SETTING SUSTAINABLE TARIFFS FOR WATER AND WASTEWATER SERVICES IN SWEDEN

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OVERVIEW – WHY TARIFFS MATTER

Access to clean water and sanitation is one of the cornerstones of modern society, and providing them a core responsibility of local government. In Sweden today, most historical large water investments have been fully depreciated, and access to water is taken for granted. With aging infrastructure in need of repair and consumers accustomed to low prices, many municipalities are in need of efficient management for their network assets.

The question is not merely how much we should charge for water, but how we should determine which water services to charge for. A key variable is how our costs and profits will change over time, and what impact this will have on us. To ensure long-term supply, assets and tariffs must be managed in an economically, socially and environmentally sustainable manner. The municipality can't lose money in the long-term water services should be available to everyone and the cost of water can support adequate treatment of both water and wastewater.

NOT FOR PROFIT

The central tenets of the Swedish water tariff structure are *fairness* and the *prime cost principle.*[1] The benefactor of water and wastewater services should pay no more than what is *fair and equitable,* and the gross revenue from the tariff should not exceed the utility's total expenditure.

THE MAKE-UP OF A TARIFF – CHALLENGES

All properties are in need of water and wastewater services. Distribution can be managed in various ways, and thus different costs are incurred to meet the needs. However, it is always the property owner who is responsible for payment. The Swedish Law on public water services (Lagen om allmänna vattentjänster, LAV[2]) regulates the municipalities' role as a monopoly in supplying the population with water and wastewater services.

The tariff is divided into two separate components covering four water services: water, wastewater, private stormwater and public stormwater.

1 http://www.svensktvatten.se/fakta-om-vatten/vilka-jobbar-med-vatten/

2 https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2006412-om-allmanna-vattentjanster_sfs-2006-412

— The Connection fee is a one-time fee that a property owner pays to connect their property to the utility. The fee is intended to reflect the average cost required to expand the water and wastewater network within the legal boundaries for water distribution.
— The Usage fee is a periodic fee that covers facility operating and maintenance costs, as well as capital costs for investments, maintenance costs, and other necessary costs of providing water services.

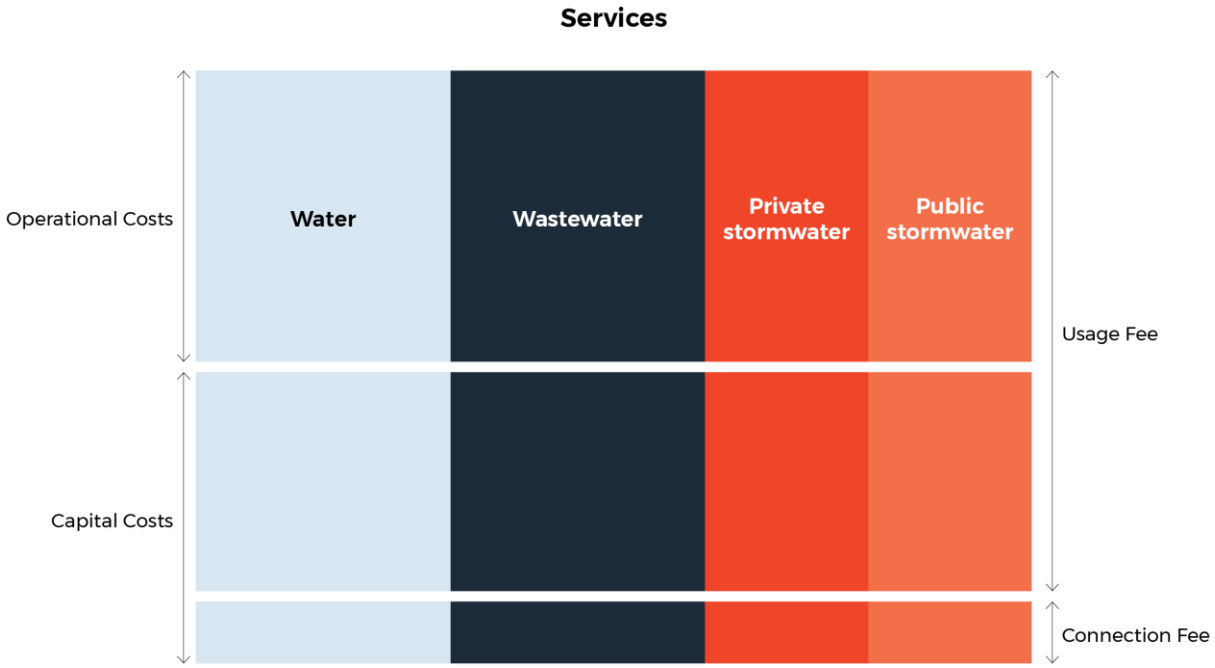

Figure 1. General relationship between cost coverage and the four water services.

The figure above illustrates a general relationship between usage fees and connection fees and the various water services offered. Most of the revenue comes from usage fees. Connection fees only account for a small part of the capital costs, covering specifically the costs associated with connecting a new property for the first time. All the other maintenance, reinvestment and operation costs are covered by the usage fees.

Sweden has 290 municipalities, each with its own population, rate of urbanization, density and water situation. Each municipality is ultimately responsible for the supply of water and the means by which it charges for it. This means that each tariff should be uniquely designed to fit the political and geographical landscape of that municipality. To aid in this task, the Swedish Water and Wastewater Association3 (Svenskt Vatten) publishes a set of general guidelines/templates as to how the tariffs and constitutional text defining them can be constructed, which can be adapted in each municipality.

3 http://www.svensktvatten.se/va-chefens-verktygslada/ekonomi--taxa/va-taxa/anlaggningsavgifter/

The structure of the tariff gives each municipality a large degree of responsibility and control over the charges. This flexibility is a valuable tool in achieving a fair tariff, but introduces a large degree of complexity.

A recently published study shows that most Swedish municipalities lack a long-term plan for managing their network. This is turn creates a problem when designing the tariff structure and rate. This is where WSP comes in.

TARIFFS – WHAT WSP DOES

Because of the many underlying complexities of designing the tariff, there is a need to systematically examine the whole system. This requires a shift from a reactive to a proactive approach to managing water and wastewater assets. WSP acts as an expert advisor in the field with a unique mix of technical, financial and legal know-how. The advantage of this broad knowledge is that WSP can provide process leadership both within the utility and in contact with the political system and end-users.

A key step is separating the levels of the tariff from the structure of the tariff. Changing the levels is a minor adjustment to how much is being charged, i.e., what is the intended cost coverage and how much will be charged for each service. This is achieved through a complete analysis of the municipality today to determine the split between housing and business, the type of buildings present and the benefit those buildings receive from access to water and wastewater services. The structure of the tariff looks at the future, i.e., what kind of investments are planned and when, and how the costs will interact with interest rates and property development.

DESIGNING A SUSTAINABLE TARIFF

1. *Structure the information*

The first step is help the utility organize what information they have and what they need to gather. The focus of individual water suppliers has long been day-to-day operations: keeping costs low and delivering the product efficiently. A side effect of this is that future development plans are often created separately. When it comes to determining the fee for each service, this needs to be taken into consideration. WSP acts as a driving force, helping the municipality collate disparate development and investment documents into a single coherent plan that accurately describes the future. The plan is then analyzed to determine how it interacts with the current tariff structure and what the key problems are.

2. *Model the impact of future development*

The goal is to be able to separate out costs and provide a picture of the total cost of the network assets. Capital and operating costs are taken into account, as are the available water services, and the tariff is set so that each consumer pays for the services from which they benefit.

WSP has developed a modelling tool, EKSIM, which allows for long-term economic forecasting of municipal finances. The model uses a life cycle cost method to accurately account for all existing and planned costs, investments and revenue to determine the utility's income statement, expenses, balance sheet and cash flow for the coming 15 years. The model is also used to perform sensitivity analyses for different interest and inflation rates, so that excess costs and deficits in the water economy can be avoided. This information enables us to start "laying the puzzle" of how much should be charged for each service and how this should be divided between the connection and usage fees, taking account of the customer base.

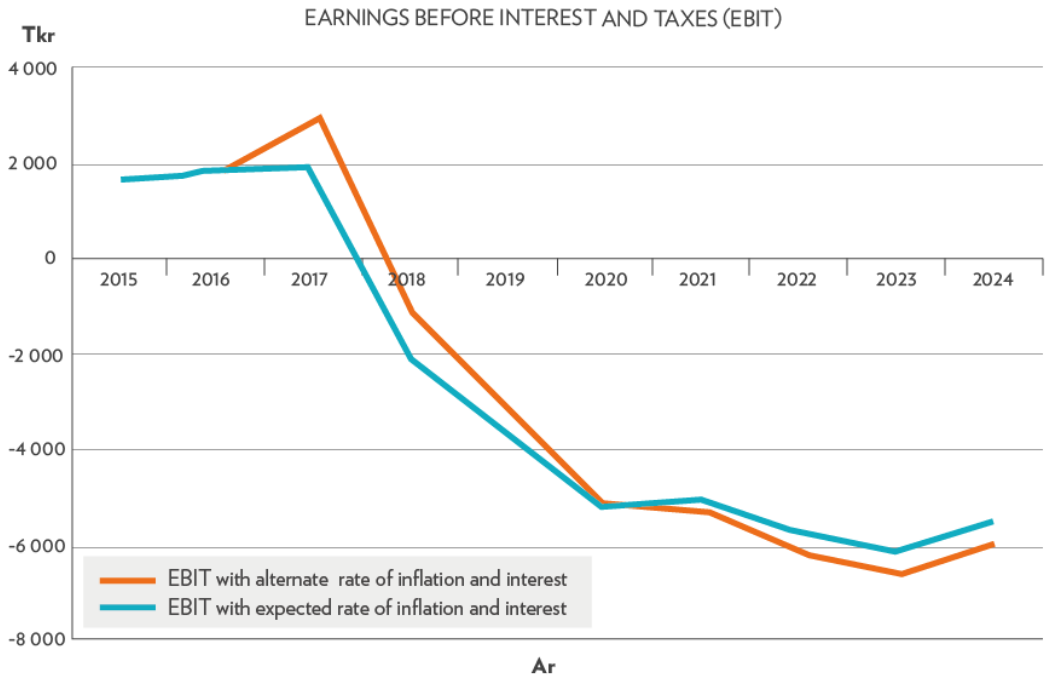

Figure 1. Results from the modelling tool EKSIM, showing future connection fee income with an unmodified tariff structure.

3. *Implement and transfer knowledge*

The outcome is a recommended tariff structure uniquely adapted to achieve cost coverage over time, including consequence analysis for the typical private person, as well as key industries. An important part is formulating the municipal regulation for the tariff. This is a legal document to be ratified by the municipal council. WSP helps the municipality throughout the entire process, with support and information, as well as presenting the advantages of the new structure.

Once the document is ratified, the changes have to be implemented. WSP acts as support for the civil servants within the utility, providing training and support for difficult edge cases.

EXAMPLE: VA SYD

VA SYD is an umbrella organization formed by four municipalities in the south of Sweden, serving over 400,000 inhabitants. The member municipalities differ greatly in population and rate of urbanization, as well as in tariff structure and levels. WSP acted as a process leader, helping the organization unify its structures and best meet the overarching goal of fairness and equitability while still following the prime cost principle in each municipality.

EXAMPLE: STOCKHOLM WATER AND WASTE

The water company of Stockholm (SVOA AB) needed to improve the balance between income and costs for storm water services by revising the connection fee and usage fees. WSP acted as an expert advisor to improve the cost coverage between the different water services.

STRÖMSTADS MUNICIPALITY

WSP acted as a process leader, helping the municipality to analyze different ways of extending the public water network to the Koster islands. The long-term economic aspects (a 70-year period) were analyzed by using EKSIM, a modelling tool developed at WSP. The goal of the project was to present alternatives following the Swedish law of public water services, to present the costs for the organization and the economic consequences for the inhabitants.

CONCLUSION

Water and wastewater services are integral to modern society, and the laws governing their costs are often complicated. In Sweden, it is important that the tariffs set by local municipalities are fair, equitable and sustainable from an economic, social and environmental perspective. By applying a lifecycle cost method combined with legal and technical expertise, WSP is able to advise service providers, evaluate their tariffs based on their unique investment needs, and produce adapted tariff structures and rates.