

CHAPTER 3

**PRESENT STATUS OF WATER SUPPLY SERVICES IN
TASHKENT CITY**



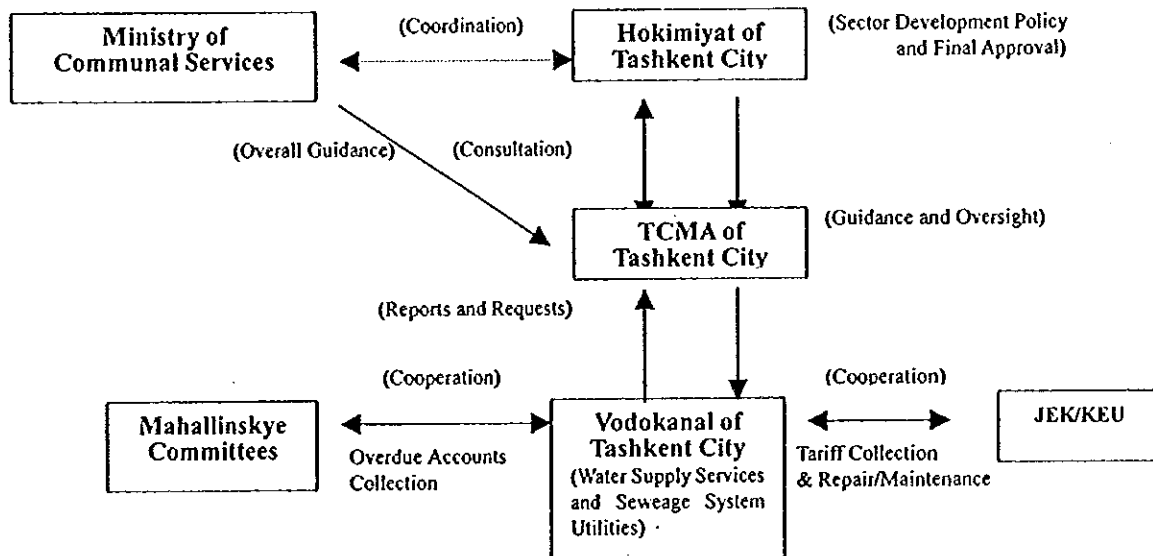
Chapter 3 Present Status of Water Supply Services in Tashkent City

3.1 Organizational Management

3.1.1 Administrative Structure of Tashkent City Water Supply Sector

The administrative structure of the water supply sector in Tashkent City including its operating bodies is briefly illustrated below:

Figure 3.1.1 Administrative Structure of Tashkent City Water Supply Sector



Unlike the Vodokanals of other cities subordinated to the respective provincial Vodokanals, Tashkent City Vodokanal is under Tashkent City TCMA/Hokimiyat. For this reason, Tashkent City Vodokanal and TCMA hold management-level meetings twice a week to discuss various issues such as the progress of the tariff collection, water leakage and implementation of countermeasures, reconstruction of major water purification plants, meter installation program and financial self-sufficiency of the Rayon-Vodokanals. Also, all communal service providers in the city including Vodokanal and TCMA/Hokimiyat hold a joint management level meeting once a month to discuss various aspects of communal services. These meetings replace regular management level meetings within Vodokanal.

Presidential Decree No. UP-617 dated July 15, '93 initiated the sector's structural changes. Under the former structure all provincial Vodokanals were subordinated to Uzvodokanal. With the move toward decentralization and a reduction in the role of the Ministry of Communal Services, as mentioned already, TCMA became the core entity for managing and developing all communal services, except for the electricity supply, in accordance with Resolution of the Cabinet of Ministers No. 371 dated July 22, 1993, and Decision of the Hokim of Tashkent City No. 154 dated August 16, 1993. Responsibility for the electricity supply has remained with the Ministry of Energy.

(1) Tashkent City TCMA

Since its establishment in 1993, Tashkent City TCMA has been acting as a part of the City Hokimiyat although they have maintained legal and financial independence. According to their charter, the head of the TCMA will be a Deputy Hokim of Tashkent City (Sections 17 and 18) who is introduced by the Hokim and appointed by the Ministry of Communal Services. This is quite similar to the "general manager" system in Japan, where a general manager is seconded at the utility in order to manage the water utility in an efficient, flexible and also transparent manner. This general manager has some independent power vis-à-vis the head of the local government and the assembly concerned.

In order to finance the cost of their operations, TCMA levies fees from their communal service providers on a contract basis, including Vodokanal (Section 9). The current organization chart is attached in DATA D3-1-1.

TCMA – Tashkent City is responsible for the control and oversight of the following communal services and relevant utility enterprises and departments of the Hokimiyat.

Table 3.1.1 Communal Services under Control of Tashkent City TCMA

Communal Services	Providers
Water	"Vodokanal"
Gas	"Tashgas" Tashkent gas organization
Heating and hot water	"Tashteploenergy" Tashkent heating and energy service
Electricity	"TashgorPES" Tashkent City electricity network for manufacturing
Roads, garbage, pavement, irrigation network, cemeteries, planting	Main Dept. of Community Services
Hotels	Russia, Tashkent, Turon, Zarafshon
Street lighting	"Tashshaharnur"

Currently there are 12 Deputy Hokim of Tashkent City, who share the responsibilities of the city government administration. For Hokim, First Deputy Hokim, Deputy Hokim of ideology, Deputy Hokim of construction, Deputy Hokim of gender issues, Deputy Hokim of inspection and control, their salaries are paid out of the general budget for the city. All other Deputy Hokim are the heads of two positions and their salaries are paid by the organization, corporation or other public services which are self-supporting organizations.

3.1.2 Tashkent City Vodokanal

According to the Charter of Tashkent City Vodokanal registered on April 18, 1996, the Trust Vodokanal of Tashkent City was established on April 28, 1931 as a state-owned enterprise with independent legal entity. The "Trust" in this case means that the enterprise consists of a combination of non-independent units or entities.

As for their property rights, the Civil Code of the country provides as follows:

Article 179. Disposal of State-Owned Enterprise Property

- (1) A state-owned enterprise can dispose of, or otherwise, discard property transferred to it only with the consent of the property owner.
- (2) A state-owned enterprise shall independently sell the produce manufactured by it, unless otherwise established by legislation.
- (3) The owner of the property shall determine the procedures for the distribution of the income of the state-owned enterprise.

According to the article, the owner of the property transferred to Vodokanal is the state. Vodokanal is in a position to utilize the property transferred from the state to perform the duties and obligations specified in their charter.

It should be stressed that, despite the strict definition of "state-owned enterprises" provided in the Civil Code of Uzbekistan as discussed above, very often the term "state-owned enterprises" is used simply to distinguish all non-privatized enterprises from privatized ones. State-owned enterprises should not be confused with so called "budgetary organizations." Budgetary organizations are non-profit organizations which are financed from the budget of the government, either central or local. They include: the army, the police, all other sorts of governmental institutions, public education, hospitals, etc. Therefore, Vodokanal is not a budgetary organization. "Commercial enterprises" are the opposite of budgetary organizations in the sense that they are enterprises established for making a profit. Commercial enterprises can exist in different legal forms: joint stock companies (of the open or the closed type), private companies, state-owned enterprises, co-operatives, etc.

In the execution of their tasks, the Vodokanal is subordinated to the direction of Tashkent City Territorial Communal Maintenance Amalgamation (hereinafter referred to as Tashkent City TCMA) and the Hokim of the city. Appointment of the Head of Vodokanal is made formally according to the regulations of the Hokimiyat of Tashkent City. Currently Tashkent City Vodokanal has 4,741 employees. Its organization chart is presented in DATA D3-1.2.

Tashkent City Vodokanal has been providing sewage system services to the Vodokanals of four other districts in Tashkent Province (Zangliata, Kibray, Keles and YokoraChirchik), in addition to the users in Tashkent City. The sales and volume in 1998 were as follows:

District Vodokanal	Amount (million Sum)	Volume (million m ³)
Keles	489	519
Kibray	4,076	1,521
YokoraChirchik	1,377	0.6
Zangliata	308	153

3.1.3 Capital Construction Program of Tashkent City Vodokanal

The current organization of the Construction Planning Department of the Vodokanal was established on May 1, 1998 at the reorganization of the Tashkent City Vodokanal. The current organization chart of the Planning Department is attached as DATA D3-1-3. One of the objectives of the Planning Department is to prepare an annual budget and future plans for capital construction for the Vodokanal. As already reported from various sources, costs of capital construction are allocated by the Ministry of Macroeconomics and Statistics and financed by the Ministry of Finance through Tashkent City Hokimiyat, which means that 100% of the cost is financed by the ROU budget. The Planning Department is exclusively responsible for accounting for the funds, and this is completely separate from the Vodokanal accounting system. They prepare a fund flow statement, showing the sources and applications of the funds. But they do not make a separate B/S or P/L on their own. The administrative expenses of the Planning Department are paid out of the fund in accordance with the progress of their planned target. Their operation is not profit-oriented. It looks as if the Directorate is attached to the Vodokanal, but their work and also their accounting system are completely separate from the other operations performed by the Vodokanal. On completion of a capital construction project, the project is handed over to the Vodokanal for their operation, maintenance, and accounting purposes. However the property rights of the project remain in the hands of the state.

As mentioned above, the Planning Department prepares an annual capital construction plan, called the "Construction List" (literally, "Title List" in Russian), which is submitted to the city Hokimiyat for approval. They also prepare draft investment programs for 2 years and 5 years, called the "Perspectives" in accordance with the Water Supply Sector Development Program, a part of the General Plan of Tashkent City. Currently, a future plan from 2001 to 2005 prepared by the Planning Department is being evaluated by the Cabinet of Ministers. The major targets of the plan are noted below:

- (1) Installation of sewer pipes at the Boz-su Treatment Plant;
- (2) Installation of distribution pipes along the ring road;
- (3) Construction of two reservoir facilities;
- (4) Installation of water supply and sewer pipes under the newly constructed roads; and
- (5) Construction of new sewage treatment plant (the third one in the city).

3.1.4 Tashkent City Rayon-Vodokanal

At present, there are 12 Rayon Vodokanals in Tashkent City, which has 11 administrative districts (Rayons). Because the Mirzo-Ulugbek District is a big district, there are two Vodokanals. Big cities such as Samarkand and Buhara have some Rayon Vodokanals, but Chirchik does not.

Presently, the Rayon Vodokanals perform only as workshops for routine repair and maintenance of the pipelines under the roads. Their facilities and the equipment for their services are generally old and deficient. The Rayon Vodokanals have not been involved in the tariff collection system. Not maintaining their own bank account, they do not have any revenue except for the budget allocated from Headquarters. They are entirely subordinate to the Headquarters, and they do not enter into any direct contracts with their customers or suppliers. The number of staff of a Rayon Vodokanal is from 50 for a small one such as Beektemir, to 200 for a big one such as Mirzo.

With the permission of the Cabinet of Ministers, Tashkent City Hokimiyat gave instructions to the Vodokanal sometime in the summer 1999 through the TCMA to draft a plan for a new structure which puts each Rayon Vodokanal on a stable financial footing in terms of cost recovery and its ability to finance its own on-going operations and, to some extent, to handle equipment replacement. If implemented, the Rayon-Vodokanals would collect water tariffs for their revenue and pay some portion of this to their Headquarters as a contribution. Institutional and technical capabilities would also be upgraded.

The Vodokanal has already submitted their plan to the TCMA for their review, and it was still under review by the TCMA at the time of the writing of this report (November 22, 1999). The TCMA will pass the plan to the Hokimiyat. The details of this plan were not made available to the JICA Study Team.

3.2 Managerial and Financial Status

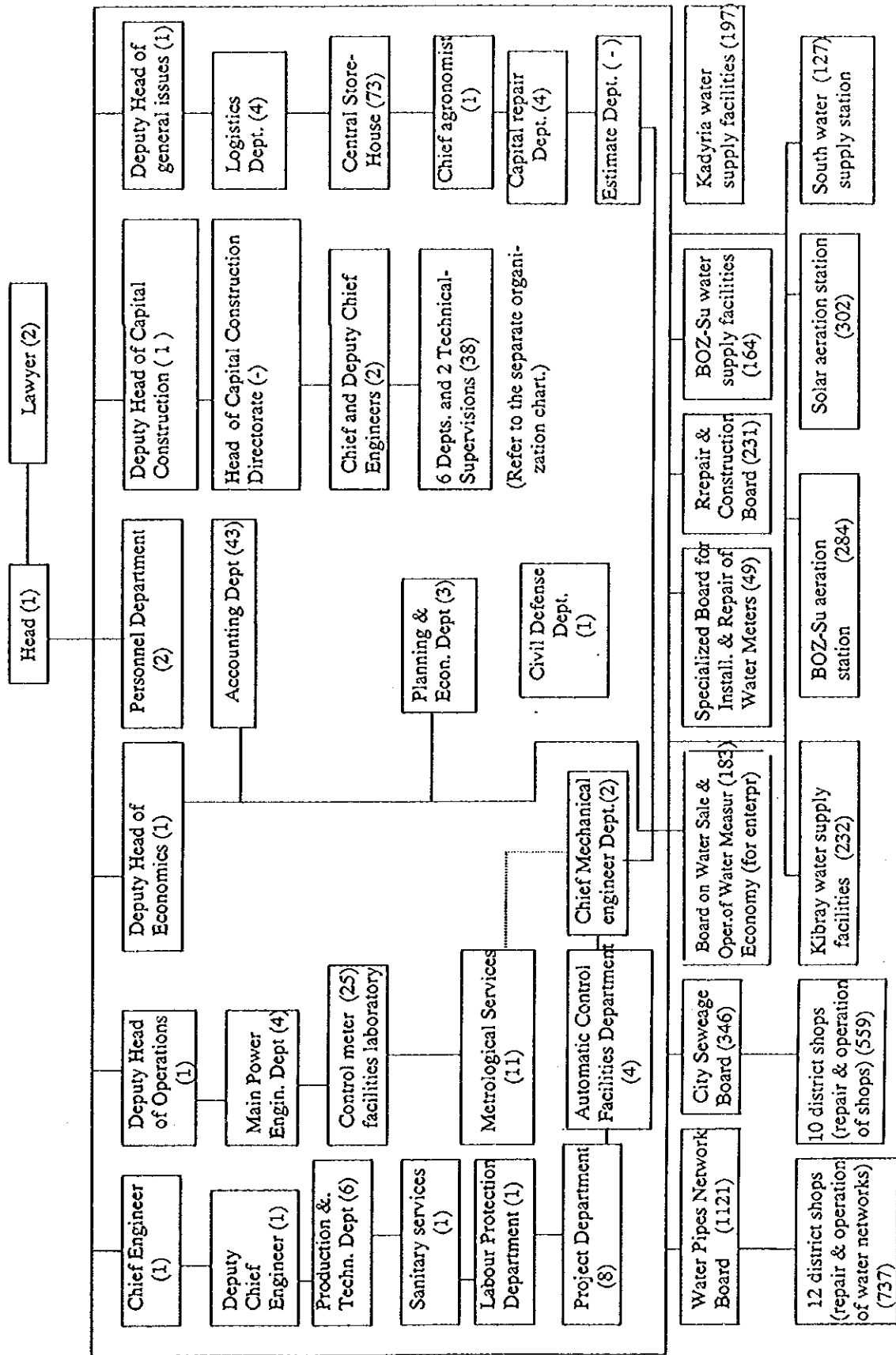
3.2.1 Structure of Tashkent City Vodokanal

Fig 3.2.1 shows the present organization which came into effect as of May 1, 1998. As of the same date, the Department of Capital Construction was separated from the original organization. The Department of Capital Construction mainly draws up the annual investment plan and handles budgetary control. There are 45 members in the department and the Hokimiyat funds their operating costs, which range from one to two million sum annually. At present, the Head of the Department of Capital Construction also holds the office of Vice President of the Tashkent City Vodokanal.

The financial statements of the Department of Repair and Construction are issued separately from those of Tashkent City Vodokanal, even though the Department of Repair and Construction is part of Tashkent City Vodokanal.

Tashkent City Vodokanal is planning to restructure and to introduce a self-supporting system in the eleven existing Rayon Vodokanals and require them to issue their own financial statements. The Rayon Vodokanals will be able to determine the appropriation of profits. Tashkent City Vodokanal is preparing a draft of this restructuring plan and expects to receive approval from the Mayor of Tashkent. After the restructuring is completed, the function of Tashkent City Vodokanal may be limited to coordination (as the head office) and to managing the funds contributed by the Rayon Vodokanals to cover the administrative costs of Tashkent City Vodokanal.

Fig 3.2.1 Organization Chart of the "Trust" Vodokanal Tashkent City (as of July 30, 1999)



Total: 4741 (number of employees)

3.2.2 Managerial Status

Tashkent City Vodokanal is an entity which is owned and controlled by the government as mentioned in Chapter 2. The government generally exerts considerable influence on such an entity; however, the representatives of Vodokanal manage their operations with relative independence. The present Tashkent City Vodokanal is permitted a certain amount of leeway for further improvement because it is still in the process of restructuring as it shifts from a planned economy to a market economy. The current managerial status of Tashkent City Vodokanal represents the first stage of this process.

(1) Business Operating Status

The business operating status of Tashkent City Vodokanal is reported and discussed at the management meetings held every Tuesday and Thursday. The members participating at these meetings include the Vice President of TCMA, the President and Department Chiefs of Tashkent City Vodokanal and the representatives of the local Vodokanals (hereinafter, the "Rayon Vodokanals"). The major items on the agenda of these meetings include:

- 1) Tariff collection status
- 2) Countermeasures against water leakage
- 3) Operating performance of the main plants (Kadirya, Boz-su, Kibray)
- 4) Installations of water meters
- 5) Solutions to the problems encountered by each Rayon Vodokanal
- 6) How to transfer authority from Tashkent City Vodokanal to the Rayon Vodokanals to restructure the organization of the entire Tashkent City Vodokanal.

In addition to the weekly meetings, two other regular meetings are held at the Tashkent Hokimiyat. One of these is held weekly and the other is held monthly. The agenda for the weekly meeting at the Hokimiyat mainly covers operating performance issues. The monthly meeting is attended by the representatives of various public utility services (electrical power services, gas supply services, water supply services, etc.) and the deputy mayor of Hokimiyat is the Chairman. At the monthly meetings, the representatives are criticized for problems such as any delay in salary payments to employees (Tashkent City Vodokanal had to delay salary payments in June and July 1999 because of financial problems). However, no disciplinary action will be taken against the representatives of Tashkent City Vodokanal because the Hokimiyat government believes that the current financial problems are primarily caused by the recession, which is considered to be beyond the scope of the responsibility of the management of Tashkent City Vodokanal. Management has attempted (in excess of 130 times) to initiate various tariff collection projects.

(2) Property Rights (Ownership)

The funds necessary for future investments by Tashkent City Vodokanal are covered by the Hokimiyat's budget. The assets are booked on the B/S and depreciated through the P/L of Tashkent City Vodokanal when the construction is completed. Even though the assets are booked on the B/S of Tashkent City Vodokanal, the ownership of these assets is still retained by the government. Generally, the owners of such assets make an effort to operate the assets effectively and collect the investment costs promptly. Therefore it seems that assigning the property rights to the government could discourage Tashkent City Vodokanal from making an effort to operate the assets effectively and improve business performance.

(3) Accountability

Tashkent City Vodokanal prepares a B/S and a P/L statement primarily for tax filing purposes and no other annual reports which include disclosure of the operating results are required. Generally, a public company has accountability to its shareholders and a government-owned company also is accountable both to the government and to the nation. Such entities are required to publish annual reports or other publications in the fulfillment of their public duties. The current disclosure requirements for Tashkent City Vodokanal may not be sufficient and this may be caused by the following factors:

- 1) The property rights are held by the government;
- 2) Significant management-making decisions are handled by the government;
- 3) As a result of the above, Tashkent City Vodokanal may not feel accountable or responsible; and
- 4) There are currently no laws requiring full financial disclosure, as noted above.

(4) Investment Plans

Tashkent City Vodokanal drafts an annual investment plan and the Hokimiyat draws up the mid- to long-term plans. Tashkent City Vodokanal is requested to propose a draft plan (a mid- to long-term plan) to the Hokimiyat but does not bear the responsibility for future operations based on such a plan. This may discourage Tashkent City Vodokanal from assuming full responsibility for future operations and may also tend to make it rely on government management for its future operations and for solutions to any financial problems.

(5) Cash Flows

Tashkent City Vodokanal may not care about positive cash flows for the following reasons:

- 1) Tashkent City Vodokanal is not required to reserve funds for new investments;
- 2) In the case of a shortage of funds, Tashkent City Vodokanal can easily postpone payments to its creditors;
- 3) It is not clear who is responsible for such financial problems; and
- 4) The major customers with unpaid fees are all state-owned companies and usually the accounts receivable for state-owned companies are settled with the accounts payables of other state-owned companies, through the Ministry of Finance.

(6) The Concept of a Planned Economy

Tashkent City Vodokanal has not yet completely eliminated the concept of a planned economy. For example, sales forecasts are based on desirable income and do not include an estimate of potential bad debts. It would seem that the idea of a planned economy makes Tashkent City Vodokanal rely on tariff increases as an easy solution to any financial problems. In other words, Tashkent City Vodokanal appears to expect the government to solve its financial problems.

(7) Production Plan and Budget Control

The Planning Department of Tashkent City Vodokanal drafts quarterly, semiannual and annual production plans in order to control costs. The Planning Department is responsible for the income plan and the budget plan based on these production plans.

The income plan assumes a 100% cash rate for collection. The budget includes a forecast of electrical power tariff increases and employees' salary increases which have already been officially announced. The forecast for repair and maintenance costs is revised quarterly by the Repair and Maintenance Department. The Planning

Department tries to cut costs by comparing the actual figures with the budget figures. However, the Planning Department does not analyze the differences between the actual and the budget in terms of price and quantity differences except in the case of public service tariff increases. The Planning Department also does not separate total costs into fixed and variable costs and does not analyze idle costs.

(8) Personnel Management

The Personnel Department controls all employees' data.

(9) Promotion of Employees

Procedures for the promotion of employees are outlined as follows:

- 1) The employee's boss observes and evaluates an employee's performance and recommends a promotion to the Chief of the Department.
- 2) If the department chief agrees to the promotion, the department chief requests this from the Chief of the Planning Department.
- 3) After receiving the proposal, the Chief of the Planning Department issues a notice of promotion to the Personnel Department and the Accounting Department.

However, most recommendations for employees' promotions are used only as information for job rotation for increasing the employees' skills. On other hand, employees are penalized with a reduction in salary or other penalties when they fail.

The President of Tashkent City Vodokanal evaluates all the department chiefs. The Personnel Department Chief informed us that the employees are satisfied with this method of promotion.

(10) Salary

Monthly salary consists of a basic salary and a monthly bonus. The basic salary is based on the employee's experience and presence at or absence from work. The monthly bonus is based on the net income reported in the P/L.

The salary level of Tashkent City Vodokanal does not appear to be extremely high compared with the average income of Tashkent civil servants.

(11) Pension Plan

Tashkent City Vodokanal has a pension plan as part of its pension program which is outlined as follows.

Conditions for eligibility:

- 1) Employees must have more than 20 years of service.
- 2) Employees must be over 55 years old for women and over 60 years old for men.

Retirement age limit:

None

Pension:

Pension payments are remitted to eligible employees when they retire.

Eligible employees who have not retired can receive 50% of the amount of their pension in addition to their regular salary.

Funding for the pension plan:

Tashkent City Vodokanal and the employees have to pay 36% and 2% of their total salary, respectively, to the trustee which manages the pension fund. The pension trustee controls the pension funds and remits the pension payments directly to the employees upon retirement.

(12) Employee Training Programs

Tashkent City Vodokanal does not currently operate its own employee training programs but relies on the TCMA Training Center programs.

(13) Professional Labour Union

Tashkent City Vodokanal and the professional labor union negotiate an annual agreement regarding labor conditions. The professional union provides employees with certain benefits, for example, the right to use a resort house owned by Tashkent City Vodokanal and so forth.

3.2.3 Financial Status

Table 3.2.1 presents the income statements of Tashkent City Vodokanal for the years ended December 31, 1997 and 1998. As mentioned in the section entitled "Organization," the financial statements of the Repair and Construction Department are issued separately from the financial statements of Tashkent City Vodokanal. However, we can ignore the financial statements of the Repair and Construction Department because its sales and net income for 1998 amounted to 174 million sum and 5 million sum, respectively, and these amounts were immaterial.

Table 3.2.1 Tashkent City Vodokanal Income Statements (Units: Millions of sum)

		12/31/98		12/31/97	
			%		%
Sales		3,429		2,394	
VAT	Note 1	(514)		(346)	
Net sales	Note 2	2,915	100	2,048	100
Cost of sales	Note 3	(2,142)	73	(1,373)	67
Gross Margin	Note 4	773	27	675	33
Administrative expenses		(65)		(47)	
Other operating income		7		13	
Other operating expenditures	Note 5	(296)		(136)	
Income before income taxes		419		505	
Income taxes	Note 5	(191)		(196)	
Other taxes		(14)		0	
Net income	Note 6	214	7	309	15

(1) Sales

A breakdown of sales for the years ended December 31, 1998 and Dec. 31, 1997 is shown in Table 3.2.2.

Table 3.2.2 Tashkent City Vodokanal Sales

	Units	Dec 31 98	%		Dec 31 97
(WATER – SUPPLY SYSTEM)					
Water supply	Mil. m ³	899			904
Water distribution - total	"	687		100	760
(Population)	"	289		42	324
(Communal service sector)	"	341		50	378
(Industry, Transportation and Construction.)	"	58		8	58
Water Supply Income	Mil. Sum	2,065	71	100	1,568
(Population)	"	210		10	106
(Communal enterprises)	"	1,482		72	1,183
(Industry, Transportation and Construction.)	"	373		18	279
(SEWAGE SYSTEM)					
Total sewage	Mil. m ³	564		100	643
(Population)	"	313		55	347
(Communal enterprises)	"	190		34	232
(Industry, Transportation and Construction.)	"	61		11	64
Sewage Treatment Income	Mil. Sum	850	29	100	480
(Population)	"	133		16	-
(Communal enterprises)	"	440		52	-
(Industry, Transportation and Construction.)	"	247		29	-
TOTAL INCOME		2,915	100		2,048

Note: The tariff table was revised in 1998

Tashkent City Vodokanal's revenue is derived from sales of water supply services and sewage treatment services. The sales of water supply services amounted to 2,065 million sum, which represents 71% of the total sales of 2,915 million sum. The cost of water supply services was 1,447 million sum or 70% of the water supply sales. On other hand, the cost of sewage treatment services was 695 million sum and this amount represents 82% of the total sewage treatment sales.

Water supply sales include both metered and non-metered sales. Metered sales are based on price times the quantity measured by the meter and non-metered sales are based on price times an assumed quantity. The volume of water distribution presented in Table 3.2.2 includes this assumed quantity. This means that the water distribution figures do not represent the actual quantities consumed and that there is considerable water leakage because the volume of water leakage is obtained by estimating the difference between the actual volume of water supplied and the volume of water consumption.

(2) Cross Subsidy

Water users are classified as follows:

- Population
- Communal Enterprises
- Industry, Transportation and Construction

Communal Enterprises include budget organizations and commercial enterprises. As shown in Table 3.2.2, water sales to the population (in terms of sum) represent only 10% even though their percentage of the water supply volume is 42%. On the other hand, the proportion of water sales to Communal Enterprises is 72% even though their percentage of the water supply volume is 50%. The portion of water sales to Industry, Transportation and Construction is 18% even though their percentage of the water supply volume is only 8%.

Sewer services show a similar trend. Tashkent City Vodokanal delayed a certain percentage of the salary payments in July and August 1999 and informed us that this delay was caused by the recession in the manufacturing sector and that sales to Industry, Transportation and Construction had decreased. Tashkent City Vodokanal is planning to get rid of this imbalance between the amount of sales and the supply volume by 2002 by raising the utility fees charged to the population closer to the tariff level for Industry, Transportation and Construction. In fact, the tariff for the general public has already begun to increase.

(3) Income Recognition

Income recognition was on a cash basis from 1995 to 1997; however, this has been changed to an accrual basis effective February 1998 for the general population, and effective August 1998 for other users. There have been similar income recognition changes in gas supply, heating and other public utility services.

(4) Method of Measurement of Water Supply Sales

The water supply data is provided by the Sales Department, and the Planning Department calculates the amount of the sales using this data. However, almost no households in the general population have meters, as shown in Table 3.2.3.

Table 3.2.3 Status of Meter Installation

	Total	With meters	Percentage
Enterprises:			
- Production	961	847	98.1%
- Communal	8,553	5,517	64.5%
Population:			
- Householders	110,620	6,362	5.7%
- Apartments	11,326	90 (2,909)	25.6%

(5) Method of Tariff Collection

The method of collection is outlined in Chapter 3.3.1 under "Tariff Collection."

(6) Tariff Collection Status

The balance of accounts receivable as of December 31, 1998 was 615 million sum (Note C) and sales amounted to 3,429 million sum. The turnover period for tariff collection is approximately 2.2 months; however, accounts receivable are netted against advance payments. Tashkent City Vodokanal informed us that, in reality, the delinquent amount was approximately 13% for members of the population living in apartment units and that almost all householders pay in advance. Table 3.2.4 presents the most recent details of accounts receivable. As shown in Table 3.2.4, one major delinquent account receivable (over 60 days past due) is Tapoich. Tapoich is an aircraft manufacturing company in Tashkent. Tapoich has not paid its water tariff since 1996 and Tashkent City Vodokanal on one occasion stopped the supply of water. However, Tashkent City Vodokanal reinstated Tapoich's water supply under a government order. Properly speaking, Tashkent City Vodokanal should not treat the financial problems of Tapoich lightly. If Tashkent City Vodokanal has this problem, it is necessary that the responsibility for the cause of the problem be clearly identified.

Table 3.2.4 Details of Accounts Receivable

District	Total receivables (Thousands of Sum)	Including accounts 60 days past due (Thousands of Sum)
Industrial	100,979	920
Municipal	277,524	5,285
Subtotal	378,503	6,205
TAPOiCH *	229,703	193,868
Uzselkhoz mash Holding **	12,360	
Tashzhilinveststroy ***	39,594	1,190
Grand Total	660,159	201,262

* Tashkent Aircraft Factory

** Uzbekistan Agricultural Machinery

*** Tashkent Housing Construction Investment

Table 3.2.5 Breakdown of Costs (December 31, 1998)

(Units : Millions of Sum)

Item	Water supply		Sum/m ³	Sewerage		Total	
		%			%		%
Materials	89	6	0.13	40	6	128	6
Elect. power	691	48	1.01	195	28	886	41
Main produce. salary	149	10	0.22	90	13	239	11
Charges	58	4	0.08	35	5	93	4
Capital repairs	56	4	0.08	55	8	111	5
Depreciation	150	10	0.22	156	23	307	14
Motor transportation	89	6	0.13	40	6	130	6
In-house expenses	52	4	0.08	52	7	104	5
Commercial expenses	22	2	0.03	0	-	22	1
Expenses for the period	292	20	0.42	22	3	314	15
Other	91	6	0.13	31	5	123	6
Subtotal	1,739	120	2.53	717	103	2,456	115
(Expenses for the period)	292	20	0.42	22	3	314	15
Total	1,447		2.11	695		2,142	

(7) Production Unit Costs

The production cost per unit is 2.11 sum/ m3, as calculated (1,447 million sum/ 687 mil m3) from Table 3.2. If the expenses for the period were included in the calculation, the production cost per unit would be 2.53 sum/ m3 (1,739 million sum/ 687 mil m3). The principal variable costs consist only of the cost of materials and electrical power and the variable production cost per unit is 1.1 sum/ m3.

As a result of comparing the cost components, we noted that the expenses incurred by Tashkent City Vodokanal for electrical power are extremely high, but that personnel expenses, depreciation, and cost of repairs are lower than comparable expenses in other countries. The rate of personnel expenses is lower; on the other hand, however, the population served by one employee of Tashkent City Vodokanal is lower as well. This means that the productivity of the employees is not high but Tashkent City Vodokanal succeeds in keeping personnel expenses at a relatively low level. On the other hand, the low salary level may, in general, discourage employees' motivation.

Table 3.2.6 presents a comparison of the capacity and a breakdown of costs among Tashkent and other cities/countries.

Table 3.2.6 Comparison of Capacity and Breakdown of Costs among Tashkent and other cities/countries

Location	Japan (97)			Developing countries
	Tashkent	Tokyo	Nagano	
GDP per capita (US\$)	510			2,861
Population served (Thousands)	2,260	11,103	565	5,827
Rate of service pervasion (%)	98.5	98.5	32.0	81
Total annual water supply volume (million m ³)		1,689	21	
Maximum daily water supply volume (thousand m ³)		5,413	70	
Average daily water supply volume (thousand m ³)				935
Water tariff collection method (%)				
(Bank transfer)		76.6	89.5	
(Not bank transfer)		23.4	10.5	
(Using collection staff)		-	-	
Number of employees	4,490	5,540	58	3,138
Rate of accounted for/paid water tariff (%)		89.2	84.8	65
Turnover of accounts receivable (months)	2.2			3.7
Population served by one employee	490	2,176	3,477	1,856
Average tariff (per m ³)				US\$ 0.348
Production unit cost (per m ³)	2.11 sum	210 yen (US\$ 1.98)	162yen (US\$ 1.53)	US\$ 0.172
Personnel expenses (%)	10	16.7	16.6	
Depreciation (%)	10	18.9	25.9	
Power expenses (%)	48	2.9	5.5	
Materials (%)	6	0.6	0.5	
Repairs (%)	4	21.4	11.8	
Outsourcing expenses (%)	0	6.7	2.1	

Table 3.2.7 presents the cost breakdown for each plant. USV is the organization for water distribution.

Table 3.2.7 Cost Breakdown at Each Plant (Unit: million sum)

Item	Kadiriya	Boz-su	Kibray	USV	South plant	Vodosbyt	Trust	others	Water supply	UGK	SSA	BSA	Sewage
Materials	40	13	8	23	1	-	4	-	89	9	14	16	40
Electrical power	171	62	158	232	67	-	0	-	691	37	102	56	195
Main production salary	12	7	9	104	7	-	11	-	149	57	18	15	90
Charges	4	3	4	40	3	-	4	-	58	22	7	6	35
Capital repairs	1	5	19	29	1	-	1	-	56	44	4	8	55
Depreciation	6	2	11	128	2	-	2	-	150	133	15	8	156
Motor transportation	3	6	8	71	1	-	0	-	89	30	3	7	40
In-house expenses	0	0	0	52	0	0	0	-	52	52	0	0	52
Commercial expenses	0	0	0	0	0	22	0	-	22	0	0	0	0
Expenses for the period	3	5	4	44	2	47	186	-	292	12	6	4	22
Other	9	4	6	38	3	0	31	(0)	91	17	10	4	31
Subtotal	249	107	226	761	86	69	240	-	1,739	412	179	126	717
(Expenses for the period)	3	5	4	44	2	47	186	-	292	12	6	4	22
Total	246	102	222	717	84	22	54	-	1,447	400	173	121	695

Table 3.2.8 Cost Breakdown by Percentage at Each Plant

Item	Kadirya	Boz-su	Kibray	USV	South plant
Materials	16%	13%	3%	3%	1%
Electrical power	70%	61%	71%	32%	79%
Main production salary	5%	6%	4%	15%	8%
Charges	2%	2%	2%	6%	3%
Capital repairs	0%	5%	9%	4%	1%
Depreciation	2%	2%	5%	18%	2%
Motor Transportation	1%	6%	3%	10%	2%
In-house expenses	0%	0%	0%	7%	0%
Commercial expenses	0%	0%	0%	0%	0%
Expenses for the period	1%	5%	2%	6%	3%
Other	4%	4%	3%	5%	3%
Subtotal	101%	105%	102%	106%	103%
(Expenses for the period)	1%	5%	2%	6%	3%
Total	100%	100%	100%	100%	100%

(8) Taxes (Note 5)

Table 3.2.9 presents a list of the main taxes charged to Tashkent City Vodokanal.

Table 3.2.9 Tax Table

	National/ Local Taxes	Taxable items	Tax rate (December 31, 1997)	(December 31, 1998)	(December 31, 1999)
VAT	National Taxes	Tariff for Company (owned privately or by the government)	18 %	20%	20%
Income taxes	National/ Local Taxes	Income before income taxes after tax adjustments	35 %	35%	33%
Ecological taxes	National Taxes	Cost of sales			1 %

In addition to the taxes shown in Table 3.2.9, there is also property tax, but it is an immaterial amount.

Whether or not a government-owned company pays income taxes depends on each country's laws. If a government-owned company receives a subsidy from the government, the government-owned company is not charged income taxes as a matter

of course. On the other hand, certain government-owned companies are now at an advanced stage of privatization and are thus assessed and charged income taxes.

Though Tashkent City Vodokanal does not receive a subsidy on its P/L, future investments are to be funded by the government. Properly speaking, it is desirable for the water supply organizations to reserve investment funds for the future. Given this consideration, the income taxes paid by Tashkent City Vodokanal should be relative to such investment funds and Tashkent City Vodokanal should determine its own tariff table based on its tax payments. The income taxes paid by Tashkent City Vodokanal should be treated as an objective tax reserve or a special account for future investments.

(9) Net Income (Note 6)

Tashkent City Vodokanal appropriates net income from the bonuses or salary payments of each employee and does not reserve net income as retained earnings. As a result of this, there is no capital stock.

Table 3.2.10 presents the balance sheets of Tashkent City Vodokanal as of December 31, 1997 and 1998. These B/S do not include the accounts of the Repair and Construction Department. The total assets of the Repair and Construction Department were only 18 million sum and we may ignore this amount as immaterial.

Table 3.2.10 Balance Sheets of Tashkent City Vodokanal

(Unit: Millions of sum)

		12/31/98	12/31/97
ASSETS			
Fixed assets:			
Acquisition costs	Note a	4,946	3,570
Accumulated depreciation	Note b	(1,137)	(822)
Net book value		3,809	2,748
Other		45	
Total fixed assets		3,854	2,748
Current assets:			
Inventories		166	89
Prepaid expenses		2	0
Cash		20	10
Deposits		107	13
Accounts Receivable:			
Accounts Receivable - buyers and consumers	Note C	615	426
Accounts Receivable - budget organizations		149	27
Accounts Receivable - personnel		18	22
Accounts Receivable - subsidiary enterprises		13	57
Total current assets		1,089	643
Total assets		4,943	3,392
Capital			
Charter capital	Note D	99	99
Additional capital	Note D	3,857	2,657
Reserve capital		798	584
Total Capital		4,753	3,339
Liabilities			
Accounts payable - suppliers	Note E	107	7
Accounts payable - payroll	Note F	45	25
Accounts payable - social insurance		32	18
Accounts payable - non-budget payments		1	1
Accounts payable - subsidiary enterprises		63	0
Other creditors		4	1
Total Liabilities		189	52
Capital and Liabilities		4,943	3,392

(10) Fixed assets (Note a)

The acquisition costs of the fixed assets are transferred to the B/S of Tashkent City Vodokanal after construction has been completed. The cost of construction is funded by the government. The property rights to the fixed assets are held by the government even though the fixed assets are booked on the B/S of Tashkent City Vodokanal. The balance of construction in process as of December 31, 1998 was 1,516 million sum and a balance of 1,700 million sum will be booked on the B/S of Tashkent City Vodokanal after construction has been completed.

Investment Plan

The investment plan for 1999 is as follows:

Expansion of water supply pipelines	42.9Km	912.5 million sum
Expansion of sewer pipes	56.3Km	612.7 million sum
Purchases of materials		28.8 million sum
Reconstruction of roads to expand water supply and sewer pipes		252.0 million sum

(The cost of this project will be transferred to a different entity from Tashkent City Vodokanal.)

Planning costs	39.0 million sum
Total	1,845.0 million sum

The government is funding the above investments

(11) Increase in Amount of Investments

The above investments appear to represent a dramatic increase when compared with the amount of the fixed assets in the current B/S. The reason for this increase is mainly attributable to inflation in Uzbekistan. Tashkent City Vodokanal has

assumed a price index for its water supply investments as shown below:

Table 3.2.11 Price Index Forecasted by Tashkent City Vodokanal

	1992	1998	1999	2000
Price index	100	180	200	220

(12) Construction

Tashkent City Vodokanal entrusts all construction to local construction companies selected, in general, by the submission of tenders. The Hokimiyat monitors the bidding procedures.

(13) Inflation Accounting

Government-owned companies, including Tashkent City Vodokanal in Uzbekistan, revise the acquisition costs of their fixed assets once every few years. Over the past several years, acquisition costs were revised in 1995 and 1997. How the fixed assets are revalued and depreciated is summarized as follows:

- 1) The formula of acquisition cost times a certain parameter is decided for each group of fixed assets by the government;
- 2) New acquisition costs are calculated and booked as fixed assets and as capital accounts.
- 3) After booking, depreciation is based on the revised acquisition costs.

The revised acquisition costs do not indicate the accurate replacement costs of the underlying assets because the parameters used by the government are determined on a general basis and do not reach the costs which would be charged to replace each asset. We examined the book value of certain major fixed assets of the Boz-Su and Kadriya plants as examples to identify whether or not their present book values reflect their true market values. Table 3.2.14 presents a history of the revised acquisition costs of typical fixed assets at the Boz-Su plant and Table 3.2.15 shows the acquisition costs of typical fixed assets at the Kadriya plant.

As a result of our examination, we noted that the acquisition costs of buildings constructed in 1999 may reach as high as 10 times those constructed in prior periods. It is difficult to reach any definitive conclusions from this one example. However, it is clear that the present method of depreciation cannot reserve sufficient funds to replace the fixed assets. In the case of fixed assets whose net book value is "0," no acquisition revision would be applied.

There are many old fixed assets still being used in current operations, whose acquisition costs have been fully depreciated. However, no inflation effect factor has been reflected in their revaluation. Thus, no reserve has been provided at Vodokanal for the replacement of these old fixed assets.

(14) Depreciation

Depreciation is calculated at an average rate of 10%; however, this may not be sufficient to provide future investment funds.

(15) Physical Control over Fixed Assets

Subledgers of fixed assets are maintained. In addition, manuals and the EDP output summarize the information in these ledgers. Tashkent City Vodokanal paints serial numbers on its fixed assets and takes stock regularly based on this data. The latest inventory of stock was taken in 1998.

Table 3.2.12 Fixed Assets (Units : Millions of sum)

Code		
	Item	Net book value
1	Production buildings	310
2	Facilities, pipes, etc.	4,087
3	Power plants and equipment	181
4	Operating M/C and equipment	288
5	Measuring devices	8
6	Transportation equipment	37
7	Instruments	0
8	Production inventory	3
9a	Perennial plants	1
9b	Buildings	4
9c	Fixed assets reserve	27
	Total	4,946

Table 3.2.13 Breakdown of Depreciation by Percentage (Straight line method)

Items	Percentage (%)
Buildings, construction	5
Automobiles	20
Trucks	15
Equipment, office furniture	15
Computers	20

Table 3.2.14 Boz-su Plant - Samples of Fixed Assets (Units: Sum)

Items	Revaluated Acquisition Costs	Description
Buildings -- mechanical shops, electrical shops & washing pumps, 1931 Capacity: 3,800 m ³ Total area: 484 m ²	97,000	Historical value
	1,115,500	
	20,414	
	200,053	Current value
Buildings -- filtration plants (semi-) 1931 Capacity: 26,800 m ³ Total area: 2,592 m ²	4,342,447	Historical value
	79,466,780	
	778,774	
	377,605	Current value
Purified water tank No. 3 1964 Capacity: 10,000 m ³	2,530,000	Historical value
	52,371,000	
	513,236	
	220,000	Current value
Asphalt roads and paved production areas 3CO, 1955-1958	4,649,875	Historical value
	39,523,942	
	387,335	
	404,337	Current value
Purified water tank No. 4 12.1974 Capacity: 10,000 m ³	6,900,170	Historical value
	1,487,677	
	151,803,740	
	600,015	Current value

Table 3.2.15 Kadirya - Fixed Assets

Items	Date of construction	Aquisition cost
Station of the I water-raising & washing of filters No. 1	1969	2,184,271
Pump station of the II water-raising with basement	1973	3,893,379
Pump station of the I water-raising No. 2	1983	3,511,557
Filtration station building	1975	3,774,763
Filtration station building,	1989-1990	5,436,368
Building of "coagulant" shop	1999	51,318,490

(16) Capital (Note d)

Capital consists of chartered capital and additional capital. However, there is no significant difference between these. The capital is invested by the government of Tashkent.

(17) Accounts Payable (Note e)

Accounts payable represent the accounts of the suppliers. Tashkent City Vodokanal does not borrow money from banks. Instead, Tashkent City Vodokanal postpones its payments to suppliers and employees when it faces financial problems.

(18) Accounts Payable to Employees (Note f)

Accounts payable represent payroll payments to employees. We were informed that half the salary for May 1999 had not yet been paid, but that the full salary for June and July would be paid. At present, half the salary for May is being paid in incremental amounts in July. Tashkent City Vodokanal's financial problems have been caused by the recession and its effects on manufacturing companies and that they can do nothing to correct this situation.

(19) Cash Flows

Tashkent City Vodokanal prepares a "cash flow statement". No cash flow shortage is presented because it has not necessarily been adjusted. If it were adjusted, it is clear that there would be a shortage of cash flows. As mentioned above, when there is a shortage of cash, Tashkent City Vodokanal does not apply for loans from banks, but postpones payments to its suppliers, and so forth. Generally speaking, a private company in a market economy would go bankrupt in a similar situation and the management of such a company would be held responsible. However, in the case of Tashkent City Vodokanal, the manager or director does not bear any direct responsibility for this type of situation.

(20) Investment Plan

The mid- and long-term plans of Tashkent City Vodokanal are outlined in the technical portion of this report. As mentioned above, future investment costs in Tashkent's budget are covered by the government. We were informed that this scheme will continue in the future. In particular, investments for improving the distribution network are expected to increase. So far, the government has no plan for the replacement of pipelines constructed in the 1960's, 1970's and 1980's.

3.2.4 Communication with Users

(1) Public relations activities for enhancing users' awareness of water conservation

1) Present situation

The result of the questionnaire survey shows that the level of awareness of water conservation is high among both individual and corporate users. However, this understanding of water conservation does not necessarily lead to corrective action under the current fixed tariff system. Therefore, users who pay the fixed tariff seem to either consume enormous amount of water or waste water.

Vodokanal only makes appeals for the need for water conservation a few times a year by issuing newspapers and broadcasting commercial films consigned by externally, but does not carry out any effective or systematic publicity, e.g. education at schools which could persuade the people to take any action on water conservation.

2) Problems

i) The water wasted is not consumed for the original purpose of the users' daily lives or the production activities of the individual and corporate users, but is consumed without creating any value from the water. From a long-term point of view, wasting water has a negative impact on the environment and impedes sustainable development and is not in the public interest. The publicity by Vodokanal has not concentrated much on educating the users to save water using the argument that wasting water impedes the public interest.

ii) Wasting water bleeds water costs under the current fixed tariff system, and these costs are not collected as profit. This is one of the elements that impede a self-supporting system as profits are constantly decreased. Vodokanal has not appealed to the issue of public management in terms of the fact that wasting water hinders the efficiency of public services which are operating on a self-supporting basis.

iii) In order to reduce the level of annual water consumption to half, Vodokanal needs to carry out a large-scale publicity campaign including water conservation. The successful effect of such a campaign would not be expected without strategic publicity by the Department of Public Relations and its professional staff, or without estimating a clear budget for the campaign. The problem is the lack of a strategy that makes effective use of the organization, personnel and capital and the power of publicity.

(2) User participation style of management

1) Present situation

Vodokanal has not made any decisions for management by obtaining the users' opinions and, thus, this is not a user-participation style of management. Accordingly, the Department of Public Relations, which would have contact with outsiders, e.g. the users, has not yet been established as an organization, and only the staff in the Sales Department have contact with the users. Communication between the Sales Department staff and the users is mainly made during tariff collection, and the staff does not report to the upper level managers as an aid to management. Vodokanal also does not disclose any information on the status of its general management. However, the results of the questionnaire showed that both individual and corporate users express a

high interest in the present state of public services as they answered that there is a need to disclose the condition of the water supply management, the organization, the structuring of the costs of the water tariff, and current issues relating to public services. Also, the users expressed a need to communicate with the water supply organization, so as to receive any information on the use of water supply in daily lives. Therefore, no good communication about water supply business has occurred between the two parties so far.

2) Problems

As Vodokanal has not carried out a user-participation style of management to actively reflect the users' opinions in management decisions, opportunity costs (as shown below) have been generated and the management has been rigid.

i) By not reflecting the users' opinion about the water supply services as public services, additional public interest has not been realized and this impedes the improvement of the quality of public services.

ii) Not reflecting the users' needs in the management decisions lowers the users' level of satisfaction. Thus, the level of support for management of Vodokanal is not high and the future measures such as a water conservation campaign and a smooth transition towards a self-supporting system are regarded as insecure.

iii) Under the condition that information on water supply services is not disclosed without inspecting/examining the efficiency level of management, it is difficult to increase the earning rate because it is hard to put pressure on to cut costs. At the very last, this is not positive formdeveloping a self-supporting system. Moreover, they would be at a disadvantage in terms of public trust in raising money from outside agencies, such as financial institutions, other than the government.

3.3 Tariffs

3.3.1 Current Water Tariffs and Tariff Policy

(1) Current Tariff Table

Table 3.3.1 is the current tariff table as of August 31, 1999.

Table 3.3.1 Current Tariff Table

	Users	Water Supply	Sewer Services
Norm (Fixed rate)	Population	31.08 sum/m ³ = 1.81 sum/m ³ × 0.33m ³ × 30days + 1.02 sum/m ³ × 0.43m ³ × 30days	
Metered rate	Population	1.81 sum/m ³	1.02 sum/m ³
	Budget Organizations	3.0 sum/m ³	1.86 sum/m ³
	Self-accounting Communal Organizations	8.22 sum/m ³	5.42 sum/m ³
	Production, Transportation, and Construction, etc.	8.22 sum/m ³	5.42 sum/m ³

Value Added Tax (VAT). A VAT rate of 20% is charged on the amounts presented above.

(2) Current Tariff Policy

The present factors used in calculating the tariff table are as follows:

- ① Estimating the total unit costs based on the production plan;
- ② Forecasting the necessary revenues as total unit costs plus an appropriate margin;
- ③ The tariff for the general population is determined politically by the government of Tashkent City and the revenues to be generated from the population is estimated at this tariff times the forecasted volume of consumption

- ④ Revenues from Budget Organizations, Self-accounting Communal Organizations, Production, Transportation, and Construction, etc. are calculated by forecasting the necessary revenues (②) and subtracting this amount from the revenues to be generated from the population (③)
- ⑤ The tariff for Budget Organizations, Self-accounting Communal Organizations, Production, Transportation, and Construction, etc. is calculated by dividing the projected revenue (④) by the forecasted volume of consumption.

The tariff table is usually revised semiannually due to the high rate of inflation in Uzbekistan and to the shortage in Tashkent Vodokanal's cash flows. In other districts, the Vodokanal usually forecasts revenues and costs for one year.

The tariff for the general population is determined politically and is currently 1.81 sum/m³. However, the calculation of production unit costs is based on the revenue statement as of Dec. 31, 1998 which came to 2.5 sum/m³ and, thus, the tariff for the population cannot fully cover the unit costs. There is presently a differential of approximately 4.5 times between the utility fees collected from the users in the general public and from other users. This, in effect, amounts to a "cross subsidy" for the population.

The government of Tashkent has developed a water supply plan which is outlined as follows:

Objectives:

- ① To end the cross subsidy to users in the population (whose costs are currently borne by other users) by the year 2002 under orders of the Mayor of Tashkent.
- ② To install meters at all users by the year 2004;
- ③ To charge the cost of installation of these water meters back to the users; and
- ④ To continue funding new investments from the government's budget.

(3) Desirable Water Tariff Policy

Generally speaking, a desirable water tariff policy for a self-supporting system under a market economy would be as follows:

1) Concept of water tariff

A water tariff is the price for water supply services. Unlike taxes and other public revenues, water services involve the delivery of a commodity.

Water services are supplied by a single enterprise on a monopolistic basis; at the same time, water is essential to the everyday life of the citizens. For these reasons, water tariffs may be unilaterally fixed by the supplier without regard to supply/demand, unlike certain other commodities for which the law of supply and demand is an important factor in pricing.

To ensure adequate services and reasonable tariffs, the following criteria have been mandated by public control:

- i) Appropriateness:** The level of revenue forecasted from the water supply utility charges should be appropriate.
- ii) Fairness:** The water tariff scheme should ensure that the cost burden is fair for all users.
- iii) Transparency:** The water tariffs collected from each user should be clearly documented with all relevant figures and should be published.
- iv) Official:** The water tariff rates should be officially established in accordance with the law of supply and demand.
- v) Stability:** The water tariffs should be maintained at a stable level for a certain

period of time.

1) Setting tariffs

Setting the tariff rates is a process of establishing water utility charges in a proper and fair manner. This process consists of two major steps. The first step is determining the level of the water tariff rates; the second is establishing a system of tariffs. There are two schools of thought regarding the determination of the level and system of water tariffs: on a cost basis and on a solvency or value standard basis.

From a cost basis point of review, the water tariffs should be based on the expenses connected with the production and supply of water services. Thus, the level of water tariffs should be fixed on the basis of the costs involved, and the system of tariff should also be determined after consideration of the various individual costs corresponding to the demand for the water supply services.

On the other hand, under solvency or value standards, water tariffs should be fixed on the basis of the solvency of the users or on the value of the services as recognized by the users.

i) Determination of level of water tariffs

- Standards for determination

In general, it is considered that the level of the tariffs for public utilities should be determined on a cost basis. If the level of tariffs is determined on the basis of the solvency of users or the value of the services irrespective of the costs incurred, the tariffs may rise above the costs or fall below these.

The services provided by public utilities are indispensable to the daily lives of the citizens, and so it would be improper if the tariffs greatly exceeded the cost of

supply. If the tariffs, on the other hand, were to fall below the cost of supply, the difference must be supplemented by taxes or other revenues. This would pose problems from the standpoint of fair cost-sharing and the appropriate distribution of resources.

- **Tariff calculation period**

The period for the calculation of the tariffs should be as short as possible to ensure fair cost-sharing among the users and a proper computation of the basic costs. On the other hand, as water tariffs affect people's daily livelihood, the level of the tariffs should be kept stable without significant fluctuations for a considerable period of time. In view of these factors, three to five years would be considered an appropriate period of time for tariff calculation revisions.

- **General costs**

General costs represent the sum of costs to be recovered during a tariff calculation period, and should be computed on the basis of the anticipated costs. These costs include not only operating costs but also capital costs.

- a) **Operating costs:** These are the costs involved in the maintenance of the existing waterworks. They include costs ranging from raw water intake to water transmission and distribution as well as costs for general and administrative expenses including personnel expenses, expenses for chemicals, electricity, repairs, depreciation and so forth.

b) **Capital costs:** To maintain a high level of services, there is a need to reserve real capital in order to maintain the waterworks facilities in good condition. Capital costs include interest expense and the cost of the maintenance of the assets, the expenses incurred in redemption of enterprise bonds and for any shortage in depreciation.

ii) **Establishment of a water tariff system**

Water tariffs are classified into two systems according to whether or not the tariffs are based on the actual usage of water services: the flat tariff system and the metered rate system. The flat tariff system determines water tariffs on the basis of standards other than the actual consumption of water. Under a metered rate system, a meter is installed for each user, and the water tariffs are calculated by the volume of water consumed as indicated on the meter. This system may be subdivided further into a per-object tariff system and a per-diameter tariff system.

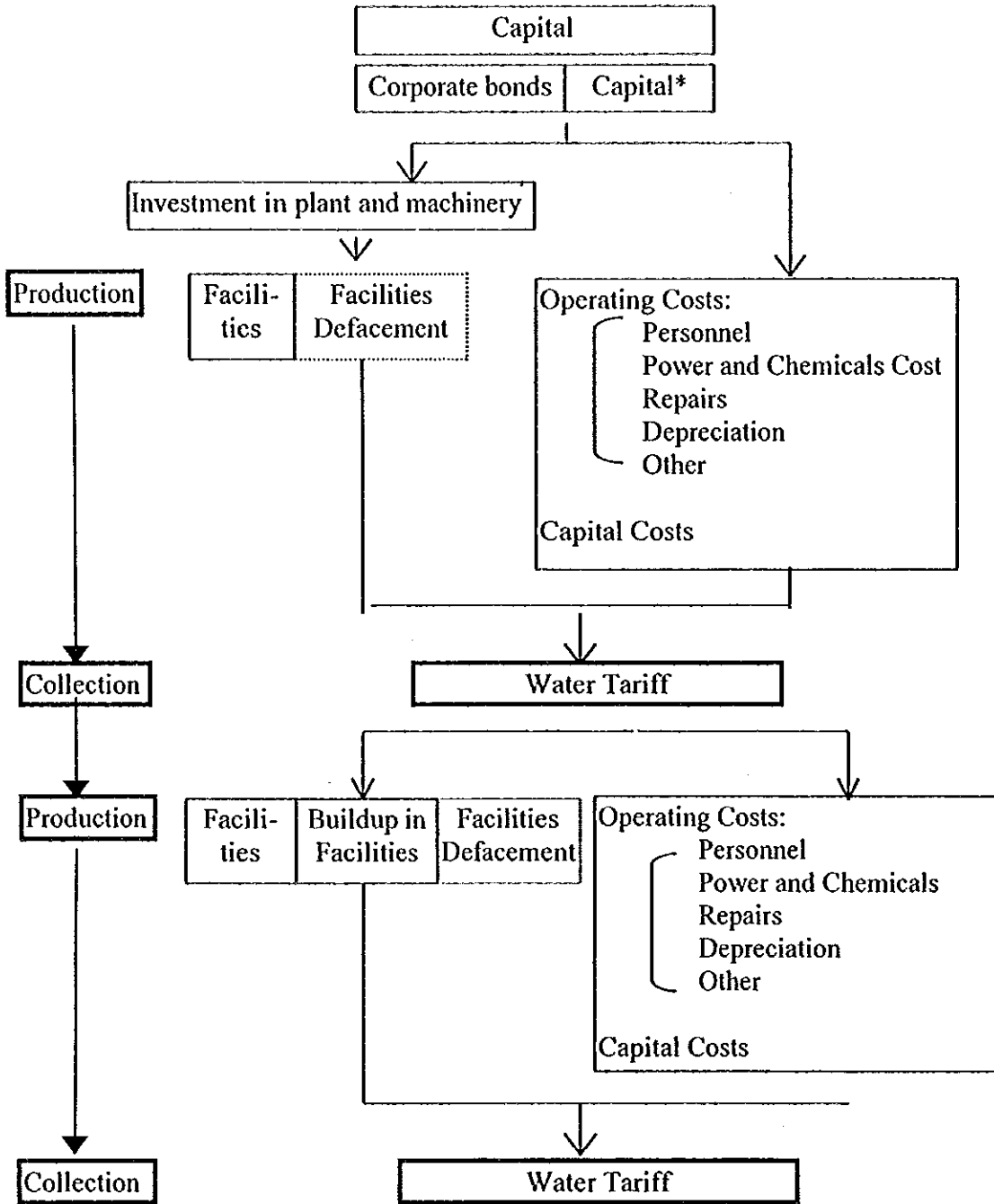
a) Under the per-object tariff system, higher tariffs are levied on users who have greater solvency and those from whom it is considered appropriate to collect higher tariffs due to social or political considerations. On the other hand, the general public and the users of common water taps, public baths and other establishments of a highly public nature are charged lower tariffs. Thus, this system may be considered to be based on social policies. Under the per-object tariff system, users are grouped into several categories according to how the water is to be used without regard to the production costs, and differential tariffs are levied on the users depending on the type of water usage. While this system allows for political considerations, it tends to lack rationality and is somewhat arbitrary in terms of water use and water tariff differentials.

b) The per-diameter tariff system aims to eliminate political factors and arbitrariness and to make the tariff-setting process more objective and scientific. It is established on a cost basis and on the individual cost principle or benefit principle. Under this system, the assumption is that water tariffs should be borne equally by the users regardless of their social status or occupation. If any differentials in tariffs are established, they should be proportionate to the differences in the supply costs and the degree of the benefits received.

Fig 3.3.1 - 3.3.3 are diagrams of the water tariffs under various of self-supporting systems established under the market economy mechanisms outlined above.

Figure 3.3.1 The Financial System for Waterworks

The process of capital circulation in the waterworks business



* Original investment by the government, etc.

Figure 3.3.2 The Process for Setting Water Tariffs

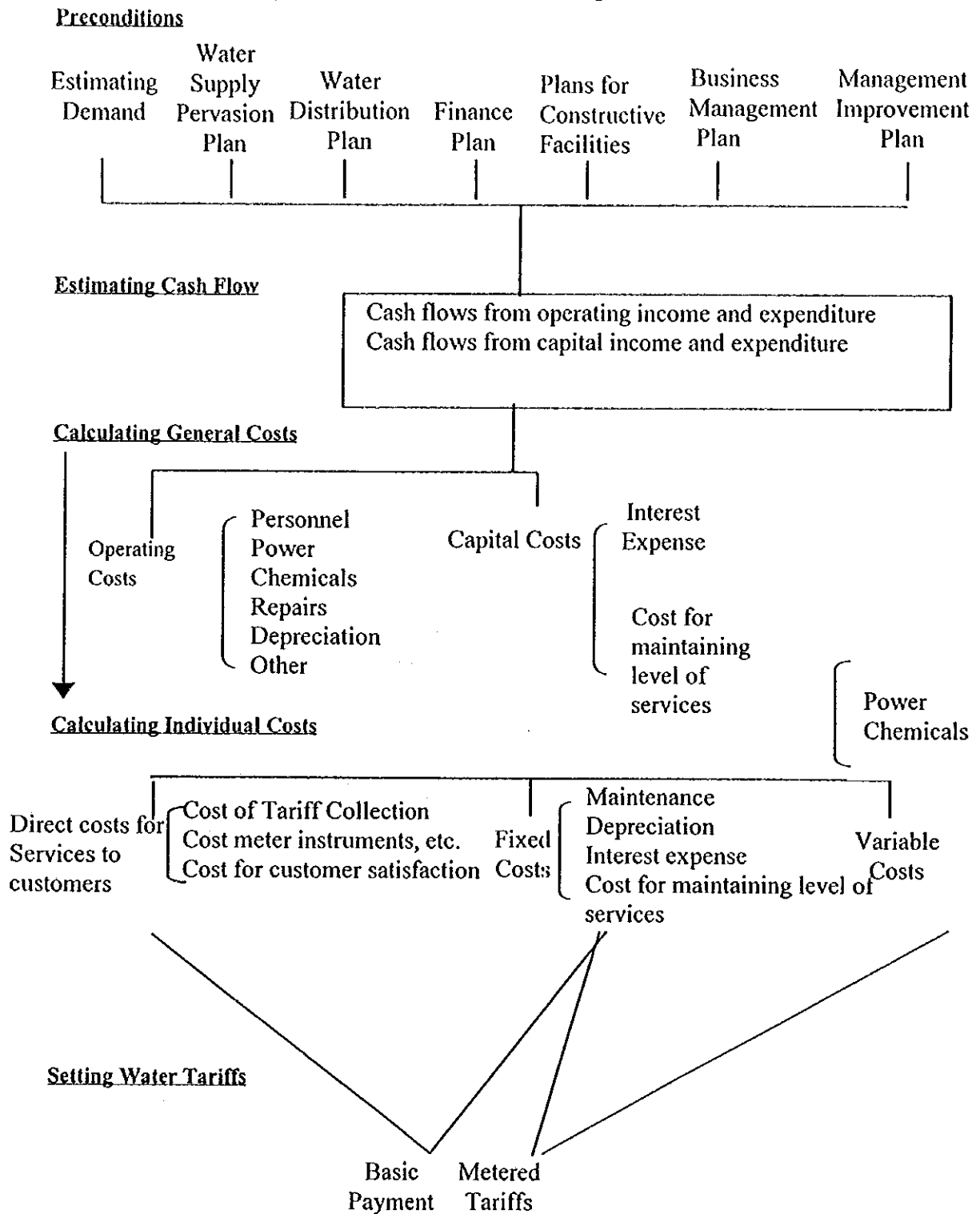
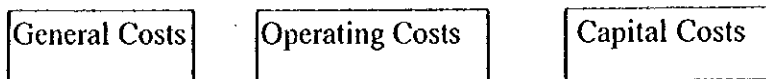
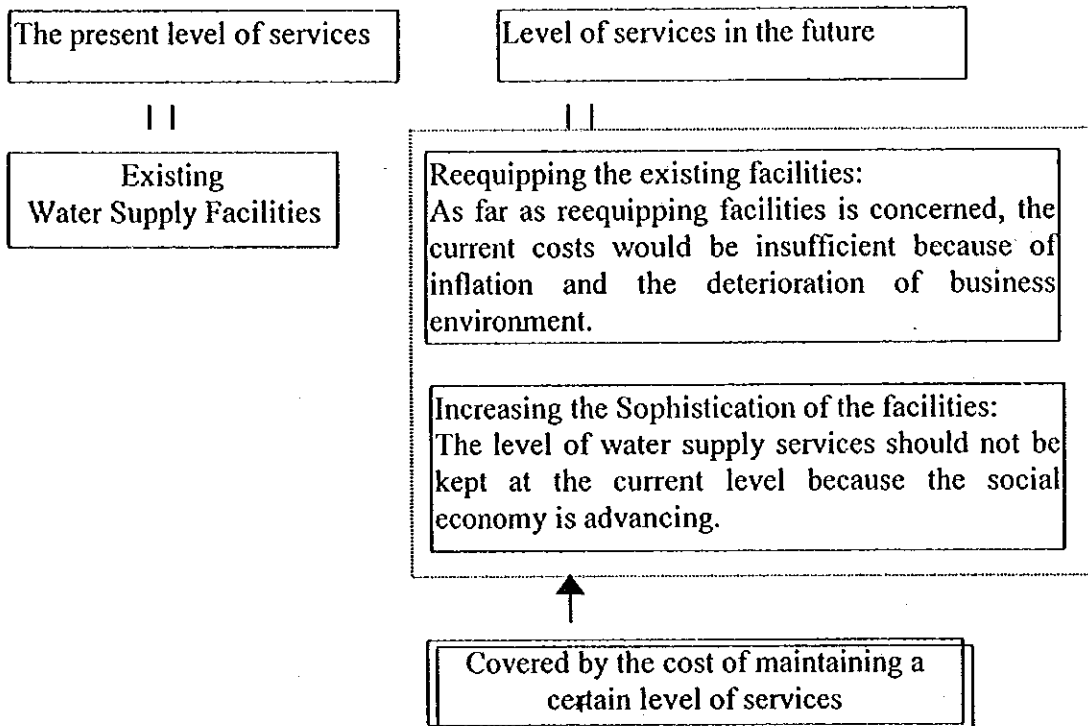


Figure 3.3.3 Calculating General Costs

(1) Components of General Cost



(2) What is the cost for maintaining the level of services?



(4) Points to Be Improved Concerning Vodokanal's Current Water Tariff Policy

As a result of comparing Vodokanal's current water tariff policy with that of self-supporting systems in a market economy, we noted certain points to be improved, which are summarized as follows.

1) High Volume of Consumption by the Population

The current water consumption in Tashkent on the whole including the consumption of industries, exceeds 1000s liter per capita per day. The results of the study showed that, in particular, the general public consume 534 liters per day. This figure far exceeds the worldwide standard level, which is 200 to 250 liters. A leading cause of this is water leakage (waste of water) from toilets in residential premises. To tackle this issue, a plan is now underway to install meters in all households. However, this plan has not worked out effectively as presented in Table 3.3.2 because it puts an enormous burden on the users. This burden also applies to users in individual (private) houses. Meters have not been installed in most of the apartment buildings.

Table 3.3.2 Progress of Meter Installation in Tashkent in 1999

	Target	Accomplishment	Collection of installation costs
Number of households with installed meters.	18,000	7,000	1,500

2) Installation Costs for Meters and Cost Burden

The type of meter installed for the population is a standard size, with a diameter of 20mm and a likely cost of 18,000 sum per meter. The local government believes that all users have to bear this cost. However, considering that, in Tashkent, the population's average income per month is only 18,000 sum, the nominal income is

13,000 sum, and the survey results show approximately 16,000 sum, this puts an enormous burden on the population. Because of this, the central government is willing to allow the population to pay by installments over one year in order to collect the cost. Nonetheless, a large number of people still cannot afford the cost, and this has led to a poor record of recovery of the installation costs. The income level of the population living in apartment buildings is lower than that of those living in private houses. This means that the burden of these installation costs is more serious for apartment residents.

3) Cross Subsidies

Unless meters are installed, there is no way of collecting water tariffs other than by imposing a fixed cost on the population. Furthermore, needless supply costs are being generated because there is a low level of awareness of the need for water conservation among the people.

This issue has created a cross subsidy system between the population and the corporations as the fixed tariff collected from the population was deliberately set at a low level as official governmental policy. This shifts the cost burden to the corporations as they are charged a usage-based rate.

Although the central government has announced targets to resolve this cross subsidy issue, the gap tends to be widening as most meters have not yet been installed.

4) Differences in areas covered by water tariffs

New investments are funded from the city or state budget and Tashkent City Vodokanal and Chirchik City Vodokanal are not required to fund new investments. Accordingly, the basic concept of the water tariff for Tashkent City Vodokanal and Chirchik City

Vodokanal is to cover the basic operating costs but not to cover new investments. Table 3.3.3 presents the differences in the areas covered by water tariffs.

Table 3.3.3 Differences in the Areas Covered by Water Tariffs

Types of costs	Tashkent and Chirchik City Vodokanals	Basic Concept	Japan
Operating costs	○	○	○
Cost of meters	×	○	○
Capital costs	×	○	○

The city or state authorities say that neither Tashkent City Vodokanal nor Chirchik City Vodokanal have sufficient funds for new investments and the city or state authorities may not be planning to generate such funds from the water tariff revenues. If the water tariffs were intended to cover all costs relating the water supply business outlined in Table 1, this would mean a drastic increase in the tariff. At present, there are hardly any meters in Tashkent and Chirchik and it is impossible to collect tariffs for the water supply business fairly from all users without the use of meters. It would be better to make the water tariffs cover all costs after the installation of the meters and after consideration of how the costs should be allocated to each group of users.

On other hand, Tashkent City Vodokanal and the city authorities and Chirchik City Vodokanal and the state authorities should give first priority to a consideration of maintaining the capacity of the water supply facilities and to raising funds for this purpose. We have proposed a revised tariff table for the short-term (e.g. 2 to 3 years) as a temporary measure and an estimate of future tariffs including the need for future capital investments.

Fig 3.3.4 shows how the tariff level is determined in consideration of the blanket costs in a self-supporting system.

Fig 3.3.5 shows how the tariff level is determined for Tashkent and Chirchik.

The major difference between Tashkent and Chirchik and the global standard including Japan in a self-supporting system is whether or not fixed costs include capital costs.

Fig 3.3.6 shows how the tariff level for enterprises is determined in Tashkent and Chirchik.

Fig 3.3.7 shows how the tariff level for the population is determined in Tashkent and Chirchik.

Fig 3.3.8 shows the impact of capital costs on how the tariff level is determined. If, however, the tariff revenues do not cover capital costs, the government authorities must cover these in the future.

Figure 3.3.4 Tariff Level in Consideration of General Costs (Global Level)

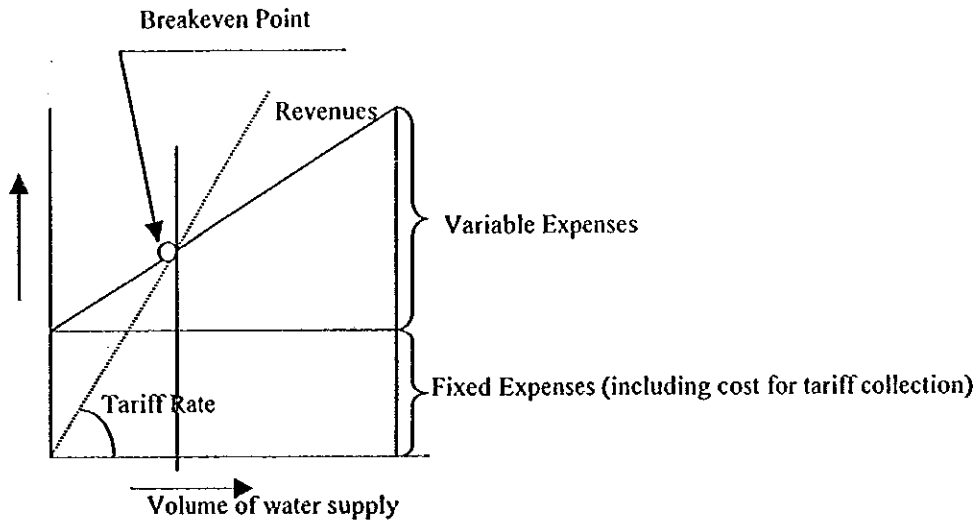


Figure 3.3.5 Basic Concepts for Tashkent and Chirchik

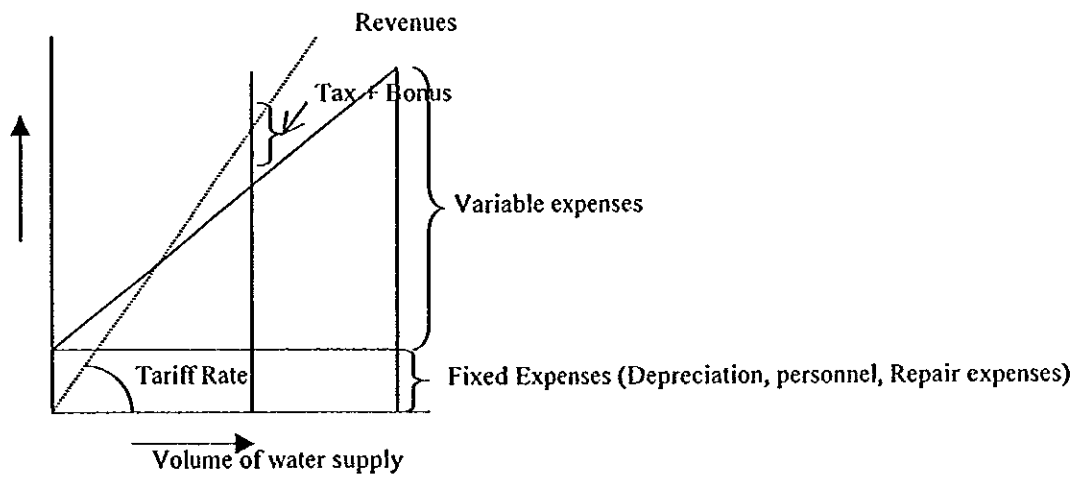


Fig 3.3.6 Enterprises in Tashkent and Chirchik

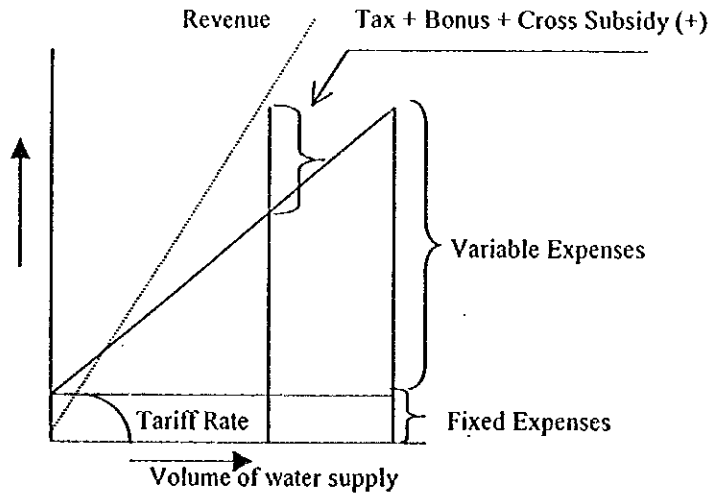


Fig 3.3.7 Population in Tashkent and Chirchik

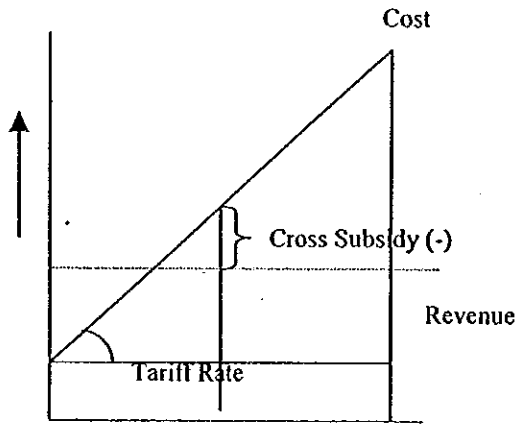
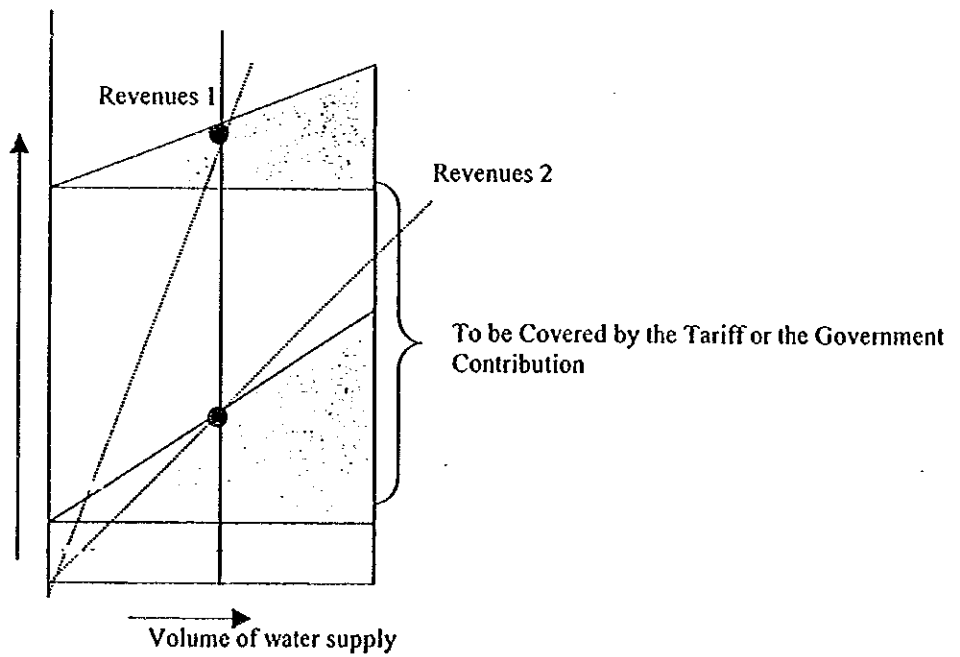


Fig 3.3.8 Future Scenario



5) Philosophy for a Revised Tariff Table

We believe that the tariff policy should be established for a long-term period and we have prepared a long-term plan as mentioned in Chapters 7.4 and 8.4. On the other hand, we also considered a revised short-term tariff table (effective for 2 to 3 years) based on the following factors:

- i) Applicable to users with or without meters.
- ii) Consideration for low-income households
- iii) Incentives for promoting conservation of water
- iv) Percentage of water tariff to total cost of living
- v) Elimination of cross-subsidies
- vi) Applicable for the next 2 to 3 years
- vii) Comparison of costs used in preparation of the proposed table with actual costs anticipated in the future for the measurement of management efficiency
- viii) Maintaining the current schedule for the installation of water meters

i) Applicable to users with or without water meters

The city and state authorities are planning to install meters in every household and each apartment building by 2005. This means that there will be both houses with meters and without meters at least until 2005. Therefore, we have provided a revised tariff table for residences with and without meters. On the other hand, it is necessary to give users without meters some incentive to install meters and so we have incorporated into the tariff table certain advantages to those users with meters.

ii) Consideration for low-income households

It is necessary to provide some support to low-income households and so we have given such families some tariff exemption. On the other hand, we have retained certain incentives for conserving water even for such low-income households.

iii) Incentives for promoting conservation of water

It is necessary for the users to have incentives to conserve water and thus we recommend an accelerated tariff rate for metered users. This means that any users who consume water in excess of the standard volume will have to pay a rate which includes a penalty. This system is designed to encourage users to conserve water.

iv) Percentage of water tariff to total cost of living

Water supply services are a public utility and the level of the water tariff should be established at an appropriate level after consideration of the levels of income within the population. We have considered the water tariff as a percentage of the total cost of living in preparing the revised tariff table.

v) Elimination of cross-subsidies

The current tariff level for the population is below the total unit costs (all operating costs / all distributed water volume) and this shortage is covered by a subsidy in the form of a heavier tariff burden for enterprises. We have referred to this imbalance as a type of "cross subsidy." It is necessary that the tariff revenues from the population be at least sufficient cover the total unit costs and we considered increasing the tariff level of the population in order to eliminate cross-subsidies.

vi) Applicable for the next 2 to 3 years

The current tariff table has been revised based on the actual annual or semiannual costs incurred and the tariff is scheduled to increase once or twice per year. We believe that a tariff table should be established for a period exceeding one year considering the stability of a public utilities tariff and thus we have projected tariffs for the next 2 to 3 years. For other words, even if the tariff table is not revised over the next 2 to 3 years, Tashkent City Vodokanal should not experience any financial problems based on these estimated parameters.

vii) Comparison of costs used in preparation of the proposed table with actual costs anticipated in the future for the measurement of management of efficiency

We believe that establishing water tariffs for the next 2 to 3 years will give Tashkent City Vodokanal and Chirchik City Vodokanal certain managerial targets in their future estimates. If there are any differences between the actual figures and the estimates, Tashkent City Vodokanal can provide their feedback to management by analyzing these differences and this process is expected to improve management efficiency.

viii) Maintaining the current schedule for the installation of water meters

We assume that the current plan for the installation of water meters, which is to be completed by 2004, will be on schedule for the city or state authorities. If their plan is not on schedule, the revised tariff table should be reconsider.

(6) Global Average

We examined global average for the water supply business with reference to our proposal for a revised tariff table.

In terms of a global perspective on the water supply business, certain key factors are presented below in Table 3.3.4. This table is summarized from a publication issued by the Japanese Water Works Association.

Table 3.3.4 Global Water Supply Business

	Average	Maximum	Minimum
Average volume of consumption water (m ³ /month per family)	21.3	Fiji 100.0	Denmark 4.0
Water tariff as a percentage of living expenses (%)	2.5	Korea 29.6	Switzerland 0.2
Leakage (%)	22.4	Turkey 50.0	Cyprus 3.0

As a result of examining the worldwide water supply business, we have noted certain additional characteristic trends among countries which utilize metered rate tables.

- 1) There is an imbalance between the tariff level for the general population and that for other enterprises in almost all countries which have adopted a metered rate table. The imbalance disappears when usage exceeds 50 (m³/month per family). This means that, assuming ordinary water usage, the tariff level for the population is kept lower than the tariff level of other enterprises. However, if the population tends to consume an excessive amount, the population has to bear a higher tariff as a penalty. The scale of this imbalance is approximately double at the 20 (m³/month per family) usage level (if we exclude Sri Lanka). In other words, tariff rates gradually become higher

as the general consumption of water increases. In the case of consumption less than 10 months, almost all countries have adopted a fixed tariff rate as a basic payment.

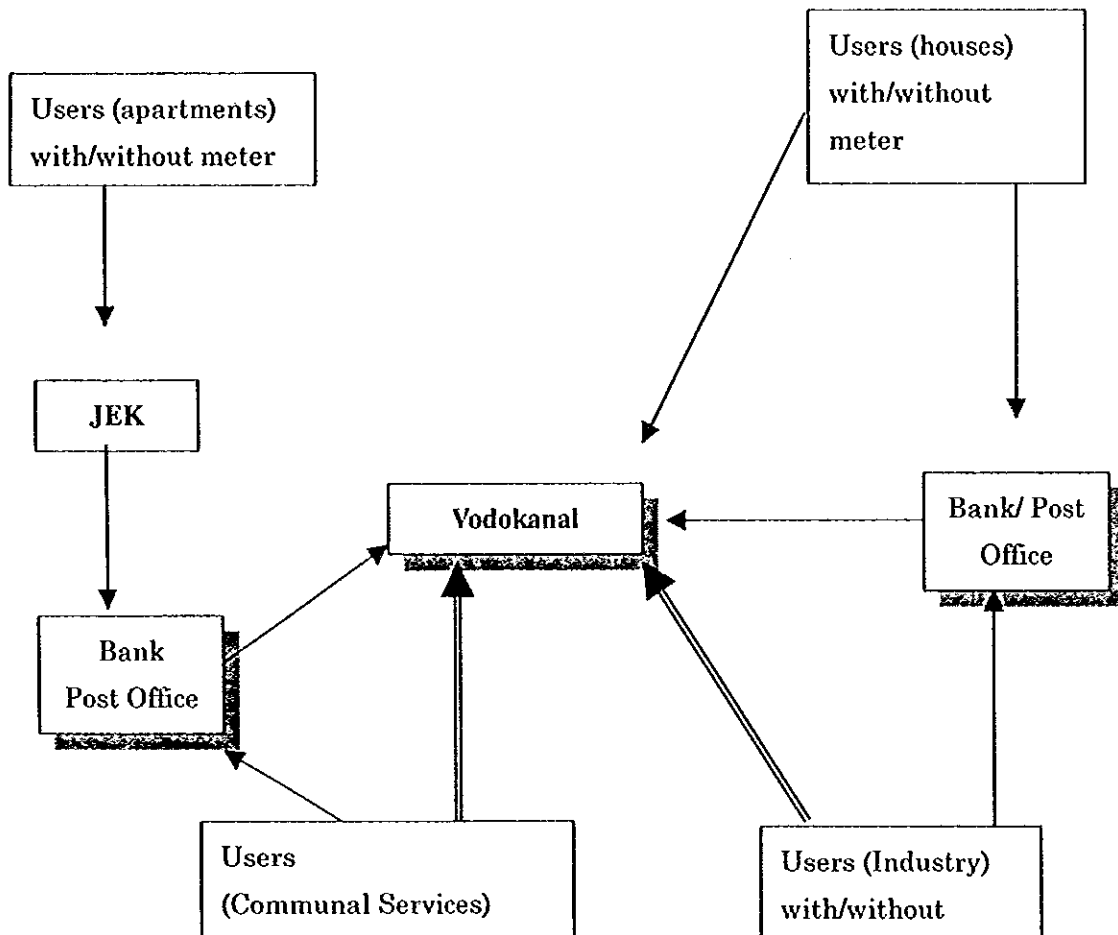
- 2) There are few countries in which the population is required to purchase their own meters, but there are some countries which collect from the users rental or maintenance fees instead of requiring mandatory purchase.
- 3) There are also certain countries where the tariff for public sector companies is lower than for private sector companies. The public companies in such cases may correspond to the "Budget Organizations" presented in Table 3.3.1.


3.3.2 Tariff Collection System

(1) Outline of Present Tariff Collection System

The present tariff collection system in Tashkent City classified by category is roughly illustrated in Figure 3.3.9.

Fig. 3.3.9 Present Tariff Collection System



Note 1:  is cash payment/collection.

Note 2:  is offset.

Note 3: VOD is the Vodokanal.

(2) Installation of Water Meters

At present, tariffs based on meters are applied for about six percent of detached houses, two percent of apartments, 65 percent of communal service sector and 90 percent of industries in terms of number of users, respectively. The metered rate system has only been in operation since 1999, the effects of the system have not yet been sufficiently demonstrated. Meter reading is done by JEK at apartments, and by the Vodokanal for other categories.

(3) Collection Procedures

Bills are not sent by mail, but are delivered directly to the residents in detached houses. Regarding communal service sector and industries, consumption statements or meter reading forms rather than the actual bills are handed to the users and bills are not issued in principle. As for the tariff collection, the Vodokanal is in charge of collection for all users except for the residents of apartments.

(4) Role of JEK

Tariff collection from the residents of apartments is, in principle, performed by JEK, which is managed by KEU under contract with the Vodokanal. Based on the terms and conditions of the contracts, the Vodokanal pays 56 percent of the amount collected to JEK, 50 percent as technical compensation, and a collection fee and 6 percent as bank commission. The technical compensation is used by JEK for the repair and maintenance of the water supply and sewer system in apartment buildings. The Vodokanal has direct contracts with apartments which have individual meters in some cases, and collects the tariff directly from the residents or through banks/post offices.

According to the data from JEK in 1999, users' payments to JEK consist of 11.7 percent for cold water, 19.5 percent for heating, 35.2 percent for hot water, 11.2 percent for gas and 22.4 percent for garbage collection. The collection ratio is 90 to 95 percent.

(5) Collectability

Payments from the users are accepted at post offices (34 percent), banks (35 percent), and by the Vodokanal collectors (31 percent).

The payment status is recorded by the Vodokanal. As shown in Figure 3.3.9, payment may be made in cash or by offsetting. Offsetting is possible in the communal service sector and industry categories.

In 1998, the collection ratio was 93 percent in total, including that for sewer services. The collection ratios for each of the categories are 64 percent for residents, 89 percent for communal services and 122 percent for industry (including transfer amounts) in terms of amount of collection.

Under the current system, the water tariff is collected by JEK/Vodokanal on contract with the users as summarized in Table 3.3.7. Table 3.3.7 includes the related information such as the number of users, meter reading, collection/contract, place of payment/billing method, payment/settlement, commission, period of payment and repair/maintenance (inside houses).

(6) Function of Controller

The function of "Controller" is to read meters, to calculate charges to issue bills, to collect tariff, and to collect delinquent tariff bills.

Each controller is responsible for a particular district. They read the meter, calculate the consumption volume, issue the bill or record the figures into the Customer Book, collect the tariff, and request users who have an overdue account to pay. The controller handled all services for his nor particular sources of users.

Table 3.3.5 Number of Controllers

	Industry	Communal	House	Apartment
Number of employees	10	23	15	8
Number of users per controller	96	372	7,374	*1,250 **55,789

* The number of apartment buildings

** The number of the residents living in apartment buildings

Job rotations seldom occur except when this is necessary. Thus, the controller offers all services to the same users over a long period of time.

(7) Cycle of Meter Reading and Billing

The cycles of each procedure for all users are shown in Table 3.3.6. Basically, the cycle of payment depends on that of billing and of any change in tariffs. However, fixed rate users can pay monthly, quarterly, biannually or annually, as they prefer.

Table 3.3.6 Cycles

	Industry	Communal	House	Apartment
Reading the water meter	Every month	Every month (large companies) once per quarter	Once per quarter	Once per quarter
*The number of reading meter per one person and one day	4.2	***12.0 ****4.0	7.1	6.1
The number of reading meter per one person and one day	5.0	*19.6 ****6.5	370.0	62.5
Billing	Every month	Every month	Once a year	Every month

- * The present situation
- ** When installation of meters for all users has been completed
- *** Monthly data
- **** Quarterly data

(8) Recording Sales and Collection

The Water Sales Department uses the all its computer for the calculations of the water tariffs for enterprises and issues payment orders to the bank every day. They bring the payment orders to the bank every day and deduct the money from the user's accounts.

After the amount billed is deducted by bank, the Accounting Department receives the payment documents via the bank and all calculations. This information is itransmitted manually not electronically.

On the first or second day of the following month, the Water Sales Department prepares a summary for the previous month's amount and submits it to Accounting Department. This information includes the proceeds billed and amounts receive. They record the amount of the proceeds less the receipts as accounts receivable.

Then the Accounting Department checks whether the amounts received which it recorded and the corresponding amounts received which the Water Sales Department wrote down in the notebook agree. They check them by the 15th of the following month.

The Accounting Department records only the total income as sales once a month and they also prepare the financial statements after the 15th of the following month.

Table 3.3.7 Summary of Tariff Collection System

User's category	number of users	meter reading	collection or contract	payment/billing method	payment place or settlement	commission	period of payment	repair and maintenance (inner house)
House Retached House	7,075	VOD, with user, quarterly (inspection)	VOD	refer to (2) Flows of Payment/Billing Method	banks, post offices, VOD direct	4% as Bank	monthly, quarterly, yearly	mainly user
	108,000	-	VOD	same as above	same as above	same as above	same as above	same as above
Apartment with meter	3,028 (bulk)	JEK (2,800 bulk), VOD (others), with user, quarterly (inspection)	JEK, VOD	same as above	(residents pay at JEK/BUNK, JEK pays to VOD by Bank transfer)	54% to JEK	same as above	JEK
	7,025 (individual)	-	JEK	same as above	(banks, post office, VOD direct)	same as above	same as above	JEK
Communal Services Sector	5,674	VOD, with user, monthly	VOD	same as above	banks, VOD (offset)	4% as Bank	monthly	user, VOD others
	3,066	-	VOD	same as above	same as above	same as above	same as above	same as above
Industry	864	VOD, with user, monthly	VOD	same as above	same as above	same as above	same as above	same as above
	97	-	VOD	same as above	same as above	same as above	same as above	same as above

Note: VOD is Vodokanal.

(3) Issues and Problems

As a result of questionnaire survey, 68 percent of the individual users (the population) want to pay at banks and post offices. This shows that users prefer to make their payments at convenient places nearby.

Issues and problems with the tariff collection system classified by category summarized as follows.

1) Houses with Meters

- i) Because the meters are often broken, the trust of the users in the metered rate system is low. Therefore, the inspector first confirms whether the meter is working correctly. If it is broken, the fixed rate system is applied. As the metered rate system started only this year, the system is not yet operating smoothly.
- ii) Because of the location of the meters inside the houses or in the case of a broken meter, the inspectors check/read the meter in the presence of the users. When the user is not available, the inspector must consequently visit the house again.
- iii) As the meter is sometimes installed in a restroom in the house, reading it is not conducted smoothly.
- iv) Information on the metered rate system is not sufficient for the users.

2) Houses without Meters

- i) The rather complicated tariff calculation method is the fixed rate system based on the number of family, the facilities and other factors.
- ii) There is no way to measure the volume of consumption of the users. The water conservation consciousness of the users is not high.

- iii) Because there is no meter, there is no way to know if the water in the house is leaking.

3) Shared Housing - Houses

- i) There are some payment periods in which for smooth tariff collection is difficult. Therefore the settling of arrears becomes difficult.
- ii) This category has the lowest tariff collection rate (64 percent).

4) Apartments with Meters

- i) Same as 1) i.
- ii) In spite of having the largest number of users, there are comparatively few meter installations in these apartment buildings.
- iii) Because both JEK and the Vodokanal manage the meter readings, this is difficult for smooth water supply services management.

5) Apartments without Meters

- i) Same as 2) ii.
- ii) Same as 2) iii.

6) Shared Housing – Apartment Buildings

- i) Users are not informed of the breakdown of the water tariff. Consequently, users do not find out how much water has been consumed, and do not understand how to save water.
- ii) Same as 3) i.
- iii) The commission to JEK is 54 percent of the amount collected and, consequently, this aggravates the water supply services management.

7) Communal Services/Industries with Meters

- i) Same as 1) i.
- ii) Same as 1) ii.
- iii) Same as 1) iii.
- iv) Because some meters are installed deep under the ground, reading these is not easy.

8) Communal Services/Industries without Meters

- i) The tariff computation is complicated because it is based on the diameter of the pipes and on other parameters.
- ii) Same as 2) ii.
- iii) Same as 2) iii.

9) Common Comments on Communal Service Sector/Industry

- i) Water tariff payments are apt to be delayed because of a lack of subsidy from the government or a management slump. Because of large number of consumers in arrears, the influence of this situation on the Vodokanal is serious.
- ii) Unless appropriate measures are taken, reading all meters every month will become difficult in the future when the number of meters increases substantially.

3.3.3 Water Tariff Setting Process

The current water tariff setting process and related items including the departments responsible, the points to be accounted for in tariff setting and public relations activities in Tashkent City are summarized in Table 3.3.8. This process and other equivalent measures adopted in Japan are also studied and summarized for the purpose of comparison and reference. When compared with the process and system in Japan, the following issues have been identified for future improvement.

(1) In the case of Yokohama City, (the relevant factors are almost the same in the major cities of Japan) the Accounting Department of the Waterworks Bureau of the Yokohama City Government is solely responsible for the preparation of the proposed tariff schedule with the assistance of and in consultation with other related departments. Subsequently, the proposed tariffs are submitted for approval to the city assembly and are also reported to the related central ministries. Therefore, the system and the process are perceived to be both streamlined and transparent.

(2) As points to be taken into account in order to obtain the approval of the city assembly and eventually the understanding and acceptance of the users in Japan, plans which promote rationalization and efficiency in waterworks management, both technical and organizational, have become important aspects in tariff setting. However, these factors do not seem to have been given due consideration in the present tariff setting process in Tashkent City.

(3) In Japan, all the points noted in the table below are spelled out in more detail in their manuals or work flows, which are readily available to the workers in charge. Having a

effective manuals on hand would promote the efficiency of the related work and would also contribute to making the tariff setting process more transparent.

Table 3.3.8 Summary of Process for Setting Water Tariffs

	Tashkent City	Chirchik City	Japan (Yokohama)
Department in Charge of Preparation of Draft Tariff Revision Proposal Department to be Consulted	Vodokanal Planning & Economy Dept., Accounting Dept., Water Sales Dept. Main Power Engineer Dept., Chief Mechanical Engineer Dept., Capital Repair Dept.	Vodokanal Planning & Economy Dept. Accounting Dept., Water Sales Dept., Technical Dept., Power Engineer Dept., Mechanical Engineer Dept.	Waterworks Bureau Accounting Dept. Operation Dept. and Planning Dept.
Points to be Taken into Account	<ul style="list-style-type: none"> Operating results after the prior revision; Financial forecast of future operations (for one year at the longest); General economic environment in the future (electricity charges, cost of materials, labor costs, in particular) Capital investment plan and forecast of operating costs; Political and administrative environment 	<ul style="list-style-type: none"> Operating results after the prior revision; Financial forecast of future operations (for one year at the longest); General economic environment in the future (electricity charges, cost of materials, labor costs, in particular) Capital investment plan and forecast of operating costs; Political and administrative environment 	<ul style="list-style-type: none"> Operating results after the prior revision; Financial forecast of future operations; General economic environment in the future; Capital investment plan and forecast of operating costs; Rationalization and efficiency promotion plan; Political and administrative environment
(Principle for Tariff Setting)	(Operating cost basis which does not include capital costs)	(Operating cost basis, which does not include capital costs)	(Blanket cost principle consisting of Operating Costs and Capital Costs)
Related Laws	Rules for Water Usage Resolutions of the Cabinet of Ministers No. 165 of Mar. 31, '97 No. 211 of Apr. 25, '99 No. 54 of Feb. 7, '99; No. 271 of July 30, '96	Rules for Water Usage Resolutions of the Cabinet of Ministers No. 165 of Mar. 31, '97 No. 211 of Apr. 25, '99 No. 54 of Feb. 7, '99; No. 271 of July 30, '96	Waterworks Law; Local Public Enterprises; Local Government Law
Process for Setting New Tariffs	Vodokanal ↓ City TCMA ↓ City Hokimiyat (Main Dept. of Economic and Statistics, Anti-monopolization & Price Policy Dept. of Main Financial Dept.) ↓ Hokim (Tashkent City) (Report)	Vodokanal ↓ Provincial Hokimiyat (Committee on anti-monopolization and promotion of competition Price Dept.) ↓ Hokim (Tashkent Province) (Report) Central Government (Council of Ministers,	Waterworks Bureau ⇒ City Assembly (Approval of New Ordinances) (Report) Central Government (Minister of Health & Welfare; Minister of Local Autonomy)
Approval: Reporting:	→ →	→ →	→ →

	Central Government (Cabinet of Ministers, Ministry of Communal Services)	Ministry of Communal Services) Provincial Vodokanal & TCMA (by Chirchik Vodokanal)	
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Final Approval Public Relations activity	Hokim (Tashkent City) (Hokimiyat, TCMA, Vodokanal) Radio, TV, newspapers, Other printed materials	Hokim (Tashkent Province) (Vodokanal only) TV, newspapers, Other printed materials	City Assembly • Periodical publications, leaflets, etc. • Prior notices printed on the bills
Time for Tariff Revision Other Costs Collected from Users		Actual cost of work required.	Initiation fee and Allotment of Cost Charges

3.3.4 Tariffs for Other Communal Services

To trace the increases in the tariff for water supply and other communal services, and compare the trends of the tariff increases, relevant data on all tariff changes in Tashkent City from 1993 to the present were collected from TCMA Tashkent City, as attached in DATA 3-3 section. Based on this data, the JICA Study Team developed a table and graph showing the tariffs for communal services at the end of each year, from 1994 to 1999 (July). An analysis and a comparison of tariff changes are possible only after the introduction of the Uzbek currency, the Sum, which occurred in July 1994.

The following developments can be seen from Table 3.3.9 and Figure 3.3.10:

- (1) Telephone and hot water tariffs have soared 19 times and 333 times, respectively.

According to the officers in charge, the recent sharp increases in gas and electricity cost can explain everything about the sharp tariff hikes for these services.

- (2) Water supply and garbage collection tariffs have increased moderately, the cold water supply by 34 times and the garbage collection charges by 25 times.

- (3) The level of the electricity charges has remained steady, even though it has increased 30 times.

Table 3.3.9 Tariff Changes of Communal Services in Tashkent City

from 1994 till 1999 (as of 16 July 1999)

Communal Services	heating m ²	hot water/ person	cold water/ person	gas/ person	garbage/ person	electricity kw	telephone sets
1994	0.03	0.30	0.91	0.14	2.00	0.10	12.00
1995	0.30	5.50	0.91	0.68	2.00	0.30	30.00
1996	0.60	26.00	3.04	4.00	4.00	1.25	60.00
1997	2.00	50.00	5.98	12.00	15.00	1.60	60.00
1998	4.00	100.00	14.98	24.30	25.00	3.00	150.00
1999 (July)	4.00	100.00	31.05	24.30	50.00	3.00	225.00

Figure 3.3.10 Changes in Tariffs for Communal Services in Tashkent City

