Armenian Water Supply and Sewerage Company

Proposals for Increasing the Affordability of Water Supply and Sanitation Services for the Population by Improving the Operating Efficiency of the Company

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Introduction

The Approach

This document proposes a set of coherent and cross-cutting measures which will result in improvement of the Company's performance in general and the Management Contractor's performance under the Management Contract in particular.

The proposed measures are based on analyses of the current situation in the Company, and focus on two fundamental concepts: efficiency and sustainability. To understand the importance of the first concept for AWSC it is enough to look at the UFW (unaccounted for water) indicator of the Company; in the fourth quarter of 2006 it reached the level of 86%. Moreover, during the last two years there has been a stable trend for gradual increase of the UFW. However, it is important to note that this 'reported' increase is mainly due to gradual introduction of 'real' water accounting practices (as opposed to the existing unsound practice of calculating the amount of supplied water based on consumption norms). Most likely, two years ago the UFW was as high as it is now; simply in the absence of basic metering equipment it was neither measured nor reported appropriately.

Another important factor to mention in this context is the low collection rate (the average collection rate in 2006 was 77%), as a result of which the Company continues to accumulate bad debts. The total amount of bad receivables accumulated during the last two years by the Company as of December 2006 was roughly AMD 4.1 billion (when the total collection in 2006 was only 2.3 billion).

In general, the operating efficiency of the Company is very low. If we measure the operating efficiency (OE) as the ratio of the total collection to the operating expenses of the Company (including depreciation and the management fixed fee) for the year 2006, we will get the following figure:

$$\text{OE} = \frac{\text{Collection}}{\text{Operating Expenses}} = \frac{2{,}308{,}100{,}000.0 \times 100}{5{,}618{,}309{,}400.0} = 41\ \%$$

What makes this indicator different from other performance indicators is that it creates a direct link between the above mentioned two fundamental concepts – efficiency and sustainability. The simple calculation above shows that with its current revenue the Company can cover only 41% of its expenses. Although this represents certain improvement compared to the base year (in 2004 the OE = 33%), the operating efficiency of the Company is very low. This means that if the Company does not improve its operating efficiency significantly by the end of the Management Contract it will not be able to sustain the higher service standards achieved by the Management Contractor in the last two years.

It is also important to keep in mind that the measures aimed at improvement of this indicator should be focused on sustainability as well. In past we had many examples of such measures that resulted only in temporary improvement of the operating efficiency. For instance, after the adoption of the Law on Cancellation of Customer Debts in 2002 the collection improved dramatically. For a couple of months in certain branches of AWSC the collection rate surged to 100% and even higher. Later, when everything "settled down", the collection relapsed to its original low level. Only with significant effort of the Management Contractor it was possible to gradually increase the collection to the current level. This came to prove another time that achieving sustainable improvement is not easy, especially where the culture of nonpayment is so deeply rooted in the society.

The decisions on reducing the operating expenses should also be very carefully considered and balanced. Hasty reduction of expenses for the sole purpose of 'improving' the performance

indicators may be very dangerous and may result in having exactly the opposite effect. For instance, if not planned and implemented appropriately the following cost-reduction measures may have one or a few of the listed adverse consequences:

Table 1: Examples of adverse consequences of hasty cost reduction measures

Cost reduction measures	Possible adverse consequences
1. Reduction of salaries	If the salaries are already very low (which is currently the case), further reduction may result in losing qualified staff and increasing the internal corruption risk, which will ultimately result in reduction of operational efficiency and increase of UFW.
2. Reduction of maintenance costs	If the maintenance and preventive repair costs are already below the internationally acceptable level (which is currently the case), further reduction may result in reduction of the average useful lifetime of fixed assets and increased number of breakages → increase of capital expenditures and emergency repair costs → worsening of the quality of services.
3. Reduction of incentive compensation costs	Promotion of incentive is essential for improvement of labor productivity. If company employees do not receive what they consider a fair compensation for good work, the labor productivity may drop, resulting in deterioration of performance indicators.
4. Reduction of pumping costs	When the pumping costs are reduced by simply decreasing the hours of pump operation (as it was often done previously) and not as a result of improved efficiency of water supply systems, the indirect damage caused by this so-called cost reduction may exceed the direct benefit. The list of possible damages may include some of the following: deterioration of pumps and electronic equipment of pumping station; explosion of pipes as a result of freezing of stagnant water in the pipes or as a result of frequent pressure surges; more intensive corrosion of pipes as a result of frequent inflow or air; higher risk of water contamination, etc. All in all, it results in worsening of the quality of services.

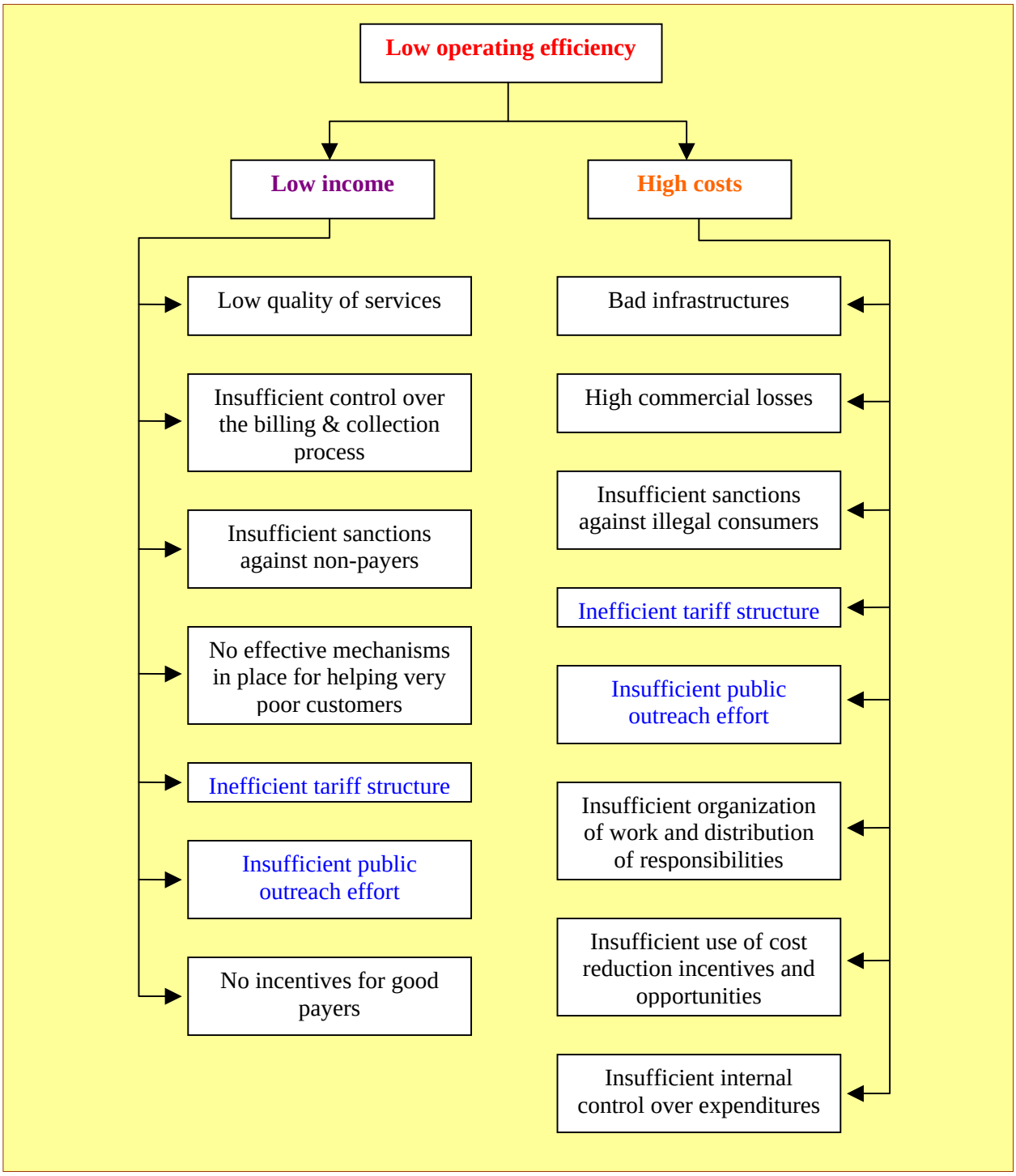
The examples provided in the table above are not intended to represent the full list of the possible adverse consequences of poorly planned cost reduction measures, but rather give an idea of how carefully each improvement step should be designed and implemented.

In the light of the above, all the improvement measures proposed in this report will be assessed from the point of view of both efficiency and sustainability.

Main Problems

The following chart summarizes the main problems addressed in this report:

Chart 1: Main problems and their primary causes



As we can see from the above chart, most of the causes for the Main Problems (Low Income and High Costs) are closely interrelated. Moreover, such causes as “Inefficient Tariff Structure” and “Insufficient Public Outreach Effort” can result in both reduction of income and increase of the cost of services. All these causes and the main problems which result from them will be addressed below in corresponding sections.

Improvement of Collection

Classification of Customers

Before analyzing the situation with payment of service bills by the customers of the Company[1], it is useful to classify the residential customers based on their willingness and ability to pay the service bills.

Table 2: Classification of residential customers based on their willingness and ability to pay

No	Group	Size	Description
A.	Regular payers	3-7 %	This group includes customers that pay their bills regularly despite everything: quality of services, socioeconomic or political situation, etc.
B.	Irregular payers	20-30 %	This group includes those customers that for various reasons (not related to the quality of services) pay their bills irregularly or partially. These reasons may differ from case to case, and include one or some of the following: – Irregular household income; – Frequent absence from the country; – Careless behavior towards contractual responsibilities; – Lack of understanding of the importance of making the payments on the quality and reliability of services. – Etc.
C.	Quality-oriented payers	15-25 %	This group includes customers that will pay their bills regularly if they consider the quality of services satisfactory, and will not pay anything, if the quality of services is poor.
D.	'Vicious' non-payers	30-40 %	This group includes customers that will not pay anything as long as they enjoy impunity. The representative of this group will not start to pay unless the Company applies sanctions against them.
E.	Poor households	5-10 %	This group includes customers that simply do not have the ability to pay. These are extremely poor households that need the assistance of social services to survive.

The size of each group varies from community to community, however the proportions are more or less stable. So far the Management Contractor has been increasing the collection rate mainly with groups 'B' and 'C', by improving the quality of services, strengthening the public outreach measures, introducing non-cash payment system and improving the organization of customer service.

As for the groups 'D' & 'E', no significant effort has been applied so far to increase the collection. These are the most difficult groups for a water company to deal with. The very definition of group 'D', "Vicious Non-payers", already suggests that the only effective tool for

[1] For certain reasons, mainly due to the general unwillingness of the customers to pay, this process for the last 5-6 years had been constantly referred to as "Revenue Collection".

improving the collection is the legal enforcement. The problem, however, is that the "vicious non-payers" from group 'D' very effectively hide behind those disadvantaged from group 'E'.

Thus, to clear the way for legal enforcement against "vicious non-payers", it is necessary to do something about the socially vulnerable customers. Since water is a vital commodity and it has no alternative, it is absolutely important to protect the socially vulnerable customers and to find ways for providing them with sustainable water-supply and wastewater services.

Subsidizing the Socially Vulnerable Customers

Practically there are two main options for helping the poor to benefit from free or cheep water-supply service: the Inclining Block Tariff Method and the Direct Subsidy Method. The following section analyzes briefly the advantages and disadvantages of both options.

Direct Subsidies vs. Inclining Block Tariffs (IBT)

Both options have certain advantages and disadvantages, and very often the decision to adopt this or that option depends on the balance of advantages and disadvantages in the given social and economic environment.

Usually in case of IBT you have a subsidized first block for which the tariff is below the cost price of the service. The subsidy normally is provided by large consumers (who are in higher blocks) to small consumers (who are in the first block). The seeming advantage of this option is that there is no need to identify the socially vulnerable families[2]. However, the option has a number of disadvantages which have to be carefully considered before making a decision in favor of that option:

- There is a danger that quite many rich (not poor) people will benefit from the subsidized tariff.

  Many rich households that have minimum number of family members do not use much water (they use laundry services, eat in restaurants, etc.). The number of such families is increasing every year parallel to improvement of social conditions in the country.

  At the same time, most poor families make excessive use of water (do all the washing, cooking, baking, canning food, watering their little gardens to grow vegetable, etc.). A poor family that has more than 4 members will most likely use more water than a rich family of three.

- The poorest households in most cases do not have water meters installed and are billed based on normative consumption. In the absence of a water meter it will be impossible to determine in which block the consumption is. Thus, in any case, there will be a need for identification of socially vulnerable families and provision of direct subsidies (at least for the purchase of the water meter).

- Presumably the first block should refer to the minimum level of consumption based on internationally acceptable standards (which is around 80 liters per capita per day). If you look in the AWSC sales database, you will see that around 60% of the metered customers are below the 40 l/day/capita rate. It is not possible to subsidize as much as 60% of the customers. At the same time, it is not acceptable (for social and public health considerations) to reduce the minimum consumption below the international benchmarks.

- To have an effective IBT system you need to have a "critical mass" of large consumers. If the number of such consumers is too low (as it is the case in AWSC, Lori, Shirak and Nor Akunk) there is the risk that the tariff for the consumers in higher blocks goes really very high. Experience in some Latin American countries has shown that large customers subject to the most expensive block rates will curtail service from the water company if the rate is too high and find alternative water sources. This just exacerbates the ability to provide enough funds to subsidize the customers in the first block and threatens the utility's financial conditions because it will have less revenue.

[2] Identification of socially vulnerable families is a very difficult task which involves application of all kinds of complex methodologies for calculation of family income.

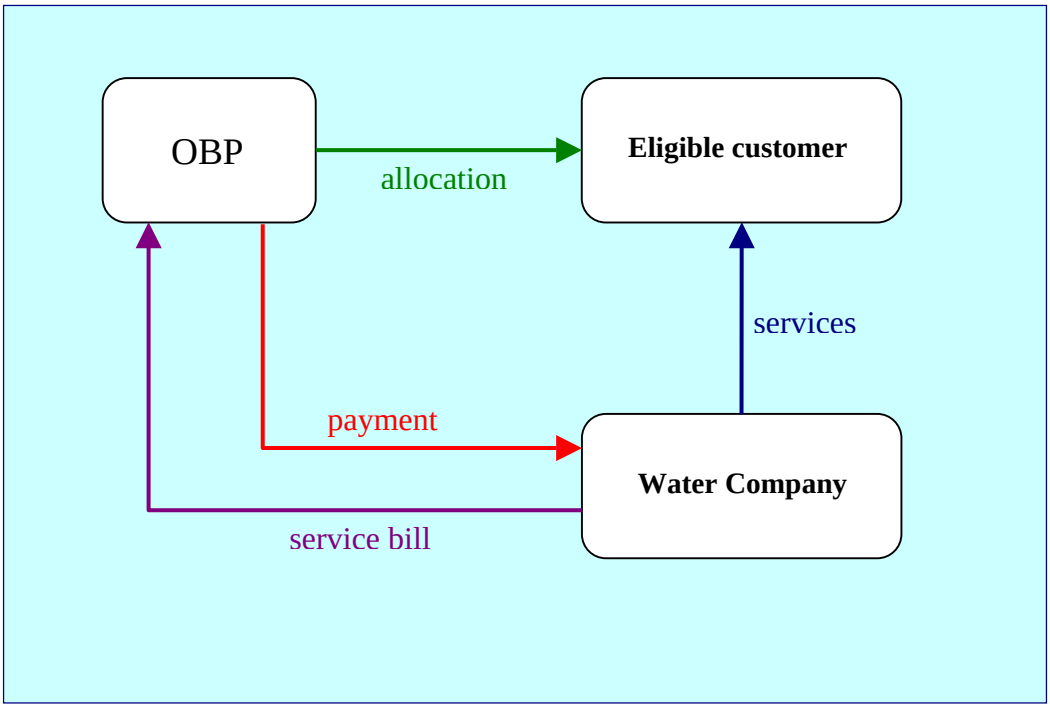
- If the first block is set very low (see the previous paragraph) to keep the amount of subsidy low, there is the risk that such consumers as rural polyclinics, bakeries, kindergartens and schools automatically fall into the second block.
- And finally, the IBT method only reduces the tariff for the first block, thus making the water comparatively cheaper (but **NOT** free) for poor households. This means that the method provides only half a solution, since the poorest families cannot afford even cheep services.

The big advantage of the direct subsidy method is that it targets those customers that are socially vulnerable. Thus, in terms of social protection and the use of assistance funds this method is more efficient. Next, as opposed to the IBT method, the direct subsidy method can provide full coverage of the water bill for poor families.

The disadvantage of the direct subsidy approach is the additional administrative effort and costs that may be needed to identify the socially vulnerable families. However, the existing database of socially vulnerable families in the Ministry of Social Protection is more or less accurate. It will take just a little more effort and resources to improve and regularly update that database.

In the light of the above, we suggest that the direct subsidy method is applied in the service area of the AWSC. Using the positive experience of Chili in applying this method, we suggest the following implementation model.

Chart 2: Proposed subsidy scheme



The idea of the proposed model is that each eligible customer will get a voucher entitling him to use free of charge up to certain cubic meters of water (the allocation). The actual amount of water used will be billed by the water company to the Subsidizing Organization and not to the customer, if the consumption is lower or equal to the allocation. In case it is higher than the allocation, the difference will be billed to the customer. If the actual consumption is lower than the allocation, the difference will not be compensated to the customer or credited on his account. (We don't want the poor people to save water at the expense of their health.)

Normally the subsidies should be provided by municipalities, from the local budget (as it is done in Chile) or some other local funds. However, considering the current situation in municipalities (most municipalities do not have sufficient revenues and are subsidized from the state budget) we propose to start the application of this model with the assistance of an international output

based program (OBP). In case of positive results it will be possible to gradually involve the municipalities in financing and monitoring of the program.

The application of the proposed model normally goes through the following steps:

1. The first step should be the identification of socially vulnerable customers, i.e. those customers that will be eligible for direct subsidy assistance. The AWSC and the Ministry of Social Protection already have more or less accurate lists of those customers; the lists should be simply updated. According to the Company's own information, the number of such customers may vary from 14,000 to 25,000. In any case, the assistance of social services and communities in updating this information will be very useful.
2. The next step should be the calculation of the amount of subsidy per person of poor household (allocation). This calculation should be based on the minimum level of water-supply acceptable from sanitation and health perspectives. For many years in Armenia this norm was set at 6 m^3 per person per month, which is roughly what many other countries worldwide use.
3. Parallel to step 2 the water company should start the installation of water meters for the eligible customers.
4. Once the lists of eligible customers are updated, the allocations calculated and the meters installed, the Subsidizing Organization (in our case the OBP) should start the distribution of vouchers.

Prosecution of 'Vicious' Non-payers

As mentioned above, there is a large group of customers (30-40%) who do not pay their bills only because they are sure that no sanctions will be applied against them. This is a big problem not only for the Company, but also for the conscientious customers, since the unpaid bills of the 'vicious non-payers' generate more and more bad debts for the Company resulting in higher service tariffs for the regular ratepayers.

Once the socially vulnerable customers are "out of the way" (after application of the direct subsidy model) the Company should start a comprehensive enforcement campaign against the non-payers. This enforcement campaign, however, should be very carefully planned and implemented to yield maximum results. For that purpose, I suggest that the campaign follows these steps:

1. The Commercial Department of the Company will prepare the lists of those active customers[3] who have more than AMD 5,000 total unpaid water bills.
2. Commercial and Legal Departments of the Company will develop a methodology for calculating and imposing penalties on outstanding customer debts (according to Civil Code, Articles 17, 369-372, and 411, as well as Paragraph 6.1 of the standard service contract signed with the Company's customers).
3. The branches of the Company will use that methodology to calculate the amount of penalty for each customer from the lists mentioned above in step '1'.
4. Based on the template prepared by the Legal Department of the Company the sectors will prepare letters to the delinquent customers in which the Company:
    a) Informs the customer about the size of his debt;

[3] "Active customers" are those customers that currently receive services from the Company, i.e. those customers whose water bills at the time of preparation of the lists are greater than zero.

b) Warns the customer about the legal responsibility that the violation of contractual provisions entails;

c) Informs the customer about the size of penalty + interest calculated on the outstanding debt of the customer, and explains the legal grounds for the calculation;

d) Requires the customer to visit within 20 working days the respective sector office for signing a debt repayment contract, to be able to benefit from the most favorable debt repayment schedule;

e) Notifies the customer that the Company will start a legal action against the customer if he/she does not comply with the above requirement.

5. Based on the template developed by Commercial and Legal Departments of the Company, the sectors will prepare and sign debt repayment contracts with the delinquent customers. Among other things, these contracts should require the customers:

    a) To pay their regular service bills fully and in due time;

    b) To pay an agreed portion[4] of the previous debt each time the regular payment is made until the debt is fully repaid.

6. In return, the Company will forgive the Customer all the penalty accrued on the delinquent bills and will provide an installment credit for buying and installing a water meter.

7. However, the contract should clearly indicate that the Company will start a legal action against the customer and seize at once the full amount of the debt and the accrued penalty if the payment schedule specified by the contract is not observed.

The Required Human and Financial Resources

One of the biggest mistakes of the Management Contractor was the dismissal of the sector lawyers under the Personnel Redundancy Program. Obviously, the Management Contractor underestimated the problems related to 'vicious' non-payers, and overestimated the impact of improved quality of services on the collection rate.

By laying off the sector lawyers the MC left the Company 'toothless'. The experience showed that the branch lawyers could not deal with all the emerging legal problems in the service areas. Now, if the Company starts the above mentioned enforcement campaign against the non-payers the deficit of lawyers will become critical.

In the light of the above it is highly recommended to start **as soon as possible** the development and implementation of Sector Lawyer Recruitment Program that should follow the following basic steps:

1. Assessment of the performance of all the lawyers that used to work in the Company's sectors and were dismissed or re-employed as controllers. This assessment should be done very carefully, with involvement of the best legal and personnel specialists of the Company Headquarters (and not just by the branch directors, as it was done previously).

2. Re-employment of those sector lawyers whose previous performance met the specified performance criteria.

3. Where the performance of ex-sector-lawyers does not meet the specified criteria, new lawyers should be employed through an open and transparent selection process.

For the success of the enforcement campaign it is important to do all the above steps and to conduct a short on-job training of the sector lawyers well before the beginning of the campaign.

[4] This should be a fixed monthly amount of AMD 500-1000.

It is also important to give the sector lawyers a decent and fair salary and to allocate a contingency fund for all associated legal expenses (notification, filing, stamp duties, etc.).

Bulk Water Supply of Villages

At present there are 47 villages that receive bulk water from the Company. They really 'receive' and not 'buy' bulk water, since hardly 10 villages out of these 47 make their contractual payments more or less regularly.

The situation with bulk supply in 38 out of these 47 villages is summarized in the following table.

Table 3: Commercial data on villages supplied by the Company in bulk

AWSC sector/ village	Population in 2003	Water supply schedule (h/day)	Gravity / pumping	Actual water consumption (l/s)	Payment/ consumption ratio (%)
Abovyan sector					
1. Teghenik	627	24	Pumping	26	1.4
2. Karashamb	735	24	Pumping	20	1.9
Artik sector					
3. Tufashen	521	4	Gravity	4	44.9
4. Harich	1305	4	Gravity	5.1	4.8
5. Haykasar	232	4	Gravity	2	38.3
6. Getap	865	4	Gravity	6	18.7
Talin sub-sector					
7. Mastara	2855	24	Gravity	7	10.7
8. Zarinja	674	24	Gravity	4.3	6.9
9. Tsahkasar	121	24	Gravity	0.8	0
10. Tsamakasar	475	24	Gravity	8	1.8
11. Suser	395	24	Gravity	1.5	3.1
12. Nor-Artik	635	24	Gravity	1.5	15.0
13. Hatsashen	448	24	Gravity	1.5	1.4
14. Hako	317	24	Gravity	1.6	5.6
15. Gyalto	292	24	Gravity	1	8.2
16. Baroj	349	24	Gravity	0.6	28.6
17. Sorik	350	24	Gravity	1.2	3.7
18. Karaberd	1129	24	Gravity	1.4	27.9
19. Dzitankov	1447	24	Gravity	2	31.8
20. Langik	1007	24	Gravity	4	10.4
21. Dzorakap	1144	24	Gravity	2	20.6
22. Areg	904	24	Gravity	1.5	19.5

AWSC sector/ village	Population in 2003	Water supply schedule (h/day)	Gravity / pumping	Actual water consumption (l/s)	Payment/ consumption ratio (%)
Stepanavan sector					
23. Agarak	1259	1	Pumping	27	129.8
24. Lori-Berd	445	1	Pumping	9	107.5
25. Koghes	350	1	Pumping	20	68.9
26. Yaghdan	243	0.7	Pumping	18	54.7
Tashir sub-sector					
27. Norashen	2036	24	Gravity	5	17.1
28. Dzoramut	545	24	Gravity	0.8	15.0
29. Dziunashogh	278	24	Gravity	1.5	13.1
30. Mikhailovka	847	12	Gravity	12	19.2
31. Metsavan	7160	24	Gravity	30	1.1
32. Dashtadem	301	24	Gravity	6	0.7
33. Petrovka	266	24	Gravity	2.5	10.2
Vedi sector					
34. Vosketap	5234	6	Gravity	3.4	100
35. Taperakan	4545	6	Gravity	2.9	100
36. Goravan	2715	6	Gravity	3.1	100
37. Lusarat	2581	6	Gravity	2.3	100
38. Sisavan	1959	6	Gravity	2.7	100

It is important to note that most of these villages do not have operating water meters. Almost all the bulk meters installed in 2004-2005 under the USAIR Metering Program were broken for various reasons.

The last column in table 3 above shows what percentage of the water actually supplied to the village is covered with the payments made by the village. As we can see, the figures are rather discouraging. There are communities that do not pay even for 1% of water supplied to them by the Company.

The brief analysis of data presented in the above table shows that payments of service bills by these villages do not follow any logical pattern. Normally, one would expect the collection to be related to such factors as:

- **Quality of services** — As we can see from the table, the best payers are **NOT** among those villages that receive the best service. On the contrary, the best payers, Agarak and Lori-Berd receive the worst service (only 1 hour a day), while the worst payers, Dashtadem and Tsahkasar receive 24 hour service.

- **Size of the village** — Here too, it is impossible to find any logical pattern. The largest community, Metsavan (7160), has one of the worst

	payment ratios (1.1%). At the same time a very small community like Koghes (350) has almost 70% payment ratio.
- **Metering**	Two of the best payers, Agarak and Lori-Berd, have their bills calculated based on per-capita norm (which is, actually, the reason why they pay more then the real consumption), while Hako, one of the worst payers, has an operating bulk meter in place.

Also it is very difficult to explain logically the consumption patterns. It seems that the consumption is not related as much to the size of the community as one would normally expect. Very small communities (like Koghes or Dashtadem) often take twice more water than much larger communities.

In the light of the above we may conclude that collection and consumption figures depend more on such subjective factors as the personality of the mayor and/or the sector manager, and also to some extent the culture and traditions of the given community.

The Problem of Poor Communities

Like in the case with retail customers, to improve the collection from bulk customers it is necessary to have differentiated approach towards very poor and average or comparatively rich communities. Some of the villages listed in the table 3 above are **EXTREMELY** poor (like Petrovka or Dashtadem). Views of those villages bring to memory images of war, epidemic or some other devastating scourge. One visit to such a village is enough to understand that it is unrealistic to demand a full payment of the water bill from the community.

However, it should be clearly understood that subsidization of these villages is not the task or the responsibility of the water company. If the development of disadvantaged communities is the strategic objective of the Government (which is actually the case) then the Government should provide direct subsidies from the state budget for payment of the water bills of these communities. To promote the saving of water and the reduction of losses by the community the Government may design the subsidy in such a way that it covers only part of the water bill.

There are really not many options for assisting those communities with getting their water-supply service. All in all, the possible subsidy schemes can be grouped under the following two categories: a) direct subsidy; b) cross-subsidy. In the first case the cost burden is placed on all the taxpayers; in the second case it is placed on other customers of the Company. The current situation, were the poor communities simply do not pay their water bills or pay only a very small part of the bill, can be classified as some sort of a cross-subsidy model, because the accumulated bad debt is ultimately incorporated in the tariff and thus covered by the regular ratepayers. This is not fair and not quite reasonable, because the rehabilitation and development of the disadvantaged rural communities is the strategic objective of the whole country and not only the objective of the conscientious customers of AWSC.

In the light of the above, and considering the vital importance of the continuous water-supply service for rehabilitation and development of a community, the Company should officially recommend the Government and the National Assembly to initiate an assistance program for helping the small and disadvantaged communities with payment of their water bills.

Retail Supply vs. Bulk Supply

Recently there have been many discussions on the economic feasibility of resuming the retail supply of all or part of the 48 villages that currently receive bulk water from the Company. The proponents of this approach say that by taking over the operation of municipal networks the Company will be able to:

1. Improve the collection;
2. Reduce leakages and illegal consumption in municipal networks;
3. Apply the higher “retail tariff” (AMD 115) instead of the low “wholesale tariff” (AMD 51);
4. Ensure the safety of water-supply for the population.

Convincing as they may seem, these arguments though are not so indisputable on practical grounds. The following table contrasts the theoretical advantages and practical drawbacks of the above arguments.

Table 4: Retail supply vs. bulk supply; arguments pro and con

Pros	Cons
1. By taking over the operation of municipal networks the Company will be able to improve the collection.	– Practically, the municipality has more enforcement tools to ensure the payment of water bills than the water company. If these tools are not applied it means only that the municipality does not want to apply them. A vivid proof to this is the example of those communities that fully pay their water bills (see table 3 above). In all the ‘retail’ service area of the Company there is no city or village where 100% of customers pay their bills. – Internationally it has been recognized that ‘consolidation’ and ‘expansion’ of customers is better for water companies than ‘fragmentation’ of customers. Where possible the water companies worldwide prefer to sign service contracts with condominiums, associations and cooperatives rather then with individual residents. There is a “critical size” for a town or village that makes it ‘attractive’ for a water company. Villages like Teghenik, Dzoramut or Petrovka that are the size of a medium-large condominium are of very little interest for a water company, since the ratio of the fixed costs, particularly the customer service costs, is very high in this case. – Most villages are in average 20-40 km far from the regional offices of the Company. The reading of meters in practice requires at least two or three visits to the village, since some of the residents can be absent from the village (deliberately or accidentally) when the representatives of the Company do the reading.
2. By taking over the operation of municipal networks the Company will be able to reduce leakages and illegal consumption in municipal networks.	– Again, the municipality has more practical tools to detect and eliminate illegal connections inside the village than the water company. In order to detect the illegal connections and eliminate (or prevent) them effectively, the water company has to conduct at least weekly inspections of the network and have a permanent representative in the community. In most cases this will practically

Pros	Cons
	be impossible. – As for elimination of leakages and maintenance of village networks (which in most cases have elementary structure), the Company can provide these services on commercial bases to municipalities. Moreover, by providing good discounts on these services the Company can encourage those municipalities that pay their bills to the full extent and in due time.
3. By taking over the operation of municipal networks the Company will be able to apply the retail tariff, which is higher than the bulk tariff.	– Yes, but this will not increase the *working ratio*, because of the high customer service and operation costs. – A higher tariff will be an additional 'incentive' for village residents (who can hardly afford the bulk tariff) to steal water by tempering the meters or making bypasses.
4. By taking over the operation of municipal networks the Company will be able to ensure the safety of water-supply.	– Again, theoretically this is a very good point, but in practice it makes very little sense, because in most cases, as mentioned above, the village networks have elementary structure and there are no serious problems with contamination of water in the distribution network (as opposed to medium and large cities). – Besides, even in case of bulk supply the Company, according to the water supply rules, chlorinates the water at the source and takes water samples for testing with the frequency specified in sanitary standards.

Internal Control, Sanctions and Incentives

This section will highlight a couple of organizational issues related to the general performance of the commercial unit of the Company. These issues will be addressed also in the General Management and Administration section.

Organization and Remuneration of the Commercial Staff

During the last three years the organizational structure of the commercial unit, particularly in terms of the remuneration system, changed from one extremity to the other. The previous system that was introduced in 2001-2002 was perhaps too much focused on incentive compensation. Here, it is important to mention that the driving wheels of the commercial unit of the Company always were and still are the so-called controllers/collectors. Before introduction of the non-cash payment system (in 2005-2006) the main role of the controllers was the collection of service fees from customers (for which reason they were more often called 'collectors'). According to the previous compensation system the controllers received a certain interest from the collected cash as described in the following table:

Table 5: Collectors remuneration schedule in 2002

Collection rate (in % of amount billed)	Collector remuneration (in % of amount collected)
Under 30%	10%
From 31% to 40%	12%
From 41% to 50%	15%
From 51% to 60%	18%
From 61% to 70%	20%
From 71% to 80%	22%
From 81% to 100%	25%

However, if a collector failed to collect the minimum amount indicated in his/her employment contract, he/she would have to pay the difference from his/her pocket. Thus the previous system provided for both incentives and sanctions. The system, however, was not fair towards those controllers/collectors who worked in the most difficult rural areas, where the amount of work was simply not compatible with the money collected. The system had also other disadvantages:

- It was more focused on collection than on performance;
- It was too costly for the Company;
- It provided 'incentives' to manipulate with the service bills.

For these and also other reasons the Management Contractor changed this system in 2005. The new remuneration system established a performance based range of fixed salaries from AMD 20,000 to 55,000. The system, however, did not define a clear and formal procedure for assessment of the performance. Thus the performance of individual controllers is assessed based on the subjective judgment of the respective branch director.

Another important reason for the introduction of the new system was the shift to non-cash collection system. At present, all the payments are done through the postal/banking system. However, very often these payments are not done directly by customers (as it often happens, the reality appeared to be a little different from the theory). In many rural communities, were there is no bank or post office, the controllers do a 'favor' to the customers by collecting the cash, taking it to the nearest town and making the payments at the bank or post office. In most cases this is really a big favor, since many villages in the Company's service area are half-empty and are populated mainly by elderly people and pensioners for whom it is extremely difficult to travel 20-40 km for making the monthly payment (which in many cases are lower than the transport costs required for traveling to the nearest town and back).

It is also important to keep in mind that in this transitional and crucial period for the Company the controllers have other important responsibilities (which by the way are not documented anywhere), such as:

- Reading of customers' meters;
- Notification of customers;
- Detection of illegal connections;
- Detection of 'hidden' customers;
- Detecting cases of tempering or malfunction of meters;
- Listening to the customers' complaints/proposals and communicating them to the Company's management;
- Assisting the analytical units of the Company in carrying out different customer surveys.

These responsibilities, if performed appropriately, can result in significant improvement of the commercial performance of the Company. Unfortunately, at present the importance of these functions is underestimated or simply overlooked by the Company Management.

In the light of the above, it is highly recommended to introduce a balanced system of sanctions and incentives for improving the performance of the commercial staff. To the extent possible this system should benefit from the lessons of the past.

Model Methodology for Calculating Bonus Payments

The following methodology is designed for calculating the remuneration of controllers of the commercial unit of the Company. Nevertheless, the same principle can be applied also to the sector lawyers.

We believe that the compensation of controllers should include:

1. A fixed monthly salary of AMD 40,000, and
2. A performance-based quarterly bonus of AMD 100,000.

The quarterly bonus should be calculated on the basis of the following indicators:

– Improvement of the collection rate (ICR); max = 0.4

$$ICR = \frac{CR - CR_{start}}{100 - CR_{start}} \times 0.4$$

Where:

CR is the collection rate in the controller's service area in the current period;

CR_{start} is the collection rater in the controller's service area at the moment of employment of the controller.

– Reduction of commercial losses (RCL); max 0.4

$$RCL = \frac{NAS - NAS_{start}}{TNS - NAS_{start}} \times 0.4$$

Where:

NAS is the number of active (that make payments) subscribers in the controller's service area in the current period;

NAS_{start} is the number of active subscribers in the controller's service area at the moment of employment of the controller.

TNS is the total number of subscribers in the controller's service area.

– Improvement of commercial efficiency (ICE); max 0.3

$$ICE = \frac{C - C_{start}}{B_{start} - C_{start}} \times 0.3$$

Where:

C is the total collection in the controller's service area in the current period;

C_{start} is total collection in the controller's service area at the moment of employment of the controller.

B_{start} is the total bill in the controller's service area at the moment of employment of the controller.

– Timeliness of monthly payments (TMP); max 0.3

$$TMP = \frac{TP - TP_{start}}{NAS - TP_{start}} \times 0.3$$

Where:

TP is the number of timely payments (the payments made by the subscribers in agent banks or post offices before the deadline specified in the service contracts) in the controller's service area in the current period;

TP_{start} is the number of timely payments in the controller's service area at the moment of employment of the controller.

NAS is the number of active subscribers in the controller's service area in the current period.

– Service area difficulty level (SAD); max 0.2

$$SAD = \frac{TD \times ANS}{TNS \times AD} \times 0.2$$

Where:

TD is the total distance (starting from the sector office) that the controller should pass to visit all the subscribers in the controller's service area;

TNS is the total number of subscribers in the controller's service area.

AD is the average distance calculated for all the service areas of the Company.

ANS is the average number of subscribers calculated for all the service areas of the Company.

Calculation of the quarterly bonus (QB) should be done in accordance with the following formula:

$$QB = 100{,}000 \times (ICR + RCL + ICE + TMP + SAD).$$

However, it should be noted that if the amount of quarterly bonus calculated in accordance with this formula exceeds the maximum level of AMD 100,000 (which is very unlikely) the actual bonus paid should be equal to the maximum amount.

The methodology for calculation of the above indicators is designed in such a way that allows an indicator to take a negative value if the performance under that particular task is unsatisfactory. At the same time, there is a certain level of feedback between the first three indicators that will allow reducing to the extent possible all kinds of manipulations with bills and numbers of active subscribers by the controllers.

Control over Billing and Debt Recalculation

Currently the Commercial Department of the Company is exercising very effective control over the billing process through regular spot-check inspections. However, the sanctions that follow are not always compatible with the level of violations detected.

The main reason for this is probably more psychological and ethical than legal or technical. The managers of commercial units of the sectors realize that their employees work in very unfair

conditions and that the amount of work done by the controllers is just not compatible with the marginal compensation that they receive.

As mentioned above, a successful staff management policy should be based on a balanced system of sanctions and incentives. A policy based on sanctions only will not work, just as a policy based on mere incentives.

If the mechanism of incentives described in the previous section is applied, the commercial managers will have all the "moral rights" to apply the most severe sanctions (up to firing or suing of the employee) in case of violation of the terms of the employment contract[5].

Another serious issue is the procedure of debt recalculation. For various reasons the Company is sometimes faced with the need to recalculate receivables from a subscriber (for example: if the reading of the water meter was not recorded correctly, or if the subscriber was absent from the country while the Company continued to calculate bills based on per-capita norms, etc.).

At present, all the debt recalculation decisions are taken by branch directors. This practice should be reviewed in the light of the total revenue reduction due to recalculation; in the last two years the total deduction on accounts receivable due to debt recalculation exceeded AMD 350 million.

Without questioning the honesty of branch directors, but rather based on good practices of cost control, it is recommended that a special commission is established at Company level to review on quarterly bases all the requests for debt recalculation.

Public Outreach Tools

Customer Surveys

"To improve the commercial performance a company has to understand its customers". This concept can be found almost in any textbook on commerce or economy. Unfortunately, such important functions as customer profile surveys and customer behavior analyses were overlooked by the Company Management.

Only recently the Management Contractor initiated a pilot customer awareness and customer assessment project with a local NGO.

However, we believe that such surveys should be done regularly by the commercial staff of the Company and not by external organizations. The section on Classification of the Customers (see above in this report) gives a vivid demonstration of the importance of customer surveys.

Publications

In many countries of the world water companies adopted a quite useful practice of publishing annual or quarterly reports for the general public. The reports are posted on the web-sites of the companies and published in different sources of mass media. These public reports follow such objectives as:

- Informing the customers of the company on:
  - The general performance of the company;
  - The main problems and difficulties faced by the company;
  - The quality of services and the planned improvements;
  - Contacts of the company's customer service centers in different regions, and the procedures for application;
  - Changes in the legal and regulatory framework;

[5] Here is another problem; the current employment contracts do not specify the responsibilities of employees. This issue will be addressed in the section on General Management and Administration.

- The support provided to the company by different donors or government agencies;
- Etc.

- "Naming and shaming" those customers of the company that do not pay for the services or consume the water illegally, thus endangering the continuity of water supply for other customers.

  This "name and shame" approach works very well when the non-payers or illegal consumers are large or medium companies owned by known people (often politicians).

Thus, with the help of these publications the company: a) gives credit to those organizations and individuals that support the company and help improve the quality of services; and b) places a shame label on those individuals, organizations or communities that jeopardize the quality and safety of services by violating the applicable water regulations.

Publication of the above mentioned reports will not require significant financial investment from the Company, since normally these reports are very brief and do not exceed 3-4 pages. Depending on the availability of financial and technical resources, many different sources of public information can be used, including but not limited to:

- Internet;
- Small booklets or handouts that can be distributed to customers at customer service desks in sector offices;
- Posters;
- Printed media;
- TV and radio;
- Regular bulletins of consumer rights protection NGOs and international organizations;
- Regular bulletins of relevant government agencies (like the PSRC or the State Water Committee).

Cost Reduction

Review of Operating Expenses in 2004-2006

The following table provides a summary of the Company's operating expenses (including VAT) in the last three years.

Table 6: Operating expenses of the Company in 2004-2006 (in '000 AMD)

Operating Expenses	2006	2005	2004
Electricity	996,062.5	1,151,006.5	1,240,040.7
Purchased water	8,912.6	8,162.7	59,424.2
Purchased wastewater treatment service	46,946.1	42,545.0	27,161.7
Fuel	192,566.6	173,276.6	223,939.5
Chlorine and other chemicals	51,816.9	34,633.6	102,367.6
Other materials	169,682.6	220,488.9	209,462.5
Salaries	1,180,685.2	1,081,327.7	1,050,116.3
Social payments	255,639.4	216,202.1	227,684.4
Environmental charges	19,547.8	26,339.3	39,972.7
Water use fees	21,016.0	10,164.4	8,372.2
Business trips	18,881.6	18,941.0	16,986.2
Telecom services	47,823.9	37,303.4	28,830.1
Banking and postal services	27,911.0	16,588.4	4,523.0
Rent	45,742.2	43,787.0	21,327.3
Other expenses	171,757.7	79,407.8	168,181.0
Depreciation	1,545,336.3	1,567,956.0	1,336,615.7
Management fixed fee	817,981.0	1,224,452.0	0.0
Total	**5,618,309.4**	**5,952,582.4**	**4,765,005.1**

Water production expenses

As we can see from the above table, the Company managed to significantly reduce the "water production" expenses, including the cost of electricity for pumping, the cost of chlorine and the cost of water purchased from other water companies. All in all, compared to 2004, the water production expenses in 2006 were reduced by ADM 340 million, while the average water supply schedule in the service area of the Company was increased by 2 hours. This means that the production efficiency of the Company improved.

Salaries

At the same time, the Company increased the salaries by AMD 130 million, which is a positive trend considering the extremely low level of salaries in the Company. Payment of compatible salaries is one of the first steps to improving the quality of services and the level of collection. However, given the fact that the salaries in the Company are still very far from being competitive, there will be a need to further increase the total salary fund even in spite of the Personnel Redundancy Control Program[6].

[6] Under the Personnel Redundancy Control Program it is planned to lay off the redundant personnel of the Company and improve the efficiency of staff operation.

Water use fees

The water use fee is the money that the water user pays regularly to the State for using the water resource. The per-cubic-meter price of water for each type of water resource (groundwater or surface water, high or low quality) as well as the methodology of water use fee calculation is established by the legislation. If the water intake from the source is not metered, the amount of water taken from the source is calculated based on the capacity of the source specified in the State Water Cadastre.

At present the Company is taking less water from the sources than the cadastral capacities. However, since no metering is done at source level, the Company pays extra amount to the State for the unused water resource.

Compared to 2004, the expenses of the Company on payment of water use fees increased by AMD 12.6 million. Currently there are many discussions in the Ministry of Nature Protection about the possibility of increasing the water use fees in the nearest future. If these talks turn into reality, the company's expenses related to water use will increase even more.

In the light of the above, the Company should take steps towards reducing the artificially high water resource fees by installing water meters at intakes and calculating the water use based on actual intake (or abstraction) and not on the capacity of the source.

Telecom expenses

The telecom expenses in the last two years increase by almost 66% or AMD 19 million. It is worthwhile mentioning that the trend observed in these two years is not only for the increase of the total telecom cost, but also for a stable increase in the annual growth of telecom expenses (the 'snowballing' effect). Although in a company like AWSC, with numerous regional offices, high telecom costs are inevitable, the 'snowballing' trend observed during the last two years raises some concerns about the efficiency of the present information exchange scheme.

The problems with information exchange and communication will be addressed in greater detail below, in the section on General Management and Administration.

Banking and postal services

As a result of introduction of the non-cash payment system, the Company increased significantly its expenses on banking and postal services (by more than 500%). With development of the banking system of the country and intensification of the competition between local banks, it is possible that these expenses decline slightly in the future.

Rent

As we can see from the above table, the expenses on rent increased by 114% or AMD 24 million! This is a lot considering the policy of the Company for reducing the fixed costs. The following table gives the breakdown of rent expenses in 2006.

Table 7: Rent expenses of the Company in 2006 (in '000,000 AMD)

Rent Expenses	Amount
Vehicles	19.0
Buildings	14.1
of which, administrative premises for Sevan branch	7.7
Equipment and machinery	9.3
Other rent	3.3
Total	45.7

To some extent this could be attributed to the increase of the value of real property and vehicles in the local market. However, the changes of market prices cannot justify such an increase, because the value of real property did not increase in regions as much as in Yerevan.

If we take the annual rent paid for the administrative building in Sevan (more than USD 21,000), we'll see that it's quite enough to buy or build a more or less decent building that can be suited for an office.

All in all the 114 % increase in rent expenses indicates that the selected institutional structure of the Company is not as efficient as the Management Contractor expected it to be.

Depreciation

Capital investments done during the last 2 years by the Company resulted in increase of the total value of the fixed assets and subsequently the total amount of depreciation, which in 2006 increased by more than AMD 208 million. Considering the fact that the larger part of investments under the MWWP Investment Program are planned (after adjustment of the investment schedule) for the years 2007 and 2008, we can forecast a significant increase of depreciation expenses in the next years.

Proposed Cost Reduction Approach

For a company that experiences a permanent shortage of cash, the cost reduction measures can be grouped in two major categories:

1. Requiring investments (hereafter - *technical measures*);
2. Not requiring investments or requiring minor investments (hereafter - *organizational measures*).

The main focus of the MC so far has been on the first group, which is logical, considering the huge electricity costs (25% in 2004) and the high UFW (around 90%). The bulk of capital investment projects planned by the MC are aimed at either conversion of non-gravity systems into gravity-flow systems or replacement of the most leaking sections of the water-supply networks. As mentioned above, these measures resulted in some improvement of the production efficiency of the Company.

However, since most of the MWWP funds have been already earmarked, and the 2007 Capital Investment Program has been already approved by the Company Board, it is high time that the MC shifts his attention on the second group of cost reduction measures – the *organizational measures*.

Besides, there are a number of priority cost reduction measures that the Company can implement with its own funds, since these measures do not require significant investments.

Luckily or unluckily the Company has not exhausted all the cost reduction opportunities, and currently there are many technical and organizational measures that can be implemented to substantially reduce the operating expenses.

In general, in its cost reduction effort the Company should be guided by the following principles:

- Wherever reasonably possible the operating expenses should be reduced at the expense of capital expenditures; for example: purchase or construction of an administrative building should be preferred to rent, installation of water meters should be preferred to payment of high water use fees, etc.
- No cost reduction opportunity should be ignored or overlooked; small costs make a big cost.

- There is no excuse for loosing those cost reduction opportunities which are related to implementation of *organizational measures*.
- The *technical measures* should be implemented in accordance with their priority ranking. The level of priority of a *technical measure* should be determined from the efficiency of the required investment, which should be calculated as follows:

$$IE = \frac{PAS}{(RI / EL) + O\&M} - \frac{1 + 2 \times IR}{1 + IR}$$

Where:

'IE' is the investment efficiency,

'PAS' is the planned annual saving,

'RI' is the total amount of required investment,

'EL' is the estimated lifetime of the acquired asset or the duration of the cost-saving effect of the investment in years,

'O&M' is the annual cost required for operation and maintenance of the asset (including taxes and duties if any),

'IR' is the interest rate on invested capital.

Naturally, if the *IE* calculated in accordance with the above equation is negative, the investment should be considered unjustified and the proposed *technical measure* should not be implemented.

- Effective cost control is a prerequisite for successful implementation of cost reduction policies.
- Last but not least, an effective combination of sanctions and incentives should be applied in each specific case to increase the efficiency and sustainability of cost reduction measures.

Reduction of Electricity Costs

As mentioned above, the MC is currently implementing an extensive program for reduction of electricity costs for pumping. This program includes such *technical measures* as replacement of old and inefficient pumps, installation of hydro-pumps, conversion of mechanical systems into gravity systems, elimination of major leakages in mechanical systems. These measures already resulted in significant reduction of electricity costs (by AMD 250 million in 2006).

However, as we can see from the following sections, there are a number of other opportunities for reduction of electricity costs.

Small Hydro Plants; Net Metering

The gravity-flow water mains of the Company have a significant potential for producing renewable energy. The total estimated output of small and micro hydro plants that can be installed on the gravity-flow water mains is more than 3 MW.

The Public Services Regulatory Commission (hereafter the PSRC) by its Decision No 194 of 2005 created a very good opportunity for development of renewable sources of energy. The procedure is called "Net Metering" and it allows the entities that both produce and consume electricity to get their electricity bills calculated as the net of kWh's produced and consumed. To benefit from this opportunity the Company should naturally consume more electricity than produce. This is exactly the case with AWSC. In total the Company consumes annually around 40 million kWh of electricity. According to the initial estimates the hydro-plants on the gravity-

flow mains of the Company may be able to produce around 27 million kWh's a year. Thus, if the Net Metering procedure is used, the Company, according to the initial estimates, will be able to save around AMD 670 million a year!

Elimination of Fraud; the Experience of YWSC

Since most of the electricity cost (around 95%) is for pumping, it is very important to control the work of the pumping stations. Here, it might be useful to study the experience of YWSC. Back in 2003 YWSC installed special temper-proof electric meters at the main pumping stations. These meters had built in slots for SIM-cards, and the operator from the Company headquarters could connect any moment to check the electricity consumption. Only due to installation of these temper-proof meters and bulk water meters the YWSC reduced more than 30% of electricity cost for pumping!

Electricity Consumption for Administrative Purposes

Although compared to the pumping costs the electricity consumption for administrative purposes is very small, it still makes sense to analyze the consumption patterns and to explore the opportunities for reducing the cost. Almost AMD 19.5 million or USD 52,000 is used every year for supplying the administrative offices of the Company with electricity.

The following table shows the electricity consumption by the central office of the Company and the four branch offices in 2006.

Table 8: Electricity consumed for administrative purposes in 2006

Administrative Unit of the Company	Amount in AMD	kWh
Sevan Branch office	539,000	21,500
Abovyan Branch office	4,628,000	185,000
Artashat Branch office	1,212,000	48,400
Sisian Branch office	1,130,000	45,000
Central office	11,949,000	478,000
Total for Administration	**19,458,000**	**777,900**

As we can see from this table, the 'administrative' share of the total electricity bill is unreasonably high in the Central Office and in the office of Abovyan Branch.

To compare, the CMU office, which has approximately the same size of staff as the branches of the Company (50-60 people), spends around 70,000 kWh of electricity a year. The branches of YWSC, which in average have around 30% more staff than the branches of AWSC, spend around 110,000 kWh of electricity a year.

Using Night Tariffs for Electricity

At present the electricity company provides the opportunity of using lower night tariffs from 23:00 to 7:00. This opportunity could be used by the Company if the pumps were operated at night to fill the storage reservoirs. However, although the Company by now installed around 27 two-tariff meters, the efficiency of the use of night-time tariff is questionable. The main problem here is the condition of storage reservoirs. Most storage reservoirs have significant leakages. In many service areas the capacities of existing water reservoirs are insufficient.

The rehabilitation of existing storage reservoirs and construction of new ones will give the Company an opportunity to make the best use of night tariffs.

New Tariff Structure; Higher Tariffs for High-cost Areas

At present, AWSC operates many autonomous water supply systems (more than 40). The cost of water in each of these systems is different. The difference of the cost price in different systems can be as significant as 500%-1000%. In this situation the cross subsidization between different systems is almost inevitable for social reasons. Hence, the PSRC sets one flat tariff for all service areas of the AWSC.

This approach, however, is not very sound from economic point of view and not very fair from social point of view. For instance, the large commercial and industrial consumers in Hrazdan or Sevan (where the water is expensive) make money by using drinking water which is subsidized by residential consumers in Sisian or Jermuk (where the water is cheap). Thus, the large commercial consumers do not get a notion of the real price of water and are not motivated to save water where the water is expensive, neither are they encouraged to use more water where it is cheap.

The approach that is recommended is based on the following concept: the large consumers in high cost areas should pay more, while the large consumers in low cost areas should have the possibility to negotiate lower rates with the water company.

To some extent this approach is similar to the inclining block tariff model. The main difference is that it is not focused on subsidizing the poor consumers but rather on elimination of subsidies for the large consumers.

We propose to apply the current flat rate to the first (or basic) consumption block, which should be fairly high to cover all the possible household needs according to the highest international standards (around 35-40 m^3 per month). For all the consumption that is above the basic block a high-cost-area multiplier should be applied. This multiplier should be calculated based on the average cost of services in all the high cost service areas of the Company.

Thus, if the cost of water in the particular system is higher than the flat rate, the large consumers will be motivated to save water (by applying more efficient technologies, by shifting to less water-consuming activities, etc). If the cost of water in the particular system is lower than the flat rate, the water company may negotiate with the business consumers a lower rate to encourage the consumption and to promote the development of businesses.

Reduction of Telecom Expenses

As mentioned above, the telecom expenses showed a ‘snowballing’ trend in the last two years. In 2006 the total bill for only the fixed phones of the Central Office mounted to AMD 10.8 million. The Central Office has 30 fixed lines the total annual subscription fee for which is around AMD 1.7 million (including VAT). Thus the remaining amount of AMD 9.1 million is mainly the bill for long calls.

To stop the above mentioned ‘snowballing’ trend and to reduce the high telecom expenses the Company should without any further delay take the following steps:

1. An official e-mail system should be put in place for the Central Office and the Branches.
2. Most of the communication between the Central Office and the Branches should be in writing, through the above mentioned e-mail system. The management of the Company should discourage to the extent possible oral telephone communication between the officials of the Central Office and the Branches.
3. The Company should make better use of such opportunities as:
    - Corporate tariff plans for fixed and mobile phones (already underway). Exhibit 1 below shows the recent announcement of ArmenTel on the new corporate tariff plan.

– IP telephony (like SKYPE) for making long international calls;

– Local telephone exchanges for reducing the number of city lines and strengthening the control over long calls.

Exhibit 1: New corporate tariff plan of ArmenTel

Starting from March 14th, 2007, ArmenTel presents new Corporate tariff schemes for Mobile Postpaid System customers

Services	Tariffs, AMD (VAT included)*				
	Corporate Standard **(5-49 lines)**	Corporate Universal **(50-99 lines)**	Corporate Premium **(100-299 lines)**	Corporate Team **(3 - 30 lines)**	Corporate Corporation **(31 and more lines)**
One-time service fees					
Guarantee fee	0.00	0.00	0.00	0.00	0.00
SIM card activation fee (including activation of additional services)	2,880	2,500	2,000	1,500	900
Change of subscriber data (Contract renaming)	5400	3,500	3,000	Free of charge	Free of charge
SIM card replacement	2,500	2,500	2,500	900	900
Double SIM	5,400	5,400	5,400	1,500	900
Transfer to Corporate tariff plan from another tariff plan	1,200	1,200	1,200	600	600
Transfer from one Corporate tariff plan to another one	Free of charge	Free of charge	Free of charge	Free of charge	Free of charge
Calls listing	Free of charge	Free of charge	Free of charge	Free of charge	Free of charge
Roaming guarantee (refundable)	99,000	99,000	99,000	99,000	99,000
Monthly fees					
Monthly fee for each line	3,360	3,000	2,200	600	1,200
Call Fee (local calls 24 hours per day)					
Close User Group Calls	32.4	28	24	18	6
To ArmenTel GSM network	42	42	40	39	39
To RA other GSM networks	42	42	42	39	39
To ArmenTel Fixed (PSTN)	42	42	42	39	39
SMS (Local)	20	20	20	20	20
SMS (International)	30	30	30	30	30

Tariffs Decrease Based on Monthly Bill of a group (AMD) *

0 - 100.000	0%
100.000 - 250.000	2%
250.000 - 500.000	3%
500.000 - 1.000.000	4%
1.000.000 - 1.500.000	6%
1.500.000 - 2.000.000	8%
2.000.000 - 2.500.000	10%
2.500.000 - 3.5000.000	12%
3.500.000 - 5.000.000	15%
5.000.000 - AMD+	20%

Other Cost Reduction Opportunities

Reduction of Losses in Multi-apartment Buildings

At present, one of the biggest problems for the Company is the uncertainty about the internal piping of residential blocks. According to the law, the responsibility for maintenance of all the common elements, including the water and wastewater pipes and fittings, belongs to the representative body of the residents of the block (condominium, cooperative, authorized person, contracted manager or the municipality). However, in practice nobody takes care of these common elements. As a result, pipes and fittings in the basements of multi-apartment blocks often leak or are blocked with rust. Very often the residents make illegal connections to the pipes in the basement, and the water company cannot do anything about it, because legally the internal piping of the block is outside the jurisdiction of the company.

At the same time, the Company has service contracts with individual residents, which do not take into consideration the problems in common elements. Thus, even if the pipes in the basement are blocked, the residents according to the signed contracts can demand the continuation of water supply.

As a result, the Company:

- Loses a lot of water in common elements of residential blocks (In average, the UFW in residential blocks is around 30 %!),
- Cannot ensure the quality of services and the safety of drinking water for the end users.

It is obvious that this situation cannot persist. However, a successful solution to this situation requires that on one hand the residents and the general public consider it fair, and on the other hand it is technically and financially acceptable for the Company.

On reviewing the situation we can put down the following facts:

- Very few of the existing condominiums or other forms of management of multi-apartment blocks can practically perform the responsibilities for maintenance of common elements (including the pipes and fittings). Thus, installation of master meters and billing the condominiums as subscribers rather than individual residents (which is the most preferable solution for the water companies) will not be feasible for the nearest future.
- Water companies have the technical and human resource capacities for performing these responsibilities, but are not authorized to do that by law. Besides, the maintenance of internal block piping is an additional cost, and the water company cannot finance this cost without having the authority to get reasonable compensation for it.
- Passing the ownership of internal block piping to the water company may be a solution, but it will require significant changes in the applicable legislation. Besides, it may not be acceptable for general public. Moreover, it is not in the long-term interests of water companies, since as mentioned above, the international trend in water business worldwide is for consolidation and expansion of customers.

Although the above facts lead us to a deadlock, the solution to this difficult situation may be quite simple, and it can be incorporated into the tariff policy, which is designed and approved by the PSRC.

The proposal is the following:

The residents of multi-apartment blocks should be given a choice:

1. Either to sign a contract with the Company for management of the internal block piping;

   In this case the tariff policy will authorize the water company to introduce a fixed component in the tariff for covering the costs related to maintenance of the internal block piping and the expenses on customer service (reading and testing of meters, billing, renewing the contracts, managing the customer database, etc.). This fixed component or the subscription fee, as one may call it, should be paid by residents even in those cases when the reading of the water meter is zero.

2. Or to install a master meter and buy the water in bulk.

   In this case the fixed tariff will not be applied by the water company. Moreover, the water company may provide additional discounts to encourage the residents of multi-apartment blocks to select this option.

This solution will be considered fair, because it gives the residents a choice (or an illusion of choice) and it clearly specifies for what the residents will be paying additional money. At the same time, the solution will be acceptable for water companies, because it provides for compensation of all the involved costs and gives a good opportunity to reduce the UFW.

Improvement of Municipal Distribution Networks

Another headache for the Company is the uncertainty about the municipal distribution networks. According to the legislation, the distribution networks of towns and villages are the property of the communities. In 1999 most of the municipalities serviced by the Company signed with the Company contracts for so called “free use” of municipal networks. By their nature these contracts could be classified as concession contracts with zero concession fee and unclear provisions on capital investments.

The problem for the Company is how to deal with capital investments in the distribution networks. Without significant capital investments in the distribution networks the Company will not be able to substantially reduce the UFW, since most of the losses are in the distribution networks.

A perfect solution would be to sign new contracts with the communities, and specify very clearly in these contracts all the responsibilities and the procedure for dealing with capital investments. However, for political reasons this might be a difficult thing to do. In this case, the following solution can be considered:

- According to Article 9 of the standard contract signed with the municipalities, the Company has the right to demand compensation for all the capital investments done by the Company in the distribution network. (Funny, but the Article does not mention anything about the depreciation. Normally the compensation is required for the residual value of the asset after the deprecation.)
- Based on that provision, the Company can qualify the capital investments in the distribution networks as intangible assets (which give the Company the right to demand compensation), and depreciate those assets in accordance with the accounting standards.

If this is not done, the Company will have problems capitalizing those expenses that are done to improve the municipal networks. Alternative solution will be to simply expense out all the

investments in municipal networks. However, this solution will not be in the interests of the MC, because it will result in the increase of operating expenses.

Redundant Administrative Costs

This section will address the following redundant administrative costs:

- Rent of administrative buildings;
- Rent of apartments for administrative staff;
- Redundant personnel costs; duplication of functions;
- Redundant transportation costs related to inefficient organization of work.

As mentioned above (see Review of Operating Expenses, Table 7) the Company is spending more than AMD 14 million a year on rent of administrative buildings and flats for senior administrative staff (in case of Sevan Branch Director).

The highest rent is paid for the administrative building of Sevan Branch (AMD 6 million a year). With almost half of the money paid as annual rent for the office of the branch the Company can expand the administrative building of the sector (which is owned by the Company) and accommodate there all the branch and sector staff.

Apart from saving on rent expenses, having larger area for parking, and better conditions for work, the Company will save a lot of money on:

- Transportation between the sector and the branch,
- Duplication of such functions as cleaning (2 employees × AMD 20,000 per month), security (2 employees × AMD 16,000 per month), secretary + general department specialist (2 employees × AMD 40,000 per month), dispatcher (1 employee × 40,000 per month);
- Telecom expenses: by installing a very simple telephone exchange the branch + sector approach will allow to reduce the number of fixed telephone lines (at least 2 fixed lines × AMD 4,800 monthly subscription fee). Besides, if the official e-mail mail system for the Company is introduced (which is almost a mandatory requirement) the Company will save money on internet connection for the sector.

As we can see from the above, the Company will be able to save at least AMD 2.4 million annually on salaries and overheads apart from the AMD 6 million rent cost only in Sevan Branch.

One of the many reasons for having local offices in service areas (i.e. sectors and sub-sectors) is the reduction of transportation costs required for the provision of services and management of the Company’s property. In this respect, it makes very little sense when:

- The Company appoints as branch or sector director somebody who lives in Yerevan, and pays the transportation costs for traveling back and forth on every business day;
- The branches have such geographic locations that in many cases the distance from the sector to the respective branch is longer than the distance from the sector to the central office in Yerevan.
- Certain limitations in the responsibilities of sector and sub-sector directors require them to travel long distances to sectors or branches to simply sign or stamp a document.

Optimization of Transport Expenses

In the light of the huge size of the Company's service area, as well as the number of vehicles and machinery operated by the Company (around 300 units), it is clear why the optimization of the transportation function should be among the highest priorities for the Company Management.

The following questions will help identify inefficiencies in the transport expenses of the Company:

1. Does the type of a vehicle correspond to the intended use of the vehicle?
2. Is the rent of a vehicle or machinery justified?
3. Are there incentives for optimizing transportation expenses?
4. What mechanisms can be used to control the use of fuel and consumables?

For example: in answering the first question we'll see that the excessive use of 4-wheel drives for the head office is not quite justified. The main purpose of the head-office-vehicles is to transport the responsible specialists from the head office to branches, sectors and sub-sectors (these are often very long distances). For that you don't need expensive 4-wheel drives that consume a lot of fuel, but rather efficient and comfortable cars, in which people can travel long distances without exhausting themselves and spending too much fuel. Four-wheel drives, vans and trucks are required for sectors and sub-sectors, which perform the actual operation functions.

Other example: Buying the fuel in bulk at wholesale rates is much cheaper than buying fuel checks (as the Company does now). The Company has sectors all around the country, and it will not be a big problem to arrange for a primitive fueling station in each sector.

These and other issues should be carefully explored, analyzed and managed by the Transport Department of the Company (see the sections "Proposed Institutional Structure" and "Main Functions and Distribution of Responsibilities" below).

Cost Reduction Incentives

We already mentioned about the importance of having a balanced system of sanctions and incentives for improving the commercial performance of the company. The same system, with the always-winning combination of sanctions and incentives, can be used for improving the cost structure of the Company.

The main principle here is that all reasonable cost-saving initiatives should be encouraged. For example: if the overhead expenses of an office are high, the management can establish a quarterly bonus based on the reduction of the costs as described in the following model.

1. The average quarterly cost on overheads is calculated for the previous year;
2. If the overhead expenses for the current quarter are lower than the average cost, 50% of the difference is paid to the key staff as quarterly bonus, and the other 50% is added to the annual contingency fund of the organization.

This approach works very well for reduction of expenses on electricity, telecommunication, water, paper, cartridge and other office supplies, and fuel for business trips.

Cost Control and Budgeting

It is difficult to imagine any organization implementing a cost reduction program without sound cost control and budgeting procedures in place. Nevertheless, up to the recent times the cost control and budgeting functions were somewhat underdeveloped in the Company.

Only recently the Management Contractor established in the Company a very important unit; the Cost Control Department. This department in fact will be performing the functions of internal audit.

However, for effective cost control a company has to have clear and practical procedures for budgeting and reporting. Currently there is no effective procedure for budgeting with clear distribution of responsibilities.

Besides, in large organizations, in addition to the cost control unit, it's always good to have a system of checks and balances where one unit of the organization "keeps an eye" on the performance of the other unit.

The concrete proposals on budgeting and cost control structure and procedures are presented below in the "General Management and Administration" section.