conditions Surveys (July 2012)

Type of Roads			Conditions of Roads as Per Surveys (July 2012)			
	Surveyed (% of Roads)	Surveyed (Km)	Good (Km)	Fair (Km)	Poor (Km)	Capital Repair Required (Km)
Interstate	95.0%	1,601.7	208.7	1,258.8	50.3	83.9
Republican	42.0%	1,700.0	208.9	772.8	256.3	462.0
Total		3,301.7	417.6	2,031.6	306.6	545.9

Source: ARD, MO

Table 2.2: Road Conditions Surveys (November 2014)

Type of Roads			Conditions of Roads as Per Surveys (November 2014)			
	Surveyed (% of Roads)	Surveyed (Km)	Good (Km)	Fair (Km)	Poor (Km)	Capital Repair Required (Km)
Interstate	95.3%	1,634.4	296.4	1,206.8	57.5	57.5
Republican	52.9%	1,906.8	453.5	1,016.2	437.1	437.1
Total		3,541.2	749.9	2,223.0	494.6	494.6

Displacement Effect

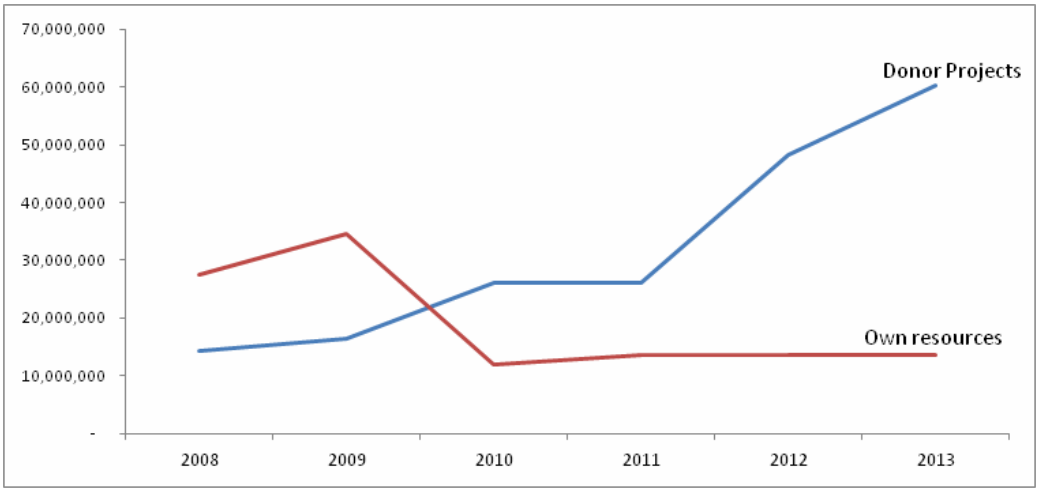
Table 3: Displacement Effect

	2013 (AMD)	2014 (AMD)
Donor Projects	6,724,000,000	13,363,000,000
Own Resources	4,469,000,000	8,175,500,000

Source: Financing Strategy

**2014 saw a substantial depreciation in the value of the AMD which accounts for the significant crease in donor and government funding.*

Figure 1: Displacement Effect of Donor Funding (AMD '000)



Budgetary Allocations

Table 4: Road Sector Annual Budget (AMD)

	2014
Annual Budget (Plan)	1,246,437,412,000
Annual Budget (Actual)	1,235,053,437,530

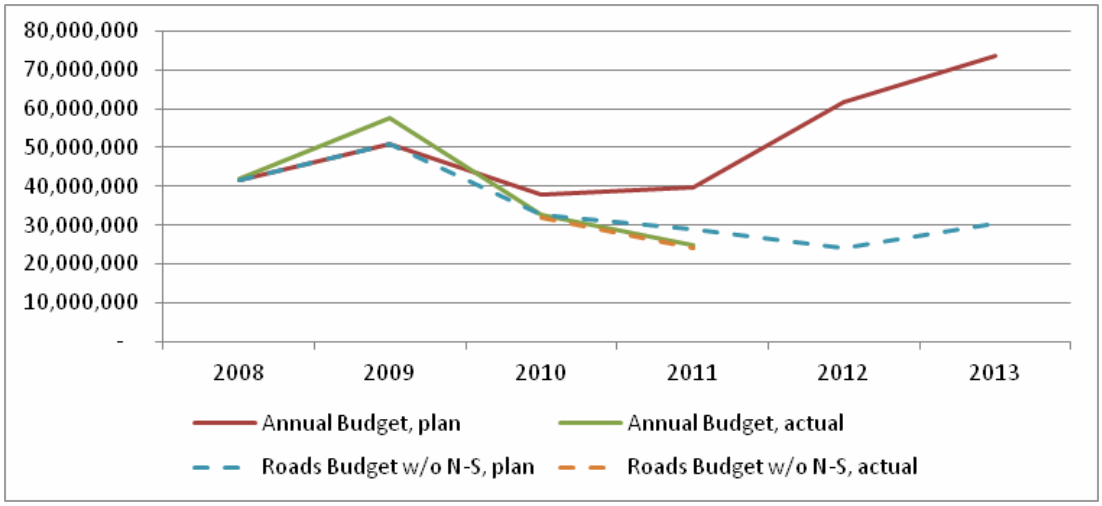
Source: Financing Strategy, MOF

Table 5: Government Funding: Maintenance and Rehabilitation works (US$ Million)

	2009	2010	2011	2012	2013	2014
Periodic Maintenance (Rehabilitation)	42.8	18.1	16.3	20.7	20.3	45.4
Routine Maintenance	6.6	7	6.9	7.1	7	6.5
Total	**49.4**	**25.1**	**23.2**	**27.8**	**27.3**	**51.9**

Source: Financing Strategy, MOF

Figure 2: Road Sector Budget Allocations (AMD '000)



2. Water Sector

Performance Snapshot

Table 6.1 Performance Snapshot (2012) - Water Sector

	Yerevan Djur	Armenian Water & Sewage Company	Lori Water & Sewerage Company	Shirak Water & Sewerage Company	Nor Akung
Population Served	1,113,000	620,000	310,000		
Continuity of Supply (% of time)	94.0%	67.0%	100.0%	100.0%	93.0%
Water Quality (% samples compliance)	99.6%	98.0%	N/A	N/A	N/A
Water Losses (non-revenue water)*	80.0%	80.3%	33.0%	83.0%	65.0%

Table 6.2 Performance Snapshot (2013) - Water Sector

	Yerevan Djur	Armenian Water & Sewage Company	Lori Water & Sewerage Company	Shirak Water & Sewerage Company	Nor Akung
Population Served	1,113,000	620,000	310,000		
Continuity of Supply (% of time)	94.8%	69.2%	60.8%	78.5%	93.8%
Water Quality (% samples compliance)	100.0%	98.7%	N/A	N/A	N/A
Water Losses (non-revenue water)*	77.3%	78.0%	82.3%	89.1%	64.7%

Table 6.3 Performance Snapshot (2014) - Water Sector

	Yerevan Djur	Armenian Water & Sewage Company	Lori Water & Sewerage Company	Shirak Water & Sewerage Company	Nor Akung
Population Served	1,113,000	620,000	310,000		
Continuity of Supply (% of time)	95.8%	71.0%	74.5%	87.9%	97.0%
Water Quality (% samples compliance)	100.0%	98.4%	N/A	N/A	N/A
Water Losses (non-revenue water)*	75.9%	75.0%	57.1%	60.3%	69.0%

*Non-revenue water is estimated to be divided evenly between technical and commercial losses - World Bank Sector Note 2011; paragraph 83 page 40

Ownership of Share Capital – Water Supply Operators

Table 7.1: Ownership of Share Capital - Water Supply Operators (2012)

Closed Joint Stock Company	Ownership of Share Capital	
	Central Government	Municipality and Community
Yerevan Djur	Ultimate Parent Company: Veolia Environment SA	
Armenian Water & Sewarage Company	100.0%	0.0%
Lori Water & Sewerage Company	80.2%	19.8%
Shirak Water & Sewerage Company	66.6%	33.4%
Nor Akung	77.7%	22.3%

Source: http://www.scws.am/,
http://www.norakunq.am/index/y_nkerowt_yan_iravakan_kargavitwaky/0-23

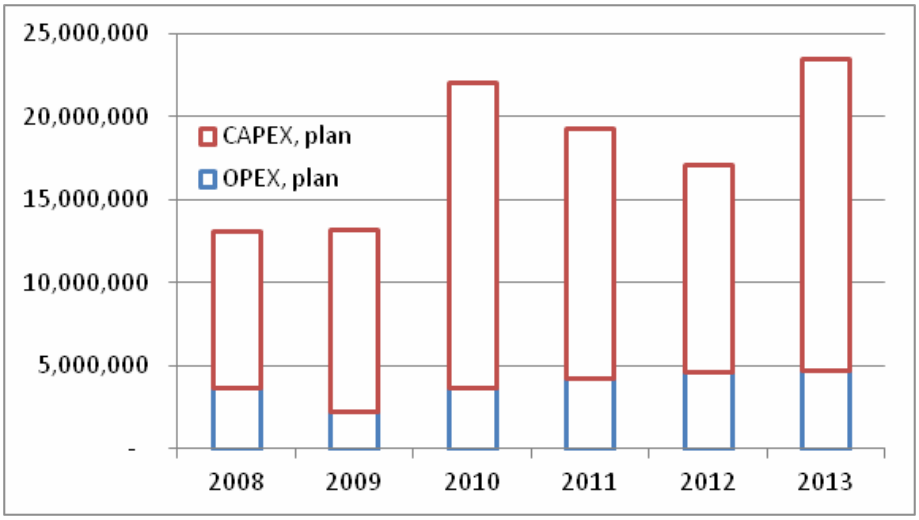
Table 7.2: Ownership of Share Capital - Water Supply Operators (2005)

Closed Joint Stock Company	Ownership of Share Capital	
	Central Government	Municipality and Community
Yerevan Djur	Ultimate Parent Company: Veolia Environment SA	
Armenian Water & Sewarage Company	100.0%	0.0%
Lori Water & Sewerage Company	51.0%	49.0%
Shirak Water & Sewerage Company	51.0%	49.0%
Nor Akung	51.0%	49.0%

Source: http://www.scws.am/,
http://www.norakunq.am/index/y_nkerowt_yan_iravakan_kargavitwaky/0-23

Water Sector Funding

Figure 3: Water Sector Funding (Capital and Recurrent, AMD '000)



ADB. 2012. *Armenia: Infrastructure Sustainability Support Program.* Manila.

ADB. 2014. *Armenia: Infrastructure Sustainable Support Program.* Consultant's report. Manila (TA 46220-ARM).

ADB. 2014. *Report and Recommendation of the President to the Board of Directors on a Proposed Policy-Based Loan and Technical Assistance Grant to Armenia for the Infrastructure Sustainability Support Program.* Manila.

ADB. 2015. Armenia Country Gender Assessment. Manila.

Attached to ADB. 2014. *Report and Recommendation of the President to the Board of Directors on a Proposed Policy-Based Loan and Technical Assistance Grant to Armenia for the Infrastructure Sustainability Support Program.* Manila.