

PRIVATIZATION OF WATER SUPPLY IN THE GLOBAL WATER CRISIS  
An Analysis of the Threats and Opportunities of Private Sector Involvement

Elli Törnqvist

International Business  
Bachelor's Thesis  
Supervisor: Pasi Rikkonen  
Date of approval: 9 April 2021

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### **Objectives**

The main objective of this study was to identify if and how the private water sector could be used to combat the current global water crisis. Specifically, the threats and opportunities of private sector involvement in extending the water network and guaranteeing access to sufficient, safe water supply in the future were examined.

### **Summary**

Water is essential to human existence and a basis for multiple aspects of environmental, political and social justice. Although nations and intergovernmental organizations have made official commitments to improving access to safe, sufficient, and affordable water supply, the public water sector has been unable to achieve these goals. Therefore, this research conducted qualitative interviews with experts in the industry to determine ways in which the private water sector can be safely utilized to fight globally increasing water scarcity.

### **Conclusions**

The qualitative research concluded that the private sector is needed in solving the global water crisis. Corporations were found to be especially beneficial in the three following ways:

- Efficiency, dynamicity, and ability to achieve cost recovery
- Innovation, technological development, and know-how
- Construction, maintenance, and technological skills

It was also discovered that contracts, preconditions, regulatory tools and governance are significant in sustainably including the private sector in water supply. The conclusions of this thesis offer useful information for both private and public sectors. The tools presented can be used to further accomplish universal water supply.

**Key words:** commercialization, human rights, private sector, privatization, public sector, water, water resource management, water supply

**Language:** English

**Grade:**

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# **1. INTRODUCTION**

## **1.1 Background**

Originally, water supply was managed by private providers throughout the world with most people relying on raw water sources. The growing demand for piped water supply grew alongside urbanization and industrialization. By the beginning of the 20<sup>th</sup> century, public entities began to increase their market share, as private suppliers were incapable to expand and meet the growing demand. As a result, water supply was mostly publicly managed throughout the world during the 20<sup>th</sup> century. In the 1990s, privatization of water supply started regaining its popularity as a free-market-based form of water management.

In the 21<sup>st</sup> century, the world has faced rapid growth of population. Overpopulation of the planet has led to scarcity of many resources – including water. Since the 1990s, privatization of water management has been suggested as a solution to the global water crisis, in which over 2 billion people remain without access to safe drinking water.

## **1.2 Research Problem**

As freshwater consumption increases and the population continues to grow, governments and organizations have been unable to combat water scarcity with the current measures. Although privatization has been suggested as a solution for decades, most water supply is still publicly managed. Therefore, it can be concluded that further research is needed to explore the options of privatization and their potential in the global water crisis.

## **1.3 Research Questions**

This study aims to find answers to the following research questions:

1. To what extent can privatization of water supply be used to combat the global water crisis?
2. What are the threats of privatizing the water sector in the context of water poverty?

#### **1.4 Research Objectives**

The following are the research objectives of this study:

1. To identify ways in which private sector involvement can be used to extend water supply to new customers.
2. To identify ways in which private sector involvement can be used to guarantee access to sufficient, affordable, and safe water supply in the future.

#### **1.5 Definitions**

*Water supply:* Water supply can be defined as the measures taken to transfer water from the source to the use of households. It includes the extraction, treatment, and delivery of the product (Finnish Water Services Act 2001). Although drinking water, for instance, is often defined as a good, water supply is a service.

*Public Water Supply:* In public water supply, the system is owned, operated and managed by the public sector including, but not limited to, the government, municipalities, and public institutions.

*Privatization of Water Supply:* Privatization of water supply means transferring the ownership, operation, or management of the whole or a part of water supply from the public sector to a private entity (Gleick et al., 2002).

*Water sector:* The water sector includes the services and infrastructure that create drinking water, wastewater, and stormwater systems (UN DESA, 2010). Operators in the water sector can represent the public, private or voluntary sector.



## **2. LITERATURE REVIEW**

### **2.1 Introduction**

The global water crisis is a social, environmental, and economic issue the world faces today. It has been acknowledged for decades as can be seen in both the United Nations Millennium Development Goals (MDGs) and the United Nations Sustainable Development Goals (SDGs) (UN, 2000; UN, 2015). However, the crisis remains unsolved. Since the 1990s, privatization of water supply has been at the center of the debate.

### **2.2 Definitions**

#### **2.2.1 Human Right to Water**

Although water was not yet recognized as a human right in 2000, the United Nations MDG 7.C set a target to halve percentage of people without sustainable access to safe drinking water and basic sanitation (WHO, n.d.). In 2002, the United Nations Economic and Social Council recognized water as a human right (World Water Council, 2003). The human right to water was further defined in 2010, when the United Nations General Assembly stated, that safe and clean drinking water and sanitation are “essential for the full enjoyment of life and all human rights” (UN, 2010: 2). United Nations Water further explains the right as an entitlement for everyone to “have access to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use” (UN-Water, n.d.). The human right to water also demands the water services to be affordable and people not to be denied access to water due to inability to pay for it (WHO, 2010). To further promote the human right, the 2015 SDG 6 sets an ambitious target to ensure available and sustainably managed water and sanitation for the whole population by 2030 (UN, 2015).

### **2.2.2 Private Water Supply**

Private water supply has multiple different forms that all include private sector involvement. In the so-called British Model, all assets of water supply are sold to the private sector (Petrova, 2006). In a build-operate-transfer (BOT), a government allows a private company to design, finance, and build a model, after which the company can operate the facility and collect tariffs for an agreed upon length of time. When the time period ends, the ownership is transferred to the government (Hayes, 2020). Another option is a public-owned corporation that has both public and private shareholders which combines the efficiency of the private shareholders and the equitable access and affordability goal of the public shareholders (Petrova, 2006). In the fourth model, the government contracts out specific operations or management to private entities in a bidding competition (ibid).

### **2.3 Global Water Crisis**

The humankind has treated water as an infinite resource, which has led to its exploitation. According to Barlow and Clarke, unsustainable agriculture, poor waste management, wetland and forest destruction, pollution, and disturbance of natural water cycles has largely damaged surface water. Therefore, groundwater is now used faster than the nature can recover the aquifers (2002). Continuous growth of population and unsustainable water supply management worsen the impacts of these actions. According to United Nations Department of Economic and Social Affairs, 45 countries are under severe water scarcity or stress (Johnson et al., 2015).

In 2000, only 61 per cent of population had access to safely managed drinking water. By 2017, the percentage improved to 71 (UN, 2020). Although progress has been made, it is too slow to reach the SDG target by 2030 with a constantly growing population that has less water at their disposal. In 2017, 785 million people remained without access to basic drinking water and 2.2 billion people lacked safe drinking water (UN, 2020). In addition, these statistics are excluding the poor population that lives in informal settlements, as they are not included in national statistics. In 2017, the UN also reported that despite the progress, 4.2 billion people still live without safely

managed sanitation (UN, 2020), which is the easiest way to prevent the spread of COVID-19, among other diseases.

Water scarcity creates serious threats and issues to societies. Water security is the foundation for food and energy security (Bigas, 2012), since irrigation plays a key role in agriculture and hydropower is an important aspect in the renewable energy industry. Universal access to water is also a foundation for social development of gender-equality, well-being and equity (Bigas, 2012). According to the United Nations Development Programme, water security plays a role in the large gender gaps in school attendance in many countries. If water is not accessible on the premises, women and children are responsible for most water carrying and collection. In addition, water scarcity creates sanitation problems at schools. Therefore, many girls are unable to attend school during menstruation. 61 per cent of Ugandan girls reported that they stay home from school during menstruation (WHO, 2010). Water scarcity also contributes to child mortality, which further creates issues in the society. Diarrhea is the biggest cause of death among under 5-year-old children in countries with high child mortality. Additionally, contaminated water and lack of improved hygiene contribute to over 90 per cent of child mortality cases. (WHO, 2010) The impacts of the water crisis extend to many more areas of society. Water is over extracted from indigenous people's lands and transferred to urban areas leaving the indigenous population in scarcity (WHO, 2010). Water is said to be the oil of the 21<sup>st</sup> century creating a threat of resource wars. Unsustainably managed and produced, water supply is creating a new environmental crisis.

To meet the SDG and achieve "universal and equitable access to safe and affordable water supply, sanitation and hygiene" (World Bank, 2017:2), large investments are needed. According to the World Health Organization, a water source that less than 1000 meters from home and collectable in less than 30 minutes is considered accessible regarding the human right (UN Water for Life, 2014). However, the definition for safely managed access in the SDGs is water supply that is on premises, available when needed and uncontaminated (World Bank, 2017). Between 2000 and 2015, investments of \$1.4 billion per year in rural areas and \$2.5 billion per year in urban areas have been made towards drinking water management. However, to enable

global, universal access, investments of \$14.5 billion per year in rural areas and \$26.6 billion per year in urban areas are needed between 2016 and 2030 (World Bank, 2017).

## **2.4 Background of Privatization of Water Supply**

Water privatization is a fairly recent phenomenon that quickly became the center of the debate. In the 1970s and the 1980s, private water supply was rare. International institutions, like the World Bank, aided public water services in developing countries (Petrov, 2006). A shift took place when water was originally defined as an economic good instead of a human right (Robbins, 2003). This was a key to private market participation in the industry, as the commodification of water opened opportunities for corporations to enter the market for profit. In 1989, the Government of Margaret Thatcher listed the British water utilities on the private market, which started a privatization trend and gave a name to the model of total asset transfer to the private sector (Petrova, 2006). International development institutions and regional development banks began to encourage improvements in water supply through private sector involvement instead of infrastructure development (Robbins, 2003; Johnson et al., 2015). The World Bank involved demands for privatization as a condition for loans, debt reprogramming and loan forgiveness (Petrova, 2006).

Despite the fast and confident jump on the privatization train, the practice has shown to be controversial and remained a relevant issue without a clear answer. Privatization was started fairly quickly with little evidence behind it. For instance, transnational civil society groups critiqued the European Union for proposing increasing involvement of the private sector to improve water access and sanitation in underdeveloped countries with little to no evidence to back the proposal (Petrova, 2006). Since the turn of the century, the World Bank has changed its stance on the privatization issue. The new stance is that there is no general preference between a public and a private service provider (World Bank, 2016). Privatization of water supply is a controversial issue, hence the shift in the World Bank's attitude. However, water supply is a clear investment opportunity. According to WHO in 2012, the estimated return on investment for universal access to water supply and sanitation is \$4.3 for every \$1 invested (World Bank, 2017).

## **2.5 The Privatization Debate**

### **2.5.1 Financing**

The issue with public water supply in the global water crisis heavily revolves around financing as governments lack the funds to invest in improvements and research. According to the World Bank, investments in water supply decreased by over 25% between 1990s and 2010 (Bigas, 2012). Although a lack of investment shadows the industry, water management attracts finance due to reasonable expectation of revenue (Petrova, 2006).

According to the International Monetary Fund, central banks and sovereign wealth funds held globally about \$15 trillion worth of assets in 2016. In 2015, the development finance of multilateral development banks equaled to \$127 billion, which is only 1% of the \$15 trillion. When including all pension funds, insurance companies, sovereign wealth funds and mutual funds, the assets under management equal to a massive \$100 trillion. (World Bank, 2017)

Currently, the water supply sector is funded in two ways: without required repayment and with required repayment. Tariffs, domestic tax revenue, and voluntary transfers from foundations, official development assistance, and NGOs represent the first type. Although tariffs should be the main generator of revenue, this non-repayable funding does not cover full financing. Repayable financing consists of concessional finance and commercial finance, concessional financing being offered at a low rate with long financing terms by bilateral donors and development banks. Commercial finance, on the other hand, is market-based financing where costs and terms are defined by supply and demand of the capital market. (World Bank, 2017)

Although concessional finance is an important part of funding the water sector, it is insufficient alone with tariffs and free donations. Concessional finance covers about 10% of the investment costs needed to reach the water SDG (World Bank, 2017). In 2003, the 3<sup>rd</sup> World Water Forum also estimated, that the MDG 7.C cannot be met with public investment alone (World Water Council, 2003). Both, the World Bank and the

3<sup>rd</sup> World Water Forum propose commercial finance as a solution. It is important to note that here, inclusion of commercial financing does not mean privatization of the sector. The \$100 trillion that the finance sector holds in assets could be used to fill the gap in funding public water investments that the public sector is unable to cover. However, accepting more expensive funding from the commercial sector is a risk for governments since any losses also affect the people. On the other hand, combination of concessional and commercial loans can enable financial efficiency in the sector. Concessional funding is much slower to acquire as the public resources are scarce and the decision for granting the aid is slow through bureaucracy.

In addition to commercial finance, foreign direct investment (FDI) is explored in the privatization debate. Foreign direct investment in the water market is said to increase the host country's income even after reducing the profits of the FDI source (Robbins, 2003). The FDI increases output in the host economy, which contributes to its capital stock. In addition, FDI attracts more investment as successful operations improve the host country's image as an investment opportunity. However, FDI requires a privatized market to enter.

In a sense, privatization of water supply is contradictory to the whole idea of beating water scarcity, since the more water customers consume, the more revenue the water corporation generates. Corporations depend on constant profit, which makes them more likely to utilize chemical technologies, desalination, marketing and water trading rather than conservation (Barlow & Clarke, 2002). Private water supply is based on profit and commercial aspects instead of environmental and social justice. However, Barlow and Clarke disregard the fact that the public sector has also neglected environmental impacts, and, for instance, most dams are public investments.

Private sector tends to manage resources more efficiently due to bigger losses with inefficiency (Bruggink, 1992; Robbins, 2003; Petrova, 2006). The profit focus of the private sector often contributes to more innovation in efficiency. The 3<sup>rd</sup> World Water Forum also encourages public-private cooperation and the usage of private sector knowledge and innovation (World Water Council, 2003). However, experiences from the Philippines in the 1970s contradict these beliefs. The privatization of water supply caused prices to rise without achieving greater efficiency. The multinationals ignored

economic and social costs caused to citizens in order to focus on generating profits and cost-recovery (Petrova, 2006). In addition, a successful public system in Phnom Penh, Cambodia increased tap-water delivery from 25% of homes to 80% between 1993 and 2002 (Petrova, 2006). Although these are relevant cases that question the reliability of the private system, the bigger resources and willingness to take more risks of the private sector cannot be ignored.

Since private companies are often focused on generating profit, they lack motivation to low-profit commitments. Private companies can abandon their projects if the return on investment turns out to be too small (Petrova, 2006). Even Suez SA and Veolia Water (formerly Vivendi Water), which are among the biggest water corporations in the world, have expressed concern towards investing into poorer economies because of the high risks and relatively low rates of return (Robbins, 2003). Privatization in poorer areas can result in the companies neglecting their operations or not investing the expected amount and effort into development, which developing countries desperately need.

Although private sector involvement is essential in financing the required development projects, privatization of the sector is still highly controversial. Another aspect to consider, is the public aid to private companies. Thames Water provides water and wastewater management to London and areas in South-East England. It generates high profits but required public investment (Johnson et al., 2015). This goes against the main issue privatization tries to solve. Only now, government investment is generating profit for the private corporations. Therefore, it is important to consider privatization from a perspective of its necessity to finance water supply instead of the other way around.

### **2.5.2 Free Competition and Power Division**

As stated earlier, privatization is said to lead to efficiency. The efficiency is achieved through free competition that balances the market to its best solution (Robbins, 2003). Supply and demand set the price and quantity to a level where they serve the market most effectively. A common argument for full privatization in the 1990s was that the

bilateral aid programs for public water supply affect competition and therefore also the quality of services (Petrova, 2006). This aid sets private innovation, research and development in an unfavorable position where it has to compete with a subsidized sector. Governments also tend to be more content with their current inefficient water supply since innovation and improvement projects always bear risks that governments can be unwilling to take at the sake of their citizens.

Although private sector corporations promote free competition, competition in the water market is far from perfect. A few transnational corporations (TNCs) hold an oligopolistic position in the market. The two largest multinational water corporations, Veolia and Suez, serve over 100 million people worldwide through their enormous resources, power and reach (Robbins, 2003; Petrova, 2006). The combined potential revenue of water multinationals is close to \$3 trillion (Petrova, 2006). TNCs do not promote perfect competition as the competition cannot be perfect when the multinationals hold oligopolistic positions in the resource markets while pushing smaller companies out of the competition. They create imperfect competition out of the position they have gained from free competition, which lessens their efficiency in the market (Robbins, 2003). This imperfect competition contradicts with the claim for efficiency as the TNCs can raise their prices without opposition and neglect the most efficient production methods.

The North American Free Trade Agreement (NAFTA) identifies clean water as a good and water supply as a service (Johansen, 2002). Therefore, NAFTA and the General Agreement on Trade in Services (GATS) state that signatory governments must offer equal treatment to foreign and domestic corporations and investors when either privatizing through a bidding competition or already managing water with private involvement (WWF & CIEL, 2003; OECD, 2005). These international trade agreements on free competition result in TNCs taking over water markets once they are privatized, as they can give more competitive bids than smaller companies. The agreements also protect the corporations from being driven out of the competition. This contradicts with international law stating that governments have “permanent sovereignty (ultimate authority) over natural resources within their territory” (Johnson et al., 2015:150). Therefore, states can prevent and stop private corporations from using the country’s water resources. However, the private corporations need to be compensated for ending their contracts (Johnson et al., 2015). Therefore, although private companies



can be driven out of a country by the government, the compensation for losses to the TNCs and their large operations are often too big for many states to afford. Weak or corrupt governments might also be unable or unwilling to intervene if a TNC starts exploiting water resources or mismanaging water supply.

Due to their multinational nature, many are concerned by TNCs' lack of interest in the local needs. Shiva described such instance of Coca-Cola's actions in Plachimada, India, in 2000 (2006). The company was authorized to pump water in the area with a conditional license. However, Coca-Cola started pumping over the agreed upon amount in secret, which resulted in extractions of 1.5 million liters per day. The water levels dropped 45 meters under the surface of the earth to 150 meters under the surface. Although the license was terminated after Coca-Cola's attempts to bribe the village council, the area was left water scarce and the remaining local water resources were too contaminated to be used due to the company's poor waste management (Shiva, 2006). Although Coca-Cola is not a water supply company, this is a clear example of how the privatization of the water sector can lead to the exploitation of the local population's vital resources.

Due to varying needs of water supply, the 2<sup>nd</sup> World Water Forum states that the choice of public, public-private or private should be based on local circumstances (World Water Council, 2003). The 3<sup>rd</sup> World Water Forum also encourages decentralization of water services (World Water Council, 2003). Conducting from these suggestions, governments, financiers, and corporations could alternatively provide tools and aid for local communities to manage their water supply rather than taking over the whole operation. It has also been suggested that international institutions, such as the EU, use their funds to improve management skills and infrastructure in public sectors (Petrova, 2006). The national governments could then improve water supply more locally to fit specific needs instead of massive privatization projects that are not universally applicable.

### **2.5.3 Pricing as a Tool for Value**

The private sector uses pricing to control demand instead of political interests. Therefore, correct pricing promotes sustainable usage and prevents exploitation. Although the supporters of privatization often rely on arguments about free trade and efficiency, price isn't completely black and white when it comes to water. Since water is a public good and a core necessity, it can be more easily used to control demand and therefore usage of the scarce water resources. Privatization also depoliticizes water (Petrova, 2006). In private water supply, there is less political pressure against raising prices. However, it is uncertain that the private companies will commit to controlling prices if it brings down usage of their product.

Pricing can also be used to build better management of water resources and an ideology of valuing water (World Bank, 2020). If consumers valued water more, perhaps they would consider their consumption more carefully. Disregarding the economic value of water can also be considered as wasteful usage of the resource (Robbins, 2003). The private sector has potential to consider the economic value of water more closely than the public sector which focuses more on simply covering the investment costs. However, building more value to water could also lead to its overexploitation due to desired profits.

### **2.5.4 A Human Right Approach**

If privatization is conducted in as the British model, it is hard to defend the policy of losing access to water in an inability to pay. As stated earlier, the right cannot be denied due to failure of payment. Privatization also conflicts with the statement of the United Nations that "people are rights-holders and States are duty-bearers of providing water and sanitation services" (UN, n.d.). However, it would seem irrational that fulfilling the human right more thoroughly through privatization than public services would be considered unacceptable. Although, based on the United Nations statement, the responsibility would stay with the government, even in privatization.

According to Barlow and Clarke (2002), water should be considered a common property since it is a necessity to life. Therefore, it should not be turned into profit. Petrova (2006) agrees with the statements and further claims that privatization of rights “results in their erosion” (p. 592). Privatization does not guarantee access to everyone as it is in the hands of the corporation managing the water supply. However, companies could be held responsible in such an important industry through legislation. In addition, the private sector contributing their resources to extend access to water can also be considered promotion of the human right.

The water market affects everyone, but in a public model everyone isn't given the opportunity to join the market. The 2<sup>nd</sup> World Water Forum states that since water is everyone's business, it should not be exclusive to governments and water professionals (World Water Council, 2003). However, the council also offers a specifying comment that since water should be treated as a common property, it should not be privatized. Therefore, the 3<sup>rd</sup> World Water Forum found that the forum and the council do not support full privatization of the water sector.

One way to lessen the negative impacts of water market privatization is to build corporate social responsibility (CSR) demands around the human right to water. In 2003 the United Nations Sub-Commission on the Promotion and Protection of Human Rights published the Draft Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights which gave corporations responsibilities in the promotion of human rights (Petrova, 2006). However, corporations are still to be held concretely responsible for negatively affecting the fulfillment of the human right to water (Johnson et al., 2015). CSR, in general, also lacks specific and universally accepted definitions and guidelines (Chaklader & Gautam, 2013). This unfortunately gives TNCs a loophole to disregard the aim for universal access. On the other hand, all governments also neglect human rights. The lack of mechanisms used to protect the human right to water shows that governments cannot be held properly responsible for neglecting the right either (Johnson et al., 2015). According to Chaklader and Gautam, Coca-Cola India entered a public-private partnership (PPP) in Kaladera, Rajasthan in 1999 to solve a local water scarcity crisis. The company was met with intense resistance from the local population but managed to prove the assumptions false and connect over 3000 villagers to a clean water source

with CSR. Coca-Cola India's main tool was including the local population and resources in the project, being transparent about actions and usage of funds, and communicating well with the local authorities and citizens (2013). The Kaladera project is an excellent example of how CSR can be used to establish a sustainable and honest bond between the private corporation, the local population and the public sector. Establishing social corporate responsibility requirements around the human right to water more firmly would build trust towards TNCs.

### **2.5.5 A Pro-Poor Approach**

The public sector alone has not been able to provide affordable universal water services despite the aid of both international and national institutions. An important argument for privatization is that the competition can run the prices down. However, multinational water companies have shown to push for higher prices since they want maximal profit (Petrova, 2006). Pricing might not affect the consumption of water since water is a necessity. This finding contradicts with the arguments for free competition lowering prices in the water business. If prices are not lowered and the sector is privatized, the poor population also lose the public subsidies that governments are able to organize for their citizens.

Although higher pricing can be used to build value and environmental consciousness around water, it affects the poor the most and can completely cut off access to clean water (Petrova ,2006). Based on the experiences of local communities on privatized water supply at the change of the 21<sup>st</sup> century, TNCs tend to focus on the most profitable aspects of water supply, which is the wealthiest customers (Robbins, 2003). The issue is that the poor do not bring in enough revenue to cover the operating costs of the supply network. However, the poorest population is often the main focus in the global water crisis as they are the population without access.

In public water supply, use of government subsidies for less wealthy households enables a higher water price, which contributes to the value of water. According to the World Panel on Financing Water Infrastructure, sustainable cost recovery can be achieved by long-term cost recovery with subsidies for the poor who cannot afford

water in the meantime (Petrova, 2006). Subsidizing the water supply instead of the population, on the other hand, can lead to benefitting the middle-class. If water is priced lower, it becomes cheaper for the population that have piped water. The issue is that the poor cannot afford to pay for the connection to the water network, which is when they are left in the hands of expensive private vendors (Petrova, 2006). Although private water corporations do not have government subsidies at their disposal, Suez was able to develop a similar project in Argentina. After signing a contract with Aguas Argentinas to provide water supply in Buenos Aires, the company responded to the local pressure to provide water to the poor by removing its connection fee of \$600 and instead taxing all users to cover the costs of extending the water network into the slums. This required little investment from the company and already generated higher profits in the following five years (Robbins, 2003). Although Suez succeeded in its project, it is important to recognize that similar projects are risky for private corporations as the outcome is uncertain.

## **2.6 Conclusions**

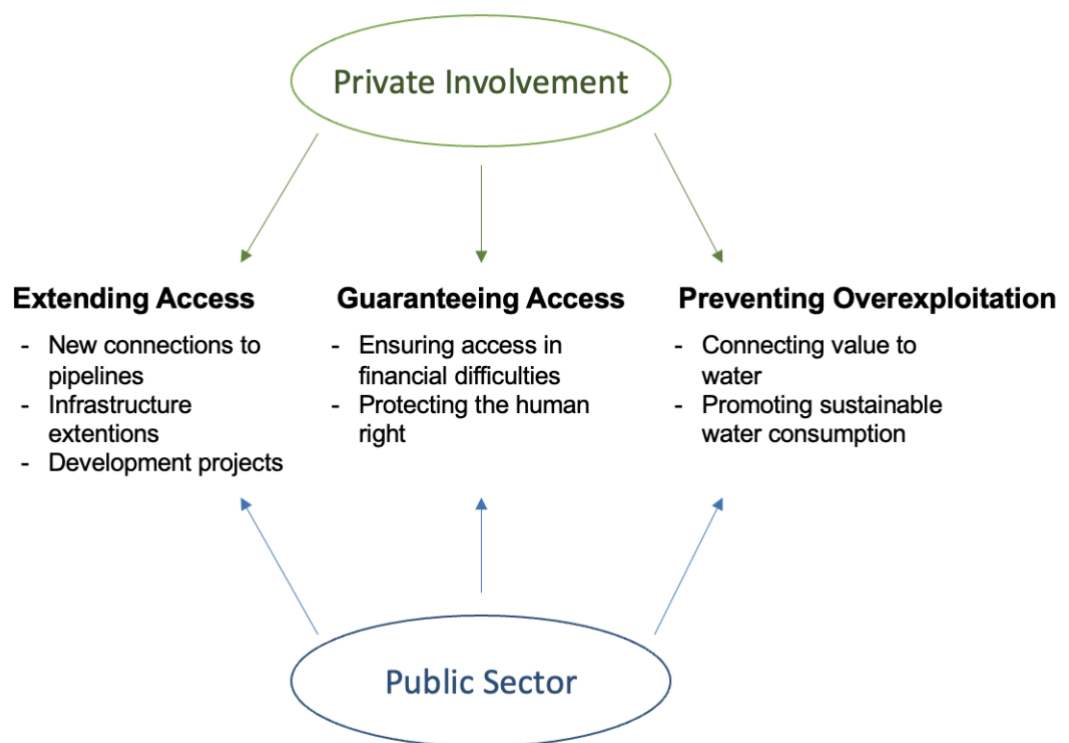
Both, the global water crisis and the privatization of water supply are highly complex issues. The world has made an official commitment to fight water scarcity, but only little progress has been made with the current methods. Privatization of the water sector presents opportunities for efficiency, larger funds, and more innovation. However, the multinationals in the sector have grown so big that privatization raises many concerns about their oligopolistic positions. Opponents of privatization argue that the TNCs have little interest in the local and poor populations, that their powerful position affects their efficiency, and that they have too much control over the whole sector and local governments.

Although private sector involvement has gotten negative concerns, the current public systems are insufficient. They lack funding and are slow due to bureaucracy despite the bilateral aid from both international and national institutions. The private sector holds trillions of dollars in assets. Commercial financing would enable investment projects in the public sector with the opportunity for the government to subsidize poor

population. However, governments can be unable to accept private loans as they are more expensive, and the current public water supply generates low profits.

It is also important to explore the aspect of corporate social responsibility. Establishing a stronger legal framework around the promotion of human rights for corporations would assuage some of the negative aspects in water privatization. Therefore, the research of this thesis will consider the opportunities of CSR as a tool to enable private involvement in the water supply industry. After all, the current public system has proven incapable of improving access to water to a constantly growing population.

## 2.7 Conceptual Framework



The conceptual framework illustrates different aspects in the privatization issue. The three main issues are briefly explained in the framework and they will be examined from the public and private perspectives. Financing, CSR, and operational efficiency will play key roles in the research.

### **3. METHODOLOGY**

The literature review identified areas that need to be explored more closely as demonstrated in the conceptual framework. The aspects of extending access to, guaranteeing access to, and preventing overexploitation of water were highlighted as central issues in the global water crisis. The primary research of this thesis will analyze and investigate the role of the private sector in water supply from these perspectives.

#### **3.1 Choice of Method**

The research questions are relatively broad and complex as water supply is an economic, political, social and environmental issue. To understand and reliably analyze the topic, expertise and in-depth knowledge is needed. Therefore, a qualitative approach was chosen for this research. Qualitative research allows more room for adapting to the responses of the interviewee and searching for clarification and expansion on certain topics when necessary (Phellas et al., 2012). The flexibility is essential to the complex research problem of this thesis as different types of expertise is needed.

A quantitative approach may have resulted in more definite and clearer results, but the results would most likely have been narrow and less valuable. There would have been less room to utilize the expertise of the respondents as they would not have been able to give additional information and views. In addition, the questions and issues surrounding privatization and the water crisis are not black and white. Therefore, the quantitative results would have been valueless as explanation and elaboration for responses is needed to draw justifiable conclusions.

Interviews were chosen as the method of qualitative research after also exploring the option of a self-completion questionnaire. An important advantage of an interview is that the researcher has the ability to clarify questions to the respondent and ask for specifying or elaborating details in order to gain deeper understanding of the respondent's contribution (Phellas, et al., 2012). The flexibility of adapting the conversation to fit the respondent's specific expertise and broaden on topics that the

respondent is especially familiar with is essential for this research as the goal is to gather different types of expertise to address the complex topic.

Saunders et al. (2016) identifies three main types of interviews: a structured interview, a semi-structured interview, and an unstructured interview. When conducting a structured interview, the researcher has defined the questions before-hand and they are asked in the same order as in the plan. In a semi-structured interview, interview themes and some key questions are defined in advance, but the specific questions develop based on the interviewee's responses and background during the interview. When the interviewer does not plan questions or specific themes beforehand and allows the respondent to share their views freely, an unstructured interview is conducted. A more specific focus of research typically calls for a more structured interview, as the results can be compared more clearly among each other and the interviewees answer questions from equal positions due to the question frame being the same (Saunders et al., 2016). In addition, structured interviews also tend to present the least bias as all respondents are asked the same questions, which are written in a neutral style before-hand. When the focus of the interview is less strict and less defined and it is important to allow the focus to adapt to the emphasis and expertise of the interviewee, a less structured interview should be used (Saunders et al., 2016).

### **3.2 Data Collection**

Six interviews were conducted. Five of the interviews were structured with the same question template and the sixth interview was semi-structured with only the topics and a few main questions planned beforehand. The interviews were conducted in a structured way in order to stay focused on the topic which could easily be expanded into conversation about issues irrelevant to the research objectives. The structure also enabled the interviewer to ensure that all three of the research aspects were explored properly. In addition, because the question set was the same for each interviewee, differing views and emphasis was discovered on the topics. However, the interviews were on the less structured side of structured interviews, since some clarifying questions were asked to get better understanding of the responses. The sixth interview was only semi-structured, as the expertise of the interviewee focused more on a



general aspect to sustainable water supply. Therefore, the topics the interviewee was most familiar with guided the questions that were asked.

The interviewees did not receive the question set in advance. However, the interviewees were given the main topics of the research in an email as follows:

“The research focuses on the threats and opportunities of partially or fully privatized water supply regarding the following topics:

- Connecting the poor population of the world to the water network
- Guaranteeing the fulfillment of the UN human right to water
- Building more sustainable and responsible consumption of water with water supply.”

All interviews were held over Zoom video connection and each lasted from 30 minutes to 90 minutes. Due to the COVID-19 pandemic, interviews had to be held over video connection instead of face-to-face. The video connection was eventually turned off due to issues in internet connections during three of the interviews. The interviews were conducted in Finnish.

### **3.2.1 Interviewees**

Purposive sampling was mainly used to choose the interviewees, as different types of experts were needed in order to gain different points of view on the issue. The complexity and specific focus of the research also required knowledgeable interviewees in the privatization and water supply context. However, convenience sampling was also applied in the sense that the intense time frame of the research forced some candidates to be excluded due to scheduling issues. Snowball sampling eventually also played an important role as the recommendations by people in the sector that were contacted enabled the finding of suitable interviewees. The process of gathering respondents began by searching for experts from organizations such as the Finnish Environment Institute and the Natural Resources Institute Finland. After contacting individual people from these institutions and contacting the Ministry of Foreign Affairs of Finland, snowball sampling became more relevant.

The interviewees were researchers and other professionals in the industry that have first-hand information on the topic. When selecting the participants, politically connected entities such as NGOs fighting privatization or politicians were excluded to avoid strong bias. All interviewees were Finnish, which makes the sample more homogenous. However, the different experiences in the sector make up for this fact to some extent. Three of the six participants have long experience of working abroad in developing water supply in countries such as Kenya, Nepal, and Ethiopia.

Name of the Interviewee	Relevant background
Antti Belinskij	<ul style="list-style-type: none"> <li>- Professor of environmental and water justice at University of Eastern Finland, Law School</li> <li>- Research Professor at Finnish Environment Institute</li> <li>- Formerly counselor of legislative affairs in water service law at the Ministry of Agriculture and Forestry of Finland</li> </ul>
Jukka Ilomäki	<ul style="list-style-type: none"> <li>- Currently Chief Technical Advisor at Water Sector Trust Fund in Kenya</li> <li>- Experience in water supply development for example in Nepal through the Kathmandu Embassy of Finland and FGC Finnish Consulting Group</li> </ul>
Jyrki Laitinen	<ul style="list-style-type: none"> <li>- Director of a team for sustainable water supply at the Finnish Environment Institute</li> <li>- Former experience in arranging water supply services and consulting in national and foreign projects</li> </ul>
Sanna-Leena Rautanen	<ul style="list-style-type: none"> <li>- Currently a team leader for FGC Finnish Consulting Company in Nepal</li> <li>- 10 years of experience from water supply development in Nepal</li> <li>- Working experience from the World Bank in the water market</li> </ul>

	- Experience from developing water supply in Bangladesh and Tanzania
Arto Suomien	- 35 years of experience as a team leader on water projects of Finnish development cooperation - Urban and rural water supply development in Africa and Asia
Annina Takala	- Researcher and instructor at Tampere University on topics of water supply, sanitation services, and sustainable development

### 3.3 Analysis of the Responses

The interviews were recorded with the consent of the interviewees. The recordings were first transcribed and organized under the three topics identified in the conceptual framework. After transcribing the interviews, answers of the different respondents were analyzed together one topic at a time to find connections. Parts that were irrelevant to the purpose of this research were excluded from the findings.

## 4. FINDINGS

In this section, the primary data collected in the interviews is examined and combined under different topics of the research.

### 4.1 General Findings

All respondents agreed that the public sector, as it is now, does not have the funds or capabilities to solve the water crisis without the involvement of the private sector. Jukka Ilomäki believes that all actors are needed. Antti Belinskij highlighted the importance of public-private partnership. He also stated that although economic resources are very important, it is as important to use them well. In order to do so, water needs to be made one of the main priorities. Annina Takala also found PPP to be an important option.

Jyrki Laitinen said that flexible co-operation between the sectors with clear roles is needed. Takala stated that the issue is not black and white, but rather the flexibility of partnership is important in order to adapt to different circumstances.

According to Takala, the private sector can bring speed to development and new ideas. Laitinen also stated that the private sector can offer varying operating models and possibilities for faster investments. Arto Suominen states that as the private sector is more prone to innovation and development, it would likely bring more versatility to water solutions. Ilomäki pointed out that sometimes public waterworks are unable to solidify their operations in a region, which could be assisted by the private sector through management support. He explained that the situation in Kenya has remained similar without significant improvements in the hands of the public sector for the two decades that he has had contact to the Kenyan water market for. The private sector could bring new perspectives and tools to encountering the issue. According to Belinskij, the private sector could bring professionalism and expertise to management of the water network in the long run. In addition, he believes that private companies could take a more realistic approach on the economics of water supply.

Ilomäki stated that there should be smart financial instruments to support the activation of the private sector. He believes the operations need to be economically profitable and not require excessive subsidizing. Based on his experiences, private corporations can often bring economic sustainability as the market forces proper management of finances. Belinskij found cost recovery to be one of the significant issues in water supply. In order for the private sector to be willing to participate, it has to be able to cover all costs. Laitinen stated that the funding should come from the fees customers pay. Belinskij believes that forms of social security and cross-subsidization are also important aspects of financing. However, he pointed out that sometimes the public sector subsidizes water supply too heavily which results in failures in cost recovery. Suominen also noted that private sector involvement tends to create new jobs which is beneficial for the local economic situation.

Belinskij highlighted that the public sector must be able to maintain control over water supply. Takala joined this view and was skeptical of the ability of the private sector to resolve the crisis in a country where the government does not function properly.

Laitinen identified good governance and abolishment of corruption as central improvements that water supply needs globally. Belinskij stated that legislation and proper contracts are needed in order to create a framework for functional involvement of the private sector. Takala found the BOT model to be problematic if governance is not well maintained as it is important to have clear contracts about when the private operations are transferred to the public sector. Ilomäki considers water supply a critical service in a society, which is why unnecessary risks should not be taken. Governments tend to have better financial security than individual corporations.

Takala stated that if water supply is no longer a municipal service, the strategic authority is no longer in the hands of the municipality. Agreeing with this, Belinskij stated that with clear preconditions, it can be very useful to include private sector in improving water supply. Laitinen found the responsibility of the public sector cannot be transferred to the private sector as the sector functions on different principles. Therefore, the public sector should purchase or contract the service from the private sector. Belinskij also stated that the public sector cannot escape its responsibilities in water supply, which is why the conditions in the contracts need to be well defined for corporations. He also noted that if the operations of a private company should also be fixed-term.

#### **4.2 Locality of the Issue**

Generally, Takala found it useful to plan functional solutions in water supply on a wider basis. Ilomäki stated that in large population concentrations, like Nairobi, large common entities are needed to give guidelines for water supply. Laitinen also supports large organizations on a national level to set common principles for more local technical operations that take into consideration the local water resources. When focusing on the human right to water and SDG 6, Belinskij considers larger entities very relevant. He also added that small local areas alone are unlikely to attract corporations. Belinskij highlighted that it is always important to find a way to incorporate the needed expertise. A small locally operating company might not have the needed skills to function under exceptional circumstances.

Takala stated that when developing a more primitive water supply system, it is reasonable to consider hybrid models of local and wider focuses. Although smaller organizations might lack a wide range of know-how, Suominen noted that larger-scale organizations and operations require higher level expertise which can be difficult to find in one place. He is also worried that if the water supply of a large area is in the hands of one operator, the population's that is outside of the network needs will be abandoned. Sanna-Leena Rautanen pointed out that smaller projects are more dynamic, create faster improvements, and do not require hundreds of millions of euros, which is often the case in large water supply schemes. Generally, she supports smaller scale schemes instead of a large organization taking over the whole system. If a significant part of population relies on one big solution, the whole supply is at risk in the event of a malfunction or unexpected misfortune.

Based on his experiences in Kenya, Ilomäki elaborated how the same form of water supply in two places with similar circumstances might not work as well. Therefore, local consideration is always crucial. Rautanen also emphasized how each place is unique and the distinct characteristics should be taken into consideration when planning water supply. According to Ilomäki, privatization should not be looked at ideologically by being against it or for it, but rather it should be considered individually in every case. Belinskij also stated that he is not for or against privatization but believes that the public sector cannot escape its responsibilities even when privatizing operations.

### **4.3 Extending Access**

Takala considers expansion of water supply network an important field of investment especially in developing countries. Ilomäki stated that he believes the private sector to be more economically dynamic than the public sector and therefore it should be included in the building of infrastructure with the support of the public sector. Due to the dynamicity of private corporations, once the operations begin properly, Ilomäki believes the private sector is unlikely to need the support of the government or another donor. According to Belinskij, contracts can be used to create explicit rules for how the network is to be expanded and how the costs are to be covered. Belinskij also stated that the government can endorse the operators and the payments collected from the

whole area of the network should be utilized to achieve cost recovery. Belinskij noted that the delivery of water is relatively cheap, and the building projects are what create most costs. Therefore, usage fees are essential to cost recovery due to their high profit margin. Ilomäki acknowledged that urban development in rural areas and low-income settlements and slums in cities require large funds and unique solutions. He highlighted the resources that public-private partnership can offer. Suominen stated that variations of the BOT-model could be used to incorporate larger international corporations in big schemes for large cities. He also explained that, in Ethiopia, the public and private sector have worked together to supply necessary parts for building and maintenance as small private companies lack the capacity for all acquisitions but are needed in the process.

Laitinen stated that the private sector tends to bring new technology to the market. Ilomäki also considers technology important in solving the crisis and he gave the usage of pre-paid software as an example of what has been done in Kenya. Ilomäki also stated that the use of, for instance, solar energy and water purification are extremely useful, but the public sector rarely has the abilities to properly utilize these in developing countries. The efficiency of the private sector is needed. Joining these views, Rautanen highlighted that the development, delivery and maintenance of technology such as automation is an advisable field for privatization. According to Suominen, the private sector is especially important in the beginning of the value chain, as it is needed in construction, and material and technology supply, which was also supported by Rautanen. He also reminded, that public sectors often use private contracting for construction. Belinskij, too, noted that it is important to consider the possibilities of the private sector in building infrastructure.

Belinskij pointed out that piped water supply is not the only reality. The private sector and international organizations have also pursued more affordable options such as well building projects since the UN defines access to water as having a water source close to the property, not necessarily on it. Rautanen explained that it can be nearly impossible for a private company to expand the pipelines in big cities, especially in low-income settlements and slums due to questions of property ownership. She also added that the motivation for such expansion can be low since ideally a slum is only a temporary settlement and municipalities try to transform them into more sustainable

areas of living. Additionally, the infrastructure in such areas is often close to non-existent which would require extremely large investments from the company. Although fully private infrastructure extension projects can be problematic, Suominen noted that in Ethiopia, some corrective maintenance and rehabilitation operations have been successfully privatized.

Belinskij highlighted the importance of contractual conditions when involving the private sector in water network expansion, especially when the operating contract is short-term. Without preconditions, there is little motivation for expansion investments. Ilomäki noted that in rural areas, corporations tend to have little interest in expansion projects. Therefore, as Belinskij acknowledged, a motivating and binding contract is needed to ensure the expansion. Belinskij also indicated that water supply tends to become a natural monopoly, therefore lack of monitoring can easily lead to abuse. Suominen is skeptical about relying on contracts as based on his experience in Ethiopia, the lack of monitoring has led to conditions being more of an illusion of commitment. Rautanen raised similar concerns by highlighting the problems with private long-term projects. The unstable and frequently changing administrations in developing countries can be disadvantaged in the contract as they lack consistency in decision making. However, with proper regulation and monitoring, Suominen is hopeful that contracts could be used to create improvement.

Ilomäki is concerned that if the infrastructure is completely in the hands of a private operator, the crash of the company will result in the crash of water supply. Laitinen also stated that municipal infrastructure should not be owned privately. Instead, private corporations offer clearly priced services to the public sector which then purchases them. According to Ilomäki, the role of the public sector is important in developing countries. Suominen supports public subsidization of water network connections to the poor population as the connection fee is the most expensive aspect of water supply for the consumer. Belinskij noted the public sector has, based on legislation, responsibility over infrastructure as corporations do not necessarily have interest in expanding to poor areas. Laitinen also acknowledged that if a private corporation owns the infrastructure, it can easily end up neglected if it does not generate high enough profits, which creates unpredictability. In the end, the decayed infrastructure remains an issue that affects the public sector and the population.



#### 4.4 Guaranteeing Access

Although in the previous section, Belinskij's thoughts on finding lower cost solutions as alternatives to piped water supply were explored, Ilomäki considers the transfer from shared public taps, water kiosks, and raw water essential in the water crisis. He stated that it is important that households have water meters which enable payment based on usage. Thus, the poor only need to pay for their own usage and the higher consumption of the wealthy generates profit. Ilomäki also noted that pre-paid water supply utilizes modern mobile technology where payment is built into the system. The water supply project Ilomäki is currently working in operates in six counties in Kenya. The supply currently works best in Tharaka-Nithi county where the meters are widely assembled, and customers pay based on their usage. Although Suominen supports the use of meters and payment based on usage, he reminded that distances can be extremely long in rural areas where people live far from each other. Therefore, it can be difficult and expensive to draw pipelines. According to Suominen, the private sector is needed to develop solutions that can be used alternatively to a pipeline in remote areas. He highlighted systems created by private companies, for instance the atmospheric water generator. Suominen finds the private sector essential in developing technology, for instance water disinfection systems for households. Rautanen called for private sector involvement in developing hi-tech systems that enable automatic reading of the meters as it is impossible to monitor all households manually in large cities. She stated that the know-how and educational input of the private sector is important. Suominen also explained that, in Ethiopia, the private sector has developed electronic meters that in addition to volume also measure the quality of water. As also found in the previous section, corporations are essential to advancing innovation and developing pioneering solutions that can be used to update current systems.

Suominen highlighted the importance of using finance institutions to guarantee loans that the private sector needs. However, he also stated that corporations need to actively arrange financing solutions that enable construction and material supply. These arrangements would be between corporations and financial institutions, as, according to Suominen, companies have better capacity for concrete action than these institutions, but they often lack funding. Takala pointed out that since water supply is

so essential to society and a human right, it would be reasonable to utilize tax income in financing it. Belinskij considers social securities and governmental aid important to include in water supply development. Laitinen, however, is skeptical of mixing tax and water money: by financing water supply with tax profits, and also by using water management profits to other governmental investments. Laitinen also explored the possibility higher motivation for maintenance for a private corporation if it has invested its own assets into the project. According to Ilomäki, the private sector is needed in the financing of water supply maintenance. Privatizing maintenance services in both, rural and urban areas, was also supported by Rautanen and Suominen.

Rise in prices due to privatization is a relevant issue that Belinskij highlighted by pointing out the protests that tend to surround privatization. He claimed that the price is not a threat for the population that can afford water, but it can be crucial to those who can currently barely afford it. On the other hand, Belinskij claimed that sometimes the private operator is discredited. When a public sector has driven water supply into a chaotic state, a private corporation is called to help with the repair debt. The private company is forced to raise prices to maintain cost recovery and is blamed for the issues the public sector has created. With sufficient payment levels, water supply can gather financing for its operations, which results in a reliable service. According to Ilomäki and Rautanen, people tend to be willing to pay for a service if they can rely on it in the future, too. Therefore, Ilomäki stated that changes in attitudes are needed through information guidance and awareness raising about the significance of water. Rautanen also suggested that by improving mobile technology, paying becomes more effortless and clearer, which can increase motivation and willingness to pay. Rautanen stated that private companies play an important part in developing the technology. Although sufficient payments are necessary, Belinskij is concerned about the phenomenon of a water operator charging more in a poor area to cover its costs than in a wealthy area where the maintenance and rehabilitation costs are lower. Belinskij claimed that the role of the public sector is important in solving this issue.

Ilomäki talked a lot about the importance of willingness to pay for water supply in the developing country context. He identified it a central problem in Kenya, where women have always carried water from the wells for free, and as a result, the population is not willing to pay for it. However, if a service is not paid for, it cannot be maintained as

there is no ground for sustainability, according to Ilomäki. He also noted that, based on his experience in Nepal, willingness to pay can be a bigger factor than wealth. Rautanen has similar experiences and highlighted that many of the people who are considered too poor to afford water own mobile phones. Ilomäki was working in a remote area in Nepal where the local population claimed they could not afford to pay more than the then €0.5 per month for water, which was the same amount as a bottle of local alcohol Raksi cost. The water payments were so small that the needed repairs could not have been done since there was no money left over for the water supply. However, when Ilomäki's team discussed the issue with locals and asked if the monthly supply of water was really only worth a bottle of alcohol, the locals realized that in order to make better Raksi, they need cleaner water, which requires more funds. Therefore, the population agreed to higher water payments and by prioritizing water they found the funds to pay for it. Furthermore, Ilomäki said he believes that some people who consider themselves insolvent when it comes to water, are just not willing to pay for it. He stated that behavioral change is needed and can be pursued through information and public campaigning, which have led to national programs in the field of sanitation. However, similar movement is still to be seen regarding water supply. Ilomäki considers change in attitude from referring to water as a free natural resource to thinking of water as a service that should be paid for.

Takala explored the option of graduated pricing of water supply, which would offer a free or very affordable base amount of water in poor and water scarce countries. Belinskij also claimed that graduated pricing would be a reasonable option that can already be seen around the world, for instance in South Africa. The benefit of progressive pricing was described as the ability of the household to regulate its water bill based on usage better than in a flat rate system by Laitinen. He also offered tying pricing to ability to pay as an alternative. Rautanen also indicated her support for progressive pricing. Takala stated that with regulation, corporations could be obligated to guarantee a base amount of water for free or affordably. She also pointed out that a corporation with forethought could understand that access to water raises living standards, which creates paying customers. However, she also acknowledged that for a company to commit to such long-term strategy, it needs to be guaranteed a long contract over the water supply. Ilomäki also stated that it is important to incorporate subvention into water supply.

Takala considers corporations to be easier to monitor than governments, which creates transparency. She believes that with strengthened legislation, added monitoring and clarified consequences, corporations can be incorporated safely. She also pointed out that if the public sector is corrupted, it could be reasonable to channel government subsidies to corporations to carry out pro-poor projects. However, Ilomäki pointed out that the overall responsibility of the government cannot be escaped. Suominen and Ilomäki noted that the private sector will always operate in a profitable way and can therefore not be expected to enter all market areas. The statement was supported by Belinskij, who elaborated that since the poor, who are not an attractive target market for business, often suffer from lack of drinking water, corporations are unlikely to pursue the needed improvements on their own. Rautanen claimed that a fundamental service should not be provided on business motives, especially if the operator comes from elsewhere. According to Ilomäki, a balance between what should be privatized and what should be kept public needs to be found.

Belinskij considers different forms of social security as a way to ease the financial burden of companies in such markets. He also noted that in Finland water suppliers do not need to worry about getting their payments as the comprehensive social security system guarantees the customers' ability to pay. In a case where the social security cannot do this, Belinskij considers cross-subsidizing and alteration of cost structure as tools. Water supply can begin as less cost-intensive in more complicated areas by improving the situation with more affordable tools in the beginning. Belinskij also noted that motivation for pro-poor projects often comes through large business opportunities that make economic sense. Rautanen identified subsidies from the public sector as a tool for guaranteeing access to water. However, she noted that the subsidy needs to be clearly defined and distributed in a way that it will be used to water supply directly instead of covering other expenses with it. According to Rautanen, the poor population could be supported by, for instance, donating a base number of tokens to water kiosks either for free or very cheaply.

Belinskij pointed out that human rights are, above all, between a state and an individual, therefore traditionally corporations have had little to do with them. Laitinen does not see a possibility to force corporations to guarantee a human right either.

Rautanen also stated that the state, the municipality or the city is responsible for guaranteeing access to water. However, Belinskij noted that corporations are still expected to respect human rights and therefore cannot create barriers that restrict the right to water. Responsibility commitments have also been made regarding water. Belinskij also mentioned that the European Union is developing legal framework around corporate social responsibility. According to Belinskij, there are many measures to support the right to water, but it is difficult to set obligations that force a corporation to operate in a specific area based on the human right.

In addition to monitoring the operators in the water sector, Suominen highlighted the importance of monitoring and standardizing the materials and technology used in water supply. He considers the current materials used in water supply to be unsustainable, and therefore the quality should be monitored and regulated. Suominen also called for better water resource management since it is crucial to securing water supply. He stated that even when there are sufficient resources, they can be managed poorly, eventually resulting in water scarcity. Resource management, however, is the responsibility of the public sector, according to Suominen.

#### **4.5 Preventing Overexploitation**

Takala believes that when commercializing water supply, the corporations will have less interest in creating sustainability, since the more water sold results in more profit. Laitinen is also concerned that corporations will value quick profit over sustainable water supply development. Suominen acknowledged the threat of scraping together maximal profit unsustainably during operation period if a private corporation takes over the whole system with a commercial incentive. Belinskij stated that without clear conditions, there is little incentive for a corporation to control water consumption and the corporation might even attract manufacturing that unsustainably uses excessive amounts of water. Takala considers the ultimate purpose of water supply to be to provide the necessary services as sustainably as possible. On the other hand, Belinskij evaluated that the private sector can be more efficient in maintaining the water supply with a clear business plan if the contract motivates good maintenance. Laitinen pointed out that, in England and Wales, privatization without a thorough plan resulted in the

water corporations reaching for quick high profits instead of investments in infrastructure, which has resulted in decayed infrastructure and leakages. Therefore, Laitinen generally supports the BOT-model over full privatization.

One aspect of preventing overexploitation identified in the literature review is building appreciation for water. However, Takala noted that even in Finland, where water scarcity has not been an issue, water supply is a valued municipal service. According to her, the issue is that citizens feel unable to affect water supply issues. Similarly, Suominen suggested a form of privatization where the local people are involved in the company rather than having a foreign corporation operate. Direct involvement could increase motivation towards both sustainability and maintenance of the water supply system. Takala estimated that ability to have an impact would raise interest towards building sustainability. This relates to Ilomäki's thoughts on building willingness to pay through raising awareness. Belinskij also stated that information guidance is an important tool in creating sustainability. Suominen joined these views and identified communication and education as key tools for building sustainability. He suggested that the private sector is used to educate and spread awareness to employees of waterworks, households and communities.

Ilomäki identified transferring into a system where people pay based on their water usage to be an important step forward in creating sustainability in developing countries that often use flat rate systems. Assembling the meters is essential. Suominen highlighted the importance of the private sector in developing technology that advances sustainability. He explained that when the meters function as automatically as possible and the information is delivered to a central office, the motivation for closer observation of water consumption increases as an employee does not need to be sent out to read all meters. Suominen also mentioned that households can receive accurate information about their water usage and the information can be used to educate about sustainable water consumption. Ilomäki also stated that private companies tend to monitor water usage more closely since they want to carefully follow their finances. In addition to using technology for measuring water demand, Rautanen views the private sector as a key developer of new sustainable solutions. For instance, Suominen suggested that companies could develop systems that utilize gray water. In many communities, clean drinkable water is used for purposes that do not require disinfected

water. According to Suominen, developing technical solutions for the issue would both create sustainability and spare water resources.

Belinskij and Laitinen consider pricing a central tool in creating sustainable consumption as there are many countries where pricing is not even used in water supply. Belinskij, Ilomäki and Rautanen recommended graduated pricing as a tool for sustainability, since if a consumer is using more water than the general base amount, they should be willing to pay more for it. Ilomäki noted that such system is used in Cape Town to limit the usage of the scarce water resources. As Belinskij stated, the delivery of water is not a big expense and water usage fees can therefore be used as an incentive to limit water consumption. Suominen also supports progressive pricing and highlighted that the progression needs to be steep enough to create incentive for sparing use. Furthermore, Rautanen elaborated on the benefits of graduated pricing and it was found that the incentive for the simple improvements of not leaving the tap open and fixing leakages would be likely to grow as well.

**4.6 Summary of Key Results**

A table of central findings about how privatization can promote and prevent improvement of water supply is presented here.

	<b>Promoting factors</b>	<b>Preventing Factors</b>
<b>Extending Access</b>	<ul style="list-style-type: none"> <li>- Economic dynamicity in expansion projects</li> <li>- PPP offers large resources</li> <li>- BOT can be used to safely incorporate large companies</li> <li>- Development of new technology, supply of software and equipment</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of motivation to expand into economically unappealing areas</li> <li>- The monopolistic nature of private water sector</li> <li>- Large corporations having power over weak governments</li> </ul>

	<ul style="list-style-type: none"> <li>- Innovating alternative solutions</li> </ul>	<ul style="list-style-type: none"> <li>- Threat of fundamental infrastructure being neglected in private hands</li> <li>- Property rights</li> </ul>
<b>Guaranteeing Access</b>	<ul style="list-style-type: none"> <li>- Water meter development, installment and maintenance</li> <li>- Advanced technology</li> <li>- Improvement of automation</li> <li>- Financing and/or operating maintenance</li> <li>- Reliability of the service achieved with sufficient payments</li> <li>- Reliability of service and ease of paying create willingness to pay</li> <li>- Technology and monitoring that enables progressive pricing</li> <li>- Opportunities for cross-subsidizing</li> </ul>	<ul style="list-style-type: none"> <li>- Poor population suffering from a likely rise in prices</li> <li>- Lack of motivation for pro-poor approaches in short-term projects</li> <li>- Insufficient regulation and lack of proper contracts can lead to negligence of the needs of the underprivileged population</li> <li>- Corporations are not obligated to fulfill human rights</li> </ul>
<b>Preventing Overexploitation</b>	<ul style="list-style-type: none"> <li>- Private sector efficiency</li> <li>- Usage of water meter data for educational purposes</li> <li>- System for graduated payments based on usage</li> <li>- Developing new sustainable solutions</li> </ul>	<ul style="list-style-type: none"> <li>- Commercial motives can discourage sustainability</li> <li>- Threat of choosing quick profit over long-term solutions</li> <li>- Little interest in the future of local resources</li> </ul>
<b>Generally Improving Water Supply</b>	<ul style="list-style-type: none"> <li>- Brings speed to development</li> </ul>	<ul style="list-style-type: none"> <li>- Less opportunities for subsidization than in the public sector</li> </ul>



	<ul style="list-style-type: none"> <li>- New innovations create versatility to range of solution</li> <li>- Better managerial abilities</li> <li>- A wide range of expertise</li> <li>- Closer focus on economics and cost recovery</li> </ul>	<ul style="list-style-type: none"> <li>- Insufficient contracts or the lack of them removes incentives for sustainability</li> </ul>
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## 5. DISCUSSION AND ANALYSIS

In this section, the findings of the primary qualitative research and the secondary data presented in the literature review are analyzed and discussed in relation to the research questions of the thesis.

### 5.1 Opportunities of Privatization of Water Supply

#### 5.1.1 Extending Access

The literature review established that the public water supply sector has insufficient funds to solve the water crisis which was backed by the interviewees who believe the public sector currently lacks both the funds and the abilities to fulfill international commitments to water. Therefore, private sector involvement in financing water supply development was explored. In the literature review, the water market was found to be a profitable investment, as the World Bank describes universal access to water to have good return on investment (2017). Not only is the funding an opportunity but also needed. According to the World Bank, an estimated \$40 billion of annual investments are required to meet SDG 6 (2017). It was found in the interviews that the market forces private companies to be economically profitable which creates financial sustainability and a lower need for subsidies. A private company is more likely to achieve cost-recovery than the public sector and therefore be a more profitable investment.

Additionally, the interviews suggested that public-private partnership enables the use of bigger resources for complicated projects, for instance, in rural areas that are becoming urbanized. The BOT model was mentioned as a way to incorporate large multinational corporations that have more capital. Alternatively, commercial funding was found to be a tool for creating financial efficiency and capability in the literature review, which was supported by the interviews. Furthermore, some interviewees suggested that cooperation between private corporations and financial institutions creates efficient and profitable expansion projects.

The inclusion of foreign direct investment was explored in the literature review. According to Robbins, FDI tends to increase the host country's income while generating funding for the water sector (2003). However, foreign direct investment requires a private market. Supporting the idea of investing in private operations, it was found in the interviews that corporations have a clearer and more realistic vision on financial conditions, which creates a more attractive investment opportunity. The private sector was also described to bring speed to investment and development. In fact, unlike the literature, the interviewees focused heavily on the importance of private innovation which was, for instance, said to bring versatility to water supply. The Kenyan market was described to have remained similar for decades under the public sector. The private sector's fresh perspectives could be essential for improving the supply.

Two successful private pro-poor expansion projects were discussed in the literature review: SUEZ in Buenos Aires and Coca-Cola India in Kaladera. These projects demonstrate that expansion into economically unattractive areas and cross-subsidization can be profitable in the long run. CSR was successfully used to create trust and co-operation, which enabled network expansion. Private sector involvement often also creates jobs as was found in the interviews. Improvement in employment naturally improves local economy. In addition to advanced living conditions due to water supply expansion, this can result in more paying customers and higher profit.

### **5.1.2 Guaranteeing Access**

The technological abilities of the private sector were explored as the 3<sup>rd</sup> World Water Forum supported public-private cooperation in order to incorporate private sector knowledge and innovation (World Water Council, 2003). The topic was more thoroughly addressed in the interviews as all respondents described the main role of the private sector as an innovator and a developer of new technology and solutions. In order to have customers pay based on usage and utilize graduated pricing, the private sector is needed in creating technology for water meters and automation for reading them. Mobile technology was also introduced as a tool to ease paying and therefore create motivation and willingness to pay for the service. Another purpose named for innovation was the creation of alternative systems for piped water supply in remote rural areas. Therefore, the importance of the private sector in product and technology development cannot be ignored.

Different forms of subsidization have been explored in both, the literature review and the qualitative research. The literature review found that when subsidies are directed to the population instead of the system, the system can be either public or private as the money goes directly towards the customers instead of a corporation. Although such subsidization is important and enables the involvement of the private corporations, the interviews highlighted tools that the corporations have to advance a pro-poor agenda without the involvement of the public sector. Progressive pricing was discussed as an important tool for combatting the issue of higher prices. Since a sufficient payment level is required to achieve cost recovery and finance needed maintenance and extensions, graduated pricing would ease the burden of the underprivileged population. Respondents specified that in order to create a functioning system, the private sector is also needed to develop the needed technology. Interviewees also highlighted the opportunities in cooperation between corporations and financial institutions in maintenance and material supply as the private sector operates dynamically and the institutions have the ability to offer required funding. In both, the literature review and the interviews, private companies were found to be more likely to achieve cost recovery than the public sector. The qualitative research found it to contribute to the reliability of the service and increase willingness to pay. Increased

willingness to pay further improves cost recovery and ability to implement needed maintenance and improvements in the system.

The human right to water both requires and motivates socially responsible activities. The literature review highlighted that when corporations help improve water supply, they are promoting the human right. Therefore, excluding corporations could be considered preventing the fulfillment of the right. In addition, since water affects everyone, everyone should be allowed to contribute to guaranteeing access to it (World Water Council, 2003). Legislation for CSR is being actively developed, as was found in the interviews, which will help hold corporations accountable. Additionally, the literature review acknowledged the already existing framework for connecting CSR and human rights. Findings from the primary data suggest that corporations can be better held responsible for negatively affecting the fulfillment of the human right. Furthermore, interviewees described corporations as easier to monitor than governments, which indicates corporations to be a considerable approach to ensuring water equality. Longstanding projects were found to create pro-poor motivation through economic profit in the long run.

### **5.1.3 Preventing Overexploitation**

Although exploitation of water resources has been identified as a considerable threat in privatization of water supply, Barlow and Clarke reminded that the public sector also neglects environmental justice (2002). Private corporations were found to be more efficient in resource management due to threat of losing profits in previous research. The primary data supported this argument and indicated that efficient management results in less water wasted. Another aspect the respondents introduced was the tendency of the private sector to monitor expenses more closely, which, for instance, advances the discovery of leakages. The literature review offered higher pricing as a tool to create value for water and decrease consumption and exploitation. However, the interviewees found raising flat rate prices problematic, and therefore focused on graduated pricing. The progression motivates households to control their water usage as, in addition to paying based on consumption, the price per cubic meter also increases gradually. However, the system requires technology and automation.

Interviewees found the private sector to play a key role in developing, supplying and maintaining it. The innovations ease the monitoring of water consumption, which, according to the qualitative research, can be used to draw more attention to sustainability and spread awareness on water consumption patterns. Interviewees also defined the private sector as an important contributor to education on sustainability in both, water consumption and water supply.

## **5.2 Threats of Privatization of Water Supply**

### **5.2.1 Extending Access**

Private corporations were found to lack motivation for low-profit commitments in the literature review. Even large water corporations are concerned about investing into poor areas due to potentially high risk and low profit (Robbins, 2003). Another concern raised in previous research is the requirement of public investment even in the private sector which Johnson et al. (2015) identified Thames Water as an example of. It can be considered questionable that public money is invested into private operators that then generate profit from it. Similar concerns were raised during the interviews as motivation to expand to low-income areas was questioned. Especially TNCs were expected to only enter high-profit contracts. Respondents were also skeptical of transferring infrastructure to private ownership as the threat of companies neglecting unprofitable parts was considered significant. The issue would create unpredictability into water supply which, as explored earlier, would decrease consumers' trust and willingness to pay.

Although successful private expansion projects have been discussed in this thesis, based on findings in the literature review, corporations still generally lack incentive for pro-poor approaches. Some interviewees found governments to have better financial security than private companies which makes public expansion projects less risky. In addition, concerns about different motivational principles of the private sector were identified from the primary data. Respondents found that the responsibility of the public sector in water supply cannot be transferred to a profit-driven corporation. Additionally, the ability of the private sector to extend water network especially in large cities was

questioned due to basic property ownership issues. Both, the primary and secondary data also highlighted the ability of the public sector to subsidize water network connections.

Administrative structures and their effect on water supply were not considered highly relevant in the literature review. However, all interviewees discussed their effects on contractual circumstances. The ability of weak or corrupt governments to maintain power in privatization was questioned. BOT model, for instance, was found problematic with an ill-functioning government, as clear contracts and the monitoring of them are essential. The contracts are not sufficient if supervision is not conducted properly. In addition, the administration needs to be organized well to be able to negotiate contracts with comprehensive and binding preconditions that guarantee needed extensions.

### **5.2.2 Guaranteeing Access**

Although efficiency is often described as a core opportunity of privatization, research has shown that it is not necessarily the case. A corporation also has the opportunity to raise prices to cover the lack of profitability (Petrova, 2006). The theory that the water market is not a free market but rather the oligopoly of the TNCs leads to lack of pursuit for efficiency was discussed in the literature review. It was found that powerful corporations can raise prices as they like which contradicts with the arguments for free competition and its benefits in a privatized market. The interviews also demonstrated that rise in prices is a relevant concern, especially since it is a severe threat to those who struggle to pay for water as it is. After all, water is a necessity, and its consumption cannot be eliminated in as that of a luxury product. Respondents were also concerned about significant price increase in poor regions as costs tend to be higher in those areas.

NAFTA and GATS agreements were explored in the literature review. Such treaties often guarantee access for multinational corporations to national markets based on the demands for equal treatment of companies. Johnson et al. also noted that in case a state wants to drive a corporation that manages and operates water supply poorly out of the sector, the TNC needs to be compensated for their economic losses (2015). The

operations of the companies are often so large that the government is unable to afford it and gain back control over the supply. While being difficult to remove, it was found that corporations also tend to focus on the most profitable aspects of water supply: the rich (Robbins, 2003). These threats were also acknowledged and evaluated during the interviews. It was noted that, without clear and sufficient preconditional contracts, it is impossible to guarantee that a corporation invests and serves the poor. In addition, the motives for turning impoverished people into paying customers through CSR projects was questioned if the guarantee that the company can operate for a long period of time is missing.

The World Health Organization declares that the human right to water cannot be denied due to inability to pay (2010). However, it was found in the literature review that the requirement contradicts with the principles on which private companies operate. The conflict is to be taken especially seriously in the British model. Additionally, human rights are essentially between states and individuals (UN, n.d.), which was also acknowledged in the primary data. Interviewees stated that governments cannot escape their responsibility to fulfill the right which makes full privatization problematic. In addition, the question of privatizing a human right was raised in the literature review. It seems questionable that a private corporation controlled the fulfillment of something that is fundamental for human existence. Furthermore, institutions and governments have been unable to hold companies responsible for neglecting human rights despite the legal frameworks that have been developed (Johnson et al., 2015). According to the interview data, even with the proper legal obligations, it is unreasonable to expect private entities to enter all market areas since business needs to be profitable. Naturally, poor population is rarely attractive for business.

### **5.2.3 Preventing Overexploitation**

The interviewees identified a rather fundamental issue in preventing overexploitation in a private water supply: the more water corporations sell, the more revenue they generate. The problem was also explored in the literature review as desire for profit may result in corporations encouraging more consumption which leads to more severe scarcity. In addition, it has been discovered that corporations might use unsustainable

technology in order to generate faster profit instead of investing in long-lasting solutions. The respondents of the qualitative data had similar concerns. Moreover, interest in long-term sustainability was questioned in the BOT model, as motivation to create a durable system for another entity to make profit off of seems irrational. According to the primary data, lack of contractual conditions removes the incentive to control consumption. The Plachimada incident of the literature review is an example of corporations taking extreme measures and exploiting the water resources themselves. In conclusion, the motives of private companies to enter the water supply sector often go against the pursuit of sustainable development.

## **6. CONCLUSIONS**

### **6.1 Main Findings**

The objective of this research was to identify ways in which private sector involvement can be used to extend water supply and guarantee universal access to sufficient, affordable, and safe water in the future. Although analyzed separately in this thesis, guaranteeing access to and preventing overexploitation of water are closely tied to each other as sustainability is essential to ensuring future supply. Therefore, they are therefore together in this section. The findings made based on primary data of the qualitative research exposed multiple ways in which the private sector can be included in solving the global water crisis.

The qualitative research shows that the British model is too controversial and risky to be supported as a form of extending the water network. Since it was found that the public sector must maintain control over the infrastructure and the private sector operates on profit-driven incentives, corporations cannot be trusted to expand into less favorable market areas. However, the research discovered that different forms of cooperation between public and private sectors should be used to incorporate sufficient resources and funding. Big and complicated water network projects benefit from public-private partnership, which utilizes private capital and companies' ability to achieve cost recovery and dynamicity. The BOT model was found to be a useful tool



to attract large corporations and create wanted expansion and improvement through clear contractual preconditions.

In addition to needing capital, resources, and functionality from the private sector, public water supply lacks technology, product development, and innovation. The research found private companies to be important in developing solutions that create versatility to water supply systems, improving mobile technology and automation, and supplying materials and parts for projects. The private sector should also be actively incorporated in constructing new pipelines and other schemes.

It was established in the interviews that human rights are between states and individuals. Therefore, full privatization of the water sector can be considered unjustified as it is the responsibility of the government to guarantee access to water. However, the qualitative research identified different ways in which the private sector can be used without applying the British model. Progressive pricing was found to be an important tool that helps the poor have access to a necessary amount of water while controlling overexploitation of the resource. The system requires households to have individual water meters to enable payment based on usage and suppliers to have automation that eases the reading of the meters. To establish these two requirements, the private sector is needed to develop, produce and assemble the necessary technology. The research also identified mobile technology as a tool for easing payments and increasing willingness to pay. All innovations and know-how of corporations are crucial to solving the complex water crisis. In addition, the findings emphasized the importance of including private entities in information guidance and education on the importance of water itself, sustainable water consumption, and sustainable water management. Even the water meter technology can be used to highlight ways of consumption that are unsustainable.

The private sector is also needed for its economic abilities. The research found that corporations should be included in operating and financing water supply maintenance. The cooperation between financial institutions and private companies can be useful, especially in larger schemes. Finally, the private sector was found to be more efficient and have better abilities to achieve cost recovery which creates a more reliable service. Therefore, corporations should be included through clear contracts that set conditions

for the operations and offer sufficient tools for holding the company accountable for fulfilling them. Another, non-exclusive, way to create motivation for private pro-poor projects is to guarantee that the project is long-term enough for the corporation to be able to turn it economically profitable.

## **6.2 Implications for International Business**

Although the global water crisis directly affects approximately 2 billion people, it has even broader effects on economies, social justice, environmental justice, and equality issues. The constant growth of population and climate change create new challenges and solving the crisis should be made a priority.

The findings of this research can be applied to water sectors around the world. Public sectors should choose suitable ways to include private operations in effective and safe ways to fix unsolved issues in the system. It is also important that corporations actively use their skills and innovation to develop new solutions to improve technology, create efficiency, and build sustainability. Companies need to take an active role in finding ways to invest and finance the battle against water scarcity. Public sectors, on the other hand, should create possibilities for the private sector to get involved in a way that protects and promotes the human right. The tool of corporate social responsibility is also to be evaluated and developed to further create reliability in private water supply.

Although this research has found many tools that can be used to bring the benefits of the private sector into water supply, it is important to acknowledge that case-by-case consideration is essential. The research found that different solutions are beneficial in different environments. For instance, large population concentrations often require clear guidelines from larger organizations but having a single operator can lead to negligence of a more remote area. It is important to evaluate the local needs, resources and conditions to determine which forms of privatization to include.

### **6.3 Limitations of the Research**

The main limitation of this research is that the interviewees were not sent the interview questions beforehand. The main focuses of the interviews were outlined in an email that was sent to the interviewees. Therefore, the interviewees were likely to give more intuitive answers and focus on aspects that they are most familiar with. In a sense, the quality of the research was possibly better as the interviewees discussed issues that they know well. However, had the questions been sent in advance, the interviewees could have been able to answer more broadly and, for instance, give specific numbers to support their claims. In addition, they might have been able to contribute more first-hand experiences as it can be difficult to recall them on the spot. However, since all interviewees are experts in the field, they are well educated and experienced around the subjects discussed. Therefore, the effect of not receiving the questions beforehand was not necessarily very significant. However, it is something to take into consideration, and it likely had an effect to some extent on the versatility and coverage of the answers.

Another limitation of this research is that all interviewees were Finnish. The water crisis is an international problem that varies in nature depending on location. Therefore, this research would have benefitted from a more diverse respondent base. In addition, the issue is not as severe in Finland as it is in most parts of the world. As a result, Finnish experts in the area might have very different perceptions from the ones similar specialists in another country have. Finland also has a public water supply sector, which might feed into prejudice against privatization. However, three of the six interviewees have long first-hand experience of water supply systems in developing countries. This compensates some of the lack of variation in the nationalities of the respondents.

### **6.4 Suggestions for Future Research**

This study identified contracts as a tool for larger scale private sector involvement. However, contracts were found to have many limitations, such as a weak government or lack of regulatory tools. Therefore, reliability of contracts in privatization of water

supply should be further researched and determined. It would also be useful to research ways in which the contractual conditions could be improved and how to establish regulation more steadily. Another aspect for future research is the development of legislation around corporate social responsibility. The existing frameworks and their execution should be evaluated, as well as opportunities for creating more comprehensive legislation.

Another perspective that was highlighted in this thesis was the regionality of water supply solutions. Further investigation is needed to find correlation between local circumstances and the functionality of different sized systems as the strengths and weaknesses of small and large water schemes were rather briefly covered in this research. In addition, alternative systems for piped water supply could be a beneficial research target. Since views on piped and non-piped solutions vary and depend on circumstances, more extensive evaluation could help identify beneficial investment opportunities.

Finally, the durability of water supply solutions under unexpected circumstances raises questions in both private and public systems. This thesis found private sector cost recovery to contribute to a more sustainable service, but the abilities of private corporations to function under unpredictable crises is an opportunity for further research in the industry. The recent COVID-19 pandemic has drawn attention to the support networks of both, corporations and public sectors. Additionally, climate change further worsens water scarcity and creates environmental crises and extreme conditions, which the water sector needs to take into consideration when planning for sustainability.

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## 8. APPENDICES

### Appendix 1: The Interview Template

5 of the interviews were conducted using this template. The 6<sup>th</sup> interview was held in a more open format.

1. In the current global water crisis, over 2 billion people remain without sufficient access to safe drinking water. On a global scale, does the public sector have the funds and capabilities to solve the water crisis?
2. How can the private sector help expand water supply to people who currently do not have access to drinking water?
3. In which ways should the private sector be used to repair and extend decayed infrastructure?
4. What kinds of tools do governments and public water management have to ensure that the insolvent poor population has access to sufficient clean drinking water?
5. What kinds of tools do corporations and governments have to solve the same problem in privatized water supply?
6. The UN recognizes the human right to clean, sufficient and affordable drinking water. How could it be guaranteed that corporations commit to promoting the right to water?
7. What kinds of tools does private water supply offer for building more sustainable water consumption?
8. How can pricing be utilized to build sustainable water consumption and to promote the value of water?
9. How can privatization decrease sustainability in water consumption?
10. What are the most relevant changes that current water supply needs?
11. What are the most probable benefits of privatization of water supply?
12. What are the biggest threats in privatization of water supply?
13. Do you support a more local or a bigger scale approach to water supply management?
14. Which form of privatization do you support the most, and why?

