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Should Water Resources be Managed as a Public or as a Private, Economic Good – the Croatian Dilemma

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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ABSTRACT

The goal of this work is to provide a new outlook on the possibilities of water-resource management in the Republic of Croatia. Water resources and water supply systems are of vital and strategic significance for Croatia. Therefore, it is essential to develop a sustainable model for managing them. This will in turn ensure the access to drinkable water for the maximum number of people, the maintenance of high water quality levels, high quality water supply systems and the sufficient water reserves for the future generations.

The process of selecting the model for managing water resources is difficult and consists of many uncertainties, especially because of the negative economic trends occurring in Croatia over the last couple of decades. This created an unfavorable climate for independent decision making concerning the management of the country's strategic water resources. The current public opinion nurtures a belief that Croatia is being forced to privatize the governmental institutions which manage the water resources and that will lead to an array of negative trends resulting in water price increase, overexploitation and even restrictions of use for the most vulnerable sections of the society.

Privatization is the often used as a model of dealing with the state property, especially after the change of the socio-economic system. It has often been put to use in Croatia, but unfortunately, in a great number of cases it has not created the desired results. In this work, cases from Argentina, United Kingdom, India and Bolivia will be analyzed, which

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will in turn provide a new outlook on this problem. The findings may also serve as assistance to the decision makers regarding the management of water resources. In this work, both arguments in favor and against the privatization of water have been analyzed and backed by the examples. In the conclusion, the authors propose a franchise model as alternative which that may satisfy the interests of the private investors, the state and ordinary citizens.

Keywords: Water; public good; economic good; privatization; franchise.

1. INTRODUCTION

Water means life. The importance and significance of water in any context is unquestionable. Even six thousand years ago, since the foundation of the first known civilizations on the banks of the great rivers Nile, Indus, Ganges and Huang He, awareness of the exceptional significance of water for life and survival, the human kind involved in the battle for the control over water resources. With the development of modern technology and exponential demographic expansion, the demand for water kept increasing. Taking into account the processes occurring around the world, it is expectable that the reserves of drinkable water have started to decrease. And indeed, there is a lot of evidence demonstrating that the quantity of drinkable water starts to decrease at places where the demand exceeds the supply. The examples of water shortages can be found in Northern China, India and Bangladesh, and Middle East where the level of underground water reserves is decreasing one meter per year due to excessive pumping. In Chad, the area of lakes decreases on average 100 square meters during the dry season[1]. The illnesses resulting as the consequences of water pollution causes the death of approximately 3.4 million people per year. According to the United Nations, (2013) four thousand children die every day from water-pollution related diseases, while approximately 780 million people do not have access to drinkable water [2]. These problems are most present in Africa and Asia, which respectively make 28% (Africa) and 63% (Asia) of the total number of people that do not have access to drinkable water.

Water shortage is one of the most important problems currently facing the planet, since the pollution or lack of water caused deaths of more people than all weapons in the history of the world. With the increased pressure on the water demand, there comes the increased number of conflicts. And indeed, when the historical data of conflicts is analyzed, their number increases as we approach the contemporary era. If comparing the number of water-resource related conflicts since 1950, there appear surprising facts. Between 1950. and 2000., approximately 90 conflicts took place, while in the period between 2000. and 2010., there had been over 65 conflicts [2]. The trend of increasing number of conflicts is related to the increasing demand and worsening growing water shortages.

Considering its water endowment, Croatia is ranked very high on the global scale. According to a report about the water reserves created by UNESCO, in which 188 countries were surveyed, Croatia was ranked third in Europe (behind only Norway and Iceland) and was also among the top 30 countries globally [3]. In the relatively dry Mediterranean, Croatia could easily take a very important strategic role in the future as a supplier of the most important contemporary global resource.

The privatization of water presents one of the potential solutions, but also dangers, for the problem of thirst in the world. In the context Croatia can be an example to be analyzed, as it

is evident that the existing system of water resource management will have to undergo unavoidable modifications. The reason for this being certain persisting constraints. Although there are many arguments "for" and "against" the privatization of water, no model has been defined so far which would completely satisfy all the involved interest groups. As the best alternative solution, the franchise model has been advocated, which will optimize the use of the previously installed capacities, but will also contribute to the development of future infrastructure. The French and Argentinian examples are cited as successful franchise models, in which the domicile population was guaranteed the supply of drinkable water under the best conditions, while concurrently eliminating the possibilities of the overexploitation of water resources.

2. WATER AS A PUBLIC GOOD

From an economic point of view, a public good is every good that is characterized as non-rivalrous and non-excludable - the use of a good by one individual does not exclude and does not deprive the other of the use thereof [4]. In reality, however, there is no such good that is absolutely non-rivalrous and non-exclusive. Public goods are all goods that serve a larger number of users, and their use is dispersed throughout the community, regardless of whether some individuals want it or not, and what is very important is that they are those goods in which the inclusion of a new user does not reduce neither the satisfaction of the previous users nor their level of use [5]. Can it therefore be inferred that water is a public good?

The traditional argument was that, since the provision of public services imply the use of a public infrastructure, in this case the water supply, these services are characterized as a public good. Therefore, the cost of the connection of an extra water network user is equal to 0. However, this also implies that, with some exceptions, consumers tend to underestimate the privilege of using a particular good. In other words, consumers are not willing to bear the cost which ensures them marginal benefit from a particular good [6]. This is called the "free riders" problem which occurs in cases when the number of users is very large, and the market price of a particular good or service is not determined [7]. Certain infrastructures like roads, street lights and air control depart from this rule. In practice, the free rider problem is explained by the very small incentives to private companies for their investment into public goods because the return from such investments is difficult to accomplish. Being this so, it is logical that the Governments provide for the infrastructure to increase productivity and the economic well being of its citizens [8]. In addition to the above mentioned, there are other important factors that speak in favor of treating the infrastructure as a public good. The presence of the economies of scale, high sunk costs and barriers to entering the market have led to the fact that many infrastructure services, particularly water supply systems, were treated as natural monopolies that do not allow competitive conditions in terms of production and delivery of services [9]. If the market works on a purely profit basis, such a situation can lead to a long-term increase in the level of prices. A natural monopoly in cases of fundamental goods, such as water supply, results in public sector management or private initiative, but under strong state regulation. Secondly, the value of these services to the society and the lack of the same may result in the public sector maintenance of control over them in order to avoid the possibility of undervaluing those services which do not bring high yield. Governments can decide not to charge for a service or charge it at a reduced rate in order to meet the fundamental needs and individual rights. Moreover, the government plays a key role in preventing externalities such as a poor public health system or reduced productivity resulting from the absence of water supply services [10]. Finally, public services can also serve as a redistributive policy which would lead to a reduction of the number of

unemployed in a country. According to some indicators, the Republic of Croatia belongs to the group of those countries having a high number of employees in state administration. Such a policy often results in a slow and ineffective system that has difficulties in surviving in the market competition.

Privatization can also bring negative social and economic consequences, which are characteristic for the post-socialist countries, where the process of privatization of the former state property has been the reason for appearances of grey zones in their economies [11]. A number of private enterprises involved in the process of privatization performed an array of irregular, immoral, and sometimes completely criminal activities, which were in complete contrast with the interests of the society as a whole. Therefore, although it was logical to expect that their business activities would function in the sphere of the official and legitimate economy (which encourages the transfer of knowledge and creativity between the sectors), the previously mentioned enterprises are responsible for the loss of clear distinction between the legitimate and illegitimate economy. This has been especially characteristic for certain transition economies (Slovakia, Romania, Bulgaria, Albania, Ukraine). Since Croatia is also undergoing the process of societal transformation that involves privatization, there exists a justifiable misgiving on the side of the public opinion that behind the phrase "the optimization of the water resources management", which can often be heard in the mainstream media, there lies an attempt of certain structures to extract capital from the enterprises or illicitly appropriate the profits, all of this being contrary to the national interests.

3. WATER AS AN ECONOMIC GOOD – ARGUMENTS FOR AND AGAINST

Analyzing the arguments that lead to the definition of water as an economic good and are in favor of the privatization of water, it should be noted that the issue of privatization of natural resources has been in existence since ancient times. Aristotle had already observed that "the least concern is devoted to that which is most common." Namely, people are mostly concerned about their own, and they worry less about the things that are common, or just to that extent which affects them as individuals [11]. Currently, there is an ongoing privatization process of natural resources that were formerly under common ownership. Strongholds for this and similar considerations can already be found during the 1960s when strong ideas were put forward demanding the imposition of private property rights wherever resources were under common ownership [12]. Ostrom [13] suggests that "the only way to avoid the tragedy of the commons, when it comes to natural resources and wildlife, is to end the system of common ownership and establish a system of private ownership rights." Moreover, they also emphasize "that treating resources as common property was exactly what condemned these resources to inexorable destruction." The most recent literature, under the term privatization, includes all forms of property and / or operations that are transferred from the public to the private sector.

Around the world, the following models of the water supply system privatization are used:

- Management without the right of investment (*en affermage*), in which the local government (the owner) invests in the development of infrastructure. The concessioner (private entrepreneur) manages the operations, covers the maintenance costs and pays the concession fee. This kind of concession is granted for 5 to 20 years.
- Management with the right of investment (*en concession*) - represents the privatization of management and/or infrastructure for the concessionary period and includes the right of investment. In this case, the concessioner invests in the

development of infrastructure which is owned by the local government. Upon the expiration of the concession, the infrastructure is transferred to the local government. The concessioner is compensated directly by the city/county or the end consumers and does not pay the concessionary fee. This kind of concession is usually granted for the period of 30 years and sometimes even longer.

- Privatization with the repurchase of the utility company – the entrepreneur purchases the shares of the existing water supply/sewerage system utility company, which is, as a rule, the owner of the infrastructure (or if it is not, then it has the scooping rights – the concession of the resource, as well as the rights of water supply and/or drainage and purification). The private entrepreneur has the same legal rights as the previous owner.

In fact, privatization, in the true sense of the word, understands the actual transfer of overall property and responsibilities to the private sector, whereas all other variations can be categorized as "private sector participation" (PSP) [14]. There are several models of PSP that are being applied instead of total privatization of public property. Management contracts imply a partnership between the public ownership of the infrastructure and private management services. The period of such a contract is two to five years. PSS can also be realized through a lease contract (5-10 years) and through concession (10-30 years). The BOT model (build, operate, transfer) involves the cooperation of local governments and private investors in which the private investor agrees to build the infrastructure, and in turn, the government gives the investor the right to exploit and collect charges for infrastructure services for a certain period of time (15-20 years) [15].

The reasons for the privatization of services and infrastructure differ from country to country, and the consequences of privatization are not the same in all countries. However, the commonly cited key reasons for privatization are as follows:

- a) improvement of public service efficiency through cost reduction, increased billing and collection, improvement of service quality, adjustment of tariffs to production costs, departure from slow bureaucratic processes, independence from political options [16];
- b) state inefficiency and bad management raise the prices of public services and
- c) development of market economy with strong competition ensures production and provision of goods and services at the lowest possible cost.

One of the strong reasoning for the privatization of water and water supply systems is given by Barlow and Clark: If water access is a right, as recently confirmed by the United Nations, then it is governments' responsibility to make water available as efficiently as possible; if mobilization of private investment is the only way that water systems can be put in place to meet community needs, then governments have a duty to do precisely that... [17].

3.1 Arguments "for" - Positive examples of Water Privatization

The term "privatization" is not unambiguous, as it covers various forms and definitions. Privatization is defined as the process in which the assets or the processes that are the property or under the control of the state are being exposed to the market forces. Privatization can also include the following processes: the transfer of the firms' assets, the transfer of entrepreneurial activity and the transfer of public service from the control of the state to the control of the private sector. Privatization is the entire process of expanding the sphere of the market through a host of regulations that create an enabling environment for

free enterprise to operate as a strategy for sustainable economic development.” [18]. Privatization is broadly defined as the deliberate sale by a government of state-owned enterprises (SOEs) or assets to private economic agents” [19].

From the specified definitions, it can be concluded that privatization creates the expansion of private sector in such a manner that it reduces the state interventionism into the economy, enabling thus the private sector to obtain the rights of managing the state property.

The experiences of past decades have indicated the limitations of economies constructed on the premise of state property and bureaucratic planning. Similar weak outcomes have been delivered, too, by the economies based on the so called "public ownership". It is evident that the socio-economic crisis of "real-socialism" deepened rapidly, while at the same time the countries with the free enterprise system were experiencing a wide scientific and technological revolution, which was substantially changing the conditions and parameters of economic efficiency and development. This revolution also created a new paradigm of development, which favored knowledge, flexibility, creativity and innovation. The inability of the old fossilized bureaucratic structures of real-socialism to adapt, to provide space for the entrepreneurial activity of firms and individuals and to transfuse the accumulated knowledge into economic development and material wealth only accelerated the lag. The elaborated examples of Argentina and United Kingdom are singled out not as direct consequences of the failed model of state management, but as examples of privatization that yielded positive economic effects for the domestic economy.

1st case – Argentina

The privatization of water and water systems and of sanitation services in Argentina in the 1991-1999 period was one of the largest privatization programs in the world at that time [20]. Concessions for water and sanitation services were contracted in 28% of the municipalities thus providing private sector services to 60% of Argentinean population. The biggest concession was given to the French company Suez in 1993 to provide water supply services to the wider district of Buenos Aires. So far, no comprehensive study has been conducted to establish the impact of the Argentinean water supply system privatization, but some partial results can be put forward. For example, in 2002, households were involved in a survey whose aim was to determine the correlation between the privatization of the water supply system and infant mortality. The survey results were as follows: between 1991 and 1997, the infant mortality rate dropped by 5-7% in those areas where privatization took place in relation to those, where water supply was still under public authority management. Moreover, the survey results also showed that infant mortality fell by 24% in the poorest regions [21]. The reason for this lies in the fact that, prior to the privatization of the water supply system, the poor areas simply did not have access to drinking water. The concession, however, was revoked in 2006 and, to this day, this revocation is controversial and stands before the international arbitration institute, the International Centre for Settlement of Investment Disputes (ICSID).

According to Suez, during the 13-year concession, the company extended access to water (2 million people) and access to sanitation (1 million people) despite the economic crisis [22]. Between 2003 and 2005 about 100,000 inhabitants were connected in the poorest areas and suburbs through the "participatory management model". This model was adjusted for the area of La Matanza, where 400,000 people were connected to water and utility services by means of the "Water plus work" project [23].

The reasons for such high efficiency of private companies were pointed out in the World Bank analysis. In comparison to the previous state, 40 000 meters of pipelines had been installed; water leakages significantly reduced, the water quality improved and the relations with the consumers had become much better. Moreover, it is noted that the biggest shift occurred in the relations towards the employees i.e. significant changes occurred in "increasing their efficiency" and in their drastic layoffs.

2nd case – Great Britain

In the last four decades, there have been several reforms of the water system in Great Britain. In 1973, a large number of government agencies responsible for water supply and sewage were consolidated into ten regional administrations whose job was to manage ten river tributaries. The tasks of these public agencies included water supply, waste management, prevention of possible flooding and sewer system monitoring. The same activity was carried out by several companies in private ownership whose services were used by approximately 25% of the population. These companies underwent reorganization and purchased water supplies from the public companies that had previously exercised control over them [24]. The system worked well and was praised even beyond the GB borders. However, it was necessary to introduce higher standards regarding water quality as well as standards that defined the quality of the environment. New standards brought about additional investment in part of the utility services, which were ultimately reflected in the price of utilities [25].

In 1989, the Margaret Thatcher administration initiated the process of privatization of the water supply sector with the aim of raising its quality and efficiency. According to the Government, the privatization of the sector was to result in the following benefits: 1) private companies would operate without state intervention and would be independent in making business decisions without any political pressure; 2) competition in the financial market would result in a market competition between companies, which would consequently lead to the improvement of services and greater benefits for the end consumer; 3) economic regulation would ensure that the benefits of increased efficiency were converted in the lower price of services for the end consumer; 4) private companies would recruit more professional staff than state administration. The proposed reform was part of a larger privatization program which included changes in the organization of telecommunications and airline industry.

According to the World bank these reforms delivered an impressive volume of new investment, full compliance with the world's most stringent drinking water standards, a higher quality of river water, and a more transparent water pricing system [26]. But shortly upon privatization, there were bigger layoffs, followed by a rise in the price of water which was being justified by the high price of investment that had to be recovered [27]. In the first five years of privatization, water prices grew considerably, but also the profit margins and the awards to the managers in private companies [27]. The abolishment of public companies resulted in the fact that water become unavailable to the lower levels of society, and there was no uniform system of water pricing [28].

Consumers felt betrayed and disappointed, and some foreign observers expressed doubts about the effectiveness of this model of privatization. However, the Water Services Regulation Authority (OFWAT), the body responsible for economic regulation of the privatized water and sewerage industry, imposed price classes in 1996 so as to limit the arbitrary pricing and to toughen the impose stricter conditions for concessionaires. Such a

regime meant an attack on the former monopoly held by private companies [29]. Many analysts have concluded that such a regime is necessary in order to enable consumers to protect themselves from uncontrolled imposition of prices by private companies that having a monopoly in a particular industry. This example had inspired a debate worldwide that sought to answer the question of how to develop a system of public goods supply that would be satisfactory to both sides of the spectrum - market incentives and government regulations.

3.2 Arguments “against” the Privatization of Water- Water Supply System

The debate against privatization of water is not simple at all. It is necessary to analyze the specified problems from various perspectives, the most important of which are the social, legal and the aspect of sustainable development. The basic question that is being posed: how to protect the natural resources to the highest possible degree? While at the same time ensuring access to clear water to the greatest number of consumers? How is it possible to satisfy the opposing interest groups such as the government, the consumers, the investors and the underprivileged? It is necessary to analyze the specified problem, so that the interests of the greatest number of stakeholders are satisfied (in other words, it is necessary to enable the access to water to the greatest possible number of citizens). This can not be realized easily, especially when taking into account the high costs of investing in the water supply infrastructure and high standards of water quality. This places the countries with limited financial means in an unfavorable position. Because of the specified imbalance, a large number of countries in transition have problems with formulating the legal framework which would guarantee a high-quality and transparent management of water supply system. Currently, the issues of water supply are acquiring more and more relevance rapidly, especially in the context of the World Bank's forecasts. The World Bank has predicted that by 2025, 2/3 of the world population will be without drinking water [30]. It is therefore not surprising that the Fortune magazine called water - "the Oil of the 21st Century" [31]. In order to avoid such a scenario we should protect the existing water stock, help those nations who have a problem with water supply and raise general awareness of the impending crisis that could endanger the lives of hundreds of millions and even billions of people. A crisis of such magnitude can lead to a natural cataclysm from which the world may never recover. It is not exaggerated to say, that the survival of all humanity depends on the decisions made, on a daily basis, behind the closed doors of large corporations and government offices. Defining water as an economic good and its radical privatization in the today's globalized economy may have unforeseeable negative consequences for humanity. In this work, the authors highlighted the most important arguments that have been shaped among those opposed to the privatization of water and water supply systems.

3.2.1 Privatization, in the long run, results in an increase in the price of water supply services

This is one of the most common consequences that have become a rule when it comes to water privatization. The goal of every company is to maximize profit, and this goal is achieved by raising the price and by lowering the quality of the service provided. The firms today, therefore, are only focused on the most profitable areas [32]. Companies have no obligation to provide access to water or service if it is defined as a commodity rather than a human right. As a result, if a consumer cannot pay for a service he/she is simply disconnected from the system. Privatization with such consequences demonstrated its maximum destructive power in the developing countries, where citizens had to choose between food and water, which resulted in the outbreak of various diseases. In South Africa for example, the price of water increased by more than 400% between 1995 and 2000,

resulting in an epidemic of cholera, because the population was forced to drink contaminated river water [33]. The prices agreed upon among the national governments and private companies providing water services are an obvious example of the care for such companies. This simply implies that the companies are guaranteed to generate profits at minimal risk. Ironically, such a practice is against the fundamentals of the market system, and this is, the abolition of the state's role in business operations.

3.2.2 Privatization, in the long run, decreases water quality.

Since the primary goal of every private company is maximization of profit, preservation of the environment has recently seriously been compromised. In the U.S., the National Association of Water Companies (NAWC) represents private concessionaires and intensively lobbies in Congress and the Environmental Protection Agency (EPA) to prevent the adoption of additional standards. The NAWC continually requires that the regulation is based on the cost-benefit analysis. The way in which the population views this, is that the primary concern of the company is generating profit and not their health. A representative proof of such a practice is Walkerton, a town in Ontario, Canada where 7 people died and 2300 people were infected with E. coli from the drinking water. Later on, it turned out that A & L Laboratories, a private company responsible for testing the quality of water had actually known that the water was contaminated. Since the company had signed a contract supporting the privatization of the water supply system they were asked to cover up the case to avoid negative publicity [34].

3.2.3 Private financing of the water infrastructure is more expensive than state financing

The privatization of water services creates a false perception that the financing has been transferred from state to private budget. During the negotiation process, the companies undertake the obligation to repair, modify and upgrade the infrastructure, with the aim to make the greatest possible savings for the consumers. In reality, citizens end up paying for these changes through their monthly bills [35]. Public financing is generally intended for funding low-cost projects. In private financing, the citizens end up paying for more expensive projects, dividends to stockholders as well as company loans. A comparison of the Swedish public management model and the British private model showed that the Swedish model had significantly lower operating and maintenance costs and that the Swedish citizens were paying water half the price of what the British did.

3.2.4 Privatization may cause the poor to lose access to water

The current generally accepted view is that the International Monetary Fund and the World Bank assist the developing countries in the privatization of their water supply systems, with the goal of enabling easy access to water for the poor citizens. These organizations, by implementing their "programs of structural adjustment" cooperate with the local governments, so that the local governments first have to express good will for restructuring the system (meaning that they wish to privatize it and thus enable the access to water for the greatest number of citizens).

As one of the most known cases in which this was not carried out, but to the contrary, the opposite effect was achieved, there can be cited the example of Bolivia. Unfortunately, the privatization of its water supply system did not yield the expected results and the American corporation Bechtel, which had been granted the concession for the management of the

water infrastructure doubled the prices of water immediately after it received the concession [36]. The new expenditures caused great problems for many Bolivian families, and the supply to the poorest has been drastically reduced as they could not afford to pay their bills. This has caused the indignation of the poorest citizens and triggered off the demonstrations and conflicts with the police. In the end, Bechtel withdrew from Bolivia, but the company is still involved in court case suit with the government because of the incurred USD 40 million business loss.

3.2.5 Privatization can result in excessive exploitation and export of water

As already mentioned, according to WB's estimates, 2/3 of the world population will have no access to drinking water by 2025. Even today, a large number of people have no access to clean water. The increase in population alongside the dwindling of water supplies will, in the long run, result in an unsustainable state in which the TNC will have countless opportunities to create large profits by trading in the "Petroleum of the 21st century". Whoever holds control over this resource of vital importance, will gain economic and political power of unimaginable proportions. Despite black predictions, corporations continue to compete to gain access to drinking water and thus ensure generating high profits. As the example of water overexploitation there can be cited the case of the Indian village Plachimad, where a multinational corporation was granted the concession for managing the water supply system. Unfortunately, the scenario that followed was not favorable for the local population. Through overexploitation and negligence about the environment, the corporation caused a water shortage and forced the population to emigrate, although the region's water resources had been plentiful. [37].

4. THE POTENTIAL OF CROATIAN WATER RESOURCES AND MANAGEMENT DILEMMAS

According to the UNESCO report on water supplies, the Republic of Croatia disposes of a high 32,818 cubic meters of renewable water supply per capita per year, which ranks it among the thirty water-richest countries in the world, i.e. third place in Europe after Iceland and Norway [38]. If the Croatian water wealth was calculated as the sum of the total amount of water that falls to the ground and the amount of water that comes from other countries, Croatia, according to its surface area, would be first in Europe and third in the world in terms of water supplies. In Croatia, about 80 percent of the population has access to water from the public water supply. Although currently 80% of inhabitants have access to the water supply network, only 40% have sewage disposal available. A small percentage of them collect the waste water and even smaller recycle it with the purifying devices (the main reason for this being the worn-out and outdated devices). In some areas of Croatia, there is a constant danger of water pollution and the reduction of supply of drinkable water for the local population. Although in the past years there have been more investments in the development of the water supply and sewage infrastructure, because of huge losses there exist problems with financing the water supply network, which can influence the expenditures of household and firms. The financial losses of the water supply system can be the result of poor maintenance, illegal connections and the wastage of drinkable water on the way to the end user.

In the areas that do not abound with drinkable water, greater investments in the infrastructure are necessary. There is a causal relationship between the increased access to the water supply network by the residents and the average daily water consumption. With the increased access, more residents use water, and thus increase the average daily

consumption. In Croatia, only 75% of residents had access to the water supply network in 2005. In the EU countries (except Romania), 85% had access, and in certain countries, such as Italy and Netherlands, even 100% of households had access to the water supply network. In Croatia, the wastage of water is measured as the difference between the scooped and the amount of water delivered to the end user. On average, for a single scooped cubic meter of water, 46% of water becomes wasted. This is a significant percentage, especially in the context of the EU policy which considers acceptable only 15% - 18% of wastage. Therefore, it can be concluded that the water supply system in Croatia is not effective, since with the increase of 1 m³ of the delivered water, there ensues the wastage of 0,89 m³ [37].

The wastage within the network is most often the result of poor maintenance and investment in the water supply system. It ranges between the minimal 8% and the outsized 68% in some areas. The reasons for such wastage can be the use of the outdated technologies and the absence of the water purifying systems in some regions.

With the specified data, it is justifiable to raise questions about the profitability of the utility companies' operations, which are financed from the revenues collected from the end consumers. It is estimated that the total financial losses in 2005. amounted to 0.9% of the GDP, which indicates an enormous unused potential and poor management of the water supply system. In light of the specified data, there appear to grow ever more significant speculations about the necessity of modifying the existing model of water resource management, since the existing situation generates losses and prevents the modernization of the system. According to some estimates, there is required an investment of approximately EUR 3 billion in order to adjust the water supply system with the standards of the European Union [39]. The analysis of the current situation indicates that the specified financial resources can not be raised from the budget. It is therefore necessary to consider other models of financing - one of them being the privatization of the utility companies in charge of the distribution and maintenance of the water supply system.

4.1 Privatization of Water-water Supply Systems

The Croatian Water Act regulated the legal status of water and water resources as well as the terms and conditions for water management. The most important provisions include: 1) Establishment of *HrvatskeVode* - the public water management company; 2) Water is defined as a public good, which, due to its natural properties, cannot be under anyone's ownership; 3) Water, as a common good, is under special protection of the Republic of Croatia. The management of water is based on the following principles: 1) Water is an indispensable condition of life and work – all are obligated, with utmost care, to preserve its quality, use it cost-effectively and rationally, under the same statutory requirements and 2) Water is to be managed according to the principles of unity of the water system and that of a sustainable development which meets the needs of the present generation and does not jeopardize the right and possibility of future generations to do equally [40].

However, the Utility Services Act which is also in force defines (...) utility services as a sector of the economy concerned with the performance of utility activities, in particular with the provision of utility services of interest to natural persons and legal entities and with financing the construction and maintenance of utility infrastructures as an integrated system within the respective local government area. The utility system is integrated and governed by the Utility Services Act (...). The special features of this system include: defining a particular service as a utility service; determining the way in which service provision is organized; setting the prices of utility services and their control; financing utility services from special sources and

the means of financing the construction of facilities and infrastructure. The supply of drinking water is also considered a utility under the Utility Service Act. All utilities services are performed as public service. These services can be performed by: a company or a public institution established by a local government unit, services own facilities, natural or legal person on the basis of a concession agreement and a legal person under a contract entrusting them to perform utility operations. Based on the foregoing, it is clear that the ability to grant concessions and to entrust utility operations to companies and individuals opens the door to the privatization of utilities, i.e. privatization of water supply systems.

4.1.1 The possibility of privatizing the public company HrvatskeVode

Both in the developed and still developing countries, there exist pressures to privatize water resources. However, while in the developed countries these pressures are the result of the internal affairs and lobbying of the powerful corporations, the pressures on the developing countries come from abroad. The institutions with the greatest financial capabilities and negotiating powers are the International Monetary Fund, the World Bank and the European Bank for Reconstruction and Development. Although they use several models of privatization, they all prefer to finance the private projects over the public projects. The fear of public opinion in Croatia is based on the misgiving about the process of privatization. The public fears that the process would not be adequately regulated and monitored, the consequences of which would be the unequal distribution of property, personal enrichment of individuals and the inefficient usage of privatized resources.

Croatia has large renewable water resources, which makes it very exposed, and poorly protected in the global neoliberal market where rich countries and their TNCs look for ways to acquire ownership over new resources at all costs. It is thus inevitable that the economically fragile, over-borrowed and politically dependent Croatia is confronted with the privatization scenario, but which model to apply is still not defined. There are several options available. One of these is the privatization of the public company *Hrvatske vode*. However, since the public opinion on this issue is currently very negative, it is not possible to apply this, for the Croatian citizens, daunting model. As the second-best solution that imposes itself is the privatization of utility companies. This model is currently the most promising because it leaves room for legal possibilities of granting concessions to private companies for conducting drinking water supply. Why should Croatia cede the right to manage its water to a private company? One of the pretexts is the aforementioned indebtedness which is preventing additional borrowing; hence privatization is needed in order to provide fresh capital to fill the state budget and to direct surplus funds into new development investments. However, if the problem is presented in this way, it will not encounter the approval of the general public. Some past examples suggest that it is better to explain to the local people that the privatization of water is "good for them" and that they, as well as future generations, are the ones who will actually benefit from it. But how to put it into action? There are all those arguments that have already led to the privatization of water supply systems in a number of countries... (Argentina, Great Britain ...).

4.1.2 The consequences of the water supply system privatization in Croatia

Unfortunately, it is almost impossible to know in advance the consequences that could be caused by the privatization of the Croatian water supply system. The aforementioned consequences could also apply to Croatia. What is almost certain and what has occurred in most cases came about as a consequence of the following: 1) A company can not and will not defend the public interest in the water sector - the goal of the company is to make profit,

not to act in public interest; 2) Privatization will almost certainly result in price increase and lower water quality, as prerequisites of profit maximization; 3) Privatization will result in the lay off of a large number of employees as a result of economizing water resources and 4) Privatization will almost certainly result in excessive exploitation and export of water resources with the aim of maximizing the profits of private entrepreneurs. The geopolitical location and small population make Croatia an extraordinary opportunity in the global water market. The Croatian market is, in terms of population, small and dispersed so it is not economically feasible for a single company to privatize the Croatian public company *Hrvatske vode* as it requires high unit costs, but it is very profitable to privatize individual strategic resources – the water supply system, which will freely export water from Croatia. The cruelty of privatization, which the Croatian citizen might experience are visible in the examples of Great Britain and Colorado, USA where it is illegal for citizens to collect rainwater in their own wells! The explanation provided is that the rain filling the well would otherwise flow into the water supply system and since the water supply is under the private ownership, the citizen ought to indemnify the holder of the water right. These and many other similar examples show how something that was considered as a basic human necessity and a public good has become scarce and private, an economic good. The road to hell is also paved with good intentions. Excessive exploitation and the unreasonable attitude towards the basic resources make these resources more valuable, thus making this the main goal of the corporation - to make resources scarce and thus be able to charge higher rates to consumers. It is obvious that privatization does not bring anything good in the long run, and the citizens can only hope that they will avoid it. But if privatization is not the right model, and if treating water as a public good does not result in satisfactory effects, the question that poses itself is whether there is a model that would benefit both the state and its citizens.

4.2 Franchising water supply system rights as an alternative to privatization

The water franchising model is already in use in France as a clean alternative to privatization. France was among the first countries that started undergoing the process of water privatization already in the Napoleon times. The degree of success in managing their own, as well as foreign waters, can be seen in the fact that the French companies Suez and Vivendi are the leading companies in water management in the world, providing water to over 230 million users [41]. Nevertheless, the City of Paris refused to sign a contract with Suez and has entrusted its water supply to a local utility company. The City of Paris refused to extend the contract with the Suez firm because of the excessive profits and water price increases, and delegated the water supply to the local utility company. In France, the water franchising model has been perfected and is being implemented successfully in several smaller provinces. It is precisely due to its flexibility that this model could be applied in the Republic of Croatia. The basic idea is to grant the franchise to that company which offers the best conditions in a public tender – provision of drinking water of a specified quality at lowest costs. The Buenos Aires' example shows that a private company which obtained the franchise can bid an even a 20% lower price than the state's public company. The body granting the franchise simply commits itself to assign the franchise to the company that has bid the lowest price for a demanded quality and quantity of products. According to the water franchise model, the investor does not acquire the right of ownership of the facilities and equipment, but only the right to manage the water supply system in a certain period of time [42]. Such a model can be applied on a year to year basis to ensure that the users get the best price for the service. Fully developed franchise agreements are probably the best alternative to the natural monopoly. Franchising has great advantages over purely public or private ownership of water resources because it balances between and comprises both, the private company's efficiency and the regulatory role of the state. Namely, the fundamental

aim is to find a balance between meeting one's interests, as a private manager of the water supply system, the state's interests, as the owners of the water resources and the people's interests, as the users of the provided service i.e. to create value added for everyone involved in the franchised business of water supply. In addition to the franchise model, in modern economies there is also often in use the model of private-public partnership, which is based on the management with investment rights (en concession). In this model, the concessioner invests in the development of infrastructure which is owned by the local government. Upon the expiration of the concession, the infrastructure is transferred to the local government. The investor charges directly the city/county or the end consumers, and he does not pay a concession fee. This kind of concessions is usually granted for the period of 30 years and sometimes even longer. However, taking into consideration the scope of the investment, this model currently can not be applied in Croatia.

5. CONCLUSION

Currently there are numerous discussions on water privatization going on around the world. Water is a vital need and should thus be treated as a human right and therefore, the possibility of restricting it should not even be considered. The mere fact that water is the basis of life on Earth defines it as a public good. No person or organization should deprive another of the ability to consume water. Unfortunately, only 2.5% of all water on Earth is fresh water. Therefore, its capacities are limited. Although water has the characteristics and therefore is a public good, it is its scarcity that excludes its non-rivalry feature, and provides the "right" for the powerful corporations to privatize it and thus limit its use. If water resources are reduced, they become scarcer thus increasing their value and the units of currency consumers are willing to pay for them. The reasons for the privatization of water can be found in those areas where water is scarce. Water shortages can be caused by natural or human-induced factors. According to this, Croatia does not need to privatize its water as it is third in the world in terms of water supply. Why then do countries undergo privatization of the water supply system? Privatization is carried out in cases when the state's management of water supply resources is ineffective. The aim of these privatization processes are to achieve: a) a larger number of water users in those areas where the state has not been able to provide water supply, b) a more efficient management of water supply resources, which include lower prices and better service, c) lower costs of a large and inefficient state apparatus and d) limited government intervention and political pressures. Unfortunately, these benefits have been achieved just in a small number of cases. The privatization of the water supply most commonly resulted in: a) an increase in water prices for the end-users, b) a reduction of water quality and the quality of its supply due to the owners' private interests, c) minimization of local control and public rights, d) loss of jobs, e) deprivation of the poorest citizens' rights to use water and f) excessive export of water depleting local resources.

Croatia is currently in an unenviable position regarding its large indebtedness and the need for foreign capital. Its water resources are huge and represent a strategic advantage in Croatia's future economic development. The aim of privatization is neither to modernize the water supply network nor to improve service quality but to cover budget deficit and repay old debts. The privatization of strategic resources, principally water, will likely become the world capital's focal area. Currently, the privatization of *Hrvatske vode* has been abandoned, but there are indications that local utility companies will be privatized, and it is precisely them who hold the right to distribute water.

Due to the negative connotations that the privatization of water entails, it is necessary to search for and explore more appropriate solutions that could balance the interests of all

involved. The adoption of the franchising model, as an alternative to pure privatization, imposes itself as one of the potential solutions. Within the franchising model, the company which is granted the right to manage water resources is obliged to bid the lowest price for the service of a specified quality and quantity in a relatively short time period (up to 3 years). In this manner, the private sector does not acquire the right of ownership over equipment and facilities, but simply implements its know-how. To conclude, this model also has its shortcomings, but it imposes itself as the best solution in Croatia's current situation, as well as in other countries which are richer in water resources but are economically less developed.

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Authors have declared that no competing interests exist.

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