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**RUSSIAN FEDERATION  
WATER AND WASTEWATER PROJECT**

***Russian Water Loan Feasibility Assessment:  
Nalchik Municipal Enterprise  
“Vodokanal,”  
Republic of Kabardino-Balkaria***

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## FOREWORD

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This report on the Nalchik Municipal Enterprise "Nalchikvodokanal" represents a single volume of a 9 volume series. The series contains 8 individual vodokanal reports (including this one) and an "Overview" Report. The series was produced in support of the Russian Water and Wastewater Project with financing from the United States Agency for International Development (USAID) under the Shelter Sector Reform Program for the Newly Independent States. The effort was carried out during the first half of 1997.

Like the other individual vodokanal reports, this report presents the results of institutional and financial assessments related to the Nalchik Vodokanal's ability to contract debt. The report's institutional and financial recommendations are presented to assist vodokanal decision makers improve the Nalchik Vodokanal's operational and financial autonomy in order to enhance its debt repayment capabilities.

This report was written by Samuel Coxson, Chief of Party - Finance and Institutional Specialist, Alexander Krishtop, Institutional Specialist, Kirill Sivolapov, Financial Specialist, Michael Sinclair, Privatization Legal Specialist and Ernest Slingsby, Technical Manager. Accounting and financial data management and analysis assistance was provided by Sunil Perera. Additional legal research, analysis and commentary was provided by Anton Litvinov. Additional commentary was provided by Alexander Gamota, Economist/Institutional Specialist, Michael Schaeffer, Financial Specialist and Eugene Gurenko, Tariff Specialist. All these individuals are with PADCO, Inc.

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## EXECUTIVE SUMMARY AND ACTION PLAN

### 1. EXECUTIVE SUMMARY

#### Financial Conditions

##### Reduced Financial Assistance

The Nalchik Vodokanal has encountered, as have many Russian cities and Communal Services, a very significant reduction in financial assistance from the traditional sources of funding: the City, the Republic and Federal governments. This has not only affected the capital improvements of the Vodokanal but its operational financial condition as well. Delayed payments for services have also adversely affected the Vodokanal's financial capacity as well as its cash or liquidity soundness and flexibility. The Vodokanal's largest single series of accounts receivable are with government budget organizations that belong to the City, Republic and Federal governments.

##### Increase in Non-Cash Transactions

The increase in barter and offsets has grown gradually during 1996, from approximately 18 percent of the total billed in 1995 to 53 percent of the total billed in 1996. That is, the Vodokanal is operating on only 23 percent of its transactions in cash. To add to this shrinkage of cash receipts are the requirements for some suppliers (e.g. electricity) and the Federal government (e.g. taxes) to be paid in cash which leaves the Vodokanal precious little cash left for salaries and emergencies. The addition of debt service would require that the Vodokanal reserve the necessary amount of cash for this item. In addition to the Vodokanal's other financial analysis and review, we have added the "cash" ratio. This ratio is the comparison of total expenses that have to be paid in cash (including debt service) to total expenses. If the Vodokanal can barter or offset some portion of the electricity expense, some or all of the local and Republic taxes, the remaining cash requirements must cover the cash tax payments, payroll (unless the Vodokanal can barter some of this also), the cash electricity expense, emergencies (where cash is required) and debt service.

##### Timely Tariff Approval

The Nalchik Vodokanal had a request for tariff increase before the Pricing Committee of the Ministry of Economics of the Kabardino-Balkarian Republic since mid-December 1996. Only recently, July 1, 1997 did the Pricing Committee grant an increase in the tariff. Additionally, that request did not include full cost recovery. That is, the tariff did not include a provision for bad debt expense. Current Russian Federation Accounting regulations do not permit the writing off of accounts receivable unless they are three years in arrears or the debtor has gone bankrupt. PADCO consultants have seen Vodokanals write off bad debt after an enterprise has gone bankrupt but have not seen where Vodokanals have written down the receivables after the three year period for any other type customer.

The delay in increasing the tariff has also had an adverse impact on the Vodokanal's ability to keep current its accounts payable. The problem stems from the fact that the prices for goods and services that the Vodokanal has to pay have increased more rapidly than its revenue (via the tariff). Nalchik's current accounts payable is over twice the amount of accounts receivable. The accounts payable less the accounts receivable, assuming they would receive all of it, is nearly one half the operating expense for the year. It is essential that Nalchik be allowed to increase its tariff in a more timely manner.

### **Collection Rate of Accounts Receivable**

Nalchik's collection rate for accounts receivable is 55 percent (including VAT) for 1996.<sup>1</sup> This level of collection is below the average for all the cities PADCO reviewed of 67 percent and needs to be increased if financial self-sustainability is to be reached. The Vodokanal already directly bills and collects from all of its customers. It needs to implement a more aggressive collection effort, especially from the governments that have very large amounts owed.

## **Institutional Environment**

### **Vodokanal Organization and Greater Autonomy**

The Vodokanal currently is a municipal enterprise. As such, it is a legal entity (person) but has limited autonomy since it does not choose its own Director and is very dependent on assistance from the municipal and Republic governments for financial assistance and for capital improvements grants to remain operationally and financially viable. Greater autonomy, specificity of responsibility and authority, as well as specific performance goals can be achieved through rewriting the Charter creating the enterprise and establishing a service agreement between the City (or its legitimate representative) and the Vodokanal enterprise.

### **Consumption Based Pricing**

The City and Vodokanal should work together to install water meters at the whole building level for apartment houses, individual houses, and each budget enterprise. Production enterprises are already being metered. The tariff should be billed on actual consumption as opposed to billing by norm. This will act as an incentive to reduce consumption by the consumer, but will concurrently reduce expenses for the Vodokanal.

### **Reduce Water Losses/Increase Efficiency Of System**

The Vodokanal does not have a good picture of where its losses occur. PADCO research in other cities suggests that the losses occur approximately fifty percent in the apartment houses and fifty percent in the system's transmission and distribution lines. Production meters and metering at the building level will make more specific the ratio of loss. Programs to reduce the losses in both apartments and transmission and distribution lines can be implemented. Since electricity accounts

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<sup>1</sup> In order to account for prior year payments this percentage is arrived at by dividing the amount collected by the amount billed plus the beginning accounts receivable. Since Vodokanal's do not age their accounts receivable, it was beyond the scope of this project to accrue all the transactions of the accounts receivable

for over fifty percent of the Vodokanal budget, any significant reduction in this expense would add to the financial flexibility of the Vodokanal.

## NALCHIK ACTION PLAN FOR INSTITUTIONAL/REGULATORY REFORM

ACTION ITEM	RESPONSIBLE PARTY	APPROXIMATE DATE
<b>Organizational Structure</b>		
1. Rewrite Charter providing for a unitary enterprise and service agreement	City and Vodokanal	Dec. 31, 1997
2. Negotiate the Service Agreement	City and Vodokanal	Dec. 31, 1998
<b>Organization Operations</b>		
3. Establish a goals-oriented strategic planning program	Vodokanal	Dec. 31, 1997
4. Consider and evaluate contracting out the billing and collection function	Vodokanal	Dec. 31, 1997
5. Review entire operations for possible contracting out	Vodokanal	Dec. 31, 1998
6. Institute delivery system water loss reduction program	Vodokanal	Dec. 31, 1997
7. Request legislation to establish an industrial pre-treatment program	Vodokanal, City, Republic and Federal Governments	Dec. 31, 1997
8. Establish a fully integrated cost accounting system	Vodokanal	Dec. 31, 1998
9. Establish a program to meter production	Vodokanal	Dec. 31, 1998
10. Establish a program to meter consumption at the building level	Vodokanal, City, Republic	Dec. 31, 2000
11. Make provisions for the purchase of new joint laboratory equipment	Vodokanal	Dec. 31, 1998
<b>Tariff Related Reform</b>		
12. Request additional amendments to Russian Federation Decree 522 to allow bad debt expense write off sooner and interest of debt service for loans to be included in the tariff	Vodokanal, City, Republic, Federal Government	Dec. 31, 1997
13. Increase the tariff immediately and on a more timely basis	Republic Pricing Committee and Vodokanal	Immediately

**NALCHIK ACTION PLAN  
FOR INSTITUTIONAL/REGULATORY  
REFORM**

ACTION ITEM	RESPONSIBLE PARTY	APPROXIMATE DATE
14. Make provisions for specialists in water and wastewater to sit on the tariff approval body	Republic Government	Dec. 31, 1997
15. Increase the level of cash transactions	Vodokanal	<b>Immediately</b>
16. Request full cost tariff	Vodokanal	Immediately
17. Improve collections and collection enforcement	Vodokanal	Immediately
18. Cash planning on a regular basis should be implemented and compared with actual results	Vodokanal	Dec. 31, 1997
19. Cash handling should be kept to a minimum, whenever possible the receipts should be banked and then payments made against the bank account	Vodokanal	Immediately

## **2. Assessment of Present Institutional/Regulatory Environment**

### **2.1. Vodokanal Organizational Structure and Municipal Relations**

The Nalchik Vodokanal Enterprise was established on October 26, 1992, as a Municipal Enterprise. The Charter creates the Vodokanal and lists its duties, responsibilities and authority to act and the limits of control over asset use and disposition. The Vodokanal is established as a juridical person and as such can enter into contracts, sue and be sued and generally conduct its business as any other enterprise would. In addition to the Charter's responsibilities and provision for services, there are several Russian Federation laws which apply to the operational authority and responsibility of the Vodokanal. Two major governing documents that affect the operation of Vodokanals are the August 22, 1995, Decree of the Ministry of Construction (Minstroj), Decree Number 937 which is titled "Rules for the Provision of Communal Services of Water and Wastewater in the Russian Federation" and the Decision of the Government of the Russian Federation No. 552 dated August 5, 1992 and amended on November 22, 1996, titled "On the Approval of Regulations for Expenses Incurred in the Production and Sale of Products (Works, Services) Included in the Cost Price of Products (Works, Services and for the Order of Forming Financial Results Accounted in Profit Taxation".

The City has a contract with the Vodokanal Director (See Appendix I for a translated copy of this contract). This contract makes it clear that the City appoints the Director and he serves at the discretion of the Mayor of the City. The agreement also delineates the authority and responsibility of the Director of the Vodokanal in very broad terms. Under the agreement's provisions the Director is the person responsible for planning, controlling and operating the Vodokanal.

The relationship and cooperation between the City and the Vodokanal is good. City officials stated their full support for the Vodokanal efforts in obtaining loan funds for the major rehabilitation work the water and wastewater system needs. Although the City's relations with the Vodokanal have been good, the City has had trouble paying for the water and sewer services of municipal budgetary organizations. The reason stated for this has been the lack of financial aid and tax receipts returned to the region from the Republic and Federal governments. The Vodokanal also enjoys good relations with the Republic Ministries with which it works and to which it reports. The Vodokanal makes periodic reports to the Ministry for Protection of the Environment and the Ministry that controls the extraction of water from the watershed. In addition, the Vodokanal communicates regularly with its counterparts in other cities of similar size. The Vodokanals share information and spare parts amongst themselves.

The City Administration as founder of the Vodokanal has the authority to modify or terminate the Charter creating the Vodokanal Enterprise. It also owns all the assets of the Vodokanal. Although the City owns the assets of the Vodokanal, through the Charter it gives the Vodokanal constructive control over the assets it uses. The assets are shown in their balance sheet for control and depreciation purposes but the assets are still owned by the City. When one considers that the City owns the assets used by the Vodokanal and appoints and terminates its Director at-

will, one must come to the conclusion that the Vodokanal as a commercial entity is far from autonomous.

### **2.1.1. Obstacles to Operational and Financial Vodokanal Autonomy**

Generally, water and wastewater utilities are considered monopolies and, as such, must be regulated by government to prevent unfair charges to customers. In Nalchik, within the Kabardino-Balkarian Republic, the body that officially regulates tariff approval is the Pricing Committee of the Ministry of Economics of the Kabardino-Balkarian Republic. This body has the authority to grant the only official approval needed to implement an increased tariff. However, there are several obstacles that exist to prevent the Vodokanal from reaching greater operational and financial autonomy. These are listed below:

1. Pressure from political officials (founder of the Vodokanal) to keep the tariff artificially low adversely affects the financial autonomy and viability of the Vodokanal.
2. Pressure from political officials (founder of the Vodokanal) to continue cross-subsidization of the general residential customer by the commercial enterprises distorts the economic role of price related to consumption and ultimately is paid by many of the local residential consumers through higher costs for products and services.
3. The power of the Mayor to replace the Vodokanal Director at-will reduces, if not removes much of the true operational authority discussed in the Charter. A Board of Directors, or other appointing board, would make the process less dependent on the will of one individual.
4. Federal limitations on what can and can not be included in the tariff limit the financial revenues directly and the general financial viability of the Vodokanal indirectly.
5. Tariff approval on a more timely basis, possibly with a built-in inflation escalator, would go far in strengthening the Vodokanal's financial self-sustainability.

## **2.2. Assessment of Vodokanal Management and Operations**

### **2.2.1. Organization and Management**

The Nalchik Vodokanal is organized on the same general format used by other Vodokanals throughout the former Soviet Union. Its departments are broken down by function (See the Organization Chart in Appendix I). These functions are appropriate to the operational needs of the Vodokanal. Through its Charter, the Vodokanal is given the task of planning for projects in the upcoming year and the next five years. Recently, however, these plans have been only on paper due to the lack of municipal funds to carry out all but the most serious emergency projects. PADCO consultants found that the Nalchik Vodokanal management and supervisory personnel are very well prepared to carry out their duties. An inspection of the operating system revealed close attention to cost saving procedures and a pride in workmanship and tasks.

### **2.2.2. Personnel and Manpower**

There are 599 employees of the Nalchik Vodokanal (one employee for every 461 customers). Of this number 90 are management or administrative, 173 are involved with the production of water, 106 are involved with wastewater collection and treatment and 230 are shared employees of support services. (See Appendix I for the organization chart, listing of personnel, personnel

skills requirements, salaries and bonuses.) The average salary for the Vodokanal is 720,000 rubles per month (including bonuses) as compared to the average monthly wage city-wide of 400,000 rubles per working person per month. In addition to the salary there are fringe benefits totaling 38.5 % of salary remuneration. The 38.5% does not include vacation, sick leave or leave of various kinds, or provision of such benefits as living at sanatoria or camps during vacation.

The Vodokanal fills positions on a competitive basis with tests being given once or twice a year. The candidates are reviewed by a Board made up of personnel certified in the skills needed at the Vodokanal which attests to the level of professional accomplishment the candidate has and whether he or she is qualified for the opening. Position qualifications follow those established for water and wastewater positions throughout the former Soviet Union.

### **2.2.3. Administration**

#### **Budget Process**

The Chief Economist and the Chief Account meet with the department heads of the Vodokanal and develop the general needs for capital and operations for the upcoming year. This is generally done in late September or early October. The Director then meets with the staff and department heads to determine the final budget. After all refinements are made and questions answered the Director approves the budget for the Vodokanal.

#### **Billing and Collection**

Billing and collection are both carried out by the Nalchik Vodokanal. Intermediaries are not used to collect tariffs as is common in many Russian cities where the communal housing enterprises collect for all communal services including water and wastewater. Water and wastewater bills can be paid at the cashier window of the Vodokanal or at its bank. Budget organizations and commercial enterprises are billed monthly. For convenience as well as to keep the cost of the billing function down, communal housing and private housing are billed quarterly. Commercial enterprises are billed based on metered consumption while the communal housing, private housing and budget organizations are billed on the basis of established norms (depending on type of building and plumbing as well as other types of operations e.g. hospitals, schools, etc.)

The Vodokanal has made some efforts at increasing the collection rate by 1) meeting with enterprise managers to speed up the collection of old accounts receivable, and 2) made it as convenient as possible for the residential consumer to pay his bill either at the Vodokanal or at the Sberbank which has several branches throughout the city.

The accounting system of Nalchik is computerized and facilitates the monthly financial analysis and quarterly reporting required by Federal law. The Accounting Department follows the Russian Federal Government regulations on accounting as well as guidelines issued from the Ministry of Finance, Russian Federation. However, the computerization of management information (MIS) is lacking entirely or of very limited use since it is derived from the data collected for financial use and is not in a format that permits management analysis and planning. Cost accounting has not been established but the existing system is not far from being able to implement such a system if funds were available for additional computers and training. What is

lacking is a system of work order cost allocation (labor, materials, overhead) to cost centers and the computer hardware and software to make it work. Nalchik bills and collects for its services. Hence, the integration of billing and collections into the financial process is much greater than in many other Russian cities.

#### **2.2.4. Operations and Maintenance**

The maintenance and operations system of the Nalchik Vodokanal is very closely integrated with its support shops and personnel. Like many other Vodokanals, the Nalchik Vodokanal preventive maintenance has suffered during the high inflation period and now lack of general resources to carry out major preventive maintenance. The great majority of maintenance effort is in emergency repairs to keep the system operating and to reduce the water loss when lines break (or pollution when a sewer line breaks). Spare parts are bartered for which may make the parts much more expensive than cash payments or even competition could make their purchase.

Water system production is not metered as mentioned above. Estimates of production are arrived at by taking the electricity used and the capacity of the pump to derive the estimated amount of water produced. Consumer metering for consumption is only done by the commercial enterprises. It is surprising that the Vodokanal has not attempted to change the policy of the City to require metering of all buildings (or individual apartments) or budget organizations although the Charter has as one of the goals or responsibilities of the Vodokanal the reduction of water consumption and as a means to reduce the consumption, reduce costs and the need to develop a new well field to increase its water supply.

The Vodokanal facilities are old, approximately 35 to 50 years old. They are in various states of repair. However, to the credit of Vodokanal staff and management, they work relatively well for their age and the type of technology used. The Vodokanal Laboratory serves both the water and wastewater systems. The equipment in the laboratory is nearly obsolescent and will not be able to measure the water and wastewater quality requirements of the new regulations (the new regulations became effective July 1, 1997). The water system has not received a fine from the Republic Department of Natural Resources and Environment Protection but the sewer system chronically receives fines for not meeting the treatment standards for sewage. When the local metallurgical plant is operating the fines average about 100,000,000 rubles per quarter. When the metallurgical plant is not working, the fines average about 60,000,000 per quarter. Legislation now does not allow the Vodokanal to pass on these fines without a long and equally expensive law suit.

Based on the technology and design of the plant, it is unlikely that the Vodokanal will be able to substantially reduce this fine level unless there is rehabilitation of the treatment plant utilizing newer and more effective heavy metal removal processes. Additionally, if the Vodokanal could require pre-treatment by the local production enterprises, it may be able to avoid more expensive treatment equipment and processes as well as make their industrial customers aware of the problems their effluent causes.

### 2.3. Vodokanal System

The Vodokanal water lines are approximately 50 kilometers in length with varying sizes of distribution lines. The main trunk lines from the water storage tanks are 1000 millimeters in diameter. This main trunk line connects a total of 13 storage areas and 120 wells which feed the storage areas. The Vodokanal produces approximately 110,000 cubic meters of water per day. While the main trunk line is newer, the lines in general are approximately 35 years old. There are two main sewer trunk lines that go to the sewage treatment plant one is 900 and the other is 1000 millimeters in diameter. The treatment for water is chlorination of the water in the tank reservoirs where it has sufficient contact time to kill bacteria. The sewage treatment plant, although old, handles approximately 150,000 cubic meters of wastewater per day. The difference between the water production amount and the sewage treatment amounts is due to infiltration and inflow of the wastewater system. The Sewage Treatment Plant Director outlined the current efforts in expanding the clarifier section of the plant as well as increasing the initial input solids removal (grit, fibers, stones, etc.). He also indicated a desire to increase the number of drying beds that are used to dry the sludge resulting from the wastewater treatment process. The dried sludge is stored in piles near the drying beds. The Vodokanal is considering it as cover for the adjacent landfill because the sludge can not be land applied for agricultural applications because of the high metal content concentrated in the sludge.

There are as-built drawings of all the existing water and wastewater lines, pumping stations, etc. which reduces the time needed for repairs during emergencies and is an aid in planning for system improvements and preventative maintenance.

### 2.4. Summary of Vodokanal Structure

The Nalchik Vodokanal suffers from chronic lack of funds for anything more than the most essential repairs and maintenance. This same lack of funds prevent it from undertaking new technologies and the acquisition of more efficient (both in function and energy) equipment in its water and wastewater systems. While, compared to Latin America and Western Europe, the workforce ratio to customers served is high, 461 customers to each employee as opposed to approximately 1500 customers per employee in Latin America and 2,500 customers served per employee in Western Europe, the relationship of number of customers served per employee of the Vodokanal is somewhat dependent on the age of system, state of repair, and work practices as well as social and work legislation that affect cost savings of any force reduction. In short, if the vodokanals can reduce their workforce by increased efficiencies and greater capitalization, these must be matched by a reduction in the personnel costs.

Comprehensive planning for demand management has not been carried out by the Nalchik Vodokanal. Nor has it developed any public information programs which would assist in the reduction of consumption. Also, it has not developed any industrial pretreatment of sewage requirements prior to its being released into the Vodokanal Sewage system. It has, however, developed a comprehensive plan to reduce energy consumption, improve network flow control and improvement of wastewater treatment through improvements at the treatment plant.

## 2.5. Tariff Process

The Nalchik Vodokanal receives tariff approval from the Pricing Committee of the Ministry of Economics of the Kabardino-Balkarian Republic. The tariff for residential consumers for water is 500 rubles per cubic meter including VAT. Another 500 rubles per cubic meter of wastewater, including VAT is charged for wastewater treatment. However, given the lgoti, or special deduction for veterans, disabled and handicapped, etc. the actual amount that is received from the residential (population) customer category reduces the total amount collected.<sup>11</sup> Although this lgoti is supposed to be paid to the Vodokanal by the City, the City often does not pay the full amount.

The average consumption norm applied in billing residential customers is 250 liters per person per day. The budget organizations and individual houses are charged based on the size of the line servicing the organization or individual household. Production enterprises are billed based on metered consumption. There were two increases in the tariff in 1995. The first, adopted in February of 1995, raised the tariff for water and wastewater from 15 rubles each to 54 rubles each for the residential (population) customer. The second, adopted in July of 1995, raised the tariff for water and wastewater from 54 rubles to 138 rubles respectively. The last tariff increase for residential customers was approved by the Committee on Prices of the Ministry of Communal Housing on July 1, 1997. This increase raised the tariff from 182.5 rubles for water and 182.5 rubles for wastewater to 500 for each. The last time the Committee allowed an increase in the tariff for enterprises was October 1, 1995 from 900 rubles (including VAT) for water and wastewater per cubic meter respectively to 1,320 rubles (including VAT) per cubic meter respectively, including VAT. The current cross-subsidy rate is approximately a factor of 2.2 times that paid by the residential customer.

## 2.6. Subsidies

The City of Nalchik does not assist through the payment of dotatsia or subsidy to the Vodokanal on behalf of the population (residential consumer). As mentioned before, the lgoti, or preferential payment, affects the revenue stream of the Vodokanal by reducing the revenue received. The City's payment is intended to make up for this loss in lgoti but actual payments fall substantially short of the loss based on lgoti granted. In order to assess the effectiveness of the subsidy, it is necessary to compare the amount lost to the amount subsidized by the City. Table 1 below shows this comparison for 1995 and 1996.

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<sup>11</sup> According to the Chief Economist for the Vodokanal, 70 percent of the families in Nalchik receive some sort of lgoti or reduced payments for communal services. The amount of lgoti varies with category of recipient and may vary from 100 percent to ten percent. The overall net result of this 70 percent reduction in payment is to render the billable amount in half and although the City is supposed to pay the difference it does not pay the full amount

**Table 1. Comparison of Revenue lost to Lgoti and Subsidy Paid by City**

Year	Revenue Lost to Lgoti	Subsidy Paid by the City	Amount not Paid by The City
1995	8,041,680,000 *	5,556,000,000	2,485,680,000
1996	8,041,680,000	6,780,000,000	1,261,680,000
Total	16,083,360,000	12,336,000,000	3,747,360,000

\* These numbers are the same because the amount billed is based on a norm and not actual consumption.

The total amount billed for 1995 for all customer categories was 21,946,028.092 rubles including VAT while the loss to lgoti for that year was 2,485,680,000 rubles or about 11 percent of the total billed. The total amount billed for 1996 for all customer categories was 41,968,250.000 rubles, including VAT while the loss to lgoti for that year was 1,261,680.000 rubles or about 3 percent of the total billed.

The significant level of lgoti makes it imperative that the Federal, Republic and Municipal governments finance fully the amount of the lgoti granted. When the Vodokanal does not receive this full amount it must either try to increase the tariff to make up the difference or absorb the loss.

### **3. Development of the Legal/Regulatory Basis for Institutional Reform**

Organizationally, the Nalchik Vodokanal is a municipal enterprise. It has constructive use of the assets it uses to provide water and wastewater services to the residents and nearby villages of Nalchik. In order to become more autonomous in policy, management and fiscal self-sufficiency, it will need to reorganize into an open joint stock company, a closed joint stock company or a municipal, unitary enterprise. The optimal organizational structure will be discussed in the general chapter on institutional/regulatory reform.

Under the current organization of municipal enterprise, the Nalchik Vodokanal can improve its "autonomy" and financial self-sustainability by better defining its authority, responsibilities and performance obligations as well as those of the City and customer. One vehicle through which this may be accomplished is the service agreement. Although the Vodokanal's Charter and the contract with the Director mention some elements of authority, responsibility and performance, they do not go far enough in detail to provide an objective assessment of performance. The service agreement is also discussed in more detail in the general chapter on institutional/regulatory conditions and reform.

## **4. Recommendations for Institutional/Regulatory Reform**

### **4.1. Organizational Structure and City Relationship**

As discussed earlier, the ideal organizational structure which would allow the Vodokanal management maximum autonomy in making decisions relative to its operations and financial transactions may have more than one form. However, there are some basic elements of the transition to greater autonomy that can be identified now. These elements are embodied in the recommendations on organizational structure below:

#### Recommendation 1.

Rewrite the Charter to create either a commercial enterprise or a municipal unitary enterprise where the Director of the Enterprise has as much management autonomy as is feasible, given the organizational structure established. In the Charter reference to a service agreement should be made regardless of the organizational structure chosen.

#### Recommendation 2.

A service agreement should be a negotiated contract which spells out specific performance in all major functions of the Vodokanal, sanctions for not meeting performance, financial remuneration to the Vodokanal (here full cost recovery including bad debt write off and debt service can be addressed), sanctions for the Vodokanal for non-payment by the City or similar provisions, responsibilities and liabilities that will be shared (e.g. environmental fines resulting from lack of enforcement of a pretreatment program by the City).

#### Recommendation 3.

Establish a goals oriented strategic planning program for upper management and relate it to greater integration of a management information system that is computerized. The fully integrated management information system would allow management to assess production efficiency, aid in planning and relate it to cost centers based on cost accounting programs.

### **4.2. Organization Operations**

#### Recommendation 4.

Consider and evaluate contracting out the billing and collection function through competitive bidding as compared to in-house billing and collecting. The above may allow for cost savings, greater efficiency and reduction in necessary manpower.

#### Recommendation 5.

Review the entire operations in an effort to out-source as many functions that can be done by competitive bid to increase efficiency and reduce costs, including manpower.

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Recommendation 6.

Institute a demand management program which will address approximately one-half of the total water loss. This program can be started shortly after the production is metered and some meters are installed throughout the transmission system.

Recommendation 7.

Request that the City or Republic enact legislation requiring industrial pre-treatment of wastewater before it enters the wastewater system. Such a system should set standards and sanctions for those industries which do not meet them. The same legislation should allow for a sewage treatment surcharge for above average sewage that is below the threshold that would be fined.

Recommendation 8.

Establish a fully integrated cost accounting system and provide training to personnel for its implementation. This system would set up cost centers and monitor the operations of the various departments and cost centers as well as spread overhead to those cost accounts relating to production or specific functions.

Recommendation 9.

Establish a program to install production meters at the wells. Concurrently there should be in fluent meters installed at the sewage treatment plant. Install meters throughout the distribution system to enable early identification of system water leaks and purchase leak detection equipment.

Recommendation 10.

The Vodokanal should request enforcement of the requirement to meter all new apartment buildings and that the billing for non-metered or non-maintained metered buildings be the most stringent allowed by law. Meter all budget organizations. The Vodokanal should establish a program of work with the City to install, at least, building-wide meters in those older residential buildings that are not metered as a first step toward metering each apartment.

Recommendation 11.

Make provisions to purchase new analytical equipment for the joint laboratory. The existing equipment is not calibrated nor sensitive enough to measure water and wastewater treatment of the new standards that become effective July 1, 1997.

### **4.3. Tariff Related Reform**

Recommendation 12.

Request additional amendment to Russian Federation Decree Number 522 that would allow the write off of bad debts as an expense and debt service interests for capital improvement loans to be included in the tariff. This will enable the Vodokanal to bill for full cost recovery of its services.

### Recommendation 13.

Request that specialists in the provision of water and wastewater service be given voting seats on the Pricing Committee of the Ministry of Economics of the Kabardino-Balkarian Republic. This will allow for professional evaluation of the tariff increase proposals. The Pricing Committee should hold public hearings on the proposed tariff in order to get public (consumer) response to the proposed increases. The hearing process combined with the addition of knowledgeable professional staff in the areas of water treatment and production and wastewater treatment will give all parties relative parity in the tariff increase proposal process.

## **5. Financial Review and Tariff Study**

### **5.1. Introduction**

The Nalchik Vodokanal has seen, over the last four years, a very substantial reduction in the financial support that it formerly received from the Federal, Republic and municipal governments. With financial constraints of their own, it is unlikely that these former sources of financial support, especially for capital investment, will be a stable or significant portion of the capital and operating needs of the Vodokanal.

Added to this reduction of financial support from the Federal, Republic and municipal sources are problems with collection. Nalchik's 1996 collection is 55 percent (aggregate of all receipts from all categories of customers and adjusted for prior year payments) needs to be substantially improved.

Nalchik, like many other Russian Vodokanal's, has resorted to an increase in the use of barter and off-sets to deal with waning level of cash. In 1995 the Vodokanal received 28 percent of total amount billed, including VAT, in cash. In 1996 the amount of cash collection had declined to 17 percent of the total amount billed, including VAT. That is, the Nalchik Vodokanal is operating on 17 percent cash!

**Table 2. Cash versus Non-Cash Collections and Collection Rates for the Two Years**

Nalchik Vodokanal									
Cash versus Non-Cash Collection and Collection Rate									
			Promissory						
			Notes and				Total		Total
Year	Cash	Percent	Offsets	Percent	Barter	Percent	Billed *	Collected	Percent
	(000 rubles)	of Billed	(000 rubles)	of Billed	(000 rubles)	of Billed	(000 rubles)	(000 rubles)	
1995	7,541,124	28%	1,597,938	6%	2,504,924	9%	27,191,007 *	11,643,986	43%
1996	9,521,123	17%	4,872,000	8%	17,119,626	30%	57,515,271 *	31,512,749	55%

\* Includes VAT and has been adjusted to account for prior year payments. Source: City of Nalchik Accounting Records

## 5.2. The Current Tariff for Water/Wastewater

The current residential tariff, approved on July 1, 1997, for Nalchik water is 500 rubles per cubic meter for water, including VAT, and 500 rubles per cubic meter of wastewater treated, including VAT. The total combined rate for the residential consumer is 1,000 rubles per cubic meter for water and wastewater respectively. Budget organizations and production enterprises pay 1,320 rubles (includes VAT) per cubic meter of each, water and wastewater. Consumption is based on a norm or the size of the service line to the customer unless it is metered. The table below gives the volumes billed for by major customer categories.

**Table 3. Consumption by Customer Category**

Water and Wastewater Treatment Billed by Customer Category for Nalchik Vodokanal						
	Water		Sewage		Total	
Customer Category	(000 m3)	Percent	(000 m3)	Percent	(000 m3)	Percent
Population	25,587	64%	18,477	60%	44,064	62%
Budget Org.	10,652	27%	9,182	30%	19,834	28%
Production Ent.	3,665	9%	3,236	10%	6,901	10%
<b>Total</b>	<b>39,904</b>	<b>100%</b>	<b>30,895</b>	<b>100%</b>	<b>70,799</b>	<b>100%</b>

Source: Nalchik Vodokanal Economic Planner

The above billing/consumption pattern reflects consumption for the production enterprises and the norm billed the residential and budget organization consumer. This is the same general pattern that we have seen in other Russian cities with the bulk of the consumption coming from the population and tapering off with budget organizations and production enterprises. Another reason why production enterprises show less consumption is that many have their own wells

Table 4. Revenue Generated by the Current Tariff

Water and Wastewater Treatment Billing				
By Customer Category For Nalchik Vodokanal				
For 1996				
Customer Category	Water (000 m3)	Sewage (000 m3)	Total (000 m3)	Billed ((000 Rubles)
Population	25,587	18,477	44,064	5,255,132
Budget Org.	10,652	9,182	19,834	21,911,022
Production Ent.	3,665	3,236	6,901	7,825,365
<b>Total</b>	<b>39,904</b>	<b>30,895</b>	<b>70,799</b>	<b>34,991,519</b>
VAT Tax				6,976,731
<b>Total w/ VAT</b>				<b>41,968,250</b>

Source: Nalchik Vodokanal Chief Accountant and Chief Economic Planner

From Table 4 we can see that the billed amount for 1996 for water and wastewater services is 41,968,250,000 rubles. However, this is the amount billed. The amount actually collected was 31,512,749,000 rubles or approximately 55 percent of the amount billed and adjusted for prior year payments. As we will see below in the 1996 Profit and Loss Statement, the Vodokanal had a net loss before taxes and depreciation of 4,061,097,000 and after taxes and depreciation that loss increases to 15,255,536,000 rubles.

### 5.3. Financial Overview

A crucial factor in our review of the revenues of the Vodokanal is how much of the billed did the Vodokanal actually collect and of its collections, how much is cash? From Table 2, we can see that the collection for 1995 was 43 percent and for 1996 was 55 percent of the amount billed. Of the 1996 revenues only 23 percent was in cash with the rest being barter, offset and promissory notes.

Our review has, thus far, looked at the type of customer and the nature of the revenues that the Vodokanal is operating with. In the near-GAAP restatement of the Vodokanal's financial statements, the Profit and Loss Statement gives us a quick look at the overall financial activity of the Vodokanal for the year. However, many aspects of the Profit and Loss Statement need to be commented on. The next section takes a look at the Profit and Loss Statement for 1995 and 1996 and makes observations on major items of concern.

## 6. Nalchik Vodokanal Profit and Loss

Nalchik showed a profit of 2,640,740,000 rubles after taxes but before depreciation in 1995. The increase in depreciation was primarily due to the increase of valuation of fixed assets for the year

increase in the depreciation expense for that year. However, even before taxes and depreciation, the Vodokanal showed a loss of 4,061,097,000 rubles.

**Table 5. Nalchik Profit and Loss  
For the Years Ended December 31, 1995 and 1996**

	Item	1995 (in 000 Rubles)	1996 (in 000 Rubles)	Percent Change
+	Water & Sewer Revenue	21,946,000	34,991,519	59%
+	Subsidies & Other Income	6,756,940	7,048,412	4%
=	Total Revenues	28,702,940	42,039,931	46%
-	Total Expenses (excluding deprec.)	23,202,370	46,101,028	99%
=	Net Income before Taxes & Depreciation	5,500,570	(4,061,097)	
-	Depreciation	(4,159,920)	(9,795,098)	
-	Taxes (Non-labor)	(2,859,830)	(1,369,341)	
	Net Income/(Loss)	(1,519,180)	(15,225,536)	

Source: Nalchik Vodokanal Accounting Records

## 6.1. Profit and Loss Statement Analysis

### Sales Revenues and Cost of Sales

The increase in water and wastewater revenues is due to the increase in tariff allowed in February of 1996. However, as can be seen from the table, advances in revenues based on the higher tariff still did not keep up with advances in costs of sales (expenses). Total expenses include operating and overhead expenses. The table below gives the major expenses for both years along with the percentage increase in those categories.

**Table 6. Nalchik Vodokanal Expense Comparison**

Expense	1995 (in 000 Rubles)	Percent of Total	1996 (in 000 Rubles)	Percent of Total	Increase From 1995 to 1996
Salaries	2,393,630	8%	2,316,830	4%	-3%
Bonuses	1,220,770	4%	0	0%	
Taxes and Mandatory Labor Payments	1,409,616	5%	880,314	2%	-60%
Electricity	11,427,800	38%	25,441,657	44%	123%
Materials and Chemicals	656,867	2%	1,148,302	2%	75%
Repairs and Maint.	959,905	3%	2,575,000	4%	168%
Taxes (Excluding Labor Related)	2,859,830	9%	1,369,341	2%	-108%
Depreciation	4,159,920	14%	9,795,098	17%	135%
General & Admin.	1,119,384	4%	5,909,754	10%	428%
Shop (includes all labor costs of the Support Function)	1,866,520	6%	4,093,200	7%	119%
Other Costs*	2,147,828	7%	3,735,971	7%	74%
Total Expenses	23,202,370	100%	46,101,028	100%	99%

The overall increase in expenses from 1995 to 1996 is 89 percent. The cost for personnel is down because the Vodokanal did not pay bonuses in 1996. Also, noteworthy are the increases in energy and repairs, and other expenses. Energy has increased at a much faster pace than the tariff for water has been allowed to increase. Repairs have increased as a result of emergency repairs which have become more frequent. Other expenses include such items as fuel for the support shops, the cost for those auxiliary shops and overhead expenses. Depreciation expense has increased along with the revaluation of the assets.

The current tariff anticipates neither a bad debt expense nor payment of interest or principle for capital improvements. Additionally, the collection of accounts receivable, as mentioned before, should receive special effort by the Vodokanal to increase the collection rate as well as the amount of cash that is utilized in its transactions.

## 6.2. Accounts Receivable and Accounts Payable

### Accounts Receivable

The total accounts receivable as of December 31, 1996 was 20,215,424,000 rubles. This amount represents 48 percent of the total amount billed for the year or approximately 6 months of billing. The Vodokanal is now and will need to continue to focus on getting payment from those accounts over six months old.

**Table 7. Accounts Receivable as of December 31, 1996  
Broken Down by Customer Category**

Total	Population	Budget Organizations	Production Enterprises
(in 000 Rubles)	(in 000 Rubles)	(in 000 Rubles)	(in 000 Rubles)
<b>20,215,423</b>	998,461	12,875,365 *	6,341,597 *
Percent of Total	5%	64%	31%

\* These numbers are approximations based on the percentage of consumption and billed ratios. The Vodokanal does not break down the accounts receivable between budget organizations and production enterprises.

However, a significant portion of the accounts receivable is owed by governmental enterprises of the City, the Republic and agencies of the Federal government. These accounts receivable require a different evaluation for each category. Governmental accounts receivable are receivables that will generally be collected, but the actual collection may be much later than a normal aging of accounts would utilize. Our assumption relative to governmental accounts receivable is that they will ultimately be collected either in cash, promissory notes or tax offsets.

### Bad Debt Estimate

Given the fact that we are not going to consider governmental accounts receivable as doubtful accounts or bad debt, and given the fact that no accounts receivable less than three years old can be written off as bad debt, and given the high inflation rate for the period of time under review, the amount of bad debt becomes negligible. However, if inflation stabilizes, as it seems to be doing, there will be a need to record some portion of the population and enterprise customer accounts receivable as bad debt. For purposes of loan and tariff projections, the bad debt is assumed to be negligible.

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## **Accounts Payable**

In 1996 accounts payable grew by 301 percent from 15,973,911,000 at the beginning of the year to 48,096,142,000 by the end of the year. Of this amount at the end of the year, 29 percent was over a year old. A portion of this amount over one year old represents accounts payable that are difficult to barter or pay by offset. The amount that was paid, 14,352,427,000 represents only about 23 percent of the total accounts payable by the end of the year. Accounts receivable for 1996, from which much of the accounts payable would be bartered or offset, only covers about half of the accounts payable as of the end of the year (20,215,423,000 versus 48,096,142,000 or 42 percent).

The rather quick build up of accounts payable is being addressed through the recent increase in the tariff and careful pay-down of the existing payables. The Vodokanal needs to secure a more timely increase in its tariffs if it is to keep pace with its payables and inflation.

## **Current Tariff**

The Nalchik Vodokanal financial performance for the two years reviewed shows an exclusion of certain expenses from the tariff such as bad debt expense and capital improvements costs. These should be included in a full cost recovery tariff particularly if the Vodokanal is to reach financial self-sufficiency in capital investments.

## **Bad Debt Expense**

The carrying cost of large accounts receivable are not recognized or identified as a business expense item in the tariff for Nalchik. Although there are provisions in the accounting regulations for inclusion of bad debt expenses for receivables more than three years outstanding (the write-off of uncollectible accounts), the Nalchik Vodokanal has written off only those accounts of enterprises that have actually gone bankrupt. The Vodokanal needs to be allowed to write off a portion of its accounts receivable as non collectible during the period incurred (or as near to that period as possible) and this average cost should be allowed in the tariff as an expense item.

## **Capital Costs**

The City of Nalchik and the Kabardino-Balkarian Republic have provided funds in the past for Vodokanal capital improvements. In water and wastewater line extensions, developers have been required to pay for the line extensions. The Vodokanal's capital budgeting has amounted to whatever the City and other sources, such as the developers, could provide for capital improvements. However, in order to reach financial self-sustainability, the Vodokanal needs to be able to plan and fund its own capital improvements. Currently it is difficult to accomplish this with the slowness of tariff approval and the requirement that interest payments on debt must come out of profitability "rentablenost". It would be more appropriate and in line with utility tariff approval in many other countries to allow the interest payment on capital improvements debt to be included in the tariff as an expense as opposed to requiring that it come out of profitability. One problem with the current regulatory approach is that it clouds what is actually profit and what is really an expense that must come out of profit.

This is especially true if one considers that the Vodokanal has applied for a World Bank loan and would have to show a profit just to be able to pay the interest portion of the debt.

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### 6.3 Financial Analysis Summary

The goal of this analysis is to develop projections, based on the current and recommended future tariffs, the tariff levels that would give the Vodokanal the ability to pay back a World Bank loan. The projections are based upon a tariff that gives the Vodokanal sufficient amounts of profitability "rentablenost" to pay the interest on the loan as well as some funds left over to meet emergencies and to conduct operations in a normal fashion.

In order to arrive at this loan estimate, it has been necessary to restate the Russian Accounting and Financial Statements into near-GAAP (Generally Accepted Accounting Principles) or International Accounting Standards (IAS) format in order to focus on the amount of money the Vodokanal has or will have available for loan service and continuing operations.

### 6.4. Loan Potential

Under current conditions, the Nalchik Vodokanal is NOT in a position to service debt at any significant level. However, if several criteria are met, the maximum loan level indicated by the PADCO loan feasibility model may be borrowed by the Vodokanal. The loan amounts are arrived at by assuming a collection rate approaching 95 percent. Further, the model inherently assumes a 50 percent cash collection rate. More importantly, the interest on the capital investment loan is financed "out-of-profit" thereby imposing a soft ceiling on the Vodokanal's borrowing. Additionally, the profit tax credit is assumed up to the 50 percent of tax when appropriate. These are relatively stringent financial criteria. The Nalchik vodokanal currently is not able to satisfy these financial prerequisites. It is recommended that it meet all the following priority action items in order to become financially self-sustaining and capable of carrying the loan projected.

#### *Cash Collections*

The PADCO review of the sampled vodokanal's financial requirements indicate that the average current level of cash collections (19 percent) is extremely low. Nalchik's is 23 percent for 1996. In order to make timely debt repayments, and necessary operating expense payments, the vodokanal will need to dramatically increase its level of cash collections to at least 50 percent. The minimum 50 percent cash requirement assumes the following:

- Federal taxes must be paid in cash. Some VAT payable can be paid via offset arrangement.
- Payroll and other mandatory payments must also be made in cash.
- At a minimum, 70 percent of the electricity outlay must be in cash.
- Emergency costs and purchases of items outside the local area would require at least 40 percent cash payment. Expenditures tied to repairs and contracting service are assumed to be at a very minimum 50 percent in cash.
- All debt service (interest plus principle) must be repaid in cash.

#### *Total Collections*

The 67 percent level of average total collections is significantly deficient from the PADCO tariff/loan forecast model's 95 percent level of total collections. At 55 percent collection of billed, Nalchik must significantly increase its collection rate to reach the 95 percent level. Further, the composition, quality and timing of collections is a major limitation in the current vodokanal's

financial environment. As a result, it is recommended that Nalchik vodokanal total collections improve to at least 95% before any significant level of borrowing begins.

### ***Profitability***

The average level of the sampled group's 1996 profitability is -7.6 percent. Five of the 10 vodokanals showed significant negative profitability. Nalchik was one of those vodokanals with a negative 26.6 percent actual profit as a percent of expenses. Three of the five showed only modest profitability. The actual financial status of all surveyed utilities is more dire than these profitability percentages indicate. The abovementioned profitability figures are calculated on an accrual billed revenue and billed expense basis. On average, the sampled group of utilities was able to collect 67% of what it billed. None of the vodokanals write-off or have established bad debt reserves. Receivables are on average 4.7 months of billings and expanding. The Nalchik Vodokanal average is 6 months of billings.

In connection with the Russian Federation Water and Wastewater Project loan implementation schedule, the following table outlines priority actions and implementation time line for each vodokanal to satisfy before long-term borrowing can realistically be initiated:

**Table 8 Vodokanal Debt Service Priority Actions and Implementation Time Line**

<b>Vodokanal Priority Action</b>	<b>Implementation Date</b>	<b>Corresponding Project Activity</b>
<i>Collect at least 50 percent of all user charges in cash<sup>1</sup></i>	October 1997	Loan Appraisal
<i>Collect at least 80 percent of all billings.<sup>2</sup></i>	December 1997	Board Presentation
<i>Bill full-cost tariffs</i>	December 1997	Board Presentation
<i>Meter at least 40 percent of all consumption.<sup>3</sup></i>	February 1997	Negotiations
<i>Eliminate cross subsidies</i>	August 1998	Loan Effectivity
<i>Expand the Housing and Allowance Subsidy Program ("HASP") to incorporate the participation of at least 20 percent of all local families<sup>4</sup></i>	August 1998	Loan Effectivity

## **7. Loan Ranges and Tariff Projections**

In determining the maximum debt capacity that the Nalchik Vodokanal can carry, based only on the water and sewer revenues it receives, PADCO considered two loan amounts: \$7,500,000 and \$11,000,000 million dollars. The \$11,000,000 dollar loan amount is the maximum amount the Nalchik Vodokanal could borrow, if ALL THE OTHER CONDITIONS OF THE ABOVE ACTIONS ARE MET and considering only the Vodokanal's revenue stream (e.g. no outside grants in aid).

## Loan Scenario 1 \$7,500,000

In Table 9 below, the tariff for selected years of an seven year period that would support a loan of \$7,500,000 US dollars. It must be repeated here that no loan is currently affordable unless the Vodokanal accomplishes the priority actions listed above.

*TABLE 9. Loan Scenario 1 (US\$7,500,000)*

	Estimated Full Cost Recovery 1996	1997	2000	2003
Estimated Total Expenses (000 rubles)	58,106,264	66,132,380	100,579,084	164,129,944
Average Cost per m3 Profitability Included (Tariff in rubles)	821	934	1,934	2,975
Net Profitability (in 000 Rubles)	3,493,639	3,976,209	2,821,952	5,436,091
Tariff average Cost per m3 including profit and VAT (in rubles)	1,133	1,289	2,669	4,105

Table 10 below shows the required tariff for a maximum loan of \$11,000,000, provided all the priority action items listed above are carried out. That is, the maximum loan the Vodokanal could carry without outside assistance is \$11,000,000.

*TABLE 10. Loan Scenario 2 (US\$11,000,000)*

	Estimated Full Cost Recovery 1996	1997	2000	2003
Estimated Total Expenses (000 rubles)	58,106,264	66,132,380	100,579,084	169,338,752
Average Cost per m3 Profitability Included (Tariff in rubles)	821	934	1,934	3,529
Net Profitability (in 000 Rubles)	3,493,639*	3,976,209	556,991	2,921,753
Tariff average Cost per m3 including profit and VAT in rubles	1,133	1,289	3,349	4,235

## **8. Recommendations Relating to the Nalchik Vodokanal Financial and Tariff Review**

### **Recommendation 1. Increase Cash Transactions**

The Vodokanal needs to demand cash whenever the customer can feasibly pay for the service in cash. This should include the budget organization accounts receivable which are increasingly being paid by tax offset. However, the amount that can be offset for taxes is limited, thus having a limited impact on improvement to the liquidity problem in general.

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***Recommendation 2. Request Full Cost Tariff***

The Nalchik Vodokanal needs to request passage of a full cost tariff. That is, it needs to be allowed to include a provisions for bad debts in its expenditures before the expiration of three years. The Vodokanal needs to be allowed sufficient profitability (rentablenost) to cover capital improvements loan interest payments.

***Recommendation 3. Improve Collections and Strengthen Collection Enforcement***

The Nalchik Vodokanal should implement a more aggressive collection campaign for the end users who could pay but aren't forced to by the use of sanctions and therefore do not pay in cash. Although it is obvious that some of the Vodokanal's customers can not pay in any other method than barter, it was also observed that the barter approach is becoming too comfortable and that the Vodokanal may not be requesting cash payment when it could.

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## **APPENDIX I**

**SECTION I. Contract with the Vodokanal Director**

**SECTION II. Vodokanal Organization Chart**

**SECTION III. Position and Salary Schedule**

# Contract for Services

September 5, 1994

City of Nalchik

The Administration of the City of Nalchik in the person of the Chief of Administration (Mayor), S.B. Abrokova, for the first party, and Aslanbek Albekovich Sokhov, party of the second part, shall be guided by "Conditions and Terms of the Contract" and applicable laws of the various governments pertaining to enterprises, the use of property belonging to the government (comprising of more than 50 percent) and Articles 31 and 32 of the Kabardino-Balkarian Republic "Pertaining to Enterprises Operating in the KBR" including the Contract which follows:

## I. Contents of the Contract

Mr. Sokhov A.A. shall be the Director of the Production Unit "Vodokanal", a municipal corporation and pertaining to municipal property of the City of Nalchik. The selection of Director shall be at the discretion of the Chief of Administration (Mayor) of the City of Nalchik.

## II. Rights and Obligations of the Parties

The Administration of the City of Nalchik through the City's Committee on Property:

1. Shall be the owner of property and control that property.
2. To carry out the function of Founder of the Municipal Enterprise.
3. To transfer to the enterprise the full use of the property in exercise of the provision of services (use).
4. To Establish the Charter of the Enterprise.
5. To carry out the reorganization and liquidation of the enterprise in response to legislation of the KBR and RF.
6. To exercise control over the effective use and protection from loss enterprise property.

The Director Shall:

1. Exercise control over the enterprise in accordance with KBR and RF laws and terms and conditions of this Contract.
2. To ensure the proper direction and control of enterprise property (its effective use and protection).
3. To be responsible for the stable (effective) performance of the enterprise, ensuring the highest quality of performance of services.
4. To address the question of dynamic growth of the enterprise, improving its economic circumstances, the adoption of new technology and new methods of service.

5. To Ensure:
  - fulfillment of all requirements of this contract
  - compliance with the requirements of the enterprise Charter
  - insurance of the rational expenditure from the funds for work done and the funds of consumers and simultaneously the accounts for employees and services
  - compliance with laws and regulations in the use of assets for the strengthening of control and financial conditions of the enterprise
  - receipt and increase of profits
  
6. To carry out, in accordance with KBR and RF laws and administration, material and criminal code the protection against losses, damage to the enterprise (by workers and worker's collective) as a result of the use of materials and equipment under the responsibility of personnel and also its use or lack of use.

### III. CONDITIONS OF WORK AND OPERATIONS

1. Mr. A.A. Sokhov shall report monthly on the status of the agreement and his responsibilities.
  
2. He shall increase the rate of pay to enterprise employees, bonuses and rewards based on their work performance in accordance with the Terms and Conditions of this Agreement.
  
3. The Director shall grant to the employees each year a vacation of thirty calendar days.

### IV. CONDITIONS FOR ANNULMENT OF THIS CONTRACT

1. The original contract may be annulled by:
  - 1.1 agreement by the parties in writing who initiated the agreement
  - 1.2 the request of the Director
  - 1.3 not fulfilling the requirements of the original contract
  - 1.4 legislation of the KBR or RF
  - 1.5 through the loss of confidence in the Director by the City Administration
  - 1.6 through the inability of the Director (A.A. Sokhov) to continue in his position (illness, move to another city, running for elective office, etc.)
  - 1.7 other applicable situations resulting from legislation by the KBR and RF
  
2. The original contract may be annulled through the early termination of the contract by circumstances beyond the control of the Director or officers of the company in which case the Director may grant compensation in accordance with legislation.
  
3. The original contract may be annulled through the abrogation of the contract with a replacement contract not required by law but through the discharge of A.A. Sokhov and recorded in his labor book in accordance with Part One, page 29 of KZOT of the Russian Federation (by agreement of the parties).

## V. TERM OF CONTRACT

1. This contract shall be in force upon the signing of both parties and shall remain in force until an agreed upon termination or its termination by one of the clauses above.
2. The original contract is for five years and starts on September 9, 1994 and goes to September 9, 1999.
3. Conflict resolution concerning the original agreement shall be decided by established courts of competent jurisdiction.
4. There are two copies of the original contract which have equal legal force.
5. The legal address is:

Administration of Nalchik  
360000 City of Nalchik  
Sovetskaya Street, 70  
Chief of Administration

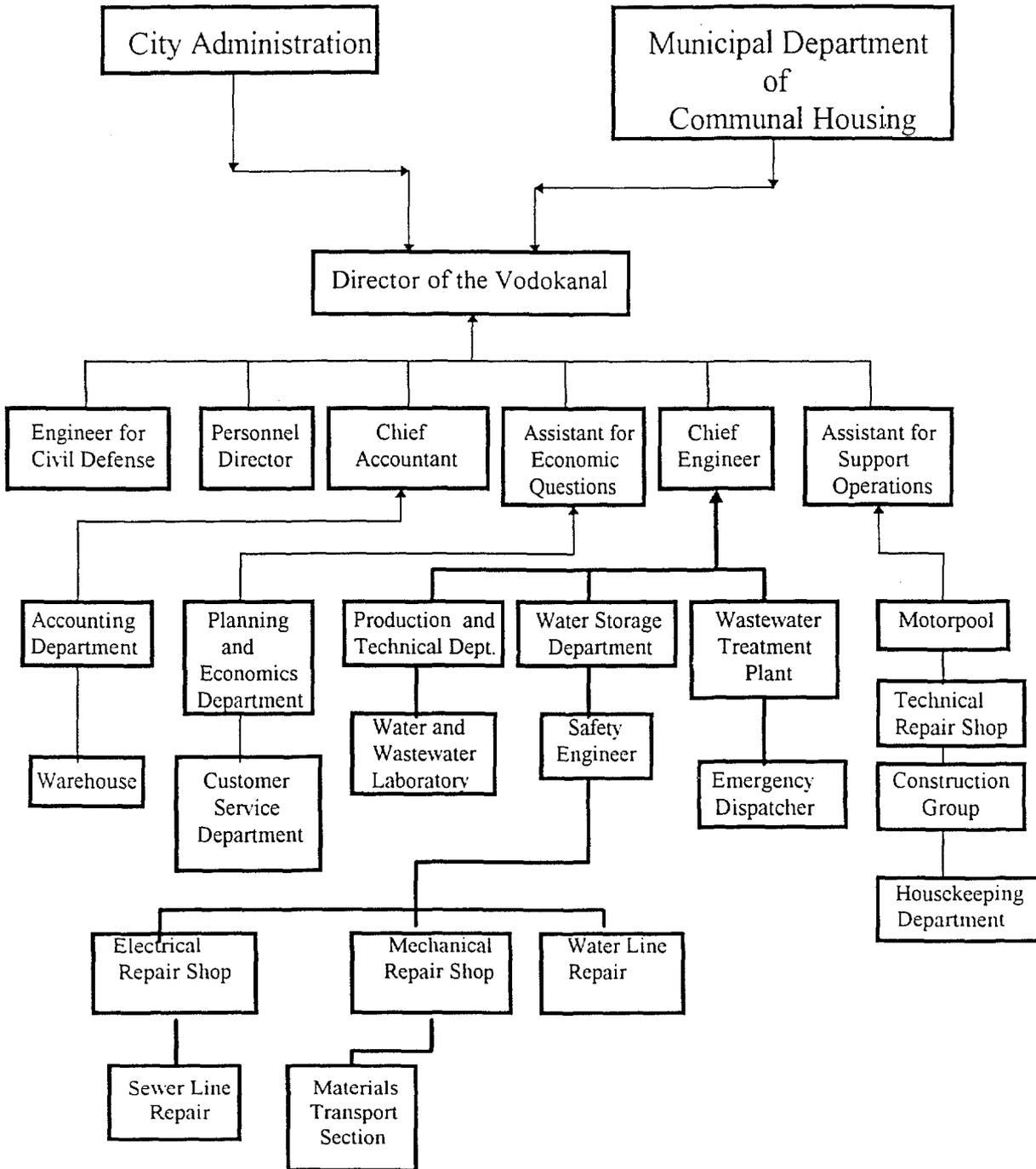
## CONTRACT AMENDMENT

to the working contract between the Main Administration of the City of Nalchik and the Director of the Vodokanal, July 1, 1995.

In accordance with new legislation of the Cabinet of Ministers of the Kabardino-Balkarian Republic dated October 1994, Number 239 "Concerning several measures increasing the system of payment to employees of government enterprises with combined forms of property of the republic (KBR), section 3, "conditions of work and living" are included into the working contract of September 5, 1994 between the Main Administration of Nalchik and the Director of the Vodokanal as follows:

1. Mr. A.A. Sokhov shall establish an increase in the rate of pay by 6.58 times the basic salary for Category I employees in the basic professions as defined in the tariff agreement (98,787 rubles)
2. Bonuses based on the results of operations in the amount of .5 percent from profits paid quarterly after other liabilities of the enterprise have been met.
3. Payment for positions and bonuses from the results of profit may be reviewed yearly except where inflation is high, then it can be paid monthly.
4. The Director shall establish a yearly vacation of 30 days. The timing of the vacations must be approved by the City Administration.
5. In the situation where the Director is unable to work and without the possibility of returning to work, he shall be paid immediately the sum of 50 times the minimal salary for his professional category.
6. In the situation where the Director dies, his family shall receive immediately a sum of 100 times the minimal salary for his professional category.
7. Payment of these benefits shall be made from the assets of the enterprise.
8. This amendment shall come into force immediately upon signing and continue in force until the original contract ends or until the original contract is terminated before then.

# Nalchik Vodokanal Organizational Chart



Salary Schedule of Permanent Management Personnel						
Nalchik Vodokanal						
Position Classification	Number of Personnel	Monthly Salary	Annual Salary	Percent of Total	Bonus	Total Potential Salary for the year
<b>Administration</b>						
Director of Vodokanal	1	1,510,000	18,120,000		1.90	34,428,000
Chief Engineer	1	1,265,000	15,180,000		1.90	28,842,000
Assistant to the Director	2	1,120,000	26,880,000		1.90	51,072,000
Engineer for Chlorine	1	600,000	7,200,000		1.90	13,680,000
Engineer for TB	1	600,000	7,200,000		1.90	13,680,000
Warehouse Manager	1	480,000	5,760,000		1.90	10,944,000
Secretary-Typist	1	450,000	5,400,000		1.90	10,260,000
Typist	1	420,000	5,040,000		1.90	9,576,000
Attorney	1	600,000	7,200,000		1.90	13,680,000
Chief of the Economics Dept.	1	850,000	10,200,000		1.90	19,380,000
<b>Total Administration</b>	<b>11</b>	<b>7,895,000</b>	<b>108,180,000</b>	<b>15.10%</b>	<b>1.90</b>	<b>205,542,000</b>
<b>Distribution Department</b>						
Director of the Department	1	875,000	10,500,000		1.90	19,950,000
Systems Engineer	2	600,000	21,000,000		1.90	39,900,000
<b>Total Distribution Dept.</b>	<b>3</b>	<b>1,475,000</b>	<b>31,500,000</b>	<b>4.40%</b>	<b>1.90</b>	<b>59,850,000</b>
<b>Production-Technical Department</b>						
Director of the Department	1	875,000	10,500,000		1.90	19,950,000
Chief Engineer of Dept.	1	685,000	8,220,000		1.90	15,618,000
Engineer	2	600,000	14,400,000		1.90	27,360,000
<b>Total Prod.-Tech. Dept.</b>	<b>4</b>	<b>2,160,000</b>	<b>33,120,000</b>	<b>4.62%</b>	<b>1.90</b>	<b>62,928,000</b>
<b>Economic Planning Department</b>						
Director of the Department	1	875,000	10,500,000		1.90	19,950,000
Economist	1	685,000	8,220,000		1.90	15,618,000
Chief Accountant	1	1,120,000	13,440,000		1.90	25,536,000
Assist. to the Chief Accountant	1	800,000	9,600,000		1.90	18,240,000
Accountants	6	610,000	43,920,000		1.90	83,448,000
<b>Total Econ. Plan. Dept.</b>	<b>10</b>	<b>4,090,000</b>	<b>85,680,000</b>	<b>11.96%</b>	<b>1.90</b>	<b>162,792,000</b>
<b>Personnel Department</b>						
Personel Director	1	710,000	8,520,000	1.19%	1.90	16,188,000
<b>Chief Mechanic Department</b>						
Chief Mechanic	1	990,000	11,880,000		1.90	22,572,000
Chief of Repairs Division	1	610,000	7,320,000		1.90	13,908,000
Chief of Construction Group	1	875,000	10,500,000		1.90	19,950,000
<b>Total Mechanic Department</b>	<b>3</b>	<b>2,475,000</b>	<b>29,700,000</b>	<b>4.15%</b>	<b>1.90</b>	<b>56,430,000</b>
<b>Chief Electrical Department</b>						
Chief Electrician	1	990,000	11,880,000		1.90	22,572,000
Master Electricians	2	610,000	14,640,000		1.90	27,816,000
<b>Total Elect. Department</b>	<b>3</b>	<b>1,600,000</b>	<b>26,520,000</b>	<b>3.70%</b>	<b>1.90</b>	<b>50,388,000</b>
<b>Service Department</b>						
Chief of Department	1	875,000	10,500,000		1.90	19,950,000
Foremen	3	600,000	21,600,000		1.90	41,040,000
Meter-readers	10	450,000	54,000,000		1.90	102,600,000
<b>Total Service Dept.</b>	<b>14</b>	<b>1,925,000</b>	<b>86,100,000</b>	<b>12.02%</b>	<b>1.90</b>	<b>163,590,000</b>
<b>Motorpool</b>						
Chief of Motorpool	1	875,000	10,500,000		1.90	19,950,000
Motorpool Mechanic	1	610,000	7,320,000		1.90	13,908,000
Dispatcher	1	480,000	5,760,000		1.90	10,944,000
Inspector	1	400,000	4,800,000		1.90	9,120,000

Total Motorpool	4	2,365,000	28,380,000	3.96%	1.90	53,922,000
<b>Water Pump Shop</b>						
Chief of Shop	1	900,000	10,800,000		1.90	20,520,000
Repair Technicians	3	610,000	21,960,000		1.90	41,724,000
Maintenance Engineer	1	610,000	7,320,000		1.90	13,908,000
Total Water Pump Shop	5	2,120,000	40,080,000	5.59%	1.90	76,152,000
<b>Emergency Dispatcher Service</b>						
Chief Dispatcher	1	900,000	10,800,000		1.90	20,520,000
Senior Dispatchers	2	535,000	12,840,000		1.90	24,396,000
Junior Dispatchers	3	480,000	17,280,000		1.90	32,832,000
Total Emergency Dispatch. Serv.	6	1,915,000	40,920,000	5.71%	1.90	77,748,000
<b>Reservoir Operations</b>						
Chief of Department	1	900,000	10,800,000		1.90	20,520,000
Senior Operators	5	535,000	32,100,000		1.90	60,990,000
Technician	1	420,000	5,040,000		1.90	9,576,000
Total Reservoir Operations	7	1,855,000	47,940,000	6.69%	1.90	91,086,000
<b>Sewer Maintenance Shop</b>						
Chief of Shop	1	900,000	10,800,000		1.90	20,520,000
Repairmen	2	610,000	14,640,000		1.90	27,816,000
Total Sewer Maint. Shop	3	1,510,000	25,440,000	3.55%	1.90	48,336,000
<b>Wastewater Treatment Plant</b>						
Director of the Plant	1	900,000	10,800,000		1.90	20,520,000
Mechanic	1	685,000	8,220,000		1.90	15,618,000
Mechanic-Electrician	1	610,000	7,320,000		1.90	13,908,000
Engineer-Technician	1	640,000	7,680,000		1.90	14,592,000
Senior Operators	4	610,000	29,280,000		1.90	55,632,000
Chief of Repair/Maint. Group	1	610,000	7,320,000		1.90	13,908,000
Total Wastewater Treat. Plant	9	4,055,000	70,620,000	9.86%	1.90	134,178,000
<b>Water &amp; Wastewater Laboratory</b>						
Director of Laboratory	1	875,000	10,500,000		1.90	19,950,000
Engineer-Chemist	2	600,000	14,400,000		1.90	27,360,000
Engineer-Bacteriologist	1	600,000	7,200,000		1.90	13,680,000
Sewage Treatment Control Tech.	3	600,000	21,600,000		1.90	41,040,000
Total Laboratory	7	2,675,000	53,700,000	7.50%	1.90	102,030,000
Grand Total for Management	90	38,825,000	716,400,000	100%		2,706,132,000

## General Employee Salary and Bonus Schedule

### Nalchik Vodokanal

Organization Department	Monthly Salary	Top Bonus Percent	Min Bonus Percent	Combined Bonus Percent	No. Per.	Bonus and Salary	Bonus and Salary times No. Employees
<b>Water Pipe Repair Shop</b>							
	560,000	0.7	0.2	1.9	4	1,064,000	4,256,000
	495,000	0.7	0.2	1.9	12	940,500	11,286,000
	438,000	0.7	0.2	1.9	4	832,200	3,328,800
	292,000	0.55	0.2	1.75	5	511,000	2,555,000
	331,000	0.55	0.2	1.75	1	579,250	579,250
	560,000	0.7	0.2	1.9	6	1,064,000	6,384,000
	495,000	0.7	0.2	1.9	2	940,500	1,881,000
	292,000	0.55	0.2	1.75	1	511,000	511,000
<b>Emergency Dispatch. Serv.</b>							
	421,000	0.65	0.2	1.85	6	778,850	4,673,100
	373,000	0.65	0.2	1.85	7	690,050	4,830,350
<b>Mechanical Repair Shop</b>							
	538,000	0.7	0.2	1.9	6	1,022,200	6,133,200
	476,000	0.7	0.2	1.9	4	904,400	3,617,600
	538,000	0.7	0.2	1.9	1	1,022,200	1,022,200
	533,000	0.7	0.2	1.9	1	1,012,700	1,012,700
	476,000	0.7	0.2	1.9	1	904,400	904,400
	476,000	0.7	0.2	1.9	1	904,400	904,400
	538,000	0.7	0.2	1.9	2	1,022,200	2,044,400
	560,000	0.7	0.2	1.9	3	1,064,000	3,192,000
	495,000	0.7	0.2	1.9	1	940,500	940,500
	476,000	0.7	0.2	1.9	1	904,400	904,400
<b>Electronic Repair Shop</b>							
	538,000	0.7	0.2	1.9	1	1,022,200	1,022,200
	476,000	0.7	0.2	1.9	3	904,400	2,713,200
	421,000	0.7	0.2	1.9	4	799,900	3,199,600
	476,000	0.7	0.2	1.9	1	904,400	904,400
	476,000	0.7	0.2	1.9	3	904,400	2,713,200
	538,000	0.7	0.2	1.9	1	1,022,200	1,022,200
<b>Sewage Repair Shop</b>							
	495,000	0.7	0.2	1.9	2	940,500	1,881,000
	495,000	0.7	0.2	1.9	9	940,500	8,464,500
	388,000	0.7	0.2	1.9	1	737,200	737,200
	437,000	0.7	0.2	1.9	3	830,300	2,490,900
	292,000	0.55	0.2	1.75	6	511,000	3,066,000
	304,000	0.5	0.2	1.7	12	516,800	6,201,600
	437,000	0.65	0.2	1.85	1	808,450	808,450
<b>Water Pump Repair Shop</b>							
	292,000	0.6	0.2	1.8	2	525,600	1,051,200
	373,000	0.6	0.2	1.8	4	671,400	2,685,600
	331,000	0.6	0.2	1.8	4	595,800	2,383,200
	292,000	0.6	0.2	1.8	4	525,600	2,102,400
	421,000	0.5	0.2	1.7	4	715,700	2,862,800
	292,000	0.6	0.2	1.8	4	525,600	2,102,400



<b>Laboratory</b>							
	373,000	0.55	0.2	1.75	2	652,750	1,305,500
	373,000	0.55	0.2	1.75	2	652,750	1,305,500
	331,000	0.55	0.2	1.75	1	579,250	579,250
	292,000	0.55	0.2	1.75	4	511,000	2,044,000
	292,000	0.55	0.2	1.75	1	511,000	511,000
	388,000	0.55	0.2	1.75	4	679,000	2,716,000
	304,000	0.55	0.2	1.75	1	532,000	532,000
<b>Service Department</b>							
	373,000	0.6	0.2	1.8	3	671,400	2,014,200
	331,000	0.6	0.2	1.8	16	595,800	9,532,800
	421,000	0.7	0.2	1.9	3	799,900	2,399,700
	495,000	0.7	0.2	1.9	1	940,500	940,500
	373,000	0.6	0.2	1.8	1	671,400	671,400
<b>Construction Group</b>							
	421,000	0.65	0.2	1.85	2	778,850	1,557,700
	373,000	0.7	0.2	1.9	2	708,700	1,417,400
	421,000	0.65	0.2	1.85	4	778,850	3,115,400
	373,000	0.65	0.2	1.85	1	690,050	690,050
	421,000	0.65	0.2	1.85	1	778,850	778,850
	421,000	0.65	0.2	1.85	1	778,850	778,850
	373,000	0.65	0.2	1.85	1	690,050	690,050
	373,000	0.65	0.2	1.85	2	690,050	1,380,100
	438,000	0.7	0.2	1.9	1	832,200	832,200
<b>Transportation/Motorpool</b>							
	381,000	0.55	0.2	1.75	9	666,750	6,000,750
	395,000	0.55	0.2	1.75	7	691,250	4,838,750
	381,000	0.55	0.2	1.75	2	666,750	1,333,500
	361,000	0.55	0.2	1.75	12	631,750	7,581,000
	395,000	0.55	0.2	1.75	1	691,250	691,250
	437,000	0.55	0.2	1.75	1	764,750	764,750
	361,000	0.55	0.2	1.75	1	631,750	631,750
	401,000	0.55	0.2	1.75	7	701,750	4,912,250
	401,000	0.55	0.2	1.75	1	701,750	701,750
	401,000	0.55	0.2	1.75	2	701,750	1,403,500
	437,000	0.55	0.2	1.75	1	764,750	764,750
	437,000	0.7	0.2	1.9	7	830,300	5,812,100
	437,000	0.7	0.2	1.9	1	830,300	830,300
	401,000	0.55	0.2	1.75	1	701,750	701,750
	425,000	0.55	0.2	1.75	2	743,750	1,487,500
	381,000	0.55	0.2	1.75	2	666,750	1,333,500
	361,000	0.55	0.2	1.75	4	631,750	2,527,000
	471,000	0.7	0.2	1.9	1	894,900	894,900
	361,000	0.55	0.2	1.75	1	631,750	631,750
	360,000	0.55	0.2	1.75	1	630,000	630,000
	437,000	0.7	0.2	1.9	1	830,300	830,300
	40,000	0.55	0.2	1.75	1	70,000	70,000
	476,000	0.7	0.2	1.9	4	904,400	3,617,600
	421,000	0.7	0.2	1.9	6	799,900	4,799,400
	476,000	0.7	0.2	1.9	1	904,400	904,400
	538,000	0.65	0.2	1.85	1	995,300	995,300
	372,000	0.65	0.2	1.85	1	688,200	688,200
	437,000	0.7	0.2	1.9	1	830,300	830,300
	437,000	0.65	0.2	1.85	1	808,450	808,450

	421,000	0.65	0.2	1.85	2	778,850	1,557,700
	372,000	0.65	0.2	1.85	1	688,200	688,200
	372,000	0.7	0.2	1.9	1	706,800	706,800
	372,000	0.7	0.2	1.9	1	706,800	706,800
<b>Houskeeping &amp; Security</b>							
	372,000	0.5	0.2	1.7	1	632,400	632,400
	178,000	0.5	0.2	1.7	1	302,600	302,600
	220,000	0.5	0.2	1.7	1	374,000	374,000
	292,000	0.4	0.2	1.6	46	467,200	21,491,200
	137,000	0.5	0.2	1.7	2	232,900	465,800
	137,000	0.5	0.2	1.7	2	232,900	465,800
Total Monthly w/ Bonuses							335,110,600
Total Annual w/ Bonuses of General Employees							4,021,327,200
Management Salaries w/ Bonuses							2,706,132,000
Grand Total Salaries and Bonuses							6,727,459,200

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**APPENDIX II**

**FOR FINANCIAL  
AND ACCOUNTING DATA**

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## **Section I. Required Tariff level for Loan Scenarios**

1. Loan Scenarios and Required Tariffs to Service a Maximum and One loan less than Maximum Loan
2. Loan Graph Showing Tariffs and Loan Amount

## **Section II. Restated Financial Statements and Accompanying Tables**

- Table 1. Trial Balance for 1995 and 1996
- Table 2. Connecting Table, connects trial balance to Balance Sheets for 1995 and 1996
- Table 3. Balance Sheet
- Table 4. Fixed Assets and Depreciation Note
- Table 5. Profit and Loss Statement
- Table 6. Sources and Uses Statement for 1995 and 1996
- Table 7. Changes in Accounts Receivable for 1995
- Table 8. Changes in Accounts Receivable for 1996
- Table 9. Collection Analysis 1995
- Table 10. Collection Analysis 1996
- Table 11. Analysis of Taxes and Mandatory Payments
- Table 12. Major Expenditures for 1996
- Table 13. Other Expenses Broken Down by Category for 1995
- Table 14. Other Expenses Broken Down by Category for 1996
- Table 15. Aging of Accounts Receivable
- Table 16. Changes in Accounts Payable
- Table 17. Aging of Accounts Payable
- Table 18. Ratio Analysis for 1996
- Addendum 1. Explanation Notes to the Balance Sheet, Profit and Loss Statement and Accounting Recommendations

Nalchik Vodokanal	COMPUTATION OF TARIFF LEVELS									Page 1
	Scenario I \$7.5 Million									
	(in thousands of Rubles)									
	1996	1997	1998	1999	2000	2001	2002	2003	2004	
<b>Production Expenses:</b>										
Personnel	10,017,556	11,520,189	13,248,218	15,235,450	17,520,768	20,148,883	23,171,216	26,646,898	30,643,933	
Energy	25,441,657	29,257,906	33,646,591	38,693,580	44,497,617	51,172,260	58,848,099	67,675,313	77,826,610	
Chemicals and Materials	1,678,349	1,930,101	2,219,617	2,552,559	2,935,443	3,375,759	3,882,123	4,464,442	5,134,108	
Repairs	2,575,000	2,961,250	3,405,438	3,916,253	4,503,691	5,179,245	5,956,131	6,849,551	7,876,984	
Taxes Other Than Profit (not Labor rela	4,001,363	4,401,499	5,061,724	5,820,983	6,694,130	7,698,250	8,852,987	10,180,935	11,708,076	
Other Expenses	3,756,444	4,319,911	4,967,897	5,713,082	6,570,044	7,555,551	8,688,883	9,992,216	11,491,048	
Billing and Collections	840,799	966,918	1,111,956	1,278,750	1,470,562	1,691,146	1,944,818	2,236,541	2,572,022	
Depreciation (Including)	9,795,096	10,774,606	12,390,796	14,249,416	16,386,828	18,844,853	21,671,580	24,922,317	28,660,665	
Deprec. of Principal Debt Coverage	0	0	0	0	0	6,740,957	7,549,872	8,455,856	9,470,559	
Depreciation of 10% VKO Match						674,096	754,987	845,586	947,056	
Depreciation on Project VAT						1,483,011	1,660,972	1,860,288	2,083,523	
Total Expenses	58,106,264	66,132,380	76,052,237	87,460,073	100,579,084	124,564,009	142,981,669	164,129,944	188,414,584	
Volume of Water / Sewerage Sold (t	70,799	70,799	63,719	50,975	51,995	53,035	54,095	55,177	55,799	
Average Cost per m3	821	934	1,194	1,716	1,934	2,349	2,643	2,975	3,377	
Full Cost Combined Tariff per 1 m3										
(Including 15% Profitability)	944	1,074	1,373	1,973	2,225	2,701	3,040	3,421	3,883	
- with VAT	1,133	1,289	1,647	2,368	2,669	3,241	3,648	4,105	4,660	
Gross Revenue	66,822,203	76,052,237	87,460,073	100,579,084	115,665,946	143,248,611	164,428,919	188,749,436	216,676,772	
Bad Debt Write-Off	3,341,110	3,802,612	4,373,004	5,028,954	5,783,297	7,162,431	8,221,446	9,437,472	10,833,839	
Debt Service Interest Payment			2,063,558	4,333,472	4,853,489	5,435,908	6,088,217	6,818,803	6,136,922	
Gross Profitability	5,374,829	6,117,245	7,034,832	8,090,057	9,303,565	11,522,171	13,225,804	15,182,020	17,428,349	
Estimated Profit Tax (After Capital										
Investment Credit)	940,595	1,070,518	1,231,096	1,415,760	1,628,124	2,016,380	2,314,516	2,656,853	3,049,961	
Net Profit (Including Capital										
Improvement Interest Credit)	3,493,639	3,976,209	3,231,328	2,340,824	2,821,952	3,956,071	4,639,432	5,436,091	7,339,427	

Notes:

1. Costs associated with billing and collection services are estimated to be 2% of general population billings.
2. Depreciation to cover principle debt coverage is assumed to be sufficient to carry out principle payments
3. The 10% match of the VKO and the VAT associated with the project expenditures are amortized over the life to the loan.
4. Gross revenue is calculated using the volume sold times the average cost per m3.
5. Bad debt write off is assumed to be 5% of the total amount billed.
6. An investment tax credit is assumed to be granted. This amounts to one-half the profit tax or 18% of profit.
7. Revenues reflect drops in volume of water and wastewater as a result of...

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	1996	1997	1998	1999	2000	2001	2002	2003	2004
Vodokanal Revenue									
Water Revenue	17,495,759								
Sewerage Revenue	17,495,760	Water and Sewer are not broken down so they are divided equally.							
Other Income	7,048,472	Subsidies are included because the City is responsible for paying them							

Ruble Exchange Rate	5100
---------------------	------

	1996	1997	1998	1999	2000	2001	2002	2003	2004
Vodokanal Profitability	15%	15%	15%	15%	15%	15%	15%	15%	15%
VAT	20%	20%	20%	20%	20%	20%	20%	20%	20%
10% VK - Matching	10%	10%	10%	10%	10%	10%	10%	10%	10%
Profit Tax	35%	35%	35%	35%	35%	35%	35%	35%	35%
Investment Tax Credit	18%	18%	18%	18%	18%	18%	18%	18%	18%

	1996	1997	1998	1999	2000	2001	2002	2003	2004
Expenses	Value								
Personnel	10,017,356	15%	15%	15%	15%	15%	15%	15%	15%
Energy	25,441,657	15%	15%	15%	15%	15%	15%	15%	15%
Chemicals and Materials	1,678,349	15%	15%	15%	15%	15%	15%	15%	15%
Repairs	2,575,000	15%	15%	15%	15%	15%	15%	15%	15%
Other Expenses	3,756,444	15%	15%	15%	15%	15%	15%	15%	15%
Taxes Other Than Profit (not Labor related)	4,007,363	15%	15%	15%	15%	15%	15%	15%	15%
Depreciation	9,795,096	10%	15%	15%	15%	15%	15%	15%	15%
Billing/Collection Fee	0	2%	2%	2%	2%	2%	2%	2%	2%
<b>Total</b>	<b>57,265,965</b>								

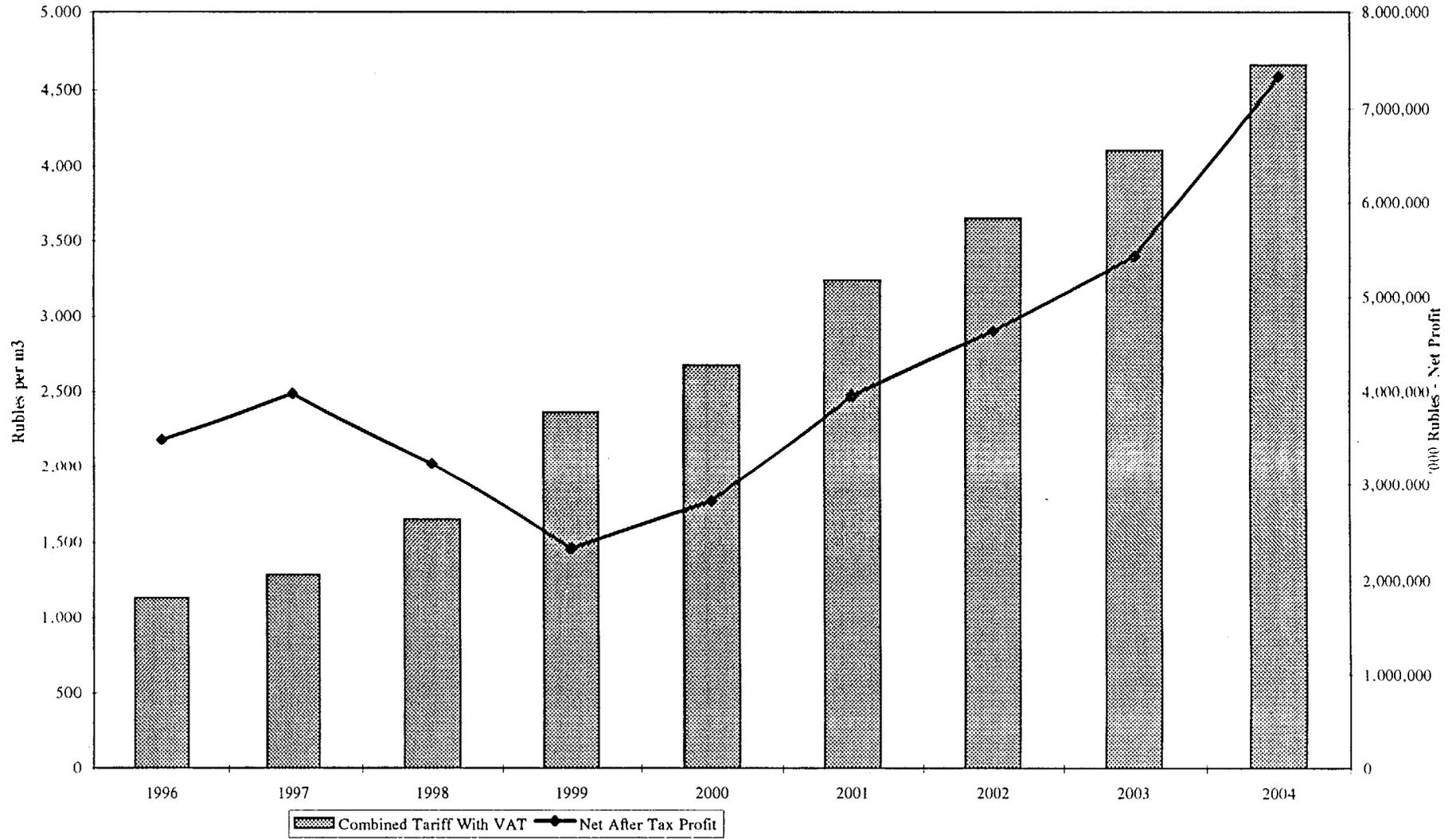
Exchange Rate:	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ruble Exchange Rate	5,100								
Russian Inflation Forecast	15%	15%	15%	15%	15%	15%	15%	15%	15%
U.S. Inflation Rate Forecast	3%	3%	3%	3%	3%	3%	3%	3%	3%
Ruble Forecast		5,712	6,397	7,165	8,025	8,988	10,066	11,274	12,627

Volume of Water and Sewerage Sold (000 m3)	1996	1997	1998	1999	2000	2001	2002	2003	2004
Water Volume	39,904	39,904	35,914	28,731	29,305	29,892	30,489	31,099	31,721
Sewerage Volume	30,895	30,895	27,806	22,244	22,689	23,143	23,606	24,078	24,078
% Change Water		0%	10%	20%	-2%	-2%	-2%	-2%	-2%
% Change Sewerage		0%	10%	20%	-2%	-2%	-2%	-2%	-2%
Bad Debt Reserve	5%								

Debt Multiplier	1996	1997	1998	1999	2000	2001	2002	2003	2004
	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Conversion Factor - '000 Rubles	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

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Combined Tariff With Net After Tax Profit For Loan of \$ 7. 5 Million



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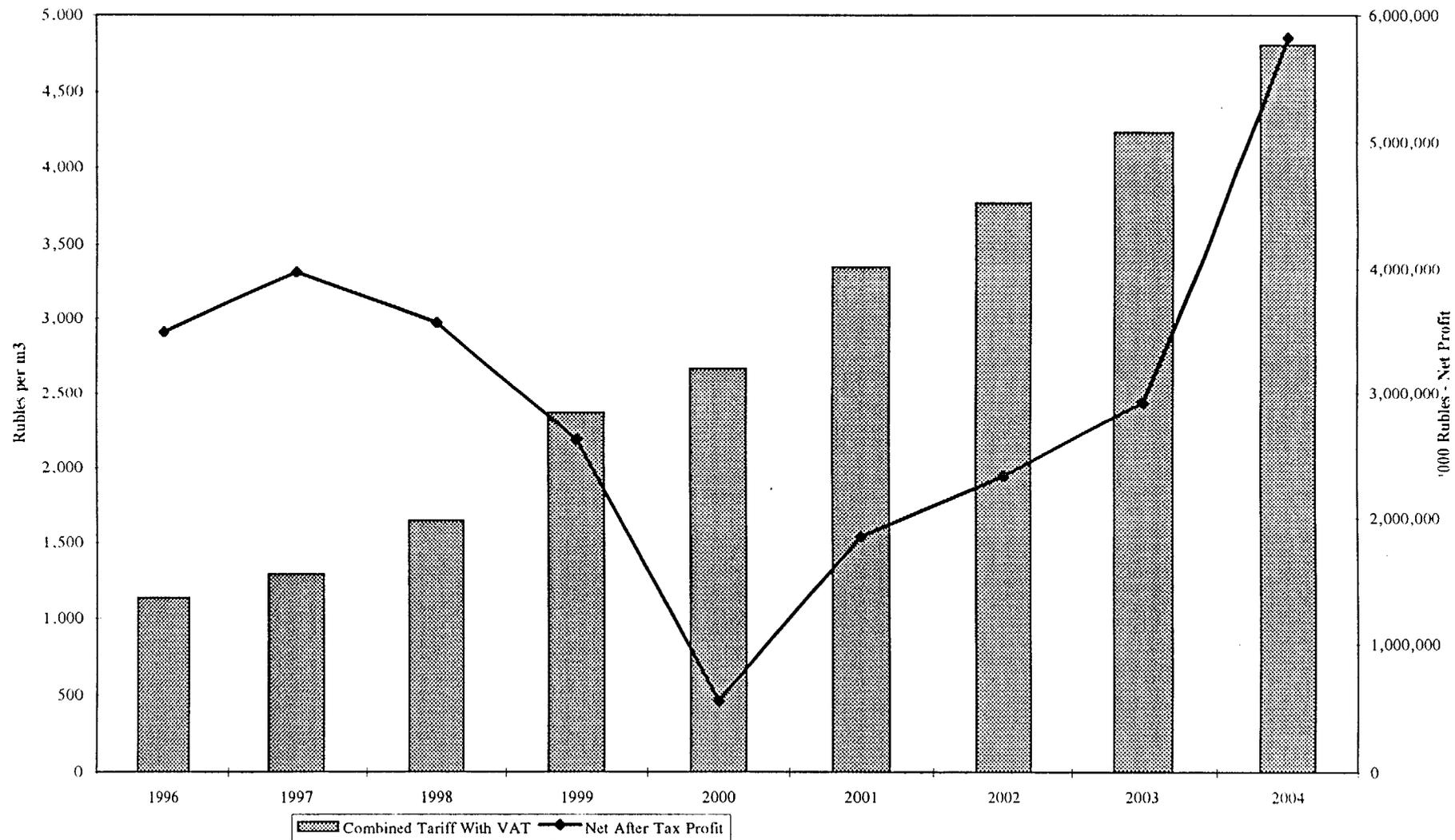
Nalchik Vodokanal	COMPUTATION OF TARIFF LEVELS								Appendix II-B
	Scenario II \$11 Million								
	(in thousands of Rubles)								
	1996	1997	1998	1999	2000	2001	2002	2003	2004
<b>Production Expenses:</b>									
<i>Personnel</i>	10,017,556	11,520,189	13,248,218	15,235,450	17,520,768	20,148,883	23,171,216	26,646,898	30,643,933
<i>Energy</i>	25,441,657	29,257,906	33,646,591	38,693,580	44,497,617	51,172,260	58,848,099	67,675,313	77,826,610
<i>Chemicals and Materials</i>	1,678,349	1,930,101	2,219,617	2,552,559	2,935,443	3,375,759	3,882,123	4,464,442	5,134,108
<i>Repairs</i>	2,575,000	2,961,250	3,405,438	3,916,253	4,503,691	5,179,245	5,956,131	6,849,551	7,876,984
<i>Taxes Other Than Profit (not Labor rel</i>	4,001,363	4,401,499	5,061,724	5,820,983	6,694,130	7,698,250	8,852,987	10,180,935	11,708,076
<i>Other Expenses</i>	3,756,444	4,319,911	4,967,897	5,713,082	6,570,044	7,555,551	8,688,883	9,992,216	11,491,048
<i>Billing and Collections</i>	840,799	966,918	1,111,956	1,278,750	1,470,562	1,691,146	1,944,818	2,236,541	2,572,022
<i>Depreciation (Including)</i>	9,795,096	10,774,606	12,390,796	14,249,416	16,386,828	18,844,853	21,671,580	24,922,317	28,660,665
<i>Deprec. of Principal Debt Coverage</i>	0	0	0	0	0	9,886,737	11,073,145	12,401,923	13,890,153
<i>Depreciation of 10% VKO Match</i>						988,674	1,107,315	1,240,192	1,389,015
<i>Depreciation on Project VAT</i>						2,175,082	2,436,092	2,728,423	3,055,834
<i>Total Expenses</i>	<b>58,106,264</b>	<b>66,132,380</b>	<b>76,052,237</b>	<b>87,460,073</b>	<b>100,579,084</b>	<b>128,716,439</b>	<b>147,632,390</b>	<b>169,338,752</b>	<b>194,248,449</b>
<i>Volume of Water / Sewerage Sold (t</i>	70,799	70,799	63,719	50,975	51,995	53,035	54,095	55,177	55,799
<i>Average Cost per m3</i>	821	934	1,194	1,716	1,934	2,427	2,729	3,069	3,481
<i>Full Cost Combined Tariff per 1 m3</i>									
<i>(Including 15% Profitability)</i>	944	1,074	1,373	1,973	2,225	2,791	3,138	3,529	4,003
<i>- with VAT</i>	1,133	1,289	1,647	2,368	2,669	3,349	3,766	4,235	4,804
<i>Gross Revenue</i>	<b>66,822,203</b>	<b>76,052,237</b>	<b>87,460,073</b>	<b>100,579,084</b>	<b>115,665,946</b>	<b>148,023,905</b>	<b>169,777,249</b>	<b>194,739,565</b>	<b>223,385,716</b>
<i>Bad Debt Write-Off</i>	3,341,110	3,802,612	4,373,004	5,028,954	5,783,297	7,401,195	8,488,862	9,736,978	11,169,286
<i>Debt Service Interest Payment</i>			2,063,558	4,622,370	7,118,451	7,972,665	8,929,384	10,000,910	9,000,819
<i>Gross Profitability</i>	<b>5,374,829</b>	<b>6,117,245</b>	<b>7,034,832</b>	<b>8,090,057</b>	<b>9,303,565</b>	<b>11,906,271</b>	<b>13,655,996</b>	<b>15,663,835</b>	<b>17,967,981</b>
<i>Estimated Profit Tax (After Capital</i>									
<i>Investment Credit)</i>	<b>940,595</b>	<b>1,070,518</b>	<b>1,231,096</b>	<b>1,415,760</b>	<b>1,628,124</b>	<b>2,083,597</b>	<b>2,389,799</b>	<b>2,741,171</b>	<b>3,144,397</b>
<i>Net Profit (Including Capital</i>									
<i>Improvement Interest Credit)</i>	<b>3,483,639</b>	<b>3,976,209</b>	<b>3,231,328</b>	<b>2,051,926</b>	<b>556,991</b>	<b>1,850,009</b>	<b>2,336,812</b>	<b>2,921,753</b>	<b>5,822,765</b>

Notes:

1. Costs associated with billing and collection services are estimated to be 2% of general population billings.
2. Depreciation to cover principle debt coverage is assumed to be sufficient to carry out principle payments.
3. The 10% match of the VKO and the VAT associated with the project expenditures are amortized over the life fo the loan.
4. Gross revenue is calculated using the volume sold times the average cost per m3.
5. Bad debt write off is assumed to be 5% of the total amount billed.
6. An investment tax credit is assumed to be granted. This amounts to one-half the profit tax or 18% of profit.
7. Revenues reflect drops in volumes of water and wastewater as a result of efficiencies and outflows: 1999: 10%

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Combined Tariff With Net After Tax Profit For Loan of \$ 11 Million



Prepared by PADCO, Inc

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Nalchik Vodokanal Trial Balance for 1996

Table 1 NALCHIK VODOKANAL TRIAL BALANCE AS AT JANUARY 1, 1996 AND DECEMBER 31, 1996							
Code	Name of Account	JANUARY 1, 1996		DECEMBER 31, 1996		Increase During Year	
		Debits Rb 000	Credits Rb 000	Debits Rb 000	Credits Rb 000	Debits Rb 000	Credits Rb 000
01	Fixed assets	129,729,003		353,953,099		224,224,096	
02	Accumulated Depreciation		65,936,653		189,647,457		123,710,804
04	Intangible Assets			110,000		110,000	
08	Capital Investments	300,542		2,941,884		2,641,342	
13	Accumulated Depreciation *		32,823		72,547		39,724
16	Losses on Inventory Devaluation			1,681		1,681	
31	Deferred Expenses	7,634		7,634		0	
45	Shipped goods	78,338		85,465	225	7,127	225
50	Cash in hand	40		997		957	
51	Cash at bank	27,807		34,834		7,027	
58	Short Term Investments	400,000		3,803,000		3,403,000	
60	Settlement with Contractors		15,973,911	1,177,954	48,074,477	1,177,954	32,100,566
70	Salaries and Wages		569,205		569,231		26
71	Management Salaries	4,670		3,145	2,344	-1,525	2,344
73	Other Personnel Payments	603				-603	
76	Settlement Clearing Account		8,842	73,667	21,665	73,667	12,823
77	Settlements with the City	1,227				-1,227	
78	Settlements with Affiliated Operations	290				-290	
80	Profit & loss		2,823,961	15,225,536		15,225,536	-2,823,961
81	Use of profit	2,823,961				-2,823,961	
84	Losses, shortages	328				-328	
85	Authorized capital		915,930		915,930		0
87	Revaluation surplus				152,508,115		152,508,115
90	Loans		542,184				-542,184
101	Stores, raw materials	689,481		1,988,117		1,298,636	
103	Stores, fuel	164,204		203,016		38,812	
105	Stores, spares	46,048		288,069		242,021	
108	Stores, building materials	183,828		351,703		167,875	

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Nalchik Vodokanal Trial Balance for 1996

Code	Name of Account	1/1/96		12/31/96		Increase During the Year	
		Debits (In 000 Rubles)	Credits (In 000 Rubles)	Debits (In 000 Rubles)	Credits (In 000 Rubles)	Debits (In 000 Rubles)	Credits (In 000 Rubles)
109	Stores, misc. materials	84		36		-48	
121	Stores, consumables	154,094		183,963		29,869	
122	Stores, miscellaneous	68,712		146,087		77,375	
191	VAT for materials	1,843,864		7,137,217		5,293,353	
192	VAT on barter	3,685,106		9,009,019		5,323,913	
193	VAT on materials	142,706		150,032		7,326	
194	VAT on consumables	371,192		336,271		-34,921	
621	Settlements with Enterprise Customers	15,103,067		18,424,511		3,321,444	
622	Settlements with Residential Customers	358,826		453,250		94,424	
681	Income tax		7,054		83,628		76,574
682	Children benefits	1,505		1,904		399	
683	VAT to budget		1,013,388		1,224,718		211,330
684	Special tax		80,851		2,680		-78,171
685	Other taxes		2,370,384		644,113		-1,726,271
686	Other taxes		124				-124
687	Other taxes			13,463		13,463	
691	Payments, social insurance		44,251	40,561		40,561	-44,251
692	Pension deduction		272,757		779,193		506,436
693	Pension contribution		5,171		18,520		13,349
694	Medical insurance		38,649		107,562		68,913
695	Unemployment tax				2,230		2,230
702	Deposit of salaries		3,477		1,448		-2,029
734	Subsidy to families	37,377		1,700		-35,677	
735	Miscellaneous payments to personnel		37,377		1,700		-35,677
851	Additional capital		52,734,390				-52,734,390
881	Enterprise Development Fund	1,202,375		2,415,130		1,212,755	
882	Special Development Fund	127,911		443,806		315,895	
883	Material Development Fund		315,220		301,809		-13,411
885	Contributed capital		5,219,722		7,321,367		2,101,645
886	Revaluation surplus		8,608,499		16,705,792		8,097,293
	<b>Total</b>	<b>157,554,823</b>	<b>157,554,823</b>	<b>419,006,751</b>	<b>419,006,751</b>	<b>261,451,928</b>	<b>261,451,928</b>
* Accumulated Depreciation of low valued assets.							
Source : Nalchik Vodokanal trial balance (in Russian) as at January 1 and December 31, 1996.							

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Table 2 NALCHIK VODOKANAL CONNECTION OF THE TRIAL BALANCE AND BALANCE SHEET			
Code	(in 000 Rubles)	AS of Dec 31,96 (in 000 Rubles)	As of Dec 31,95 Rs 000
01	Fixed assets (cost+reval)	353,953,099	129,729,003
02	Less: Provision for Depreciation	<u>-189,647,457</u>	-65,936,653
		164,305,642	
04	Intangible Assets	110,000	
08	Capital work in progress	2,941,884	300,542
	CURRENT ASSETS:		
101	Stores, raw materials	1,988,117	689,481
103	Stores, fuel	203,016	164,204
105	Stores, spares	288,069	46,048
108	Stores, building materials	351,703	183,828
109	Stores, miscellaneous materials	36	84
total	Inventories	2,830,941	1,083,645
121	Stores, consumables	183,963	154,094
122	Stores, replacement parts	146,087	68,712
16	Losses on Inventory Devaluation	1,681	
13	Accumulated Depreciation *	-72,547	-32,823
total	Spares & consumable stores	259,184	189,983
191	VAT for materials	7,137,217	1,843,864
192	VAT on barter	9,009,019	3,685,106
193	VAT on materials	150,032	142,706
194	VAT on consumables	336,271	371,192
total	VAT on materials	16,632,539	6,042,868
60	Settlements with Contractors	1,177,954	
45	Shipped goods	85,240	78,338
76	Settlement Clearing Account	73,667	
621	Settlements with Enterprises	18,424,511	15,103,067
622	Settlements with Residential Customers	453,250	358,826
71	General Payroll	801	4,670
73	Payments to/From Employees		603
77	Settlements with the City		1,227
78	Settlements with Support Operations		290
total	Accounts receivable	20,215,423	15,547,021
58	Short term investment	3,803,000	400,000
50	Cash in hand	997	40
51	Cash at bank	34,834	27,807
total	Bank & cash balances	35,831	27,847
		<u>43,776,918</u>	<u>87,384,256</u>
	Deduct Current Liabilities:		
60	Settlements with Contractors	48,074,477	15,973,911
76	Settlement Clearing Account	21,665	8,842
total	Accounts payable	48,096,142	15,982,753
70	General Salaries and Wages	569,231	569,205
702	Deposit of salaries	1,448	3,477
735	Miscellaneous Payments-Personnel	1,700	37,377
total	Accrued expenses	572,379	610,059

Code		(In 000 Rubles)	As Of	As Of
			Dec. 31, 1996 (In 000 Rubles)	Dec. 31, 1995 (In 000 Rubles)
691	Payments-Social Insurance	-40,561		44,251
692	Pension deduction	779,193		272,757
693	Pension contribution	18,520		5,171
694	Medical insurance	107,562		38,649
695	Unemployment tax	2,230		
total	Social taxes payable	866,944		360,828
681	Income tax	83,628		7,054
683	VAT to budget	1,224,718		1,013,388
684	Special tax	2,680		80,851
685	Other taxes	644,113		2,370,384
686	Other taxes			124
total	Taxes payable	1,955,139		3,471,801
90	Short term loan			542,184
		<u>51,490,604</u>		<u>20,967,625</u>
			-7,713,686	
	<b>TOTAL NET ASSETS</b>		<u>159,643,840</u>	<u>66,416,631</u>
	<b>FINANCED BY:</b>			
85	Authorized capital		915,930	915,930
851	Additional capital			52,734,390
87	Revaluation surplus		152,508,115	
886	Revaluation surplus		16,705,792	8,608,499
total	Revaluation surplus		169,213,907	61,342,889
881	Enterprise Development Fund		-2,415,130	-1,202,375
882	Special Development fund		-443,806	-127,911
883	Material Development Fund		301,809	315,220
885	Contributed capital		7,321,367	5,219,722
total	Balances on funds		4,764,240	4,204,656
	<b>Deduct: Debit Balances:</b>			
31	Deferred Expenses		-7,634	-7,634
682	Children benefits		-1,904	-1,505
734	Subsidy to families		-1,700	-37,377
687	Other taxes		-13,463	
total	Balances on funds		-24,701	-46,516
80	Profit & loss		-15,225,536	2,823,961
81	Use of profit			-2,823,961
84	Losses, shortages			-328
total	Profit & Loss account		-15,225,536	-328
			<u>159,643,840</u>	<u>66,416,631</u>

\* Accumulated Depreciation on low valued Assets.  
Source : Figures from Nalchik trial balance. Figures in Nalchik financial statement has been connected through the account codes.

Balance Sheet As Of December 31, 1996

Code		Note	Rs 000	Rs 000	As of 12/31/96 Rs 000
01	Fixed assets (cost+reval)	1	353,953,099		129,729,003
02	Less: Prov. for depreciation	2	<u>-189,647,457</u>		-65,936,653
				164,305,642	
04	Intangible Assets			110,000	
08	Capital work in progress	3		2,941,884	300,542
	CURRENT ASSETS:				
101/103/105/108	Inventories	4	2,830,941		1,083,645
121/122/45/-13	Spares & consumable stores		259,184		189,983
191/192/193/194	VAT on materials	5	16,632,539		6,042,868
60/45/76/621/622/71/ 73/77/78/	Accounts receivable	6	20,215,423		15,547,021
58	Short term investment	7	3,803,000		400,000
50/51	Bank & cash balances	8	35,831		27,847
			<u>43,776,918</u>		
	DEDUCT: CURRENT LIABILITIES:				
60/76	Accounts payable	9	48,096,142		15,982,753
70/72/735	Accrued expenses		572,379		610,059
691to695	Social taxes payable		866,944		360,828
683to685	Taxes payable		1,955,139		3,471,801
90	Short term loan				542,184
			<u>51,490,604</u>		
	Working capital	10		-7,713,686	
	TOTAL NET ASSETS			<u>159,643,840</u>	<u>66,416,631</u>
	FINANCED BY:				
85	Authorized capital			915,930	915,930
87/886/851	Revaluation surplus	11		169,213,907	61,342,889
881to885	Balances on funds			4,764,240	4,204,656
	Deduct: Debit Balances:				
31/682/734/687	Balances on funds	12		-24,701	-46,516
80/81/84	Profit & Loss account	13		-15,225,536	-328
				<u>159,643,840</u>	<u>66,416,631</u>

Source: Nalchik Trial Balance. Figures in the Nalchik Balance Sheet have been connected through account codes and a connecting table.

NALCHIK VODOKANAL  
EXPLANATORY NOTES TO ACCOUNTS

Note 1

**Fixed Assets**

Rb 000

Balance at January 1, 1996	129,729,003
Addition to fixed assets	2,509,391
Revaluation surplus	223,476,420
Transfer to sale of assets	(1,761,715)
	-----
Balance at December 31, 1996	353,953,099
	-----

Note 2

**Accumulated Depreciation**

Balance at January 1, 1996	65,936,653
Depreciation for the year	9,795,098
Transfer from revaluation reserve	115,205,432
Transfer to sale of assets	(1,289,726)
	-----
Balance at December 31, 1996	189,647,457
	-----

Table 5				
NALCHIK VODOKANAL				
PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDED DECEMBER 31, 1996				
Code	Note		Rb 000	Year ended Dec 31/95 Rb 000
46	Revenue from water and sewera	1	34,991,519	21,946,000
	Subsidy received		6,583,819	5,555,000
	Other income		464,593	1,201,940
			<u>42,039,931</u>	<u>28,702,940</u>
	DEDUCT : EXPENSES			
60	Electricity	2	25,441,657	11,427,800
70	Salaries		2,316,830	2,393,630
86	Bonuses		0	1,220,770
691	Social insurance		123,472	195,178
692	Pension fund contribution		640,229	1,012,032
694	Medical insurance		82,315	130,118
695	Employment fund contribution		34,298	72,288
101	Raw materials		653,649	530,047
108	Building materials		94,245	126,820
621	Other purchases		400,408	296,482
25	General and Admin.		5,909,754	1,119,384
23	Auxiliary department costs		4,093,200	1,866,520
26	Other Costs *		<u>3,735,971</u>	<u>2,147,828</u>
			<u>46,101,028</u>	<u>23,202,320</u>
	NET PROFIT / (LOSS) BEFORE DEPRECIATION		-4,061,097	5,500,570
	Depreciation	3	<u>-9,795,098</u>	<u>-4,159,920</u>
	NET PROFIT / (LOSS) AFTER DEPRECIATION		-13,856,195	
	Property and other taxes	4	<u>-1,369,341</u>	<u>-2,859,830</u>
	NET PROFIT / (LOSS) FOR THE YEAR		<u>-15,225,536</u>	<u>-1,519,180</u>

Source : Figures from 1996 general ledger of Nalchik Vodokanal.

Note. (1) 1996 revenue from water and waste water amounted to Rb18 89 billion and Rb 16 1 billion respectively.

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Table 6

<b>SOURCES AND USES OF FUNDS</b>			
	1995		1996
<b>SOURCES OF FUNDS</b>	Rb 000		Rb 000
Net loss after depreciation & taxation	-1,519,182		-15,225,536
Add:			
Depreciation	4,149,614		9,795,098
Sale of fixed assets	6,266		653,746
Decrease in securities	150,057		
Increase in accounts payable	11,622,900		32,113,389
Increase in tax payable	2,847,755		
Increase in social taxes payable			506,116
Increase in payroll tax payable	801,611		
<b>TOTAL</b>	<b>18,059,021</b>		<b>27,842,813</b>
<b>USES OF FUNDS</b>			
Addition to fixed assets	487,813		2,509,391
Increase in intangible Assets			110,000
Increase in capital work in progress	300,542		2,641,342
Increase in inventories	1,043,697		1,747,296
Increase in spares			69,201
Increase in VAT recoverable	4,685,278		10,589,671
Repayment of short term loan	368,667		542,184
Increase in cash and bank balances	26,263		7,984
Increase in accounts receivable	10,571,336		4,668,402
Increase in promisory notes	400,000		3,403,000
Decrease in accrued expenses			37,680
Increase in deferred expenses	5,702		
Decrease in tax payable			1,516,662
Increase in suspense a/c	169,723		
<b>TOTAL</b>	<b>18,059,021</b>		<b>27,842,813</b>

Table 7 Nalchik Vodokanal					
Changes in Accounts Receivable for 1995					
	1995 Rb 000	Population Rb 000	Budgetary organisation Rb 000	Industries Rb 000	others Rb 000
+ Accounts Receivable at the Beginning of the Period	5,244,979	1,470	5,243,509	**	
+ Water and waste water services	21,946,028	1,919,268	20,026,760		
- Received on a bank accounts or at a cash desk	7,541,124	1,400,555	6,140,569		
- Received via off-sets	547,938	161,356	386,582		
- Received via barter	2,504,924		2,504,924		
- Promissory Notes	1,050,000		1,050,000		
= Accounts Receivable at the end of the Period	15,547,021	358,827	15,188,194		
<p>** The Nalchik Vodokanal does not break out the amounts of Accounts Receivable for Budgetary Organizations and Production Enterprises.</p>					

Table 8

**Nalchik Vodokanal**  
**Changes in Accounts Receivable for 1996**

	1996 <i>Rb 000</i>	Population <i>Rb 000</i>	udgetary organisation <i>Rb 000</i>	Industries <i>Rb 000</i>	others <i>Rb 000</i>
+ <i>Accounts Receivable at the Beginning of the Period</i>	15,547,021	933,624	14,613,397	**	
+ <i>Water and waste water services billed</i>	34,991,519	5,255,132	29,736,387		
- <i>Received at the Bank or at the Vodokanal</i>	9,521,123	4,191,458	5,329,665		
- <i>Received via off-sets</i>					
- <i>Received via barter</i>	15,929,994		15,929,994		
- <i>Received other way (promisory notes)</i>	4,872,000		4,872,000		
= <i>Accounts Receivable at the end of the Period</i>	20,215,423	1,997,298	18,218,125		

\*\* The Nalchik Vodokanal does not break out the amounts of Accounts Receivable for Budgetary Organizations and Production Enterprises.

Table 9 Nalchik Vodokanal Collection Analysis					
	1995 Rb 000	population Rb 000	budgetary organisations Rb 000	industries Rb 000	others Rb 000
<b>+ Billed for water supply and sewerage</b>	21,946,028	1,919,268	20,026,760	**	
<b>- Collected *</b>	11,756,046	1,561,911	10,194,135		
including					
cash on accounts and in					
cash desk	7,541,124	1,400,555	6,140,569		
via off-sets	547,938	161,356	386,582		
via barter	2,616,984		2,616,984		
Promissory Notes	1,050,000		1,050,000		
Other					
<b>= Increase in Accounts Receivable</b>	10,189,982	357,357	9,832,625		
<p>* VAT Included in all figures.  ** The Nalchik Vodokanal does not break out the amounts of Accounts Receivable for Budgetary Organizations and Enterprises.</p>					

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Table 10 Nalchik Vodokanal Collection Analysis					
	1996 Rb 000	population Rb 000	budgetary organisations Rb 000	industries Rb 000	others Rb 000
<b>+ Billed for water and Wewer</b>	34,991,519	5,255,132	29,736,387	**	
<b>+ VAT</b>	6,976,731				
<b>- Collected *</b>	31,512,749	4,191,458	27,321,291		
including					
cash on accounts and in					
cash desk	9,521,123	4,191,458	5,329,665		
via off-sets					
via barter	17,119,626		17,119,626		
promissory notes	4,872,000		4,872,000		
Other ways					
<b>= Increase in Accounts Receivable</b>	10,455,501	1,063,674	9,391,827		
<p>* VAT included in all figures</p> <p>** The Nalchik Vodokanal does not break out the amounts of Accounts Receivable for Budgetary Organizations and Enterprises.</p>					

		Nalchik Vodokanal			
		<i>Analysis of the taxes and other mandatory payments</i>			
		<i>Method of Payment</i>			
		<i>1996</i>	<i>Cash</i>	<i>Off-sets</i>	<i>Others</i>
		<i>Rb 000</i>	<i>Rb 000</i>	<i>Rb 000</i>	
<i>Profit tax</i>		0			
<i>including</i>					
	<i>federal budget</i>				
	<i>republican budget</i>				
<i>VAT</i>		5,546,988	2,488,642	3,058,346	
	<i>federal budget</i>				
	<i>republican budget (if applicable)</i>				
<i>Other taxes except those related to the</i>					
<i>labour costs</i>		2,471,078	924,183	1,546,895	
<i>including</i>					
	<i>federal budget</i>				
	<i>republican budget</i>				
	<i>local budget</i>				
<i>Taxes related to the labour costs</i>		507,291	507,291		0
<i>including</i>					
	<i>federal budget</i>				
	<i>republican budget</i>				
	<i>local budget</i>				
<i>Mandatory payments to the non-budgetary</i>					
<i>funds except those related to the labour</i>					
<i>costs</i>					
<i>Mandatory payments to the non-budgetary</i>					
<i>funds related to the labour costs</i>		2,895,650	2,211,800	683,850	

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Table 12

**Naichik Vodokanal**  
**Major Expenses for 1996**

	1995	1996
	Rb 000	Rb 000
<b>+ Labor Expenses</b>		
Including:		
Salaries	2,393,630	2,316,830
Bonuses	1,220,770	-
Taxes to the fund of the labour payment and other related	1,409,616	880,314
Mandatory payments to the non-budgetary funds related to the personnel		
Other costs related to the labour		
<b>+ Energy</b>	<b>11,427,800</b>	25,441,657
<b>+ Chemicals and other production materials</b>	<b>656,867</b>	1,148,302
<b>+ Repairs and Maintenance</b>	<b>959,905</b>	2,575,000
<b>+ Interest payments for the loans received</b>	*	*
<b>+ Taxes except labour related</b>	<b>2,859,830</b>	1,369,341
<b>+ General and Administration (includes labor and expenses)</b>	<b>1,119,384</b>	5,909,754
<b>+ Support Shop Expenses (Includes labor expenses)</b>	<b>1,866,520</b>	4,093,200
<b>+ Other Costs *</b>	<b>2,147,828</b>	3,735,971
<b>=</b>	<b>Subtotal expenses</b>	
	<b>26,062,150</b>	<b>47,470,369</b>
<b>+ Depreciation</b>	<b>4,159,920</b>	9,795,098
<b>=</b>	<b>Total Expenses including Depreciation</b>	
	<b>30,222,070</b>	<b>57,265,467</b>

\* These are relatively minor amounts but are shown in the other costs breakdown.

<b>Table 13</b>	
<b>Nalchik</b>	
<b>Other Expenses</b>	
Broken down by Major Category	
	1995
Expense	Amount (in 000 Rubles)
1. Instrumentation Calibration	6,014
2. Communication Services	70,799
3. Gas	39,717
4. Heating	87,449
5. Security	6,051
6. Advertisement	2,002
7. Services to Clean the Center	31,093
8. Short-term Credit	564,176
9. Steam	58,061
10. Office Supplies	14,315
11. Disinfectant	2,486
12. Garbage Service	1,440
13. Motorpool	1,855
14. Technical services	2,310
15. Warehouse Expenses	11,919
16. Records Keeping Expenses	168
17. Plumbing Services	1,089,358
18. Environmental Fines	2,377
19. Increasing pump capacity	115,332
20. Marketing Services	32,956
21. Fire Extinguisher Repair	669
22. Physical Examinations	540
23. Smokestack cleaning	898
24. Engineering Plans	1,128
25. Licenses	2,281
26. Employee Training	2,334
<b>Total</b>	<b>2,147,728</b>

<b>Table 14</b>	
<b>Naichik Vodokanal</b>	
<b>Other Expenses</b>	
Broken down by Major Category	
	1996
	Amount
Expense	(in 000 Rubles)
1. Instrument Calibration	8,228
2. Communications Services	102,319
3. Gas	65,816
4. Heat	284,134
5. Security	202,221
6. Advertisement	1,822
7. Governmental Fees	1,265
8. Short-term Loan Interest	191,085
9. Steam	54,100
10. Office Supplies	44,913
11. Motorpool Services	2,770,722
12. License Fee	2,028
13. Periodicals	3,186
14. Engineering Plans	4,132
<b>Total</b>	<b>3,735,971</b>

Table 15				
Nalchik Vodokanal				
Aging Accounts Receivable				
As of December 31, 1996				
	> 365 days Rb 000	181 - 365 days Rb 000	< 181 days Rb 000	Total Rb 000
<b>+ Accounts Receivable</b>				
Including				
<i>population</i>	166,253	332,883	499,325	998,461
<i>budget organisations</i>	5,177,775	5,790,633	8,248,555	19,216,963
<i>industries</i>				
<i>total</i>				20,215,424
<b>- Bad debt (Estimate)</b>				
including				
<i>population</i>	166,253			166,253
<i>budget organisations</i>	2,588,887			2,588,887
<i>industries</i>				
<i>Total</i>				2,755,140
<b>= Accounts Receivable with a high probability of collection</b>				
including				
<i>population</i>	0	332,883	499,325	832,208
<i>budget organisations</i>	2,588,888	5,790,633	8,248,555	16,628,076
<i>industries</i>				
<i>Total</i>				17,460,284

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Table 16		Nalchik Vodokanal			
		Change in Accounts Payable			
	1996	Type of Payment			
	Rb 000	Cash Rb 000	Barter Rb 000	Off-sets Rb 000	Others Rb 000
<b>+ Accounts payable at the beginning of the period including</b>	15,973,911				
labour					
energy					
taxes					
repairs and maintenance					
General and Administration					
emergency work					
other mandatory payments					
other					
<b>+ Expenses of the Vodokanal less Depreciation</b>					
labour	2,316,830				
energy	25,441,657				
Chemicals and other materials	1,148,302				
taxes	1,369,341				
repairs and maintenance	2,575,000				
General and Administration	5,909,754				
Support Services	4,093,200				
other mandatory payments	880,314				
Other Costs	3,735,971				
<b>- Accounts paid (Barter and offsets from table 4) including</b>	14,352,427	4,305,728	7,535,024	2,511,675	
Direct bank settlements:					
labour					
energy					
taxes					
repairs and maintenance					
General and Administration					
emergency work					
other mandatory payments					
(Auxilliary) others					
<b>= Accounts payable at the end of the period including</b>	48,096,142				
labour					
energy					
taxes					
repairs and maintenance					
(Ganeral Economy) G&A					
emergency work					
other mandatory payments					
(Auxilliary) others					

Table 17 <span style="float: right;">Nalchik Vodokanal</span>			
1996 Aging payables			
	> 365 days	181 - 365 days	< 181 days
	<i>Rb 000</i>	<i>Rb 000</i>	<i>Rb 000</i>
<b>Accounts Payable</b> <i>including</i>  <i>energy</i> <i>labour</i> <i>taxes except labour taxes</i> <i>Labour taxes</i> <i>Mandatory payments to the non-</i> <i>budgetary funds except those</i> <i>related to labour costs</i> <i>Mandatory payments to the non-</i> <i>budgetary funds related to labour</i> <i>costs</i> <i>others</i>	13,978,797	19,053,787	15,063,559

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**Table 18**  
**NALCHIK VODOKANAL**  
**RATIO ANALYSIS - 1996**

**BALANCE SHEET RATIOS:**

Revenue as a % of fixed assets (net)	26 %
Revenue as a % of net total assets	26 %
Fixed assets (net) as a % of current assets	375 %
Accounts receivable as a % of revenue	48 %
Average collection period (accounts receivable)	6 months
Accounts payable as a % of revenue	114 %
Average payment period (accounts payable)	14 months

**LIQUIDITY RATIOS:**

Inventories as a % of current assets	6 %
Accounts receivable as a % of current assets	46 %
Current assets as a % of current liabilities	85 %
Cash/bank balances to current liabilities	0.07 %

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## EXPLANATORY NOTES TO THE BALANCE SHEET

The Balance Sheet of Nalchik Vodokanal as at December 31, 1995 and 1996 is given in Appendix 1. The Balance Sheet was prepared from the relevant Nalchik Vodokanal Trial Balance. Account codes are shown in the Balance Sheet so that it facilitates connecting the trial balance items to the Balance Sheet items. Table 2 connects trial balance accounts to the Balance Sheet items.

### **Note 1. Fixed Assets**

Fixed assets increased by 170% in 1996 because of a revaluation done according to the instructions issued by the Ministry of Finance (MoF). The revaluation has been done by applying a coefficient for each category of asset that was listed by the MoF in their detailed instructions. A revaluation was long overdue because of the significant depreciation of the Ruble in the past decade. A realistic value of fixed assets could have been obtained accurately if a physical valuation has been done by a professional valuer.

The movement in this account in 1996 is shown in the attached Note 1. A list of fixed assets with the values are available in the accounting software program that is efficiently been used by the accounting staff.

### **Note 2. Accumulated Depreciation**

Accumulated depreciation increased by 190% in 1996 because of the revaluation done in 1996. The movement in this account in 1996 is shown in the attached Note 2.

### **Note 3. Capital Work in Progress**

The balance in this account represent the cost of construction of the new office building of the Vodokanal.

### **Note 4. Inventories**

The value of inventories increased by 120% in 1996.

### **Note 5. VAT on Materials**

A major part of the balance on this account is available for set off against VAT payable in future years.

### **Note 6. Accounts Receivable**

Accounts receivable increased by 30% in 1996. This increase is justifiable to some extent when compared with the increase in revenue of 60% in 1996 (see Table 8). Accounts receivable from population is satisfactory (see Table 4). Amounts due from Government departments are settled generally through barter and set-offs. Set-offs are satisfactory as there is no loss to the Vodokanal as the exchange is on a Ruble to Ruble basis. Barter is satisfactory as long as the exchange is for goods that are necessary for operations and maintenance of the Vodokanal provided the goods are priced at market prices.

### **Note 7. Short Term Investments**

These investments are in Government bonds that were purchased through set-offs against accounts receivable.

### **Note 8. Cash and Bank Balances**

Cash and bank balances amounted to Rubles 36 million as at December 31, 1996. This balance is very low for smooth functioning of the Vodokanal. The liquidity position of the Vodokanal is so weak that the bank wire transfers from customers are diverted by the bank in settlement of mandatory payments. Vodokanal collects cash where ever possible to meet their day to day expenses.

### **Note 9. Accounts Payable**

Accounts payable has increased by 200% in 1996. The increase is because the Vodokanal has a severe liquidity problem and that they do not have cash to settle their suppliers. All current assets are not adequate

to cover the accounts payable. Cash collections are used for the purchase of items that has to be bought on a cash basis.

**Note 10. Working Capital Deficit**

Current assets are not adequate to cover the current liabilities. There is a working capital deficit of Rubles 7.7 billion.

**Note 11. Revaluation Surplus**

The increase of Rubles 102 billion in 1996 is because of the revaluation of fixed assets.

**Note 12. Balance on Funds**

Payments on account of subsidies and payments to poor families, contributions to national events etc are charged to this account. In 1996, a bonus to staff was not made because of the loss incurred.

**Note 13. Profit and Loss Debit Balance**

The debit balance of Rubles 15 million represent the net loss in 1996. There would have been a total net asset deficit if not for the revaluation surplus.

### **EXPLANATORY NOTES TO PROFIT AND LOSS ACCOUNT**

Profit and Loss account for 1995 and 1996 is given in Table 8. Revenue figures were obtained from the Vodokanal general ledger. The expenses figures were obtained by analyzing the cost of sales account. These figures were cross checked with the Chief Accountant.

**Note 1. Revenue from Water and Waste Water**

Revenue increased by 60% in 1996. However, this increase was not adequate to cover the significant increase in costs during the year.

**Note 2. Electricity**

Electricity costs increased by 120% in 1996. Electricity costs account for 54% of total expenses in 1996.

**Note 3. Depreciation**

Depreciation increased by 135% because of the revaluation of assets.

**Note 4. Taxes**

The Vodokanal was not liable to profit tax because of the net loss on operations during the year.

**Note 5. Net Loss**

The Vodokanal incurred a net loss of Rubles 4 billion before depreciation in 1996 while the net loss after depreciation and taxation amounted to Rubles 15 billion. The Vodokanal will have to take corrective action to reduce the loss or make a profit in future years. If not, the Vodokanal will come to a state of bankruptcy.

### **INTERPRETATION OF RESULTS OF RATIO ANALYSIS**

Balance sheet ratios and liquidity ratios are shown in Appendix 4. Profitability ratios could not be calculated because the Vodokanal incurred a loss even before depreciation. The highlights of the ratio analysis are: (i) lack of cash resources of the Vodokanal for future operations unless corrective action is taken immediately (ii) significant operational losses during 1996.

The proportion of current assets to current liabilities is 0.85. The ideal situation is when this proportion is about 2. Cash and bank balances cannot cover any current liabilities.

### **RECOMMENDATIONS:**

(1). The Vodokanal should take immediate action to resolve the critical cash liquidity problem. The methods available in the short term are: (I) collect the accounts receivable from population, commercial and industrial organizations. It will be necessary to prepare a list of debtors. Thereafter, sort the list on a value basis. Generally, about 20% of the list of individuals and firms will have a value of about 80% of the total. Offer a waiver of penalties as an amnesty for a period of say 1 month. Send reminders to the short list of the high value debtors. Follow up on a personal basis. Negotiate settlement in installments if necessary. If the settlements during the amnesty period is successful, then extend the amnesty period by another month.

The long term methods of improving the liquidity of Vodokanal are: (I) increase the water and waste tariff to at least break even operational costs (ii) take steps to reduce water losses. (iii) reduce overstaffing (if any) and wasteful expenses.

(2). **Cash Planning**

The chief accountant should have a cash plan or a cash flow forecast and regularly update the plan. The management should assist to achieve the targets of the cash plan.

(3). **Internal Control:**

Cash receipts are used to incur expenses. This practice weakens the internal control system. The ideal method is to bank all cash intact on a daily basis and withdraw cash from bank to meet cash expenses. It may not be possible to enforce this practice now because the bank diverts all cash deposits for mandatory payments.

(4). **Book keeping Package**

The book keeping software program is functioning quite well. The general ledger, subsidiary ledgers and cash and bank books are all integrated in the software program. The accountants are well conversant with the operations of this software program. It is recommended that other Vodokanals who are having problems with the book keeping function, to consider using the same system.