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RUSSIAN FEDERATION
WATER AND WASTEWATER PROJECT

Russian Water and Wastewater Loan Feasibility Assessment:

Overview

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FOREWORD

This "Overview Report" represents a single volume of a 9 volume series on Russian water and wastewater utilities (vodokanal in Russian). In addition to this report, the series contains 8 other reports, each focusing on single vodokanal (VKL). This 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 first half of 1997.

This report presents an overview of the main findings related to our institutional and financial assessments concerning the ability of VKLs to contract debt. Based on these results, the report presents institutional and financial recommendations to assist federal and local decision makers improve VKL operational and financial autonomy in order to enhance its debt repayment capabilities.

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Chapter 1 - Background and Introduction

1.1 Background

The Russian Federation's current institutional and economic environment have adversely impacted the ability of vodokanals (VKL) to be financially self-sustainable. In the past, VKL operations, capital investment and expansion were subsidized or directly paid for by the State. As envisioned by recent Presidential Decree No. 425 "On Housing and Communal Sector Reform in the Russian Federation," dated April 28, 1997, VKLs through user charges, will be responsible for achieving cost recovery and financial sustainability. In order for VKLs to realize this goal, the government has promoted the development of market-based contractual relationships between VKLs and all of their customers, including the general population. Such relationships will involve having all customers make water and sewer payments based on full-cost tariffs and metered consumption. Only truly needy low-income families would receive targeted subsidies for their water and sewer bills as well as other housing and communal service payments.

As VKLs begin to look towards their customers for their sustainability, customer satisfaction and affordability become more important. In the past, the relationship between VKLs and their customers, particularly general population customers, was not very strong nor open. VKLs provided a poor level of water and wastewater service, operated inefficiently and experienced tremendous transmission losses. General population customers paid nominal tariffs, practiced wasteful consumption behavior, received poor service, and had little opportunity to directly express their dissatisfaction as State officials usually spoke on "their behalf." So even though the general population is the largest customer category for all VKLs, the two parties were rarely ever directly accountable for their respective actions.

VKLs will now have an obligation to provide their customers the best service at the least cost, as well as better customer outreach and openness related to their activities. This requires carrying-out improvements to reduce losses and inefficiencies, improving production activities, and improving management, operation, and public relation practices. This requires that VKLs be given the ability to charge all customers full cost tariffs for metered consumption and have the ability to shut off service for customer non-payment. Under the new government concept, VKLs are to receive more fiscal autonomy and be responsible for their own capital investment financing.

From March through August 1997, PADCO reviewed 12 Russian VKLs[1] to assess their institutional and financial capacities to contract debt. This general report, and the individual VKL reports, are based on the project's main findings. These reports are intended to identify and initiate the implementation of a program of institutional reorganization and financial recovery strengthening. This effort is also intended to

[1] The 12 Russian vodokanals assessed include: Cheboksary; Gagarin; Kansk; Murmansk; Nalchik; Orel; Pechora; Petrozavodsk; Pskov; Smolensk; Vladimir; and Votkinsk. Note: information related to Petrozavodsk and Vladimir was not available for this report.

assist VKL management and federal, oblast, and local government officials determine investment packages which could be financed by the Russian Federation Water and Wastewater Project.

1.2 Introduction - Institutional and Financial Limitations

Over the course of the assessments PADCO observed many positive changes as well as issues of concern. More and more, VKLs and local governments understand that the old centralized system led to tremendous water and financial losses, as well as to the current poor overall physical state of VKLs in Russia. There are some persons, however, who feel that the VKLs' main problem is that they do not receive all payments from customers. Unfortunately, VKLs face many more problems than simply customer non-payment.

PADCO observed a number of institutional and financial obstacles confronting VKLs as they adjust to operating under market conditions. These are issues that reflect current economic trends and legal limitations. More importantly, these obstacles may prevent VKLs from being able to repay long term debt obligations through user charge collections. The primary institutional obstacles observed for the majority of the VKLs reviewed in order of significance include:

- Federal restrictions of what capital costs can be included in the tariff structure;
- A politicized tariff approval process;
- A highly distorted tariff structure where enterprise tariffs provide a cross subsidy to general population customers;
- An undeveloped targeted social safety net;
- Existing weak and/or ambiguous legal relationships between VKLs and municipal governments;
- The current weak legal enforcement and framework between VKLs and their customers, including billing/collection intermediaries and non-cash payment;
- VKL management predominantly focuses on technical/engineering issues, e.g., water produced and wastewater treated, and less on financial;
- The lack of water loss reduction and operation efficiency improvement programs;
- The lack of demand management programs; and
- The potential strength of VKL labor collectives.

The primary financial obstacles observed for most VKLs reviewed include:

- Inadequate collection of user charges;
- Declining cash collections as a percent of billings (including accounts receivable);
- Existing tariffs do not reflect true economic costs of providing services;
- Financial management and reporting practices are inadequate in assisting management decision making;
- Current profit tax regulations create a financial reporting environment

where official VKL financial statements reflect expenses adjusted for collected revenues - thereby allowing VKLs to minimize some of their immediate tax obligations (VAT) while concurrently reporting a "profit" allowing for "out-of-profit" employee bonus distributions; and.

- Inadequate short and medium term operating and capital planning on the part of the management of service providers.

Each of these obstacles will be discussed in fuller detail in the main body of this overview. A comparative analysis approach that incorporates data for all of the VKLs reviewed is used when appropriate. At the end of this report, VKL debt service capabilities are assessed and an Action Plan is presented to assist policy makers and VKL managers in enhancing VKL debt repayment capabilities. The Action Plan is also intended to assist VKLs overcome the institutional and financial limitations discussed in this document. VKL specific recommendations can be found in the respective individual VKL report.[2]

[2] All individual VKL reports financed by CCS-0008-C-00-2057-00, Task Order 87 accompany this report. Individual reports on the VKLs in Cheboksary, Murmansk, Petrozavodsk, and Vladimir are available as deliverables financed by EPE-0008-C-00-5118-00, Task Order 5. While not financed by the former contract, information related to Cheboksary and Murmansk are included to broaden the comparative analyses and discussions in this report

Chapter 2 - Institutional Review

2.1 Assessment of Present Institutional/Regulatory Environment

2.1.1 Vodokanal Legal Status/Charter

All of the VKLs reviewed, Table 2.1, with the exception of the Pskov Vodokanal, currently maintain some form of municipal status. The Pskov Vodokanal is a Partnership with Limited Liability - the partners being Pskov Vodokanal employees. All of the VKLs, with the exception of the Pechora Vodokanal, are separate legal entities and have existing Charters which were reviewed.[3]

Table 2.1
Vodokanal Comparative Legal Information (As of August 1, 1997)

City	Legal Name	Corporate Structure	Approval Needed for Reorganization
Cheboksary	"Vodokanal"	Municipal Production Enterprise	Cheboksary City Property Management Committee, Labor Collective
Gagarin	"Gorvodokanal"	Municipal Enterprise	Gagarin Raion Administration, Labor Collective
Kansk	"Water and Wastewater Service Administration"	Municipal Production Administration	Kansk City Soviet of Peoples' Deputies, Labor Collective
Murmansk	"Murmanvodokanal"	State (Oblast) Unitary Enterprise	Murmansk Oblast Administration, Murmansk City Administration.
Nalchik	"Vodokanal"	Municipal Enterprise	The Republic of Kabardino-Balkarian Cabinet of Ministers
Orel	"Orelvodokanal"	Municipal Production Enterprise	Orel City Administration, Labor Collective, and Orel Soviet of People's Deputies
Pechora	"Vodokanal"	Structural Sub-unit	Municipal Unitary Enterprise "Pechorazhilkomhoz"
Pskov	"Vodokanal"	Partnership with Limited Liability	Partners
Smolensk	"Gorvodokanal"	Municipal Enterprise	Smolensk Mayor, Labor Collective
Votkinsk	"Water and Wastewater Communal Enterprise"	Municipal Communal Enterprise	Udmurtia Republic State Property Committee, Labor Collective

Note: The Pechora Vodokanal is a sub-unit of the Municipal Unitary Enterprise "Pechorazhilkomhoz," an independent legal entity responsible for all aspects of housing and communal services in Pechora.

The review indicates that the VKLs were founded on the basis of the Russian Socialist Federation Soviet Republic law, dated December 25, 1990, "On Enterprises and Business Activity" generally by the respective local Administration. Their respective Charters provide the VKLs with the ability to enter into contracts, assume bank loans,

[3] Unless otherwise noted the ensuing discussion in this section refers to all of the VKLs except the Pechora Vodokanal due to its non-legal entity status.

sue and be sued, and conduct their business as any other enterprise would. Typically, neither the VKL's Founder is responsible for the VKL's obligations nor does VKL assume any responsibility for their Founder's obligations.

Generally, the Charters provide the following main activities for VKLs:

- To supply the general population, enterprises, and budget organizations of the respective city with drinking water;
- To treat wastewater received in its networks; and
- To maintain and repair the municipal property used by the VKL in its water and wastewater activities.

All of the VKLs are to be financially self-sufficient and operate through revenue collected from its user charges. To achieve these goals below are selected rights which appeared in all of the Charters analyzed:

- The right to purchase property and non-property rights and alienate (sell or lease) property with the agreement of the Founder;
- The right to receive credits from Russian and foreign banks;
- The right to independently approve staff, establish the form and size of employee wages as well as other income; and
- The right to independently plan its activity and fulfill foreign trade activities; and
- The right to independently determine the allocation of its net profit.

The Nalchik, Kansk, and Pechora VKLs were additionally given the right to be involved in other non-water and wastewater related commercial activities.

According to most of the VKL Directors, another major governing document that affects VKL operation is the August 22, 1995 Decree of the Ministry of Construction No. 937, "Rules for the Provision of Communal Services of Water and Wastewater in the Russian Federation" ("Rules"). The Rules provide a legally based framework for the relationship between VKLs and their customers. This document provides the rights and obligations of customers and VKLs with respect to: their contractual relationship; the procedure of water and wastewater connections; water meter installation and the consequences for failure to install meters; payment requirements; and the available mechanisms for fulfilling their obligations.

Currently, all but the Pechora Vodokanal and Murmanvodokanal have legal status that are outdated by Russia's Civil Code. The VKLs which are not in compliance, will need to reorganize themselves either as a municipal unitary enterprise[1] or some form of private company. Except for Murmanvodokanal, all of the VKLs stated that they were considering their reorganization options.

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[1] Under the Civil Code, a municipal unitary enterprise is a municipal enterprise which has received the right of economic jurisdiction over municipally owned assets. Like the current municipal enterprise arrangement, the municipal government remains the owner of the assets, however, via a legal agreement the unitary enterprise receives the assets on their balance to use and dispose of in accordance with the aforementioned agreement.

Administrations generally expressed their commitments to PADCO to assist their VKL in whatever way necessary for it to become more self-sufficient: including, higher tariffs to cover all operating and capital expenses, and possible reorganization. Administrations additionally expressed their willingness to financially support their VKL to repay potential World Bank loans.

2.1.2 VKL Property

All of the VKLs, except for the Pskov and Pechora VKLs, enjoy economic jurisdiction rights to municipal property to use for their water and wastewater activities. The VKLs received such rights from their Founders in accordance with the Russian Civil Code. The Pskov Vodokanal however leases the municipal assets which it uses and the Pechorazhilkomhoz, the Pechora Vodokanal's parent company, received the economic jurisdiction rights to the municipal property the latter uses. Such funds typically include all administrative, production, and treatment facilities and equipment, and pipe network (except for internal apartment building plumbing) which are owned by the Founders and relate to the VKLs' activities. In accordance with the Russian Civil Code, all VKLs which enjoy economic jurisdiction rights include these assets in their balance sheet and depreciate them. Most VKLs have not received any additional significant funds from their local governments related to capital investments.

Property transfer agreements exist for all VKLs except for the Pskov Vodokanal, Smolensk Gorvodokanal, Gagarin Gorvodokanal, Pechora Vodokanal and the Nalchik Vodokanal. The Pskov Vodokanal has a lease agreement with the local government regarding the municipal property that it uses for its activities. The reasons for the other VKLs identified above that do not have agreements are: the agreement is no longer valid (Smolensk); VKL officials could not provide PADCO with a copy of the agreement (Gagarin); the VKL can not legally enter into contracts (Pechora); and the VKL has never had such an agreement (Nalchik).

In general, the property transfer agreements, and the Pskov lease, describe the rights, obligations and responsibilities of both parties with respect to the transferred property. Typically, the VKLs' obligations are:

- To effectively use and keep the property in good condition;
- To use the property in accordance with VKL activities and the designated function of the property;
- To maintain the property;
- To agree with the Founder (Owner) regarding questions concerning property reconstruction and expansion; and
- To independently settle with the Federal, Oblast/Republic/Krai, and local budgets.

Typically, the Owners' obligations are:

- To transfer the municipal property to the VKL by the appropriate act; and
- To withdraw or redistribute the property transferred to the VKL, with the consent of the VKL.

Most of the agreements include a provision to allow the VKL to dispose of the property with the consent of the Owner. Some of the agreements however fail to:

- Clearly define which party is responsible for rehabilitating, replacing or modernizing the property (e.g., Kansk and Smolensk[5]); and
- Discuss if and how purchased property, financed by the VKLs' means, is to be distributed once the agreement expires (e.g., Kansk and Smolensk[6]).

2.1.3 VKL Director

The Charters generally provide VKL Directors with broad authority over the management of their respective VKLs.[7] All VKL Directors are given legal power of attorney to represent their VKLs' interest with all customers and contracting. The Directors can issue power of attorney to third parties; can open bank accounts and take out loans; can change the organizational and administrative structure of the VKL; and can issue orders and instructions which are obligatory for all of VKL employees.

Generally, a VKL Director is chosen by the VKL Founder; in some cities it is necessary though to receive the additional approval of the VKL Labor Collective. In the case of the Pskov Vodokanal, the Director is selected by the majority vote of the partners. In Pechora, the Director is selected by the Director of the Pechorazhilkomhoz. The Director's contract is generally with the Founder.

All but the Smolensk VKL Director have current contracts.[8] Except for the Pskov and Pechora VKLs, these contracts regulate the Director's relationship with the Founder regarding his work activities and related responsibilities and obligations. Some of the reviewed contracts convey to the Director the right to operatively manage the VKL's "property" and to conduct negotiations and sign agreements with the VKL's Labor Collective.

The contracts generally give the Directors some or all of the following obligations:

- To fulfill their VKL's activities in accordance with the Charter;
- To fulfill tasks given by the Founder;
- To fulfill provisions of the labor collective agreement;

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[5] This refers to the previous valid property rights transfer agreement. Currently, there is no valid property transfer agreement.

[6] Ibid.

[7] Unless otherwise noted the ensuing discussion in this section refers to all VKLs except the Pechora Vodokanal due to its non-legal entity status.

[8] The Smolensk Gorvodokanal Director has been working without a contract since April 1996.

- To observe all rules related to the realization of their VKL's goods and services;
- To maintain all health and safety regulations;
- To increase labor productivity;
- To obtain and increase profit;
- To follow existing legislation;
- To follow tax rules;
- To control all production activity;
- To fulfill the approved economic program; and
- To appoint staff.

The contracts generally include generic clauses regarding available bonuses and possible penalties for poor performance, including termination. In this light, the Directors are held personally responsible for their VKLs' performance. The performance guidelines however are general in nature and do not provide concrete performance goals.

2.1.4 VKL Labor Collective

The Charters generally give the VKLs' Labor Collective (LC) many rights. Among them, most LCs are able to approve their collective agreement, determine the list of social privileges to be received by VKL workers and give opinions on the Administration's candidate for the Director position. The most important right given to some LCs, as shown by Table 2.1, is the right to approve changes to their respective VKLs' Charter and proposed reorganization.

2.1.5 Tariff Approval Process

The tariff approval processes *appear* to be in accordance with the Russian Government Resolution No. 239, dated March 7, 1995, "On Measures to Establish the Procedure of State Regulation of Prices (Tariffs)." This Resolution permits the "subject of the Russian Federation," i.e., oblast or republic, to decide the body of government which is responsible for tariff approval. Table 2.2 shows that within this guideline, there is a great deal of variation as to the actual organ of local government responsible for approving water and wastewater tariffs.

An integral part of the requested tariff increase is the proposed level of VKL profitability.[9] Currently, there is no federal limitation to the maximum level of VKL profitability. Resolution No. 239 additionally permits each subject to determine this issue.

Typically, a VKL initiates the tariff approval process by submitting their tariff increase request to their local Administration's Housing and Communal Service Department. Once approved, this Department submits the request to the organ responsible for final approval. In some cities, this process only concerns general population customer tariffs with the other two category groups determined by the VKL itself, while in a few

[9] The significance of profitability is discussed in detail in Section 2.3.1 "Tariff Limitations."

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the local organ approves the tariffs for all customer categories. In both instances, the procedures used do not involve open hearings nor was it transparent to the public.

Table 2.2
Vodokanal Comparative Tariff Information (As of August 1, 1997)

City	Responsible for Tariff Approval	Number of Tariff Changes Since 1/1/96	Percent Change of General Population Combined Tariff Since 1/1/96	Current Enterprise to General Population Cross-Subsidy	Percent Change of Enterprise to General Population Cross-Subsidy Since 1/1/96
Cheboksary	City Administration	2	310	9	38
Gagarin	Raion Administration	2	43	14	57
Kansk	City Administration	3	2	5	9
Murmansk	Murmansk Oblast Pricing Committee	2	39	4.3	29
Nalchik	Kabardino-Balkarskian Republic Pricing Committee	2	262	2.7	-72
Orel	Orel Mayor	2	0	63	36
Pechora	Komi Republic Center for Information and Indexation	2	163	1	na
Pskov	City Administration and Duma	3	254	4	-54
Smolensk	City Administration and Soviet of Peoples' Deputies	3	300	14	-6
Votkinsk	City Administration	3	70	6	59
Vodokanal Average		*2.4*	*144*	*12*	*10*

Notes:
1) The Orel Mayor alone has the authority to approve tariffs for general population customers. Tariffs for budget organizations and enterprises require additional approval from the Oblast Administration Pricing Department and the City Soviet of Peoples' Deputies.
2) While the Pechora Vodokanal bills the same tariffs for all customer categories, the Pechora City Municipal Fund provides a direct subsidy equal to 70% of the tariff to all general population customers.

In Kansk, PADCO learned of an attempt to create a separate commission which would be responsible for tariff approval. According to Resolution No. 268, dated March 18, 1996, of the Head of the Kansk City Administration, "On Measures to Regulate Prices/Tariffs in the City" a Working Commission would review all approval requests for all customer categories. The Commission is to be comprised of experts from the Kansk Water and Wastewater Service Administration, the Administration's Prices and Economic Department, the local electric company, the municipal housing "Trest," the local heat company, a deputy from the Krai Duma, and from local companies. This Resolution has not yet been implemented. In Pskov, the same situation has occurred. The Pskov City Duma passed a Resolution to create a Commission which would approve water and wastewater tariffs. Like in Kansk, the Commission's ability to approve tariffs has yet to be fully realized.

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Table 2.2 shows that most VKLs have increased their tariffs by two to three times since January 1, 1996 and have increased the combined tariff for general population customers. While on average, general population tariffs increased by 144% since January 1, 1996, in a few cities the increase was substantially less - Pechora, Gagarin, Kansk, and Murmansk.

Under pressure from local governments, all VKLs, with the exception of the Pechora Vodokanal, maintain a cross-subsidy between enterprise and general population customers, where the former pays much larger tariffs while the latter pays much smaller tariffs. It appears that the cross-subsidy ratio has grown for all of the VKLs except for the Smolensk Gorvodokanal and the Pskov Vodokanal. Currently, the average cross-subsidy is 12:1 and the average increase since January 1, 1996 is 10%.

2.2 Assessment of Vodokanal Management and Operations

2.2.1 Organization and Management

VKL Directors are responsible for determining the structure, selecting, hiring and firing personnel, and concluding employment contracts. The Chief Engineer (Technical Director - Smolensk Gorvodokanal) occupies the number two position in the VKL hierarchy. The two work closely together and oversee all aspects of VKL operation. The Chief Accountant, Chief Economist, and Head of the Billing Department are all below the Chief Engineer in the management hierarchy. As a result, VKL management orientates towards technical/engineering issues, e.g., water produced and wastewater treated, and less on financial issues.

This technical focus is particularly evident in the daily morning meeting when VKL upper management, typically minus the Chief Accountant or Chief Economist, get together to discuss priority VKL activities. Such activities generally consist of responding to emergency pipe repairs as VKLs do not have enough equipment and materials to handle several repairs at the same time.

2.2.2 Personnel and Manpower

Table 2.3 shows that the reviewed VKLs currently serve 305 general population customer per employee. Table 2.3 illustrates that compared to the average Russian, European or Latin American water utility, Russian VKLs have a lower work force ratio to customers. Over the last two years this ratio has been decreasing as VKLs have expanded their respective work force on average by 34%.

Table 2.3
Total # of Employees per Persons Served of VKLs Reviewed and Other Countries

Entity	# of Employees per Person Served
Average for VKLs Reviewed	1 per 305 persons
Average Russian Water Utility *	1 per 380 persons
Average European Water Utility **	1 per 2,000 persons
Average Latin American Water Utility **	1 per 1,500 persons

* Source: USAID/PADCO, *Orenburg Vodokanal Improving Cost Recovery, Tariff Reform, and Metering Demonstration Project*, 1996. ** Source: World Bank, 1997. Note: averages for non-Russian cities do not include work which is contracted out by the utility to a third party, including, repair work, emergency work, operation, maintenance, transportation, billing, collection and enforcement.

All of the VKLs fill positions on a competitive recruitment basis. The candidates' professional level are either reviewed by a Personnel Board or the Personnel Department which determines whether or not they are qualified for the position. Position qualifications follow those established for water and wastewater positions throughout the Russian Federation. Further, some VKLs have developed separate "Instructions" related to each position (most notably Kansk).

2.2.3 Administration

VKL Accounting Departments all follow the Russian Federal Government regulations on accounting and guidelines issued by the Russian Ministry of Finance. In accordance with current Russian legislation, the Accounting Departments produce revenue adjusted monthly and annual balance statements; i.e., the expenses which they report for tax purposes are adjusted to reflect income received. Most VKL Economics Departments currently carry out some cost accounting analysis and broad work order allocation (i.e., attributing to the appropriate cost centers their respective expenses).

PADCO observed that VKLs have undergone various degrees of computerization. All the VKLs visited had at least three computers. The Gagarin, Kansk, Orel and Pechora VKLs were the least computerized while Cheboksary, Votkinsk, and Murmansk VKLs the most. Typically, departments were not electronically linked with one another (e.g., from billing to accounting) nor were computers used to for management decision making purposes. Only the Cheboksary Vodokanal was seen to be using a computerized SCADA (Statistical Collection And Data Analysis) system for water distribution monitoring.

2.2.4 Customer Relations

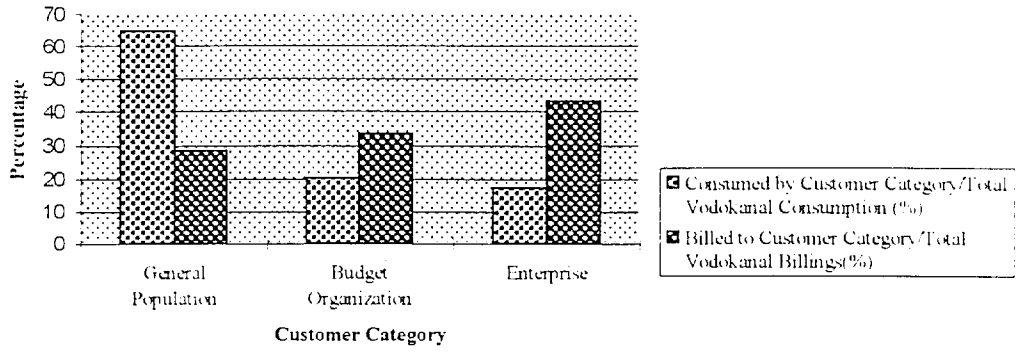
Table 2.4 and Chart 2.1 indicate that enterprise customers in 1996 received roughly 46% of the total VKL water and wastewater billings; the highest for a customer category. Budget organizations and general population customers were billed roughly 32% and 27% of the total VKL billings, respectively.

Table 2.4
Vodokanal 1996 Consumption and Billings By Customer Category

Vodokanal	CUSTOMER CATEGORY: *Population*		*Budget Organizations*		*Enterprises*	
	Consumed by Customer Category/ Total Vodokanal Consumption (%)	Billed to Customer Category/ Total Vodokanal Billings (%)	Consumed by Customer Category/ Total Vodokanal Consumption (%)	Billed to Customer Category/ Total Vodokanal Billings (%)	Consumed by Customer Category/ Total Vodokanal Consumption (%)	Billed to Customer Category/ Total Vodokanal Billings (%)
Cheboksary	70	10	9	25	21	65
Gagarin	74	18	11	36	15	46
Kansk	37	20	41	26	23	54
Murmansk	69	39	10	20	20	42
Nalchik *	62	13	38	87	na	na
Orel	78	13	11	17	11	70
Pechora	39	39	43	50	18	11
Pskov	75	26	11	34	14	40
Smolensk	74	13	13	27	14	60
Votkinsk	74	75	4	2	23	23
Average for Customer Category	*65*	*27*	*19*	*32*	*18*	*46*

Notes
1) Consumption and billed reflect actual, i.e., not planned, water and wastewater services provided to customers by vodokanals.
2) All billings include VAT.
3) The Nalchik Vodokanal blends the records of budget organizations and enterprises in one customer category.

Chart 2.1
Average Vodokanal 1996 Customer Consumption and Billing



Source: Table 2.4.

General population customers, however, received the most water and wastewater service; i.e., cubic meters of delivered drinking water and received wastewater treated. For 1996, the general population accounted for roughly 65% of the total VKL water and wastewater service provided. Budget organizations and enterprises received roughly 19% and 18% of the total VKL water and wastewater service provided, respectively.

2.2.4.1 Customer Billing

Almost all VKLs bill general population customers who live in apartment buildings according to city established norms. Only the Pskov Vodokanal bills the majority of such general population customers based on building-level metering, although both the Murmanvodokanal and the Votkinsk Water and Wastewater Communal Service Enterprise have started meter installation programs. In most cities, the majority of budget organizations are billed based on metered consumption. In Nalchik, Votkinsk, and Pechora, however, nearly all of the budget organizations are billed based on city established norms. Almost all enterprise customers are billed based on metered consumption.

VKLs directly bill and collect from its customers except for those living in municipal, enterprise, or military housing. In these situations, the VKL bills an intermediary, such as a municipal, enterprise, or military housing maintenance and management company, i.e., a ZheK, who in turn bills individual general population customers that they represent. Most VKL residential customers live in one of these three types of housing. There are however some cities, Gagarin and Nalchik, which bill these types of customers directly.

Table 2.5
Vodokanal 1996 Collection and Billing by Customer Category Without Adjustments for Payments for Prior Years

	CUSTOMER CATEGORY			
	General Population	*Budget Organizations*	*Enterprises*	*Total*
Vodokanal	**Collected from Customer Category (Collections divided by Billed Amount) (%)**	**Collected from Customer Category / Billed for Customer Category (%)**	**Collected from Customer Category / Billed for Customer Category (%)**	**Total Collected / Total Billed (%)**
Cheboksary	87	95	101	98
Gagarin	80	86	87	83
Kansk	63	95	80	78
Murmansk	95	39	96	78
Nalchik	80	74	na	75
Orel	79	68	69	70
Pechora	88	99	102	96
Pskov	104	34	123	88
Smolensk	55	62	78	70
Votkinsk	78	81	97	84
Vodokanal Average:	***81***	***83***	***93***	***82***

Notes:
1) Collections include customer payments made in 1996 for previous years' water and wastewater billings. (See Section 2.2.4.2 for a description).
2) All amounts include VAT.
3) The Nalchik Vodokanal blends the records of budget organizations and enterprises in one customer category.

Table 2.6
Vodokanal 1996 Collection and Billings By Customer Category

Vodokanal	*General Population* Collected from Customer Category / Billed plus Accounts Receivable Starting Balance for Customer Category (%)	*Budget Organizations* Collected from Customer Category / Billed plus Accounts Receivable Starting Balance for Customer Category (%)	*Enterprises* Collected from Customer Category / Billed plus Accounts Receivable Starting Balance for Customer Category (%)	*Total* Total Collected / Total Billed plus Accounts Receivable Starting Balance (%)
Cheboksary	79	64	91	81
Gagarin	80	79	72	73
Kansk	52	61	64	61
Murmansk	87	30	87	69
Nalchik	68	53	na	55
Orel	67	47	56	55
Pechora	80	79	94	81
Pskov	78	30	74	63
Smolensk	38	54	74	62
Votkinsk	66	76	87	73
Vodokanal Average:	*70*	*57*	*77*	*67*

Notes:
1) Collections include customer payments made in 1996 for previous years' water and wastewater billings.
2) All amounts include VAT.
3) The Nalchik Vodokanal blends the records of budget organizations and enterprises in one customer category.

2.2.4.2 Customer Collection

General population customers who pay directly, typically make their payments by depositing into a VKL account at one of the local banks, e.g., SberBank. Customers who live in individual private homes or who make payments for garden plot water pay directly at the VKL cashier window. Budget organizations and enterprises pay their bills via bank transfer. Barter, off-set, promissory note and other non-cash payments are made on a case-by-case basis with an agreement generally being drafted for each transaction. All customers, except private individual home residents and garden plot users, are billed monthly. The latter are not billed, but are generally asked to voluntarily pay a norm based payment. The Nalchik and Pechora VKLs, however, bill private individual home residents once a year.

A conventional way of presenting collection rates is shown in Table 2.5 in which current year collections are compared with billings for the same year. Since vodokanals do not age their receivables and simply record payments when received regardless of the period for which the payments was made, several vodokanals showed collections exceeding 100% of billed. Therefore, to adjust for the lack of aging, Table 2.6 and all subsequent tables dealing with collection problems show collections as a percent of current year billings plus accounts receivable from the start of the year. This procedure is more conservative, but more accurately reflects the state of collections since most vodokanals have large receivables that must also be collected.

Table 2.6 illustrates the problems which VKLs have collecting from their customers. In 1996, VKLs had the most difficult time collecting from budget organization customers. Only 57% of what budget organizations owed VKLs for water and wastewater services was paid. The best customer category, despite the higher tariffs, was enterprise customers. On average, they paid 77% of what they owed VKLs for water and wastewater services. General population customers paid 70% of what they owed VKLs for water and wastewater services.[10]

2.2.5 Operations and Maintenance

According to VKL officials, VKLs are currently operating in a state of "emergency." Preventative and regular maintenance has suffered over the last few years due to insufficiency of funds provided by the current tariff structure. Most current maintenance and repair effort are geared towards reducing water loss when lines break or pollution when a sewer line breaks. To the degree possible, the maintenance and operations systems of the VKLs visited are closely integrated with their workshops.

Some VKLs meter their water production and/or wastewater treated. If they do not, the VKL estimates its production and treatment based on actual electricity used, design

[10] Except for Votkinsk, the amount paid by general population customers includes all subsidies paid for on their behalf by the local government. In Votkinsk, the city administration is separately billed by the VKL for the subsidies it provides on behalf general population customers.

norms, and pump capacity. None of the VKLs have accurate water loss data. Some VKL officials have undertaken water loss analyses and estimate water losses up to 45% of the total water they produce.

2.3 Limitations to Operational and Financial Autonomy

VKLs faces five main institutional limitations to operational and financial autonomy:

- Tariff limitations;
- Anemic cash collections;
- Weak legal framework and enforcement;
- VKL management orient toward engineering/technical issues and less toward financial;
- Lack of demand management and water loss reduction programs; and
- Undeveloped Housing Allowance Subsidy Programs.

2.3.1 Tariff Limitations

Existing tariff limitations present the single largest obstacle for VKLs to achieve financial self-sustainability. Such limitations include:

Restrictions on What Capital Costs Can be Directly Included into the Tariff. VKLs through their user charges and hook-up fees are expected to be financially self-sufficient. To achieve this goal, VKLs will likely be required to take out long-term loans to pay for more expensive capital improvements. Existing legislation, however, does not allow them to directly include the interest on capital related loans as a direct expense in the tariff structure.

In accordance with existing Russian legislation,[11] a VKL's average tariff per unit of production can be written as follows:

$$T = S + P$$

Where:

S = "*Sebestoimost*," or average cost per unit of service, and
P = "*Rentabelnost*" or profitability

Sebestoimost expenses, which are not taxed, include direct operational and production expenses as materials, labor, energy, depreciation, capital repair, transportation, overhead, and non-capital related short term loans. Depreciation requires special treatment under Russian accounting rules and is further discussed in Chapter 3.

To pay the related interest on capital related loans however, existing law specifically states that enterprises use their profitability to finance such expenses. Its profitability

[11] VKLs follow the guidelines presented in the Order of the Russian Federation Committee on Municipal Economy No. 56, dated November 9, 1993, "On the Approval of the Methods of Calculating Economically Substantiated Rates and Tariffs for the Housing and Communal Services."

component also forms the basis upon which a VKL is liable for profit tax. In addition, VKL net profitability is expected to pay for many other expenses which in the West are considered as direct operational expenses such as worker bonuses, the costs associated with the creation of new technologies, and lease payments for non-fixed assets.

VKL profitability is regulated by local level legislation - the range for the reviewed VKLs was from 9% (Pechora) to 30% (Kansk). The PADCO calculated VKL 1996 Profit and Loss near-GAAP statements, however, show that average VKL near-GAAP profit was dramatically lower: -7.6% (Table 4.1). Actual experienced profit is lower still since VKLs collected only 67% of what they were owed in 1996 (Table 2.6). Using profitability to pay for this significant component of debt service can not be considered a dependable approach for VKLs to finance capital improvements. This approach also greatly limits the amount of debt which a VKL can repay. Without changes to current taxation and tariff legislation it will be difficult for VKLs to truly be financially self-sufficient.

While not permitted to include losses from writing-off debt receivables as a *sebestoimost* expense, VKLs are allowed to deduct such expenses from their taxable income for profit tax purposes. The effect of this is to allow VKLs to take a tax deduction, for profit tax purposes, in the amount of aged receivables over three years old and receivables that have otherwise become unrecoverable. The value of this deduction is the resulting profit tax benefit; i.e., the amount of the deduction multiplied by the rate of profit tax, currently 35%. However, the tax benefit would be reduced to the extent this deduction would result in the VKL's taxable income being less than zero. More importantly, this may limit the debt capacity as it reduces the profit available to make interest repayments on capital related loans. In addition, to the extent the VKL must wait for three years to write off a bad debt, much of the value of the tax deduction is lost through inflation.

Tariff Approval Process. Yielding to municipal (political) pressure, almost all VKLs maintain the current cross-subsidy between general population customers and other customer categories. Only the Pechora Vodokanal does not have a differentiated tariff structure. Such a cross-subsidy is neither equitable nor efficient. Ultimately, as Table 2.7 shows, this cross-subsidy impedes VKL financial independence as enterprise customers made 73% of their 1996 payments in non-cash form. Most VKLs have also been compelled to preclude some of the expenses from the tariff which they legally can include: full re-valued depreciation and the costs associated with billing and collection. By excluding these expenses from the tariff structure, VKLs are prevented from recovering all of its operating costs from user charges.

Production cost savings discouraged. The current tariff-setting rules for water and wastewater services do not permit VKLs to retain any savings realized from improving their operational efficiency. Tariffs may reflect only production costs based on input norms or, when there is no norm or the norms are incompatible with current conditions, based on actual inputs. For profit tax purposes, production costs are limited to costs actually incurred.

The consequence of this tariff-setting rule appears to be that VKLs are forced by local government, as tariff regulator, to use actual inputs in setting tariffs, when these are

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lower than normative inputs. This discourages VKLs from making investments or changes in their operations that would result in operating cost savings, because all of the savings would be realized by customers, through lower tariffs, and none would accrue to the VKL. In addition, because the tariff-setting formula causes the VKLs' allowable profitability to fall in a direct ratio with any reduction in production costs, this formula, in effect, financially penalizes VKLs who are able to reduce their production costs.

Table 2.7
Vodokanal 1996 Cash Collection as a Percentage of Total Collection By Customer Category

Vodokanal	*Population*	*Budget Organizations*	*Enterprises*	*TOTAL*
	CUSTOMER CATEGORY			
	Cash Collected from Customer Category / Total Collected from Customer Category (%)	**Cash Collected from Customer Category / Total Collected from Customer Category (%)**	**Cash Collected from Customer Category / Total Collected from Customer Category (%)**	**Total Cash Collected / Total Collected (%)**
Cheboksary	79	17	16	22
Gagarin	64	18	39	37
Kansk	39	1	25	24
Murmansk	70	5	43	52
Nalchik	100	20	na	30
Orel	100	41	29	42
Pechora	na	na	na	na
Pskov	19	27	20	20
Smolensk	100	58	27	43
Votkinsk	18	91	14	21
Vodokanal Average:	*65*	*31*	*27*	*32*

Notes:
1) Collections include customer payments made in 1996 for previous years' water and wastewater billings.
2) All amounts include VAT.
3) The Nalchik Vodokanal blends the records of budget organizations and enterprises in one customer category.
4) The Pechora Vodokanal receives less than 5% of all payments in cash as a result of its unique legal status, i.e., it is a structure within another company.

Consideration should be given to revising the tariff-setting and profit tax rules to allow VKL to retain part of the savings realized from production efficiencies. This could be done by allowing tariffs, as well as production costs that are deductible from taxable income, to include part of the cost savings realized from certain kinds of production efficiencies (e.g., energy savings), at least for a period of time long enough to generate funds to make the investment that results in the efficiency.

2.3.2 Anemic Cash Collections

Table 2.7 also shows that the current level of cash collection is extremely low - only 32% of total collections[12] in 1996 were paid in cash. The majority of the non-cash payments were received from enterprise and budget organization customers. Enterprises and budget organizations paid 27% and 31% of their total payments in cash, respectively.

Surprisingly, general population customers only made 65% of their total payments in cash. This is quite low considering that individual residential customers make all of their payments in cash. General population non-cash collections are a result of (i) ZheKs and other intermediaries keeping the cash collected from residential customers for their own purposes and off-setting and bartering what is owed the VKL and (ii) local administrations off-setting, issuing promissory notes, and bartering what they owe VKLs on behalf of residential customers.

2.3.3 Weak Legal Enforcement and Framework

The legal framework which regulates the relationships between local governments and VKLs and the relationships between VKLs and their customers play a significant role in a VKL's financial sustainability. There are five primary weaknesses with the current framework:

The dual conflicting VKL tariff and service regulatory role of the local government. The most limiting aspect of the current framework is the dual, at time conflicting role which the local administration plays. The local administration, as a representative of the political interests of its members serves both as the tariff and service regulator. These dual roles create numerous conflicts of interest, including the tendency of the administration, as a political organization accountable to the electorate, and to the local Duma in some cases, to bring pressure on the VKL managers to deliver services which the administration, in its role as tariff and service regulator, will not support through approval of adequate tariffs, or through political backing for aggressive collection efforts by VKL, or through payment of bills by local budget organizations. Institutional reorganization should separate these dual roles to the greatest extent feasible, to mitigate these conflicts of interest. At the same time, new institutional arrangements should allow the local administration to retain an appropriate degree of

[12] Note: this section refers to the percentage of cash collections to total collections received by VKLs and NOT the total billed by VKLs. Chapters 3 and 4 make reference to the latter

control of tariff, service, and infrastructure investment decisions that, ultimately, have political consequences.

Local Government's continuing role as the main source of funding for VKL capital investments. The local administration's role as funding source for, and the client, for the design and execution of capital investments lead to investment decisions that were not always cost-effective and that may have resulted in higher than necessary tariffs and lower service levels. This will especially true today as these decisions are now subjected to the political considerations that influence local administrations in ways that they did not in the past. At the same time, local administrations, as tariff service regulators, may find it politically convenient to blame VKLs for these poor investment decisions and are reluctant to permit VKL to take over this role, since this would require substantial and politically unpalatable tariff increases to cover these costs. Such a transfer of responsibility to VKLs would also require local administrations to give up the political and other benefits that they may derive from controlling the expenditure of funds for infrastructure projects. This dual role of local administrations serves to hide the true costs of such investments from VKL customers and taxpayers, since these costs are not reflected in tariffs and are obscured from taxpayers by an opaque tax and revenue redistribution system. Again, institutional reorganization should strive to separate these dual roles of the local administration to the greatest extent feasible, transferring to VKLs primary control of, and responsibility for, water and wastewater infrastructure design, financing, and execution. At the same time, such reorganization should enable the local administration to retain an appropriate degree of oversight over, and coordination of, these infrastructure investment decisions.

Lack of incentives/penalties in agreements between local governments and VKLs. Based on the PADCO review of the available agreements between VKLs and their respective local governments, performance based incentives or penalties to further encourage the parties to fulfill their contractual obligations were vague and based on subjective criterion. Further, these agreements did not encourage VKLs to reduce water losses, or introduce cost saving practices.

The Rules are not completely enforced. The 1995 Decree of the Ministry of Construction No. 937 (Rules), provides the rights and obligations of VKLs and their customers. Among the rights and obligations, these Rules specifically provide VKLs with guidelines to enforce customer payment via late payment fines and service shut-off[13] and customer meter installation[14] for all customer categories. Ultimately, a

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[13] Section 5.5 of the Rules states, "In the case that a subscriber does not make their payments in the fixed time, a fine is charged for every day of delay in accordance with the current legislation and contract, but not less than discount rate of bank interest, active at the moment of payment. If the subscriber does not make payment on expiration of ten days the vodokanal organization can disconnect the user's devices and constructions for connection and stop the drinking water pipes and wastewater drain." Further, according to Section 6.3 of the Rules, "The vodokanal organization has the right, without coordinating with local bodies of self-government, but warning the subscriber before, to stop completely or partially drinking water and waste water service providing, if it does not affect quality of water supply and supply with sewage system of other subscribers, in cases: of ... non-payment of the payment by the subscriber in the terms fixed..."

[14] Section 3.1 of the Rules states, "Subscribers should have metering devices for expenditure of drinking water and waste water current. The subscribers, who do not have such devices, are obliged to

VKL's self-sustainability is dependent on whether or not it gets paid as well as being able to receive payment for the actual service provided. Table 2.6 illustrated that in 1996 VKLs did not collect 33% of what they were owed. Failing to follow the mechanisms provided by the Rules in these two respects greatly hinders VKL's ability to be financially self-sustainable.

Customer non-cash payment allowed. Even when VKLs are paid, it is often by non-cash arrangements, including barter and off-set. The existing contracts between VKL and its customers, including intermediaries, do not forbid non-cash payment. In 1996, only 32% of all collections received were in cash form. In the case of barter, there is no reason for a VKL to act on behalf of these customers as their "bank" or "agent"; i.e., VKLs often times have to turn goods, promissory notes or service products that these customers can not sell themselves into cash. As it is, VKLs do not add a service charge to the bills their customers pay in non-cash methods, to compensate the provider for the opportunity costs they incurs in connection with these transactions.

2.3.4 VKL Management Oriented Toward Engineering/Technical Issues

A legacy of the Soviet times, many VKLs continue to focus primarily on engineering/technical issues, e.g., increasing water produced and wastewater treated, with little concern over assuming complete responsibility for their financial health or improving operating efficiency. VKLs have moved slowly toward restructuring themselves as financially self-sufficient enterprises despite recent de-centralization legislative efforts. Some VKL officials even believe that the State will continue to provide capital investments and operating subsidies. In this regards, VKLs have yet to focus on linking their financial autonomy and well-being with improved production and operation performance, capital planning, and financing.

The production bias is evident in VKL organizational hierarchies where the Chief Engineer and the Heads of Water and Wastewater Production are the second and third highest ranking officials respectively, while the financial department heads are third or even fourth level officials. While technical issues and the current emergency state of operation are clearly priority VKL items, financial issues and related crises, i.e., low cash and overall collections, should be viewed with the same level of significance. At

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installed necessary devices for expenditure of drinking water and waste water current in time, determined by the vodokanal organization." According to Section 3.3, "Water metering devices are purchased and are installed by subscribers, are to be maintained by the subscribers themselves. Section 4.3 provides, "In the case of absence or evasion from installation of a metering device, and also metering device damage and non-notification to the vodokanal organization about this, in accordance with item 3.12, the quantity of used drinking water is calculated according to capacity of devices and constructions for connection to water supply system at rate of water movement in them 1,5 m/sec and twenty-four-hour operation by complete section from the moment of the last check-up of the metering device up to its installation. In addition, the quantity of waste water drained is considered equal to rated quantity of drinking water provided. After installation of the metering device the recalculation with the subscriber for used drinking water or waste water drained is not carried out. Lastly, Section 4.8 gives the following guidelines to calculate water and wastewater consumed, "If the subscriber does not present the data, specified in item 4.7, the quantity of waste water drained from the subscribers is calculated according to capacity of devices and constructions for connection to waste water system, proceeding from filling, equal 1, at twenty-four-hour operation at a rate of waste water movement 1,5 m/sec."

present. VKL management has not yet (i) given financial department heads enough authority to tackle such issues effectively or (ii) placed enough structural emphasis on such issues.

2.3.5 Lack of Demand Management and Water Loss Reduction Programs

None of the VKLs visited appeared to have initiated or even considered, in some cases, demand management or water loss reduction programs. This also may be viewed as a legacy of the old Soviet system. Earlier, increasing the water available, through increased water production, for general population consumption was the goal. Reducing wasteful consumption on the part of general population customers was not a former goal.

In each of the cities, the VKLs stated that they believe that they suffer from substantial water losses, up to 40% of the total water which they produce. Water loss is difficult to estimate accurately when neither production nor consumption are metered. Although VKLs extrapolate the amount of water produced from pumping capacities, only rough estimates are made of consumption. Losses are further complicated by the fact that roughly half of the losses VKLs incur result from poor sanitary fittings in buildings; the remainder is lost through leaks in transmission and distribution lines.[15]

Only Pskov has widely instituted metering of residential buildings. None of the other cities have extensive programs to meter residential consumption although most already meter non-residential consumption.

Metering water consumption is essential for relating water consumption to the cost of providing the service because it establishes a direct link between consumption and the amount of water actually billed to the customer. Unlike the current procedure of apply a norm to estimate consumption, when the consumer is billed according to metered consumption, the amount billed increases when the volume of consumption increases. In Pskov and Orenburg where information on metered consumption is available, actual consumption exceeded norms by 15 to 20% depending on the type of plumbing available in residential buildings. Further, older buildings were found to have substantial losses resulting from leaking toilets and sanitary fittings in the buildings. This latter loss could equal 20% of total production or about half of total losses. Demand management programs focusing on building-level metering, direct billing of consumers according to metered consumption combined with loss reduction programs could have a major impact on reducing losses and increasing VKL financial viability. A further discussion of water loss reduction/demand management programs is found in the appendices to the report.

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[15] Communal Services Pricing, Novgorod Teploenergo and Pskov Vodokanal: Towards a New Model of Communal Services Provision, USAID/PADCO Contract No. CCS-0008-C-00-2057-00, Task Order 84, April 1997. Orenburg Vodokanal-Improving Cost Recovery, Tariff Reform, and Metering Demonstration Project, USAID/PADCO CCS-0008-C-00-2057-00, Task Order 74, May 1996

2.3.6 Undeveloped Housing Allowance Subsidy Programs

2.3.6.1 Social Protection Subsidization

Given the social and political impact of significantly raising the water and sewer tariff, public officials and vodokanal management must work closely together to ensure that those who cannot afford to pay the increased cost of the services have somewhere to turn for assistance. Of the current four types of subsidies described below, the Housing Assistance Subsidy Program (HASP) enables municipal officials to focus a city's limited resources on supporting the most needy households. Additionally, income-based subsidies, while creating a social safety net, allow city officials and vodokanal management to move forward in the transition to full payment for water and wastewater services by residential consumers.

2.3.6.2 Types of Subsidies

Residential consumers may receive up to three of four types of subsidies at any given time. In some cities, residential consumers receive either tariff subsidies from the city that pays for a large portion of the tariff (currently it is generally 70 percent). More commonly, residential customers benefit from cross-subsidies paid by budget organization and enterprise customers categories. Besides general subsidies or cross subsidies, substantial number of residential customers may also receive *lgoti*, privileged payments, if they are veterans, disabled, or are members of the other groups who have received of people who receive "privileged payment" status. Finally, a third subsidy, the HASP subsidy, is the only subsidy based on the need or income level of the household.

Under Presidential Decree Number 425 "On Housing and Communal Sector Reform in the Russian Federation," the agencies that grant *lgoti* are supposed to budget the payment to communal service providers from their annual budgets rather than rely on cities to pay this subsidy. This approach will help eliminate the burden on municipal budgets that make up *lgoti* payments to communal service providers. Cross-subsidies and/or general subsidies are also supposed incrementally to reduce until 2003 when the full cost of the service is to be paid by residential consumers.

In the cities PADCO reviewed, two cities, Pechora and Votkinsk, paid to vodokanals directly for the portion of the tariff not paid by residential consumers. In the other cities, cross subsidies from non-residential consumers make up the difference. When general subsidies and cross-subsidies are eliminated, only HASP subsidy is supposed to remain as the mainstay in assisting low-income residential consumers who cannot afford to pay the full cost of communal services. This mandates that the HASP must be made effective if overall tariff reform is to be useful.

The experience to-date among the 12 cities reviewed is not encouraging. Although all the cities visited during the PADCO review had HASP offices, the actual number of persons benefiting from the program is quite limited. Except Pskov, less than 1% of families participate in the housing allowance subsidy program. In Pskov, roughly 4% of the families receive HASP subsidies.

2.3.6.3 Strengthen the HASP Program

Although the percentage of residential consumers that are benefiting from the HASP program is very small, the number of beneficiaries could grow quite significantly once tariff reform becomes more widespread. However, it is very difficult accurately to predict the rate at which demand for HASP subsidies might grow. For example, in Pskov 20 percent of the households are eligible under current eligibility requirements, yet only 4 percent apply for and actually receive HASP subsidies. The low utilization rate is attributed to 1) higher than reported incomes by the households and 2) poor awareness of the subsidy program.

Under current eligibility requirements, as the tariff increases, more households become eligible for the subsidy. In the Pskov analysis, for example, as the tariff increases to full cost the number of households who would be eligible for the subsidy increases from 20 percent to 56 percent.[16] This suggests that local administrations must be prepared for significant increases in households requesting HASP subsidies as tariffs charged to residential customers reach full cost recovery.

In those cities with general subsidies, concentrating the subsidies in HASP subsidies and removing the subsidies from the general population should result in budget savings since at best, only 20 to 30% of the population should qualify under HASP eligibility requirements. Similarly, requiring that Federal agencies that provide *lgoti* actually budget for these payments will remove this requirement from municipal budgets allowing them to concentrate their existing general subsidies on income-based HASP.

While this report is devoted to water and wastewater systems, the impact of HASP is greater as it is aimed at all communal services. By reducing general subsidies of all communal services including water and wastewater subsidies, municipalities are likely to achieve all budget savings by targeting the remaining subsidies to lower-income households. In Novgorod, where detailed review of all communal services payments was conducted, a worst case scenario in which up to 70% of households receive partial HASP subsidies, total subsidies paid by the city would still be reduced.[17] The experience in Ukraine where the system of general subsidies and cross-subsidies is very similar to Russia, is that once general subsidies were removed, cities experienced budget savings by concentrating the remaining subsidies on low income households.[18]

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[16] Communal Services Pricing-Novgorod Teploenergo and Pskov Vodokanal: Towards a New Model of Communal Service Provision, USAID/PADCO Contract No. CCS-0008-C--00-2057-00, Task Order 84, April 1997, p. 50.

[17] Communal Services Pricing- Novgorod Teploenergo and Pskov Vodokanal: Towards a New Model of Communal Services Provision, USAID/PADCO Contract No. CCS-0008-C-00-2057-00 Task Order 84, April 1997, Pp. 50-51.

[18] Currently in Ukraine, housing and communal service payments reflect 80% of their full costs and slightly less than 30% of all families receive HASP type subsidies. The Ukrainian government estimates that as a result of employing a targeted subsidy program and reducing all other subsidies, for 1995 and 1996, they yielded total budget savings of close to $1.5 billion. See USAID/PADCO, *Tariff Increases for Housing and Communal Services: The Task Force of the Cabinet of Ministers on Fiscal and Economic Reforms*, Position Paper No. 1, November 14, 1996.

To handle increased numbers of beneficiaries, municipal departments administering the HASP program should have adequate computerization and records' management to process quickly applications for assistance. Additionally, the budget for the department and the amount that will be paid in subsidies will need to be increased to handle effectively the potential increased HASP demand.

Chapter 3 - Financial Review

3.1 Assessment of Present Financial Environment

3.1.1 Introduction

Declining macro-economic conditions in Russia has affected all service providers in a number of ways. Water sales to enterprises and operating subsidies from the Government have traditionally financed the operation of VKLs. However, over the past few years, fiscal constraints have prevented the government (national/oblast/local) from providing large subsidies to keep the water and wastewater systems operating efficiently. Although VKLs have sharply increased industrial tariffs, most enterprises pay these charges in non-cash methods.

The resources available to virtually all service providers have declined so dramatically that the infrastructure system has rapidly deteriorated. The loss of subsidies, combined with locally induced limits on domestic tariffs, and a deterioration in collections (substantial reduction in cash collections) has placed virtually all service providers in a financially untenable position. Service providers have reacted to their declining financial positions by reducing maintenance funding and by delaying payments to employees and service suppliers.[19] Capital investment for renewing assets and financing capital expansion is virtually non-existent. The lack of capital investment, coupled with a chronic under funding of maintenance, has the potential for increasing the service provider's long run operating expenses.

The primary issues facing the water and sewer service providers include:

- Inadequate collection of service charges;
- Declining cash collections as a percent of billed (plus accounts receivable);
- A highly distorted tariff structure where industrial tariffs provide a cross subsidy to population customers;
- Existing tariffs do not reflect true economic costs of providing services;
- Financial management and reporting practices are inadequate in assisting management decision making;
- Current profit tax regulations create a financial reporting environment where official VKL financial statements reflect expenses adjusted for collected revenues - thereby allowing VKLs to minimize some of their immediate tax obligations (VAT) while concurrently reporting a "profit" allowing for "out-of-profit" employee bonus distributions; and.

[19] Over the last two years, the Murmanvodokanal management employee payment date has been shifted back. In 1995, management employees were paid on the 15th of every month. In early 1996, management employees were paid on the 25th of every month. Payment to management employees has subsequently been shifted to the 28th of every month. As of June 1997, management employees were waiting in excess of 7 weeks for their wages. Frequent employee payment delays have been documented in Pechora, Kansk and Smolensk.

- Inadequate short and medium term operating and capital planning on the part of the management of service providers.

Many of the underlying problems confronting VKLs are institutional in nature. The separation of responsibilities between capital investment and service operations allows for differing incentives for VKLs, the local government's capital construction department, and consumers. Service providers have had little or no incentive for maintaining assets. Municipal construction departments have had little or no incentive for building high quality water and wastewater assets with low operation and maintenance expenses. Further, the reliance on steep industrial charges and government subsidies creates disincentives for many parties concerned to conserve water.

3.1.2 Russian Service Provider Accounting Policies

The official service provider's financial statements and records have a different focus and emphasis than financial statements from service providers using International Accounting Standards (IAS) or Generally Accepted Accounting Practices (GAAP). Although the Russian accounting system (RAS) has undergone several reforms in recent years, allowing Russian enterprises to report accounts similar to western accounts, there are several primary differences.

- The Russian accounting system (RAS) focuses more on the tax consequences of transactions while IAS accounts focus more on the management or evaluative information. For example, RAS expenditures are rigidly defined to assure that "profits" are calculated correctly. This assures that VKLs' tax obligations are narrowly defined and calculated.

- Under RAS, the treatment of certain expense transactions that would normally be treated as operational expenses under GAAP are required to be paid out of profit after the income tax has been paid (including interest for long term investment) under RAS. Some "out-of-profit" expenses include employee bonuses and long-term interest.

- Russian service providers use official reporting documents (tax statements) to maximize employee benefits. For example, service providers are obligated to pay wage related taxes (pension, social insurance). However, in order to minimize some labor related taxes, enterprises pay a portion of wages as bonuses and benefits which are paid as an "out of profit" expense.

- The accounting treatment for doubtful accounts (bad debt) is treated differently in RAS as opposed to GAAP and this treatment does have a significant impact on the Russian service providers Balance Sheet and Income Statement. In GAAP, accounts receivable are aged or a percentage of total credit sales is estimated to allow for doubtful accounts (bad debt). This procedure is applied to monthly reporting documents. Doubtful debt is then written off as a bad debt expense. Under RAS regulations, writing off doubtful accounts is treated as profit tax deduction which is allowed only when a customer account is inactive for three

years. The value of this deduction is equal to the resulting reduction in profit tax after subtracting from taxable income the written off doubtful accounts. However, the tax benefit is be reduced to the extent this deduction results in a VKL's taxable income being less than zero. In addition, to the extent the VKL must wait for three years to write off a bad debt, much of the value of the tax deduction is lost through inflation.

- Russian service providers have adopted a myriad of accounting options. National accounting regulations permit Russian enterprise to elect a cash accounting system or an accrual accounting system. Many utilities that PADCO visited adopted an accrual based accounting system in 1996 (Murmansk, Pechora, and Nalchik). Virtually all service providers maintained a cash based accounting system through the end of 1995. However, in an attempt to minimize immediate VAT and other tax obligations, utilities (Smolensk and Kansk) book revenues when they are received and expenditures when they are accrued. This means that accounts receivable in the service providers official financial statements do not reflect outstanding bills to customers. In fact, the accounts receivable reflect only a portion of expenses that have not been sold.

- Fixed assets for all service providers were re-valued in 1995 and 1996. A revaluation was necessary because of the significant depreciation of the ruble over the past six years. Reevaluations and their new depreciation schedules are problems that the service providers are confronting. In many cities (i.e. Smolensk), the provider uses the old depreciation schedule not the new depreciation schedule in setting the tariff. Otherwise, the tariff calculation, which directly includes depreciation, would rise significantly. In Pskov, the service provider leases assets at a nominal rate from the municipality. The lease itself is too short (five-years) to be amortized by the provider. Further, the value of the lease is too insignificant to cover the full depreciation of municipal assets. As a result, the municipal budget must finance system wide rehabilitation spending through the general municipal budget.

In addition to these variations in the treatment of accounts, all of the service providers that PADCO reviewed engage in extensive barter and offset transactions. None of the service providers have any clear rules or guidelines dealing with barter transactions. Barter transactions are means for the provider to reduce VAT obligations. Barter transactions are generally valued at somewhat less than their full market value, thereby understating revenues, expenditures, and VAT.

3.1.3 Tariff Overview

In response to the Federal Government's decision to move toward full cost recovery, VKLs and local governments have begun to authorize increases in water and wastewater tariffs. Table 3.1 shows the average weighted combined tariff and the cross subsidy between enterprises and residential customers. Although tariff increases have taken place, there is a wide disparity in the level of domestic tariffs. This trend has increased over the last two years. In the 10 city sample shown in Table 3.1 industrial tariffs were on average 14 times higher than domestic tariffs. The highest

incidence of cross subsidization was Orel at 63 times greater than domestic tariffs. Not surprisingly, Orel, also has the lowest combined tariff in the sample.

3.1.4 Inadequate Revenue Collection

Table 3.1 illustrates the average level of 1996 collections to billed (plus accounts receivable) is 67%.[20] This average level of collection to billed is quite low. However, it is really the composition and quality of collections that are the major problems. Of the 67% average level of collection[21], 19% was cash, 26% barter, and 22% was in offset or promissory notes. Fully 48% of the 67% of total 1996 collections was in non-cash form. Further, non-cash collections have been steadily increasing over the past three years.

PADCO reviewed three years of January - June "Murmanvodokanal" (MVK) data - see Chart 3.1. Some basic trends emerge, including:

- After a significant dip in 1996 collections, total MVK collections in the first half of 1997 have rebounded;
- The decline in cash collections continues unabated through the first quarter of 1997, and,
- The increase in total collections is driven by the rapid year-over-year increase in non-cash collections (barter and offsets).

The financial condition of MVK is in many respects comparable to the general financial situation experienced in other PADCO reviewed VKLs. Despite declining cash collections however, MVK sets itself apart with cash collections exceeding 34% in 1997, significantly higher than the 19% average of the reviewed sample.

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[20] Some of the collections received in 1996 reflect payments from previous years' billings. It is almost impossible to evaluate 1996 collections with 1996 billed revenue. PADCO chose to use collections as a percentage of "billed plus starting balance of the accounts receivable" to more conservatively reflect the collection rate since the total collections to "billed" percentage value overstates the actual collection rate.

[21] Note: this refers to the percentage collected to total billed in 1996 plus the starting balance of the accounts receivable.

Table 3.1
Russian Vodokanal Comparative Statistics - 1996

City	Average Residential Combined Tariff (with VAT)	Cross Subsidy Ratio Between Enterprise And Residential Customers	% Cash to Total Billed Plus Accounts Receivable (1996)	% Barter to Total Billed Plus Accounts Receivable (1996)	% Offset to Total Billed Plus Accounts Receivable (1996)	% Collected to Total Billed Plus Accounts Receivable ** (1996)	Total Revenue (Billed, Accounts Receivable, VAT, and Other) 1996 (000 Rubles)
Cheboksary	800	9	18%	36%	27%	81%	114,555,000
Gagarin	1,188	14	27%	37%	10%	73%	10,128,836
Kansk	1,168	5	14%	8%	39%	61%	38,319,135
Murmansk	1,320	4	36%	14%	19%	69%	150,930,349
Nalchik	1000	3	17%	28%	8%	55%	57,515,271
Orel	356	63	23%	27%	6%	55%	91,608,596
Pechora	5,440	1	3%	10%	69%	81%	42,775,252
Pskov	1,620	4	13%	36%	15%	63%	75,830,401
Smolensk	991	14	27%	12%	24%	62%	64,963,572
Votkinsk	844	6	18%	52%	3%	73%	12,068,964
Average	**1,473**	**12**	**19%**	**26%**	**22%**	**67%**	**65,869,538**

Notes:

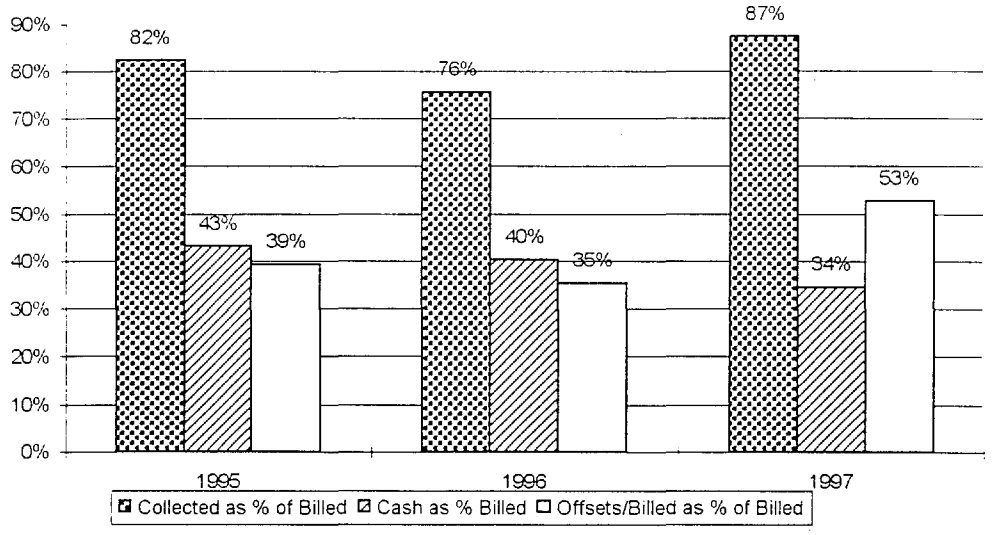
1) % Offset includes tax offsets and promissory notes.

2) Collected includes some accounts receivable from 1995 that were paid in 1996.

3) Tariffs as of August 1997.

3) Percentages may not add precisely due to rounding.

Chart 3.1 - Murmansk Vodokanal - 1995-1997 Comparison - Collected as % Billed
(January - June Period)



3.1.5 Accounts Receivable

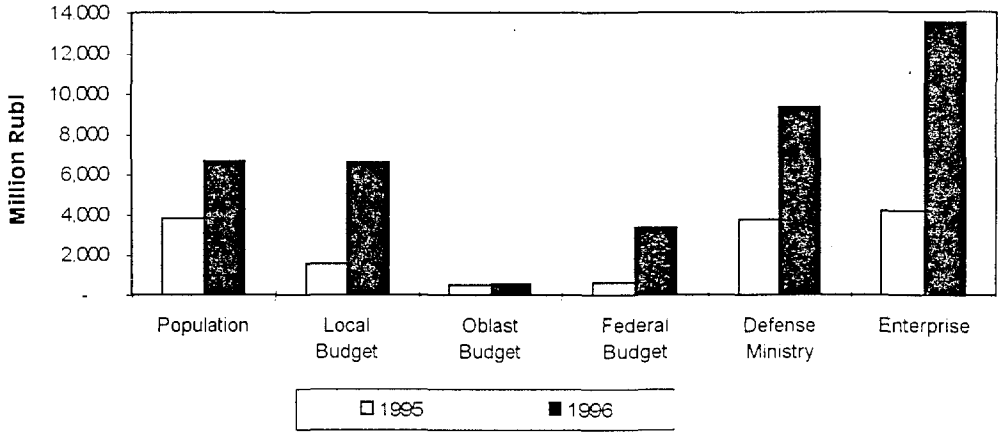
Poor collections particularly from large customers are the most pressing financial concern for VKLs. In keeping with Murmanvodokanal as an example, PADCO estimated that as of December 31, 1996 MVK had more than 54 billion rubles (including VAT) in outstanding receivables. The outstanding receivables are close to 5 months of 1996 billings. The average outstanding receivables in months of 1996 billings for the sample of 10 cities is 4.7 months. However, this average may be more optimistic than if first appears since some of the cities have increased tariffs during 1996. Increased tariffs would have the effect of increasing the amount billed and therefore accounts receivable.

Table 3.2
1996 Accounts Receivable In Months of Billings

Vodokanal	Accounts Receivable As of December 31, 1996 (000 Rubles)	Receivables In Months of Billings
Cheboksary	21,683,000	3
Gagarin	2,412,192	3
Kansk	12,595,674	5
Murmansk	54,938,342	5
Nalchik	20,215,432	6
Orel	40,831,897	7
Pechora	7,914,278	3
Pskov	27,830,312	6
Smolensk	24,556,900	5
Votkinsk	3,295,512	4
Average	**21,627,354**	**4.7**

Chart 3.2 illustrates MVK accounts receivable by customer category. Enterprises, Ministry of Defense and other budgetary organizations are by far the largest VKL debtors. In all VKLs that PADCO reviewed, payments from households are generally more regular than payments from enterprises.

Chart 3.2 - Murmanvodokanal Accounts Receivable By Customer Category (1995 and 1996 with % Change)



3.1.6 Negative Effect of Non-Cash Payments

A substantial portion of VKL collections are non-cash (barters, offsets). While better than receiving no payment, non-cash payments have numerous drawbacks which adversely impact the financial viability of service providers. Bartering for goods and services generally involves several parties. Each affected party may value their goods and services differently. The barter transaction(s) may take several months to complete. This situation generally occurs when one of the communal service providers hires an outside contractor to complete a construction job. Instead of paying the contractor directly in cash, the provider reduces the sum owed for water services by a third party, e.g. a fuel vendor. The fuel vendor is then, in turn, expected to reduce the amount owed for fuel by the contractor. Other problems may be that the items being exchanged are not easily exchanged. Further, there may be additional hidden transaction costs, i.e., transportation, storing, or marketing the bartered good.

Offsets, while preferable to barter (i.e., easier to monetize), tend to take even longer to organize: from several months to a year. As a result, the real value of offsets is reduced by the inflation experienced during this time lag. More significant, however, is the impact that offsets have on cashflow. The lengthy period from the provision of service to the consummation of the offset (taxes owned for services rendered) denies the vodokanal cash to pay other expenses. Although in most cities, offsets are not as large as barter transactions, offsets are growing in significance because of collection problems and refusal to pay in cash.

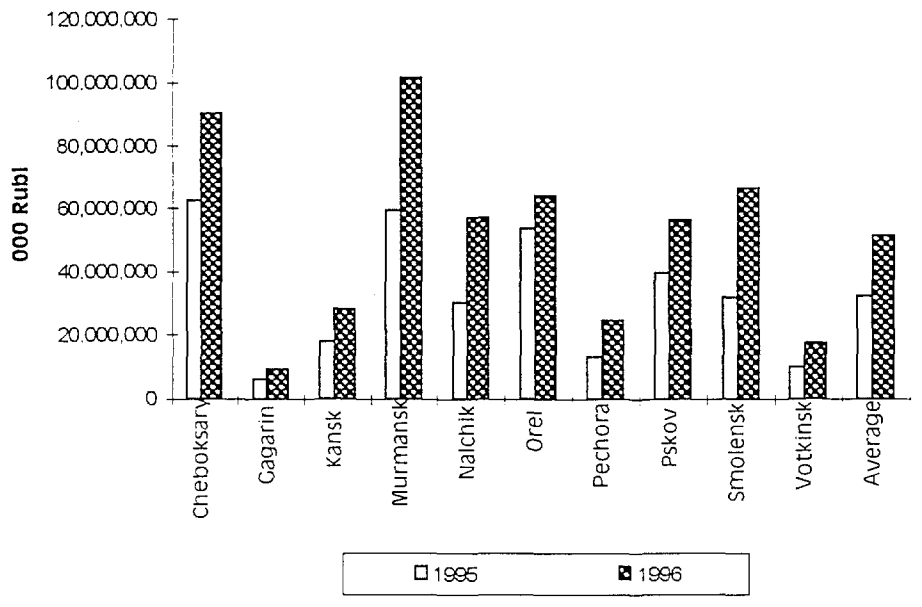
The payment of notes (promissory notes from the city or oblast, treasury notes from the federal government) also represent a serious obstacle to the financial independence

of the service provider. Oblast and city promissory notes have limited value and, more importantly, only limited local distribution. While they can be surrendered for payment of taxes and charges owed to the city and oblast, they can only be accepted by specific categories of legal entities. No secondary buyers market exists for such notes. These notes deprive service providers of needed working capital, erode in value due to inflation, and are less transparent than cash transfers.

3.1.7 Rapidly Rising Expenses

Total expenses consist of operating and non-operating expenses. Non-operating expenses may include items like a provider's sauna or health facility. Chart 3.3 illustrates total VKL operational expenses including depreciation have been rising at a rate that exceeds the nominal level of inflation. Smolensk, Nalchik, and Pechora 1996 VKL operating expenses increased by 109%, 89%, and 88% , respectively from 1995. The average level of increase for the 10 cities surveyed was 59%. Rapid increases in electricity and salaries contributed to the significant increase in VKL operating expenses.

Chart 3.3 - Comparison of Vodokanal Operating Expenses 1995 and 1996 (000 Rubles)



A partial explanation for the robust level of operating expense increase lies in the revaluation of VKL assets and, as a result, increased depreciation expense based on the re-valued assets. For example, total Smolensk VKL assets were re-valued by a multiplier of 2.7 times. Nalchik and Pechora re-valued assets by 1.7 times, and 3.99 times, respectively.

3.1.7.1 Composition of Operational Expenses

Russian financial and accounting regulations rigidly define the types and amounts of expenditures permitted in the income statement of VKLs. During PADCO's review of VKL accounts, expenses were adjusted to reflect GAAP and international accounting practices. For example, RAS allows for certain employee benefits and bonuses to be derived "out-of-profit". PADCO adjusted VKL expenses by shifting many the relevant "out-of-profit" expenses into direct operating expenses. Shifting these "out-of-profit" expenses into direct operating expenses increased VKL *direct operating expenses* by between 5% to 8%. Table 3.3 shows expenditure categories as a percent of total expenditures for a five city representative sample of VKLs. In Table 3.3, PADCO chose to compare VKL operating expenses excluding depreciation and other non-production expenses to obtain a true comparison of only direct operating expense categories.

Table 3.3
1996 - Vodokanal Adjusted Operating Expenses
As a Share of Total Direct Operating Expense
(Excludes Depreciation)

Item	Gagarin	Kansk	Murmansk	Nalchik	Smolensk
Personnel Costs	24%	34%	51%	21%	16%
Energy	23%	22%	19%	55%	25%
Materials & Chemicals	6%	2%	7%	2%	10%
Repairs	1%	1%	1%	5%	15%
Interest Payments	1%	0%	0%	0%	0%
Taxes	28%	25%	4%	2%	21%
Other Expenses	17%	16%	18%	15%	13%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Personnel Costs includes wage related expenses, salary, social insurance and employee bonuses.

The two largest expenditure categories are labor related expenses and electricity. In the selected five city sample in Table 3.3, electricity (average 28.5%) and labor (average 29.2%) related expenses represent 55% of total direct operating expenses. The cost of electricity is particularly high for Nalchik, where it accounts for 54% of operating expense outlays.

Nalchik personnel costs are somewhat lower than the representative VKL sample because no bonus payments were issued in 1996. Murmansk personnel costs were significantly higher than the representative sample's average 26% due to wage compensation reflecting the more difficult geographic working environment and the generally higher level of local prices. Maintenance and repairs is much higher in relative terms in Smolensk than in Kansk or Nalchik, perhaps demonstrating the serious deterioration of the respective systems. It is difficult to accurately determine

repairs and maintenance spending for VKLs as some staff costs are subsumed into the maintenance expense, including staff that work in shops attached to VKLs. In general, VKL officials stated that their maintenance and repair is seriously under funded.

3.1.7.2 Revaluation and Depreciation

Fixed assets for all service providers were re-valued in 1995 and 1996. A revaluation was necessary because of the significant depreciation of the ruble over the past six years. Fixed assets were re-valued based on the guidelines issued by the Ministry of Finance (MoF). In the guidelines, MoF indicated multipliers to be applied to the original cost of the asset. Different multipliers were given for:

- Assets depending on the year purchased;
- Different categories of assets (e.g. motor vehicles, fixed assets); and,
- Different types of assets in the same category (e.g. heavy duty trucks under motor vehicles).

The multipliers given for various periods are as follows:

- 1980 and previous years;
- 1981 through 1994; and,
- Multipliers for each quarter in 1995.

The multiplier range for different years and for different categories of assets is illustrated in Table 3.4 below. There is no explanation given in the MoF guidelines as to why or how the various multipliers are determined.

Table 3.4
General Asset Multipliers By Year

Year	Multiplier
1980	1.2 to 1.4
1981-1994	1.3 to 4.6
1995 Q I	1.3 to 4
1995 Q II	1.2 to 2.9
1995 Q III	1.1 to 2.1
1995 Q IV	1 to 1.3

Including a re-valued depreciation component substantially increases water and wastewater tariffs. In many cities (i.e. Smolensk), the local government has guided the provider to use the old depreciation schedule not the new depreciation schedule in setting the tariff. Otherwise, the tariff calculation, which directly includes depreciation, would rise significantly. A more accurate value of fixed assets, and hence depreciation schedule, could be obtained by conducting on site physical valuation by a professional valuation expert.

In Pskov, the City Administration has removed depreciation of the Vodokanal leased assets from the tariff structure and has reduced the lease payment to a nominal amount which does not cover the full depreciation of municipal assets. The City

Administration believes that they are lessening the financial burden on VKL customers by financing system wide rehabilitation through the municipal budget. If such investment were financed through the Pskov Vodokanal tariff structure, the VKL customers would additionally pay for related VAT.

3.1.7.3 Taxes

VKLs are treated like any other enterprise with respect to taxation. The taxes that VKLs have to pay include a 20% value added tax (VAT), 35% corporate income tax, and locally established road use tax. VKLs also must pay a full complement of taxes for social purposes (social insurance fund, medical).

VKLs negotiate with the various government debtors to offset tax obligations in lieu of direct monetary payment. In many instances, VKLs offset corporate income taxes. VAT may also be offset at the city and regional level, and on a case-by-case basis, at the Federal level.

3.1.7.4 Accounts Payable

Using accrual accounting, accounts payable are large, but in most cases, are less than accounts receivable (Chart 3.4). Payable consist largely of electricity, taxes, and wages. VKL accounts payable has been rapidly increasingly. In Nalchik, accounts payable grew by 301% in 1996 from the previous year, reaching 48.1 billion Rubles. In Pechora accounts payable (including salaries and social taxes payable) grew by 187% from 2.5 billion Rubles at the end of 1995, to 7.4 billion Rubles at the end of 1996. Of the 7.4 billion Rubles in Pechora's payable, 13% was over one year old. A portion of the amount one year old represents accounts payable that are difficult to barter or pay by offset. In Pechora 64% of the accounts payable is for salaries and social taxes payable. The rapid build up in accounts payable for the surveyed VKL group will need to be addressed immediately.

Chart 3.4 - Vodokanal Comparative Statistics - 1996
Receivables / Payable
(000 Rubles)

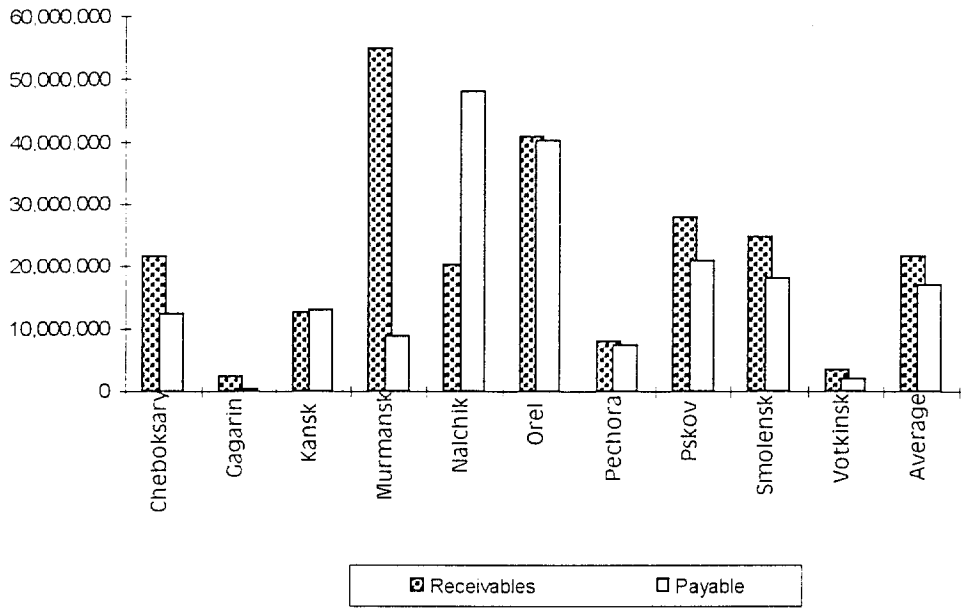


Table 3.5 illustrates accounts payable as a percent of accounts receivable. In Nalchik, accounts payable is 237% of receivables. Gagarin and Murmansk have the lowest ratio of payable to receivables, 11.8% and 16.1%, respectively.

Table 3.5
1996 - Accounts Payable as a Percent of Accounts Receivable

Vodokanal	Accounts Receivable	Payable	Payable % of Receivable
Cheboksary	21,683,000	12,302,522	56.7%
Gagarin	2,412,192	284,630	11.8%
Kansk	12,595,674	13,013,062	103.3%
Murmansk	54,938,342	8,820,481	16.1%
Nalchik	20,215,432	48,096,142	237.9%
Orel	40,831,897	40,122,019	98.3%
Pechora	7,914,278	7,375,715	93.2%
Pskov	27,830,312	20,837,738	74.9%
Smolensk	24,556,900	17,974,002	73.2%
Votkinsk	3,295,512	1,920,084	58.3%
Average	21,627,354	17,074,640	78.9%

3.1.7.5 Profitability Versus Near-GAAP Profit

In accordance with current Russian legislation, the Accounting Department produces revenue adjusted monthly, and in many instances quarterly, and annual balance statements. The expenses which the accounting department reports for tax purposes are adjusted to reflect only the income received. The service provider's use and application of profit is different from western accounting practices due to the rigidity of the definitions of expenditure. The western concept of profit suggests a return on investment to investors after expenses have been incurred. According to Section 2, Paragraph 13 of the *Regulation for Expenses Incurred in the Production and Sale of Products Included in the Cost-Price of Products and for the Orders of Forming Financial Results Accounted in Profit Taxation* (Approved by the Decision of the Government of Russia No. 522 (8/5/92), "Profit (loss) from the sale of products (work, services) and goods shall be determined as the difference between the revenues received from the sale of the products (works, services) in current prices with the value-added tax and excises and the expenses on their production and sale." Service providers are encouraged to pay "out-of-profit" expenses including employee bonuses, employee recreational expenses and, interest on long term capital related debt. As a result, in accordance with existing Russian legislation,[22] VKLs base their profit on the income they receive minus the adjusted expenses.

In most water companies around the world, these "out-of-profit" expenses would have been included in expenditures, reducing and eliminating the technical need for a "profit" expense category. Approximately one-third to one-half of VKL net after-tax profit is used to fund employee benefits. The remainder is used to finance the accumulation reserve fund for investments. In practice, only the Gagarin, Smolensk, and Cheboksary VKLs have a history of planning to use "out-of-profit" cash profits for financing minor capital investments.

The official income statements (RAS) for all of the surveyed VKLs show that they were profitable in 1995 and 1996. Table 3.6 maps VKL 1996 billed revenue, which incorporates currently allowable profitability, with all expenses, including out-of-profit expenses.[23] Actual near GAAP profit as a percent of these adjusted expenses shows a more somber financial portrait for VKLs. Votkinsk, Nalchik, and Smolensk experienced -17.8%, -26.6% and -26.7%, respectively, actual profit as a percent of expenses. Only Murmansk and Pechora appear to show robust financial returns. The average near GAAP profit as a percentage of expenses for all 10 VKLs is -7.6%. This strongly suggests that some VKLs are currently not able to recover all of their costs, including out-of-profit expenses, through their user charges despite a sizable

[22] According to Section 2, Paragraph 13 of the above cited Regulation, "...For the purposes of taxation, revenues received from the sale of products (works, services) shall be determined either as they are paid for (in clearing payments money is received for goods, works, services by the bank institutions on their accounts and in cash payments money is received by the pay desk) or as goods are shipped (works, services are performed and rendered) and as payment documents are submitted to the buyer (customer)."

[23] Allowable profit is the profit margin that vodokanals are permitted by cities to add onto expenses in the tariffs that they charge their customers; it is not the 'corporate profitability' of the enterprise as reported in tax statements.

profitability margin being built into their tariff structure. The implication for VKLs' debt service capacities, i.e., interest payments as an out-of-profit expense, is not presently not encouraging.

The actual financial status of all surveyed utilities is however even more dire than Table 3.6 indicates. The actual profit as a percent of expenses as presented in Table 3.6 takes into account the billed revenue of the utility only. On average, the survey group of VKLs collect only 67% of what they were owed in 1996. None of the VKLs write-off or have established bad debt reserves. Receivables are on average 4.7 months of billings and growing. Further, since accrual systems were used to review VKLs, it is apparent that cash net income is much lower than the net income carried on the financial statements of the utilities.

Table 3.6
Actual 1996 Vodokanal Profit
(000 Rubles)

Vodokanal	Total Billed Revenue	Allowable "Profitability" Tariff Component	Total Expenses	Actual Near GAAP Profit As a Percent of Expenses
Cheboksary	79,151,600	25%	90,118,526	-12.2%
Gagarin	7,484,312	20%	9,187,173	-18.5%
Kansk	24,992,059	30%	27,989,912	-10.7%
Murmansk	112,820,904	15%	101,620141	11.0%
Nalchik	42,039,931	15%	57,265,467	-26.6%
Orel	64,065,352	15%	66,330,002	-3.4%
Pechora	30,334,200	9%	24,593,897	23.0%
Pskov	48,142,903	10%	45,689,139	5.4%
Smolensk	48,568,774	15%	66,263,831	-26.7%
Votkinsk	14,224,026	15%	17,302,125	-17.8%
Average	**47,182,406**	**17%**	**50,636,021**	**-7.6%**

Notes:
1) "Total Billed Revenues" is shown without VAT and includes tariff "profitability" component, hookup fees and collection late fines and penalties. For the Nalchik, Orel, and Votkinsk VKLs, this amount additionally includes city operating subsidies received in 1996. Source: individual VKL PADCO adjusted 1996 Profit & Loss statements.
2) "Total Expenses" include "out-of-profit" items, depreciation and other non-production costs and exclude VAT. For the Pskov VKL, this amount does not include depreciation for city-owned assets which they lease since this item is not included in their tariff structure. If this depreciation is included, increasing the Pskov VKL "Total Expenses" to 63.7 billion Rubles, the Pskov VKL's "Actual Profit as a Percentage of Expenses" drops to -24.5%. Source: individual VKL PADCO adjusted 1996 Profit & Loss statements.

3.1.8 Depreciation, Development Fund and Debt Service

Depreciation expense as it applies to the assets of an enterprise receives approximately the same accounting treatment in GAAP as in the Russian Accounting System. That is,

depreciation is charged to the Profit and Loss account to match the wear and tear of assets used by the vodokanal. All other expenses except depreciation result in cash outflows. Although depreciation is an expense, it has no cash outflow. Therefore, funds representing the value of depreciation will accumulate in cash in a vodokanal's bank account provided that: i) at minimum there is no loss in the P&L account, ii) revenue is collected in the form of cash at least equal to depreciation expenses, and iii) the cash in the bank representing depreciation is not used for payments to other suppliers other than those expenses that are normally charged to the P&L account.

Although depreciation has been charged to P&L accounts as an expense in all of the vodokanals included in the assessment, none have sufficient cash in bank accounts representing depreciation. Thus none could service debt out of depreciation under the present circumstances. This condition is illustrated in Table 3.7, which shows that on average, depreciation is 22% of vodokanals' revenues, but that vodokanals have only collected 20% of billed revenues in the form of cash. As this cash collection was probably used for other purposes, depreciation was largely unfunded.

Debt service comprises principal repayment and interest. If funded, principal repayments can be paid out of accumulated cash in bank accounts representing depreciation. Interest must be charged to the P&L account on an accrual basis and must also be paid out of accumulated cash. As is illustrated in Table 3.7, vodokanals would have to increase cash collections significantly to fund either depreciation or interest expense. In other countries, to impose greater financial discipline, enterprises deposit cash in separate bank accounts earning interest that are equal to debt service obligations and pay lenders directly from these accounts.

3.1.8.1 Development Fund

During Soviet times, depreciation was accumulated and sent to the central government budget as the central government was responsible for capital planning and replacement. It funded new and replacement lines and facilities of the vodokanals. To accommodate the accumulation and forwarding of funds to the central government, the tariff had two categories of expenditures for capital repairs and replacement. The first was depreciation which was sent to the central government for capital replacement. The second was capital repairs which was for more routine maintenance. Subsequently, the two categories of expenditures were retained in the tariff, but function differently.

If there is a profit that includes any excess, or unexpended depreciation, these funds can be placed in a development fund. Once in the development fund, depreciation revenues are commingled with other funds and may be used for any expense of the vodokanal including the principal part of a loan repayment. Repair, or capital repairs, continue to be used to routine maintenance.[24]

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[24] "On the Approval of Methods for Calculating Economically Motivated Rates and Tariffs for Communal Housing Services", Order No. 56, Russian Federal Government, dated November 9, 1993, Section 3. See also "On the Approval of Regulations for Expenses Incurred in the Production and Sale of Products (works, services) Included in the Costs Price of Products (works, services) and for the Order of Forming Financial Results Accounted in Profit Taxation," first adopted August 5, 1992, and amended June 26, 1995, July 1, 1995, November 20, 1995, March 21, 1996, October 14, 1996 and November 22, 1996

Table 3.7
1996 Depreciation Expense and Cash Collections

Vodokanal	Depreciation as Percent of Expenses	Depreciation as Percent of Revenues	Total Collected to Total Billed Plus Accounts Receivable	Cash Collections to Total Billed Plus Accounts Receivable
Pskov	32%	40%	63%	13%
Pechora	19%	12%	81%	3%
Votkinsk	28%	34%	73%	18%
Orel	20%	20%	55%	23%
Nalchik	18%	23%	55%	17%
Kansk	12%	14%	61%	14%
Gagarin	21%	26%	73%	27%
Cheboksary	25%	24%	81%	18%
Murmansk	22%	20%	69%	36%
Smolensk	8%	11%	62%	27%
Average	**21%**	**22%**	**67%**	**20%**

3.1.8.2 Debt Service Repayment

Russian laws, in general, do not make reference to how depreciation proceeds are to be used, but do state that certain expenses, such as principal payments for loans, may come out of the depreciation allowed in a tariff. Later regulations qualify the utilization of depreciation proceeds for principal repayments by stating that if depreciation expense has been actually expended for the year (or some other accounting period), the remainder can be applied to the principal payment of any loan. The regulations do not state that depreciation expenditure must be used for capital replacement, merely that an amount equal to the depreciation expense needs to be expended. If vodokanals can show that they have spent the requisite amount equal to deprecation expenses, they can apply all of the remainder to payment of either principal or interest of a loan. However, interest expense is not a capitalized expense and must be related to the revenue of the period to which the interest expense applies. Hence, although it is possible to use proceeds from depreciation in the development fund for interest expense, it is a mismatch of expense. Depreciation expense should not be applied to interest expense. Interest expenses should be paid of out profit under current Russian accounting and tax rules.

If a vodokanal can certify that it has paid up to 50% of profit tax in interest payments, it may lower profit taxes by that amount. This has the effect of making more funds available for debt service by reducing the amount of profits that are paid in profit tax.[25]

[25] "On Introducing Amendments and Addenda to the Regulations on the Composition of Expenses Related to Production and Marketing of Products (works, services) that are Included in the Production Costs of Products (works or services) and on Procedures for the Computation of Financial Indicators Used in Profit Tax Calculation," Russian Federation Order No. 661, July 1, 1995.

3.2 Limitations to Vodokanal Financial Autonomy

This section describes observed financial and accounting practices which currently limit the borrowing capacity of VKLs. A brief description of the main limitations is presented here with further elaboration in the Action Plan.

3.2.1 Local Municipality/Vodokanal Decision Making and Decentralization Problems

Planning. Many local governments and service providers do not appear to be able to carry out planning beyond assembling wish lists of project activities. Developing rational priorities or building an informational data base for decision making are currently beyond many local municipal or service provider capabilities.

3.2.2 Infrequent Budget Audits and Evaluation

The Russian budget cycle and other operations rarely include auditing for performance review purposes. Although performance evaluations can be tools for improving allocative efficiency in a way that incremental budgeting alone cannot ensure, no government institution has responsibility for reviewing and assessing VKL budget outcomes. Establishing performance evaluation units that deal with service providers could provide guidance on cost measurement and management improvements for operating units. These performance evaluation units might assist service providers in devising plans for reducing expenditures, based on identification of core and non-core activities. Because the concept of evaluation is alien to current institutional processes and probably will be perceived as a threat, evaluation and review processes must be broad based, participatory and incorporated into the planning process and service agreement negotiations.

3.2.3 Internal Vodokanal Management

- ***Cash versus accrual revenues.*** Until the end of 1995, most utilities used cash receipts as a basis for setting and adjusting water and sewerage rates. However, according to Ministry of Finance regulations, for 1996 and thereafter, vodokanal accounting must be kept on an accrual basis. This provides a better matching of revenues and expenses and a more accurate assessment of the profitability of the utility than does cash-basis accounting. In recognition that cash revenues often lag accrued revenues, VKLs must account for this lag in cash receipts and provide for it, particularly if they operate strictly on a cash basis of accounting.

- ***VKLs do not perform cash flow requirement projections.*** Few VKLs project their future total revenue and expense requirements, let alone their total cash needs. In order for VKLs to more effectively manage debt financing they should be encouraged to develop some "cash needs (or, cash flow)" projections. The objective of the cash-needs approach for projecting revenue requirements is to ensure that utility revenues are sufficient to recover total cash needs for a given projection period. The term "cash-needs" as it applies to measuring revenue requirements of a VKL, should not be confused with the accounting term "cash" as

compared to "accrual" as an accounting method. Cash needs refers to the total revenues required by the VKL to meet its cash expenditures. The cash-needs approach to measuring revenue requirements of the service provider may be evaluated on either the cash or accrual basis of accounting.

- ***Bad debt is not recognized as an expense or reserve set-aside.*** Bad debt expense can initially be calculated by identifying the total value of accounts that are greater than six months or more overdue. Customer profiles should be individually reviewed to determine whether there is an ability to pay the service provider. A certain percentage of the accounts receivable can be calculated and defined as "bad debt expense". The "bad debt expense" percentage (or value) should be incorporated into the normal tariff setting process. Bad debt allowances should be periodically reviewed (i.e., every quarter) to determine which accounts are still collectable and those that should be written off as bad debt. Service to bad debtor's should be turned off. Large accounts receivable should be periodically reviewed to distinguish those potentially collectable and those that are not. Accounts that are not collectable should be written off as bad debts.

- ***Cost accounting systems are deficient.*** Many service providers have very good fundamental financial information. However, a consolidated accounting software system would greatly enhance the productivity of numerous internal operations (accounts payable/receivable, accounting, customer service). A positive byproduct of a more accurate cost accounting system would be more accurate tariff calculations.

- ***Management information flows are not integrated.*** Computerizing all departments and creating coordinated horizontal links between the departments should have an immediate positive impact on the increasing productivity and enhancing management decision making. Service providers should consider establishing an Office of the Treasurer with direct reporting responsibilities to the Director.

3.2.4 Full Cost Recovery - Tariffs

Tariffs should reflect the full marginal cost of water and wastewater service delivery and sustainability. Full cost pricing however, cannot be achieved unless bad-debt expenses, cost of billing and collection, and the cost(s) of debt service are taken into account. Limitations to full cost recovery through user charges include:

- ***Interest from capital related improvement loans can not be directly included into the tariff structure.*** Many VKLs take short term loans to pay salaries and other operating related expenses as a result of their poor revenue collection. In accordance with current Russian legislation, the interest which VKLs pay for short-term loans is currently included as an expense in the tariff structure. However, interest on long-term capital investment must be paid "out-of-profit". Federal legislation should be changed in order to allow for all debt service expenses to be included directly in the tariff structure. When the legislation is changed, VKLs will be fully responsible for providing their own capital investment programs.

- *Bad debt expense can not be directly included into the tariff structure and currently could limit debt capacity.* VKLs are now permitted to deduct from taxable income, for profit tax purposes, losses from writing off debt receivables 3 years and older and other debts which cannot be recovered, i.e., bankrupt customer. However, the tax benefit would be reduced to the extent this deduction would result in the VKLs' taxable income being less than zero. To the extent the VKL must wait for three years to write off a bad debt, much of the value of the tax deduction is lost through inflation. Once inflation is controlled though, writing off uncollectable debt will adversely limit VKL debt capacity by the resulting profit reduction which subsequently reduces the amount available for loan interest repayment. The current rules regarding tax deductions for bad debt losses also do not require Vodokanal's to take any action to collect the debt, such as instituting and pursuing litigation; all they are required to do is wait for three years before deducting the receivable.

- *Tariffs not automatically adjusted for inflation.* Currently, no tariff adjustment mechanisms (escalators) exist to accommodate increases in the cost of production inputs due to inflation. The service providers should be enabled to increase tariffs for all groups of consumers automatically by pegging tariffs to electricity tariff changes.

- *Lack of working capital resources.* The primary elements of working capital include materials and supplies and cash-working capital. Other elements may include prepayments, unamortized balance of non-annual operations and maintenance (O&M) expenses, and minimum bank balance. It has become apparent that many VKLs in the PADCO survey have the bare minimum in working capital. Pechora and Nalchik have effectively no working capital. Russian VKLs are experiencing substantial lags between the payment of cost and the receipt of revenues. A detailed lead-lag study should be performed by each VKL to determine a weighted average period of time between cost and revenue. The working capital requirement is the average daily amount of costs multiplied by the average time period determined from the lead-lag review. An allowance for working capital in the tariff structure would permit the VKL to earn a return on the investment required to finance operating costs in advance of the receipt of revenue.

Chapter 4 - Debt Service Capability and Action Plan

4.1 Background and Introduction

In the past it was not necessary for VKLs to borrow money for their investment needs or short-term operational requirements. Many of the surveyed utilities (i.e., Gagarin Murmansk) have obtained credit facilities to fund short-term cash requirements. The utilities that have borrowed short-term funds have been successful in either completely repaying the credit or maintaining recurrent payments. No utility has yet attempted to obtain long term credits.

VKLs had no need to borrow money because local governments financed infrastructure development from their municipal or oblast resources. The current legal tariff structure reflects economic incentives under the former method of financing infrastructure projects in that stringent requirements were established for what can and cannot be included as a recoverable expense. Under the current tariff structure planned costs related to capital repair and depreciation can be included. New equipment and the modernization of VKL facilities are still financed out of the municipal budget.

Service providers are interested in obtaining long term credit. More importantly, most providers in the PADCO sample are hopeful that the current legislation will be changed and allow them to take interest for long-term investment as a direct operating expense. However, the current legal tariff structure specifically prohibits interest payments for capital improvement loans from being included as a direct expense (*sebestoimoist* expense). VKLs are expected to finance the long-term interest component of the credit facility as an "out-of-profit" expense. The stipulation that long-term interest must be funded "out-of-profit" establishes a soft legal cap on the maximum loan amount that VKLs can borrow. In addition, this stipulation also limits the ability of the borrower to collect if there is no profit or if the "profit" limit is narrowly constrained. Federal legislation should be changed to allow for debt service expenses to be included as a direct tariff expense.

4.2 Revenue Requirements and Tariff Levels

In determining future service provider debt and tariff levels, PADCO considered the VKLs estimated future revenue requirements. This section describes operational and financial projections over a 7 year period. The assumptions underlying the financial projections are detailed below. For comparison purposes, the individual VKL reviews considered two basic loans: 1) a maximum loan size affordable by the VKL; and 2) 50% of that amount. Obviously, service providers with a much smaller turnover were reviewed in light of a much smaller debt carrying capacity. Under these loan scenarios, modest efficiency gains are realized from the improvements in its operations. In cases where the maximum loan amount was very low, e.g., Pechora, an alternative projection was made using a different profitability level to demonstrate the limitation that profitability (*rentabelnost*) has on debt servicing capacity.

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4.2.1 Principles

The financial projections are based on the following broad principles:

- VKLs receive no subsidies or transfer payments from the government and funds its operational and debt service expenses out of revenues collected from end-users.

- Revenues should in aggregate be sufficient to meet all incurred expenses and to ensure the service providers financial viability. Therefore, the revenues should be sufficient to cover all operating expenses and debt service costs. In addition, VKL finances should provide for contingencies, such as bad debts or emergency repairs.

4.2.2 Assumptions

The following financial assumptions were made in developing the tariff projections for VKLs.

- **Inflation rate/exchange rate:** A domestic rate of inflation of 15% was assumed throughout the forecast period. This is based on the current country economic statistics and the EU / IMF / OECD inflation projections for 1997. The US dollar medium term inflation rate is forecast at 3% per annum. Purchasing power parity exchange rate models assert that exchange rates adjust to differences in relative prices. From a modeling standpoint, this implies that the Ruble will devalue against the dollar by at least 12% per annum on a compounded basis.

- **Loan amortization and interest rates payable:** Under subsidiary loan agreements between the Ministry of Finance and VKLs, loans will be repaid over 15 years with an initial grace period of 5 years. The nominal interest of this loan is assumed to be equal to 7.2%.

- **Personnel Costs:** Wages will grow at a real annual rate of 15% - the same as the rate of inflation. No reduction in VKL staff requirements is projected. All out-of-profit employee bonuses are included as a sebestoimost expense.

- **Depreciation:** The tariff includes the full depreciation for all fixed assets used by the VKL, including leased assets, and assets purchased via loans and other sources (i.e., 10% VKL matching). This assumes that such assets have been placed on the VKLs' balance, i.e., if a construction period is required, the assets will be placed only upon construction completion. As allowed by current Russian Federation legislation, depreciation shall also reflect the associated VAT with capital purchases.[26]

- **Capital repair expenses:** VKL expenses on capital repairs will be maintained at their current share of total expenditures through the year 2003, increasing 15% per annum for inflation.

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[26] Section 52 of the Russian Federation State Tax Service "Instruction No. 59," dated October 11, 1995.

- **Materials/electricity, depreciation and supporting services:** The real costs of electricity and materials will stay the about the same throughout the 7 year period. However, with a system wide loss reduction program in place these expenditure items could conceivably be reduced over the forecast period.

- **Bad debts:** Under current Russian accounting rules, uncollectable accounts receivable can only be written off after three years, unless the debtor has been declared bankrupt. In practice, service providers do not write-off any debt, unless the firm is bankrupt. Currently, the value of uncollectable debt that is three years old is negligible due to the recent high inflation. However, inflation has been stabilizing, and in the absence of a guarantee that the regulations and law will be changed, we have assumed a 5% bad debt deduction. With direct billing, it is expected that collection rates significantly improve. Under current Russian legislation, written-off bad debts can only be deducted from pre-tax income and cannot be treated as a tariff-related expense, thus bad debt provisions also cap affordable loan amounts.

- **Water/wastewater production:** The overall production of water/wastewater is assumed to drop significantly in the first and second years of the loan as a result of aggressive demand management, loss reduction programs including metering at the whole building level. In 1998, consumption and production are assumed to drop 10%, in 1999, it is assumed to drop 20% and then begin a gradual increase of 2% per year after that due to general improvement in economic conditions resulting in increased demand.

- **Loan repayment:** Principle payments are shown as a depreciation expense.[27] Interest is shown as a residual, coming "out-of-profit". As allowed by current Russian legislation, the tariff projections also include an investment tax credit equal to up to 50% of a VKL's profit tax liability that are shown paying for all, or part, of the long term interest associated with capital investment.[28] Under this tax privilege, up to 50% of a VKL's profit tax liability can be used for capital investment activities. Any interest greater than the 50% limit, is shown coming out of net-profit.

- **Profitability:** The tariff projections incorporate the profitability rate currently allowable for each VKL. This ranges from 9% (Pechora) to 30% (Kansk).

- **Tariff projection:** The tariff projections include a collection rate approaching 95% with a 5% level of bad debt write-offs throughout the forecast period and cash collection of at least 50%.

Table 4.1 illustrates current near-GAAP profit margins, cash collections, total collections, estimated loan capability, and forecast future tariff with that respective level of debt. PADCO engaged in multi-year financial projections. Table 4.1 illustrates that by incorporating the indicated debt into the VKLs tariff structure, the

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[27] See Chapter 3 for a further discussion of how depreciation can be actually used for this purpose

[28] Article 6 of the Russian Federation Law "On Enterprise and Organization Profit Tax," No. 2116-1, dated December 27, 1991.

combined (water/wastewater) tariff will rise by an average 262% over a seven year period. The two new components added to the structure of the tariff - debt service payments and bad debts - account for a significant portion of this tariff increase.

The projected rise in the average tariff would translates into tariff increases for all customer groups. Since the ability of enterprises and commercial organizations to cross subsidize residential consumers is already constrained by relatively high tariff levels, the most drastic increase would have to be borne by residential consumers

Table 4.1 also displays the large role which allowable profitability has in limiting potential debt capacities. For example, the Pechora Vodokanal (9% allowable profitability) had revenues in 1996 of 30 billion Rubles (Table 3.6) but can only potential carry a $2 million loan. This is the same debt capacity as estimated for the Gagarin Gorvodokanal (20% allowable profitability), which had revenues of 7.5 billion Rubles in 1996. The Kansk Water and Wastewater Service Administration (30% allowable profitability) with slightly less revenues than the Pechora Vodokanal, 25 billion Rubles in 1996, has an estimated $14 million debt capacity - 7 times greater than Pechora's.

4.3 Loan Feasibility

To recap, the PADCO loan feasibility model assumes a collection rate approaching 95% with a 5% bad debt allowance. Further, the model inherently assumes a robust level of cash collections. More importantly, the interest on the capital investment loan is financed "out-of-profit" thereby imposing a soft ceiling on VKL borrowing. These are relatively stringent financial criteria. Are vodokanals currently able to satisfy these financial prerequisites?

Cash Collections

The PADCO review of the sampled VKLs' financial requirements indicate that the average current level of cash collections (19%) is extremely low. In order to make timely debt repayments, and necessary operating expense payments, the VKL will need to dramatically increase its level of cash collections to at least 50%. The minimum 50% 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% of the electricity outlay must be in cash.
- Emergency costs and purchases of items outside the local area would require at least 40% cash payment. Expenditures tied to repairs and contracting service are assumed to be at a very minimum 50% in cash.
- All debt service (interest plus principle) must be repaid in cash.

Table 4.1
Russian Vodokanal Debt Capacity

City	Actual Near-GAAP Profit As % of Expenses	% Cash to Total Billed Plus Accounts Receivable (1996)	% Collected to Total Billed Plus Accounts Receivable (1996)	Maximum Estimated Debt Capacity	Adjusted 1996 Full Cost Average Tariff (Rubles per m3)	Estimated 2003 Full Cost Average Tariff (Rubles per m3)	% Change In Tariff 1997-2003
Cheboksary	-12.2%	18%	81%	*$10,000,000*	1,088	2,165	99%
Gagarin	-18.5%	27%	73%	*$2,000,000*	2,470	9,424	282%
Kansk	-10.7%	14%	61%	*$14,000,000*	1,891	8,192	333%
Murmansk	11.0%	36%	69%	*$10,000,000*	1,269	5,029	296%
Nalchik	-26.6%	17%	55%	*$10,000,000*	1,277	4,602	260%
Orel	-3.4%	23%	55%	*$13,000,000*	1,221	4,580	275%
Pechora	23.3%	3%	81%	*$2,000,000*	1,904	6,645	249%
Pskov	5.4%	13%	63%	*$6,000,000*	1,511	5,335	253%
Smolensk	-26.7%	27%	62%	*$13,000,000*	1,868	6,725	260%
Votkinsk	-17.8%	18%	73%	*$3,000,000*	1,236	5,087	312%
Average	-7.6%	19%	67%	*$8,300,000*	1,574	5,778	262%

Notes:

1) Profit margins are based on total billed, not including VAT. Does not include bad debt deduction.

2) Maximum debt capacity and tariff projection assumes collection rate of 95% and 5% bad debt deduction from taxable income.

3) Estimated average tariff includes VAT (20%) and VKL respective profitability.

4) Percentages may not add due to rounding.

Total Collections

The 67% level of total collections is significantly deficient from the PADCO tariff/loan forecast model's 95% level of total collections. Further, the composition, quality and timing of collections is a major limitation in the current Vodokanals' financial environment. Total VKL collections must 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%. All but 3 of the 10 vodokanals (Murmansk, Orel, and Pechora) showed significant negative profitability. Two of the three showed only modest profitability. The actual financial status of all surveyed utilities is more dire than these profitability percentages indicate. The above mentioned 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. Further, since accrual accounting systems were used to review the VKLs' financial statements, it is apparent that cash net income and profitability is much lower than the net income and profitability carried on the utilities' tax financial statements.

In their present financial condition, *all of the sampled VKLs appear unable to service debt at any significant level through their user charges.* Only when the level of total collections, and more importantly, cash collections dramatically improve and the tariff is raised to reach full cost recovery will the sampled service providers be able to efficiently service long-term debt on their own.

In connection with the Russian Federation Water and Wastewater Project loan implementation schedule, Table 4.2 outlines priority actions and implementation time line for each VKL to satisfy before long-term borrowing can realistically be initiated:

Table 4.2
Vodokanal Debt Service Priority Actions and Implementation Time Line

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

4.3.1 Improve Cash Collections - Direct Bill Population Customers

Cash collections can be immediately improved by direct collection from population customers and budget organization while maintaining cash collections from enterprise customers constant. For example, if 90% of population customers (28% of total 1996 billings), 40% of all budget organizations (33% of 1996 billings), and 27% of enterprise (43% of 1996 total billings) are paid in cash average cash collections will increase from 19% to 50%, the target noted in Table 4.2.

4.3.2 Increase Total Collections

Obviously, the steps taken towards increasing cash collections will improve total collections as well. The target shown in Table 4.2 can be achieved by improving collections from all categories of customers. If collections reach 80% from all population customers (28% of VKL billings), 75% of budget organizations (33% of total billings), and 77% of enterprise customers (43% of total billings), vodokanals will achieve a collection rate of 80%. Further actions at improving collections will need to be taken to achieve the 95% collection rate required to service debt. These are discussed in the longer term Action Plan discussed in the next section.

4.3.4 Bill Full Cost Tariff

Tables 3.6 and 4.1 showed that in 1996, VKLs were unable to recover all of their costs, including out-of-profit expenses, from their user charges. Given this environment, it is unlikely that VKLs will be able to successfully undertake debt service until they are given the ability to bill full cost tariffs. Full cost tariffs will include full depreciation (including for leased fixed assets), billing and collection costs.

and interest for short-term production related interest loans. Only when a VKL can demonstrate that it can recover all of its costs through its user charges, i.e., full cost tariffs, should they eligible for loans.

4.3.5 Meter 40% of Consumption

As a step towards full consumption metering, VKLs should have metered at least 40% of consumption by Negotiations. This target can be achieved if all enterprise (17% of 1996 VKL consumption) and budget organization customers (20% of 1996 consumption) plus 5% of all general population customers (3% of total 1996 consumption) are metered. General population customers would be metered at the building level. For most VKLs, the 5% target would require metering only a few buildings.

4.3.6 Eliminate Cross Subsidies and Expand the Housing Allowance Subsidy Program

Achievement of these targets will require a sustained effort on behalf of participating cities to publicize the HASP and to upgrade the capacity of HASP offices to service larger populations. Meeting this target however is crucial if the local government is serious about assisting its VKL in improving cash collections and eliminating the inefficiencies and inequities created by the cross subsidy. By reducing enterprise general population cross subsidies, VKLs are likely to increase their cash collection. Currently, enterprises make only 27% (Table 2.6) of their payments in cash. In addition, eliminating the cross subsidy and billing on metered consumption, the VKL should experience the benefits of a demand management program; e.g., minimizing the need for further capacity. The expected increased subsidies could be financed out of reductions in general communal services subsidies to recipients of communal services.

The State Committee on Construction should negotiate the actual performance targets, including tariff increases, and financial reforms for each VKL. These negotiations will determine each VKL's true debt carrying capacity. The PADCO model does not consider capital subsidies. Individual VKL debt carrying capacity may be improved if such capital subsidies were provided as part of the individual VKL negotiation.

4.4 Vodokanal Action Plan

The priority actions form the core of a broader Action Plan ("Plan"), Table 4.3, which should assist the Federal government, municipalities, and VKLs to create the necessary conditions for more efficient VKL financial debt management and help improve VKL operational and financial autonomy. The Plan presents action items which should be carried out over the short-, medium- and long-term.

The Plan's goal is to promote the financial sustainability for VKL's current and future operation. The Plan is divided into the following six categories: corporate governance, regulatory framework, management improvement, tariff/finance social protection, operational efficiency, and demand management.

Table 4.3
Vodokanal Action Plan

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	**Municipal/Republic Administration**	**Federal Government**
I. Corporate Governance			
Pass law on Municipal Unitary Enterprises			The Russian Federation should pass a law on municipal unitary enterprises. Such a law would include a section that would authorize municipalities to contract services with communal service providers regardless of whether the municipality owns the enterprise. This provision would allow a binding service contract to be agreed between the city and service providers that would be enforceable in a court of law.
Reorganize Corporate Structure	Most of the VKLs have structures which are outdated by the Russian Civil Code. Such VKLs should reorganize themselves as municipal unitary enterprises. The new Charters should grant to the VKLs and their directors as much operational autonomy as possible under applicable law, including the power to: • Create and revise internal management structures, appoint and dismiss management and other personnel; • Adopt and implement operating plans and policies; • Adopt and implement personnel policies; • Adopt and implement capital repair and capital investment plans and policies,	Administration(s) should allow vodokanals to reorganize as municipal unitary enterprises which enjoy the greatest amount of autonomy possible over its operational and capital investment activities. The Administration retains ownership over all assets and enters into separate property transfer and service agreements with the municipal unitary enterprise.	

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
	etc.; and • Determine the disposition of all profits. The Charters should include a clear statement of the VKLs' purposes and should accurately define their service areas. The Charter should prohibit VKLs from engaging in business and activities not reasonably necessary to their principal goal of providing water and wastewater services to customers in their service area. Once reorganized, the following three action items can take place: • Conclude New Agreement on Property Transfer; • Conclude New Service Agreement; and • Conclude New Contract with the VKL Director. These items can be carried out immediately for those VKLs which do not require corporate reorganization.		
Conclude New Agreement on Property Transfer		A property transfer agreement between the VKL and the Administration should be concluded. Under RF Law, municipally-owned property may be allocated to a municipal unitary enterprise only by right of "economic jurisdiction". To clarify and expand as much as possible, within the existing framework of RF law, the degree to which the VKL can control the disposition of these assets, the VKL and the Administration should enter into a legally-enforceable property transfer agreement with the following elements:	

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
		• A broad statement of the intended use of the assets; • A complete inventory of the assets transferred, and a description and other documentation of their physical condition and depreciable value at the time of transfer; • Transfer of the property for a definite term, restricting the right of the Administration to withdraw the right of "economic jurisdiction" before the end of the term to the case of use of the property for purposes other than those permitted by the property transfer agreement, or failure to comply with the requirements of the service agreement; • Periodic revaluation of the transferred assets for purposes of depreciation, in accordance with applicable law, and corresponding amendments to the property transfer agreement to reflect these revaluations; • Periodic amendments to the inventory of the assets transferred to reflect dispositions and acquisitions; and • The term of the agreement should be from five to ten years.	
Conclude New Service Agreement Between the Vodokanal and Administration		A service agreement between the VKL and the Administration should be concluded which describes the rights and obligations of each party with respect to levels of service, tariffs, capital investment planning and execution, and other aspects of the VKLs' operations and local government support. The Administration and the VKL should negotiate this agreement themselves, and its implementation should be monitored by the Administration	

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
		department (Regulatory Body - see below) that will set tariffs. The service agreement should project tariff and service levels for three to five years, but should be subject to periodic (perhaps annual) review and revision by mutual agreement. The service agreement should include the following major elements: • A statement of the purposes of the agreement; • A general statement of the rights and obligations of the VKL, including the rights to set its own operating, management, personnel, and other business policies; to take all reasonable and necessary steps to bill and collect tariffs from customers; and to deliver services at a level consistent with revenues, and the obligations to operate as a financially-sustainable enterprise, to take all actions reasonably required to enable it to deliver the agreed level of services, and to resolve all disputes regarding non-compliance with the service agreement in proceedings before the local independent regulatory body; • A general statement of the rights and obligations of the Administration, including the right to monitor compliance with the service agreement, and the obligations to permit the VKL to exercise its rights and fulfill its obligations without inappropriate political influence or interference by the Administration or the local organ of self-government, to support a level of tariffs appropriate to the agreed level of service, and to delegate to an independent local regulatory body the power to set tariffs	

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
		and to resolve all disputes regarding non-compliance with the service agreement; • Statements of long-term and short-term goals for water and wastewater service levels, including objective measures and specific schedules. Such goals could include improved water supply service duration and pressures, reduced water supply system leakage, increased water supply metering, improved water and wastewater system maintenance, reduced energy use, and improved water and effluent quality; • A requirement for the VKL to prepare and execute a capital repair and capital investment plan, in coordination with the City's overall plan for social and economic development; • A requirement for the VKL to develop and undertake (and for the Administration to support) a program of customer education and improved customer relations; • Requirements for improved accounting by the VKL, and for period publication of its financial results; • Requirements for periodic reporting by the Administration and by the VKL on performance (or non-performance) of their respective obligations under the service agreement; • Statements of any conditions of the Administration's or the VKL's obligations, including availability of funding for required capital repairs and capital investments, absence of material adverse changes in law, and absence of *force majeure*;	

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
		• A statement that the service levels called for by the agreement will be periodically reviewed and revised by mutual agreement; and	
Conclude New Contract with Director	A new contract with the Director should be concluded with the newly created independent regulatory body - see below. The contract should include financial incentives for achieving written realistic performance and efficiency benchmarks.	• A general statement of intent by the Administration and the VKL to cooperate with one another, use their best efforts to fulfill their respective obligations and to allow the other party to exercise its rights under the service agreement.	
II. Regulatory Issues			
Amend Existing Legislation Regulating Tariff Pricing Policies to Allow Vodokanal Full Cost Recovery.			Resolution No. 552 should be amended to allow enterprises to include all operational and capital investment costs directly into the tariff structure. Under the current system, expenses such as interest for capital related loans and employee bonuses can not be included as an expense but are to be paid out of an enterprise's net-profit. In addition, Resolution No. 552, and other appropriate legislation, should be amended to allow enterprises the ability to write-off uncollectable bad debt as a regularly occurring business expense item. Currently, only accounts receivable older than three years or from bankrupt customers can be written off. In addition, such a write-off is not treated as an expense but rather a deduction from taxable income. The immediate result of writing-off bad debt is the reduction of funds available for capital loan repayments.

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
Establish a Local Independent Regulatory Commission for Tariff Approval and Service Agreement Management		In order to separate the role of local governments as both the owner of the VKLs (except for Pskov Vodokanal) and of their assets from their role as tariff and service regulator, local organs of self-government Charters should be amended (with or without authorizing legislation by the corresponding RF subject) to create a special independent local government body to act as tariff and service regulator, with as much independence as possible from the local organ. The applicable RF subject legislation, if any, and the Charter amendment should describe the regulatory body's tariff-setting and service monitoring procedures, including provisions stating that: • Service levels are dependent on tariff levels and collection rates; that all decisions of the regulatory body must be made based only on the information submitted to it by the VKL, the Administration, and others; • The regulatory body will review tariff proposals on request of the VKL, the Administration, or by petition of customers representing a specified percentage of the VKL's revenues (perhaps with a limitation on the frequency of tariff changes); • The regulatory body will review compliance with the service agreement at the request of the Administration, the VKL, or upon request of a substantial proportion of VKL customers if they provide some evidence that either party is not in compliance; • All interested parties will have the right to have access to information submitted to the	

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
		regulatory body, at no cost (copies to be provided at actual cost); • All decisions of the regulatory body regarding new tariffs or compliance with the service agreement will be made only after a public hearing (preceded by publication of adequate prior written notice of the hearing), at which all interested parties will have the right to be heard and to present relevant evidence; • All decisions of the regulatory body will be in writing, stating the evidence presented and the reasons for its decision; • All decisions of the regulatory body will be published in the local mass media and will be available to all interested parties at no cost (copies to be provided at actual cost); • So long as the regulatory body acts within its jurisdiction, according to the procedures described in the Charter and according to applicable law, the Administration and the local organ will not interfere with its operations; and • The Administration, the VKL and (to the extent permitted by RF law) other parties affected by the regulatory body's decisions will have the right to appeal to the court or the arbitration court, in accordance with applicable law, based on specified, limited grounds	
Establish Automatic Inflation Escalator Mechanism In Tariffs		The tariff approval process mutually agreed to in the new service agreement should include an automatic inflation escalator mechanism. This mechanism would allow VKLs to adjust water and wastewater tariffs on their own, without further approval of the tariff regulator, to reflect inflationary increases in the	

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
		cost of major inputs, especially energy costs, according to inflation indices issued periodically (e.g., quarterly) by the appropriate government agency.	
III. Management Improvement			
a. Management Reporting			
Improve Management Reporting Systems	The VKL's accounting, economics, and customer billing departments should meet on regular basis to discuss joint operation and cooperation. Hiring a Chief Financial Officer (CFO) or creating the Office of the Treasurer to coordinate these three groups, streamline and consolidate these three operations would improve the quality of the financial reporting. The CFO (or Treasurer) should be at the same reporting level as the Chief Engineer.		
Increase Emphasis on Financial Reporting and Accountability	VKL monthly reports should include Trial Balance, Monthly Cash Flow, and Profit and Loss statements. All financial statements should have columns comparing forecast versus actual (not adjusted for revenues received). Accounts receivable should be analyzed (bad debt expense) on a monthly basis. VKLs should undergo an annual audit conducted by external auditors.		
Determine Vodokanal's Information System Needs	VKLs should review the nature of their current and future data requirements, decision making processes, and current capabilities of its staff. VKLs should hire computer system specialists to design a comprehensive management information and reporting system (MIS); train staff on the use of the new reporting system; and sign a		

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
	service agreement with the MIS - service provider for regular system maintenance and upgrading as well as continued training for staff.		
Implement an Efficient Cost Accounting System	VKL accounting departments have rudimentary cost accounting systems in place which do not yet fully incorporate the use of computers. Installing a consolidated accounting computer program will greatly enhance the productivity of numerous operations.		
Identify Portions of Accounts Receivable As Bad Debt Expense (Include in Cost of Tariff)	Until federal legislation changes, VKLs should begin to write-off those bad debts which it can - i.e., three years and older. Before writing off such debts however, VKLs, working with the support of the independent regulatory body, should try to collect all debts before writing them off. The writing-off of uncollectable receivables should be viewed only as a last attempt to be compensated for services already provided. The regulatory body and the VKL should develop a written procedure for pursuing debt collection.		Resolution No. 552, and other appropriate legislation, should be amended to allow enterprises the ability to write-off uncollectable bad debt as a regularly occurring business expense item. Currently, only accounts receivable older than three years or from bankrupt customers can be written off. In addition, such a write-off is not treated as an expense but rather a deduction from taxable income. The immediate result of writing-off bad debt is the reduction of funds available for capital loan repayments.
b. Increasing Collections			
Collect from all Customers Directly	VKLs should collect from all customers directly, in particular, general population customers. This should result in an immediate increase of overall and cash collections. While billing may be handled by an intermediary, to be chosen on a competitive basis, all payments should directly be made to VKLs. One approach		

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
	would be to use a ZheK for billing purposes, but for VKLs to open an account at the same local bank where residential customers make their housing and communal service payments. Customers would deposit their payment directly into the VKL account when making their other payments.		
Resist Non-Cash Payments	VKLs should resist all non-cash payments whenever possible. If this is deemed impractical, each VKL should develop standardized guidelines/procedures for accepting non-cash payments including additional surcharge, interest payment, transactions fees, and a clearly defined debt repayment schedule.		
Levy Fines For Late Payments	In accordance with existing legislation, VKLs should levy fines to the maximum amount permissible. Fines should be issued however, only when it is determined cost effective.		
Develop and Implement Service Shut-Off	In accordance with existing legislation, VKLs should develop standards and procedures for shutting off service for non-payment.	Shut-off standards and procedures developed by VKLs should be approved by the newly established regulatory boards. This is one of the primary conditions in the service agreement between VKLs and Administrations.	
IV. Tariff / Finance / Social Protection			
Include All Interest for Capital Related Long-Term Loans Directly in The Tariff Structure.	Once permitted by law, VKLs should include the interest for capital related long-term debt directly into their tariff structure. Such interest payments currently are suppose to come out of the VKL's profit. Including such interest as a direct expense and not as an out-of-profit expense, should provide VKLs the		Resolution No. 552 should be amended to allow enterprises to include all operational and capital investment costs directly into the tariff structure. Under the current system, expenses such as interest for capital related loans and employee bonuses can not be included as an expense but are to be paid out

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
		of social assistance for making housing and communal service payments from the local government. By relying solely on the HASP for providing the social protection net, the city budget should yield significant monetary savings as they will by providing moneys for only those who need assistance and not everyone.	
Expand the Operations of the Housing Allowance Subsidy Program System.		All cities have HASP offices. None however appear to be fulfilling the role that they were envisioned to assume; providing less than 5% of their respective population with HASP subsidies even though many more seem to potentially qualify. Once VKL tariffs move toward full cost recovery however, Administrations need to be prepared for the resulting increase in HASP participants. In order to maximize budget savings, HASP offices must work efficiently, be fully computerized, as well be able to carry out strict auditing of applicants.	
Implement Intensive Public Information Campaign to Explain Vodokanal Tariff to Explain the Existence of the Housing Allowance Subsidy Program.	Administrations and VKLs must inform the public of HASP through intensive public education campaign(s). These efforts must explain: • Why the tariff increases are necessary; • How the HASP protects poor families from unreasonable burdens; • How residents can apply to receive HASP subsidies; and • What benefits will be realized by replacing cross-subsidies, *dotatsi*, and privileges with targeted HASP subsidies.	Administrations and VKLs must inform the public of HASP through intensive public education campaign(s). These efforts must explain: • Why the tariff increases are necessary; • How the HASP protects poor families from unreasonable burdens; • How residents can apply to receive HASP subsidies; and • What benefits will be realized by replacing cross-subsidies, *dotatsi*, and privileges with targeted HASP subsidies.	
Announce the Ministry of Labor Minimum Housing Standards for		Lobby the Federal Government to announce these standards.	Discussed in Resolution No. 707, these "life-line" type standards can help guide local

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
Communal Service Consumption			decision-makers with HASP standard setting. For example, it would help determine above what level of consumption should families become ineligible to receive HASP subsidies in order to ensure that wasteful consumption is not subsidized. Families whose measured consumption were above the Ministry's standards, would not be able to receive subsidies or would receive reduced subsidies. Unfortunately, until general population customers are charged based on metered consumption, these standards can not be applied effectively.
Analyze and Make Public Plans to Rationalize Privilege System			Discussed in Decree No. 425, the entire privilege program should be analyzed in the context of HASP and then rationalized. Targets for gradually rationalizing these privileges should be published. Such targets would let local governments develop better projections and more comprehensive strategies for providing services while offering a social safety net over the next several years.
V. Operation Efficiency Issues			
Meter Production	Measuring all production by meters should be considered a top priority for VKLs. This is one of the primary conditions in the service agreement between VKLs and Administrations.	Measuring all production by meters should be considered a top priority for VKLs. This is one of the primary conditions in the service agreement between VKLs and Administrations.	
Reduce Production Inefficiencies	VKLs should evaluate pumping efficiencies with the goal of reducing energy consumption while meeting daily peak demands including this as a primary condition in the service	VKLs should evaluate pumping efficiencies with the goal of reducing energy consumption while meeting daily peak demands including this as a primary condition in the service agreement between VKLs	

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
	agreement between VKLs and Administrations.	and Administrations.	
Reduce Delivery Losses	VKL should determine the magnitude of delivery loses and develop a loss reduction program that will be included in the new service agreement with the Administration.	VKL should determine the magnitude of delivery loses and develop a loss reduction program that will be included in the new service agreement with the Administration.	
Stream-line Vodokanal Employment	VKL management should evaluate total staff requirements to determine if possible staff redundancies and production inefficiencies exist. Where possible, management should reduce surplus staffing.		
Competitively Contract Out to Third Parties Certain Aspects to Private Contractors.	Some VKL operations could be more efficiently performed by private contractors, including: billing, collection, enforcement, emergency repair work, capital construction and repair, transportation, and, operation and maintenance of isolated service areas. A successful cost accounting evaluation can assist management determine which operations could be more efficiently carried-out by private contractors.		
VI. Demand Management *Meter Consumption*	VKLs should follow the guidelines provided in existing legislation; i.e., customers shall install meters on their own or face being billed the maximum amount of water and wastewater they technically could use. Given the associated installation costs, meters should be installed at the building level, with individual apartment meters to be installed only if the individual apartment owner pays for it themselves. The building owner should pay for the purchase and	Discussed in Decree No. 425, Administrations should promote general population meter installation. In the case of buildings still in municipal ownership, the Administration itself should purchase the necessary meters for the whole building level. For non-municipal housing, Administrations should develop loan programs for condominium associations, and other groups, to borrow against to purchase and install meters. Other incentive based strategies should be explored.	

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
	installation for building level meters.		
Change Attitude to be Focused on Fixing and Maintaining "the Other End of the Pipe."		After metering, fixing leaks inside of residential buildings is the second most significant demand management strategy which an Administration can undertake. This strategy can also help reduce the overall water and wastewater payment made by general population customers once full cost tariffs and metering are in place.[29] Administrations should encourage active maintenance of plumbing to reduce water leaks as specified by existing "Housing Fund Technical Exploitation 'Rules and Norms.'" Municipal management and maintenance companies are currently not being held accountable for failing to enforce these "Rules and Norms."	
Introduce Incentives in Housing Management Service Agreements to Enforce Existing Rules and Norms for Improved Housing Maintenance and Management Services		Administrations should introduce incentives into the management service agreements to enforce existing "Rules and Norms."	
Promote the Privatization of Maintenance and Management Companies		Discussed in Decree No. 425, Administrations should promote the formation of private maintenance and management companies to compete for work currently being performed by municipal ZheKs. Private companies could play a large role in reducing "other end of the pipe" leaks and losses. Private maintenance and management companies are	

[29] PADCO analysis in two Russian cities suggest that there are significant water losses associated with the current maintenance level of residential buildings, the majority of which are still owned by local Administrations.

ACTION ITEM	RESPONSIBLE LEVEL OF AUTHORITY		
	Vodokanal	Municipal/Republic Administration	Federal Government
		more likely to carry-out the activities which they are responsible for than municipal owned ZhEKs[30] and are more likely to respond positively to incentive based contingencies in their service agreements.	
Promote Condominium Association Formation		Discussed in Decree No. 425, Administrations should promote the formation of condominium associations. Such associations can improve water and wastewater service provision and replace the current intermediary who acts on behalf of general population customers for billing and collecting purposes. They also more readily respond to programs which could lower their members' housing and communal service payment. Condominium associations provide general population customers the ability to better influence the level of quality and costs of the services which they receive. Note: associations generally represent only their own interests and not those of the provider.	

[30] This is based on testimonials from Deputy Mayors from Barnaul, Ekaterinburg, Novgorod, and Chelyabinsk; PADCO, Inc., 1997.

Appendix I. Water Loss and Demand Management

Water System Losses

All of the cities PADCO assessed appear to have very substantial water losses. When asked about losses, the vodokanals responded that they think the losses to be between 20% and 40% of total production. The Russian Academy of Science in 1993 estimated the average system water loss to be 40 percent.[31]

Water loss is difficult to estimate accurately because water consumption is not metered and, often, neither is water production metered. Although vodokanals extrapolate the amount of water produced (the hours of pumping are recorded in a log which when multiplied by the pumps capacity ratings yields the water produced), the vodokanals can only estimate the amount of water consumed. Additionally, there are two types of water loss: water is lost through leaks in the transmission and distribution lines and in the residential buildings through leaking plumbing fixture and faucet valves.

Losses in the Residential Buildings

PADCO analysis in two cities, Pskov and Orenburg, showed more accurately the loss in the two systems.[32] To do so, in both cities several buildings were metered at the whole building level. Additionally, an analysis of the production was conducted and found fairly accurate (to a plus or minus 10 percent). Through careful meter readings at night (midnight to 6:00 a.m.), an estimate of water loss in apartment buildings was made to determine losses through faulty plumbing. By multiplying this loss times number of residential buildings in the city, total residential losses could be accurately determined to the plus or minus 10 percent of the real loss amount. Once the apartment loss was identified, a procedure of elimination could be applied to get the approximate total water loss for the Vodokanal (in-building losses and transmission/distribution line loss). That is, taking the metered consumption of production enterprises, the normative and metered consumption of the budget organizations and adding the refined value for residential consumption gave the total consumption. Subtracting the total consumption from the total production gave the approximate water loss figure for all sources of loss. While this methodology derives estimates that contain an error factor higher than metering would give, it is very useful for purposes of looking at system-wide problems under existing conditions.

The results of procedure strongly suggest that approximately one half the total water loss came from losses in residential apartment buildings in both cities. By assuming that one-half of the total water loss takes place in the residential apartments, the costs

[31] Conference on Water Quality and Tariff Measures, held in Azov, Russia in December 1993.

[32] Communal Services Pricing-Novgorod Teploenergo and Pskov Vodokanal: Towards a New Model of Communal Service Provision, USAID/PADCO Contract No. CCS-0008-C-00-2057-00, Task Order 84, April 1997. Orenburg Vodokanal-Improving Cost Recovery, Tariff Reform, and Metering Demonstration Project, USAID/PADCO Contract No. CCS-0008-C-00-2057-00, Task Order 74, May 1996.

and benefits can be estimated of reducing this loss to the vodokanal and to the City (or residential consumers when the consumer begins to pay the full amount of metered consumption).

In Pskov and Orenburg, actual consumption exceeded the norm for consumption by 15 to 25 percent (the variation is due to the type of building plumbing, e.g., whether the apartments have toilets and sinks and baths). In specific buildings this amounts of loss that the residential consumer would, after metering at the whole-building level, have to pay for could be much higher.

Losses in Transmission and Distribution Lines

As mentioned, total water losses consist of two components: losses in residential apartments and losses in transmission and distribution lines.[33] Losses in transmission and distribution lines pose a different type of problem for vodokanals. In some vodokanals where the source of water is plentiful, the incentive is not as great to eliminate this type loss as when the source of water is limited or at its maximum capacity. Additionally, vodokanals will realize only a fraction of the reduced cost of production because of continued overhead expenses. Nonetheless, if vodokanals do not reduce this loss, they probably cannot reduce the tariff as much. As metering in the residential apartment buildings is carried out, the losses in the transmission and distribution lines will become clearer and the vodokanal will be pressured to reduce the loss to reduce total expenditures to reduce the tariff as low as possible. Also, specific performance requirements as a part of a general service agreement between the city and vodokanal would insist that water losses are reduced in transmission and distribution lines.

In cities where the water sources are limited and the water quality requires extensive treatment (additional costs), the incentive to reduce all water losses increases significantly. Here the cost savings to the vodokanal is assumed to be incentive enough for the vodokanal to reduce losses in the transmission and distribution lines. However, targets should still be including to reduce transmission and distribution lines losses in the service agreement.

METERING AND DEMAND MANAGEMENT

In all the cities that PADCO assessed, except Pskov, metering of residential water consumption is uncommon. Where meters have been installed, often they do not work or are not read and billing is not based on metered consumption. Individual residences may be metered but are often charged a norm for the building consumption and another norm for outdoor irrigation for gardening. Budget organizations are often not metered but billed based on norms established for the type function carried out by that budget organization (e.g., school and hospitals). Only production enterprises are metered and charged based on consumption on a consistent basis.

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[33] The difference between a transmission line and a distribution line is that the distribution lines are generally smaller and have taps into the line. Transmission lines are generally much larger and taps into this line are not permitted.

Metering is a Demand Management Tool

The primary goal of metering water consumption is to establish a direct link between water consumption and the amount billed. Unlike norms of water consumption, when metered consumed increases, the amount billed increases. Unless there is no elasticity of price, as the volume and cost of the water increases, the volume of consumption decreases. PADCO found water consumption in Pskov and Orenburg to have price elasticity.[34] It is assumed that this price elasticity will apply in any city where metering of water consumption is introduced.

Metering water consumption is essential for relating water consumption to the cost of providing the service. Not only does the metering of the amount of water consumed address the way residential consumers use the water, but also brings into focus the payment for water lost through constantly leaking toilets, sinks and baths. Metering is also important for water conservation in budget organizations where norms are applied. By metering and charging based on the amount of water consumed, the budget organization will focus on how it uses water and amounts of water that are lost.

During discussions with vodokanal management and city officials, the cost of metering was often pointed out as a significant barrier to metering. PADCO's experience in the Orenburg metering demonstration project gives a relatively accurate methodology for projecting costs for metering.[35]

In nearly all the cities where PADCO consultants conducted their assessments the vodokanals showed that they were considering metering at the whole-building level because they assumed this to cost much less and be more technically feasible and easier to carry out.

This is a good first step in that it costs much less, (see the cost projections below) and gives the service provider and consumer time to acclimate to the charge for water based on metered consumption. Additionally, the cities and vodokanals can evaluate more accurately the need and cost of metering at the individual apartment level.

Votkinsk Meter Installation Cost Estimates:

The cost estimates below are for two different metering scenarios in Votkinsk (population 91,000) and are presented as a first step for a vodokanal to consider when developing a metering program. Rough cost estimates are provided to give an approximate or preliminary perspective of the costs involved in metering at the two different levels.

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[34] Communal Services Pricing-Novgorod Teploenergo and Pskov Vodokanal: Towards a New Model of Communal Service Provision, USAID/PADCO Contract No. CCS-0008-C-00-2057-00, Task Order 84, April 1997. Orenburg Vodokanal--Improving Cost Recovery, Tariff Reform, and Metering Demonstration Project, USAID/PADCO Contract No. CCS-0008-C-00-2057-00, Task Order 74, May 1996.

[35] Ibid., Appendix 4.1 through 4.1.8.

Scenario 1: Whole-Building Metering

In Orenburg and Pskov the operating status of the mechanical rooms that service apartment buildings varied greatly in their configuration and the replumbing work that are necessary to install meters. For the Votkinsk metering cost estimate, individual buildings could not be inspected. Therefore, to derive the size of the line feeding the residential apartment building and, thus, the meter size, Russian Federation Construction Code requirements for service to the number of people indicated living in the building were used. The next step was to apply the cost of meter, related equipment, assembly and installation labor, replumbing and modifications needed in the equipment rooms (included in contingencies) for the respective size of line.

The cost of installing a meter in a 15-millimeter diameter line is estimated to be $160 US dollars. As in each other size of line, this estimate includes the meter, three shut off or gate valves, a bypass line (so that the meter can be taken out and repaired or replaced without interruption of service to the apartment building), and the labor for installing the unit in each apartment building.

To the aggregate cost of the meter installation, a large contingency was added, anticipating that additional plumbing will need to be done to the building service line and mechanical rooms where the meters will be housed.

In Table 1 below, we can see the overall cost estimate to install meters in every residential apartment buildings in Votkinsk . The purpose of the large contingency is to provide a conservative estimate for plumbing and mechanical room modifications likely to be needed to cover unforeseen costs due to the age of existing plumbing or mechanical room configurations.

Figure 1 Typical Whole Building Metering

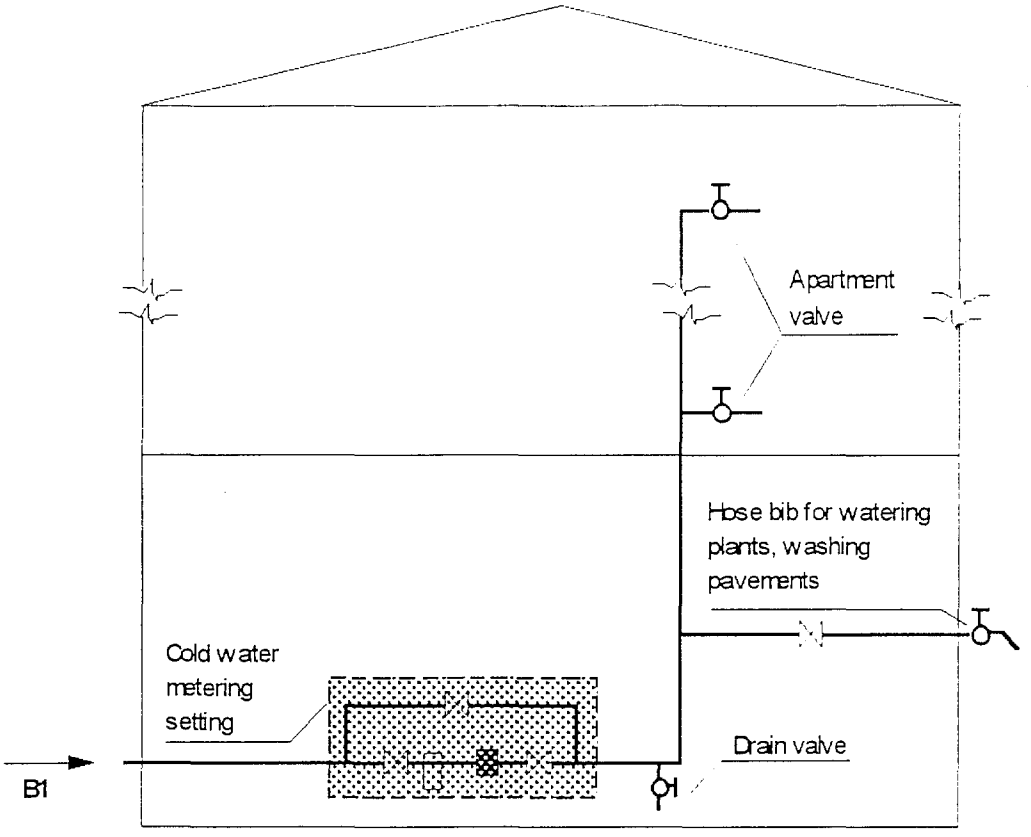


Table 1. VOTKINSK--POPULATION 91,000
SCENARIO 1
Cost Estimate for Metering Whole Apartment Buildings

Number of Persons Per Building		Required diameter of meter, (mm)*	Number of buildings **	Unit Installation Cost, (US$) ***	Total Cost (US$)
From	To				
1	21	15.	273	$160	$43,680
22	32	20.	47	$200	$9,400
33	45	25.	35	$300	$10,500
46	64	32.	57	$350	$19,950
65	103	40.	34	$400	$13,600
104	200	50.	137	$600	$82,200
201	547	65.	144	$700	$100,800
548	1147	80.	4	$800	$3,200
1148	2133	100.	1	$900	$900
Total			732		$284,230
Contingencies		30%			$85,269
Total installation costs including contingencies:					$369,499

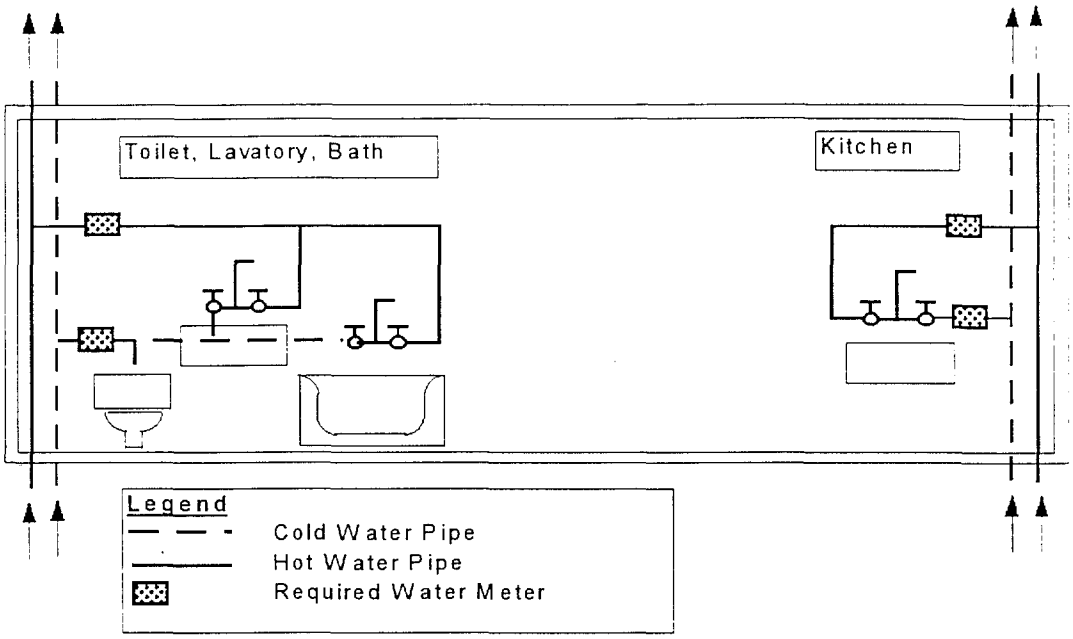
Source: Number of people in each building is based on the Vodokanal Billing Department computerized data base.

* Required diameters of water meters are assigned based on the number of people in each building

** Number of buildings - Billing Department of Vodokanal

Scenario 2. Metering Each Apartment.

Figure 2 Typical Metering for Three-Room Apartment



In estimating the cost of metering each apartment, it was necessary to take into account that each apartment may be served by one to four risers requiring additional meters on each riser. Figure 2 gives us a picture of service for an apartment served by a two-riser system, two hot water meters and two cold water meters.

In Table 2 below, the number of apartments that have two risers and the number of apartments served by four risers is estimated based on information provided by the Votkinsk City Housing Maintenance Department.

The cost estimate of installation per meter in apartments is based on the following:

Water meter price	$30
Shut-off valve	$ 7
Electronic readout	$15
Other Materials	$ 5
Installation labor	$30
Total	$87

As in the contingency estimate above, a conservative contingency figure was used because the condition of plumbing varies in each apartment substantial restoration work may be required.

Table 2
Meter Installation in Individual Apartments
Cost Estimate

Type of Water Supply	Number of Persons *	Number of Apartments **	Number of Meters per Apartment	Total Number of Meters	Total Installation Cost (US$)
A	B	C	D	E	F
DHW, including	*63,862*	*24,562*			
- two risers, 70%	44,703	17,193	2	34,386	2,991,582.
- four risers, 30%	19,159	7,369	4	29,476	2,564,412.
Gas heaters	2,043	786	1	786	68,382.
Solid fuel heaters	1,996	768	1	768	66,816.
Water, Sewer, Gas	533	205	1	205	17,835.
Water, Sewer, no bath	614	236	1	236	20,532.
Water, no sewer	1,763	678	1	678	58,986.
Total.	70,811	27,235		66,535	5,788,545 .
Contingencies ***					30.%
Total Installed Costs including Contingencies					7,525,109.

* Average Number of people living in municipal apartments--2.6, based on Vodokanal Billing Department.

** Number of apartments is calculated based on the average size of family. Source is the Housing Maintenance Department of the City.

*** This inflator requires closer analysis of the existing state of internal plumbing of the buildings. Most additional costs would result in having to replumb the whole water service access to the building and pipes that service the apartments.

Votkinsk Metering Summary

The above rough cost estimates show a wide disparity between metering at the whole-building level and metering each apartment. Metering at the whole-building level will enable the City, Vodokanal and, ultimately, the residential consumer to take more time in evaluating the costs and benefits of metering at the individual apartment level.

APPENDIX II
METHODOLOGY USED TO CONVERT FINANCIAL STATEMENTS OF VODOKANALS TO NEAR-GAAP ACCOUNTS

1. INTRODUCTION

All Vodokanals maintain their books of accounts and prepare annual accounts according to Russian Accounting Standards (RAS). In 1995, most Vodokanals maintained books of account on a cash basis while in 1996, they changed their basis of accounting to an accrual basis following guidelines issued by the Ministry of Finance (MoF). Cash basis, strictly means, that only cash transactions are recorded in the books of account. Under this system, there are no accounts receivables or payables. However, in all Vodokanals who said that they prepared accounts on a cash basis, there were accounts receivable and payable. Therefore, the accounts were not prepared strictly, on a cash basis. PADCO financial analysts had to analyze the Vodokanal ledger and annual accounts to detect the extent of the cash basis of the Vodokanal accounts, and how accounts receivable and payable came into being. In 1995, most of the Vodokanals prepared their accounts on a so-called cash basis, which was in fact a mix of cash and accrual bases.

The Vodokanal prepares a Balance Sheet and a "financial results" statement that they file with the Tax Directorate every year. The financial results statement is their Profit and Loss (P&L) account. A breakdown of the expenses is not shown in the financial results statement. Some Vodokanals prepare their financial results statement based on cash collections during the year from customers as revenue and adjust the expenses for the year to show the proportionate value of expenses that match revenue shown on a cash basis. The Vodokanals calls this cash basis. Here, the figures in the balance Sheet and P&L account will not agree with the general ledger. In 1996, most Vodokanals prepared their annual accounts on an accrual basis because of a recommendation given by the MoF.

2. METHODOLOGY USED

The PADCO team had an institutional expert and a financial team. The financial team had a leader and other financial analysts in the team. Because of the inconsistent accounting basis from one year to another used by the vodokanals (cash, accrual, and mix of cash and accrual), and also different basis of accounting used by different Vodokanals, the financial team leader had to use skill and judgement to adjust the approach and methodology to suit the relevant Vodokanal. The general methodology used for the task of converting Russian accounts to near-GAAP accounts in Vodokanals is described in the following sections.

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2.1 Review of Accounting System

The first task was to familiarize with the accounting system of the Vodokanal. The financial team interviewed the Chief Accountant (CA) of the Vodokanal. At this preliminary meeting, the following aspects were discussed.

- Basis of accounting in 1994, 1995, and 1996. The basis of accounting in 1994 was necessary for the preparation of sources and uses of funds statement.

- Organization of the accounts department. A rough organization chart was drawn as vodokanals typically do not have a separate organization chart for the accounts department. The chart was important because: (I) it provided a summary of the organization of the accounts department for the report; (ii) clarifications could be obtained from the relevant accountant, thus, saving much time of the consultants and the CA, and (iii) tables required by the World Bank were handed over to the relevant accountant of the Vodokanal through the CA

- The main tasks of each accountant were reviewed to gain an understanding of the division of work in the accounting department. The answers gave the basis for an assessment of the subdivision of work of the accounts department.

- General ledgers and the subsidiary ledgers were examined. Computerization was assessed at this stage. Depending on computerization and the subdivision of work of the accounts department, getting a preliminary level of confidence or lack of confidence on the Vodokanal financial data was possible.

- Copies of the trial balances for 1994, 1995 and 1996 were requested. Most Vodokanals did not prepare trial balances. In RAS, the trial balance shows only assets, liabilities, capital, reserves and deferred expenses.

- Copies of the 1995 and 1996 financial statements and the financial results statement filed with the tax Directorate was requested.

- Russian versions of the World Bank (WB) tables were given to the CA to complete for the years 1995 and 1996. While doing so, the significance of each table as well as the meaning of each row and column was explained in detail. Items in the tables that could be traced to the P&L account or the Balance Sheet were shown to the CA, so that these tables would agree with figures in the restated financial statements. A contact person from the PADCO team was identified as the liaison person for the completion of the task of completing the WB tables.

and the CA and her accountants were requested to contact this person for any further clarifications on the WB tables.

The WB tables that were given to CA are:

- Analysis of taxes and other mandatory payments
- Cost analysis
- Changes in accounts payable
- Aging payables.

The following WB tables were completed by the Billing department:

- Analysis of billing and collection for the year
- Analysis of accounts receivable
- Aging of accounts receivable.

CA was requested to check the following items while preparing the WB tables to ensure consistency with the trial balances and general ledgers:

- Cost analysis table. The figures should agree with the expenses shown in the P&L account

- Changes in accounts payable. Accounts payable at the beginning and end of the year should be equal to the Balance Sheet figure.

- Aging payables. Closing balance of accounts payable should be equal to the total in this table

- Analysis of accounts receivable. Accounts receivable at the beginning and the end of the year should be equal to the Balance Sheet figures. Water and wastewater billed in this table includes with VAT whereas the revenue in the P&L account is shown without VAT. However, revenue in the P&L account that excludes VAT when multiplied by 100 and divided by, 100 minus the VAT percentage (100-20=80%, in 1996) should equal revenue plus VAT.

- Aging of accounts receivable. Accounts receivable figures in this table should be equal to the closing balance of the accounts receivable table. While reviewing accounts receivable, the team requested a list of bad debts of budgetary organizations and production enterprises. The list showed: the name of the organization, amount of bad debt and, the reason for considering the debt "bad" (i.e., the organization was bankrupt, the accounts receivable extended beyond three years, etc.)

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2.2 Review of Billing and Collection System

The next task was to become familiarized with the billing and collection system of the Vodokanal. All vodokanals had separate billing and collection departments. Normally, the head of the billing department comes under the Director of the Vodokanal rather than the CA. The leader of the financial team interviewed the head of the billing department and his senior accountant. At this meeting that continued for about one and a half days, the following aspects were discussed.

- Organization of the billing department. A rough organization chart was drawn showing the main functions of the subsection of the billing department.

- Tariff movements. Tariff movements for various categories of customers from 1994 to 1997 for water and waste water was requested to show how billing actually occurred. In doing so, billing departments were asked to indicate clearly whether tariffs included VAT.

- Distribution of Customers. The number of customer categories and number of customers in each category was requested. Then, the number of agreements signed with individual customers was requested to learn if the number of signed agreements were matched with the number of customers. A copy of an agreement was collected for our files.

- Operation of Billing and Collection System. Next a rough flow chart was prepared illustrating the operation of billing and collection procedures.

- Invoicing Procedures. Since it differed by customer category, the invoicing procedures used to bill budgetary organizations and production enterprises was requested and a sample copy of an invoice was collected for our files. The tariff in the invoice was checked with the tariff given to us to: (i) verify the accuracy of the tariff given to us, and (ii) to see whether the tariff was with or without VAT.

- Invoicing procedures. Population customer invoicing procedure of population was reviewed in more detail because it varies in different Vodokanals. Some Vodokanals bill intermediary municipal Zheks; some bill the population directly; and in some, such as Vladimir, the population prepares their own bill and pays directly to a bank.

- Population tariffs. Depending on the nature of population customers, tariffs used to bill general population customers differed in various vodokanals. For instance, where intermediaries existed, some Vodokanals bill 100 percent of the population customer bills to the Zheks who in turn bill the population at the subsidized rate through communal services bills. Alternatively, some Vodokanals bill the population at subsidized rates and request the City Administration to pay the subsidies.

- Subsidies. Several different types of subsidies are provided to population customers and depending on the subsidy and frequency of payment. These can have considerable impact on vodokanal revenues. Thus questions were asked about the nature of the subsidies and who pays them to the vodokanal (the city administration or other organization).

- Barter and offset procedure. Given the importance of barter and offsets to most vodokanals, copies of barter and offset agreements were collected for the files and the CA was interviewed about the procedures used to negotiate these transactions. The authority for signing of barter and offset agreements were noted.

- Type of goods purchased under barter agreements. The basis of computing the selling price of goods purchased under barter agreements that are not used by the Vodokanal was reviewed to determine if there was any markup for transport and stock holding costs. Next, the team requested information of pricing basis for barter transactions and compared market prices with sample barter transactions.

- Cash collection. Procedures for cash collections were reviewed to decide the source of payment of cash transactions.

- Recordation of billing and collection transactions. Next, a review of the procedures for recording billing and collections by customer category were reviewed to determine computerization. Generally, the input documents to record billings were the invoices; source documents for collections were bank wire transfers, cash deposits in bank, and cash deposits with the vodokanal cashier. Source documents for other collections were the barter and offset agreements. A test check of this entire process was done to assess the reliability of the system.

- Recordation of sales. The source documents used to record the monthly sales figures in the general ledger was reviewed to determine the frequency of recordation and the degree of accuracy realized from the procedures used. Generally, the billing department generates a summary of monthly sales from the computerized system. This is the source document for input of the sales figure.

- Recordation of collections. Procedure for recording the collections in the general ledger was reviewed in the accounts department. Bank wire transfers and cash collections are recorded in the general ledger through the bank and cash books. Collection by barter and offsets are recorded in the general ledger from the relevant agreements, a copy of which is sent to the accounts department. Although the source of input data is the same, the collection recorded in the billing and accounts departments may not be the same. Therefore, it was necessary to match the accounts receivable according to billing department records with that of the general ledger balance.

- Opinion of the competency of the billing department. Based on the review, the team assessed the competence of billing department key staff and the adequacy of the documentation involved as billing and collection is one of the most important financial functions of the Vodokanal.

2.3 Preparation of draft Balance Sheet

A two-stage procedure was adopted to convert the Vodokanal Balance Sheet to a near-GAAP Balance Sheet. First, a draft Balance Sheet in GAAP format was prepared from the vodokanal's trial balance. Next the P&L account was prepared in a near-GAAP format. In doing so, journal entries were prepared to convert vodokanal P&L accounts to near-GAAP P&L accounts. Finally, a near-GAAP Balance Sheet was prepared after incorporating all journal entries made by the PADCO team.

The detailed procedure followed is listed below:

- The Vodokanal trial balance (TB) was compared with general ledger balances, to see that the figures in both corresponded. Where a TB was not available, the CA was requested to prepare one. In our judgement, where we assessed that the CA was not able to prepare a TB within one day, the PADCO team prepared a draft TB. Next, trial balances at the beginning and end of the year were entered into a spreadsheet and both were checked for reasonableness. The approach for the reasonableness check was the same as those used by auditors when they do a Balance Sheet audit. If there were doubtful figures from an audit point of view, these were listed and investigated and notes prepared for later inclusion in the PADCO report on the vodokanal. Where changing the figures was necessary, journal entries were prepared describing the changes.

- Preparing draft balance sheets (BS) from trial balances was not as easy in GAAP accounts because the vodokanal trial balances contain individual accounts having debit and credit balances that must be reconciled. Also, RAS has accounts that are different from GAAP accounting such as target financing which is really grants to the vodokanal. Further, target financing, and the P&L account balance are never connected to the BS by vodokanal. Often the net profit in the P&L account #80 is transferred to the Use of Profit account #81, a transfer that would not happen in GAAP accounting since profit is not used to fund expenses. Expenses are charged to this account. Sometimes through journal transfers, vodokanals bring this account down to zero. As a result, there is no connection between the trial balance and P&L account. Preparing this connection was the most time consuming and difficult exercises. In GAAP accounting, the P&L account balance is carried forward and appears in the BS.

However, in Russian accounting this connection is not made meaning that there is no direct link between the two statements.

- Next draft balance sheets were prepared in near-GAAP format. First, the BS prepared by the vodokanal for the Tax Directorate was connected to their TB and a connection table was prepared from this connection. The purpose of this exercise was to ensure that figures in the vodokanal BS can be traced to the near-GAAP BS, and to have the same grouping of individual accounts in the near-GAAP BS. When the Vodokanal prepared an adjusted BS for their tax directorate showing cash collections received and proportionates expenses, making the connection with the Vodokanal BS was not necessary because the Vodokanal BS understated actual expenses. These Vodokanals did not have an internal BS showing the vodokanal's actual BS position. The reason may be that the BS presentation of vodokanals is confusing even for an accountant and is very much unlike the GAAP format of a balance sheet.

- Draft balance sheets were prepared from the connection tables. Figures in the draft balance sheets can be connected to the Vodokanal TB via the connecting table.

2.4 Preparation of Near-GAAP Profit and Loss Account

Preparation of the near-GAAP P&L account was more difficult than the preparation of the BS because in Russian accounting, the P&L account filed with the tax directorate, called the financial results statement, is in a summary form. For example, all expenses are shown in one total and the P&L account balance carried forward does not show up in the balance sheet. In GAAP accounting, net profit utilization is shown as an appropriation account below the P&L account, and the bottom line appears in the BS as a P&L account balance under revenue reserves. The P&L account balance brought forward from the previous year is then added to the appropriation account. As the two figures match, one can trace the P&L account balance in BS, to the P&L account and vice versa.

A further complication in BS preparation occurred when vodokanals prepared P&Ls with proportionate expenses. Such P&L accounts were of no use in preparing near-GAAP P&Ls since they did not record all the vodokanal's expenses. Generally when this occurred, the vodokanals did not have an internal P&L account with all expenses for the year showing the vodokanal's actual financial position. Therefore, these vodokanals can probably connect our restated P&L account unless they prepare a proper P&L account and reconcile the journal entries made by the PADCO team. Often, vodokanals using this system of proportionate expenses would not have a true internal picture of the enterprise's finances or its actual profitability.

The procedure adopted to prepare a near-GAAP P&L account is described below:

- First, the vodokanal financial results statement filed with the Tax Directorate was used to obtain total revenue for the year. Next the monthly totals of account sales from account #46, in the general ledger were totaled. Then the billing department's monthly billing summaries were verified with the amounts recorded in the account #46 to ensure that they correspond with January to December billings. If collections are recorded as sales, then the figure in account #46 were disregarded because for near-GAAP presentation, accounts must be prepared on an accrual basis. In such instances, revenue figures (without VAT) were collected from billing department monthly summaries covering the period from January to December. Account #46 always records sales without VAT. VAT on sales is credited to account #68-3. Therefore, the correct revenue figure without VAT is shown in account #46, provided it is from January to December. However, connecting and reconciling with vodokanal P&L account is important because later, the vodokanal may disagree with the revenue figures generated in this manner. If the Vodokanal P&L revenue figures are different from account #46 or if account #46 shows billings for a period other than from January to December or if account #46, shows revenue on a cash basis, then an analysis of billing summaries from January to December was filed in our working paper files to substantiate the basis for determining the revenues shown in the near-GAAP accounts.

- The vodokanal financial results statement shows total production expenses. For near-GAAP presentation, the major expenses need to be shown separately so that they can be analyzed. This exercise can be done by analyzing the basic production account #20, where in most Vodokanals, all production expenses have been charged. A photocopy of account #20, ledger card was filed in our working papers. When vodokanals show the major expenses separately in account #20, expense analysis is easy and can be taken directly from vodokanal accounts. Then all that is necessary is to add the columns. The next step is to decide whether these expenses have been accounted on a cash basis or from January to December on an accrual basis. If they are on a cash basis, the CA was requested to analyze the major expenses like electricity, labor and social taxes, on an accrual basis so that we could account the expenses on an accrual basis.

  Then the P&L account #80, where sales from account #46 are transferred as a credit and all expenses are transferred as a debit was analyzed to estimate the vodokanal's actual profit or loss. The debits come from basic production account #20 that had already been analyzed. In addition, debits coming from account numbers 23, 25, 26 29, and 31, i.e., auxiliary departments, general production costs, maintaining production units and deferred expenses, respectively, representing expenses for the year, are transferred to P&L account #80. Next step is to see that the addition of all these debits representing expenses for the year agrees with the figure shown in the Vodokanal financial results statement under expenses. If there is a difference, it has to be reconciled with the CA.

- For near-GAAP presentation, expenses from January to December (accrual basis) are shown. If the Vodokanal has accounted on a cash basis in account #20 or they have shown proportionate expenses in the Vodokanal financial results statement, January to December expenses need to be analyzed to show them as accrual figures in the near-GAAP presentation. Thus, where the figures will be different from the Vodokanal figures, and, the profit or loss also will be different. In some vodokanals, we agreed the accrual figures with the CA, and even gave them copies of our analysis, so there should be no disputed with our figures.

- Next journal entries need to be prepared to record any differences between vodokanal accounting and near-GAAP presentation. One journal entry (JE) was made to record the differences in profit or loss under both systems. This journal entry connects the near-GAAP P&L account and balance sheet.

- Vodokanal P&L account #80, shows the profit or loss for the year. This balance is transferred to Use of Profit account #81. Vodokanals make payments for various purposes and charge them to this account. In other words, they are using this profit. Some of these expenses are for production expenses like staff bonuses. Some expenses are not exactly production expenses, e.g., penalties for late payment of taxes. Balance in account #81, is transferred to various fund accounts and the balance on this account is brought to zero. Therefore, we tracked the movement of account #81 and showed the expenses charged to this account under correct 'expense' account categories. At the same time, we showed the transfers to various funds as the P&L appropriation account in our near-GAAP presentation. By this method, we connected the P&L account to the BS, a step that most vodokanals do not take.

2.5. Preparation of Near-GAAP Balance Sheet

Journal entries were made for various reasons. However, the most common entries were made to convert the vodokanal P&L account to an accrual basis when they had been accounting on cash or semi-accrual basis. Generally, we discussed the journal entries with the CA. However, their agreement was not necessary because the JE's had to be passed to prepare near-GAAP P&L account and BS. The working papers to back our journal entries are available in our working paper files. The procedure used to prepare the restated near-GAAP Balance Sheet is as follows:

- Journal entries were listed side by side with the trial balance under their respective headings. By incorporating these JE's, an adjusted trial balance was obtained. From this adjusted TB, the connection table was updated. From the updated connection table, a restated BS could be prepared.

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- The connection table is useful because any figure in the balance sheet can be connected to the trial balance through the connection table. In other words, any figure from the restated BS can be traced to the adjusted TB through the connection table and then from the adjusted TB to the vodokanal TB and vice versa.

- Next the team checked to see whether the relevant figures in the World Bank tables corresponded with the restated P&L and BS.

3. REVIEW OF INTERNAL CONTROL SYSTEM

Besides the internal control system of the billing department, the team also reviewed other component of the vodokanal's internal control using a standardized checklist. Samples of source documents were examined. In computerized systems, vodokanals were asked to provide a demonstration of the system's operation. This exercise was important for us to form an opinion on the reliability of the figures shown in Vodokanal financial statements. Notes on these operating systems were recorded as appropriate.

3.1 Payment System

- Examine the bank and cash books to see how collections and payments are recorded.

- Supporting documents for cash collections and payments were inspected as these are official receipts issued for collections and payment vouchers to support payments.

- Names of check signatories were requested to find out who had actual authority over disbursements.

- Monthly bank reconciliations were requested to see if they were being prepared regularly.

- The frequency of banking of cash collections was reviewed to detect the amounts of cash-on-hand that were being maintained by the vodokanal.

3.2 Economist of the Vodokanal

- Annual estimates or budget documents was examined to ascertain the budgeting process and its impact on corporate management. Attention was paid to determining the reliability of budget estimates and whether budgets were prepared using realistic values.

- Basis of preparation budget was queried to learn interaction with other departments. For example, was data collected from other departments during budget preparation.

- If they existed, sample data collection formats sent to other departments were evaluated regarding the detail and accuracy of the data being input into budgets.

- Departmental budgets, if they existed, were inspected on a collective basis to see whether production departments and support departments like purchasing were basing their requirements on common targets.

- Next the team asked about whether draft budgets were prepared and discussed with all departments, and then who approved the final budget.

- Budget monitoring was then analyzed to see whether actual results were compared with the budget and significant variances noted to improve future management.

- Then the correlation between the budget and the tariff computation was analyzed to figure out the correspondence between the vodokanal's budget and actual tariffs charged to its customers.

- Finally, the team formed an opinion on the adequacy of the budgetary control system.

3.3. Purchasing and Stores Department

To determine the adequacy of purchasing and inventory of the vodokanal, the purchasing and stores departments were asked to provide the following documentation for review by the team:

- Purchasing plans showing planned purchases phased over the year;

- Documentation used for purchasing like purchase orders including the level of authority required for approving purchase orders;

- The basis of purchasing through barter agreements and degree of supporting documentation;

- Stores documentation such as stock cards and frequency that the cards are updated along with supporting documents such as goods received notes and requisitions from other departments;

- Valuation of obsolete stocks and the methods for disposal of obsolete stocks;

- Basis of charging stores issues to the basic production account #20 was reviewed from the

documentation available with the store's accountant. In all Vodokanals, this function was computerized;

- Procedures for physical verification of stocks and whether stocks are physically verified annually by independent auditors, and

- Rough organization chart of the purchasing and stores department illustrating the functions of various personnel.

3.4 Fixed Assets Control System

Finally, the fixed assets control system was evaluated to determine the degree of monitoring involved the asset control system. To do so, vodokanals were asked:

- Whether the list of Vodokanal fixed assets were computerized. (In all Vodokanals, the list was computerized);

- The basis for revaluation of fixed assets and whether the guidelines issued by the Ministry of Finance were followed in detail;

- Procedures used to revalue the individual fixed assets using the MoF multiplier; and

- Accounting entries were checked to see whether the revaluation of fixed assets was recorded correctly.

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