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Notes

1 We gratefully acknowledge financial support from the Finnish Cultural Foundation.

The Evolving Role of Water Co-operatives in Finland

Annina J. Takala, Vesa Arvonen, Tapio S. Katko, Pekka E. Pietilä and Maria W. Åkerman*

**corresponding author*

Abstract

Finland has a long tradition of organising water services through co-operatives, especially in rural areas but also in bigger townships. Currently there are some 1400 water co-operatives in the country providing water supply and increasingly also sewerage services. From the late 1800s to the early 2000s five development phases can be identified in the history of water co-operatives. This article discusses the general characteristics, diversity and main stakeholders of water co-operatives. It argues that water co-operatives have great potential especially in the rural areas of developing and transition economies.

Key Words

Co-operatives, Water and Sanitation Services, Stakeholders

Introduction

In the rural areas of Finland, water supply has traditionally been organised, owned and managed by small private, not-for-profit organisations and remains so still in the early 2000s. The majority of these systems are consumer-managed water co-operatives (Katko, 1997). Currently the country has some 1400 water co-operatives, most of them supplying a fairly small number of users. Yet, despite their generally small size these co-operatives play a central role in providing water and sanitation services especially in the rural areas.

In essence, a water co-operative is a means of providing water services – water supply and sanitation – through a jointly-owned and democratically-controlled enterprise. Co-operative can organise these services for its members independently or in co-operation with another co-operative, municipal water utility or a private company. Water co-operatives can be classified as consumer co-operatives (Birchall, 2009).

Water co-operatives are not only Finnish phenomena. Denmark has a long tradition of water co-operatives. The U.S. also has various forms of small water supply arrangements some of which are based on co-operative principles (Tamm, 1991). Some 3000 water co-operatives in the U.S. provide water and sanitation services, fire protection and landscaping

irrigation water (Deller et al., 2009). Latin America has a long-standing history of water co-operatives. For instance, in Bolivia, major urban water utilities are managed as co-operatives under customer ownership, such as the Saguapac, which serves about 800,000 residents in the city of Santa Cruz. (Nickson, 1998; Ruiz-Mier & van Ginneken, 2006).

Despite the significant number of successful water co-operatives globally, international policy discussions have largely by-passed them. Furthermore, water co-operatives have been largely ignored both in research and policy. The discussion has focused on private and public water and sanitation systems ignoring community-based options. One interesting exception comes from England and Wales where there is discussion on non-profit community “mutuals” taking over the ownership of water and sewerage assets from private companies (e.g. Bakker, 2003; Birchall 2002). Quarter & Sousa (2001) argue that mutuals have very much in common with co-operatives and that it would be misleading to consider them as distinct organisation types.

There are few studies made on water co-operatives or similar systems. The World Bank has commissioned studies on community water supply systems focusing on analysis of their suitability in developing countries (Katko 1992a; Tamm, 1991; Ruiz-Mier & van Ginneken 2006). Katko (1992b; 1994) has raised some issues concerning the consumer managed water co-operatives in Finnish context. More recently, Deller et al. (2009) have analysed the economic impacts of water co-operatives in the U.S. Yet, it can be argued that systematic research on water co-operatives is missing both in the field of research on water services, but also in co-operative studies. Thus, it is not possible to talk of an established research area.

There is plenty of research on consumer co-operatives in general (Jussila & Tuominen, 2010), but from the point of view of water co-operatives these tend to ignore the special characteristics of water services. The role of water as a basic need and a human right, a social, economic, and environmental resource makes also the nature of water services unique. Pietilä et al. (2010) argue that water services have similarities to other infrastructure services, but at the same time the special features related to it, such as locality and

natural monopoly, must be taken into consideration. Similarly, studies focusing on water services tend to ignore the special characteristics of organising the services through a co-operative form. As Cornforth (2004) argues, research on the governance of co-operatives should take into account the contextual and organisational factors.

Much of co-operative research has focused on comparing characteristics of co-operatives and investor-owned firms (Nilsson, 2001). However, with some exceptions such as England and some developing countries, water services are a public service. Thus, it would be more relevant to compare water co-operatives to municipal and government-run service providers. Nilsson (2001) maintains that even the sociological and institutional literature on co-operatives can be said to have an economic rationale, and in cases like water co-operatives, where members are not motivated by economics, the applicability of these research results is limited.

Yet, the authors see that there is much that water service researchers can learn from co-operative studies especially related to the governance of co-operatives (e.g. Cornforth, 2004; Birchall & Simmons, 2004; Tuominen et al., 2009). It is also argued, that co-operative research could benefit from studying water co-operatives. In the last decade, there has been discussion on the potential role of co-operatives and other non-profit actors in providing welfare services (e.g. Ullrich, 2000; Miettinen & Nordlund, 2000). Even though, water services are in many ways different than health care and social services, maybe something could be learnt from the years of experience of shared responsibility of different actors in organising water services.

The overall objective of this article is to share knowledge and experiences gained from Finnish water co-operatives based on several studies. Finland has placed near or at the top in several international comparisons of the water sector such as the Water Poverty Index (Lawrence et al., 2002). Our aim is to discuss the contribution of water co-operatives to this success and, hopefully, to provide inspiration and basic information for co-operative researchers to do research also on water co-operatives. This article is not co-operative research as such. Yet, we try to cover some literature on co-operative research in relation to water co-operatives.

After an introduction of the used materials and methods, we provide a detailed description of water co-operatives by discussing their environment, basic characteristics, historical development and key actors. Then, we analyse the strengths and weaknesses of water

co-operatives. Finally, we reflect on the key questions related to water co-operatives in Finland and discuss their potential applicability elsewhere in the world.

Materials and methods

This review article is based on several research projects on water co-operatives and their evolution in Finland carried out between 1990 and 2010 by the authors. The first large study on water co-operatives was conducted by Juhola (1990) and Katko (1992a, b). These results will be used to describe the development of water co-operatives.

Takala (2007) analysed the operational development of water co-operatives and other user-owned water systems in Finland. The research was based on case studies of the 15 water co-operatives in the municipality of Virrat and the 13 in the municipality of Uusikaupunki. It utilised questionnaires sent to the water co-operatives and semi-structured interviews with municipal authorities. These results will be used in this article to characterise water co-operatives and identify their strengths and weaknesses.

Åkerman (2009) compared municipal support models for water co-operatives in six Finnish municipalities. She utilised e-mail questionnaires, interviews and a wide literature survey. The results of her research are used here to explain the context and roles of different actors in the operational environment of Finnish water co-operatives.

In 2010 a rapid survey was conducted among the members of the Finnish Association of Water Co-operatives (SVOSK) to acquire basic information on Finnish water co-operatives. The survey was published on the SVOSK website at the end of 2009. Answers were received only from 13 respondents. It is acknowledged that the response rate was very low and thus, the results are used in this article only to support results of other studies.

The observations and experiences of the authors are also made use of. The second author has been involved in setting up and running five water co-operatives. He was also one of the founding members of SVOSK. The fifth author has hands on experience from collaboration between water co-operatives and a municipality. The fourth author has been involved in a study analysing the water co-operatives in Denmark. The authors can thus be called action researchers (e.g. Ladkin, 2004). Experiences and observations about daily activities are contrasted with the results of studies to give as rich and extensive understanding of water co-operatives as possible.

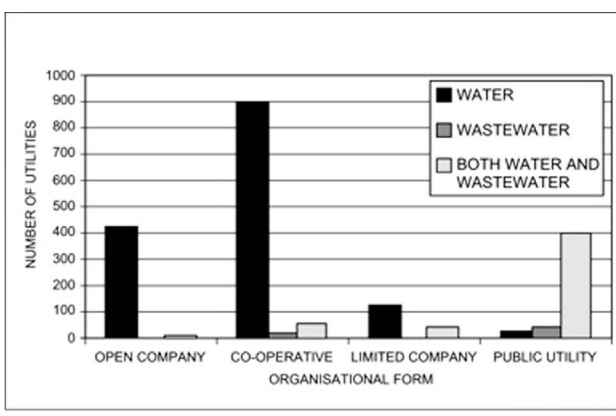
Finnish context of water co-operatives

Water services – a shared responsibility

In Finland, municipalities are in principle responsible for providing water services (Water Services Act 2001), and in larger population centres these services have been produced by municipal utilities since the late 1800s (Katko, 1997; Herranen, 2002). In rural settings – outside planned areas – people typically have to fend for themselves and build their own water services. Co-operatives have had and still have a central role in water service provision outside population centres. According to Fulton and Hammond Ketilson (1992) this is true also with other co-operatives in general, and especially in smaller communities co-operatives play a significant role in providing competitive prices and services that would otherwise not be available. Some municipalities, such as Nurmijärvi, have adopted a strategy of not expanding services to rural areas but rely on co-operatives to provide them (Åkerman, 2009).

Water services in Finland are managed at four levels: (i) intermunicipal utilities, (ii) municipal utilities, (iii) co-operatives and informal partnerships, and (iv) on-site systems, such as wells and boreholes. These systems sometimes co-operate, for instance, in selling and buying of water. Municipal water utilities supply the bulk of water services in Finland, while the number of co-operatives is much larger (Figure 1). During the last decade the number of water co-operatives has increased – according to SVOSK data there are some 1400 water co-operatives in Finland.

Figure 1. Public water and wastewater utilities in Finland in 2001 (Muukkonen et al., 2003).



The legislation on wastewater treatment in rural areas has tightened in 2003, and it has been followed by a surge of new water co-operatives and a change in the role of existing water co-operatives. This issue will be further discussed under the developmental phases.

Diversity among key characteristics

This section aims to give a general view of some key characteristics of water co-operatives, especially their diversity. It is based on the case studies of water co-operatives in the cities of Virrat and Uusikaupunki, and observations of the authors which are contrasted with the findings of a rapid survey made in spring 2010.

According to the SVOSK survey, the water delivered by co-operatives is drawn either from their own source or bought from another supplier. In the case of Virrat, seven of the 15 co-operatives have their own water intakes while the others buy their water either from the municipal water works or other co-operatives. In Uusikaupunki, all of the 13 co-operatives buy their water from the municipal water works – some of them also provide sanitation services.

The official operational area and the number of people served determine the size of the water co-operative. In densely populated areas more water can be delivered through a relatively small network than in a sparsely populated area through a broader network. In Virrat, the length of the water pipes range from 17 m/cap to 427 m/cap, the national average being 37 m/cap (Vehmaskoski et al., 2005). These indicators are often used to estimate the efficiency of water services. The longer the pipelines in relation to population, the higher the costs of construction and maintenance. As can be seen the variation already in co-operatives of Virrat is extremely high, so it is questionable how descriptive this indicator is. Furthermore, it is debatable whether it is reasonable to compare efficiency of water services that are organised in remarkably different settings (cf. Cornforth, 2004). Similarly, it can be misleading to evaluate performance of consumer co-operatives with conventional indicators, as the purpose and values of co-operatives differ from the investor-owned firms (Tuominen et al., 2009).

The cash reserves of water co-operatives vary a lot. Some co-operatives have tens of thousands of Euros in their bank account earmarked for maintenance and services while some have nothing. In Virrat and Uusikaupunki, the financial situation of water co-operatives proved not to be as grim as often assumed about co-operatives but many were financially prepared for future investments. General assumption has been that water co-operatives are not as efficient and are not prepared for the future when compared to municipal utilities. Similarly, it is often assumed that co-operatives are not as efficient as investor-owned firms. This has been subject of large number of studies, but according to Nilsson (2001) there is no evidence to prove that co-operatives in general would be less efficient than other enterprises.

According to the SVOSK survey voluntary work is quite common in water co-operatives: small and big ones. Members can contribute work or money. In bigger co-operatives the operators are commonly paid a salary. Voluntary work can take many forms: general administration, accounting, construction, or 24/7 service. In Virrat, only the biggest water co-operative operating in the centre of the city had employees. Most co-operatives outsourced their accounting and construction services while the rest relied on voluntary work. None of the water co-operatives in Uusikaupunki had employees, but some tasks like meter reading and billing were carried out by active members. In the case of the smallest water co-operatives, the municipal water utility took care of metering and billing.

Co-operation as an organisation model is regulated in Finland by the Co-operatives Act (1488/2001). The reasons for choosing the co-operative model in Virrat and Uusikaupunki have been its flexibility and simplicity in setting up. The Co-operatives Act provides the basic legal framework which can to a certain extent be adjusted by the rules of a co-operative. To members the co-operative model is a safe option as they are not personally liable. Juhola (1990) also notes that equality among members is a central reason for choosing the co-operative organisation model.

All in all, water co-operatives are conglomerations of people, needs, and circumstances shaped by the needs of the area in question and the resources available. Historical development has a significant impact on the way water co-operatives are organised and operated and this is what we will next turn our attention to.

Development phases of Finnish water co-operatives

Development of water co-operatives in Finland can be divided into five chronological, partly overlapping phases. The first phase covers consumer-managed systems built before 1950. These were built without financial support, expenses were often minimised, and most of the work was voluntary. According to Katko (1996), one reason behind the selection of the co-operative organisation form was the experiences gained from dairy, electricity and telephone co-operatives (see also Bager & Michelsen, 1994). People were used to co-operating in their local community to improve their living conditions and livelihoods without support from the state. Peräkylä (according to Herranen, 2006) states that in 1956 there were altogether 360 water works in Finland, of which 171 were co-operatives, 30 municipal, and the rest limited companies or partnerships.

The second phase of water co-operatives covers the period from the 1950s to 1970s, characterised by a stronger role of the state and municipalities. In 1951 a law (397/1951) on the loans and grants for organising water supply and sanitation in rural municipalities came into force. Due to the financial support, the amount of voluntary work decreased (Katko, 1996). In the beginning of the 1970s there were 573 water works in rural Finland, of which half were co-operatives and the rest municipal works (Herranen, 2006).

The third category of water co-operatives includes systems established between the mid-1970s and 1990, most of them in sparsely populated areas. Municipalities actively encouraged people to self-organise their services and supported financially the setting-up of water co-operatives. A legislative amendment made it possible to get financial support for building water mains. Many water co-operatives set up then did not have their own water source but bought water from a municipal water works or another co-operative. In this sense, the co-operatives of that phase were less independent than the earlier ones which decreased members' sense of ownership (Katko, 1996; Juhola & Katko, 1990), an important element of successful consumer co-operation (Jussila & Tuominen, 2010). Many of the smaller and younger water co-operatives in Virrat can be included in this third category.

The fourth phase co-operatives are those established in rural areas initially for water supply, and since the 1990s also for sanitation. These include also systems established in urban municipalities outside the official operational areas of water and sewage utilities. One reason for setting up these new co-operatives can be traced back to the Government Decree on Treating Domestic Wastewater in Areas Outside Sewer Networks (542/2003) which sets stringent demands on wastewater treatment also in rural areas. The purpose of these new water co-operatives is often to operate only for a certain period of time, whereafter the city would take them over by expanding planned areas. It can be argued that the principles of co-operative action are not followed in their case. Most of the water co-operatives in Uusikaupunki can be included in this category – they are just waiting for the city to take them over.

There is also a fifth category of water co-operatives: those established in the 1950s that have over the years along with population growth become practically autonomous public water utilities in mid-sized towns. The above-mentioned Virrat water co-operative serving over 4000 people is one example. There are a

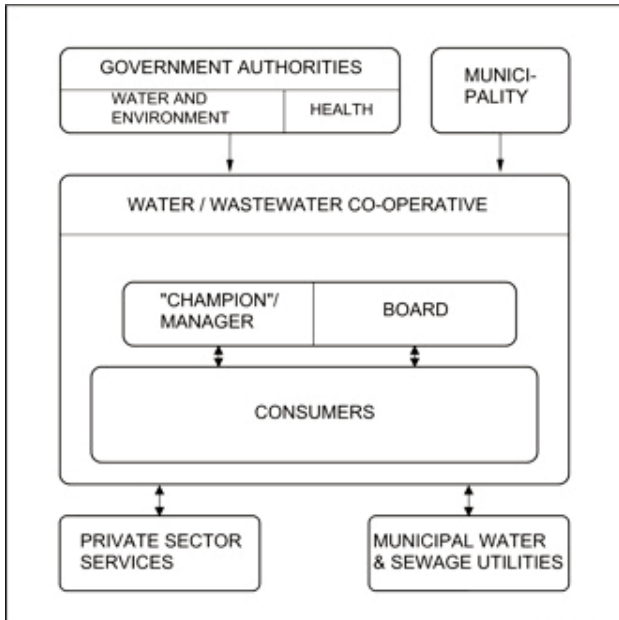
few other similar co-operatives e.g. the ones in Kalajoki, Ylivieska, Vihanti, Kuusamo, and Kitee serving 6–15 thousand people. They have employees but yet operate on a non-profit basis.

The historical framework of the water co-operatives has an impact on their operation and characteristics. This will be elaborated further as the strengths and weaknesses of water co-operatives are discussed. Next, we will look at the key actors in water co-operatives to give a better understanding of their current operational environment.

Key actors and operational environment

Water co-operatives have several players and stakeholders as shown in Figure 2 (see also Hukka & Seppälä, 2004 for an overview). The “water master” or “champion” is the initiator and planner, and often also the first long-time manager of the system (Katko, 1994). The birth and running of a co-operative is to a large extent dependent on such a person. Over time, finding a motivated successor becomes a challenge. This was also noted in the case of water co-operatives in Virrat and Uusikaupunki.

Figure 2. Main actors of water co-operatives in Finland (Katko, 1992a, modified).



Other stakeholders include the central and local governments. The regional environmental authorities have, particularly earlier, promoted and supported financially the creation of water co-operatives while more recently they have promoted merging such systems with each other or other types of systems. The general tendency seems to be for centralisation of water services and, thus, setting up of small water co-

operatives is not supported but merging to bigger units is.

Municipalities may or may not support the creation of water co-operatives. In addition to financial support, municipalities can also offer support in the form of expertise in planning and construction. Participating in planning and construction can be a way for the municipality to control a co-operative and some municipalities use financing as a tool for control. For example, the City of Ylöjärvi requires a water co-operative to have at least five members before it can be connected to a main pipeline without extra charge. This way, the city can better manage its responsibility for the overall development of water services in its area. (Åkerman 2009)

One option is that water co-operatives purchase services from the private sector. In the case of Virrat and Uusikaupunki at least auditing services were purchased in many co-operatives.

Strengths and weaknesses of organising water services through co-operatives

This section aims to analyse the strengths and weaknesses of co-operatives especially from the point of view of organising water services. Table 1. shows the strengths and weaknesses of the water co-operatives in Virrat and Uusikaupunki, representing mainly the fourth development phase since the 1990s. These characteristics were evaluated based on questionnaire responses from the water co-operatives, which are very similar to results of Katko (1992a).

The fact that people know each other and the operational environment was considered a major strength. Co-operatives in general seem to fulfil the principle of subsidiarity that is often highlighted in the ideas of good governance. In co-operative research trust and a sense of shared goals are often seen as key factors for successful co-operation (e.g. Ole Borgen, 2001; Birchall & Simmons, 2004; Jones & Kalmi, 2009). Furthermore, it was perceived that decision-making is flexible and response to change is fast in water co-operatives. In general, management was considered to be easy.

In addition, ability to minimise costs and financial support were perceived as strengths. As has been discussed water co-operatives have received financial support both from the state and the municipalities. This applies especially to latter development phases of co-operatives. Cost minimisation for customers has been mentioned as one of the main reasons for the interest of setting up non-profit mutuals in UK (Bakker,

Table 1. Strengths and weaknesses perceived by heads of water co-operatives in Virrat and Uusikaupunki (Takala, 2007).

Strengths	Weaknesses
• People know each other, subsidiarity (14)	• Difficulty in finding active people, reliance on small number of people (7)
• Flexible decision-making (9)	• Risk management (2)
• Familiar operating environment (7)	• Limited financial resources (2)
• Ability to minimise costs (5)	• Lack of education (2)
• Quick response (4)	• Preparing for the future (2)
• Easily managed (3)	• Lack of motivation (1)
• Financial support (2)	• Unwillingness to extend the service area (1)

2003). Financing, however, is perceived both as a strength and weakness of water co-operatives. This can be explained by the fact that in many cases the financial support for co-operatives has been different even inside the same municipality. Furthermore, especially in Uusikaupunki water co-operatives had not been planned to be run independently in the long-term and thus, they did not have savings for future investments.

As for the main weaknesses, the number of active people is often very small and there are risks related to training of personnel and finance. The biggest challenges were perceived to be the lack of member interest and activity in the running of co-operatives. It was considered extremely burdensome for a water co-operative operating mainly on a voluntary basis to stay abreast of all different regulations related to water supply and sanitation as well as those related to the co-operative organisation form. It is typical that after a water co-operative and the technical systems have become operational, members lose interest, until something goes wrong. This was clearly manifested in the cases of the water co-operatives in Virrat and Uusikaupunki as well as those in Tampere (Åkerman, 2009). It was also evident that active membership decreases as the size of co-operative grows (Spear, 2004). However, at least in the case of Virrat the active members of water co-operatives still saw it as the best option and wanted to have their own co-operative also in the future.

Membership and especially motivating members to participate more actively have been widely discussed issues as one of the key characteristics of co-operative identity is that they are democratically controlled (ICA, 2007; Normark, 1996). Birchall and Simmons (2004) maintain that collective incentives such as strong sense

of community and a sense of shared goals and values are significant in motivating member to participate.

Organising water and sanitation services through co-operatives instead of municipal water utilities provides at least some benefits. For example, in many municipalities water utilities operate as autonomous water corporations, which means that they are run according to profit-making principles. In some of the bigger cities their rate of the return is substantial or even high compared to annual turnover (Vinnari, 2006). This sometimes leads to a situation where water services are no longer considered a basic community service. One important feature of water co-operatives which are run and owned by their clients is that they can pay more attention to social values. However, there is a research gap on what water co-operatives actually signify to the members and whether there actually is added value as water services are provided and produced by a co-operative instead of some other actor. Rajendran (2009) and Fulton and Hammon Ketilson (1992), argue that co-operatives can play a major role in developing the rural socio-economic set-up.

Concluding remarks

Some key points of the discussion in this article are summarized in Table 2. Diversity is one of the key features and it can be argued that one reason for the success of Finnish water and sanitation systems is their diversity. Systems have been built to take into account local and regional variations by not applying same operational model in all conditions. The idea of shared responsibility has proved to function well. Even if water co-operatives have served as a temporary solution, they have in many cases significantly accelerated the setting up of water and sanitation

Table 2. Summary of discussion on diversity of Finnish water co-operatives

Period	I 1900 – 1950	II 1950 – 1970	III 1975 – 1990	IV 1990s –	V 1950s –
Characteristics of water co-operatives	<ul style="list-style-type: none"> • Built without financial support • Willingness to continue as independent co-operatives is strong 	<ul style="list-style-type: none"> • Stronger role of municipalities and state → loans and grants for organising rural water services 	<ul style="list-style-type: none"> • Mostly in rural areas • Actively encouraged and supported by municipalities • Less independent than earlier co-operatives → weaker ownership, passive members 	<ul style="list-style-type: none"> • Mostly in rural areas • Sanitation • External pressure significant in setting up • Often planned as temporary solutions 	<ul style="list-style-type: none"> • Larger water co-operatives • Operate in mid-sized towns, very similar to municipal utilities, however, non-profit basis • Employees → skilled labour

services in their area. This is due to the flexibility and fast responses of the water co-operatives. Municipal utilities are generally much more rigid and slow in providing services to new areas. Profit-making companies, again, rarely have the incentive to serve dispersed areas (see also Yadoo & Cruickshank, 2010).

Our main conclusion is that the sense of ownership and activity of members is crucial for the success of water co-operatives, just as it is for other consumer co-operatives (Jussila and Tuominen, 2010). Usually they have a key person or a “champion” who assumes major responsibility. It seems that in water co-operatives that have been set up under strong external pressure or support, the sense of ownership is not as strong, and they have problems with motivating members. Their existence is at risk in the long run. Tamm (1991) in the U.S. has reached similar conclusions concerning community water supply systems. Co-operatives should be demand-driven. There should exist genuine demand, and thus also willingness, to engage in the community.

Our observations from Finland lead us to define water co-operatives as *conglomerations of people, needs, and circumstances shaped by the needs of the area in question and the resources available*. With this definition we wish to highlight the importance of taking into account the diversity of water co-operatives as well as diversity of co-operatives in general (Bager and Michelsen, 1994; Birchall, 2000). As shown, at least five categories of water co-operatives can be identified. Some of them have played a central role in supplying their community with sustainable water and sanitation services for a long time, and there is no reason why they should not be able to continue to do so also in the future. There are also water co-operatives whose life cycle was originally planned to be short. They are a

temporary solution and a way to get financial support. It is, however, questionable whether they even have the characteristics and values of co-operatives as such (cf. ICA 2007; also discussion on new generation of co-operatives Katz & Boland, 2002). Thus, it is misleading to talk of water co-operatives as a homogenous group as was done in a guide book for water co-operatives covering only the fourth category and giving the impression that they are all just temporary solutions (Heino et al. 2005).

This article has discussed mainly aspects related to the actual production of water supply and sanitation services. Another aspect requiring further research is the social relevance of water co-operatives. Are there other benefits to be gained from organising water services through co-operatives? Does a water co-operative contribute to the growth of social capital in a local community and maybe even encourage co-operation in other spheres of life? Nowadays, it is also often complained that people do not care, and are not really aware of, where their drinking water comes from, how it is treated, and where their wastewaters finally go to. Could it be that the members of a water co-operative are closer to the water services, and thus, value functioning services relatively more than others?

Second aspect to be further explored is the relationship and role of water co-operatives in expanding water and sanitation services into rural areas, and its implications on land use planning and dispersion of settlements. Currently the official goal of the Finnish government is to integrate the spatial structure of communities better, in order to reduce traffic and emissions. It can be argued that water co-operatives disperse settlements by providing services also to the sparsely populated areas. However, the

situation is more complex than that, and it is not easy to distinguish the main cause of dispersed settlement.

According to Birchall (2000) co-operatives are not the answer to the world's problems, but they are one part of the solution. The authors agree, and see remarkable potential in water co-operatives for solving water supply and sanitation problems, especially in the rural areas of many developing economies. For example, flexibility and fast response can be valuable in developing economies, where the governmental and institutional systems are often immature. Yet, the local legal, political and cultural conditions should always be taken into account. In the Finnish context, it has been legally possible and politically and culturally favoured to set up co-operatives. This article has tried to elaborate some major lessons learned from the Finnish experiences. However, it is recognised that further research wider in scope, for example on the social and cultural aspects of water co-operatives, is needed. More sharing of experiences is also needed worldwide.

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