

IMPROVING THE EFFICIENCY
OF TWO WATER AND WASTEWATER
DISTRICTS IN SLOVAKIA

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April 1994

**WATER AND
SANITATION for
HEALTH
PROJECT**

Sponsored by the U.S. Agency for International Development
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OF TWO WATER AND WASTEWATER
DISTRICTS IN SLOVAKIA**

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by

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ACRONYMS

ATC	Association of Towns and Communities in Slovakia
BOD	biological oxygen demand
CSR/WWA	Central Slovak Regional Water and Wastewater Authority
m ³	cubic meters
DWF	dry weather flow
l/day	liters per day
MMS	maintenance management system
MSM	Ministry of Soil Management
O&M	operations and maintenance
PWWD	Prievidza Water and Wastewater District
PVO	private voluntary organization
Sk	Slovak krown
GOS	Government of Slovakia
TA	technical assistance
TLD	transmission line district
VAT	value-added tax
WASH	Water and Sanitation for Health Project
W/WW	water and wastewater
W&WWA	water and wastewater authority
WSR/WWA	West Slovak Regional Water and Wastewater Authority
WSTLD	West Slovak Transmission Line District
WWTP	wastewater treatment plant
USAID	U.S. Agency for International Development

EXECUTIVE SUMMARY

Purpose

This report summarizes the findings of an audit designed to diagnose needs to improve the efficiency of two selected water and wastewater districts, the West Slovak Transmission Line District, and the Prievidza Water and Wastewater District. The immediate purpose of the assignment was to develop a basis of information in technical, financial, and management areas that will help make short-term improvements in efficiencies. The larger purpose of the assignment defines issues that might affect an overall decentralization and sectoral restructuring program.

Summary of Findings for the Prievidza Water and Wastewater District (PWWD)

- The PWWD was found to be an essentially well-managed water and wastewater district operation, considering the overall limitations imposed by the structure of the sector in Slovakia. The skills of the technical staff were good, and management has demonstrated technical leadership, particularly in setting up a central telemetric control system for its internal transmission line district. The water management area appears to be the strongest department technically, while the wastewater side has a number of deficiencies.
- The ratio of employees per 1,000 population served is 1.76. The Central Slovak Authority ratio is 3.1, while Slovakia as a whole has a ratio of 2.9. Total population served is 130,000 people. Total staff employed are 230.
- The essential administrative and budgeting systems are in place; and records, while manually maintained, follow acceptable standards for good practice. The experienced staff are able to improve performance, given appropriate management tools and resources for operations and maintenance (O&M).

Cost savings and management and technical efficiencies can be realized in a number of areas:

- In general, the operation needs to be considered more as a business by management.
- Training is needed in using tools for effective management.
- Strategic planning involving full staff participation is needed.
- The current Prievidza wastewater treatment plant (WWTP) has yet to bring the standard of the effluent to more than 60 percent of design standards. A number of design and equipment improvements will be required to improve efficiency.
- Improvements are needed in the Handlová WWTP, and the capital improvement construction needs to be completed.

- Because profits from the Prievidza district are shared regionally, a disincentive for good performance is set up under current arrangements.
- Some restructuring and strengthening for increased commercial management is needed. The three field offices managing most O&M for water supply should be strengthened, upgraded as management units, and made into full “service centers” with the ability to interact with the public and meet consumer requests.
- Unaccounted-for water is estimated to be about 30 percent. This compares with 32.3 percent for the Central Slovak Authority as a whole and with a national average of 27.7 percent. The U.S. average is 11 percent. Considerable savings could be realized by reducing water loss.
- Increased autonomy for management will be required to operate as a cost-center operation. Dependence on the regional Water and Wastewater Authority (WWA) has created distortions in the current management practice, which need to be corrected if the decentralization program is carried forward.

Summary of Recommendations for the Prievidza Water and Wastewater District

Detailed recommendations are provided in the body of the report. The most important are summarized below.

Technical

- Leak Detection—Provide a full-time program for leak detection and repair.
- Maintenance—Establish a maintenance management system for both water and wastewater systems.
- Prievidza WWTP—An independent consultant should review the operations and design of the Prievidza WWTP and make recommendations for corrective action.

Financial

- Budgeting—Start the budget process earlier and involve the middle managers in the development of the budget estimates.
- Planning—Begin to develop a five-year capital budget for the needs of the district.
- Revenue Estimating—Explore ways for the district to conduct a rate study to include residential and commercial rates, as well as possible impact and connection fees. A residential minimum (“lifeline”) rate should be considered with sharply increased rates for excess consumption above the minimum. Increased rates will provide an incentive for water conservation.

Management

- **Strategy for Improvement**—Work on a strategy for improving technical, financial, and management practices for the PWWD that incorporates the findings of this study into an action program for the future.
- **Service Centers**—Upgrade the importance of the three service centers. Give more attention to commercial activities (public complaints, consumer relations, new connections, meter reading, and repair).
- **Information**—A management information system should be considered.
- **Management Training**—Provide training for all managers and supervisors with an emphasis on business concepts and strategic planning that would position staff for the next phase of development.
- **Transmission Line Management**—The transmission line from the surface water source east of Prievidza should be examined as a resource for the PWWD. From an operational and economic viewpoint, it appears to be efficient and logical for the Prievidza district to manage this. Should redistricting be a consideration as the transformation proceeds, managing this resource should be considered.

Summary of Findings for the West Slovak Transmission Line District

The West Slovak Transmission Line District operation is meeting current expectations for a transmission line district (TLD), given the current organizational arrangement. Its staff are professional and well qualified; its leadership is experienced. Maintenance tasks are performed well in the absence of a maintenance management system. All basic management systems are in place; the operation is financially viable and would appear so if the bookkeeping of the authority allowed the TLD to show income on its books for the sale of water to districts.

Improvements can be made to achieve efficiencies in a number of areas, and there is a question of ownership of one major transmission line. The areas of improvement include the following:

- The operation needs to be considered more as a business by management; strategic planning is needed to consider alternative futures.
- Telemetric control for pumping stations would save money and reduce staff.
- A reduction in staff where possible, particularly in pump operation and line maintenance, is needed.
- A computerized maintenance management system would improve operations and maintenance.
- Management processes using teamwork and meetings at lower levels would improve information flow to the staff and increase their motivation.

- Management training for all managers and supervisors with an emphasis on business concepts and strategic planning would position staff for the next phase of development.

Summary of Recommendations for the West Slovak Transmission Line District

Detailed recommendations are provided in the body of the report. The most important are summarized below.

Technical

- O&M—Telemetric control for its pumping stations should be installed.
- O&M—A maintenance management system should be installed and computerized.

Financial

- Budgeting—Begin the budgeting process earlier and involve middle management in developing the budget estimates.
- Cash Management—Seek a joint meeting with the officials of the Western Slovak Authority and the Bratislava Authority to discuss the problem of delinquent payments and steps that could be taken to improve the situation.
- Planning—Begin work on a five-year capital plan for presentation to the authority.

Management

- Planning—Begin to develop a strategic plan for the transmission authority.
- Reduce Staff—Staff numbers need to be reviewed for reduction where possible.
- Management Training—Provide this for all managers and supervisors with an emphasis on business concepts and strategic planning.

Structural Considerations Leading to Decentralization

- Planning—The status of the Topolcany transmission pipeline should be reviewed before any decentralization effort. A fuller investigation of the situation should be made by technical and financial audit to determine the consequences of return to the transmission district.
- Expansion and Marketing—With the current system capable of producing and delivering twice the current demand, a proactive program of system expansion into the areas requiring additional treatment of groundwater should be started.

Recommendations to Continue the Sectoral Transformation Program

While conducting the audit, the team had the opportunity to meet with representative mayors from the Association of Towns and Communities and with the Ministry of Soil Management (MSM). The team believes that the positive direction begun in the decentralization of the sector should continue. The following suggestions will assist in that process.

The Association of Towns and Communities

- Explore possible funding sources to enable the association to employ a neutral consultant over the next 24 months to assist it in negotiating a workable and effective decentralization scheme for the water and wastewater systems in Slovakia.
- Explore approaches for the timely training of those municipal officials who will need to serve on the governing bodies of the new water and wastewater organizations.

The Ministry of Soil Management

- Initiate a pilot decentralization program in the Prievidza District in the Central Slovak Regional WWA to build upon the findings of this audit.

Recommendations for Future Assistance Activities

There are a number of valuable follow-on activities that have been identified during the course of the current technical assistance program. The following refinements will sharpen the focus of activities:

- In the activity related to developing a plan for ownership, prepare a legal database concerning the various mechanisms that could be used for water and wastewater services including associations, joint stock companies, captive companies, holding companies, and possible new entities using the services of a U.S. specialist and a knowledgeable attorney in Slovakia.
- Provide training to the Prievidza and transmission districts to begin to work on strategic and financial plans for their organizations.
- Provide training for the members of the Municipal Association Water and Wastewater Decentralization Committee so that they begin to understand some of the basic issues about an enterprise approach to managing the systems.
- Provide technical assistance for the purpose of determining appropriate boundaries for a reduced number of districts in the Central Slovak Authority, taking into consideration water sources, economic viability, population density, and other appropriate factors.

Chapter 1

INTRODUCTION

1.1 Overview

During the fall of 1993, the WASH Project assisted the Slovak Ministry of Soil Management (MSM) in examining options for decentralizing the water and wastewater sector. On the basis of recommendations stemming from that work, USAID's Bureau for Europe and Newly Independent States agreed with MSM to provide follow-up technical assistance activities in 1994. The activities were based on recommendations made by a WASH team to assist the Slovak Government in considering options for restructuring the institutions that provide water and wastewater services (*Decentralization of the Water and Wastewater Sector in Slovakia*, WASH Field Report No. 433, February 1994).

The overall transformation strategy recommended by WASH requires two years. Phase I consists of a one-year preparation period, followed by a one-year start-up period. Preparation activities are designed to:

- **Improve the efficiency** of selected water and wastewater companies to gain an understanding of the practical issues and needs that require attention regardless of the final disposition of sector institutions.
- Develop a process to **assist municipalities in deciding the most appropriate option** to select for management and ownership.
- Develop an **ownership plan** for new arrangements.
- Conduct training in priority areas and develop a mechanism for **training programs** for municipalities and future water and wastewater organizations.
- Establish a mechanism for **capital financing**.
- **Reorganize** existing water and wastewater companies.

Phase II activities will provide training and technical assistance to the newly formed or reformed sectoral organizations and continue technical assistance to develop mechanisms for capital financing.

This report summarizes the findings of the initial activity. The purpose is to develop a basis of information in technical, financial, and management areas that will serve two selected systems in making short-term improvements in efficiencies. The larger purpose of the assignment is to define issues that might affect the overall restructuring program.

1.2 Background

The Government of Slovakia (GOS) has committed itself to a transformation of the water and wastewater sector from a highly centralized system to a locally controlled service in which local governments play the dominant role. The impetus for restructuring comes from national pressure to cut public subsidies and to transfer greater responsibilities to local levels. Local governments have exerted pressure to increase the role of municipalities in decisions that affect local interests. The municipalities have become affiliated with a non-governmental organization, the Association of Towns and Communities (ATC), which serves as a lobbying group on their behalf.

While parliament has decreed that decentralization of the sector will occur and has charged the MSM—the responsible sectoral oversight ministry—with implementation, a strategy for meeting that objective has yet to be decided upon.

WASH assisted the GOS in examining the financial implications of restructuring, as well as different options for sectoral arrangements. As part of this assistance, WASH conducted a workshop in Bratislava in November 1993, attended by key national, municipal, and regional water authority personnel.

Prior to the current technical assistance (TA) mission, a detailed technical analysis had not been made of the current operational and financial practices of water and wastewater companies. To date, it has been unclear what management liabilities municipalities may be inheriting and what will be needed to begin to make utilities more cost effective, regardless of the final restructuring plan.

To establish an understanding of these issues, the MSM selected two examples for study. The West Slovak Transmission Line District (WSTLD), belonging to the West Slovak Regional Water and Wastewater Authority (WSR/WWA), and the Prievidza Water and Wastewater District (PWWD) of the Central Slovak Regional Water and Wastewater Authority (CSR/WWA). Both examples are believed by the MSM to be typical and would therefore provide realistic lessons learned for other districts.

The WSR/WWA contains 11 water and wastewater (W/WW) districts. Some districts can meet most of their needs with local sources of water and minimal transmission of water from distant sources. However, one large water transmission line system (from four primary sources) provides 45 to 50 percent of the region's needs. This transmission line is operated by an organizational unit of the regional authority and is termed a transmission line district (TLD). The head office of the TLD is in Bratislava (as is the WSR/WWA headquarters), but the operation of the TLD is conducted through three field offices located at convenient geographic locations in West Slovakia.

The issue of the appropriate institutional arrangement for a TLD serving several water districts is to be determined. Four of the five regional water and wastewater authorities have some version of a TLD within them. The internal efficiencies needed for technical, financial, and

management improvement of the selected TLD may also prove useful when considering whatever final arrangement is made for them.

The PWWD represents an example of a district operation that theoretically could operate as a local water company. Most of its water resources come from within the district boundaries. It also receives some of its water from a transmission line originating outside the district. This source is owned by a river basin authority and the transmission line passes through a district belonging to the North Slovak Water and Wastewater Authority. Eighty percent of the current flow from that source is used by the Prievidza district. The water from this source is integrated into a master pumping and distribution system that the district controls.

The organizational, technical, financial, and management issues that exist within the Prievidza district operation, while not necessarily the same as other district operations, may illustrate a typical range of issues required to operate a local water company under a decentralized arrangement. Examples of typical issues are finance and tariff structure, planning, relationship and autonomy with the WWA and other sectoral entities, management skill and knowledge, technical capacity, cost effectiveness in operations and maintenance, and training needs. These issues have, in fact, surfaced during the period of study by the WASH team and will be discussed in this report.

1.3 Scope of Work

The three-person WASH team consisted of a financial analyst, an engineer, and a management/training analyst (team leader). The team conducted an audit in these three areas. The scope of work provided the team with detailed assessment questions for the three areas.

The technical focus highlighted operations and maintenance (O&M), technical capacity for planning and design, O&M costs, maintenance management and records, and the skill levels of staff. The financial focus assessed financial management systems and procedures: budgeting, planning, revenues, tariffs, accounting, cash and debt management, auditing and reporting, procurement, and contracting. The management area focused on administrative systems, personnel and staffing, organizational structure, compensation, personnel motivation, consumer orientation, and supervisory leadership. In all areas, the team was asked to determine current training needs and to assess the potential for sources of training in the short- and long-term.

The scope of work also provides for at least two follow-up technical assistance visits for identified feasible, short-term interventions. These may be in preparation for subsequent transformation efforts or to implement achievable efficiencies.

The team was requested to read relevant background information, interview staff, inspect physical works, analyze data, and integrate the findings into a written report.

1.4 Activities Carried Out

The work plan consisted of an initial meeting with representatives of both of the selected audit sites and the Association of Towns and Communities. The first week was spent working with the West Slovak Transmission Line District and the second with the Prievidza Water and Wastewater District. The third week was spent writing the report and completing follow-up meetings with the WSTLD, in training resources meetings with the ATC, and in debriefings with the MSM, the WSTLD director, the PWWD director, and USAID/Bratislava.

Chapter 2

FINDINGS FOR THE PRIEVIDZA WATER AND WASTEWATER DISTRICT

2.1 Overview of the District

The PWWD is one of eight districts under the jurisdiction of the CSR/WWA located in the city of Banská Bystrica. Within this region is one water transmission district. Generally, the support infrastructure of the PWWD is self-contained geographically, except for outside water sources to the east and to a minor degree to the south. Potable water is derived from three sources: wells and boreholes, springs, and surface water (refer to the district map in Figure 1).

Fifty-one municipalities are within the district, 49 of which are served by the water distribution system. Population coverage is 99.3 percent for the public water system. Of the 130,000 people within the district, about 60,000 are within the municipality of Prievidza.

The outside water sources are spring water originating northeast of the district boundary and pumped over a mountain range into the service basin; a treated surface water source east of the district that is pumped into the basin by the water transmission district, which terminates its operation at the municipality of Handlová¹; and a small spring source at the southern district boundary. These sources represent about 30 percent of the current water demand in the district.

The district system contains 747 kilometers of water transmission and distribution mains and has 11 booster pump stations, 3 of which are major lift facilities. Groundwater comes from 20 wells and boreholes and 76 springs. There are some 68 storage tanks ranging from 50 cubic meters (m³) to 5,000 m³, with cumulative storage of 31,000 m³. The total annual production of water is 17,430,000 m³ with about 20 percent coming from the surface source and the remainder from springs, wells, and boreholes. Water consumption per capita is about 270 liters per day (l/day) for residential users, less than one-half the average rate in the United States. System water loss or unaccounted-for water is 32 percent. Primary loss is within the municipal distribution systems.

The district has an excellent water monitoring and control system using telemetry that communicates with pumping and storage facilities by radio transmission to a control center. Pumps can be remotely operated from this location depending on the needs of the system. The real data are recorded in a database which is used as required for daily operation, off-peak pumping, and historical data for water management and future projections. This system

¹This same source serves three small towns in the Martin Water and Wastewater District to the northeast. These towns belong to the jurisdiction of the North Regional Water and Wastewater Authority. By arrangement, they supply across jurisdictional lines.

District Prievidza

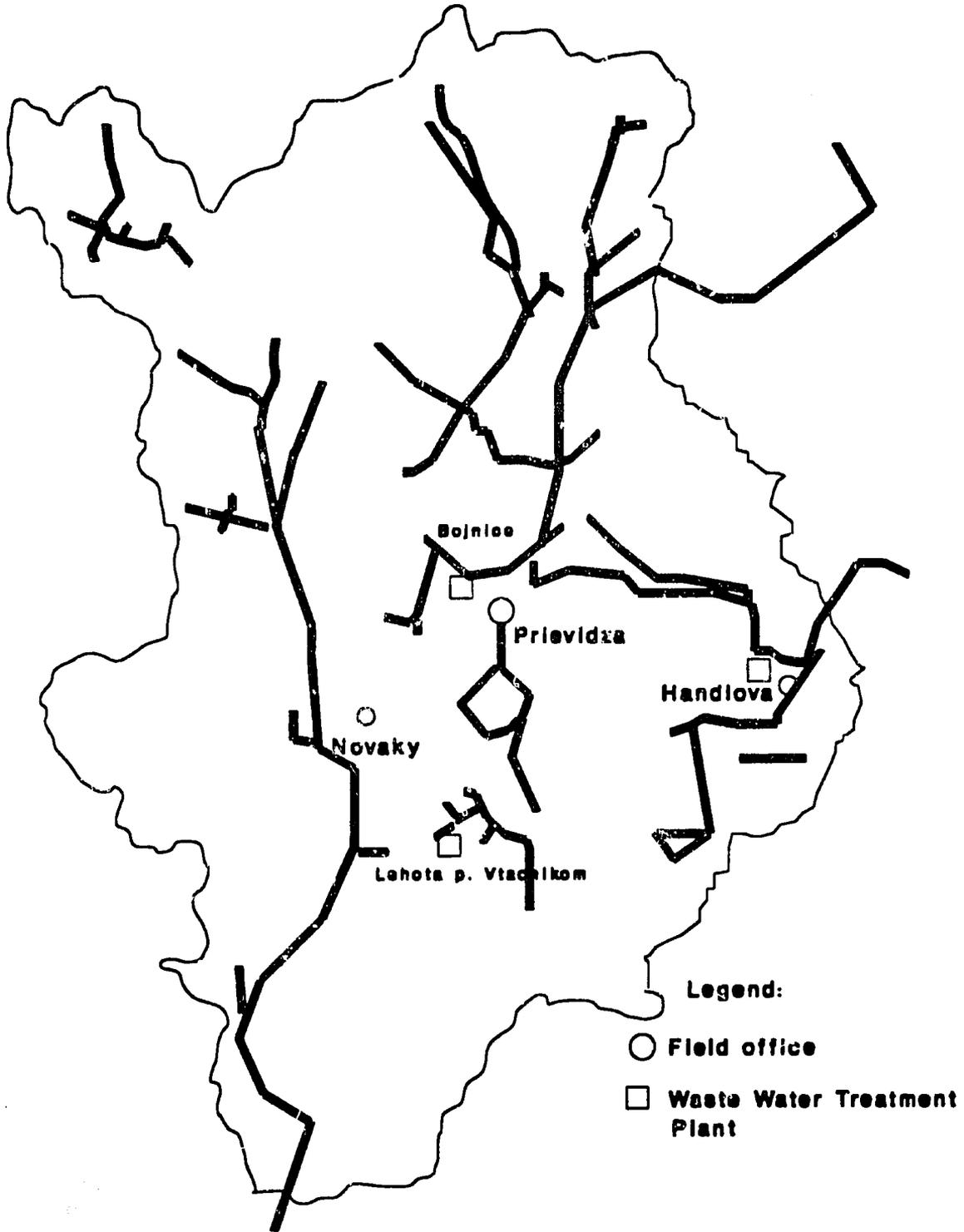


Figure 1

Simplified Map of Prievidza Water and Wastewater District

negates the need for personnel on a continuing basis at pump and storage facilities because of the pump failure mode and an intrusion security monitor.

A total of 230 employees work for both the water and wastewater operations in the Prievidza District. The water function has three operations and maintenance work centers at Prievidza, Handlová, and Nováky. Three key managers supervise and manage the water supply O&M in their particular sector of the district. The 80 field personnel are primarily full-time employees. Part-time staff are used for special projects during the summer.

The 20,000 water meters in the system are calibrated every four years and repaired or replaced as required. Large meters are sent to the Water Transmission District at Bratislava for calibration and repair. The Prievidza District has a workshop that efficiently calibrates household meters and also calibrates meters from other districts in a contractual arrangement. There are water quality analysis laboratories for both potable water and wastewater. Wastewater discharge requirements are established by the Ministry of the Environment, and receiving-water monitoring is done by that agency.

The district has a small construction section that handles limited water main replacement projects and system rehabilitation work as required. A small engineering technician group provides technical support for water and wastewater authority (W&WWA) O&M.

Three district-managed wastewater treatment plants (WWTPs) serve seven municipalities; a major facility is located at Prievidza; and two smaller WWTPs serve Handlová and Lehota Podnic Vtach. These are all secondary WWTPs with treatment capacities of 5,250 m³/day; 4,200 m³/day; and 2,445 m³/day respectively. Four other "package" WWTPs downstream from small municipalities are managed and operated by private industries, which in turn have contractual relationships with the towns. The sanitary sewer collection and treatment facilities serve about 70 percent of the population. The 156 kilometers of collection sewers in the district range in size from 30 cm to 2.4 m and are maintained by 15 maintenance people. The entire system is gravity collection to the WWTP. The national government establishes standards for sewer diameter. About 95 percent of the sanitary sewer system is combined with the storm water drainage system. Because of limited WWTP capacity, untreated wastewater is allowed to bypass to the stream outfall. The three WWTPs have 70 employees supervised by foremen for each plant; four laboratory technicians analyze process control and industrial wastes. The River Basin Authority, on contract to the Ministry of Environment, monitors the streams or receiving waters for discharge requirements upstream and downstream of the WWTP.

The Central Slovak Regional Authority conducts wastewater treatment plant operator training and requires satisfactory completion and certification for qualified operators. The authority provides all engineering support for the districts for both water and wastewater facilities. Major design and construction management services are contracted out to state engineering firms or private consultants. The authority also handles smaller rehabilitation projects. The districts are not allowed to review major system designs prior to the construction phase.

2.2 General Findings

The PWWD was found to be an essentially well-managed district operation, considering the overall limitations imposed by the structure of the sector in Slovakia. The skills of the technical staff are good. Management has demonstrated technical leadership, particularly in setting up a central telemetric control system for its internal transmission line district. This was done by local initiative and by scraping together resources and technical assistance over several years. The water management area appears to be the stronger technically, while the wastewater side has a number of deficiencies.

The ratio of employees per 1,000 population served is 1.76. If the district's share of the authority overhead staff is proportioned throughout the eight districts, the Prievidza District ratio rises to 1.9 employees per population served, which compares favorably with the U.S. average of 1.9. The Central Slovak Authority ratio is 3.1, while Slovakia as a whole has a ratio of 2.9. Total population served is 130,000. Total staff employed are 230.

The essential administrative and budgeting systems are in place; and records, while largely manually maintained, follow acceptable standards for good practice. The staff have experience and are able to work together to improve performance, given appropriate management tools and resources for O&M.

A number of areas could benefit from cost savings and management and technical efficiencies. In general, the management needs to view operations more as a business. Training should focus on the necessary tools for effective management. There is a need for strategic planning involving full staff participation. The legacy of the past causes staff to view any planning as just another centralized task with little meaning; this attitude needs to change. It results in management operating in a crisis-oriented and informal manner.

Capacity and responsibility for technical planning have traditionally been the responsibility of the CSR/WWA in Banská Bystrica. Local technical staff now have concurrence authority on designs proposed by the WWA, but this has been the case only very recently.

The legacy of past errors, particularly in wastewater, may prove to be a burden for the district. The current Prievidza WWTP, for example, was constructed over a ten-year period with small increments of capital. While awaiting installation, the ordered equipment deteriorated. The design was reported by staff to have deficiencies. The current commissioning period of two years has yet to bring the standard of the effluent to more than 60 percent of design standards. A number of design and equipment changes will be required to improve efficiency. Very rough estimates made informally by staff indicate that 300 million Slovak crowns (Sks) will be needed to correct problems. In the interim, sanctions for pollution will be costly unless corrected.

Considering the PWWD from the standpoint of the CSR/WWA, and in comparison with the other districts in the area, the PWWD has good overall coverage for water and wastewater (above 95 percent), and makes an overall profit. Capital investment in the district may not be considered a particular priority in times of diminishing resources overall. Profits from the

Prievidza District are shared regionally; this arrangement does not provide incentives for good performance. Furthermore, overall capital investment apportioned to it to repair water loss in distribution lines or to correct design and construction flaws in the WWTPs has not been forthcoming. The issue of local resources versus overall regional resources is key in decentralization. This issue is discussed further in Chapter 6.

Some restructuring and strengthening for increased commercial management is needed. Currently O&M services come from three field offices. The team believes these should be strengthened and upgraded as management units and made into full "service centers" with the ability to interact with the public and meet consumer requests.

Training in business concepts, with budgets assigned to accountable management units or cost centers, is needed. A system of performance indicators by work unit would strengthen district management, and increased use of computerized tools would improve overall efficiency. Installation of a maintenance management system would help move O&M toward cost effectiveness.

Strong evidence suggests that capital investment has been neglected for some time. Much of the distribution network is old cast iron pipe with frequently occurring leaks. This creates a continual ready-alert situation for the maintenance personnel. The line maintenance unit must try to deal with emergencies and also continue improving preventive maintenance of the existing network. While working on the preventive program, they are frequently interrupted to deal with emergencies. Unaccounted-for water is estimated to be about 30 percent. This compares with 32.3 percent for the Central Slovak Authority as a whole, and with a national average of 27.7 percent. The U.S. average is 11 percent.

Increased autonomy from centralized decision making in technical and budgetary affairs would greatly enhance the capacity of the district to operate as a cost-center operation. Dependence on the WWA for technical affairs, standards for personnel and staff benefits, top-down budget procedures for capital investment, and centralized subsidies has created distortions in district management practices.

2.3 Technical

2.3.1 Water System Production and Transmission Management

The potable water system is generally self-contained, except for water originating from the district east of Prievidza. Given the short time the team had to investigate, it was not possible to arrive at a conclusion, but it appears the district should consider retaining control over the two sources to the east under a future decentralization program. This view is from the logic of water resources management. The spring source to the northeast was developed and is currently operated and maintained by the district, including providing service to towns in the adjacent district. Eighty percent of the treated surface water source to the east is pumped to the Prievidza District via the transmission district to Handlová.

A dam, which will provide significant additional storage for future supply to Prievidza, is to be constructed at the current source. Again, it seems advisable that the dam, the treatment works, and the transmission main to the west all come under the jurisdiction of the major recipient of the water. But current arrangements require that the river basin authority for that area manage the source and the dam, while another district manages the transmission line until it crosses into the Prievidza District. The distribution network of the remaining 20 percent (now managed by another district) could easily be handled by the PWWD. From an operational and economic viewpoint, this appears to be an efficient and logical way to proceed. Follow-up activity by WASH or the MSM should further investigate the ramifications of this change.

The PWWD does an excellent job of monitoring the production and distribution of potable water. They have developed an automated, computerized central observation and control facility that provides immediate response for system failures and security violations, as well as positive control of storage to minimize pumping and energy consumption during peak periods. In addition, the software provides an excellent database for historical water consumption records and allows meaningful projections for future water management and development. This information is retained in the dispatch center in the database. The database information should be more readily disseminated to these managers so that it can be more efficiently used in managing field operations. This could be accomplished by having terminals at the three work centers whereby managers can retrieve and use current data. The intent is not to interfere with system control but to make wider use of the data.

A number of off-system wells are within the service district, primarily on residential lots. The question was asked as to whether there were devices to prevent cross connection to the distribution system; apparently this has not been a consideration. Because there is always a threat of contamination to the public system's water, the team suggests that either check valves or "backflow preventers" be installed on the customer's side of the meter where a well is in use.

2.3.2 Water System Operation and Maintenance

The number of employees in the regional authority's operation is indicative of the good job the district is doing in O&M of its water and wastewater systems; however, opportunities do exist for providing greater efficiencies and minimizing unaccounted-for water. Again, strengthening field management and making managers more accountable should improve system efficiency. At present minimal attention is given to water loss, particularly in the distribution systems. The stated loss in excess of 32 percent can realistically be reduced to 15 to 20 percent, which in effect creates better use of the source and provides a significant savings in energy and money.

The authority currently provides leak detection services to the district three days a month, using sophisticated computerized detection equipment; however, this minimal effort will never realistically reduce the problem. A full-time program for leak detection and repair is needed. Experience indicates that leak detection crews repay their costs many times over by reducing

water loss and saving electrical energy. The team suggests that the construction crew be phased out and that work effort handled by private contractors, with those district employees assigned to a more productive leak detection and repair operation. The equipment used by the authority is "state of the art" and is highly recommended for use in a meaningful program of leak detection.

A limited preventive maintenance program is used on the water system. Where applicable, main flushing is accomplished periodically; valve turning on the transmission and distribution systems is performed in Prievidza and Handlová. Pumps are repaired or maintained on an as-needed (reactive) basis; however, booster pumps are inspected weekly. The team suggests a planned program for valve turning and a review of pump performance to schedule repair or impeller replacement. The team was advised that there is no cathodic protection of steel or cast iron transmission mains and steel water towers. This should be a consideration in the preventive maintenance program in that PVC pipe has only been used for the last 20 years. Water towers are cleaned during the winter months to enhance water quality. Although a number of maintenance tasks are performed, minimal records of maintenance history are kept at all three work centers. Daily work orders for maintenance assignments are not used, and foremen do not sign off for work performed. Work center managers indicate that most records are maintained at the dispatch center.

It would be desirable to establish a maintenance management system for the PWWD. The ultimate goal would be to use a computer software system that would be compatible with the local conditions. The result would be a database for management to monitor O&M, produce reports, set performance standards, and assist in establishing future budget requirements. This could be accomplished in stages, beginning with a manual system. It is imperative, however, that supervisors and managers from the bottom up "buy in" to the program, or it will be ineffective.

As noted above, there are opportunities for either staff reduction or more effective use of existing manpower. At Handlová, an opportunity exists to eliminate a 24-hour surveillance requirement for spring water emanating from a railroad tunnel by implementing an automated response.

2.3.3 Engineering Support

The current mapping system is incomplete and mostly in the memories of individuals; there is a contract underway to digitize location information for the water, wastewater, telephone, electrical, and gas utilities. Matters such as mapping indicate the need for more engineering support staff at the district level. It appears advisable, as suggested for the WSTLD, that a small nucleus of professional engineers and engineering technicians be established to begin support activities in mapping, technical planning, and engineering for the district and coordination with the authority during the transition to a more decentralized operation.

2.3.4 Wastewater Collection and Treatment

Two major factors have hindered the collection and treatment of wastewater in the Prievidza District, as in most of Slovakia: lack of investment funding to complete meaningful WWTP projects, and problems related to collection of storm water and sewage in a combined system. The team visited the two largest WWTPs in the district at Prievidza and Handlová. Neither plant is meeting waste discharge requirements, and other than mechanical treatment for solids removal, both are bypassing untreated sewage to the receiving waters during rainy conditions or during periods of high infiltration to the collection system.

The principal WWTP at Prievidza was reconstructed and expanded beginning in 1979 and was not completed until 1992. During the last 18 months, the utility staff working with the contractor has attempted to get this secondary plant in compliance with discharge requirements. It is the opinion of system operators that there are a number of design errors and that acceptable standards will not be met until system modifications are made. BOD removal and suspended solids are at an unacceptable level in the final effluent. There is an attempt to get the original design firm involved in corrective modifications to this facility. The team suggests that an independent consultant review the operation and design of the plant and make recommendations for corrective action.

The WWTP at Handlová (population 20,000) was constructed in 1964-65 and, during the last few years, has been under reconstruction to modify and expand system capacity. The plant has a design dry weather flow (DWF) of 4,200 m³/day; current DWF is 6,000 m³/day or about 50 percent over capacity. The renovations underway should bring the capacity up to about current daily flow of 6,054 m³. New improvements will include a sludge press, sludge thickener, an additional secondary sedimentation tank, a new aeration process, a bar screen and grit chamber, and replacement of the influent trunk sewer. Until the sludge press is operational, the sludge is being transported to Prievidza for drying and disposal. Dried sludge has been sold to agricultural interests, primarily as a soil conditioner.

The sewer collection system is cleaned with high-pressure water and mechanical rodding equipment. Root intrusion apparently is not a big problem in the system. Most of the collection system has concrete pipe in diameters that must be adequate to handle the storm water. As a result, hydrogen sulfide gas, creating an acidic condition, attacks the top of the pipe system.

It can be assumed that infiltration is a major problem for the system since the Handlová plant is being bypassed during periods of no rainfall. The wastewater division of the district does not have a television camera for collection system inspection and consequently does not have a good understanding of the extent of the infiltration and pipe deterioration problem. When funding allows, the team suggests they acquire a television inspection system and begin a prioritized program of system inspection. The team is unaware of recent studies with regard to the cost effectiveness of maintaining a combined system. The current environmental impact and the economics of treating storm water should be reviewed.

All three WWTPs are manned 24 hours a day. It would seem prudent to investigate the possibility of manning the two smaller plants only on day shift and providing a radio telemetry system to the main water control facility in Prievidza to advise of equipment failure or security intrusions during night operations. One person at the Prievidza WWTP could be assigned night patrol and make possibly two visits of the two plants during the patrol. This approach could be accomplished in two steps: initially the small plant at Lehota Podnic Vtach could be monitored with telemetry communication and, after a trial period, the plant at Handlová could be included. To facilitate this change, it would be necessary to enhance security at both WWTPs by installing protective fencing around each compound.

Operational or process records are maintained at the three WWTPs, and analysis records are kept at the main laboratory in Prievidza. There are minimal records for the maintenance function of the sewer collection system. Daily work orders are not used; communication between managers, supervisors, foremen, and maintenance personnel is oral. Daily equipment needs are radioed to the control center each morning. The team sees an opportunity for the collection system maintenance function to be included in a maintenance management program with the same format as suggested for the water utility operation. A manual work order system should begin as soon as practicable. Again, additional staff meetings at the field level involving assigned managers and supervisors are needed, and management reports should be prepared monthly to keep upper management informed about accomplishments and intended future undertakings.

2.4 Financial

2.4.1 Overview

The Deputy Director for Finance supervises the activities of 11 individuals, six of whom report to him directly. Increasingly, the authority has delegated financial responsibilities to the district finance office because of the 30 percent decrease in authority personnel since 1989.

The authority still makes the final decision about annual budgets, distribution of capital investment funds, and tariff rates. The limited borrowing of funds that is done is restricted to the authority, which also handles any capital investment planning for the districts. The authority takes care of vehicle and facility insurance, as well as employee fringe benefits, including health insurance and pensions.

The authority has contracted with a private firm to conduct financial audits for the eight districts and the authority and has employed a private consultant to install software programs for the standard district financial accounting activities.

The district financial office is in the process of installing, with the assistance of the authority, an interactive accounting software program on three computers, which will be networked during 1994. It appears to be maintaining adequate financial records. The 1993 preliminary financial audit found a minimum of problems with the financial records.

Organization of the Financial Office

The financial office has three sections, each headed by a chief as follows:

- Salary Administration and Petty Cash—a one-person section composed of the chief who handles all of the work.
- Material and Technical Provisions—a five-person section composed of the chief, a stock manager, a driver, and two administrative support staff members.
- Accounting—a four-person section composed of the chief and three personnel who operate accounting software programs.

In addition, three other support staff report to the Deputy Director for Finance and handle payables, customer invoicing, and special projects.

The deputy director has been with the district since 1960 as the budget staff person. He became the deputy director in 1966 for three years, after which he was returned to the budget position. He was reappointed to the position of deputy director in 1993. He received his training in finance at the Economic High School.

2.4.2 Financial Systems

Long-Term Planning and Capital Budgeting

The district does very little in the way of long-term capital planning. The traditional five-year plan has not been produced since 1990. A two- or three-year capital investment plan is prepared by the authority for all of the districts, but the uncertainty and reduced funding have discouraged long-term capital planning. The district director and the two deputy directors develop an annual plan for small capital planning, which is then adjusted on the basis of the funds distributed by the authority.

It appears to the WASH team that there may be a cloud over the concept of planning because of the emphasis placed on the centralized development of five-year plans under the old regime. For whatever reason—unstable funding, lack of lending sources, lack of understanding of local capital planning—the result is a very inadequate long-term planning process on the part of either the authority or the district.

The district Deputy Director for Finance indicated his interest in long-term planning, particularly at a time when water usage is decreasing because of a downturn in economic conditions and an increase in rates. However, the whole issue of long-term strategic planning is tied into a new way of viewing the provision of water and wastewater services. Very few authority and district managers understand the concept of running such activities as a public business. A priority need exists for training water and wastewater managers (as well as their governing boards when and if they are created) in an “enterprise” approach to water and wastewater activities, with a heavy emphasis on long-term strategic planning.

Budgeting

Acting within expenditure and revenue guidelines provided by the authority in November 1993, the two deputy directors, in consultation with the director, developed a detailed annual budget plan during the first two weeks of December. It was given to the authority about December 15. If the district does not agree with the authority's budget revisions and guidelines, it provides its own figures together with a detailed explanation of the proposed variance. One deficiency of the process is the lack of involvement of the three field office managers or the chiefs of the wastewater, construction, and transportation sections. The budget plan breaks down costs in sufficient detail so that the district can determine its costs for each center.

One of the significant shortcomings of the authority format for the annual budget is the failure to show costs for the various districts in the authority on a district cost center basis. As a result, the true water costs for the Priedviza District in terms of water purchases from the transmission district are not shown, and its projected profit is overstated. Thus, the profit for the district is projected at 17,000,000 Sk, when it ought to be 5,000,000 Sk if the transmission district were paid for the 20 percent of total water needs of the Priedviza District which it supplies. In addition, the transmission district would show a slight profit instead of the loss of 66,000,000 Sk in the 1993 authority budget plan.

The district and the authority are having a major dispute over the projected income of the district for 1994. Shown below are the figures for 1993 and 1994:

1993 Estimated District Revenues	102,128,000 Sk
1993 Actual District Revenues	93,200,000 Sk
1994 Revenues Budgeted by District	95,200,000 Sk
1994 Revenues Initially Budgeted by Authority	109,120,000 Sk
1994 Revenues Currently Budgeted by Authority	103,500,000 Sk

The budget has been discussed at two of the monthly meetings of the district directors and at one meeting of the district finance chiefs. No individual meetings are held with the district and authority officials. The district's Deputy Director for Finance expects two or three more discussions will be held in order to arrive at a consensus about the budget. However, the authority's finance chief told the WASH team that further discussions will not be held on the annual budget and that the districts will be assigned their final figures because their expenditures were overestimated and their revenues underestimated.

In summary, the budget process is not participatory enough at either the district or authority level. The authority needs to provide a cost-center approach to the budgets for each of the districts so that the profits and losses for the eight districts can be shown more accurately. Consideration could be given to distributing the authority budget as an overhead item among the various districts on a ratio of budgeted expenditures for each district.

Budget training will benefit both the districts and the authority by increasing the use of the budget as a management tool and increasing middle management participation in the budget planning process.

Revenue Estimation

The district develops a detailed annual estimate of its revenues. Water usage in the district has decreased by 2,000,000 m³ since 1993 because of a turndown in economic conditions and an increase in water and wastewater rates. In addition, the district has been installing additional water meters in the remaining 9 percent of single family homes, and expects that action to further discourage water use. The district estimates that water usage will drop an additional 500,000 m³ in 1994 (300,000 m³ for residential use and 200,000 m³ in commercial use).

The authority remains the final arbiter in setting revenues figures in the annual budget. It is unsettling to find the 1994 estimates developed by the district and the authority to be so far apart, particularly in the absence of direct discussions between the two organizations during the budget development process.

Tariff Setting and Collection Systems

As mentioned earlier, the GOS established a maximum residential charge based on water used of 4 Sk per cubic meter for water and 3 Sk per cubic meter for wastewater treatment. The five authorities may authorize residential water and wastewater charges within those maximum figures. No maximum charges have been established for industrial and commercial water and wastewater charges, and each authority is free to establish those charges for its districts. In the case of the Central Slovak Authority, the commercial rates have been established at 8.7 Sk per cubic meter plus 6 percent value-added tax (VAT) for water and 6.4 Sk per cubic meter plus 6 percent VAT for wastewater.

In the case of residential and commercial rates, the charges are on a uniform basis without regard to the amount of usage. As mentioned in a preceding section, the uniform tariff structure does not create an incentive for conservation nor does it recognize the effect very large commercial users can have on the costs of the water system. Tariff setting will need to become a priority area for technical assistance and training if decision-making authority is decentralized from the GOS to the new water and wastewater organizations.

The district can't force unmetered households to provide the necessary plumbing for meter installations. However, the rate for unmetered residences is established on the basis of 56 Sk per cubic meter per person per year. The district financial officials believe this is high enough to encourage people to request the installation of meters. On the basis of surveys done by the meter readers, the rate is somewhat higher for residences that have a car or garden. All commercial users are metered and receive monthly bills. The district turns off water service for commercial users who do not pay their bills, and they estimate that turn-offs occurred approximately 20 times in 1993.

Because the number of residential non-payers increased in 1992, the district has changed its procedures for residential billing. The district has entered into contract with the Post Office to send out monthly bills to residential users in the same manner as gas and electric bills are handled. A standard rate, usually 100 Sk per month, is billed. The meters are read twice a year, and in the 12th month, an adjusted bill is sent to the user. The district expects the new

procedure to reduce the amount of unpaid residential bills and to strengthen the ability of the district to turn off water service for non-payers. Meter readers will visit the homes of non-payers, who will be identified in monthly reports from the Post Office. The Prievidza District is one of only two water and wastewater organizations in Slovakia to use the new billing procedure.

The district negotiates annual contracts with 30 of its largest users, and about 15 of them pay their bills twice a month to help the district and the authority with cash flow problems. The total of delinquent commercial payments amounted to 5,000,000 Sk for 120 firms at the end of 1993, while the figure for residential delinquent receivables was 700,000 Sk. The district sends out delinquent notices to commercial users 15 days after the bill, and a second notice is sent out at the 30-day mark. A penalty of 1/10 of 1 percent per day for commercial users begins following the first notice of delinquency.

Accounting

The district accounting is conducted under uniform standards set by the Ministry of Finance. The current chart of accounts became effective on January 1, 1993. The accounting department, which reports to the Deputy Director of Finance, is composed of the chief and three accounting clerks. The unit operates three computers, and the payroll, receivables, payables, and the ledger are handled on the interactive accounting software program. The interactive aspects are handled by means of floppy disks that are transferred among the three computers. The deputy director expects to have the three computers networked by the end of 1994.

The district prepares the monthly bills for commercial customers on its own computer as well as the monthly list for the Post Office of residential customers to receive the uniform water and wastewater charge (along with gas and electric charges). However, the annual adjusted residential water and wastewater bills are printed at the authority office.

The Post Office supplies the district accounting office with a monthly record on a floppy disk of all the residential customers who paid their bills so that the accounting information can be immediately inserted into the computer.

The CSR/WWA has a Department of Information Systems and a Department of Computer Technology. The authority selects the accounting software programs for the districts and has hired a private contractor, Softip, to install the software programs and train the district personnel. The authority prints the bills for five of the eight operating districts, but new software being installed will enable the districts to print their own bills by the end of 1994. The 1993 Preliminary Financial Audit report indicated that the accounting office appears to be producing timely, accurate, and complete financial records for the district.

The authority does not have any mini-computers and uses 25 personal computers in its operations, which will be networked in 1994. The Department of Information Systems processes all authority financial information including accounting, inventory control, tax reports, budgeting, and statistical information.

Cash Management

Funds collected by the Post Office, as well as by the district headquarters and field offices, are deposited in an account in the Prievidza Branch of the VUB Bank. The bank account is swept monthly, and all funds other than those needed for the forthcoming monthly expenses are sent to the authority headquarters. The interest earned on its bank account is quite low; the district received a total of 49,000 Sk during 1993.

The authority reported that its cash balances were so low in 1993 that it did not earn any interest income on funds deposited in its central account.

Debt Management

The district does not become involved in any borrowing activities because it does not have the authority to do so. The authority reports that it does not borrow funds for capital investment purposes because there are no available sources for such funds. The authority finance officer was not aware of any approaches that might have been made to international lending agencies such as the World Bank.

The authority does have a steady line of credit in the amount of 23,000,000 Sk to cover its cash flow and delinquent account problems for which it pays a 20 percent interest rate. The line of credit is established at the maximum amount permitted by the Slovakia National Bank.

Auditing and Reporting

Auditing

The authority has contracted with a private accounting firm, BDR, Ltd., to undertake financial audits for the eight districts and the authority. A new requirement of the GOS, effective January 1, 1993, requires that the water and wastewater authorities, as well as their component districts, receive annual audits.

The contract with the accounting firm calls for it to do the audit in two stages so that there is a continuing audit process beginning in midyear. In the case of the Prievidza District, three people from the auditing firm spent three days during each of two visits examining the district financial records, one in late June and the other in early October. Following the initial visits, the auditing firm prepared a preliminary audit report delivered October 1993. The three auditors returned in February to complete the 1993 audit examination, which will be followed by the final audit report. The preliminary and final audit reports contain specific remarks concerning corrections. The WASH team examined the preliminary audit report for the Prievidza District, which indicated the need for approximately five corrections.

Both the authority and the district finance officials indicated their satisfaction with the professional knowledge of the auditors and the quality of their report.

Reports

The district finance office indicated that they were responsible for preparing the following nine monthly, quarterly, and annual reports:

Monthly Reports

1. **Revenues and Expenditures**—shows the budgeted amount, the actual to date and the previous year to date. It is prepared manually using the computerized ledger figures and is due to the authority within 15 days after the end of the month.
2. **Work Accomplished** (including salaries paid, number of employees, water produced, and Sk billed)—shows the annual plan, the actual to date, and the previous year to date. It is prepared manually and faxed to the authority within six days following the end of the month.
3. **Statistical Report**—shows water billed, number of employees, revenue received, etc. It is prepared manually and submitted to the National Statistical Office through the authority within 12 days following the end of the month.
4. **Internal Report to the District Director**--contains the information in reports 1 and 2 above but shows the monthly figures as well as the cumulative figures. It is completed within 15 days following the end of the month.
5. **VAT Report**—contains information on taxable items and is sent to the authority within 12 days following the end of the month.

Quarterly Reports

6. **Statistical Report**—contains specific information on expenditures and revenues for sewage and water systems, number of employees, and salary information. It is sent to the authority within 17 days following the end of the quarter so that the reports can be gathered and sent to the National Statistical Office within 20 days following the end of the quarter.
7. **Detailed Statistical Report**--contains specific revenues and expenditures for all the detailed accounts of the district. It has the same deadline requirements as the previous statistical report.

Annual Reports

8. **Annual Financial Report**—contains 15 pages of tables describing detailed expenditures and revenues plus production indicators. It is due at the authority office by February 9.
9. **Annual Statistical Report**—contains the summary figures contained in the monthly and quarterly statistical reports.

Most of these reports are prepared manually, although they often use information contained in the computerized financial records. The number of reports, as well as the amount of detail required, represents a substantial workload on the part of both the districts and the authority. To some extent, the work appears to be duplicative. The WASH team was not able to determine, in the limited time available, whether the information being reported was being put to effective use. However, the team is of the opinion that software could be developed to standardize the reports and produce them by computer on a cumulative basis.

In view of the upcoming transformation of the water and wastewater sectors, it would be a good time for the MSM, the ATC, the National Statistical Office, and the water and wastewater officials to examine the current reporting procedures to see if they could be reduced and to ensure that the effort is justified in terms of the efficient use of the information.

Purchasing and Procurement

Because of the dramatic reduction of staff during the previous three-year period, the Central Slovak Authority reduced its purchasing staff from four people to one. As a result, all purchasing functions have been delegated to the district offices, and the authority does only its own purchasing.

In the case of the districts, the purchasing and procurement activities are divided between two district agencies: the Department of Material and Technical Provisions under the Deputy Director for Finance and the Department of Care of Fixed Assets under the Deputy Director for Technical Matters. Fixed assets are defined as being valued at over 10,000 Sk.

Department of Material and Technical Provisions

The Department of Material and Technical Provisions has a staff of five including the chief, a driver, a stock manager, and two inventory control clerks. The unit has a computer on which it maintains a continuing record of items in stock, delivered, and removed. The warehouse is located at the district headquarters complex. The inventory control software does not contain a provision for signaling when an item should be reordered.

A formal tender process is seldom used since the chief of the unit believes that a survey of catalogue prices is generally sufficient. A discussion with the attorney for the district left the WASH team with some confusion regarding requirements for the use of a formal tender process. However, the general impression of the WASH team was that the competitive process was not being used effectively. The situation is somewhat complicated by the fact that the district has a "buy Slovakian" policy, and there is often a monopoly situation in terms of potential suppliers.

Joint purchasing is not done with other districts. Up until the reduction in staff of the authority procurement office, quarterly meetings, which the Prievidza procurement chief thought were

useful, were held with all district purchasing chiefs. However, no one has attempted to bring the group together since the end of 1992.

The field offices are empowered to order everyday items necessary to do their work, and other requisitions are submitted to the purchasing office through the appropriate center chiefs. The inventory records appeared to be satisfactory, and the warehouse was neat and orderly.

The Department of Care of Fixed Assets

The Department of Care of Fixed Assets is responsible for maintaining the inventory of fixed assets and the purchasing of certain equipment and services, including water meters and pumps. The chief and one support staff person have a computer for the inventory control of water meters. Otherwise, the inventory system for fixed assets is maintained in the finance office. The district has 19,727 meters installed and 2,218 in stock. The pumps are stored at the district headquarters building, and the meters are warehoused at the Prievidza WWTP where an employee is responsible for the meter storeroom among her other duties. A formal tender process was used only once in 1993 to purchase a front-end loader.

In addition, the chief of the department is responsible for civil defense matters, for the headquarters custodians (3), the building maintenance man, the central mailing clerk, and the headquarters complex watchmen (5).

The chief also oversees the maintenance of five houses and 17 flats belonging to the district; these are located in Prievidza, Bojnice, Nováky, Handlová, and Nitriansky Parno. The housing was acquired from 1950 to 1970. No particular formula is used to assign the housing, and the individuals pay rent. A question presents itself as to whether the new water and wastewater organizations should remain in the business of being landlords or privatize the units by selling them to the incumbent residents over a period of time.

In viewing the department overall, the team believes that transferring the purchase of fixed assets, particularly water meters and pumps, to the procurement department under the Deputy Director for Finance would be economical. In that way, an under-utilized computer could be freed for use in another agency, warehousing could be centralized, and staff reduced or used more effectively elsewhere in the district. The maintenance of the two separate departments appears to be a traditional approach rather than a reasoned one.

In both departments involved in procurement, there appeared to be confusion about the new purchasing law and the ministerial regulations, particularly with regard to the section of the law forbidding cumulative purchasing of items exceeding 100,000 Sk in total value without the use of formal tendering. The attorney for the district indicated that implementing regulations may be necessary from the appropriate ministry in order to clarify some of the uncertainties in the law.

The present accounting software does not appear to be able to codify and report purchases for specific vendors to determine the need for a formal tender process in given cases.

Contracting for Services

The district contracts for long-term services from a number of sources as follows:

- The Post Office for the preparation of monthly residential joint bills (with electric and gas) and the collection of revenues (1993)
- The Telecommunications Agency covering the assignment of radio frequencies for the dispatch center (1983)
- The chemical plants at Nováky and Handlová for the use of their discharge pipes to carry the wastewater plant effluent to an adjacent stream (annual)
- An extermination firm for the elimination of rats in the wastewater treatment plants and pipes
- A catering firm for employee food at three Prievidza locations (annual)
- A catering firm for employee food at two Handlová locations (annual)

Insurance

The district does not obtain insurance coverage for its activities. Instead, the authority contracts for a variety of insurance coverage for itself and the eight districts as follows:

- Fire, flood, wind, and earthquake insurance for all buildings and facilities
- Vehicle insurance for theft and accident
- Theft insurance for inventory and salaries
- Social insurance for employees, including health and pension coverage

The authority does not carry liability insurance because of its high cost: approximately 750,000 Sk per year. The authority averaged a cost for damage claims of 150,000 Sk per year for the last two years.

2.5 Management

2.5.1 Organizational Structure

The PWWD has 230 total staff. The senior staff is structured with a director and two deputy directors each leading a division: a financial division and a technical services division. Under the director is a small administrative section, consisting of personnel and legal, along with the director's secretary. On the organizational chart (refer to Figure 2) all operations and maintenance service center heads for water O&M report directly to the director, not the technical services division deputy as might be expected. The three service centers for water are Nováky, Prievidza, and Handlová. Wastewater is organized under a separate division, but

the division chief is a management step below deputy director grade. This division chief also reports directly to the director. Two technical support operations managers report to the director: a construction/rehabilitation section, and a transportation and workshop manager.

The senior team consists of:

- Director
- Deputy Director for Finance
- Deputy Director for Technical Services
- Wastewater Chief
- Water Quality Section Chief
- Service Office Chief Prievidza
- Service Office Chief Handlová
- Service Office Chief Nováky
- Construction/Rehabilitation chief
- Transportation/Workshops Chief

The functional responsibilities and staff distribution are divided as follows.

Deputy Director Finance:

- Invoices (3)²
- Accounting/finance (4)
- Payroll (1)
- Procurement and inventory (2)

Deputy Director Technical Services: (13)

- Physical assets/inventory (2)
- Water quality control/analysis (3)
- Minor project design (1)
- Production norms and standards (1)
- Central automated control center for pumping stations:control room/dispatching (5)

²The numbers in parentheses indicate the number of staff in each position.

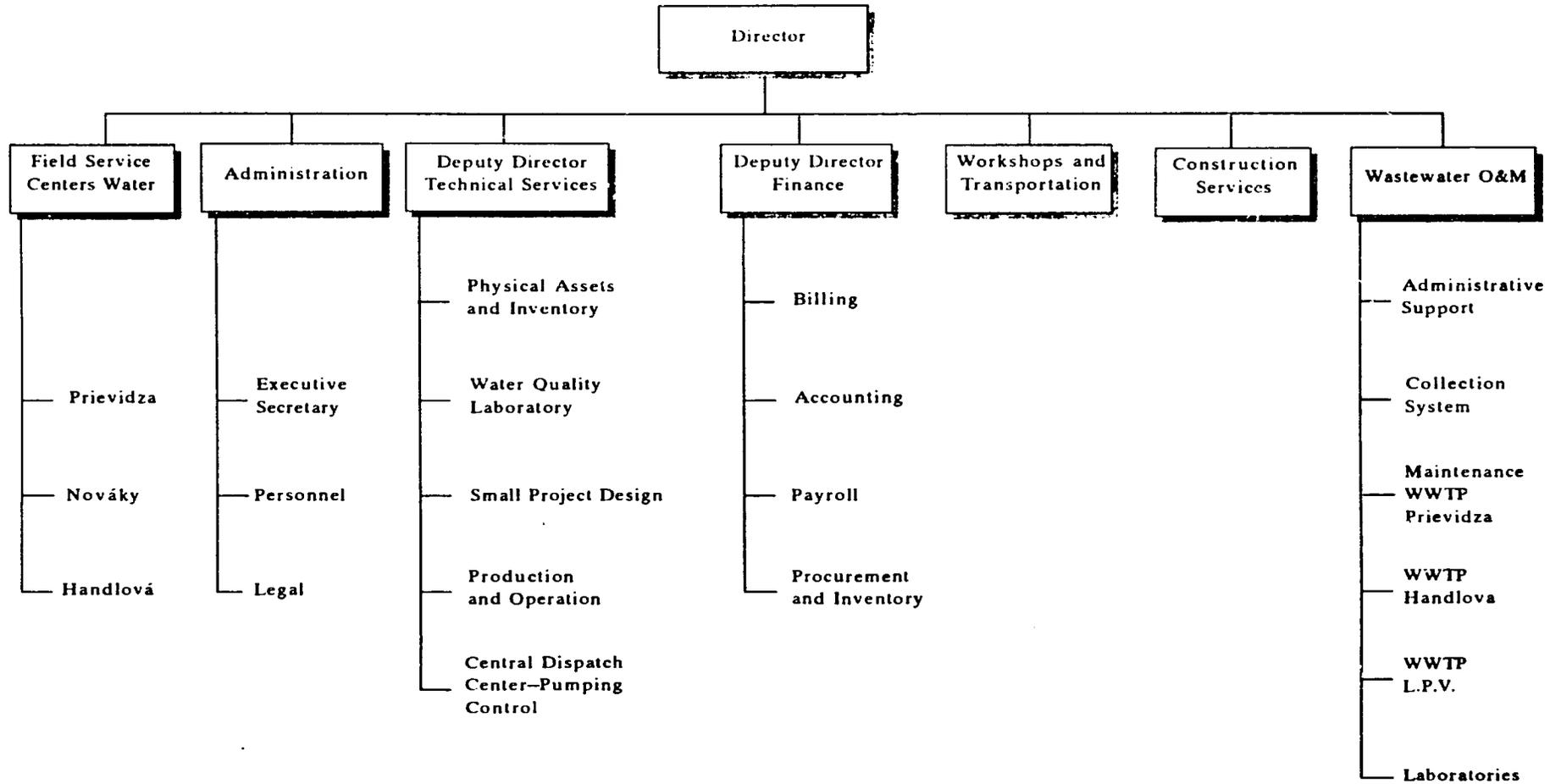


Figure 2

Prievidza Water and Wastewater District Organization

Wastewater Division Chief: (69)

- three wastewater treatment plants managed by a foreman (Prievicza, Handlová, and Lehota) (3)
- Foreman in charge of the collection networks (1)
- Wastewater laboratories (4)
- Administrative support (1)
- Operators/collector maintenance/laborers (58)

Construction Center Chief (11)

- Laborers and line replacement(10)

Transport and Workshops (35 total in the department)

- Building maintenance
- Repair workshops/mechanics
- Equipment operators
- Welders
- Drivers
- Electricians
- Mechanics and machinery maintenance

Service Office Chief (Water), Prievicza (37)

- Foreman (1)
- Stores and supplies (1)
- Meter repair/calibration shop (3)
- Line/network/pump maintenance, installation and meter readers (31)

Service Office Chief (Water) Handlová (18)

- Administrative/financial technician (1)
- Line/network/pump maintenance, installation and meter readers (16)

Service Office Chief Nováky (33)

- Foreman (1)

- Administrative/financial technician (1)

- Line/network/pump maintenance, installation and meter readers (30)

Analysis of Structure

The organizational structure meets current needs for managing the operation, given the structure of the sector. However, two important areas are managed by the authority headquarters: engineering planning and designs, and contract management. Over the past three years, the authority has phased down this function, but the district level has not yet picked up this capability, leaving a management gap for the future. Should the decentralization program eliminate the authority's role in technical planning, the district would need to add a small staff function to strengthen its capacity for planning.

Staffing appears to be relatively lean with the ratio of 1.9 staff to 1,000 consumers. Considering the state of the distribution network and the requirements for maintenance, some staff may need to be redeployed should funds become available for more replacement of old distribution pipe in the network.

A number of internal restructuring actions could streamline the current operation. The changes suggested below would be most effective if the district had increased delegation for capital expenditures and improved local control of the profits generated by this operation.

Service Center Improvements

The team suggests that the three water service centers be upgraded and strengthened. They will form the heart of the day-to-day operation of the organization in the future. This will require more attention to commercial activities (public complaints, consumer relations, new connections, and meter reading and repair). A commercial section under the current administrative and financial technician might be a consideration. This would require that current commercial activities (meters, billings, and collections) be organized by service centers and be closely coordinated with the financial division so that orders for new collections and cutoff for non-payment be responsive to the future needs of a commercial enterprise.

At the service center level, the team observed that there appeared to be little management responsibility felt for maintenance of the transmission lines for pumped water or the pumping stations. This task is assigned to them, however, according to interviews with top management. When asked about this discrepancy, staff said that the Technical Services Division managed pumps and the transmission lines through the telemetric dispatching center control board and was outside their effective management responsibility. This dispatching center maintains current and historical data on pumping efficiencies, water consumed, and pumped (by hourly measures). Since the service centers do not have a computer connected to the dispatching center to monitor these data, they have no way of knowing how the system

that they manage is performing unless they receive a phone call and are requested to act to repair a major line disruption or a pump failure. The team suggests that computer monitors be installed in all service centers.

The service center maintenance operations currently have no leak detection unit. Maintenance staff primarily chase line breaks in between meter installation and other routines. The team suggests that a special unit be set up and the high priority program described above in the technical section be started. The current small construction unit (10 persons) has been working on a master network replacement agenda as funds are made available. It may be possible to combine these activities with leak detection and place this operation under the direct supervision of the service center foreman in Prievidza. This would also serve to strengthen the management control of this unit.

The maintenance of the wastewater collection system from Handlová to the WWTP is the responsibility of the Chief of Wastewater Services with offices located in Prievidza. An alternative to this arrangement would be for the Handlová service center chief to manage both water and wastewater networks. This would provide more responsibility closer to the physical works and might prove more efficient.

Reporting Relationships

Currently, the official organization chart indicates that all three service centers report directly to the director. This is also true of the positions for wastewater and workshops. Informally, the team was told, these positions are supervised by the Deputy Director for Technical Services. The team suggests that the organization chart be revised to reflect reality. Delegation for operations could be under the chief technical officer to allow the director more time in the future to devote to strategic issues and the political and public relations the management of operation.

Additionally, consideration could be made of adding a deputy director for operations with both water and wastewater working together in a shared resource base. If the future health of the organization depends on a strengthened operations and maintenance function under current transformation efforts to assign district operations to municipal control, this might be an option. Further study of such reorganization suggestions would be required before the team would make firm recommendations.

2.5.2 Management Practices

Meetings

A director's meeting is held once a month. The senior team is invited. The agenda usually follows a set format, with variations depending upon issues. The primary focus is on the production targets that have been assigned from the headquarters. Production targets include financial data on billings and collections. Comparisons are made with prior year monthly

periods. This is followed by problem solving and coordination issues. Information passed down from the headquarters is also discussed. As an example, the meeting agenda for January included achievement of economic indicators, procurement of equipment, water quality, and miscellaneous issues. In February, all equipment requests for small purchases will be reviewed. Meetings are described as interactive and open.

The team believes this practice is highly favorable to building a senior team. The director prefers to not hold meetings and to work individually with staff in a daily interactive mode. Unit directors and other managers hold brief meetings to discuss work orders and review progress on a regular basis.

Teamwork and Delegation

As described above, senior managers are involved in sharing information and priority setting at regular monthly meetings. Daily operational work is delegated to the foremen who manage operations and maintenance. Service center managers have responsibility for their service districts. Coordination of central technical support (equipment, laboratory analysis, and supplies) is provided by direct contact.

The daily work routine operates effectively, given the resources. Persons in management and supervisory positions believe that staff could demonstrate increased motivation to perform, but are unsure what needs to be done to accomplish this.

Planning

The question of a vision for the future, and staff involvement in developing it, has seldom been raised before at the district level. Staff describe their work as routine and not particularly oriented towards strategic planning concepts as they are known in the West. Moreover, planning in general has a bad name. It is associated by centralized state planning, far removed from the reality of the work place. Plans, in past days, were considered a "game" to be played. The team went to great lengths to describe the concept of integrated planning that combined capital investment concepts with budgetary, financial, staffing, service, and management into strategic actions and annual operational plans. Past practice had not provided opportunity for staff to learn these concepts.

Management Information

Management information reporting using summarized formats for a full range of indicators is not practiced. Operational data are stored using the computerized control system for pumping, transmission lines, and the distribution network. Most of these data are not retrieved for regular review. Financial data are maintained in the appropriate department and analyzed at that level. Senior team members do not see these data unless a problem arises. Managers at service center levels are not particularly involved in management information. The team believes that a great deal can be done with management information systems. This will be particularly true

if management must inform a new set of local officials on a future Board of directors if the transformation program moves ahead.

2.5.3 Administrative Systems

Personnel

The Personnel Department is responsible for the staffing and training of employees. The department also deals with employee welfare, health, safety, and often is involved in trade union matters and negotiations.

Personnel procedures follow state regulations in general for hiring and dismissal. The PWWD has the delegated authority to retain or dismiss staff within the overall policies for staff ceilings, which are generally based upon the negotiated operating budget approved by the CSR/WWA headquarters. Overall personnel policy is set at the authority level and follows the guidelines for the sector as a whole.

The training responsibilities of the personnel department generally involve positions requiring professional or trade licenses, which must be maintained and periodically updated. (Positions for welders, heavy equipment operators and, mechanics are updated every three years.) Safety training and licensing are required for all positions working with hazardous materials (chlorine and gas). Health certificates are also required for staff dealing with public drinking water. The CSR/WWA also requires that operators of WWTP be certified and tested to operate the plant they are assigned to. This is done by the chief technician for wastewater operating in the authority headquarters.

Compensation and benefits

All positions follow a general state classification scheme. Salaries are based on this classification scheme. Base salary ranges³ from 2,450 to 4,700 Sk per month for classified employees (the current exchange rate is US \$1.00 equals 32 Sk). Management positions are not classified and may range from 8,000 to 10,000 Sk per month. Above the base salary are annual bonuses based on profits. Additionally, special incentive pay may be awarded for special services. Extra pay is given for weekends, holidays, hazard pay (for WWTP employees), and authorized overtime. At the end of the year, employees are usually given a thirteenth month of pay. A vacation allowance is given each summer.

³Note: the following salary data are based on personnel figures given the team by the West Slovak Regional Water Authority. They were described as generally standard for the sector as a whole. Some variation by region may occur. Therefore, these data should not be taken literally for this water district. They are provided for illustrative purposes.

Benefits include state health insurance, retirement, annual leave,⁴ maternity leave, single parent leave, and leave for illness.

2.5.4 Consumer Orientation

Consumers interact with the water and wastewater district very minimally. The system that has been set up is for consumers to receive their bills from the postman and to pay their bills at the Post Office. The water and wastewater bill has been presented in a combined utility bill (electric, solid waste, heating, and housing). Bills in the past were paid quarterly or bi-annually. With the changes in water rates to much higher levels, this has been changed to monthly. Complaints are made personally to district offices. Targets are not set for complaint resolution within minimum time periods, nor are data collected on complaint frequency.

The leadership is aware that more consumer interaction will be a part of the future, particularly with local involvement from elected officials. Steps are being taken to ensure that local officials are informed; care is also taken to attend to consumers.

The team believes that the entire area of consumer education, consumer awareness, attention to consumers, and mechanisms for interaction with the public needs development in the PWWD. Consideration should be given to setting up a pleasant environment to receive customers politely.

2.5.5 Decentralization and Delegation

Some decentralization issues related to the regional authority are discussed in Chapter 6 of the report. Certain support activities by the authority have a direct effect on the O&M function of both utilities. Although the authority director sees a need to maintain regional management of the transmission system because of its interconnection, the team believes there are opportunities for segregation of segments. An example is the transmission line from the surface water source east of Prievidza. This could very easily be maintained by the Prievidza District. The engineering function is being reduced at headquarters, and the team discussed means of mitigating the potential problem at the district level in Section 2.5.1. The problems relating to district support for capital investment projects, such as land acquisition, site development, and construction management, are all matters requiring consideration in the transitional process. The laboratory function now handled by the authority can readily be integrated into the district operations. Water management development and hydrological surveys will require special consideration. Possibly a combination of district and private consulting services would suffice.

⁴Annual leave consists of 15 days a year the first 15 years of employment, thereafter 20 days until 20 years of employment, thereafter 25 days. Staff who work under hazardous conditions are awarded an extra 5 days per year. State regulations require 5 days less per year in all categories, but the sector has made an agreement by collective bargaining to include 5 extra days for all employees.

2.6 Recommendations

The following recommendations are derived from the above discussions. They represent the three primary areas of analysis (technical, financial, and management). Additionally, recommendations are given for the CSR/WWA in its relationship to Prievizda.

2.6.1 Technical

- Within the service district are a number of off-system wells, primarily on residential lots. Either check valves or “backflow preventers” should be installed on the customer’s side of the meter where a well is in use.
- A full-time program for leak detection and repair is needed (refer to the management recommendations below).
- No cathodic protection of steel or cast iron transmission mains and steel water towers exists. This should be a consideration in the preventive maintenance program in that PVC pipe has been used only for the last 20 years.
- Establish a maintenance management system for the Prievizda district system. The ultimate goal would be to use a computer software system that would be compatible with local conditions, resulting in a database for management to monitor O&M, produce reports, set performance standards, and establish future budget requirements.
- An independent consultant should review the operations and design of the Prievizda WWTP and make recommendations for corrective action.
- All three WWTPs are manned 24 hours a day. It would seem prudent to investigate the possibility of manning the two smaller plants only on the day shift and providing a radio telemetry system to the main water control facility in Prievizda to advise of equipment failure or security intrusions during night operations. One person at the Prievizda WWTP could be assigned night patrol and make possibly two visits to the two plants during this timeframe.
- A manual work order system should begin as soon as practicable.

2.6.2 Financial

- Budgeting—start the budget process earlier and involve the middle managers in the development of the budget estimates. Show previous two-year cost figures on the budget work sheets for the middle managers to guide them in their deliberations.
- Planning—begin to develop a five-year capital budget for the needs of the district.
- Revenue Estimating—explore ways for the district to conduct a rate study to include residential and commercial rates, as well as possible impact and connection fees. A

residential minimum (“lifeline”) rate should be considered with sharply increased rates for excess consumption above this. This will provide an incentive for water conservation.

- **Purchasing**—integrate the Department for the Care of Fixed Assets into the Department of Material and Technical Provisions and consolidate the meter storage into the central warehouse. Transfer the underutilized computer to one of the field offices.
- **Data Processing**—program accounting and inventory software to signal when stock is below acceptable levels and should be reordered and to maintain a list of purchases from specific vendors to determine need for use of the tender process.
- **Cost Reduction**—consideration should be given to the sale of the district-owned houses and flats to the current renters or others so the district can get out of the housing business before decentralization.

2.6.3 Management

- **Planning**—begin to work on a strategic plan for the district. The strategic plan should incorporate all the planning factors (capital, financial/tariff, manpower, and population) using different assumptions. One scenario should assume a decentralized operation under municipal ownership.
- The three water service centers should be upgraded and strengthened by giving more attention to commercial activities (public complaints, consumer relations, new connections, meter reading and repair). A commercial section under the current administrative and financial technician might be a consideration.
- Computer monitors should be installed in all service centers.
- At the service center level, we suggest that a special unit be set up for leak detection and a high priority program be designed for this activity. Consideration should be given for the currently small construction unit (10 persons) to be transformed into a leak detection unit.
- Additional staff meetings at the field level involving assigned managers and supervisors are needed.
- Management reports should be prepared monthly to keep upper management informed about accomplishments and intended future undertakings for field offices.
- The team suggests that the organization chart be revised for all field operations to be under the deputy director for technical. Alternatively, consideration should also be given to add a position of deputy director for operations with all field operations for water and wastewater reporting to this post. This would serve to integrate water and

wastewater. The personnel and legal sections might also be supervised by the chief financial deputy.

- In general, management is informal in matters of management information. The team believes that a great deal can be done with management information systems. Therefore, a management information system should be considered.
- The team believes that the entire area of consumer education, consumer awareness, attention to consumers, and mechanisms for interaction with the public needs development in the PWWD. Consideration should be given to setting up a pleasant environment to receive customers at service centers.

2.6.4 The Central Slovak Water and Wastewater Authority

- Revenue Estimating—Assist the Prievidza District to obtain financing for the conduct of a pilot rate study and form an advisory committee of district and authority officials to observe and review the process.
- Management Auditing—Explore the possibility of having a management firm undertake an annual management audit for each district and the authority.
- Budgeting—Change budget system to place the districts on a cost center basis so that cost of water and revenues are clearly shown for each one.
- Budgeting—Change budget system so that cost of authority operations is shown as an overhead factor for each of the eight districts using the ratio of their expenditure levels.
- Budgeting—Involve the districts in individual discussions regarding the budget and start the process of discussion earlier.
- Purchasing—Reinstitute the holding of the quarterly meeting of district purchasing officials to exchange information and explore joint purchasing possibilities.
- Purchasing—Publish an explanatory memorandum to the districts clarifying the new procurement regulations with particular emphasis on the specific requirement regarding cumulative purchasing of an item in excess of 100,000 Sk.
- Capital Investment—Explore the possibility of obtaining loans for capital investment purposes from international agencies.

2.6.5 Structural Considerations Leading to Decentralization

- The transmission line from the surface water source east of Prievidza should be further examined as a potential resource for the PWWD, which could easily be maintained by the Prievidza District. Strong consideration should be given to having the dam, the treatment works, and the transmission main to the west all come under the jurisdiction

of the major recipient of the water. The distribution O&M of the remaining 20 percent (now managed by another district) could easily be handled by the PWWD. From an operational and economic viewpoint, this appears to be an efficient and logical way to proceed. Should redistricting be a consideration as the transformation proceeds, this should be considered.

- The engineering function is being reduced at headquarters, and the team suggests strengthening it at the district level. The problems relating to district support for capital investment projects, such as land acquisition, site development, and construction management, are all matters requiring consideration in the transitional process. An engineering function will need to be established within the PWWD.
- The laboratory function now handled by the authority can readily be integrated into the district operations.
- Water resources management and development and hydrological surveys will require special consideration. If district engineering were strengthened, some capability in this area could be added; use of private consulting services could supplement the district's capability.

Chapter 3

FINDINGS FOR THE WEST SLOVAK REGIONAL WATER TRANSMISSION LINE SYSTEM

3.1 Overview of the District

Within the West Slovak Regional Water and Wastewater Authority (WSR/WWA) there are 11 service districts plus the water transmission service district, the West Slovak Transmission Line District (WSTLD), which is considered a separate district. The water transmission system serves most of the 11 service districts with water, and in addition, it has the ability to supply the city of Bratislava but provides only minimal service to that authority. The WSR/WWA provides certain financial, engineering, and quality control services to the districts within the region, including the WSTLD.

The WSTLD meets approximately 45 to 50 percent of the region's potable water needs; the remaining water is provided by each district's sources. About 1,300,000 people are within the authority's service district (not including Bratislava). All water within the region comes from groundwater sources. The WSTLD's high quality water source is from groundwater along the Danube River. This source has been enhanced with the completion of the Gabčíkovo Water Project. The groundwater comes from four well fields and some 40 wells located at Gabčíkovo, Samorin, Kalinkovo, and Jelka. Unfortunately, areas in the western and eastern sectors of the region have poor quality groundwater (high concentrations of manganese and iron) and are not served by the WSTLD. These areas must treat their groundwater at a significantly higher cost. Eighteen water treatment facilities are in the two areas within the West Slovakia region.

The WSTLD currently produces about 60,000,000 m³ of water annually and is able to produce twice that amount within the existing system. System average delivery is 1.9 m³/sec with actual capacity of 3.8 m³/sec. Transmission system loss is about 4 percent; district losses are between 17 and 34 percent. The per capita consumption rate is between 160 and 180 liters/day. By comparison, this is about one-third the average consumption in the United States. There are 306 kilometers (km) of pipeline in the infrastructure maintained by the WSTLD. An additional 50-km segment of transmission main originates from a well field near the village of Topolčany and a spring water source upstream. This line runs south by gravity flow down to the major city of Nitra. It was originally the responsibility of the WSTLD to operate and maintain and was constructed to serve Nitra. Because of administrative decisions, this line (while interconnected with the larger WSTLD system) was placed under the management of the Topolčany District. It mainly serves the many municipalities and villages between the source and Nitra, even though it is connected to the WSTLD at Nitra. (See Figure 3. The map of the WSTLD does not indicate this line is physically interconnected, but in fact it is.) Nitra, with a population of about 150,000, has the largest water demand of all the cities in the region served by the WSTLD. The average daily demand for this municipality is about

30,000 m³. Water now arriving at Nitra is pumped north in the transmission line originating at the Gabčíkovo well field source.

Seventeen storage facilities, referred to as accumulators, in the WSTLD have a total capacity of 108,200 m³. An additional 28,000 m³ of storage at Nitra, Levice, and Sered are maintained by districts outside the WSTLD. There are 14 booster pump stations and 4 pump stations at the well field sources. Because of the high pumping requirements in the overall system, the WSTLD is electrical-energy intensive, the third largest user of electrical energy in the entire region.

A significant downturn in revenue has occurred because of the loss of business and industry in the region, as well as the tariff disincentive for industrial water consumers. A significant reduction (95 percent) has occurred in water purchased from the WSTLD by the city of Bratislava since 1990 because of two factors: loss of business and industry and enhancement of the aquifer near the Danube as a result of the Gabčíkovo Water Project. The recharging of the aquifer has made it possible for the city to return to its former wells and pump its own water supply.

The authority spent 470 million Sk last year on capital improvements for the water and wastewater systems. The majority of the funds, however, were used in the wastewater treatment sector. The authority, in conjunction with the districts, has developed a water management plan projecting water needs to the year 2030.

3.2 General Findings

The WSTLD operation is meeting expectations, given the current organizational arrangement. Its staff are professional and well qualified. Its leadership is experienced. Maintenance tasks are performed well in the absence of a maintenance management system. All basic management systems are in place, and the operation is financially viable and would appear so if the bookkeeping of the authority allowed the TLD to show income on its books for the sale for water to districts.

Improvements to achieve efficiencies could be made in a number of areas, and the ownership of one major transmission line is in question.

The areas of improvement include the following:

- Telemetric control for its pumping stations.
- Reduction in staff where possible, particularly in pump operation and line maintenance.
- A computerized maintenance management system.
- Management processes using teamwork and meetings at lower levels to improve the flow of information and motivate the staff.

- Management training for all managers and supervisors with an emphasis on business concepts and strategic planning to position the staff for the next phase of development.

The issue of ownership of the Topolcany-Nitra transmission line and water source is more complicated and may prove difficult as the transformation program proceeds. Essentially, a major source of water, which is inexpensive because transportation to Nitra is by gravity flow, was separated administratively from WSTLD a number of years ago. This was at a time when there was a severe drought and competition for this resource was strong between the towns in the north and Nitra.

Physically and technically, the entire system is interconnected and the "lost" transmission line operates as a part of the system. This is the main transmission line from above Topolcany to Nitra and supplies the least expensive water within the system (gravity flow from a major artesian spring source and a well field). This asset is under the management control of the water and wastewater district with its center in Topolcany. Each time water for Nitra is needed, in addition to that currently pumped from the WSTLD and local sources, a special request must be made of the Topolcany district manager.

Because this asset is still under the overall administrative control of the WSR/WWA, the issue is manageable. However, if the system begins to be transferred to municipalities and a corporate entity is structured for the transmission line district, the ownership issue will become very problematic. It is in the best interests of future management that this jurisdictional issue be resolved before decentralization.

3.3 Technical

3.3.1 Water Transmission and Storage

The water transmission aqueduct running north of Nitra to a well field at Topolcany and a spring water source upstream was originally constructed within the public system to provide water to the major community of Nitra. This system had definite advantages, particularly for the water supply to Nitra, because it operates primarily as a gravity system. Subsequently, a drought occurred and somehow this source was diverted to the municipalities north of Nitra and placed under the jurisdiction of an adjacent district.

Because a majority of the flow is diverted before reaching Nitra and Nitra is principally dependent on the WSTLD, it is necessary to provide most of its water from the southern well fields near the Danube River. This source requires pumping four times to reach Nitra, which obviously is electrical-energy intensive. In addition, storage at Nitra is inadequate for the demand. Storage maintained by the city represents about one half the daily demand, which requires WSTLD pumping during peak energy demand periods. Other municipalities such as Levice and Sered also maintain insufficient storage.

It appears prudent, if not imperative, that the WSTLD should have control of the northern aqueduct and storage at Nitra, Levice, and Sered. This would be more efficient for the WSTLD, particularly as it relates to electrical energy consumption. By reducing the need for excessive pumping from the south and increasing storage at the three localities noted above, the WSTLD could significantly reduce energy cost by reducing pumping during peak energy use periods. Storage at Nitra should be increased to a minimum of 1.5 day's demand, about three times current storage. In addition to reduction of energy cost, this would provide the necessary safety factor for fire protection. Similar consideration should be given to storage at Levice and Sered.

3.3.2 System Telemetry and Control

The recording of storage levels at the various accumulators and at the principal control location at Nové Zámke is done manually and communicated by telephone or manual radio transmission. There is no automatic communication of real data to the central site. At a minimum, a water pumping operator and a night watchman are on duty between 4 p.m. and 7 a.m. seven days a week at all major pumping and storage stations. As an example, of the 51 personnel assigned to the Gabčíkovo/Nové Zámke sector, about one-half are either pump operators or night watchman covering pump stations 24 hours a day. Compared with the transmission system at Prievidza, this operation is extremely labor intensive. The communications system lacks immediate positive response. The system encompasses about 130 km in an east-west direction and about 60 km in a north-south direction.

The current means of data collection and response to system failures appears to be inadequate for a water delivery system of this size. It would seem desirable for the director of the WSTLD to investigate the possibility of using a system similar to that in place at the Prievidza Water and Wastewater District. A radio transmission system at the various elements of the system (water pumping and storage facilities) communicates to a central dispatcher and into a computer software database. The system allows for notification of pump failure and notification of intrusion of unauthorized persons or in essence a remote security system. The control center, which is manned 24 hours daily, eliminates the need for pump operators and watchmen. The pumps can be operated remotely at the control center, which allows best use of storage and conservation of electrical energy during peak demand periods. The system also provides a database for ready reference of historical data that can be used by the work center manager to improve operations. Presently, all pumping stations and well fields communicate their energy needs directly to the District Director's office in Bratislava. Because power is a major operational cost, the work center manager should review the situation before advising the district headquarters of projected needs. These key managers should be involved in decision making for their sectors of responsibility.

3.3.3 Operation and Maintenance

The field operations and maintenance (O&M) staff is doing a good job in maintaining the system infrastructure. The primary goal of the WSTLD is to facilitate distribution of potable water. The overall system and service to the seven districts appears to be good. The staff sets a high priority on maintaining high quality service. There is a valve turning program twice annually for major valves and more frequently for smaller system valves. A cathodic protection system is in place for the transmission mains, although the team was unable to determine the adequacy of inspection or the physical status of this system. Spare parts are difficult to acquire. There is one maintenance person for every 16 km of transmission main as prescribed by the regional authority, and the entire system is field inspected routinely. An electrician, a maintenance man, and a laborer are assigned to each pumping and storage station. The laborer has a temporary assignment depending on the workload.

Submersible pumps are primarily used at all well locations. The team learned that there is an excessive failure rate for submersibles, which are either replaced or returned to the supplier for rehabilitation. Field personnel, other than electrical personnel, perform only routine maintenance. On the review of field inquiries, it appears that written records and a maintenance history are minimal. A work order system was established for projects to be invoiced; however, no apparent overall system for daily work assigned by managers and supervisors exists. Water production and electrical energy consumption records appear to be quite complete and are prepared for dissemination to the authority and the Ministry of Soil Management periodically.

The staffing of the O&M function has been established either by the authority or on a historical basis. The parameters used to set personnel quotas do not relate to the actual needs of the WSTLD, and performance standards do not relate to the actual field requirements. As a first step, it would seem preferable to initiate a more automated system and then set up a maintenance management system (MMS) that specifies realistic performance standards to be monitored daily by supervisory and management personnel.

An MMS can be initiated manually and ultimately transferred into a computer software package that will produce daily, monthly, and annual reports to be used by management to monitor system costs and project budget requirements for the following fiscal year. Data charts can be provided by the system to allow the supervisors and managers to evaluate equipment performance using daily input to the database. As a part of the MMS, a more complete maintenance history should be established. Scheduling preventive and periodic routine maintenance is included in the MMS process and can be used by management to schedule the work effort.

Until a more complete MMS is established, a manual work order system should be implemented and carried out by field supervisors and monitored by management. It seems advisable that the three work center managers submit a monthly report to the Deputy Director of O&M, who in turn submits a report to the WSTLD Director. This should include a summary of the other technical operations within his management scope.

3.3.4 Technical Studies, Engineering and Water Service Planning

The regional water authority essentially provides the technical studies, the engineering design, construction management, and advance planning for water production and distribution. The WSTLD provides input to all of these functions; however, the authority makes the final determination and implements the capital investment projects. About 45 civil engineers in headquarters and 5 electrical and mechanical engineers act as a unit to handle the engineering for the 11 water districts and the WSTLD. They make the necessary technical studies and perform the major design and construction function for water distribution systems and the transmission mains. They also provide the same services for the wastewater treatment and collection systems. The 11 districts, the WSTLD, and the authority appear to have a good working relationship. About 21 people in the authority are involved in water management and development. The WSTLD has a small group of technical people involved in small contracts preparation and execution; the WSTLD also administers the updating of as-built plans.

Decentralization will create a need for a more diversified engineering and water planning function at the WSTLD level. This unit would provide direct support to O&M, system planning, and capital project design review. It would seem appropriate to begin establishing an engineering nucleus of personnel to provide a smoother transition whenever decentralization takes place. The final determination about staffing the engineering function must consider the availability and use of the private sector for engineering services. As a minimum, professional and technical staff should be available for short-and long-range planning, the review of formal design, and construction management of all capital facilities.

The laboratory analysis for water distribution should come entirely under the management of the WSTLD. Contract services can be arranged to handle quality control testing for the other 11 districts in the region.

Throughout the WSTLD, there is a need for increased use of computers to facilitate system management for water production, maintenance, and planning, and a need to make greater use of aerial photography and mapping. Eventually, a base mapping system needs to be developed for the entire region. The team observed substantial use of computers at the Central Slovak Authority headquarters in Banská Bystrica, including the use of computer-assisted design for both analysis and design.

3.3.5 Water Development Strategy

This region contains an abundance of high-quality water in the central area. However, in the eastern and western areas, where poor groundwater quality requires additional treatment, there is a need to promote extension of the WSTLD. The feasibility of serving an area to the north and west of Bratislava is being studied; a current project also involves system extension into areas in the vicinity of Levice in the east. With the current system able to produce and deliver twice the current demand, there should be an aggressive program of system expansion into the areas requiring additional treatment of groundwater.

3.4 Financial

3.4.1 Overview

The Deputy Director for Finance for the WSTLD is responsible for the activities of 22 employees including herself, seven of whom report directly to her. During the last three years, the authority staff has been reduced by approximately 42 percent, which has resulted in the district being delegated increasing responsibility for its financial operations.

Under Slovakian law, the authority is the basic legal entity in the form of a “publicly beneficial” state company; annual decisions regarding the use of profits, if any, are made by the Ministry of Soil Management. Profit can be used for employee bonuses, capital investments or the creation of reserves. The authority, therefore, retains the final decision-making power over the setting of water and wastewater rates (subject to any GOS maximums), annual budgets, capital investments, borrowing of funds, and the balancing of profits and losses among the various divisions.

The authority is responsible for auditing the financial records of the divisions. Over the last three years, increasing responsibility has been delegated to the divisions for purchasing, implementing smaller capital improvements, and handling financial records.

Organization of the Financial Office

The financial activities of the transmission district are organized into five units:

- The Secretariat—a one-person office composed of the secretary to the Deputy Director for Finance.
- The Department of Planning—a three-person office, all three of whom report to the Deputy Director since there is no chief. One individual handles the budget, prepares bills, and processes invoices. The second individual handles tax matters, and the third manages district invoices including internal invoices for the water supplied to 7 of the 11 districts within the WSR/WWA, as well as invoices for water sold to the Bratislava Water and Wastewater Authority.
- The Department of Wages and Salaries—a one-person unit that prepares the payroll, annual employee contracts, and other related employee financial matters for 221 full-time and 2 part-time employees.
- The Department of Accounting—a four-person unit including a chief and three accounting clerks. One of the clerks handles the accounting for purchasing and the payment of vendors. A second individual handles accounting for payroll and fringe benefits, and the third maintains the ledger.
- The Department of Building Maintenance—a 12-person unit composed of a chief, an administrative assistant, a central mail clerk, four wardens who staff the reception desk

at the headquarters, one driver, two maintenance mechanics, one electrician, and one part-time food supervisor.

The Deputy Director for Finance has been with the finance office of the district for 17 years and has been in her present position for the last 3 years. She received 4 years of training at the Finance High School in Bratislava.

3.4.2 Financial Systems

Long-Term Planning and Capital Budgeting

The district financial office is not involved in any capital investment planning, but the authority has a capital investment plan through the year 2005, which will have to be downgraded to reflect the decreasing funds for capital investment being made available by the GOS. There is no evidence at either the district or authority level that long-term financial strategic planning is being done.

Budgeting

The authority begins the budget process in November by analyzing revenues for the current year and preparing estimates for the next year. The WSR/WWA negotiates annual contracts with commercial users and is in the process of raising those rates in order to balance the 1994 budget. The transmission district finance office prepares an estimate of expenditures and revenues in December for the approval of the District Director and forwarding to the authority.

The middle managers of the district are not included in the budget process. Because the budget for the transmission district does not include income from the seven districts purchasing water, it shows a major loss each year rather than being self-supporting, which it is. Instead, internal invoices are prepared and sent to the authority where the authority financial records are adjusted. The charges shown in the internal invoices for the water supplied to the districts are based on the actual cost of supplying the water to the seven districts for the previous year. The budgeting process could be improved by showing each district as a cost center and the actual figures for selling and purchasing water.

A serious financial problem occurred in February 1993 when the Bratislava Water and Wastewater Authority, abruptly and without sufficient notice, drastically reduced its purchase of water from the transmission district. The original estimate for revenues to be received from the Bratislava Authority in 1993 was 35,000,000 Sk, while actual revenues will be approximately 14,500,000 Sk, a drop of over 58 percent. The first indication of the reduced usage came in February when the district informed the authority headquarters. No revised budget plan was discussed with or sent to the district. A meeting was held between the two authorities in the fall of 1993, and a revised budget was finally given to the district in December.

The budget system, both at the district level and particularly at the authority level, suffers from a lack of participation on the part of the managers responsible for doing the actual work. Communication appears to be minimal.

The table below shows the key financial figures affecting the district.

	Current Budget (Sk)	Adjusted Budget to Show Sale of Water to 7 Districts (Sk)
1993 Estimated Transmission District Revenues	40,573,000	135,028,000
1993 Estimated Expenditures	111,700,000	111,700,000
1993 Estimated Balance	(71,127,000)	23,328,000
1993 Revised Budget Revenues in December	22,573,000	117,028,000
1993 Revised Budget Expenditures in December	117,847,000	117,847,000
1993 Revised Estimated Balance in December	(95,274,000)	(819,000)

The WASH team could not obtain the 1993 actual revenues and expenditures.

The employee agreement called for the authority to pay a 25 percent increase to its employees. The district did not have sufficient funds to pay the increase and had to undertake outside private sector contracting work with its forces in order to raise the necessary funds to pay it.

The five major items in the district budget (power, salaries, employee pension and health costs, depreciation, and repairs) account for 87 percent of the 1993 adjusted estimated expenditures as follows:

Power	44,708,000 Sk	38 percent
Salaries	12,933,573 Sk	11 percent
Employee Benefits	5,238,926 Sk	4 percent
Depreciation	24,000,442 Sk	20 percent
Repairs	16,403,181 Sk	14 percent
Total	103,284,122 Sk	87 percent

The district organizes its budget into a series of cost centers for the storage and transmission of its water. The budget contains a great deal of detailed cost information, which is important for the computation of water transmission charges for the seven districts that receive water. The water costs vary from district to district and are based on the actual costs for serving that district during the previous year.

Revenue Estimation

Some of the information on revenue estimation is covered under the annual budgeting section discussed in the previous section. In summary, the transmission district estimates only the revenues to be received from the Bratislava Authority plus miscellaneous income sources. The potential revenues for the sale of water to seven of the operating districts in the Western Slovak Authority do not show in the transmission district budget, which leaves it appearing as a deficit operation.

Even in the case of the transmission district's largest revenue source, the Bratislava Authority, the managers of the WSTLD were not very much involved in the discussions following the sudden drop in revenues. The West Slovak Authority was able to negotiate an agreement with the Bratislava Authority in the fall of 1993 whereby Bratislava would take sufficient water to enable the WSTLD to maintain the operational viability of its western-most facilities.

As stated in the previous section, it is important that district management see itself as involved in a business activity and show the district's true revenues. The district management team needs to be much more involved with the authority managers in revenue estimating and budget adjustment than they are at the present time. Their knowledge and skills are not being well used under the present system.

Tariff Setting and Collection Systems

Tariff Setting

The primary responsibility for setting tariffs rests with the WSR/WWA. The GOS has established maximum payments for residential users in the amount of 4 Sk per cubic meter of water and 3 Sk per cubic meter for wastewater service based on the amount of water used. The authority uses the GOS maximum. In the case of commercial and industrial rates, the authority negotiates annual contracts; the transmission district does not play a role in that process.

As mentioned earlier, the transmission district prepares detailed cost figures each year for the delivery of water to each of the seven receiving districts, and the charges to the districts are adjusted annually to reflect those cost figures.

The cost of water for the Bratislava Authority is negotiated by the West Slovak Authority and then billed and collected by the transmission district.

The authority Deputy Director for Finance told the WASH team that a tariff study had been conducted in 1988 by the Water Resources Institute in Prague. A differential rate for residential customers using a high volume of water was discussed with the former regime following that report but was not approved. Like the other authorities, the West Slovak Authority has seen the use of water go down because of the increase in water prices and the tumdown in the economy.

Collection Systems

The district prepares invoices for the water sold to the Bratislava Authority and collects the funds for deposit in its own bank account. The Bratislava Authority is several months behind in its payments to the district and does not pay the penalties that are assessed against it as a result of the delinquencies. Penalties are also applied when payments are delinquent for work done for outside companies but are not always paid. It takes up to two years to enforce payments in the court system.

Accounting

The accounting system is prescribed by the Ministry of Finance. The district financial records (including payroll, invoices, warehouse inventory control for the six district warehouses, and expenditures) are maintained on three personal computers in the accounting office. The authority selected and purchased an interactive accounting software package and contracted with a private firm, Softip, to install the system and train the accounting staff in the districts. The three computers will be networked during 1994 so that floppy disks do not have to be exchanged among them. Some of the software components are still being installed, and manual records are being maintained on a parallel basis until the work is completed. The district does not have a modem that would enable it to exchange financial data with the authority headquarters.

The Deputy Chief of Finance also has her own computer, which will be included in the network. In addition, she has a software program that provides easy access to laws and decrees which in the rapidly changing legal environment is a valuable management tool.

Cash Management

The district maintains its one bank account at the VUB General Credit Bank as specified by the authority. It can maintain up to 700,000 Sk at any one time, after which the funds must be forwarded to the authority. The bank pays 2 percent interest on the deposited funds, and the district earned only 9,350 Sk in 1993.

Debt Management

The district is not empowered to borrow funds for any purpose. The finance chief for the authority indicated that the ability of banks to loan funds to the authority is very much limited under current central bank rulings. At the present time, the authority has two loans. One for 30,000,000 Sk is for cash flow purposes because of delinquent accounts for which the authority pays 18 percent interest to the VUB Bank. Because the delinquencies are approximately twice as high as they ought to be in the view of the authority finance chief, the loan ought to be 110,000,000 Sk, but the bank is limited in the amounts it can lend. The authority finance chief indicated that the country has been experiencing a general insolvency problem and that the authority tends to have difficulty collecting past due amounts from schools, health care agencies, and other governmental organizations, making its cash flow situation difficult.

In addition, the authority has borrowed 60,000,000 Sk over a four-year period for purchasing pipe for a capital investment project. The authority is paying 8 percent for the funds, and it is the first such loan it has been able to obtain.

Auditing and Reporting

Auditing

The authority employs a private accounting firm to audit its financial records annually. It uses its own financial staff to audit the financial records of the districts. The district finance chief reports that the amount of financial auditing work performed by the authority financial staff has greatly decreased over the last four years because of the cutback in authority staff. It used to involve two people coming to the district office for two weeks. In 1993, one person came for two days. It would appear unlikely that an effective financial audit of the district financial records could be accomplished on the limited schedule.

Consideration should be given by the authority to employing a private accounting firm to undertake financial audits for the eight districts like what is being done in the Central Slovak Authority.

Reporting

The district finance chief reports that she and her staff prepare a total of nine reports—three are monthly, two quarterly, and three annual.

Monthly

1. **Statement of Earnings and Losses**—sent to the authority within 17 days following the end of the month.

2. Budget Report—sent to the authority within seven days following the end of the month showing the budgeted revenues and expenses for the month and the year to date and the actual figures for the month and the year to date.
3. VAT Taxes to be Paid—sent to the authority within 10 days following the end of the month (the authority must forward the composite report and make the payment by the 15th of the month to the Ministry of Finance).

Quarterly

4. Summary Budget Report—compiled from monthly budget reports together with a written analysis and sent to the authority within 20 days following the end of the month.
5. Statistical Report—developed from detailed budget and production figures and sent to the authority within 20 days following the end of the quarter for compilation and transmission to the National Statistical Office.

Annual

6. Budget Report—compiled from quarterly reports and sent to the authority within 29 days following the end of the year.
7. Tax Deductible Expenses—sent to the authority within 29 days following the end of the year.
8. Inventory and Fixed Assets Reports—sent to the authority in two phases. The responsibility is handled by a committee appointed by the District Director. The inventory of warehouse materials is completed and sent to the authority by September 31 and the inventory of fixed assets is transmitted by December 31. The second inventory report is accompanied by a list of current payables and receivables since the monthly reports described previously do not include the specific payables and receivables.

Purchasing and Procurement

The district was permitted, as of two years ago, to do its own purchasing up to a budget limit of 600,000 Sk. If the district needs to spend more than the allotted limit, it must seek the specific approval of the authority. Purchasing is done by a unit under the Deputy Director for Technical Matters, which is also responsible for the administration of the six warehouses. Each of the three field offices is permitted to purchase immediate needs if the amount is under 10,000 Sk following which copies of the orders are immediately furnished to the purchasing office. Purchase orders are prepared in four copies: two for the vendor, one for the purchasing office, and one for the accounting office.

The law on public procurement and the new regulations issued by the Ministry of Land Management require the use of the tender process for items in excess of 100,000 Sk. In addition, if a series of orders are placed for the same item so as to exceed the 100,000 Sk

limit in a year, the district is required to use the tender process on an estimated basis. An inspector from the authority visited the district in October 1993 to check compliance with the purchasing regulations.

Vendors often have to be paid prior to delivery of materials because of the pattern of delinquent payments on the part of government agencies. A district committee of the Deputy Director for Finance, the Chief of the Department of Care of Fixed Assets, one of several specialists from that department depending on the item being purchased, the attorney, and the Deputy Director for Technical Operations reviews and decides on the award of purchases when tenders are received.

Contracting for Services

The transmission district contracts for a variety of services as follows:

- Large repairs for district facilities (The 1993 budget contained 16,400,000 Sk for various repair projects).
- Food caterer for employee lunches (170,000 in 1993).
- Outside experts to conduct training programs.
- Legal services (4,000 Sk retainer per month).
- Custodial services for the headquarters.

The tender process is used for contracting for services as required under the procurement law and regulations.

Insurance

The authority provides insurance coverage for itself and the eight districts as follows:

- Vehicle—accident and theft coverage
- Liability—damages to persons and property caused by authority activities
- Health Care and Pension Coverage—required by GOS law

The authority does not provide insurance for fire, flood, earthquake, or wind damage for its facilities. Districts are permitted to insure specific facilities if they deem it necessary.

The WASH team observed variances in insurance practices in the two districts surveyed; therefore, it might be useful for the five authorities to establish a joint task force to examine insurance practices and costs and the possibility of pooled coverage.

3.5 Management

3.5.1 Organizational Structure

The WSTLD operation is organized with a central office in Bratislava and three field offices located strategically in West Slovakia at major pumping stations. It is considered a "special district," with the responsibility of providing water in bulk to 11 other distribution and network water and wastewater districts under the WSR/WWA. The director of the WSTLD reports directly to the director of the WSR/WWA.

The central offices are divided into two major divisions, each headed by a deputy director: technical operations and finance. The administrative departments report to the director (refer to Figure 4).

The field offices officially report to the director. In practice, daily communication is with the deputy director for technical operations.

The district has a staff of 216. Of this total, 158 are assigned to three field offices and a large pumping station near Bratislava (Samorin, 42; Jelka, 56; Nové Zámke, 52; and 9 at the pumping station near Bratislava). Fifty-eight are assigned to the district's central office located in Bratislava. The financial division has 12 financial staff and 3 buildings-and-grounds staff; technical support has 12; production operations has 16; and administration has 15.

The functional and task relationships are arranged as follows:

Director's Office

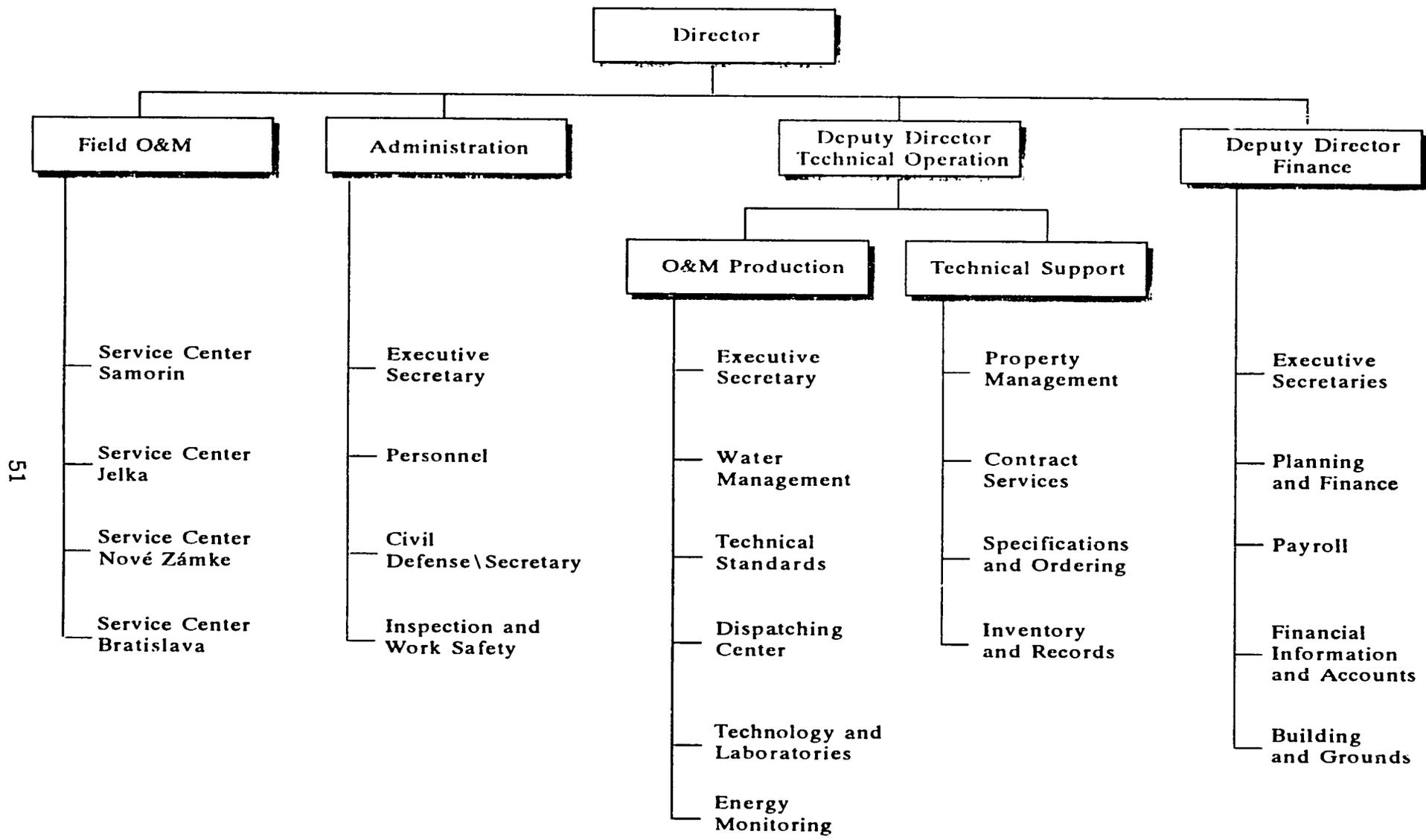
Administration:

- Administrative secretary
- Personnel
- Civil defense and security
- Worker safety

Deputy Director for Technical Operations

Production Division

- Secretary
- Water management department
- Technical standards department
- Dispatching center for water



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Figure 4

West Slovak Water and Wastewater District Organization

- Laboratory department/water quality
- Energy monitoring and consumption

Technical Support Division

- Property management
- Contract services
- Technical review and specifications: electrical/mechanical/equipment
- Record keeping/inventory/supplies

Deputy Director for Finance

- Secretary
- Financial services: taxes, invoicing, and cashier
- Payroll
- Accounting
- Buildings and grounds

Field Offices⁵

Operations director (engineer) Nové Zámke (42 staff)

- Administrative and dispatching technician
- Foreman station 1
- Foreman station 2
- Foreman station 3
- Chief mechanic
- Chief electrician

Maintenance

- Electricians (2)
- Pump station operators (15)
- Line O&M workers and technicians (10)
- Watchmen and reservoir maintenance (6)

⁵Note: Only one field office is described. The figures are taken from the Nové Zámke field office, and a staff functional breakdown is provided. The other field offices and operations were described as similar.

-Laborers

-Building maintenance

Analysis of Structure

The essential functional structure exists for a successful pumping operation. Should this district become a stand-alone organization and be responsible as a viable economic unit under the decentralization program, certain functions would need to be added, particularly technical engineering planning and marketing. It appears that some functional areas may have redundant positions for operations at the present service levels, but this would require further analysis to be certain. Those positions that are questionable (or were unclear to the team as justifiable) at the central office level include the laboratories and technical records. The laboratories serve as central analysis service for all of the WSR/WWA. Other laboratories also exist in individual districts, and each river basin authority maintains full laboratory services. It was unclear to the team how necessary these laboratories were to the transmission line district; these tasks could be contracted out as needed. While archival of as-built drawings is important, the team wondered why a two-person section (section 211 on the official chart) was justified for standards review and archival, given the relatively low level of construction activity.

At the field operations level, automation would probably eliminate as many as 25 positions. There are five pump operators and five safety/watcher positions for each major pumping station. The task requires watching pump efficiency and electrical monitors around the clock in case of breakdown. It is unclear why two people are needed to watch the monitors. If a telemetric system and central monitoring automation station were installed, these positions would become largely redundant.

Field Office Improvements

As a pumping operation serving a captive client, the WSTLD has little need to deal with customer relations beyond the normal technical communication. If the WSTLD were to serve a number of differently owned and managed water and wastewater districts, the provider-client relationship would necessarily change, and the marketing function for services, the issues of pricing, contracting for services, and customer satisfaction would become more important. No one is sure at the moment who will own the WSTLD, but it could become a service organization owned by all the districts it serves (refer to Chapter 6 for a more detailed discussion of WSTLD ownership).

The field office operations will be those geographically closest to future customers. The TLD should be considering how it might best configure its field operations for the future. One option may be to concentrate all its field services and administrative and management staff in one central location in West Slovakia within a suitable timeframe. This may be particularly feasible if a central dispatching/telemetric control center is developed.

3.5.2 Management Practice

Meetings

The director holds a senior staff meeting every Friday with the two deputy directors. Once a month the directors of the field offices come to Bratislava and join this meeting. At these meetings, they review the overall production targets for pumping, as well as financial matters, contracts, and accomplishments. A "basic indicator report" is produced monthly by the financial division. This presents a summary of revenues and expenditures. All senior staff review these data together, and each division director may hold meetings after this if needed. In general, few supervisory meetings are held. Quarterly meetings are held to project electrical energy needs. An accurate projection is required by the electric company, and penalties are given if the projection is significantly incorrect. The WSTLD is one of the major consumers of electric energy in the area.

Scheduled meetings of management and supervisory personnel at field office levels are held infrequently. It is suggested that work center managers meet weekly with key personnel in their particular sector to discuss O&M issues and to coordination. It would also seem advisable for the WSTLD Director and Technical Deputy Director to meet with the three key field office managers at least every two weeks to discuss technical and management issues common to all sectors.

Planning and Management

A yearly production quota and budget plan, based on prior year data and projected data, is given by the authority. The managers monitor performance against this. The demand projection for water use is derived from all of the districts' requests, which are summarized at the authority level and passed down to the WSTLD. The budget is based on this production projection. The WSTLD does not have a capital investment budget, since it is managed by the authority.

The director is responsible for hiring and dismissal of staff at grades below the deputy directors, who are appointed by the authority director. All appointments are made by personal selection rather than by open competition.

Managers have learned management skills primarily on the job; formal management training is not provided. Past efforts at management training were limited to orientation sessions conducted in Prague, and attendance was optional. In general, there is little incentive in the system for good management performance.

Management and supervisory training for people in the O&M group, as well as the technical division of the WSTLD, is needed. This is particularly important because it relates to implementation of a possible maintenance management system and an overall management information system (MIS). Technical training would be required only for new equipment such as pumps and pump electrical controllers. The electrical technicians are well trained, but pump maintenance is usually minimal because the suppliers perform major repairs.

3.5.3 Administrative Systems

Personnel

The personnel system for the Prievidza District is identical to that of the WSTLD. The salary and benefit structure established under state management is uniform throughout the sector.

Management Information

Aside from the financial summary provided, which is linked to production targets, managers do not regularly use management information. Because the pumping systems are not automated, all recordkeeping is done manually with a record book for each pump or piece of equipment. These are maintained by foremen and kept at the operational level.

3.6 Recommendations

The following recommendations are summarized in the three primary areas of analysis (technical, financial, and management). Recommendations are also given for the WSR/WWA in its relationship to the WSTLD. Although all districts would likely benefit from the recommendations, the suggestions are addressed to the West Slovak TLD, based on the team's findings and observations.

3.6.1 Technical

- It appears prudent, from a water resources management perspective, for the WSTLD to control the northern aqueduct and storage at Nitra, Levice, and Sereď.
- Telemetric control for its pumping stations should be installed.
- A maintenance management system should be installed and computerized.
- Until a more complete MMS is established, a manual work order system should be implemented and carried out by field supervisors and monitored by management. It seems advisable that the three work center managers submit a monthly report to the Deputy Director of O&M, who in turn submits a report to the WSTLD Director.

3.6.2 Financial

- The budgeting process should begin earlier and involve middle management in developing the budget estimates.
- Expenditure and revenue information for the two preceding years should be supplied in the budget worksheets given to the middle managers to guide them in developing their estimates.

- A joint meeting should be held with the officials of the West Slovak Authority and the Bratislava Authority to discuss the problem of delinquent payments and steps that could improve the situation.
- Work should be undertaken to develop a five-year capital plan for presentation to the authority.

3.6.3 Management

- Development of a strategic plan for the transmission authority should be started.
- Staff numbers should be reviewed for reduction where possible.
- Introduction of management processes using teamwork and meetings at lower levels would improve motivation and staff communication.
- All managers and supervisors would benefit from management training, with an emphasis on business concepts and strategic planning, to position staff for the next phase of development.
- Work center managers should meet weekly with key personnel in their particular sectors to discuss O&M issues and to coordinate the inter-relationship of the water production scenario.
- The WSTLD Director and Technical Deputy Director should meet with the three key work center managers at least every two weeks to discuss technical and management issues common to all field offices. The current monthly meeting format may not be sufficient to strengthen field office operations.

3.6.4 West Slovak Regional Water and Wastewater Authority

- The WSR/WWA should explore the possibility of employing a private accounting firm to conduct annual financial audits for the eight districts.
- The authority should consider employing a consultant to update the 1988 rate study and involve the districts in the process by creating an advisory committee.
- The eight districts could become cost centers in the budget, with actual revenue and cost figures used for each district.
- A task force composed of appropriate district officials should study insurance issues, with particular emphasis on fire, flood, and wind damage coverage of all facilities.
- Improvements should be made in the level of communication between the districts and the authority regarding budgetary and other financial matters.

3.6.5 Structural Considerations Leading to Decentralization

- The status of the Topolcany transmission pipeline should be reviewed before any decentralization decisions are reached. A fuller investigation of the situation should be made by technical and financial audit to determine the consequences of returning it to the transmission district.
- The WSTLD service area could be expanded into the areas now requiring additional treatment of groundwater, because the current transmission system can produce and deliver twice the current demand.

Chapter 4

RECOMMENDED IMMEDIATE FOLLOW-UP PROGRAM

4.1 Introduction

Within the overall scope of work for the WASH team, there is provision for individual or team follow-up with either the WSTLD or the PWWD. The nature of this follow-up should be short-term (one to three weeks) and should serve to address efficiencies discovered in this audit or to move the program of decentralization along. The team believes that there are many needs and opportunities. The suggestions below cannot all be addressed in the short-term within current WASH resources. Instead, they represent a list of possible actions.

In addition to these actions, recommendations are presented in Chapter 6 for the overall sectoral transformation program. Future WASH teams (including members of the audit team) can address some of the suggested actions.

4.2 Suggested Follow-Up for the Prievidza Water and Wastewater District

4.2.1 Technical

Many of the technical improvement areas outlined in this report for the Prievidza WWD will require larger programs that do not readily lend themselves to short-term follow-up. Programs such as a fully computerized maintenance management system would require equipment and time. Leak detection should become a major program with special equipment, training, and a systematic strategy. A task management system with work orders and job time tracking is a complex undertaking. Most of these efforts would require continuous technical assistance for perhaps six months to a year.

The most feasible and useful short-term technical assistance would be to assist Prievidza to design some of the elements of the above programs, working with staff to put into place the format for a manually recorded maintenance management system that could later be built into a more comprehensively recorded and analyzable computerized system.

A two-week WASH consultancy would be required to address these issues and also assist with the financial issues listed below in 4.2.2.

4.2.2 Financial

One long-term financially-related follow-up task will be to consider the issue of ownership for the transmission line that originates in Turcek. This line now provides about 20 percent of the district's drinking water. The district is the majority user of the water in this line (80 percent); the remainder is for villages outside the PWWD. A reservoir project (to dam up the surface water) has been started and stopped over the years and may be completed in a few years. This is a project of the river basin authority. Estimates of the potential from this source and the questions related to maintenance and costs should be looked into now in order to define what will be needed legally under the decentralization program. The PWWD is concerned that if the river basin authority controls the source and another district in the North Slovak-WWA controls the water treatment plant feeding into this line, they may be required to pay more for this water than is reasonable.

A one-week WASH consultancy would be required to address these issues. This would be most effective if combined with the technical intervention listed above so that technical considerations could also be made at the same time.

4.2.3 Management

If the Prievidza District operation is selected to serve as a model for strengthening leading to a locally managed water district, a great many management interventions could serve to assist them and also prepare for the future. A full management development program that incorporates basic management concepts with on-the-job improvements would be the most desirable. Most of the managers interviewed mentioned the need for management training, especially concepts and skills related to public sector business management. This includes cost center management, tariff structure, strategic thinking, cost-time management, and managing people for improved results. These skills and concepts would all be useful and directly applicable to improving performance.

A training program of this nature should be conducted on site with short intermittent training workshops over a one-year period. A combination of short-term workshops and work task improvement activities would be most effective. This would involve staff in conducting performance improvements, which could be done in coordination with a strategic planning exercise. The strategic exercise would prepare the district for its future role in technical, financial, and managerial performance. Lessons learned from this exercise could be used as models for the overall decentralization program.

This approach does not lend itself to a short-term consultancy. For the short term, a beginning could be made in a management improvement program by combining a short-term management training program with the beginning of a strategic improvement program. The objective would be to define actions needed to improve performance, no matter what the final future disposition of the PWWD. It would be useful to begin this exercise by involving the management staff in a management retreat to review the results of this current audit. Action

items from this retreat could be used to begin the process of an overall improvement project leading to strategic planning.

Should this prove successful, additional follow-up will be necessary. This concept could demonstrate to other districts how Prievidza planned and organized for transition. This could serve to model the problem solving required for transformation activities. Issues such as ownership, relations with the regional authority, degree of autonomy required for budget development, tariff reform, and capital investment planning are areas requiring attention in a decentralization program.

A minimum two-week WASH consultancy would be required for this activity, with follow-up as feasible.

4.3 The West Slovak TLD

Most of the issues related to immediate improvements are linked to larger issues. At the technical level, the needs are for automation; at the financial level, the needs are for transformation and autonomy. The future depends on the disposition of this operation as a corporate entity operating as a business.

WASH could assist with three possible short-term actions:

1. Assist in considering the financial and ownership implications of the Topolcany-Nitra transmission line.
2. Assist the operations and maintenance staff in defining a maintenance management system and begin to implement parts of it manually (prior to a computerized system).
3. Assist with an initial strategic planning exercise to consider the financial and organizational requirements for restructuring under a different ownership arrangement.

Each of these three interventions would require a minimum of two weeks.

Chapter 5

ASSESSMENT OF TRAINING NEEDS

5.1 Overview of Training Needs

Training needs in this document are not limited to the two field operations reviewed. The view taken is that the overall transformation of the sector will require training at various levels, and before, during, and after decentralization. Before the turnover of systems to municipal management, preparation training for municipal staff and mayors is needed in understanding the business management aspects of utilities (these items are listed below in more detail). The districts reviewed also have training needs to assist staff in managing their operations in more cost-effective ways. The districts should become as efficient as possible so that municipalities will not be burdened with loss-making operations.

One of the larger pieces of work proposed by WASH is training program development. A full review of this potential need was not possible within the scope of this assignment; only the beginning framework of needs is presented here.

Potential recipients for training are as follows:

- Representatives of towns and cities. These include future members of boards of directors, mayors and local associations, and staff members of towns and municipalities who will interact with future utilities on policy matters.
- Staff of existing W/WW utilities.
- Staff of existing transmission line districts.

5.2 Priority Needs for Municipal Staff

Training for municipal staff in the area of utilities, business management, and understanding how and which organizational arrangements will best serve local interests has not yet happened, but the need is great. The range of training needs for municipal staff include the following:

- Understanding the options that exist for ownership and management of future systems. The pros and cons of associations versus limited holding companies. This training is required as soon as possible.
- Understanding contract preparation and tender procedures; contract negotiations.
- Reviewing water pricing structure and regulation; water conservation and tariff policy.
- Supervising W/WW utilities.

- Learning basic principles of business and financial management.
- Understanding the basics of water and wastewater operations and maintenance.
- Understanding the commercial and civic codes of Slovakia.
- Understanding the capital investment process for W/WW utilities; learning about options for finance; and managing the capital planning and investment process.
- Practicing strategic planning concepts.
- Budgeting and cost center operations.
- Learning basics of water resources planning and management.
- Understanding the uses of financial and management audits.
- Studying consumer and public relations.

5.3 Priority Needs for Utility Staff

In the operations the team reviewed, a preliminary training needs assessment was conducted. Training was least needed in technical areas, unless a new technology were introduced, such as telemetry or maintenance management systems. The current training system for technical skills consists of prior trade or vocational school training and licensing for major technical categories (welding, heavy equipment, mechanics, and electricians). Water and wastewater operators are trained on the job by their supervisors. Wastewater operator training is specifically provided by the chief wastewater technician working from the regional headquarters in the CS/WWA. Other than on-the-job training, minimal technical, management, and supervisory training is available to the staff. For refresher training in technical areas, the team recommends the Sacramento State University curriculum developed by Professor Kerri, and published by the U.S. Environmental Protection Agency, for water treatment and distribution and wastewater collection and treatment. These are excellent course texts to use for water and wastewater technicians in Slovakia. They would need to be translated and a training program developed for their use.

Management training needs are great but there is no system for meeting them. This is particularly important because the overall management system needs to become increasingly modern and business-like, and adopt market concepts. All managers interviewed expressed a keen desire for management training in these important areas:

- Understanding basic business concepts
 - time and cost performance management
 - financial management
 - strategic planning

- Understanding the role of management versus technician
 - leadership concepts
 - getting results through people
 - communication
 - motivating staff
 - the role of vision in management
- Understanding task and team management process
 - task management and performance indicators; target and goal setting
 - team work and team processes for performance
 - performance review
 - monitoring and feedback
- Essentials of modern utility management
 - management information systems
 - maintenance management systems
 - consumer relations
 - commercial activity
 - contract preparation and negotiation

5.4 Mechanisms to Meet Training Needs

A complete review of a larger range of potential mechanisms was not possible within the timeframe of the team's visit. Many trade and technical schools in Slovakia can provide basic technical training and job preparation for skilled trades.

A local trade school in Slovakia, the *Stredne Odborne Ucliste*, reportedly has a good three-year technical training program available for water and wastewater personnel. A number of PWWD staff personnel have completed this course of study, which specializes in preparing students in water and wastewater technical skills. The school cooperates with the water districts and has prepared curricula for specific needs. Courses are given in plumbing and pipe fitting, mechanical maintenance and repair, welding, and water treatment. The three-year course includes four months of on-the-job training at a water utility. At the end, tests are required for certificates.

The Ministry of Soil Management has a training center, but the team was unable to visit it. Traditionally, much of the formal training provided for utilities by the authorities and the ministry has focused on recertification for technical trades and safety training.

A great many individuals and small firms have emerged in the past three years offering training services. Advertisements for training in papers, brochures, and fliers are constantly given to the personnel departments. Personnel officers said that much of this training is not on-target or particularly strong, but good trainers can be found.

Formal institutes are willing to design specialized training. The Water Management Resources Institute in Bratislava is the local leader in the field for highly technical subjects in areas such as water quality modeling and water quality control.

The Association of Towns and Communities (ATC) has set up a series of training centers throughout Slovakia. A special board of directors within ATC, consisting of eight mayors representing 45 regions, has been formed to supervise an independent private voluntary organization (PVO) called the "Assistance Fund for Local Democracy." This PVO has its center in Trencin and has spun off and set up an incorporated entity for training. This fledgling operation has only one or two staff members. Their hope is to become a training arm for the overall ATC and to become involved in training for the future needs of the transformation program. Coordination of training for mayors and municipal staff will be available through this group.

5.4.1 Recommendations for Developing Training Capacity for the Long Term

As far as the team could determine, a specific training resource to conduct the type of management training required does not exist. A management training program should be developed for Prievidza, and subsequently for other districts. From this initial effort, an institutional framework for training could be developed. A subsequent major task over the next several years would be to develop a training system responsive to the needs of W/WW organizations and structured to be self financing.

The training needs listed above on management and for municipal staff cannot wait for the long-term development of a training system. This training should be a priority and begin within the next three months.

Chapter 6

IMPLICATIONS OF THIS REVIEW FOR THE OVERALL RESTRUCTURING PROGRAM IN THE WATER AND WASTEWATER SECTOR

6.1 Introduction

Slovakian water and wastewater systems have been highly centralized, state-owned and operated systems. The five water and wastewater authorities are state-owned companies reporting to the Ministry of Soil Management. The 38 districts within the five authorities (one of the authorities is Bratislava) are administrative entities reporting to the authority director. It is a top-down system with relatively limited autonomy on the part of the districts and with no accountability to the users or to municipal officials. The stated, but as yet unimplemented, intention of the GOS is to decentralize the water authorities and delegate ownership and operating responsibilities to municipal governments.

The districts vary greatly in terms of function and economic viability. Some authorities have a transmission line district serving some, but usually not all, the districts in a region. Several service districts also operate internal transmission lines and may sell water to neighboring districts. Approximately half the districts make a profit or break even while others produce deficits, which are then equalized at the authority level. Only one of the five authorities, Eastern Slovakia, did not produce sufficient revenues in 1993 to support its overall operation and maintenance activities and had to be subsidized by the GOS. None of the authorities produce sufficient revenues to support necessary capital investments, which in the past have been provided by the state. However, the GOS funds for capital investments have been steadily decreasing over the last two years, leaving all the authorities in the position of not being able to meet their capital investment needs. In addition, the GOS provides a maximum figure for the water and wastewater charges made to residential users in Slovakia.

The lack of capital investment funds is particularly noticeable in the wastewater sector. In some cases observed by the audit team, wastewater plants have been in the process of construction for ten years or more because of the temptation to spread investment funds around the country or an authority rather than to complete facilities in a given location.

The current atmosphere, easily identified during the WASH team's visit, is one of apprehension and uncertainty on the part of both authority and district personnel. Knowing that change is coming in some form, they are very concerned about how they will be affected personally and whether the viability of the water and wastewater systems can be protected in the process. To reduce apprehensions and ensure the responsible efforts of the existing staff, it is important for the GOS, in concert with the Slovakian ATC, to decide on an approach and to inform the participants.

The great challenge to the GOS is to devise a method of decentralizing the water and wastewater activities in such a way as to ensure that the new entities are technically feasible, economically viable, and fully accountable to the users. The following discussion of the implications of the audit team's findings approaches the issues of decentralization under the headings: accountability, economic viability, ownership of assets, pricing structure, strategic planning, and implementation.

6.2 Accountability

If pricing structure and financial support are to be determined locally in the coming years, water and wastewater organizations, whatever their structure, must become accountable to their users and to elected officials. Local and regional representatives will need to view the facilities as theirs and come to grips with the financial requirements for providing water and wastewater facilities in their respective areas.

The generally most accepted and effective way of ensuring accountability is by providing for a water and wastewater organizational structure that is governed (at the level of a board of directors) by elected local officials or, as an alternative, by individuals appointed by elected officials. The present situation, where the GOS is in the process of reducing subsidies while at the same time maintaining a ceiling on water and wastewater rates will become increasingly unworkable. There are advantages to both the local officials and the GOS in delegating the rate setting function to the new water and wastewater organizations so that each one can meet its particular needs and the users can hold the governing body responsible for good decision making.

If a separate organization is forced to manage transmission lines in a given region, it could be accountable to newly formed water and wastewater authorities. Such organizations could also play a key role in planning long-term approaches to the development of additional water resources for the water districts. It is important that those special organizations be accountable to their users as well. One possibility might be to have such organizations become wholly-owned subsidiaries of the new water and wastewater organizations. In other words, the governing boards of these organizations would be made up of representatives of the water and wastewater organizations they were serving.

Another factor to be considered is the question of technical accountability. The managers of the new water and wastewater organizations need to be accountable to their governing boards. Besides having the authority to hire and remove the top managers of the organizations, the governing boards should provide for annual financial and management audits. In that way, the board would be knowledgeable about the quality of management the organization is receiving and be in a better position to evaluate the top staff and provide incentives for increased performance. All too often, the technical staff is in a position to overwhelm the governing boards with technical issues and problems and confuse the board about the financial and management performance of the organization.

6.3 Economic Viability of Water and Wastewater Organizations

As pointed out earlier, many of the existing water and wastewater districts are running a deficit and have to be subsidized by other districts within the authority. Several factors may account for that varying performance such as:

- Source, quality, and cost of water in the particular area
- Ratio of commercial and residential users in the area (a ratio of approximately 30 percent to 40 percent commercial use may be required to allow a district to be profitable under the current GOS residential ceiling)
- Density of population in the area
- Management of organization

Of the four factors, only management is easily changed. The other three are difficult issues that must be carefully considered in establishing the boundaries of any new water and wastewater organizations. The GOS would be ill-advised to establish a series of new organizations many of which might not be economically viable and could require long-term subsidization or high water and wastewater rates in order to survive. Given the relatively small size of Slovakia, it is not unrealistic to attempt to equalize the wholesale water rates to some extent in the same way that electric power is handled. The transmission organizations referred to above, whose purposes would be to transmit water from less expensive or more plentiful sources to areas of high cost and need, could be used to equalize wholesale water rates to the various operating organizations they are serving.

In addition, the new water and wastewater organizations should not have to follow existing water district boundaries. The question of commercial or residential ratios and population densities could be considered in creating new organization areas. The audit team did not have the time or expertise (or charge) to examine the possibilities in the Central Slovak Authority, but it appears likely that it might be possible to reduce the seven operating districts to three or four and provide economic viability for each of them.

In the final analysis, under a decentralized scenario, the users and their local officials will have to provide the necessary funds through higher rates for both capital investment and increased operating costs. This is particularly true for the wastewater sector where much work remains to be done if Slovakia is to attain Western European wastewater standards in the coming years.

One of the missing ingredients, in terms of economic viability for the new water and wastewater organizations, is the lack of sources for borrowing long-term capital investment funds. Many of the new organizations will have difficulty raising funds for capital investments, even if lending sources were available. Doing it on a pay-as-you-go basis will be much more difficult.

6.4. Ownership of Assets

One of the key and sensitive issues surrounding the decentralization of water and wastewater organizations is the ownership of assets. Article 4 of the Slovakian Constitution specifies that water resources belong to the state and that every citizen is entitled to participate in their utilization. The Municipal Act provides in Article 4, Section 2f that the 136 cities and 2,710 towns and villages are responsible for certain specified activities including water and wastewater. However, the Municipal Property Act, which preceded the Municipal Act, does not provide for municipal ownership of water and wastewater facilities and will have to be amended if the assets are to be transferred to them.

In addition, provision will have to be made for the transfer of regional facilities such as transmission lines, wastewater treatment plants, and reservoirs to an appropriate entity. The ATC created a committee (with which the WASH team met) to work out the asset ownership issues with the Ministry of Soil Management. However, many of the local officials are not familiar with many of the concepts being discussed, and the ATC has limited staff capacity and financial resources to provide the necessary information to the committee. One potential USAID technical assistance project might be the provision of funds to employ a neutral consultant who could provide ongoing advice and information to the committee.

Initially, the ATC representatives and the MSM officials were leaning in the direction of using regional joint stock companies for the local ownership of water and wastewater assets. In addition, the group discussed the possibility of forming special joint stock companies with 66 percent ownership by the affected communities and 34 percent ownership by the GOS to help ensure proper regional use of the regional facilities.

More recently, the municipal association representatives have expressed a preference for Municipal Associations because the assets would be turned over to the individual communities, who could then elect to join or to leave regional associations. However, the use of associations may make it difficult to provide for financially strong and stable water and wastewater organizations that are attractive to lending organizations over the long run. This solution might prove tempting for those municipalities with adequate sources of low-cost water, healthy ratios of residential and commercial users, and high densities of population to go on their own so they could enjoy lower water rates. This approach would result in a problem of high water rates in remaining areas, which in turn might result in future political pressures on the part of high-cost areas for subsidies from the GOS.

If one of the goals of the decentralization process is to maintain a viable water system, great care needs to be taken in distributing the ownership of these water and wastewater assets, which serve a very high percentage of the Slovakian people. The current organizations are not accountable to their users, but they are stable. Any new entity should be equally stable in terms of the ownership of assets and its financial revenue base. Joining or leaving such organizations should not be so easy that the remaining members could be at risk and lending agencies would be uncertain of long-term financial viability.

One other possibility being discussed calls for the use of a holding company that can receive all the water and wastewater assets and then distribute them to workable public and private corporations. The WASH team was not able to explore this alternative during its visit. A legal database for potential ownership mechanisms needs to be developed so that it can be available to all of the interested parties.

Great care needs to be taken during the negotiation between the ATC and the GOS to ensure that the long-term interests of both parties will be protected as well as that of all of the water and wastewater system users in Slovakia.

One final word needs to be said about ownership of the facilities. Selling the assets to the local governments has been discussed. The audit team is puzzled by that concept. First of all, many of the facilities are old and in need of replacement. In addition, the new water and wastewater organizations will have a difficult time raising the necessary capital investment funds for renovating existing facilities and building new ones. Any attempt to require them to purchase the existing facilities will simply make the new water and wastewater organizations less viable financially. If the GOS is concerned about the potential of the facilities being transferred into private hands in the future, it can turn over the facilities to the new water and wastewater organizations with the proviso that any future transfer of the original assets to another party will require the approval of the state.

6.5 Pricing Structure

Because of the use of a GOS tariff ceiling and the previous concept of the water sector being a public service rather than a public business, very little attention has been given by the authorities and the districts to pricing structure. The current pricing approach does not take volume or wastage into account or, in the case of the transmission districts, the issue of standby service. In the case of industries requiring a larger system design to service their large volume requirements, the capacity factor was not properly included in the rate structure. Homeowners utilizing larger volumes of water for washing cars or watering gardens are charged the same as poor families using a minimum of water. Impact or connection fees are generally not used.

If the power to set rates is going to be decentralized, as the WASH team believes it must be, much more attention will need to be given to the design of the pricing structure for each water and wastewater organization. The capacity to conduct rate studies needs to be developed on the part of private sector engineering and/or accounting firms. A pilot rate study in one of the water and wastewater organizations, conducted by a private sector firm, would be an excellent technical assistance and training exercise.

The team was advised that consideration may have to be given to the potential role of the GOS Anti-Monopoly Agency if the residential rate setting authority is delegated to the water and wastewater organizations, since the services are being provided on a monopolistic basis.

6.6 Strategic Planning

Because Slovakian water and wastewater managers have tended to view their role as providers rather than business managers, very little strategic long-range planning has taken place. The uncertainty of capital investment funding from year to year has also served to discourage capital investment planning. In short, the water and sewer activities are not viewed as a business enterprise. Managers in some of the authorities and districts have begun to view their systems in a more entrepreneurial light as national funds have been reduced, and they have tried to undertake construction and similar activities for other firms and organizations to supplement their revenues and meet their budget goals.

When the new decentralized water and wastewater organizations are created, the new board members, as well as the top managers, must receive training and begin to use strategic planning techniques. Population, economic development, and water use trends will have to be considered along with water resources, population density, water quality, staffing ratios, automation and other efficiencies, pricing structure, and capital investment planning. Getting the new organizations off to a good start will require a significant effort on the part of the GOS.

The capacity to undertake water and wastewater long-term strategic planning may be in short supply in Slovakia, and consideration may need to be given to providing technical assistance to develop the capacity on the part of private firms or academic institutions.

6.7 Implementation

Concern was expressed to the audit team that the decentralization process not be done in such a way as to destabilize a water system that is serving a large percentage of the citizens in a relatively effective manner. The team agrees that the concern is legitimate. One possibility might be to initiate the process on a pilot basis in one of the five regional authorities. Such a process would be enhanced by having the MSM select one of the authorities and create an advisory committee composed of local, regional, and national officials plus water and wastewater managers. The committee would then advise the MSM and employ consultants and staff to recommend boundaries, organizational structure, staffing ratios, legal changes, necessary technical assistance, and training and a plausible timetable.

This effort would tend to take the discussions from a theoretical level to a more practical basis and use the abilities and concerns of the current water and wastewater officials in a practical way. At the same time, it would avoid a sudden overall change that might create serious economic and political difficulties for the GOS. A great deal can be gained in decentralizing the financing and decision making for the water and wastewater sectors, provided it can be done in a knowledgeable and participative manner. Now appears to be an opportune time to begin the process.

6.8 Recommendations to Continue the Sectoral Transformation Program

6.8.1 The Association of Towns and Communities

The following recommendations are intended to strengthen the Association of Towns and Communities. The ATC is potentially a key organization in strengthening municipal capability.

- Explore possible funding sources to enable the association to employ a neutral consultant over the next 24 months to assist it in negotiating a workable and effective decentralization scheme for the water and wastewater systems in Slovakia.
- Explore approaches for the timely training of those municipal officials who will need to serve on the governing bodies of the new water and wastewater organizations.

6.8.2 The Ministry of Soil Management

The following recommendation is a potential strategy for implementing the decentralization plan.

- Initiate a pilot decentralization program in the Central Slovak Regional WWA to build upon the findings of this audit.

6.8.3 Future Cooperative Assistance Efforts

The following suggestions would serve to enhance the overall program that has been conceptualized for the transformation program. Some of these suggestions can be used within the context of currently planned activities; others would require additional planning and funding.

- In the activity related to developing a plan for ownership, prepare a legal database about the various mechanisms that could be used for water and wastewater services including associations, joint stock companies, captive companies, holding companies, and possible new entities using the services of a U.S. specialist and a knowledgeable attorney in Slovakia.
- Provide training to the Prievidza and Transmission Districts to begin to work on strategic and financial plans for their organizations.
- Provide training to the two districts in this study and to their authority financial staff to develop a more participative budgetary process using the districts as cost centers.
- Provide training for the members of the ATC Water and Wastewater Decentralization Committee so that they begin to understand some of the basics about an enterprise approach to the systems.

- Provide ongoing and on-call consulting to the ATC in their deliberations over the next 24 months.
- Provide technical assistance for the purpose of determining appropriate boundaries for a reduced number of districts in the Central Slovak Authority taking into consideration water sources, economic viability, population density, and other appropriate factors.
- Undertake a pilot rate study for the Prievidza District involving both a U.S. specialist and a Slovak engineering or accounting organization for training purposes.
- Undertake a survey of training institutions in Slovakia that might be involved in a long-term approach to management and financial training for water and wastewater organizations.
- In the operational phase of decentralization, undertake a pilot management audit in one of the districts, using a U.S. specialist and a Slovakian firm to demonstrate the process and its value and to train a local resource organization.

Appendix A

Persons Interviewed

Vladimir Andrejovsky	Attorney, Prievidza District
Dusan Chylo	Chief, Dept. of Care of Fixed Assets, Prievidza District
Martin Džananai	Manager, Nové Zárne Work Center, Transmission District
Stanislav Dvond	Chief, Dept. of Materials and Technical Provisions, Prievidza District
Paul Henderick	Consultant, CCAP
Jan Hric	City Councilman. Redjova
Pavel Ifcic	Manager for Cities, Association of Towns and Communities in Slovakia
Karol Jurica	Manager for Towns and Villages, Association of Towns and Communities in Slovakia
Michal Kacinar	Assistant to the Director, Transmission District
Jan Kmet	Chief, Center for Construction, Prievidza District
Ján Kračún	Mayor, Redjova
Jakub Krejci	Consultant, Transmission District
Josef Ladický	Engineer, Central Slovak Authority
Jahodník Ladislav	Deputy Director for Technical Matters, Prievidza District
Z. Macovec	Mayor, Poltar
Jan Madzo	Director, Transmission District
Paul Mesiarik	Deputy Director for Finance, Prievidza District
Maria Mitosinkova	Deputy Director for Finance, Transmission District
Dominic Mokry	Foreman, Handlová Wastewater Plant
Svätoslav Mravec	Director of Engineering, Central Slovak Authority
Ján Nahálka	Director, Central Slovak Water and Wastewater Authority
Andrey Novak	Deputy Director for Technical Matters, Transmission District
Dusan Palko	Director, Dept. of Water Management, Ministry of Soil Management

Milan Peniasko	Foreman, Prievidza Wastewater Treatment Plant, Prievidza District
Emilia Prackova	Chief, Dept. of Accounting, Prievidza District
Ms. Skrekova	Deputy Director for Engineering, Western Slovak Authority
Dezider Sokáč	Director, Western Slovak Water and Wastewater Authority
Miloš Souček	Mayor, Prievidza
Michal Spitz	Deputy Director for Finance, Western Slovak Water and Wastewater Authority
Jan Straka	Ministry of Soil Management
Tavel Struhar	Mayor, Klenovec
Ivan Surcel	Manager, Wastewater Center, Prievidza District
Milosiav Suchar	Mayor, Krupina
Eugen Svitok	Deputy Mayor, Prievidza
Vladimír Švec	Director Prievidza Water & Wastewater District