

# ORGANIZATIONAL INNOVATIONS OF MUNICIPAL WASTE MANAGEMENT IN FINLAND AND NORWAY

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**Abstract** - This empirical study compares the public policies of municipal waste management in Finland and Norway by analyzing organizational innovations of municipal waste management services in order to identify contributing factors of the organizational evolution and evaluate associated stakeholder concerns or implications. Our findings demonstrate that municipal waste management services have been extensively corporatized and regionalized, because municipalities have been too small entities to modernize waste treatment methods and respond to ambitious recovery targets set by the European Union. However, the organizational innovations have caused criticism concerning problems with democratic control, transparency, and fair competition.

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**Keywords** - Municipal Waste Management, Organizational Innovation, Governance, Public Management, Finland, Norway

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## I. INTRODUCTION

In many OECD countries, municipalities have responsibilities to take care of household and similar waste through waste management operations, which are essential daily services of families, housing companies, and communities. Originally, the organizations of municipal waste management were created because of public health concerns, but more recently the increasing problems of environmental pollution, global climate change, and the rising prices of raw materials have added new challenges. As rising populations, global trade, wealth of citizens, and consumerism have increased amounts of waste, lawmakers have responded by expanding the scope and detail of waste regulation and many fractions of waste have changed status from being a problem to becoming a valuable resource. Today, waste management is seen as an international multibillion market, often marked by fierce competition for market shares.

Municipal waste management organizations can be conceptualized as local public utilities, which runs the processes of waste collection, sorting, and treatment. They are not necessarily natural monopolies, but they are legal monopolies as municipalities have statutory obligations to provide waste management services. As municipalities have to play their role in waste market while responding the increased resource recovery targets, local authorities must constantly look for optimal and efficient organizational solutions how to run their waste management processes.

This empirical study compares the public policies of municipal waste management in Finland and Norway by analyzing the organizational innovations of municipal waste management services in order to identify the contributing factors of the organizational evolution and evaluate the associated stakeholder

concerns or implications. This paper presents the preliminary findings of our research by highlighting similarities and differences of the organizational solutions of municipal waste management from the perspectives of public governance. In this study, the concept of an organizational innovation refers to new organizational forms and structures that have been new in the sector of municipal waste management.

## II. ANALYTICAL FRAMEWORK

### 2.1 Governance doctrines

Governance of municipal waste management can be done through hierarchies, markets, or networks. Hierarchical governance is based on public law authority and public sector budgets including highly formalistic procedural requirements of operations. The suitability of hierarchical governance of community waste has been argued by claiming that municipal waste management is a public good promoting collective interest. Governance by markets is based on free competition coordinating demand and supply functions and allowing trading possibilities and a market access of third and private sector organizations nationally and internationally. Governance by networks emphasizes collaborative arrangements from volunteering and short-term commitments to highly institutionalized and long-term arrangements such as contractual alliances and public-private partnerships. Informal collaborative networks operate typically through individual members of organizations, but more structured networks are based on contracts. Horizontal networks connect functional activities of organizations on the same level, whereas vertical networks connect different levels of a value-adding chain. Governance by networks is less formal than hierarchical governance and implies more trust between parties than pure market transactions.

## 2.2 Trends of public sector management

The classic public management is based on the Weberian theory of bureaucracy framing a government as a hierarchically organized apparatus, where public services are produced by civil servants who are managed by superior authorities applying top-down methods. According to new Public Management (NPM), the powers of public managers should be increased and market mechanisms should be applied the systems of public service delivery in order to enable and encourage improvements in performances. One of the most basic conceptions of NPM has been that arm's length management will enhance agency performance.

The post-NPM is the most resent dogma of the public management, but it includes ambiguous elements because of two opposing sets of ideas: new public governance (NPG) and neo-Weberianism (NWS). While NPG describes and promotes horizontal cooperative networks including public, commercial and non-profit organizations, NWS describes the development as a partial return to hierarchical steering combined with elements from both NPM (e.g. performance measurement) and NPG (e.g. co-production and transparency).

## III. METHODOLOGY

A fundamental methodological challenge when studying and comparing waste management services of different countries is the lack of highly usable statistical data. Stats illustrating amounts and streams of different waste fractions are not very reliable. Furthermore, public stats neither describe well the developments of organizational structures and forms nor demonstrate the role of collaboration of the municipal and private sectors including the contractual relationships and shared ownership arrangements. Because of these considerations, our analyses are predominately explorative and qualitative.

The first element of our empirical reviews include document analyzes. We started by analyzing law drafting materials, legal text books, and guidance given to local authorities. Then we collected reviews and statements published by national supervisory agencies. Finally, we collected primary data from municipalities. The first set of this municipal data included official documents such as ownership reports, annual reports, and homepages from a selection of municipalities and municipal companies. The second set of municipal data consists of interviews. We interviewed some waste management experts and especially directors and employees of municipalities and inter-municipal organizations.

## IV. FINDINGS

### 4.1 Shared regulatory perspectives

Finland's national waste and related legislation defines the aims, duties, and terms of municipal waste management services, but the national rules are integrated with the legislative framework of the European Union's (EU) waste policies. Finland joined the European Single Market first via the membership of European Economic Area (EEA) in 1994 and by the membership of the EU in 1995 and became committed to implement the EU Waste Directives.

Norway is not an EU member country, but Norway has signed a member of the European Free Trade Area (EFTA) agreement and committed to follow the EU's and the EEA's environmental regulation environmental issues. The EU has issued its key legislative contributions through directives, for example, the so-called Landfill Directive of 1999 and Directive (2008/98/EC) on waste. A key principle of the EU's waste policy described by a so-called waste hierarchy, which calls for waste prevention, reuse and recycling actions as the priority treatment methods of waste before energy recovery and landfilling.

### 4.2 Organizational development of municipal waste management in Finland

Finnish municipalities have two main functions in waste management. First, municipalities are local public waste management authorities issuing local rules of waste management and making official solutions. These duties are organized through waste management committees. Second, municipalities have responsibilities to organize waste management services. This function is much more extensive requiring investments and continuous service operations.

The first waste management law came into effect in 1979. In that time, the operations of municipal waste management were local service performances dominated by landfilling as the main waste treatment method and organized by in-house arrangements. As amounts of waste were growing rapidly, some city governments of the capital region (e.g., the Helsinki region) realized that in order to take care higher volumes of waste single local authorities have to find means to scale-up their services which encouraged them to initiate inter-municipal collaboration already in the early 1980s. However, an enormous impetus to renew and scale-up municipal waste management services on nation-wide basis emerged through the Europeanization of the country. The EU introduced high recovery targets on waste management which created necessities to reduce municipal landfilling and develop alternative means of waste treatment.

Local authorities considered that in order to make investments on the new generation of waste treatment facilities they have to consolidate their financial resources to enable larger investments which would not be possible for a single local authority operating alone. Local authorities started to amalgamate their waste management services by introducing shared service arrangements via joint municipal organizations. Municipalities outsourced their own in-house service units especially via joint municipally owned limited companies. Only the smallest local authorities have not outsourced and regionalized their waste management services so far.

The above described organizational innovations of waste services also contributed to the re-organization of local waste authorities by replacing local committees by regional waste committees. However, as the shared waste committees have wide geographical jurisdictions covering all of their member municipalities, their smallest members have not been able to nominate their representative to these committees, which has caused voices of dissatisfaction expressed especially by rural local authorities.

Municipalities were able to close down small and poorly equipped local landfills due to the introduction of inter-municipal services and to start using regional landfills with the better systems of withdrawal of underground water and guarding. Municipalities also progressed within the waste hierarchy by building anaerobic decomposition, biogas, and incineration plants. Nowadays, the most popular waste treatment method of municipalities is waste incineration, but it has been criticized by saying that municipalities have locked-in themselves with massive incineration plants, which are not motivating and encouraging them to develop recycling and reuse innovations.

Local authorities can choose between a centralized (i.e., municipalized) or decentralized (i.e., privatized) procurements of waste collection services. According to the centralized system, local governments determine the collection districts and service charges falling due house owners. The collection services are procured through the formal processes of public procurements from private companies. This way local authorities can try to push down the price and by designing small districts (so called one-lorry districts) they can also enable small enterprises and newcomers to bid. The usual contracts are made for 3- 5 years with a 1- or 2-year option of prolonging. The relatively long contracts enable enterprises to plan their investments in an efficient way. The centralized system gives local governments more control, and is argued to be more cost-effective and environmentally effective too. According to this argument, the decentralized system is seen as producing more traffic than necessary and hence being environmentally harmful, while the counter argument says that private enterprises are inclined to plan their activities in a cost-effective

manner. There are different study findings concerning the cost-effectiveness of centralized vs. decentralized collecting systems, depending on the circumstances. However, the centralized system enables local governments to coordinate better the collection services and hence generate cost-savings. It also seems that a centralized system strengthens completion, and is attractive for large international companies, while a decentralized system favors small enterprises and longer client relationships. Regardless of the procurement system, all collection services of the household waste are done by private enterprises. Although different waste items are defined according to their responsible collector, there are grey zones and every now and then conflict occurs at the local level concerning who is entitled to collect a certain type of waste. The market share of the municipal procurements is 60 %, and about 40% is procured by house owners. However, the waste of transported by both systems belongs to local authorities and they say where the waste is transported to.

Recycling and reuse of waste played a relatively small role in municipal waste management in the early 1980s, but their range of usage have increased after the EU directives guided to introduce extended producers' responsibilities (ERPs). Nationally imposed EPR schemes have cut down the scope of the concept of municipal waste as they have increased the duties of importers, manufactures, and retailers. The EPR schemes have become noteworthy players in the management of household waste as they have increased of the duties of the private sector since producer responsibility organizations (PROs) are private law organizations.

### **4.3 Organizational development of municipal waste management in Norway**

The Pollution and Waste Act (PW) of 1981, the Waste Regulation of 2004 and the EU Directive 2008/98/EC which includes the waste hierarchy, regulate waste management in Norway. According to the PW Act, a local government has the exclusive right and responsibility to organize the collection and treatment of household waste within its jurisdiction. Nobody may collect this type of waste without the explicit permission of the municipality.

In Norway, municipal waste is defined by source; household waste is thus waste emanating from households. Waste emanating from all other sources is the responsibility of the polluter (the waste holder), this according to the "polluter pays principle". However, the municipality has an obligation to monitor that waste produced by non-household polluters which is similar to household waste, is collected and treated in line with public regulations. In practice, Norwegian municipalities collect and process industrial and hazardous waste from other sources as well. In this field, municipal waste services operate in a market and has to abide by EU/EEA competition

law. They do this primarily by setting up organizational arrangements that separate household waste from other types of waste.

Most local authorities have introduced joint municipal organizations, which take care of municipal waste management services. Between 75 and 80 percent of municipalities (N= 428) organize their waste management services through inter-municipal companies (IMC). In addition, almost 15 percent of the municipalities have opted for private law limited liability companies and in most cases these private law companies have been established in cooperation with neighboring municipalities. These organizational innovations reflect the small size of Norwegian municipalities and their need to cooperate in order to gain sufficient economies of scale. Both types of companies have status as separate legal entities.

The Inter-Municipal Companies Act of 1999 regulates the creation, procedures and activities of the inter-municipal company (IMC). Before this act, municipalities were creative and applied locally fine-tuned different types of joint organizational innovations, but the central government introduced the special act, which eliminated local innovations and formalized and unified joint municipal organizations. The highest formal authority of the inter-municipal company is the assembly of municipal representatives, appointed by the local councils of the participating local authorities. The majority of members of this body are local politicians. The assembly appoints the IMC's board, which in its turn employs the CEO of the company. The governance structure of the IMC thus resembles the governance structure of the private law limited company.

According to the IMC Act, the IMC has unlimited liability; i.e. municipalities as owners are collectively (although in a proportionate manner) responsible for all financial risks and liabilities of their IMCs, and consequently the inter-municipal company cannot go bankrupt. For that reason, the IMC obtains better borrowing conditions in the financial market than publicly or privately-owned limited companies do, giving them a competitive edge, an issue of considerable controversy and debate among the stakeholders of the waste business market. In addition, repeated accusations of cross subsidization between household waste and industrial/commercial waste activities have been raised. After several formal complaints from private business organizations, the EFTA Surveillance Agency (ESA) in 2013 concluded that the Norwegian practices constitute state aid, which is in conflict with EU/EEA regulations. In response to this ruling, the Norwegian government is planning to amend the IMC Act.

In Norway, the local governments have autonomy and can choose between three organizational forms: the in-house, the inter-municipal company, and the limited company case, but most local authorities have given up their own in-house organizations.

Municipalities have realized economic benefits of collaboration enabling them to share fixed costs of waste management services. Modern municipal waste management has many industrial features and local authorities need higher waste volumes in order to process them with cost-effective manners and make the efforts of energy recovery and recycling profitable. "Hiving-off" service provision from local authorities to inter-municipal organizations may have reduced administrative supervision, political accountability, and democratic control. In the in-house cases, the service attracts more operative attention from local politicians and administrators than in the cases of arm's length bodies where the service has been externalized and more or less a-politicized. Arm's length management thus seems to have a substantial effect in terms of reducing the owners' attention to the service. However, municipalities are highly dependent on the administrative capacity and competence of their companies. On the other hand, the companies regularly provide their owners with detailed information on operations, strategy and economy, thus permitting them (e.g., owners) to take action if they find it necessary or desirable. This information is aggregated and presented to the municipal council once a year in form of a general ownership report including the total portfolio of the companies owned by the municipality. Further, the IMC and the LTD seem to be rather strong and professional organizations able to meet the current competition in the wider waste market. The arm's length position from their owners combined with the external competition pressure, permit and necessitate vigilance and capacity for rapid adaptation and innovation.

However, the broader Norwegian picture shows a more nuanced situation. The most spectacular example has been the controversial out-contacting of the waste service in Oslo, ending in 2016 with the collapse of the service and the bankruptcy of the private contractor, leading to the re-municipalization of the service. Furthermore, the IMCs have created complex corporate structures including joint ventures and associated companies, which have worsened transparency and accountability problems. This complexity may reduce the owner's ability to monitor and govern the companies. However, to the extent that the service functions it seems to become even more "invisible" to the public eye.

#### 4.4 Comparative aspects and implications

The organizational innovations of municipal waste management have many similarities between Finland and Norway. Figure 1 highlights the main organizational options available for local authorities how they may arrange their waste management services. The freedom of choice of local authorities is based on local self-government and their general powers enabling them to make local choices and shape their organizations by selecting between in-house and

out-house options. Figure 1 also illustrates that municipal waste management is a case of multi-level governance since recovery targets are set at the supranational level, the specific waste management duties and terms are defined by the national legislation, and state regulatory agencies (i.e., competition and environmental authorities) supervise the lawfulness of local policies and services.

Table 1 highlights the development of municipal waste management services from the 1970s to the 2010s. Table 1 demonstrates that municipal waste management operations were local services in the late 1970s, but nowadays they are shared service operations having many industrial features. Municipalities used to produce services through their own local public bureaus, but nearly all local governments have externalized their service

organizations. Municipalities have also increased much inter-municipal collaboration resulting in regionalization of not only municipal waste management services but also local waste authorities. Table 2 summarizes our findings about specific organizational forms applied in both countries. It highlights that municipalities predominantly prefer an enterprise type of an organizational form. The majority of the Finnish municipalities apply the form of a limited liability company, but the majority of the Norwegian municipalities prefer a special organizational form (e.g., inter-municipal company, IMC) which is specifically designed for them and which is regulated by a special law. These IMCs are separate and semi-autonomous legal entities, but their owners are responsible for their financial and other commitments.

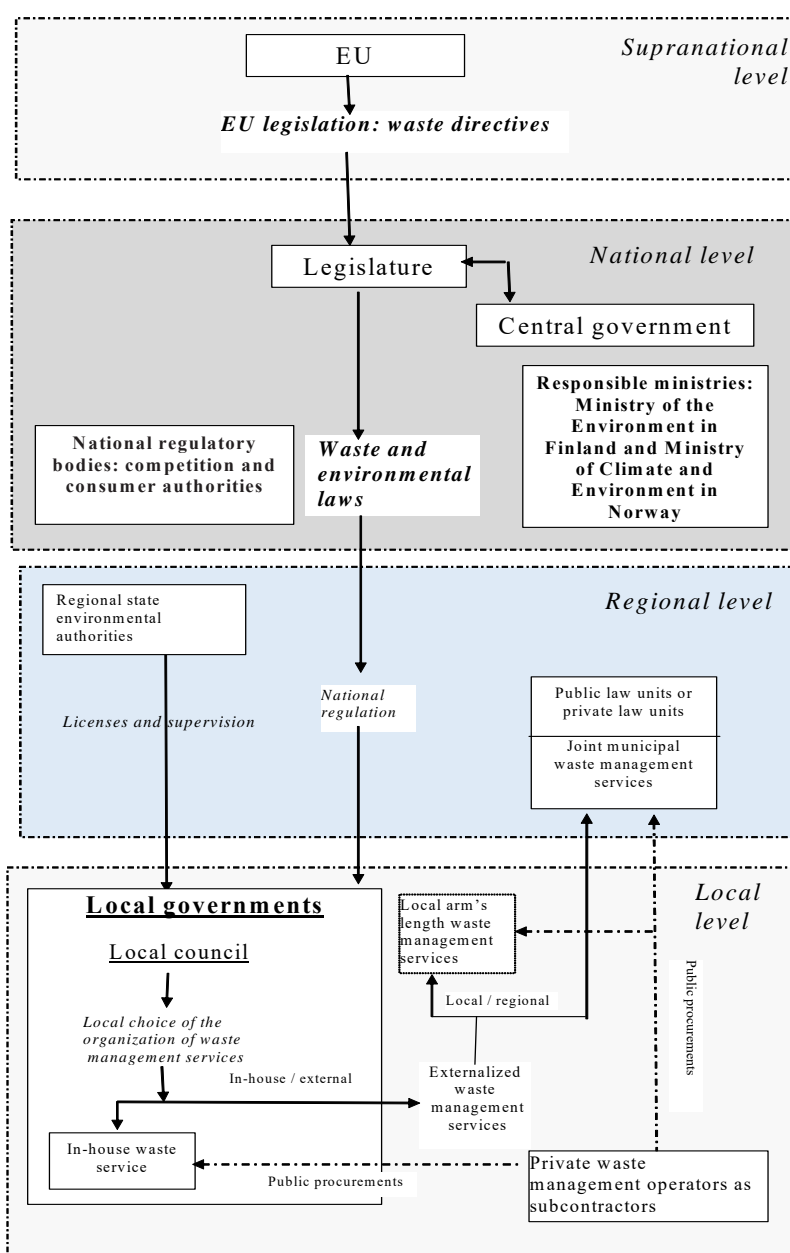


Figure 1. Regulatory framework and main organizational options of municipal waste management

	Finland		Norway	
	1970s	2010s	1970s	2010s
Geographical scope of services	Almost local	Dominantly regional (and sub-regional)	Local	Inter-municipal
Main scope of municipal waste	All household and alike waste	Household and alike waste narrowed down by the EPR schemes	Household waste	Household waste
Prevailing organization of municipal services	In-house	Arm's length agencies based on private law	In-house	Inter-municipal company
Dominant treatment method	Landfilling	Waste incineration	Landfilling	Incineration 58%, recycling 38%
Nature of municipal waste management operations	Services	Services (especially collection) & industry (energy recovery)	Services	Services (especially collection & recycling) industry (energy recovery)

**Table 1. Features of municipal waste management services in 1970s and 2010s in Finland and Norway**

The arm's length organizations have also caused accusations as the new organizations are not democratically governed by elected politicians and even the Finnish member municipalities of the regionalized organizations (e.g., arm's length bodies) have complained that they do not have powers to guide or control the regional services. Then the arm's length bodies have further externalized some of their activities and established their subsidiary companies, which have made the corporate structures complex and less transparent. Furthermore, private sector waste management enterprises have complained that the corporatized municipals waste management organizations distort competition by competing with the private sector with unequal terms as they have monopoly rights for household waste, and like in the case of Norway, they can borrow money for their investments with better terms.

## V. CONCLUSION

The organizational innovations of municipal waste management have profoundly changed the characters of municipal waste services. Municipalities have given up their in-house agencies and services and replaced them with inter-municipal organizations. Local services have been regionalized and municipal agencies have been corporatized. Municipalities have

planned and implemented these organizational changes based on their general powers and local self-government, but these innovations have to be understood in a wider societal context. Originally, municipalities have been too small public authorities to cope with the growing amounts of household waste, so they needed scale up their operations and share their treatment capacity to be able to pool growing waste streams and make some of the waste fractions big enough for recycling and reuse purposes and, above all, to build up waste incineration plants through joint funding arrangements. Europeanization of the public policies is also a very important context factor. The EU directives imposed radical recovery targets and the legal changes which followed these directives forced municipalities to look for new ways to organize their services.

Systems of municipal waste management have become very complex as they are based on multi-level governance and include some elements from all the governance doctrines (hierarchical, market, and network). The long-term trend of public management of municipal waste organizations in Finland and Norway is clearly based on NPM and technocratic ideas, and our findings didn't provide solid evidence that NPG and NWS would be getting stronger on a nation-wide basis and could seriously challenge the dominance of NPM in the foreseeable future.

	Finland			Norway		
	In-house units of municipalities	Joint municipal authorities	Joint municipal limited companies	In-house units of municipalities	Inter-municipal companies	Limited companies
Legal basis	Waste law & public law: municipal act	Waste law & public law: municipal act	Waste law & private law: company law	Pollution Act 1981/2004 & Local Government Act 1992/2018 (public law)	Inter-Municipal Company Act (public law)	Limited Company Act 1977 (private law)
Financial characters	Full cost principle; included in a municipal budget	Full cost principle; included in a regional budget of an authority	Mixed characters: full cost principle & reasonable return on capital; excluded from municipal and regional budgets	Full cost (cost recovery) principle (for household waste)	The same (does not apply for industrial or hazardous waste)	The same (does not apply for industrial or hazardous waste)
Risks (financial)	Unlimited municipal risks	Unlimited, sustained by	Limited by invested share	Unlimited	Unlimited (proportional)	Limited

		member municipalities	capital		distribution of liability)	
Geographical sphere	Local	Sub-regional	Sub-regional or regional	Local	Sub-regional and regional	Sub-regional and regional
Supplied waste management services	Only statutory (i.e., monopoly) services mainly to house owners	Only statutory (i.e., monopoly) services mainly to house owners	Statutory and voluntary (commercial) services to private enterprises	Municipal responsibility	Municipal services to house owners and private enterprises	Municipal services to house owners and private enterprises
Local waste management authority (i.e., waste committee)	Local (e.g., municipal) waste management or equivalent committee	The authority is both a service organization and a waste authority (e.g., committee)	A separate sub-regional or regional waste management committee	Municipal responsibility	Municipal responsibility	Municipal responsibility
Popularity of this form in waste management	Very modest, only very small municipalities	Limited, but populous municipalities of the capital region have these organizations	Very popular, most municipalities use limited companies	Very modest	Very popular (75-80 per cent of municipalities)	Nearly 15 per cent of municipalities

Table 2. Organizational forms of municipal waste management services in Finland and Norway

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