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Making Cities Work
Assessment and Implementation Toolkit
Contract No. EPP-I-00-04-00026-00

Managing Municipal Services Delivery

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Managing Municipal Services Delivery

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Acronyms

EIRR	Economic Internal Rate of Return
FIRR	Financial Internal Rate of Return
GIS	Geographic Information System
GPS	Global Positioning System
KwH	Kilowatt Hours
LED	Local Economic Development
MSP	Municipal Service Provider
NGO	Nongovernmental Organization
MIS	Management Information Systems
UFW	Unaccounted for Water
O&M	Operations and Maintenance
SME	Small and Medium-Sized Enterprise
USAID	United States Agency for International Development

Glossary

Capital Improvement – Substantial investment to expand, upgrade, or otherwise modify a system.

Coverage – In terms of municipal services, coverage refers to the share of the population that receives services.

Expenditures – In terms of municipal services, expenditures refer to fixed and variable costs incurred in the process of producing services and delivering them to customers.

Leachate Barrier – Impermeable layer (often plastic) at the bottom of a sanitary landfill that channels and collects leachate so that it can be disposed of in an environmentally sound fashion.

Municipal Services – Services, including water, wastewater, solid waste, heating, and transport, that are provided by national and sub-national governments to residents of a municipality.

Municipal Service Provider – A government agency, quasi-public organization, private company, or other entity that provides municipal services to residents of a municipality.

Operations and Maintenance (O&M) – Operations refers to the process of using physical works to deliver a service. Maintenance means care of physical works, including cleaning, replacing small parts, and other tasks designed to preserve assets. Taken together, O&M refers to technical use and care of a system.

Revenues – In terms of municipal services, revenues refers to different sources of income that are used to cover expenditures. Sources of income include tariffs, loans, bonds, equity investment, municipal subsidies, and intergovernmental transfers.

Service Levels – In terms of municipal services, service levels refers to the quality of the services received.

Service Pricing – Act of setting a price for municipal services.

Standpipe – Vertical section of water pipe coming up out of the ground with a tap at the end. Community standpipes are common in areas that do not have piped water connections in individual dwelling units.

User Charges – Payments for the cost of collective services, and are primarily used as a financing device by local authorities for municipal services.

Overview

Making Cities Work is the goal of United States Agency for International Development's (USAID) Urban Programs Team. This Making Cities Work Toolbox includes assessment methodologies, implementation toolkits, and other resources for three core areas: Managing Municipal Service Delivery, Municipal Finance Services, and Local Economic Development. These materials are designed to help USAID Missions from around the world better understand the needs of municipalities and the problems they face, so that USAID staff can work with cities to design and implement projects and programs that respond appropriately.

Managing Municipal Service Delivery

Municipal services—water, wastewater, solid waste, heating, and transport—are the basic building blocks of efficient, healthy, and economically vital communities. Although ensuring adequate provision of these services is a critical public sector function, many national and sub-national governments fall short. Quality municipal services support the economic development of municipalities, while poor levels of service, interruptions, low coverage levels, and other problems can undermine quality of life in municipalities, retard economic growth, and erode trust between citizens and local governments.

The assessments contained here will help USAID Missions analyze municipal service management and delivery and will lead to potential projects and interventions that can help improve the quality and reach of municipal services.

Municipal Finance Services

One of the principal reasons that municipal services are inadequate in almost all developing and transitional cities is that municipalities are not adequately financed. Even when local governments have been assigned clear service responsibility, lack of revenue-raising powers and predictable intergovernmental transfers often preclude them from discharging these functions efficiently to meet the needs of local residents. At the same time, underdeveloped financial markets (both weak capital markets and the banking systems) are typically unable to provide long-term financing for essential municipal infrastructure. The amount of project funding that is available from central governments and development banks is almost always inadequate to meet the need.

The assessments contained here will help USAID Missions analyze municipal finance and will lead to potential projects and interventions.

Local Economic Development

Cities are engines of economic growth. Traditional approaches to local economic development (LED) are giving way to other strategies, including the development of clusters and competitiveness strategies. Informal economies in slum settlements are a significant and viable economic force, as are small and medium-sized enterprises (SMEs).

This module will support USAID officers in developing innovative approaches to LED in order to maximize productivity growth and improve prospects for LED. This assessment tool and module

Overview

will enable USAID to develop interventions that help households increase incomes; businesses, including those in both the formal and informal sectors, generate more profits; and municipalities augment revenues to improve the delivery of municipal infrastructure and services.

Using These Materials

Each of the main subjects have been subdivided into four or five main issue areas, each with an overview, subtopics, and an assessment methodology. The materials in this toolbox are designed to be used as follows.

- **Core Areas and Topics.** This toolbox includes three core areas: Municipal Service Delivery, Municipal Finance, and Local Economic Development. Each core area is separated into various topics, for which there are assessments, worksheets, conclusions, and possible projects.
- The **Assessment** pages walk USAID Missions through an overview of the topics related to the core areas. They include an assessment with key questions for each topic.
- The **Worksheets**, one for each of the main topic areas, allow USAID staff to record their answers to the assessments. They should be filled out as the assessment is completed.
- **Conclusions and Possible Projects** lists interventions that the USAID Mission could consider to address shortcomings identified through the assessments and worksheets. This section should be consulted when the worksheets are filled out to the best of the USAID Mission's ability.
- The **Implementation Toolkits** include step-by-step implementation guidelines for various subjects relevant to the core or topic areas, as well as additional reading resources, including reports, weblinks, and relevant USAID Missions.

Managing Municipal Service Delivery

The effective delivery of municipal services is crucial to creating cities that work, a central goal of USAID. In developing and developed countries alike, citizens depend on the provision to homes and businesses of basic municipal services, including water supply, sanitation, solid waste management, district heating, and roads. These services support the economic development of municipalities. Poor levels of service, interruptions, low coverage levels, and other problems can undermine quality of life in municipalities and erode trust in local government. Many municipalities and cities throughout the world struggle with how to provide affordable services in a financially sustainable way, to all citizens.

The assessments contained here will help USAID Missions analyze municipal service management and delivery. The assessments are designed to highlight areas in which municipalities and the municipal service providers (MSPs) are doing well, and where there is room for improvement. These assessments will lead to potential projects and interventions that can help improve the quality and reach of service delivery. These are listed in the Conclusions and Potential Projects pages, as well as the Implementation Toolkits. Fundamentally, these materials help USAID Missions evaluate the questions of whether the municipality and the MSPs are effectively supporting or hindering economic growth, and if they are effectively addressing the service needs of all citizens, including the poor. The potential projects and Implementation Toolkits help USAID design effective interventions where this is not the case.

The Managing Municipal Service Delivery assessment is divided into four categories that cover the basic issues of service delivery that USAID Missions should consider.

- **Technical Aspects** – This section reviews several fundamental technical aspects of municipal service delivery. They include Coverage and Service Levels (how many people are served [% of population] and in what areas of the city, by type of service), Performance (is the service reliable, serving actual demands, of sufficient quality, and appropriately operated and maintained), and Capital Investment Planning (how well does the municipality and the MSP plan for future investments).
- **Financial Aspects** – Financial aspects involve Service Pricing, including the recovery of costs through tariffs, and affordability, sources of revenue (including tariff payments, bonds, and the like), Payment Collection, and Indebtedness (debt servicing).
- **Legal and Regulatory Framework and Institutional Issues** – This section reviews the Legal and Regulatory Framework for Service Provision—how the municipality provides services, what oversight and regulation of the service provision exists, and how much autonomy the service provider has to establish tariff and staffing patterns. In addition, Institutional Issues, which affect the MSP’s day-to-day operations, are reviewed, as are Human Resources and Capacity issues.
- **Community Participation and Customer Relations** – This section reviews the extent to which community members are involved in the provision of municipal services, in the form of participation by the community in the initial identification of infrastructure projects, project development, and operations. It also examines the use of willingness to pay and demand assessments, as well as social and cultural issues and community education.

Technical Aspects

The technical aspects of municipal services relate largely to the engineering challenges of providing local residents with basic infrastructure services, such as:

- water supply
- sanitation
- solid waste management
- district heating
- roads

Electrical power and natural gas are not included, since municipalities are usually not responsible for their provision.

The most fundamental questions here are:

- “Do all local residents have access to services?”
- “Are services delivered at an adequate quality level?”

Since there are many technical options for delivering services, each with its own price tag, it is important for municipalities to understand, when building a new or upgrading an existing service delivery system, what customers want and are willing to pay for. The questions related to customer preferences, priorities, and willingness to pay are discussed elsewhere in this document (see Community Participation and Customer Relations).

In order to formulate a technical intervention for improving services, it is necessary to know not only the profile of customer demand, but also the current condition of the service delivery system and its shortcomings. This section provides a framework for analyzing existing municipal service systems, identifying any deficiencies, and formulating operating and capital plans for addressing them.

As you go through the subtopics, record your answers to the different questions on the worksheet. Once the worksheet is complete, you can compare the conclusions with those presented in the Conclusions and Possible Projects section and identify possible future projects.

Coverage and Service Levels

Coverage is the share of the population that receives services. Service levels refer to the quality of the services received. To ascertain these two fundamental technical parameters, it is first necessary to gain a basic understanding of the technical means used to deliver the service.

Municipal services can be divided into those that have piped networks and those that do not.

- Systems with piped networks (water supply, wastewater collection, district heating) are more complex to operate and require more regular maintenance. In piped systems, there is a distinction made between production of the service (e.g., bulk water), transmission (through large pipes to service areas), and distribution (through the piped network to the customer).
- Systems without piped networks (roads and solid waste management) are generally easier to assess since the works for the most part are visible to the naked eye.

The following section presents, for each of the municipal services covered, a short list of technical aspects of service delivery to be considered. Specific technical options for each of these

Managing Municipal Service Delivery: Technical Aspects

aspects are listed on the worksheet. Using secondary sources, key informant interviews, and field visits, you can gain a basic understanding of the technical nature of the system, the share of the population that receives services, and the quality of those services.

Assessment

1. What are the technical methods for delivering the service? What are the service levels for different types of users?

Assessment Methodology

Collect information on the types of services delivered and the service levels at which different groups of users receive services. Record your answers on the Technical Assessment Worksheet. The following sections describe for each of the relevant municipal services some basic technical parameters that will allow you to describe the way the service is provided and the service level.

Water supply:

Production: Source(s) of water (e.g., surface water, ground water), quality of water at source, treatment technology, quality of water provided to customers.

Distribution: Piped distribution system? Individual wells? Water delivered by truck? If piped system, connections to courtyards or individual dwelling units? Community standpipes? Hours of service per day and pressure levels. Do residents of upper floors of buildings have sufficient water pressure? How does the overall supply of treated water in the piped system compare with the demand for water in the city/town?

Sanitation/wastewater:

Collection: Piped collection system or on-plot solutions, such as septic tanks or latrines?

Treatment: For on-plot solutions, any filtering of waste? For piped systems, what treatment if any before discharge of effluent into the environment? What is the capacity of the treatment plant? How does that compare to the volume of wastewater delivered to the plant(s) and the volume of wastewater generated by the city/town?

Solid waste management:

Collection: How is collection carried out? House-to-house or using neighborhood dumpsters? With what frequency? What volume or weight overall is collected? How "organic" is the collected waste? Is there any pre-sorting of garbage by customers?

Disposal: Is waste disposed of in sanitary landfills (with fence, drainage measures, regular burying of garbage) or in dumpsites? Where are main disposal locations? Is there any recycling?

District heating:

Production: Is water heated with gas-fired boilers or coal-fired boilers? Are boiler houses located within service areas or far from them?

Distribution: Are connections made to entire buildings or to individual apartments? What is the median ambient temperature in dwelling units in the winter?

Roads:

Are roads dirt, gravel, asphalt, or concrete? How wide are the roads? Do they have shoulders and/or sidewalks? Do most roads have side drains or underground drains for water run-off?

Managing Municipal Service Delivery: Technical AspectsData Needs

Water supply:

- Average quantity of water extracted from surface and ground sources per day
- Type and volume of water treatment
- Chemical profile of treated water in relation to water quality standards in effect
- Number and type of connections to piped water distribution system
- Average quantity of water delivered to customers per day
- Number of customers and population served
- Population served as a percentage of total population of city/town
- Service schedule
- Deficiencies in water pressure
- Amount of water delivered to customers by means other than piped network

Sanitation/wastewater:

- Number and type of connections to piped wastewater collection system
- Population served by on-plot solutions such as septic tanks and latrines
- Volume of wastewater collected in piped system
- Type of wastewater treatment
- Location and volume of discharge of effluent into the environment

Solid waste management:

- Type of collection equipment
- Collection frequency by geographic zone and customer type
- Average volume or weight of garbage collected
- Average volume or weight of garbage produced by city/town
- Percent organic material in solid waste
- Type of pre-sorting carried out by customers
- Location of landfills/dumpsites
- Design of landfill/dumpsite: includes fence and leachate barrier?
- Frequency of burying of garbage

District heating:

- Type of boilers
- Number of boiler houses and location in relation to service area
- Number and type of connections to district heating network

Roads:

- Total length of roads by type (material) and width
- Percent of roads with side drains by type

Sources of Data

- Existing secondary reports
- Interviews with MSP or municipal managers and staff
- Interviews with local specialists
- Field visits

Managing Municipal Service Delivery: Technical Aspects

2. What percentage of the population has access to services? In other words, what is the level of coverage?

Assessment Methodology

Compare the number of people needing service to the number of people receiving them and identify any gaps.

Where piped systems such as water supply, wastewater collection and district heating do not extend to all geographic areas for which the MSP is responsible, identify those areas that are not served.

Identify any areas of the city/town that do not receive solid waste collection services. Are there areas not served by the sanitary landfill? That is, is the capacity of the landfill lower than the amount of solid waste collected, requiring uncontrolled disposal in some areas?

Identify any areas that have no/few roads and areas in which roads have no storm water side drains or underground drainage.

Data Needs

- Statutory service area for selected services
- Actual service area of selected services

Sources of Data

- Maps of city/town and service area
- Reports and other secondary sources
- Interviews with key informants: MSP managers, local experts

3. What are the social, environmental, and/or economic costs of any shortcomings in coverage or service levels?

Assessment Methodology

In answering the two previous questions, you identified shortcomings in the service level (such as water that is delivered only 12 hours per day) and in coverage (such as neighborhoods that receive no solid waste collection). What are the effects of these shortcomings on residents, businesses and the natural environment?

What are the environmental impacts of inadequate wastewater treatment? What amount of biological and chemical waste is discharged how does that compare to the carrying capacity of the river, stream, or other receiving medium? What is the impact on local flora and fauna? Are toxic chemicals from dumpsites seeping into the ground? Are they contaminating the water supply? Is storm water run-off causing a lot of erosion?

What are the health impacts of inadequate services? What is the incidence of water-borne diseases and how is this affected by contaminated water supply? How does low temperature in municipally heated apartments and schools affect the health of local residents?

What are the economic costs of inadequate services? How much time do people spend fetching water in areas where the MSP fails to deliver sufficient quantities? How much do households spend for trucked water or other non-piped sources? How long does it take for people to reach

employment/public service areas and what part of the delay is attributable to inadequate road capacity or condition?

Data Needs

- Frequency and type of violations of water quality standards (ground water and piped water)
- Frequency and type of violations of wastewater discharge standards
- Impact of pollution of water bodies on local flora and fauna
- Location and severity of erosion resulting from storm water run-off
- Incidence of diarrhea and other water-borne diseases
- Ambient temperature in apartments, schools and health facilities during the winter
- Average household time spent collecting water
- Average expenditure on trucked water as compared to municipal piped water charges and household income
- Average commute time from under-roaded neighborhoods to employment and public service areas
- Vehicle repair costs and/or public transit charges for residents of under-roaded neighborhoods to and from employment/public service areas

Sources of Data

- Infrastructure service provider
- Municipality
- Environmental protection agency
- Ministry of Health
- Office of standards
- Statistics office
- Implementers of household sample surveys

Operations and Maintenance

The terms “operations” refers to the process of using the physical works to deliver the service. “Maintenance” means care of the physical works, including cleaning, replacing small parts, and other tasks designed to preserve the assets. Taken together, operations and maintenance (O&M) refer to technical use and care of the system. They are distinguished from capital improvements, which include substantial investments to expand, upgrade, or otherwise modify the system.

Maintenance is often divided into periodic maintenance and routine maintenance activities.

- In the roads sector, for example, periodic maintenance refers to resealing of bituminous surfaces, re-gravelling, and resurfacing, which are carried out at periodic intervals depending on materials used and the level of traffic using the road.
- Routine maintenance activities, such as road sweeping, patching of potholes, and grading of gravel surfaces, are activities required on a regular basis by the road network.

Research into municipal services has demonstrated that it is much less costly to carry out preventative maintenance than to wait until something breaks and then fix it. However, preventative maintenance requires the MSP to adopt a proactive approach in which system maintenance tasks are carried out systematically and regularly, according to a schedule. Few MSPs in the developing world do enough preventative maintenance and therefore often incur the high financial and economic costs associated with system breakdown.

The efficiency of municipal service systems is measured different ways for different types of systems.

1. Losses are a key indicator for piped networks, such as water supply or heating (hot water). To calculate the total amount of unaccounted-for water (UFW), subtract the amount of water billed to customers from the amount of water produced. The difference is what has been lost in the system (leaked out of the pipes), stolen by customers with illegal connections, and/or delivered to the customer but not billed. The last, a component of financial losses, is common when billing is done by norms, that is, when charges to a household are based on the size of the dwelling unit or the number of people living there, multiplied by an average consumption amount.
2. Energy efficiency is an issue for all municipal service systems that consume electrical power, natural gas, coal, or other forms of energy. The key indicator is specific energy consumption, or the amount of energy that the system consumes to deliver a unit of service (such as a cubic meter of water). This provides an overall picture of the energy efficiency of the system. It will vary with such factors as source of energy, location of works, topography, and type and condition of equipment. To identify investments that will decrease specific energy, it is necessary to isolate segments of components of the system that consume inordinately large amounts of energy.

Assessment

1. What is the condition of the physical assets used to deliver the service?

Assessment Methodology

Use secondary sources and interviews to determine approximately the condition of the physical assets. Determine whether the overall system is in good, fair, poor, or very poor condition. Then focus particular attention on any parts of the system that are in poor or very poor condition, such as segments of pipes that break regularly or roads that have a very uneven service with a lot of potholes.

Determine the age of the system (by zone or component where relevant) and the expected useful life of the system at the time of construction. Has the system outlived its expected useful life? Does it continue to function adequately in spite of this? Or are there frequent technical breakdowns and problems, such as:

- Pipe breaks (water supply, wastewater, district heating)
- Breakdown of pumps in pumping stations (water supply, wastewater, district heating)
- Breakdown of equipment in water treatment plants or wastewater treatment plants
- Potholes in roads
- Breakdown of solid waste collection vehicles

Data Needs

- Number of water supply pipe breaks annually per kilometer of network
- Number of wastewater pipe breaks annually per kilometer of network
- Percentage of down time of solid waste collection vehicles (months not working per year over total months)
- Percentage of down time of major equipment in water and wastewater treatment plants
- Conclusions of overall assessment of system condition
- Assessment of condition of highly deteriorated parts of the system

Managing Municipal Service Delivery: Technical AspectsSources of Data

- Interviews with key informants at the MSP or municipality
- Local experts
- Existing reports

2. What types of maintenance activities are carried out?

Assessment Methodology

Identify and evaluate the maintenance programs in place for different municipal services. Have objectives and priorities for O&M been established? Is the condition of physical works assessed systematically? Are O&M activities programmed? That is, is there a comprehensive O&M program that establishes the nature and schedule of the implementation of various tasks designed to respond to the objectives and priorities? Are any preventative maintenance activities included in the program? Do the responsible entities implement the O&M program in a timely and thorough manner? Is reporting on O&M activities carried out systematically?

Data Needs

- Objectives and priorities of O&M program
- Information on planned and programmed O&M activities
- Information on implemented O&M activities

Sources of Data

- O&M program documentation
- O&M reports
- Other existing reports
- Key informants in MSP and/or municipality

3. What are the levels of losses in the system?

Assessment Methodology

Calculate the amount of losses in the system. For example, UFW is equal to total water produced minus water billed to customers. In practice, the biggest component of UFW is water that leaks out of the pipes on its way to the customer. This is a function of the condition of the pipes and the pressure of the water in them. The condition depends in turn on the age and material of the pipes and the quality of maintenance that they have received. Heat is also lost through hot water leaking out of the piped network.

Determine, where possible, the relative proportion of technical losses in (1) the transmission network, (2) the distribution network, and (3) in-building plumbing.

Determine the relative weight of the two factors (pipe condition and water pressure) causing in leakage and pipe breaks. Is there an opportunity to reduce losses by reducing water pressure to a more appropriate level?

Determine the extent of metering in the system. Do individual houses have water or heat meters? Do apartment buildings? Do apartments? What percentage of customers of different types have meters? Is billing done according the meter reading? Are the meters accurate? Is the full amount of water/heat received by the customer billed to the customer? Where billing is done by norms, are customers charged for the full amount of water that they consume? Do they in fact consume more because they have no incentive to conserve?

Data Needs

- Total water/heat produced
- Total water/heat billed to customers
- Age, material, and condition of piped network (see Questions 1 and 2 above)
- Number of meters by customer type
- Accuracy of meter readings
- Billing methods

Sources of Data

- MSP billing department and technical department
- Existing reports
- Interviews with municipal staff

4. How energy efficient is the system?

Assessment Methodology

For municipal services that consume energy, calculate the “specific energy consumption”: total energy consumption divided by total service output. For water supply, this is kWh of electrical power divided by cubic meters of water delivered to customers.

Then analyze the energy performance of different components of the service delivery system. Are there parts of the system that are consuming a lot of energy in relation to their output? For example, pumps that are pumping water harder than they need to are energy inefficient. Similarly, boiler houses that are located far from service areas require that hot water (the heat carrier) be pumped a long distance over which heat will be lost. Components of the system that should be analyzed include networks, pumping stations, water intake stations, boiler houses, and wastewater treatment plants.

Where your rapid assessment identifies components of the system that seems particularly energy inefficient, consider contracting specialists to carry out an energy audit of the component or the system.

Data Needs

- Total energy consumption of the municipal services system(s)
- Total output of the system (in services delivered)
- Output of different components of the system in relation to requirements (e.g., actual water pressure at out-flow of a pumping station vs. required water pressure at out-flow required)

Sources of Data

- Existing reports, such as energy audits
- Interviews with MSP/municipal staff

Capital Investment Planning

Capital investment is one standard way to address technical deficiencies in municipal service systems. When service levels or coverage are too low, MSPs can upgrade works to improve services or extend their coverage areas to previously unserved neighborhoods. While such solutions may be easy to identify, they are often difficult to implement because they are expen-

Managing Municipal Service Delivery: Technical Aspects

sive and require detailed planning and disciplined implementation, often over a long period. Many MSPs spend the majority of their time fixing things that are broken or responding to customers' complaints, and cannot find the time to plan for expansion and improvement of their systems.

Effective capital investment planning requires:

- Identification of investments that will help the MSP achieve its goals and objectives, when and if these have been clearly articulated
- Thorough technical assessment to identify major problems
- Close linking of proposed investment projects to major problems
- Prioritization of capital investment projects by their technical importance, financial performance, and relevance to customer preferences and priorities

In the Coverage and Service Levels assessment, you identified shortcomings in municipal service delivery with respect to service levels and coverage and then identified selected environmental, economic, and social impacts of these infrastructure service deficiencies. Under the Operations and Maintenance assessment, you identified parts of the system that are in poor physical condition or are energy inefficient. This subtopic involves identifying capital investments projects that can solve service problems and mitigate negative environmental and socio-economic impacts.

Assessment

1. What types of capital investments are needed to improve coverage and/or service levels?

Assessment Methodology

Develop a list of the service level and coverage deficiencies using the assessment carried out in the Coverage and Service Levels assessment. In light of the objectives of the MSP as set out in their strategic plan, business plan, or other planning document, identify for each major deficiency the capital investment projects that would help improve the service and mitigate any negative environmental, social, and/or economic impacts of the deficient service. Where possible, identify capital investment projects that solve more than one service problem at the same time. See the section "Conclusions and Possible Projects" below to review typical linkages between service problems and capital improvement projects.

Keep in mind that while identifying types of projects that will solve a given problem can sometimes be straightforward, detailed analysis of financial and economic return of infrastructure investments should be carried out prior to committing funding to particular projects. Financial specialists can estimate such returns using financial internal rate of return (FIRR) and economic internal rate of return (EIRR) calculations.

Data Needs

- Service level deficiencies in selected municipal services
- Coverage deficiencies in selected municipal services
- To make definitive selection of projects, (1) project costing and (2) financial/economic return on investment

Sources of Data

- Existing secondary sources of data, such as reports
- Key informant interviews with MSP and municipal staff

Managing Municipal Service Delivery: Technical Aspects

- Engineering analysis (for project cost)
- Financial analysis (for FIRR/EIRR)

2. What types of capital investments are needed to reduce losses and/or improve energy efficiency?

Assessment Methodology

Develop a list of factors contributing to major technical losses in the system using the assessment carried out under the Operations and Maintenance assessment. Develop another list of energy efficiency problems using the same assessment. In light of the objectives of the MSP as set out in their strategic plan, business plan, or other planning document, identify for each major factor contributing to technical losses and each energy efficiency problem the capital investment projects that would help reduce losses and improve energy efficiency. See the section “Conclusions and Possible Projects” below to review typical linkages between among factors, energy inefficiencies, and capital improvement projects.

As under the question, “What types of capital investments are needed to improve coverage and/or service levels,” keep in mind that detailed analysis of financial and economic return of infrastructure investments should be carried out prior to committing funding to particular projects.

Data Needs

- Results of analysis of losses carried out under the Operations and Maintenance assessment
- Results of analysis of energy efficiency carried out under the Operations and Maintenance assessment

Sources of Data

- Technical Assessment Worksheet
- Engineering analysis (for project cost)
- Financial analysis (for FIRR/EIRR)

3. What capital investment projects have been identified, prepared, and/or implemented by the MSP in recent years? What sources of financing are used for capital improvements?

Assessment Methodology

Review recent efforts by the MSP and/or its owner to carry out capital investments. Has a capital investment program been prepared? Are projects in the program closely linked to institutional objectives? Has the technical cost of the projects been estimated with the appropriate degree of accuracy? Has the financial or economic return of the projects been calculated?

Have any capital investment projects actually been implemented? What was the source of financing?

Data Needs

- Existing capital investment programs, if any
- Recently implemented or ongoing capital investment projects, with costing and justification
- Sources of financing for capital investment projects

Sources of Data

- MSP and/or municipal technical and financial departments

Conclusions and Possible Projects

Having completed the Technical Assessment worksheet as thoroughly as existing data allow, review the worksheet and try to link the answers you recorded to the “IF” conditions in the following table. Where you have a match with the “IF” conditions, consider the project interventions set out in the “THEN” column.

Assessment Conclusions		Possible Project Interventions	
IF	Service levels are lower than what customers want	THEN CONSIDER	Capital investments to raise service levels, for example, increase bulk water production to achieve 24/7 water service; building or modernizing water treatment plants to raise drinking water quality; rebuilding, resurfacing, or widening of roads; treatment of wastewater before discharge into the natural environment; etc.
and	Customers are willing and able to pay more to receive higher service levels, either through user charges or other taxes		
IF	There are geographic areas that do not receive service (inadequate coverage)	THEN CONSIDER	Extending existing networks/services to provide previously unserved areas with solid waste collection, water supply, wastewater collection, or other services
and	Residents and businesses in those areas are ready and willing to pay their share of service costs		
IF	The natural environment is becoming contaminated because of inadequate services (dumping of untreated wastewater, penetration of leachate from dumpsites or wastewater into the aquifer)	THEN CONSIDER	Construction of wastewater treatment facilities
		and	Construction/extension of the wastewater collection system
		and	Construction of a sanitary landfill
IF	Households spend an inordinate amount of time collecting water	THEN CONSIDER	Extending municipal water supplies through standpipes or group/individual connections to the piped network
IF	People spend an inordinate amount of time commuting to employment areas	THEN CONSIDER	Improving public transit
		and	Increasing the capacity of the road system
		and	Rebuilding or resurfacing existing roads
IF	The incidence of water-borne diseases is high and this is attributable to poor water quality or low availability of good piped water	THEN CONSIDER	Investing in water treatment of distribution works to improve water quality

Managing Municipal Service Delivery: Technical Aspects

Assessment Conclusions		Possible Project Interventions	
IF	Breakdowns in municipal service systems are frequent, interrupting service and driving up operations costs	THEN CONSIDER	Preparing a comprehensive O&M program that includes systematic preventative maintenance; providing technical assistance and training to Operations Departments of MSPs to prepare and operationalize the program, including TA for field work (site visits, repairs)
IF	Consumption of water supply or heat is high and there a few/no incentives to conserve	THEN CONSIDER	Implementing a metering program to encourage conservation of resources and lower operating costs; exploring mechanisms for financing the purchase and installation of meters, including through user fees; carrying out public information campaigns to raise awareness about conservation of water
IF	Energy efficiency of selected parts of the municipal service system is low, driving up operations costs	THEN CONSIDER	Undertaking energy-efficiency investments, such as replacing or regulating the speed of water and wastewater pumps and motors; water supply system zoning; replacing or regulating boilers and fans in boiler houses
IF	Pipe breakages in water supply, wastewater, or district heating networks are common	THEN CONSIDER	Investing in a medium- to long-term, phased program of network pipe replacement

Financial Aspects

The financial aspects of municipal services primarily concern the revenues and expenditures of the service provider. Expenditures include the fixed and variable costs incurred in the process of producing services and delivering them to customers, while revenues entail the different sources of income—tariffs and other user charges, loans, bonds, equity investment, municipal subsidies, and intergovernmental transfers—that are used to cover those costs. Where possible, revenues should cover O&M, plus depreciation and debt servicing (interest and capital repayment) and a contribution to future capital investment.

In developing countries, financial challenges arise from a variety of sources:

- Perceived or actual low ability to pay of customers
- Low tariffs and a feeling among customers that municipal services are a “merit good” that government should pay for
- Inadequate billing and low payment collection rates
- Customers may not be able to pay initial service connection fees
- Where quality of services is low, it becomes even more difficult to secure political will and public support for cost-recovery service pricing
- Mechanisms for spreading the costs of capital investment out over time are undeveloped
- Low creditworthiness of MSPs
- Low efficiencies and large levels of losses (for example, loss of water throughout distribution system)
- Assets that are operating below full utilization levels, because of lack of maintenance or investment

Service Pricing

The pricing of municipal services requires the simultaneous achievement of three often contradictory objectives: financial sustainability of the service provider, affordability to customers, and equity in the allocation of costs to end users. The underlying principle is “user pays.” But its implementation will vary from place to place and service to service, depending on the ability and willingness to pay of customers and the public sector commitment to sound financial management.

In practice, service providers should charge their customers the cost of O&M *and* investment, including future investment costs, without imposing on them an undue financial burden. Good service pricing, therefore, depends on accurate analysis of customer ability to pay. Good service pricing depends on ensuring that services are provided in a cost-efficient manner.

Where ability to pay of the community at large or, more often, of low-income population segments is not sufficient to cover all costs, then (1) long-term sources of financing can be introduced to flatten out the payment stream of capital investment; (2) capital investment can be subsidized by municipalities or other public entities; or (3) targeted, demand-side subsidies can be introduced to enable payment of user charges by low-income households. Charging lower unit prices for low levels of consumption also helps ensure that poor households can afford to buy a certain minimum basic amount of the service.

Some services lend themselves to user charges; others don't. Where access to a service can easily be restricted (for example, water supply, electrical power, limited access highways), it is

possible to levy a charge per unit of service consumed (cubic meter of water, kilowatt hour of electricity, mile on a highway). Levying user charges is more difficult or impossible with other services, such as local roads, which need to be financed through other financial instruments, such as real estate property taxes or sales taxes.

The cost of many municipal services can be divided into fixed costs and variable costs.

- Fixed costs are the basic costs of operating a municipal service delivery system: construction and maintenance of physical plant, staff salaries, office operation costs
- Variable costs are directly related to the quantity of service consumed by customers. The distinction between fixed and variable costs can be built into customer billing systems

Assessment

1. Are services delivered on a cost recovery basis? That is, do revenues cover or exceed expenditures?

Methodology, Data, and Data Sources for Answering the Question

Methodology	Data Needs	Sources of Data
<p>Consult existing secondary sources, staff of service provider, and local experts to gain a qualitative and, where possible, quantitative understanding of the extent to which revenues cover costs. Look at the last three years to get a sense of trends over time.</p> <p>First, do total revenues cover total costs? What is the order of magnitude of the surplus or deficit?</p> <p>Second, do revenues from user charges cover operating costs?</p> <p>Third, do total revenues cover operating costs? To what extent does local government or other entity subsidize O&M or capital investment?</p>	<ul style="list-style-type: none"> • Operating costs • Capital investment costs • Revenues from user fees • Revenues from other sources 	<ul style="list-style-type: none"> • Existing reports • Key informant interviews with manager and staff of MSP, local government officials, local experts

Managing Municipal Service Delivery: Financial Aspects

2. Are services affordable to customers?

Methodology	Data Needs	Sources of Data
<p>Consult existing secondary sources, staff of service provider, and local experts to gain a qualitative and, where possible, quantitative understanding of the extent to which services are affordable to customers/end users.</p> <p>Consider domestic users first, and then other users, such as commercial firms and industrial companies.</p> <p>For domestic users, review <i>existing</i> comparisons of user charges to household income. What percentage of household income is spent on the service? How does this percentage vary by income level? In particular, what percentage of income do poor and very poor households spend on this service?</p> <p>Look at any changes in prices or household incomes in the past three years to get a sense of trends over time.</p>	<ul style="list-style-type: none"> Household income by population segment (e.g., by quintile or decile) Household expenditure data, including expenditures on municipal services MSP charges to households and other users 	<ul style="list-style-type: none"> Existing reports on household income and expenditures or affordability studies Key informant interviews with billing department of MSP, local government officials, non-governmental organizations (NGOs), local experts

3. Does the tariff structure equitably allocate costs to customers?

Methodology	Data Needs	Sources of Data
<p>Consult existing secondary sources, staff of the service provider, and local experts to ascertain the tariff structure and the way it allocates costs among customers. This issue has a number of different dimensions:</p> <p>1. Allocation of costs among user groups – Are industrial and institutional users charged different rates than domestic (residential) users? What is the rationale for this? Is it fair for households to pay less for a given unit of service delivered than, say, a commercial establishment does?</p> <p>2. Tariff charges by level of service consumption – Do tariffs vary by level of consumption? Do customers that consume less pay less for the first few units consumed? [Rationale: to increase affordability for low-income groups.] Or do customers that consume large amounts pay less for unit? [Rationale: quantity discount for large industrial and other users.] Are these pricing policies equitable?</p> <p>3. Charges to new users vs. charges to existing users – How are the costs of network extension distributed among different users? Do customers in new service areas pay the same amount as customers in existing neighborhoods? Do new customers pay an upfront fee (e.g., connection charge) to cover part of the cost of building the network extension?</p>	<ul style="list-style-type: none"> Domestic user tariff Industrial user tariff Institutional and other user tariff Unit charges by ranges of quantity consumed for different types of users Connection fees Other user charges 	<ul style="list-style-type: none"> MSP billing office Existing reports on tariff structures Key informant interviews with local government officials, NGOs, local experts

Sources of Finance

A central challenge facing many infrastructure service providers in developing countries is mobilizing sufficient funding to provide adequate services. Funding is always needed for O&M. Where systems are in poor condition or the population of the service area is growing quickly, substantial funding is also needed for capital improvements. Many MSPs do not make adequate use of user charges, because they do not know how much they can charge or have not garnered the political will and public support necessary to raise tariffs without civil opposition. Other MSPs have not yet been able to tap credit and debt markets in order to pay for capital improvements gradually over time. Traditionally, MSPs have been overly dependent on subsidy transfers from municipal, provincial, or national budgets. Meeting the financing challenge often requires “throwing the net wider” to mobilize a broader range of financing for operations and capital investment.

Assessment

1. What sources of finance are currently being used to cover the cost of service delivery?

Methodology	Data Needs	Sources of Data
<p>Consult existing secondary sources, staff of service provider, and local experts to gain a qualitative understanding of the sources of finance for service delivery.</p> <p>Consider separately (1) O&M and (2) capital investment.</p> <p>Identify sources of financing for operation and maintenance, including user charges, subsidies from local governments, and intergovernmental transfers.</p> <p>Identify sources of financing for capital investment, including bank loans, bonds, intergovernmental transfers, and private investors.</p>	<ul style="list-style-type: none"> • Sources of finance for O&M • Source of finance for capital investment 	<ul style="list-style-type: none"> • Existing reports • Key informant interviews with manager and staff of MSP, local government officials, local experts

2. What additional sources of finance could be mobilized to pay debts or improve/expand services?

Methodology	Data Needs	Sources of Data
<p>Consult with MSP management, local governments, and/or local experts to gain a qualitative understanding of the potential for expanding the existing sources of finance to include:</p> <ul style="list-style-type: none"> • bank loans • capital bonds • private investment • and/or other advanced instruments for municipal service financing. <p>Key elements of the feasibility of introducing such methods include:</p> <ul style="list-style-type: none"> • political will • degree of development of credit and debt markets • existence of private sector firms active in municipal service delivery in the country • creditworthiness of the MSP and/or local government 	<ul style="list-style-type: none"> • Prevalence of private bank lending to MSPs in-country • Municipal bond issues in-country • Private investment in municipal service systems 	<ul style="list-style-type: none"> • Existing reports • Key informant interviews with manager of MSP, local government officials, bankers, private providers of municipal services, local experts

Payment Collection and Indebtedness

Overview

Many customers of infrastructure service providers are reluctant to pay their bill in full and on time. They either feel that the cost of service should be covered by the state or, more often, that the quality of service that they receive does not merit the charges levied on their bill. Improving the payment collection rate—that is, the ratio of tariff payments collected from customers to tariff payments charged to customers—therefore requires improving public perception of the MSP and the services they deliver. When charges are affordable and customers feel that they are getting “value for money,” they will pay their bills.

- To increase customer perception of receiving value for money, MSPS and municipalities can:
- Make improvements to services before stepping up efforts to increase payment collection
 - Carry out public education is required (through public forums and media campaigns) to raise customer awareness of the need to make payment in order for services to be delivered on a sustainable basis; payment collection is therefore closely related to customer outreach activities (see also, Customer Relations and Community Participation)

Improving payment collection is also about making it easy for the customer to pay. A wide network of payment points, shortening the distance that a customer has to travel, is helpful. Allowing payment to be made at local banks and centralizing the payment of all municipal services at one location are also common ways to facilitate customer payment.

The effect of regular and sustained non-payment is high customer indebtedness. When MSPs do not collect enough payments from their customers, it becomes difficult for them to make ends

meet financially. Many MSPs with high levels of customer indebtedness also have large debts to their suppliers, such as energy companies. Once ingrained, the vicious circle of indebtedness can be hard to break. It is often necessary to adopt a three-pronged approach: write off bad debts, improve collection of other debts, and raise collection rates on current payments.

Assessment

1. To what extent are current tariff charges being collected from customers?

Methodology	Data Needs	Sources of Data
<p>Consult MSP management and/or local experts to determine the institutional arrangements for tariff payment collection. Are payments collected by the MSP, the local government, banks, payment centers, or other entities?</p> <p>Determine the ratio of user payments to (current) user charges for municipal services. Where payments are significantly less than charges, try to ascertain the causes of non-payment.</p>	<ul style="list-style-type: none"> • Institutional arrangements for collecting tariff payments • Ratio of user payments to user charges by type of user group 	<ul style="list-style-type: none"> • Existing reports • Key informant interviews with manager of MSP, local government officials, local experts

2. Do MSP customers have substantial debts from previous financial periods? How does this affect accounts payable of the MSP?

Methodology	Data Needs	Sources of Data
<p>Determine the total amount of back debts that customers owe the MSP or local government and compare it to annual revenues to get a feel for the order of magnitude.</p> <p>Where customer back debts are high, determine the amount of MSP debts to suppliers such as energy companies. Are the latter caused primarily by non-payment by customers?</p>	<ul style="list-style-type: none"> • Total amount of back debts that customers owe the MSP or local government • Total MSP annual revenues • Total amount of MSP debt to suppliers 	<ul style="list-style-type: none"> • Interview with billing and collection department • Existing reports

3. To what extent does the collection entity facilitate payment by customers?

Methodology	Data Needs	Sources of Data
<p>Analyze the modalities for payment by customers and evaluate qualitatively how easy it is for customers to pay.</p> <p>What choices, if any, do customers have as to how they pay their bill? Can customers pay by phone or mail, or must they go to payment centers? How geographically widespread is the network of payment centers? Do some customers have to travel a long way to make a payment?</p> <p>Does the collection entity have an outreach service by which customers are contacted, reminded and encouraged to make payments on a regular basis? What measures are taken in case of non-payment? See also Customer Relations and Community Participation aspects.</p>	<ul style="list-style-type: none"> • Payment modalities available to customers • Geographical distribution of payment centers • Customer outreach programs 	<ul style="list-style-type: none"> • Payment collection entity • Billing and collection department of MSP

Conclusions and Possible Projects

Having completed the Financial Assessment worksheet as thoroughly as existing data allow, review the worksheet and try to link the answers you recorded to the “IF” conditions in the following table. Where you have a match with the “IF” conditions, consider the project interventions set out in the “THEN” column.

Assessment Conclusions		Possible Project Interventions	
IF	User charges do not cover the cost of system O&M	THEN CONSIDER	Municipal service tariff reform, including accurate calculation of costs and calculation of new higher service tariffs to cover at least O&M costs; involve stakeholders in the tariff setting process to achieve buy-in; introduce new tariff-setting methodologies at the national level if necessary; provide classroom training and hands-on technical assistance to apply new methods; sustained (although not necessarily continuous) institutional support through implementation will bring about the best results
and	Current tariffs are clearly affordable to most customers		
IF	The quality of cost accounting is not sufficiently precise or disaggregated to accurately calculate the cost of service	THEN CONSIDER	MSP accounting reform, including national-level introduction of improved accounting standards and methods or local-level strengthening of MSPs’ ability to carry out basic accounting functions; combine training in accounting, budgeting, and reporting with hands-on technical assistance to implement new methods at the MSP; consider introduction of automated systems for cost accounting and billing

Managing Municipal Service Delivery: Financial Aspects

Assessment Conclusions		Possible Project Interventions	
IF	Tariffs do not equitably allocate costs among user groups	THEN CONSIDER	Municipal service tariff reform, including redistribution of costs among user groups by increasing tariffs for some groups and decreasing it for others, or introduction of pricing measures or user charges to achieve greater equity among different customer groups, such as connection fees for new customers
IF	Tariffs are not affordable to most customers	THEN CONSIDER	Municipal service tariff reform, including accurate calculation of costs and calculation of new lower service tariffs or introduction of “block tariffs” to lower prices to for low-quantity users
		and	Explore ways to lower costs by reducing service levels, investing in energy-efficient equipment and/or reducing labor inputs (see Technical Aspects as well)
		and	Identify other sources of funding to fill any remaining financial gap, such as general revenues of the municipality
IF	Revenues are insufficient to cover the cost of O&M	THEN CONSIDER	Increasing MSP access to credit markets by improving preparation and justification of capital investment projects and strengthening the ability of MSPs to apply for loans from financial institutions
or	System rehabilitation and/or extension is required, and revenues are insufficient to cover the investment cost	or	Implementing a Development Credit Authority project to make credit markets more accessible to MSPs
IF	Long-term financing is required for large capital improvement projects	THEN CONSIDER	Introducing revenue bonds to raise funding on debt markets (for more on bonds, see Municipal Finance)
		or	Attracting private sector investment through concession or Build-Operator-Transfer (BOT) contracts; carry out a feasibility study and, if the results are positive, assist MSP in preparing tender documents, review bids, and negotiate with private provider
IF	Payment collection rates are low	THEN CONSIDER	Strengthening MSP payment collection through technical measures (computerization of billing, one-stop payment centers, payment by phone or Internet, etc.) and/or public outreach measures (public forums and media campaigns to raise customer awareness of the link between timely bill payment and sustainable service delivery)
IF	MSP customer indebtedness levels are high	THEN CONSIDER	Debt restructuring, including classification of bad debts and collectible debts; debt collection initiatives (customer outreach, incentives for payment of back debt, payment drives, legal measures); and write-off of bad debts

Legal and Regulatory Framework and Institutional Issues

The municipality or MSP operates in a regulatory environment that can either support or inhibit performance. Ideally, the environment should accomplish two things:

- Empower a municipality or service provider with a sufficient level of autonomy that it can make a wide range of decisions on its own
- Provide sufficient oversight to ensure that public funds appropriately expended, tariffs are appropriate, and the public is adequately served

In addition, all service providers have an institutional and organizational structure that affects their ability to reliably and efficiently provide services to citizens. The service provider’s own institutional and organizational structure will interact with the legal and regulatory environment of the country and municipality in which it operates.

This assessment will help USAID Missions understand these issues, learn about and document existing problems, and design interventions to address concerns. To do so, Missions will need to know about the overall regulatory environment, about what role the service provider plays now, how this might be structured to work better, and what sorts of changes need to be made—both inside and outside the MSP—to make this happen.

Legal and Regulatory Framework for Service Delivery

MSPs are affected by regulations at the local, state/provincial, and central levels. Understanding these regulations, how decentralized the government is, and how empowered or constrained the service provider is, is important to devising effective interventions.

There are many different types of MSPs. MSPs can be government agencies that provide direct services (for example, trash collection and disposal); they can be independent, private companies that hold a contract with government; or they can be a hybrid of the two, in the form of public entities that are subject to municipal or commission oversight. Many arrangements can work effectively, if the service provider has the authority needed to make critical management and financial decisions, and if the responsibilities and relationship to the municipality or government are clearly defined.

Assessment

1. What is the relationship between the municipality and higher level governments? How decentralized or local is service provision?

Methodology	Data Needs	Sources of Data
Analyze the legal framework and regulations that govern the operations of the municipality and the service providers in it. <ul style="list-style-type: none"> • What is the relationship between the municipality and higher-level governments? • How empowered are local governments to improve service delivery? 	<ul style="list-style-type: none"> • Constitution and chartering documents 	<ul style="list-style-type: none"> • Municipality library • MSP files • Interviews with central and local government staff

2. How are services provided (type of MSP)? What is the legal and regulatory framework within which they operate? How empowered or constrained are they?

Methodology	Data Needs	Sources of Data
<p>Analyze how services are provided:</p> <ul style="list-style-type: none"> • Are service providers government agencies? • Are they private companies with contracts or other agreements with the municipality? • Are they quasi-public agencies subject to government oversight and control? • What is the history of this arrangement? Are there plans to change it, or are people generally satisfied with current practice? <p>Analyze the extent of decentralization and autonomy. To what extent does the MSP have control over administration, operations, and finances?</p> <ul style="list-style-type: none"> • What is the service provider tasked with accomplishing? • To what extent does the service have control over its finances, organization, and operations? What authorities (for service pricing, etc.) has it been given? • Does the MSP have authority to set tariff prices, make hiring and firing decisions, or alter the organization chart? • Who establishes salaries for employees and other financial management targets? 	<ul style="list-style-type: none"> • Organizational and ownership forms of MSPs • MSP statutory authorities, including revenue generation and expenditures • MSP service provision responsibilities 	<ul style="list-style-type: none"> • Interviews with management and staff • Existing manuals, systems, and procedures • Existing internal and external reports • Regulations, chartering documents, laws

Service Provider Organization

The organization of service providers can affect how well they are able to provide services, manage day-to-day operations, and carry out development planning. Many different types of organizational structures can work effectively, if lines of management are clear and communication among departments is conducted regularly. Having an effective operational or organizational structure in place can help resolve service delivery problems and interruptions when they arise, increase service levels, and generally improve the quality of service for customers.

In addition, service providers should periodically evaluate their performance against formal targets. If a service provider is a government agency, these can be codified in performance standards; if it is a contractor it should be included in performance agreements or service contracts. Only by setting these goals, and measuring actual performance against them, can service providers determine how effectively they are operating.

Finally, the day-to-day activities of the MSP should be guided by a plan—often called a business plan or a strategic development plan—that provides guidance to the MSP both for day-to-day operations and for longer-term investments. Some common elements of a business or strategic plan are listed in the Sample Table of Contents below. Such plans should be updated periodically, ideally on an annual basis, although many components of the plan will not change substantially over time.

Business Plan - Sample Table of Contents

1. Strategic Framework
 - Company mission; objectives; performance measures and targets
2. Business Scope
3. Policy, Legal, and Regulatory Context and Requirements
4. Service Demand – Current and Forecast
5. Major Accomplishments – Past Year(s) and Coming Years
6. Current Performance and Performance Gaps
 - For each objective – usually 6 to 8 in total – target performance; actual performance; performance issues
7. Stakeholder Input and Expectations
8. Key Business Issues
 - Policy/legal; human resources; O&M; financial; environmental; public health; safety; customer service; institutional
9. Operations Plan
 - Customer service plan
 - Target service levels
 - Staffing plan – staff requirements; staff training and development
 - Emergency plan
10. Facility Management Plan
 - Asset inventory; condition and capacity assessments
 - Service life assessment; required service expansion and upgrading
 - O&M and capital maintenance inventory and assessment
11. Financial Management Development Plan
 - Investment needs – capital and O&M; annual and 5-year budgets
 - Financing plan – sources and terms
 - Revenue plan – sources and amounts
12. Institutional Reform Action Plan
 - Organization structure
 - Policies; business processes, systems, and practices
 - Staff training and development
13. Discussion, Conclusions, and Recommendations
14. Implementation Arrangements

Assessment

The assessments below allow USAID Missions to assess MSPs on the organizational aspects described above.

1. Is the MSP organized effectively?

Methodology	Data Needs	Sources of Data
<p>Assess the organizational arrangements of the MSP. Questions include:</p> <ul style="list-style-type: none"> • Does the MSP have a clear management structure or organization chart, which lays out who reports to whom? Are lines of responsibility well documented and transparent? Do the various parts of the organization communicate with each other effectively? • Do employees understand their daily or primary duties and are they sufficiently monitored in their activities? Are employees held accountable if service standards are not met? 	<ul style="list-style-type: none"> • Organizational structure of MSP • Systems and procedures for departmental coordination • Actual sharing practices • Staffing charts and employee agreements 	<ul style="list-style-type: none"> • Interviews with management and staff • Existing manuals, systems, and procedures • Existing internal and external reports

2. How effectively is the MSP conducting performance monitoring and strategic planning?

Methodology	Data Needs	Sources of Data
<p>Assess the performance monitoring and planning systems used by the MSP. Questions include:</p> <ul style="list-style-type: none"> • Does the MSP have a business or strategic plan in place? See Sample Table of Contents. If so, does it conduct operations and make investments in accordance with the plan? • Does the MSP have an ongoing performance monitoring system in place? <ul style="list-style-type: none"> - If so, how were the goals established? How often do they evaluate performance against goals? How is the MSP doing overall? - If they do not systematically evaluate performance, do they have an informal system for monitoring goals? • Does the MSP have an emergency plan in place? Do they conduct drills to practice and make sure that the emergency procedures are followed? 		<ul style="list-style-type: none"> • Interviews with MSP leadership and staff • Existing manuals, systems, and procedures • Existing internal and external reports

Human Resources and Capacity

The managerial and technical capacity that the service provider has directly affects its ability to delivery services to customers. This issue refers to:

- The *staffing* level of the service provider—does it have enough workers to accomplish the required tasks on a day-to-day basis and does it have enough workers to grow and enhance services

Managing Municipal Service Delivery: Legal and Regulatory Framework and Institutional Issues

- The *skills* level of those workers—do they have the managerial and technical skills needed to do their jobs well

Where skills are inadequate, MSPs can hire additional staff possessing the necessary skills, as demonstrated by training and work experience, or train existing staff to build their capacity. Even in situations where most staff members have relevant degrees and skills, ongoing training can help the MSP improve operations. Specific benefits include the following:

- Improved safety
- Reductions in energy and chemical consumption
- Improved O&M
- Increased longevity of equipment
- Shorter incident or problem response times

Human resources development can take many forms, including formal and classroom instruction, more informal workshops, on-the-job training, and mentoring programs. Trainings can be held off-site or integrated into the day-to-day operations of the MSP. The most effective training programs contain a mix of methods. As shown in the chart below, training should also be targeted to the specific needs of the staff.

Trainees	Potential Topics	On-the-Job Training Topics
Top Level of Management: Senior Governmental Officers, CEOs, Boards of Directors, Supervisors, General Managers	<ul style="list-style-type: none"> • Roles and Responsibilities of Municipal Government, Board of Directors, and Senior Management • Enterprise Law • Legal Requirements • Corporate Governance 	NA
Senior Levels of Management: Financial Staff, Deputy General Managers, Technical/Operations Managers, Department Chiefs	<ul style="list-style-type: none"> • National Utility Practices • International Systems • MIS/GIS Systems • Business Planning • Accounting and Financial Management • Tariff Setting and Billing • Account Transaction Entries • Financial Reporting • Improving Business Performance • Corporate Business Systems • Marketing • Customer Relations • Computer Accounting Systems 	<ul style="list-style-type: none"> • Accounting and Financial Management • Business Systems • MIS/GIS
Project Implementation Staff: Technical Staff, including Engineers, Technicians, Operators	<ul style="list-style-type: none"> • MIS/GIS Systems • Disbursement Procedures • Project Management • Cost Control • Performance Benchmarking • Operations • Automated Plant Control • Energy Saving Methods of Operation • Quality Monitoring 	<ul style="list-style-type: none"> • MIS/GIS • Use of computers for efficiency gains

Assessment

1. Does the MSP have adequate staff to effectively accomplish tasks?

Methodology	Data Needs	Sources of Data
<p>Assess the staffing levels and the ability to deal with human resources needs at the MSP. Questions include:</p> <ul style="list-style-type: none"> • Does the MSP have a human resources plan or manual? • Does the MSP have a staff person who deals with human resources (hiring, firing, benefits, etc.)? • Are the staffing levels at the MSP perceived as adequate, by staff and leadership? Can they accomplish day-to-day operations adequately? Can they respond in a timely manner to problems as they arise? 	<ul style="list-style-type: none"> • Human resources plan or manual • Number of staff • Tasks required of staff 	<ul style="list-style-type: none"> • Interviews with MSP leadership and staff • Existing manuals, systems, and procedures • Existing internal and external reports

2. Does staff at the MSP have the technical skills needed to do their jobs effectively?

Methodology	Data Needs	Sources of Data
<p>Assess the technical capacity or skills levels of the MSP. Questions include:</p> <ul style="list-style-type: none"> • Does the MSP have staff that is able to prepare annual and 5-year budgets? Do they do so? • Does the MSP have staff that is able to conduct projections of service demand? Do they do so? • Does the MSP have staff skilled in the use of geographic information systems (GIS) or other management information systems (MIS)? (There computer-based systems are used to manage information, catalogue complaints, track requests for services, etc. See the Spatial Analysis Toolkit.) If not, what other systems are they using? • Does the MSP have staff that holds degrees or certifications relevant to the operations of the MSP? 		<ul style="list-style-type: none"> • Interviews with MSP leadership and staff • Existing manuals, systems, and procedures • Existing internal and external reports

3. Does the MSP have an effective human resources or training program for its staff?

Methodology	Data Needs	Sources of Data
<p>Assess the MSP’s human resources development or training programs. Questions include:</p> <ul style="list-style-type: none"> • Does the MSP conduct regular training of its employees? In what format (formal, classroom instruction, more informal and ongoing workshops, on-the-job training)? • Does the MSP require that its employees receive training on an ongoing basis? Does it provide incentives for staff that receive training? • Does the MSP require its staff to have degrees or certifications in relevant subject areas? If so, does it provide training or assistance in receiving these qualifications? 	<ul style="list-style-type: none"> • Training plans and requirements • Records of actual trainings • Records of degrees and certifications 	<ul style="list-style-type: none"> • Interviews with MSP leadership and staff • Existing manuals, systems, and procedures • Existing internal and external reports

Conclusions and Potential Projects

Once the assessments have been completed and the worksheet filled out, this section can help the USAID Mission evaluate the findings and identify potential project interventions.

Legal and Regulatory Framework for Service Delivery

This assessment allows the USAID Mission to determine if the legal and regulatory environment is conducive to effective management and planning of municipal services. Problems could include lack of municipal authority to undertake reforms and improve service delivery. Likewise, the service provider itself may have misaligned responsibilities and authorities. For example, the service provider may have responsibility for a wide range of services, but lack the authority to hire staff or modify its organization chart to provide these services effectively. In an opposite case, the MSP may have too much leeway in operations, and too little oversight.

If responsibilities and authorities are misaligned, the USAID Mission could consider working with the MSP and the central or municipal government to establish a more favorable regulatory framework and more appropriate controls over the MSP. This could include:

- More detailed assessment of regulatory issues, including a comparison of responsibilities and authority
- Activities to reform laws and regulations, and modify the relationship between government and the MSP
- Preparation of agreements that formalize new relationships.

Service Provider Organization

This assessment will help reveal whether or not the service provider is functioning well on a day-to-day basis, and whether it is carrying out basic planning and performance management activities. Deficiencies may show up in the areas of organization, communication, performance and performance monitoring, and accountability. Whether or not the MSP is able to conduct planning for the organization, and to establish performance goals and monitor actual performance against them, is an indication of the extent of the MSP’s ability to plan for the future and establish longer-term targets and strategies for reaching them.

If the assessment indicates that the MSP is deficient in these areas, the USAID Mission may consider a project that assists the MSP in improving the efficiency or effectiveness of its activities, and builds the capacity of the MSP to conduct long-range or strategic planning and performance monitoring.

Human Resources and Capacity

The staffing and skills-level assessments will give the USAID Mission a good sense of whether or not the MSP has the resources to effectively provide services. An evaluation of the MSP's human resources or training program provides an indication of the MSP's efforts to address human resource deficiencies and improve the caliber of its staff.

If these areas show room for improvement, potential projects include a human resources development project. This would include a specific training needs assessment, establishment of training goals, and preparation of training plans, followed by targeted training in relevant subjects. The training should include both formal classroom, workshop, and hands-on, on-the-job instruction (a "learn and do" approach). Tutoring may be needed to bring staff up to level of basic competency before introducing them to more complex skills.

Training programs should involve both the municipality and the MSP, so that knowledge, awareness, and support among government employees are developed in the municipality, at the same time as it is built within the MSP. It is usually best to conduct training on-site.

Comprehensive Institutional Strengthening Project

If the MSP exhibits deficiencies or problems in many of these issue areas, a comprehensive institutional strengthening project may be in order. This would take involve at least the following:

- Improvements to organizational structure and operational environment
- Regulatory review and reform
- Establishment of performance goals and a performance monitoring system
- Management assessment and improvement plan
- Preparation of business or strategic plan
- Comprehensive human resources development plan and implementation
- Assessment and improvement of management systems

Community Participation and Customer Relations

Community participation in the planning and provision of municipal services is beneficial to service providers and customers alike. In order to make informed decisions about services and investments, service providers and municipalities need to understand what communities want, what their priorities are, and what they are willing to pay for. In the initial phases of a project, community involvement can help inform which projects a municipality should undertake and what components can be provided by the community itself. Community participation can help build support and a feeling of ownership about new and improved infrastructure, and increase its sustainability and reduce maintenance costs. Furthermore, community participation can help municipalities avoid building infrastructure that communities cannot afford.

Once services are established, feedback from communities can help judge satisfaction with services, improve service and resolve complaints, and identify gaps. Establishing strong links and communications with customers can help increase payment collection, head off problems, and create support for (or at least an understanding of the need for) increases in rates and tariffs.

In developing countries, governments and project planners often assume that they know what community priorities are. Communities may have different preferences and priorities, however, and unless service providers take the time to find out, they can easily misallocate scarce resources to lower-priority services. Evaluating demand and community willingness to pay can help document and respond to the real needs and desires of communities.

In short, adequate communications among the MSP, the municipality, and existing and potential customers is crucial to effective municipal service provision. Where these communications fall short, the USAID Mission can consider programs to increase the information collected by and provided to current and potential customers.

Customer Communications and Participation

Communications with customers and customer participation can occur in a variety of ways, and different types of communications and interactions are appropriate at different times in the project identification and operations cycle.

Whatever activities are undertaken, it is important that all customer segments or potential customers segments are reached—a broad range of customers should be invited and encouraged to participate in surveys, focus groups, meetings, hearings, and other activities in order to achieve meaningful results. See the Public Participation Toolkit as well.

Opportunities for public involvement are discussed by project phase below.

- *During project identification and planning*, public input can be sought through sample surveys and focus groups. The purpose of these activities is to feed information *from* the public to government bodies, NGOs, international agencies, and others who are making decisions concerning future projects and investments. The information is used to establish priorities, gauge support for certain actions from among a range of options, and estimate willingness to pay for various projects. This information can be used to prepare capital improvement programs. Public meetings can also serve the purpose of disseminating and collecting information.

- *During project development*, the primary task is to provide information to keep the public up to date on what is being done and to solicit feedback as appropriate. Information can be disseminated via publications, resource centers or bulletin boards, websites, or other mechanisms as appropriate to the local context. To facilitate ongoing information exchange, a citizen’s advisory group can be established. In certain projects, this phase may involve participation from the community in the form of labor, supervision, or other contributions. These contributions can help foster and demonstrate a sense of ownership among the community for services.
- *During project operations or implementation*, there are opportunities to both receive and disseminate information and to seek the public’s involvement and support in service provision. Feedback on service quality can be sought via surveys, focus groups, and public meetings. Information can be disseminated via media campaigns, publications, resource centers or bulletin boards, websites, or other mechanisms as appropriate to the local context. In addition, public meetings can be held to address specific topics or issues. Public hearings are a legal form of public meeting that are generally held to satisfy legal or regulatory requirements, and may cover tariff changes and other topics. Customers may also be brought into activities to maintain or operate infrastructure.

Assessment

1. What is the MSP or municipality doing to learn about the needs and priorities of customers and/or potential customers? Is this adequate?

Methodology	Data Needs	Sources of Data
<p>Collect information on ways used within the past year to gather information from customers and potential customers.</p> <p>For each activity, assess whether or not participation was broad-based or limited to certain segments of the population or customer base. Location of the activity and income range of the participants should be taken into account where possible.</p> <p>Assess whether or not the input changed or influenced the decisions made. How was the gathered information used?</p>	<ul style="list-style-type: none"> • Number and type of surveys undertaken • Number of focus groups held • Number of community (town hall) meetings and hearings conducted • Existence of a citizen advisory group • Demographics of participants in above activities • Information about how information was used 	<ul style="list-style-type: none"> • Existing reports • Key informant interviews with local MSP staff, NGOs, and community members

2. What is the MSP or municipality doing to inform customers and/or potential customers of policies and programs?

Methodology	Data Needs	Sources of Data
<p>Collect information on ways used within the past year to disseminate information to customers and potential customers.</p> <p>For each activity, assess whether or not the activities were targeted at a broad cross-section of the population or customer base, or limited to certain segments. Location of the activity and income range of the recipients should be taken into account where possible. Assess the goals of the service provider in these activities, and whether they were met.</p>	<ul style="list-style-type: none"> • Use of media campaigns • Number and frequency of publications produced by MSP • Existence of resource or information center • Use of bulletin boards or other means to post information • Number of community meetings and hearings • Goals or targets of service provider in activities, and actual performance 	<ul style="list-style-type: none"> • Existing reports and publications • Key informant interviews

Willingness to Pay and Demand Assessments

Willingness to pay and demand assessments are conducted to evaluate community preferences and priorities for new and improved services. They help government avoid the mistake of investing in facilities and infrastructure that are not wanted or needed by the community. They also help assess the level and type of services most desired by the community. Willingness to pay assessments assign a financial value to potential infrastructure investments.

Willingness to pay and demand assessments are carried out using two primary methodologies: *revealed preference* and *stated preference*. Revealed preference techniques use observations of what people do and then extrapolate their willingness to pay based on this behavior. With stated preference techniques, people are asked directly about their preference and willingness to pay for services, generally through a survey. Despite their shortcomings (notably, the inaccuracy of respondents’ statements), stated preference methods are used most widely for conducting assessments in both developing and developed countries.

Central tasks when conducting a demand assessment include preparing the assessment tool, selecting households to study, collecting the data, and conducting the analysis. Such assessments should not be a one-time endeavor, but rather an ongoing process of engaging with current and potential customers.

Service providers should conduct willingness to pay and demand assessments prior to considering any major infrastructure investments. If demand assessments have not been conducted, the USAID Mission should consider undertaking them before committing funding for major infrastructure projects.

Assessments

1. Has the MSP or municipality conducted any willingness to pay or demand assessments?

Methodology	Data Needs	Sources of Data
Collect information on the number of willingness-to-pay or demand surveys conducted within the last few years. For each survey, assess whether or not the activities were targeted at a broad cross-section of the population or customer base, or limited to certain segments. Location and income range of the participants should be taken into account where possible.	<ul style="list-style-type: none"> • Number of demand surveys • Location, income, etc. of participants 	<ul style="list-style-type: none"> • Key informant interviews • Reports

Social and Cultural Issues and Community Education

Understanding how cultural and social issues affect service demand is crucial to devising effective interventions, both in terms of identifying neighborhood services that are in demand and in fostering demand for new services not yet identified by the community.

For example, in some societies there may be cultural predispositions against washing hands, and therefore a low demand for piped water. In this case, it may be appropriate to devise a community education program that emphasizes the health benefits of hand-washing before or at the same time as investing in water infrastructure.

Another example might be intentional or unintentional disregard for the needs of women when public bathrooms or other sanitation facilities are planned. Addressing these issues, and increasing the access of women to public bathrooms, could help improve public health in the community.

Some public education needs are less closely related to cultural factors. In many developing world cities, the local populace is unaware of the difficulty of providing municipal services on a financially sustainable basis and does not understand that without cost-recovery pricing and high levels of payment compliance, service quality will deteriorate over time. Media and other public information campaigns can be used to raise customer awareness of the challenges collectively faced by the MSP, the municipality, and the community at large, and therefore of the need for greater customer discipline in fulfilling obligations to the service provider.

Assessments

1. Are there any local cultural or social factors that inhibit demand for municipal services? How can they be overcome?

Methodology	Data Needs	Sources of Data
<p>Review secondary sources and consult local experts to ascertain the social and cultural factors that prevent the use of a given service or inhibit demand for it. Determine any culturally mandated practices relating to use of the service. Break down the customer base or user population by segment or sub-group where appropriate.</p> <p>Also consider existing social and cultural factors that increase demand for services.</p>		<ul style="list-style-type: none"> • Focus groups • Surveys • Interviews with community members, service provider staff, and local experts (e.g., NGO directors, academics) on social and cultural factors

2. To what extent are service users aware of the need to make sufficient and timely payments to service providers in order to keep receiving services?

Methodology	Data Needs	Sources of Data
<p>Review secondary sources and consult local experts to ascertain customer attitudes toward the service provider. Questions include:</p> <ul style="list-style-type: none"> • Do customers consider the service adequate? • Do customers consider the price of services fair? • Do customers think the price reflects the true cost of the service (that is, do they think the MSP is efficient <i>and</i> truthful in its cost reporting)? • If the MSP is having difficulty covering the cost of its services, do the customers know this and are they sympathetic? <p>Evaluate the extent to which attitudes are consistent across customer segments.</p> <ul style="list-style-type: none"> • Are some segments less understanding than others? Why? 		<ul style="list-style-type: none"> • Focus groups • Surveys • Interviews with community members, service provider staff, and local experts (e.g., NGO directors, academics) on social and cultural factors

Conclusions and Potential Projects

Once the assessments in the three sub-topic areas (Customer Communications and Participation, Willingness to Pay and Demand Assessments, and Social and Cultural Issues and Community Participation) are completed, and the Assessment Worksheet is filled out, the findings of the assessments can be evaluated and potential projects or interventions identified. The projects identified below could be undertaken alone or in conjunction with other projects to address deficiencies identified in other areas (for example, finance).

Customer Communications and Participation

If the municipality or MSP has not undertaken customer surveys, held focus groups, convened community meetings and hearings, or helped establish a citizens' advisory group, they may not be doing enough to learn about the needs and priorities of its customers and potential customers. Likewise, efforts to reach out to customers and potential customers—via media campaigns, publications, resource centers, bulletin boards, and community meetings and hearings—may also fall short.

If the municipality or MSP does not seem to be doing enough to learn about and inform consumers, potential projects include outreach programs to increase communications between service providers and customers. There are several forms that such an outreach program could take, including one-time meetings to discuss a particular issue or initiative that the MSP is interested in or launching; and a more comprehensive and longer-term (for example, year-long) program to increase awareness by and about the service provider, which involves a series of focus groups and meetings. The program could also help the MSP develop a comprehensive community participation and outreach plan or strategy. See the Community Participation Implementation Toolkit.

Willingness to Pay and Demand Assessments

The evaluation will help the USAID Mission understand whether or not the MSP has undertaken a willingness to pay and/or demand assessment. These assessments—whether formal or informal—can help MSPs establish infrastructure priorities in the community and make sure investments are aligned with the willingness and ability to pay of the residents.

If the MSP has not conducted such an assessment, and the USAID Mission wishes to identify infrastructure investment projects in the short term, the USAID Mission may wish to conduct a brief demand assessment itself immediately (see the Willingness to Pay Assessment Implementation Toolkit). Infrastructure to respond to identified customer needs and demands, subject to the cost constraints determined in willingness to pay analysis, could then be constructed.

Alternately, the USAID Mission could hire a specialist to conduct a fuller demand assessment. Whatever route is chosen, the critical thing is to make sure that the infrastructure investments planned—to be built with USAID or other funding—meet the real needs and demands of the communities served.

Social and Cultural Issues and Community Education

This assessment helps the USAID Mission understand the social and cultural issues affecting infrastructure demands, as well as the level of commitment among the community to timely service payments.

For each negative social or cultural factor identified, consider a project involving public education measures, demonstration projects, or other remedial measures that can facilitate the use of the service by the local population, thereby increasing demand. Possibilities include an education campaign to increase demand for specific municipal services and to improve awareness of links between use of municipal services and other benefits (including health and economic development).

If customers or service users do not recognize the need to make timely and sufficient payments to service providers, there are several potential interventions. These include a media campaign, public meetings, and other activities to educate customers about the operations and expenses of the MSP.

Assessment Worksheets

The assessment worksheets for the technical assessments are located in the annex.

Sample Assessments

A sample assessment for Managing Municipal Service Delivery is located in the annex.

Toolkits

Public Participation Toolkit

Public participation can help increase the sustainability of municipal services, by:

- Increasing the amount and quality of information available to municipalities and service providers on customer preferences and willingness to pay
- Increasing understanding among customers of the costs and challenges faced by municipalities and service providers
- Involving customers in the provision of services, thereby creating a sense of ownership and avoiding apathy

There are many forms of public participation, depending on the objectives of the municipality and service provider, and what activities and programs are planned or ongoing. Participation can and ideally should occur during many phases of projects and programming, including project identification and planning, project development, and project or program operations.

Implementation Guidelines

- Conduct analysis and planning for participation activities
 - With municipalities and municipal service providers, determine objectives of public participation activities. Possibilities include:
 - Collect information from citizens
 - Disseminate information to citizens
 - Combination of collecting and disseminating information
 - Analyze commitment of municipalities and service providers to public participation. Do they see the need for increased public feedback and input? Do they realize the benefits if the public is more involved? The success of any public participation program will depend on this commitment.
 - Analyze phase of programming and project development. What are the areas where public input is most needed? What are the areas where public input is likely to have the most impact on municipal priorities and activities? What phase is project planning in?
- Analyze target audience or respondents – whom do you want to get information from?
 - People from specific locations or neighborhoods within city
 - Specific income groups
 - Women, men, or a balance of genders
 - Age or occupation cohorts
 - Other targeted groups
- Analyze best ways to reach this audience
 - Locations or neighborhoods
 - Activities that they regularly undertake (shopping at markets)
 - Requirements for participation in information gathering activities
 - With municipality or service provider, prepare a public participation plan
- Implement activities:
 - Gathering information:
 - Focus groups
 - Surveys
 - Public meetings
 - Public hearings

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- Disseminating information:
 - Public information campaign
 - Public meetings
 - Public hearings
- Combination
 - Public meetings
 - Public hearings
 - Resource or citizen information centers
 - Citizens advisory groups

Resources**Reports**

- Guidelines for Public Education Campaigns, Tariff Reform and Communal Services Enterprise Restructuring Project, Ukraine
- How to Establish a Citizen Assistance Center in Your Community, Serbia Local Government Reform Program
- How to Improve Communications with Your Community, Serbia Local Government Reform Program

Weblinks

- International Association for Public Participation (<http://www.iap2.org/>)
- Community Development Society (<http://www.comm-dev.org/>)
- Toolkit Citizen Participation (<http://www.toolkitparticipation.nl/>)

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Spatial Analysis Toolkit

Spatial analysis techniques are used to record and analyze spatial data frequently used in municipal service delivery efforts. For example, they can be used to map the extent of water and sanitation service coverage and identify areas of the city that are not currently being served. GIS, remote sensing, and global positioning system (GPS) technologies can also be used to analyze land use, urban development patterns, and other items commonly of interest to municipalities and service providers. These systems can be very sophisticated computer-based applications or more simple paper-map-based systems. However the service maps are produced, spatial analysis is a powerful way of analyzing service delivery levels and deficiencies.

Implementation Guidelines

- Determine services and geographic areas (center city, specific neighborhoods, or slums) that you are interested in
- Obtain and analyze existing maps used by municipality and other sources
 - Do they cover the services you are interested in?
 - Do they cover the geographic areas you are interested in?
 - How are they currently used? How are they updated?
- Obtain other available maps and photos, including satellite or aerial photos, if possible on a large scale
- Ask municipal officials or service providers to indicate or draw on map where existing services are located (including sanitary sewers, wastewater treatment plants, pipes, water spouts, electricity generating stations, and primary electrical wires)
- Repeat for planned services
- Conduct site reconnaissance to verify findings
- If desired and feasible, digitize findings (hire local staff with spatial analysis expertise)
- Analyze findings, discuss possible projects with municipality, service providers, and the public
- Identify projects to remedy identified gaps and deficiencies

Resources

Reports

- Poverty Alleviation through Geographic Targeting: How Much Does Disaggregation Help? (http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2004/10/20/000160016_20041020131556/Rendered/PDF/wps3419.pdf)
- Utility Management and Record Keeping for Infrastructure (http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/1993/11/01/000009265_3970716142617/Rendered/PDF/multi_page.pdf)
- Creating a Poverty Map for Azerbaijan (http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2005/12/08/000016406_20051208164918/Rendered/PDF/wps3793.pdf)

Weblinks

- Website of the United States Geological Survey on GIS (http://erg.usgs.gov/isb/pubs/gis_poster/#what)
- Ukrainian Land and Resource Management Center (<http://www.ulrnc.org.ua/>)
- The GIS Edge in Post-Conflict Rebuilding: Case Studies in the Application of Geographic Information Systems (<http://www.usip.org/events/pre2002/gis.html#audioppt>)

Willingness to Pay Assessment Toolkit

Willingness to pay assessments are used to calibrate potential public investments with what customers are able and willing to pay for these investments. They help project planners understand the priorities of community members, so that infrastructure can be provided appropriately. Willingness to pay assessments should be undertaken any time a major infrastructure investment is contemplated.

Implementation Guidelines

Conducting a willingness to pay assessment can be complicated and time-consuming and may require the services of a specialist. If the USAID Mission wishes to conduct a basic willingness to pay survey, the following steps can be followed:

- Define the target population based on current and/or potential users of a given municipal service
- Define the survey sample, which should be representative of targeted user groups; geographic locations (specific slums or neighborhoods) can be used as a proxy for user group segments
- Prepare a survey instrument that briefly defines selected scenario(s) and description(s) of the service(s) to be offered
 - Scenarios must be culturally sensitive
 - Scenarios should be interesting enough to hold attention of respondent
 - Surveys can cover multiple services (water, waste collection, electricity, etc.)
- Ask respondents questions about how much they currently pay for selected services
- Ask respondents how much they *would* be willing to pay for a different (usually, improved) service level or a new service, based on the scenarios defined above
- Record and analyze answers

The conclusions of the survey should be truth-checked through public meetings, hearings, and other methods of communicating with customers in order to devise the most appropriate intervention for new or improved services in a given location.

Resources

Reports

- Modeling Ability to Pay for Communal Services, Ukraine
- Willingness to Pay for Air Quality Improvements in Sophia, Bulgaria (<http://info.worldbank.org/etools/docs/library/36661/willingness.pdf>)
- The Challenge of Demand Assessment in Pro-Poor Infrastructure Projects, by Dale Whittington (<http://www.ppiaf.org/conference/docs/Papers/Whittington%20Demand%20Assessment%20Oct23-2002.pdf>)
- Influence of tolling on transport demand (http://rru.worldbank.org/Documents/Toolkits/Highways/3_public/33/3335.htm)
- Demand for Public Safety in Brazil (http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2000/02/24/000094946_99031911113163/Rendered/PDF/multi_page.pdf)

Weblinks

- Willingness to Pay Supercourse (<http://www.pitt.edu/~super1/lecture/lec11871/>)

Service Pricing Toolkit

Pricing municipal services correctly is critical for the financial viability of any MSP. As described in under the discussion on Financial Aspects, there are often competing objectives at work in setting prices. On the one hand, consistent with the “user pays” principle, the MSP seeks to recover as much of the cost of delivering the service as possible from end users. On the other hand, service prices must be affordable to most customers. At its best, therefore, price setting is an iterative exercise in which different combinations and levels of costs are evaluated against the ability and willingness to pay of customers.

The costs taken into account in calculating a tariff generally include operations costs and investment costs. The MSP should set as an objective the establishment of a tariff that recovers *at least* the costs of operation. Investment costs should also be included in user charges, where possible. In many low-income countries, however, the inclusion of investment costs would make the tariff unaffordable to a large percentage of customers, and is therefore infeasible. Other sources of financing are therefore often sought for capital investment.

The calculation of costs follows on a series of assumptions that have guided the development of technical options. If a water supply system is leaking heavily and using energy inefficiently, it does not make sense to simply accept last year’s operations costs as a baseline for this year’s tariff calculation. Similarly, projected investment costs will depend on the extent to which the system needs to be extended or upgraded. It is important to link the pricing exercise backwards to an analysis of technical options.

Equally important are the forward links to stakeholder consultation and buy-in. Customers should have a say in the type of service they get and how much they will pay for services. Once pricing options are developed, they can be presented and discussed in public meetings and focus groups in order to test their fit with customer preferences and priorities.

This technical toolkit for service pricing identifies methodologies, case studies, and other resources for tariff setting for municipal services.

Methodological Overview

The methodology for setting prices for municipal services is set out in varying degrees in national and local frameworks. Sometimes the step-by-step methodology is defined in national or municipal decrees; other times only general laws on public services will affect price-setting for municipal services.

The following represents a generalized method for setting prices for municipal services. Its application in a particular town or city will depend on the regulatory framework in effect. Where the regulatory framework does not allow the establishment of a cost-recovery tariff, or where the steps for doing so are not identified, it may be worthwhile to modify or improve the existing laws or regulations.

The following description of the main steps involved in setting a new tariff assumes that the infrastructure service provider is leading the process.

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Step 1. Calculate existing cost of service. Calculate the total cost of delivering the municipal service in question on a yearly basis. Use figures from last year or this year, if nearly complete. Break down service costs into operations costs and investment costs.

Step 2. Develop alternative service delivery scenarios. After completion of a technical assessment (see related toolkit), identify several (usually 2-4) different scenarios for future service delivery. One scenario should be “do nothing.” Other scenarios should address, some more aggressively than others, current technical deficiencies and the priorities of customers.

Step 3. Calculate the cost of the different scenarios. Break the costs down into operations and investment components.

Step 4. Calculate the tariff associated with each scenario. Assume for the first round that the tariff will cover all costs, including the costs of investment. Take into account other factors, such as payment of debt to creditors from previous periods and allowances for customers’ bad debts. Consider using special types of tariffs, like block tariffs, two-tier, tariffs and seasonal tariffs. Express tariffs as a price per unit of service delivered.

Step 5. Compare charges based on calculated tariffs to customer willingness to pay. Assume that at least four-fifths of the population should be able to afford the charges for basic levels of service consumption. Consider reducing service levels or investment costs to make the tariff affordable. Where necessary, use subsidies, block tariffs or other measures to make the tariff affordable to the poorest 20% of the population.

Step 6. Recalculate tariffs as required. Repeat this process until tariffs for at least one scenario are affordable to at least 80% of the population.

Step 7. Present and discuss the service/cost scenarios with stakeholders. Present the scenarios as options that package together the different service levels and different costs. Presentations should stress that higher levels of service cannot be attained without additional payments. Gather feedback from stakeholders through public meetings, focus groups, or surveys on the different scenarios.

Step 8. Select the preferred scenario. The criteria for selection should include the feedback from customers regarding service improvements, the technical needs of the system for sustainable service delivery, and the affordability of user charges.

Step 9. Build public support for the preferred scenario. Publicize and build support for the preferred scenario through media campaigns, public meetings, and other methods.

Step 10. Present the preferred scenario to the tariff-setting body and secure a tariff change. Prepare a strong justification for the proposed tariff change and make presentations to the tariff-setting body. Follow up with council members, mayors, and/or other relevant officials to secure a tariff change.

Resources

Guidelines and Other Reports

Managing Municipal Service Delivery: Toolkits

- PADCO/USAID, “Tariff Setting Guidelines for Piped Water and Wastewater Services,” from the Tariff Setting and Communal Services Enterprise Restructuring in Ukraine Project, 2003 (<http://tariffreform.padco.kiev.ua>)
- Walker, Ian et al., “Pricing, Subsidies and the Poor: Demand for Improved Water Services in Central America” ([http://iris37.worldbank.org/domdoc/PRD/Other/PRDDContainer.nsf/All+Documents/85256D2400766CC785257029006502C8/\\$File/279.pdf](http://iris37.worldbank.org/domdoc/PRD/Other/PRDDContainer.nsf/All+Documents/85256D2400766CC785257029006502C8/$File/279.pdf))
- World Bank/PPIAF, “Water Tariffs and Subsidies in South Asia: Understanding the Basics,” 2002 (http://www.wsp.org/publications/Water%20Tariff%201_press_27th%20Feb.pdf)

Case Studies

- Urban Institute, “Russia’s Winter Woes: Tariff Setting for Local Utilities in a Transition Economy,” 2003 (<http://www.urban.org/publications/410830.html>)
- World Bank, “Easing Tariff Increases: Financing the transition to cost-covering water tariffs in Guinea” (<http://rru.worldbank.org/Documents/Other/08ch3.pdf>)
- Mathur, Om Prakash, “Cost Recovery in Urban Infrastructure Provision” (a case study of four Indian cities), 2005 (<http://siteresources.worldbank.org/INTMF/Resources/339747-1105651852282/Mathur.pdf>)
- PRC Ministry of Construction/ADB, “Improving Urban Wastewater Tariffs and Management: People’s Republic of China,” 2004 (<http://www.adb.org/Projects/Wastewater-Tariffs/brochure.asp>)

Weblinks

- Various materials on tariff setting for water/wastewater and district heating utilities (<http://tariffreform.padco.kiev.ua>)
- Water and sanitation service pricing resources (<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTWSS/0,,contentMDK:20595292~menuPK:557581~pagePK:148956~piPK:216618~theSitePK:337302,00.html>)

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Technical Assessment Toolkit

A technical assessment is the first step in evaluating the quality of service provided by a municipal services system. The goal of the technical assessment is to evaluate the condition of the physical works, the efficiency and effectiveness of their operation, and the quality and coverage of services provided to customers.

The conclusions of technical assessments are used to identify capital improvement projects, maintenance programs, and/or other operational interventions designed to improve service quality or coverage.

Methodological Overview

All technical assessments involve an evaluation of the condition of the physical assets and the deficiencies associated with them. This means preparing or checking an inventory of the assets, evaluating the conditions of different assets, and identifying the impacts on service quality of any assets in poor condition.

Technical assessments also typically include a review of the systems and procedures for delivering the service, such as operations schedules, maintenance programs, and minor repair procedures.

More detailed aspects of technical assessments vary according to the type of municipal service. For networked services such as water supply, wastewater, district heating, and storm water drainage, the issue of losses is relevant. (For a discussion of losses, see the Technical Aspects, Operations and Maintenance page.) Technical assessments will determine the types and quantities of losses in the system and can be used to analyze their impact on service cost and/or quality.

For services that use energy for regular operations, such as water supply, wastewater, and district heating, energy audits are useful tools that can contribute to technical assessments. Energy audits analyze the types and levels of energy consumption in the system and isolate by component and inordinately high levels of energy use.

Resources

Guidelines and Other Reports

- PADCO/USAID, “Trainer’s Guide: Course on Technical and Organizational Assessment for Water/Wastewater Enterprises,” prepared under the Tariff Reform and Communal Services Enterprise Restructuring in Ukraine Project, 2003. Includes methodological guidelines on conducting water balance, water loss analysis and energy audits. Available from CDIE.
- PADCO/USAID, “Trainer’s Guide: Course on Technical and Organizational Assessment for District Heating Enterprises,” prepared under the Tariff Reform and Communal Services Enterprise Restructuring in Ukraine Project, 2003. Includes methodological guidelines on conducting heat loss analysis and energy audits. Available from CDIE.

Managing Municipal Service Delivery: Toolkits

Weblinks

- Various materials on technical assessments for water/wastewater and district heating utilities (<http://tariffreform.padco.kiev.ua>)
- EPANET, a PC-based program developed by the U.S. Environmental Protection Agency that performs extended period simulation of hydraulic and water-quality behavior within pressurized pipe networks (<http://www.epa.gov/ORD/NRMRL/wswrd/epanet.html>)

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Annex 1

Assessment Worksheets

**Managing Municipal Service Delivery: Technical Aspects --
Coverage and Service Levels Assessment Worksheet**

1. What are the technical methods for delivering the service? What are the service levels for different types of users?
2. What percentage of the population has access to services? In other words, what is the service coverage?

This section of the worksheet addresses both questions above. Fill out the tables where data are available.

Water supply

Source of Water	% total potable water
Surface water	
Ground water	

Type of water treatment	
None	
Filtration	
Chemical	
Other	

How does the overall supply of treated water compare with local demand?

Does the treated water generally comply with water quality standards? If not, what is the nature of the non-compliance?

Distribution system	% local population
Piped to dwelling unit	
Piped to courtyard	
Piped to standpipe	
Bottled water by truck	
None (individual wells)	
Other	
Total	

Distribution system	
Hours service/day	
Water pressure*	
Consumption level**	

*low, normal, high

**liters per capita per day

Other comments on water supply system, coverage and service level

Sanitation/wastewater

Type of service	% local population
Piped collection	
Septic tank	
Latrine	
Other	
None	
Total	

Treatment of collected wastewater	
Filtration	
Aerobic	
Chemical	
Other	
None	

Which neighborhoods are unserved or underserved?

How does the capacity of the treatment plant(s) compare with the volume of wastewater received?

How much wastewater is dumped untreated into the natural environment?

Solid waste management

Collection	% pop. served
House-to-house	
From area dumpsters	
Other method	
No regular collection	
Total	

Disposal	% total garbage
Recycled	
Sanitary landfill	
Uncontrolled dumpsite	

Avg. # pick-ups per week	
--------------------------	--

Which neighborhoods are unserved or underserved? Locate on a map.

District heating

Production	% total heat
Gas boilers	
Coal boilers	
Other	
Total	

Distribution	% population
Piped heat	
No service	
Total	

Avg. ambient air temp. in apartments	
Hours service/day	

Other comments on district heating service level and coverage

Roads/storm water drainage

Road surface materials	% total length
Asphalt	
Concrete	
Gravel	
Dirt	
Other	
Total	

Note: Break down by surface materials as required.

Road surface condition	% total length
Good	
Fair	
Poor	

Storm water drainage	% of town/city area
Separate	
Combined	
None	

Which neighborhoods have inadequate storm water drainage?

3. What are the social, environmental and/or economic costs of any shortcomings in coverage or service levels?

Environmental costs

Pollution of water aquifer from on-plot sanitation or seepage from solid waste dumpsites? Type and degree of non-compliance with water quality standards?

Excessive wastewater pollution of local surface water bodies? Which ones? Type and degree of pollution?

What is the impact of water pollution on local flora and fauna?

Is there much erosion from storm water run-off? Comment on location and severity.

Other environmental costs of deficient municipal services

Health costs

What is the incidence of water-borne diseases? What share of observed disease can be attributed to pollution of water supply (piped, surface water or aquifer)?

How does low temperature of municipally heated apartments, schools and health facilities affect the health of local residents?

Economic costs

How much time do people spend fetching water in areas where the MSP does not deliver sufficient quantities?

How much do households spend for trucked water or other non-piped sources?

How long does it take for people to reach employment/public service areas? What part of the delay is attributable to inadequate road capacity or condition?

Other environmental costs of deficient municipal services

**Managing Municipal Service Delivery: Technical Aspects --
Operations and Maintenance Assessment Worksheet**

1. What is the condition of the physical assets used to deliver the service?

Type of asset*	Average age	Condition**	Avg. # breakdowns/mo.

*Define by component depending on type of service under assessment (e.g., water treatment plant, transmission line, distribution network; or collection network and wastewater treatment plant; arterial, distributor and local roads; solid waste collection vehicle fleet and sanitary landfill; etc.)

**Good, fair, poor

Other comments on asset condition

2. What types of maintenance activities are carried out?

3. What are the levels of losses in the system?

Sources of losses in piped networks

Other types of losses

Unaccounted-for water (as % of total water produced) _____

$UFW = (L + S + U)/P$

where

- UFW = Unaccounted-for water
- L = Lost water (leakage, etc.)
- S = Stolen water
- U = Unbilled water
- P = Total water production

Use of meters in piped networks

4. How energy efficient is the system?

What is the specific energy consumption of the system?

(Total energy consumed in one year/total units of services delivered in same year)

What segments or components of the system are the least energy-efficient and why?

**Managing Municipal Service Delivery: Financial Aspects --
Service Pricing Assessment Worksheet**

1. Are services being delivered on a cost recovery basis?

Fill out the tables where data are available. Using the tables and/or secondary information, answer the questions.

	Unit	This year (partial)	Last year	Two years ago
Total revenues				
Total expenditures				
Revenues/expenditures (%)				

Do total revenues cover total costs? If not, what is the magnitude of the shortfall? How is the financial gap filled?

	Unit	This year (partial)	Last year	Two years ago
Total user charges				
Total O&M expenditures				
User charges/O&M expenditures				

Do user charges cover O&M costs? If not, what is the magnitude of the shortfall? How is the financial gap filled?

2. Are services affordable to customers?

Fill out the tables where data are available. Using the tables and/or secondary information, answer the questions.

Type of user	Unit	User charge per unit consumed
Domestic		
Commercial		
Industrial		
Institutional		
Government		
Other		

Population segment	Avg HH income	Avg units consumed	Avg charges	Charges / HH Income (%)
Low-income				
Middle-income				
High-income				

Normative developing-country affordability levels for municipal services:

Service	Charges / HH Income (%)
Water supply	2-4%
Sewerage	1-3%
Sanitation	<1%
Electrical power	3-5%
Solid waste management	1-2%
Total services	7-10%

Are user charges affordable to middle-income groups?

Are user charges affordable to low-income groups?

Are user charges affordable to other (non-domestic) user groups?

3. Does the tariff structure equitably allocate costs to customers?

Among user groups (compare charge to different users in table under #2 above):

By level of service consumption (compare tariffs for low levels of consumption to those for high levels):

Among existing customers vs. new customers (compare connection fees to cost of extending network):

**Managing Municipal Service Delivery: Financial Aspects --
Sources of Finance Assessment Worksheet**

1. What sources of finance are currently being used to cover the cost of service delivery?

Source of revenue	Revenue last yr*	% total revenue	Ranking**
User charges			
Municipal transfer			
Other government transfer			
Loans			
Bonds			
Investment			
Other			
Total		100	--

*in local currency thousands, where available

**by amount

2. What additional sources of finance could be mobilized to pay debts or improve/expand service?

**Managing Municipal Service Delivery: Financial Aspects --
Payment Collection and Indebtedness Assessment Worksheet**

Payment Collection

1. To what extent are current tariff charges being collected from customers?

	This yr (partial)	Last year	2 years ago
Tariff collection rate*			
Domestic			
Commercial			
Industrial			
Institutional			
Government			
Other			
Total			

*Tariff charges collected / tariff charges levied

What are the reasons for any low payment collection rates observed?

2. Does the MSP have substantial debts from previous financial periods?

Total back debts _____

Revenue last year _____

Total debt/annual revenue _____

Does the MSP have many bad debts and are they written off in a timely fashion?

What efforts are being made to collect back debts that cannot be written off?

3. To what extent does the collection entity facilitate payment by customers?

Payment modalities

Number of payment centers, average distance to payment centers, coverage of service area

Customer outreach activities: what type, how frequent, effectiveness?

**Managing Municipal Service Delivery:
Legal and Regulatory Framework and Institutional Issues --
Institutional Framework for Service Delivery Assessment Worksheet**

1. What is the relationship between the municipality and higher level governments? How decentralized or local is service provision?

Describe the relationship between the municipality and higher level governments.

How empowered is local government to improve service delivery?

2. How are services provided (MSP type)? What is the legal and regulatory framework within which they operate? How empowered or constrained are they?

		Check Box
What is the MSP type?	Government agency	
	Private company	
	Quasi-public agency	

What is history of relationship? Are there plans to change?

To what extent does the service have control over finances, organization and operations?

	Yes	No
Can MSP set tariff pricing for its services?		
Can MSP make its own hiring and firing decisions?		
Can it add staff or alter organization chart?		
Can MSP establish salaries for its employees?		
Does MSP set financial management targets itself?		

Do the MSPs responsibilities and the authority that it has seem to be in line? How constrained is it in management and operations? Does it have too little government oversight?

**Managing Municipal Service Delivery:
 Legal and Regulatory Framework and Institutional Issues --
 Service Provider Organization Assessment Worksheet**

1. Is the MSP organized effectively?

	Yes	No
Does the MSP have a clear management or organization chart, which lays out who reports to whom?		
Are lines of responsibility clear and well documented?		
Do the various parts of the organization communicate with each other effectively?		
Do employees understand their daily or primary duties?		
Are they sufficiently monitored in their activities?		
Are employees held accountable if service standards are not met?		

2. How effectively is the MSP conducting performance monitoring and strategic planning?

	Yes	No
Does the MSP have an ongoing performance monitoring system in place?		
Does the MSP have a business or strategic plan in place?		
Does the MSP have an emergency plan in place?		
Does it conduct drills to practice emergency procedures?		

How effectively does the MSP seem to be organized, and how effectively is it conducting planning and performance management activities?

**Managing Municipal Service Delivery:
Legal and Regulatory Framework and Institutional Issues --
Human Resources and Capacity Assessment Worksheet**

1. Does the MSP have adequate staff to accomplish its tasks effectively?

	Yes	No
Does the MSP have a human resources plan or manual?		
Does the MSP have a staff person who deals with human resources?		
Are staffing levels perceived to be adequate?		
Can staff accomplish day to day operations adequately?		
Can staff respond in a timely manner to problems?		

2. Does staff at the MSP have the technical skills needed to do their jobs?

	Yes	No
Does the MSP have staff which is able to prepare annual and 5 year budgets?		
Do they do so?		
Does the MSP have staff which is able to prepare projections of service demand?		
Do they do so?		
Does the MSP have staff skilled in the use of Geographic Information Systems or other management information systems?		
Are they using other systems? (Describe below.)		
Does the MSP have staff which holds degrees or certifications relevant to their positions and operations of the MSP?		

3. Does the MSP have an effective human resources or training program for its staff?

	Yes	No
Does the MSP conduct regular training of its employees?		
Format of training:		
Does the MSP require that its employees receive training on an ongoing basis?		
Does it provide incentives for staff that receive training?		
Does the MSP require its staff to have degrees or certifications in relevant subject areas?		
If so, does it provide training or assistance in receiving these qualifications?		

Does the MSP have the staff and skills base needed to effectively carry out its operations? Does it have an effective human resources development program in place?

**Managing Municipal Service Delivery: Community Participation --
Customer Communications and Participation Assessment Worksheet**

1. What is the MSP or relevant government agency doing to learn about the needs and priorities of customers and/or potential customers? Is this adequate?

	No.	Location(s)	Diverse income groups?
Surveys undertaken			
Focus groups held			
Community meetings and hearings			
Citizens advisory groups			

Does the MSP or government appear to be actively seeking information about customers? Are diverse groups of people being reached out to? If not, why not?

How is the information gathered used? Did it change decisions by service provider?

2. What is the MSP or relevant government agency doing to inform customers and/or potential customers of policies and programs? Is this adequate?

	No.	Location(s)	Diverse income groups?
Media campaigns			
Publications produced by MSP			
Resource center(s)			
Bulletin boards			
Community meetings and hearings			

Does the MSP or government appear to be actively seeking to disseminate information to customers? Are diverse groups of people being reached? If not, why not?

Did the MSP set goals for these activities? Were they met?

**Managing Municipal Service Delivery: Community Participation --
Willingness to Pay & Demand Assessment Worksheet**

1. Has the MSP or government conducted any willingness to pay or demand assessments for services within the last few years?

	No.	Location(s)	Diverse income groups?
Demand Surveys			
-- last one year			
-- last two years			
-- last five years			

Social and Cultural Issues and Community Education

1. Are there any cultural or social factors that inhibit demand for municipal services? Which services?

Are there any cultural or social factors that increase demand for municipal services? Which services?

To what extent are service users aware of the need to make sufficient and timely payments to MSPs in order to keep receiving services?

**Managing Municipal Service Delivery: Community Participation --
Social and Cultural Issues and Community Education Assessment Worksheet**

1. Are there any cultural or social factors that inhibit demand for municipal services? Which services?

Are there any cultural or social factors that increase demand for municipal services? Which services?

To what extent are service users aware of the need to make sufficient and timely payments to MSPs in order to keep receiving services?

Annex 2

Sample Assessment

**Technical Assessment
Worksheet**

Municipality: Xiliu, Liaoning Province, China

Note: Complete only those sections relevant to the service under assessment.

Coverage and Service Levels

1. What are the technical methods for delivering the service? What are the service levels for different types of users?
2. What percentage of the population has access to services? In other words, what is the service coverage?

This section of the worksheet addresses both questions above. Fill out the tables where data are available.

Water supply

Source of Water	% total potable water	Type of water treatment	
Surface water	0	None	
Ground water	100	Filtration	
		Chemical	yes
		Other	

How does the overall supply of treated water compare with local demand?

Officials report that they believe water supply in the town is sufficient to meet their long term goals.

The town exports water to nearby Haicheng city, without reimbursement.

Does the treated water generally comply with water quality standards? If not, what is the nature of the non-compliance?

Yes, the water generally complies with national standards, although there is limited testing and a good portion of the population which doesn't have access to piped water (see below)

Distribution system	% local population	Distribution system	
Piped to dwelling unit	35	Hours service/day	24
Piped to courtyard	15	Water pressure*	normal
Piped to standpipe	40	Consumption level**	NA
Bottled water by truck	0	*low, normal, high	
None (individual wells)	10	**liters per capita per day	
Other	0		
Total	100		

Other comments on water supply system, coverage and service level

The town may combine treatment with nearby Anshan for purposes of economy of scale.

Sanitation/wastewater

Type of service	% local population	Treatment of collected wastewater	
Piped collection	15	Filtration	partial
Septic tank	20	Aerobic	no
Latrine	15	Chemical	no
Other	0	Other	no

How does the capacity of the treatment plant(s) compare with the volume of wastewater received?

There is no treatment of wastewater

How much wastewater is dumped untreated into the natural environment?

All of it. There are no meters, so it's difficult to know how much.

Solid waste management

Collection	% pop. served
House-to-house	15
From area dumpsters	0
Piles in designated spots	30
No regular collection	55
Total	100

Disposal	% total garbage
Recycled	20
Sanitary landfill	
Uncontrolled dumpsite	80

Avg. # pick-ups per week	2
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Which neighborhoods are unserved or underserved? Locate on a map.

The town has one open pit, unlined and unfenced. Most of the rural and collective areas are underserved.

District heating

Production	% total heat
Gas boilers	0
Coal boilers	100
Other	0
Total	100

Distribution	% population
Piped heat	15
No service	0
Total	85

Avg. ambient air temp. in apartments	20 degrees centigrade
Hours service/day	24

Other comments on district heating service level and coverage

Where heating is provided, service is adequate. However, most areas are unserved.

Collective and rural areas provide their own heat through individual coal stoves and indoor air quality is quite poor.

Roads/storm water drainage

Road surface materials	% total length
Asphalt	10
Concrete	0
Gravel	50
Dirt	40
Other	0
Total	100

Note: Break down by surface materials as required.

Road surface condition	% total length
Good	10
Fair	60
Poor	40

Storm water drainage	% of town/city area
Separate	10
Combined	0
None	90

Which neighborhoods have inadequate storm water drainage?

All of the collective and rural areas. Only areas with paved roads have storm water drainage.

3. What are the social, environmental and/or economic costs of any shortcomings in coverage or service levels?

Environmental costs

Pollution of water aquifer from on-plot sanitation or seepage from solid waste dumpsites? Type and degree of non-compliance with water quality standards?

Not available-- there is just one dumpsite. No observed seepage into ground water, but it is likely to be happening.

Excessive wastewater pollution of local surface water bodies? Which ones? Type and degree of pollution?

The river is getting polluted from wastewater discharge, and is steadily degrading in quality.

What is the impact of water pollution on local flora and fauna?

Fish are dying in the river.

Is there much erosion from storm water run-off? Comment on location and severity.

There is some erosion in the collective areas.

Other environmental costs of deficient municipal services

Health costs

What is the incidence of water-borne diseases? What share of observed disease can be attributed to pollution of water supply (piped, surface water or aquifer)?

Residents boil all water (including piped), so there is low incidence of diarrhea. It is harder to determine long-term effects of poor water quality, but could include diseases including cancer etc.

How does low temperature of municipally heated apartments, schools and health facilities affect the health of local residents?

They use small stoves, so temperatures are reasonable and health impacts few.

Economic costs

How much time do people spend fetching water in areas where the MSP does not deliver sufficient quantities?
In town, most people have access to at least a stand-pipe. They spend 30 minutes to an hour every day gathering water.

How much do households spend for trucked water or other non-piped sources?
NA. Most without piped water get it from stand pipes and boil.

How long does it take for people to reach employment/public service areas? What part of the delay is attributable to inadequate road capacity or condition?
N/A. Roads are fine. Transit services could be improved.

Other environmental costs of deficient municipal services

Operations and Maintenance

1. What is the condition of the physical assets used to deliver the service?

Type of asset*	Average age	Condition**	Avg. # breakdowns/mo.
Water pumping stations (4)	10 years	Fair	1
Pipes	10 years	Fair	

*Define by component depending on type of service under assessment (e.g., water treatment plant, transmission line, distribution network; or collection network and wastewater treatment plant; arterial, distributor and local roads; solid waste collection vehicle fleet and sanitary landfill; etc.)

**Good, fair, poor

Other comments on asset condition

2. What types of maintenance activities are carried out?

Routine checks of the pumping stations are conducted.

Other types of losses

Unaccounted-for water (as % of total water produced) 20 (estimate based on interviews with officials)

$$UFW = (L + S + U)/P$$

where

UFW = Unaccounted-for water
L = Lost water (leakage, etc.)
S = Stolen water
U = Unbilled water
P = Total water production

Use of meters in piped networks

Most water connections are not metered. There is no incentive to conserve water.

4. How energy efficient is the system?

What is the specific energy consumption of the system?

(Total energy consumed in one year/total units of services delivered in same year)

NA

What segments or components of the system are the least energy-efficient and why?

NA

Capital Investment Planning

1. What types of capital investments are needed to improve coverage and/or service levels?
(refer to "Coverage and Service Levels" above)

Deficiency	Objective	Project	Cost
No solid waste treatment	Treat solid waste	Construct sanitary landfill	18 M RMB to construct, .54 M RMB per year to operate
No wastewater treatment	Treat wastewater	Construct treatment plant	30 M RMB to construct, 4 M RMB per year to operate
No piped network for WW	Pipe WW	Construct WW pipes	28 M RMB to construct, .4 M to maintain
No piped network for water	Pipe water	Construct pipes	62 M RMB to construct, 1.2 M to maintain

2. What types of capital investments are needed to reduce losses and/or improve energy efficiency?
(refer to section on energy efficiency in "Operation and Maintenance" above)

3. What capital investment projects have been identified, prepared and/or implemented by the service providers in recent years? What sources of financing are used for capital improvements?

Capital project	Completion date	Cost	Source of financing

**Financial Aspects Assessment
Worksheet**

Municipality: Xiliu, Liaoning Province, China

Service Pricing

1. Are services being delivered on a cost recovery basis?

Fill out the tables where data are available. Using the tables and/or secondary information, answer the questions.

FOR WATER/WASTEWATER	Unit	This year (partial)	Last year	Two years ago
Total revenues	RMB million		3.6	
Total expenditures	RMB million		3.6	
Revenues/expenditures (%)			100%	

8 RMB = US\$ 1

Do total revenues cover total costs? If not, what is the magnitude of the shortfall? How is the financial gap filled?

Yes, revenues cover costs. But user charges are only about half of total revenues. The rest comes from
fiscal transfers from higher levels of government.

	Unit	This year (partial)	Last year	Two years ago
Total user charges	RMB million		2.1	
Total O&M expenditures	RMB million		3.1	
User charges/O&M expenditures			67%	

Do user charges cover O&M costs? If not, what is the magnitude of the shortfall? How is the financial gap filled?

No, user costs don't cover O&M. The shortfall is made up by government through subsidy transfers.

2. Are services affordable to customers?

Fill out the tables where data are available. Using the tables and/or secondary information, answer the questions.

Type of user	Unit	User charge per unit consumed
Domestic	RMB/m3	1.05
Commercial	RMB/m3	1.44
Industrial	RMB/m3	2.45
Institutional	RMB/m3	1.22
Government	RMB/m3	1.22
Other		--

Population segment	Avg monthly income RMB	Avg units consumed (m3/mo.)	Avg charges/mo.	Charges / HH Income (%)
Low-income	600	9.67	10.15	0.02
Middle-income	2200	13.49	14.16	0.01
High-income	5,000	17.75	18.64	0.00

Normative developing-country affordability levels for municipal services:

Service	Charges / HH Income (%)
Water supply	2-4%
Sewerage	1-3%
Sanitation	<1%
Electrical power	3-5%
Solid waste management	1-2%
Total services	7-10%

Are user charges affordable to middle-income groups?

Charges are affordable to all income groups. Middle-income and high-income groups can afford higher charges.

Are user charges affordable to low-income groups?

Yes

Are user charges affordable to other (non-domestic) user groups?

Yes

3. Does the tariff structure equitably allocate costs to customers?

Among user groups (compare charge to different users in table under #2 above):

Industrial users pay a disproportionately high share of costs. That said, the ratio of the industrial tariff to the domestic tariff is not particularly high.

By level of service consumption (compare tariffs for low levels of consumption to those for high levels):

There is no quantity discount.

Among existing customers vs. new customers (compare connection fees to cost of extending network):

There are no connection fees. Existing customers subsidize the extension of the network to new users.

Sources of Finance

1. What sources of finance are currently being used to cover the cost of service delivery?

Source of revenue (RMB million)	Revenue last yr*	% total revenue	Ranking**
User charges	2.1	67	1
Municipal transfer	0.6	19	2
Other government transfer	0.4	14	3
Loans	0	0	
Bonds	0	0	
Investment	0	0	
Other	0	0	
Total	3.1	100	--

*in local currency thousands, where available

**by amount

Payment Collection

1. To what extent are current tariff charges being collected from customers?

	This yr (partial)	Last year	2 years ago
Tariff collection rate*			
Domestic		75%	70%
Commercial		95%	93%
Industrial		90%	88%
Institutional		78%	79%
Government		60%	62%
Other			
Total		81%	79%

*Tariff charges collected / tariff charges levied

What are the reasons for any low payment collection rates observed?

Many customers think the state should pay for water. Also, there aren't enough collection staff, and they aren't motivated to be pro-active in collections.

2. Does the MSP have substantial debts from previous financial periods?

Total back debts	0 RMB million
Revenue last year	3.1
Total debt/annual revenue	0%

Does the MSP have many bad debts and are they written off in a timely fashion?

The service provider doesn't have any debts of its own, and the municipality also doesn't have any debts itself.

What efforts are being made to collect back debts that cannot be written off?

3. To what extent does the collection entity facilitate payment by customers?

Payment modalities

Most payments are collected by door-to-door collection agents. Only the large industrial customers receive regular billing-- but many of these facilities have separate water and wastewater systems.

Number of payment centers, average distance to payment centers, coverage of service area

There is only one payment location-- the town government office building. But few people use it-- most collections are done by the collection agents visiting neighborhoods.

Customer outreach activities: what type, how frequent, effectiveness?

There are very few targeted customer outreach activities. For more information, see the community participation assessment.

**Community Participation and Customer Relations
Assessment Worksheet**

Municipality: Xiliu, Liaoning Province, China

Customer Communications and Participation

1. What is the MSP or relevant government agency doing to learn about the needs and priorities of customers and/or potential customers? Is this adequate?

	No.	Location(s)	Diverse income groups?
Surveys undertaken	0		
Focus groups held	0		
Community meetings and hearings	1		Yes
Citizens advisory groups	0		

Does the MSP or government appear to be actively seeking information about customers? Are diverse groups of people being reached out to? If not, why not?

No, although service providers are required to hold public hearings for tariff changes.

How is the information gathered used? Did it change decisions by service provider?

2. What is the MSP or relevant government agency doing to inform customers and/or potential customers of policies and programs? Is this adequate?

	No.	Location(s)	Diverse income groups?
Media campaigns	0		
Publications produced by MSP	0		
Resource center(s)	0		
Bulletin boards	2	Various	
Community meetings and hearings	1		

Does the MSP or government appear to be actively seeking to disseminate information to customers? Are diverse groups of people being reached? If not, why not?

Outreach activities are limited

Did the MSP set goals for these activities? Were they met?

No

**Community Participation and Customer Relations
Assessment Worksheet**

Willingness to Pay and Demand Assessments

1. Has the MSP or government conducted any willingness to pay or demand assessments for services within the last few years?

	No.	Location(s)	Diverse income groups?
Demand Surveys	0		
-- last one year			
-- last two years			
-- last five years			

Social and Cultural Issues and Community Education

1. Are there any cultural or social factors that inhibit demand for municipal services? Which services?

None-- the practice of boiling water is a positive one.

Are there any cultural or social factors that increase demand for municipal services? Which services?

To what extent are service users aware of the need to make sufficient and timely payments to MSPs in order to keep receiving services?

Somewhat aware, though collection in the collective areas is problematic.

**Legal and Regulatory Framework and Institutional Issues
Assessment Worksheet**

Municipality: Xiliu, Liaoning Province, China

Institutional Framework for Service Delivery

1. What is the relationship between the municipality and higher level governments? How decentralized or local is service provision?

Describe the relationship between the municipality and higher level governments.
Town management is overseen by Haicheng County, which is in turn overseen by the city.

How empowered is local government to improve service delivery?
The municipality has to receive permission for some activities from Haicheng City, although the city is generally supportive of the town's efforts.

2. How are services provided (MSP type)? What is the legal and regulatory framework within which they operate? How empowered or constrained are they?

		Check Box
What is the MSP type? (Water and wastewater service provider)	Government agency	X
	Private company	
	Quasi-public agency	

What is history of relationship? Are there plans to change?
No plans to change

To what extent does the service have control over finances, organization and operations?

	Yes	No
Can MSP set tariff pricing for its services?		X
Can MSP make its own hiring and firing decisions?		X
Can it add staff or alter organization chart?		X
Can MSP establish salaries for its employees?		X
Does MSP set financial management targets itself?		X

Do the MSPs' responsibilities and the authority that it has seem to be in line? How constrained is it in management and operations? Does it have too little government oversight?

The water and wastewater service provider has to get permission from the overseeing agencies in municipal government for most activities. Both the water office and the basic infrastructure offices are under the Urban Construction Office, which is run by the Vice-Mayor, who sits below the Mayor. All services and capital improvements are planned and financed through the municipal government.

**Legal and Regulatory Framework and Institutional Issues
Assessment Worksheet**

MSP Operations

1. Is the MSP organized effectively?

	Yes	No
Does the MSP have a clear management or organization chart, which lays out who reports to whom?		X
Are lines of responsibility clear and well documented?	X	
Do the various parts of the organization communicate with each other effectively?	X	
Do employees understand their daily or primary duties?	X	
Are they sufficiently monitored in their activities?	X	
Are employees held accountable if service standards are not met?		X

2. How effectively is the MSP conducting performance monitoring and strategic planning?

	Yes	No
Does the MSP have an ongoing performance monitoring system in place?		X
Does the MSP have a business or strategic plan in place?		X
Does the MSP have an emergency plan in place?		X
Does it conduct drills to practice emergency procedures?		X

How effectively does the MSP seem to be organized, and how effectively is it conducting planning and performance management activities?

The municipal service provider functions with pretty limited organizational capacity.

Human Resources and Capacity

1. Does the MSP have adequate staff to accomplish its tasks effectively?

	Yes	No
Does the MSP have a human resources plan or manual?		X
Does the MSP have a staff person who deals with human resources?		X
Are staffing levels perceived to be adequate?	X	
Can staff accomplish day to day operations adequately?	X	
Can staff respond in a timely manner to problems?	X	

2. Does staff at the MSP have the technical skills needed to do their jobs?

	Yes	No
Does the MSP have staff which is able to prepare annual and 5 year budgets?	X	
Do they do so?	X	
Does the MSP have staff which is able to prepare projections of service demand?		X
Do they do so?		

**Legal and Regulatory Framework and Institutional Issues
Assessment Worksheet**

Does the MSP have staff skilled in the use of Geographic Information Systems or other management information systems?		X
Are they using other systems? (Describe below.)		X
Does the MSP have staff which holds degrees or certifications relevant to their positions and operations of the MSP?	X	

3. Does the MSP have an effective human resources or training program for its staff?

	Yes	No
Does the MSP conduct regular training of its employees?		X
Format of training:		
Does the MSP require that its employees receive training on an ongoing basis?		X
Does it provide incentives for staff that receive training?		
Does the MSP require its staff to have degrees or certifications in relevant subject areas?		X
If so, does it provide training or assistance in receiving these qualifications?		

Does the MSP have the staff and skills base needed to effectively carry out its operations? Does it have an effective human resources development program in place?

The MSP-- like all parts of municipal government-- has very limited skills and staffing levels. They do a pretty good job now of providing services to existing customers, but will face challenges if they start to expand and build more facilities.