

Annex B. Definitions

The following definitions are borrowed from the World Bank report on *Joining Forces for Better Services?* (World Bank, 2017^[1]).

Definition and basic concepts

Aggregation is defined as the process by which two or more WSS service providers consolidate some or all their activities under a shared organizational structure, whether it implies physical infrastructure interconnection or not, and whether the original service providers continue to exist or not (WB study to reference). It can encompass a large variety of situations, which can be distinguished according to their purpose, scope, scale, governance, process.

Purpose

The main purposes of WSS aggregation are:

- Economic efficiency, which seeks lower unit costs, through economies of scale or economies of scope or more effective investment strategies;
- Performance improvement, which covers technical and managerial aspects of service quality and considers customer satisfaction;
- Professionalization, which targets technical capacity enhancement and addresses bottlenecks caused by scarcity of human capital;
- Environmental benefits, seeking integrated water resources management by sharing sources or reducing pollution;
- Solidarity, to cross-subsidize investments between regions or social groups to extend coverage and/or recover operation and maintenance costs.

Scale

The scale of WSS aggregation can vary widely. It can cover a group of local jurisdictions following administrative boundaries, whether these jurisdictions are contiguous or not. It can also cover a whole region or the entire national territory. Aggregation can also be implemented at the watershed level, following water catchment boundaries.

Scope

Aggregation can cover few or all functions associated with WSS services, or they can cover few or all stages of WSS services. Functions can encompass, for instance, operation, administration, customer relationship, investment or finance. Stages can encompass, for instance, production of water, distribution of water, collection of wastewater, or treatment of wastewater.

Process

The process can be mandated—and thus top-down driven—and initiated by national authorities which design a legally binding legal framework for aggregation. It can be mandated and supported financially by national or supranational entities. It can be voluntary and incentivized by public subsidies, external funding, or technical assistance stemming from national or supranational stakeholders. It can be voluntary, deriving only from a bottom-up initiative, stemming from utilities or local actors without a national framework to encourage it.

Transaction costs and aggregation

Awaited benefits from aggregation do not always materialise, and there can be many reasons for such drawbacks. Some of these reasons derive from the existence of one-off and long-term transaction costs.

One-Off Transaction Costs (Linked with the Aggregation Process)

In the framework of an aggregation, one-off transaction costs encompass the following three broad categories (Dahlman, 1979¹):

- Before aggregation, research and information costs incurred to find and gather information on the service providers to aggregate with. For instance, the entire design phase of the aggregation would fall in this category.
- During aggregation, bargaining costs corresponding to the negotiations necessary to reach an agreement among aggregating utilities and translate it into legal provisions and binding documents, as described in the list of aggregation governance aspects². This might lead, in concrete terms, to suboptimal solutions, such as the commitment to take over unnecessary staff or liabilities to make the bargain more palatable to the various parties.
- After aggregation, enforcement costs corresponding to the costs necessary to implement aggregation and make sure that all aggregating parties comply with their commitment and duties. They could, for example, entail the harmonization of salaries to a higher level or the costs of setting up new systems and procedures.

Long-Term Transaction Costs (Consequences of the Aggregation)

Several long-term transaction costs can be distinguished (Canback, 2003³) and applied to aggregation situations:

- Bureaucratic insularity: As utilities grow, senior managers are less accountable to the lower ranks of the organization and to shareholders. Particularly in large utilities with well-established procedures and rules, individual rent seeking is possible. This relates also to the frequent finding that managers in large organizations tend to emphasize size over profitability.
- Motivational aspects ("atmospheric consequences"): Increasing size brings increasing specialization, which in turn leads to reduced commitment from employees. Employees in large organizations often have a hard time understanding the purpose of corporate activities, as well as their individual contribution.
- Communication distortion due to bounded rationality⁴: As utilities grow, complexity increases. Hierarchical layers are added to manage the increasing complexity. Inevitably, these layers distort the flow of information. This limits the information available to executives, which Williamson (1975⁵) called a loss of control.

In addition to such “classic” diseconomies of scale, which can arise as a single utility grows, aggregations add complexity to the organizational structure, thereby adding to transaction costs. Among the most important characteristics that change through consolidation:

- **Dealing with fragmentation of ownership:** The fact that an aggregated utility serves several municipalities requires the formulation of decision rules for the shareholders and the allocation of voting power. Various schemes for the distribution of voting rights are possible, but in all cases, the distribution requires additional bureaucratic procedures and mechanisms to deal with multiple instead of single owners.
- **Heterogeneous initial conditions and heterogeneous preferences:** Municipalities for which service is bundled through an aggregation might have widely varying initial performance, service quality, and states of infrastructure. This raises questions about whether to apply the same policies to all utilities and how to prioritize investments and service improvements. To some extent, local preferences with respect to service provision may differ. How the management of the aggregated utility responds to these challenges might vary from case to case, but the utility needs conflict resolution mechanisms to align interests and arbitrate between those that diverge. This adds again to organizational complexity and decision-making costs.
- **Complicated cost- and revenue-sharing mechanisms:** As more municipalities are involved in an aggregation, possibly complicated cost- and revenue-sharing systems must be set up and adapted over time. Apart from the administrative burden, such a system also reduces transparency between service delivery and the price paid for the service, particularly if cross-subsidization between municipalities is pursued. Cost-sharing mechanisms give each municipality an incentive to attract as much investment and expenditure (public work contracts) as possible, regardless of whether or not the investment is sensible. These so-called common pool problems become more pronounced, the larger and more complicated the cost-sharing mechanisms are.

Overall, it is important to measure the outcome of a given aggregation primarily against its original purpose, which may or may not involve economic efficiency. In some cases, it might be necessary to accept a permanent transaction cost in return for an important externality; for example, a cross-subsidy between low- and high-cost service areas or an environmental benefit.

References

World Bank (2017), *Joining Forces for Better Services? When, Why, and How Water and Sanitation Utilities Can Benefit From Working Together*, <http://hdl.handle.net/10986/28095>. [1]

Notes

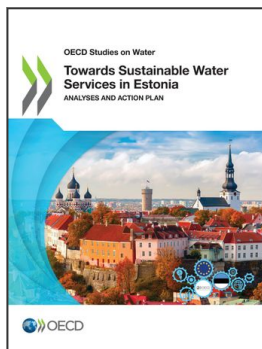
¹ Dahlman, C. J. 1979. "The Problem of Externality." *Journal of Law and Economics* 22 (1): 141–62.

² When aggregating utilities, various governance aspects have to be dealt with. The main ones relate to institutional elements; financing, assets, and liabilities; and harmonization of processes and practices.

³ Canback, D. 2003. "Diseconomies of Scale in Large Corporations." Technical description, Canback Dangel Predictive Analytics Advisors, Somerville, MA.

⁴ Bounded rationality conveys the idea that individuals have a limited rationality when making choices.

⁵ Williamson, O. 1975. *Markets and Hierarchies*. New York: Free Press.



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