



Quaderni del Dipartimento di Giurisprudenza
dell'Università di Torino

Diego Bonetto

Access to Water and Commodification

A Comparative Legal Analysis
of the Bottling Phenomenon



UNIVERSITÀ DEGLI STUDI DI TORINO

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Introduction

1. *Reasons of the project*

The social and economic transformations along with the technological innovations that have been taking place, at increasing speed, in the last half-century pose important challenges that the law has to deal with. The predominant role acquired by markets has modified the relation between states and private actors. In particular, transnational and multinational corporations have become direct interlocutors of national governments in a relational dynamic where the sovereign power does not constitute anymore an obvious prerogative of states. At the same time, the dislocation and acceleration of processes of production have rapidly modified the social and economic equilibriums of societies in both the global North and the global South.

These transformations have also brought about the generalisation of the market system as the privileged mechanism of organisation of social interactions. Such social and economic transformations are linked, in a circular logic of cause-effect, to the reconfiguration of many elements, aspects, and ‘things’ of everyday life. A process through which ‘things’ such as nature, resources, knowledge, privacy, rights, culture, and many others are transformed into commodities. In this process law has a major role, as commodification is conditioned by the applicability of the institution of property on those ‘things’ and the consequent possibility of disposition through contracts.

Some authors have already pointed out this phenomenon and talked about the appearance of “new properties”¹ or “new forms of property;”²

1. C.M. ROSE, *Several Futures of Property: of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, in *The, Minn. L. Rev.*, 83 (1998).

2. U. MATTEI, *Proprietà (Nuove Forme di)*, in *Enciclopedia del Diritto*, Milano, Giuffrè, 2012.

i.e. the subjection of natural resources, common goods, or hitherto extra-legal aspects of reality to property rights. A transformation that is prodromal to the commodification of these 'things.' Commodification is understood here as a process that does not only entail the privatisation and subjection of goods to commercial principles, methods and objectives, but "the creation of an economic good through the application of mechanisms intended to appropriate and standardise a class of goods or services, enabling these goods or services to be sold at a price determined through market exchange."³ Processes of commodification can be observed today as taking place with regard to many fields. Natural resources have probably been the object of commodification for a longer time, but very similar processes are identifiable in the field of knowledge – let us think of the distribution mechanisms of academic production, and also to the impressive development of intellectual and immaterial property.

Bottled water appears a particularly interesting case to study the processes of commodification for, at least, a couple of reasons. Bottled water is at the same time a very ancient and very recent phenomenon. The first bottling activities of some relevance dates back to the 17th century. However, it is not before the 1970s that bottling became a phenomenon of mass production and consumption. This peculiarity enables to investigate the factors that produced the transformation of bottling into a process of water commodification.

Another reason making bottled water an appealing phenomenon to study is because it is about water. The legal analysis of the bottling regimes unveils a fundamental tension that underpins the legal conceptualisation of the resource. Indeed, water is on the one hand a natural scarce resource essential for human life. The most evocative legal framework promoted along this line is the human right of access to water recognised by the United Nations.⁴ On the other hand, bottled water is very much a commodity subjected to market dynamics. This aspect is most clearly evident in the application of the mining regimes to water abstraction for bottling purposes.

Finally, tracking the processes of water commodification that have been taking place through bottling can be useful in order to identify some patterns and consequences that such processes could see replicated in

3. K. BAKKER, *Neoliberalizing Nature? Market Environmentalism in Water Supply in England and Wales*, in *Annals of the Association of American Geographers* 95, no. 3 (September 1, 2005): 544.

4. General Assembly of the United Nations, Resolution 64/292 adopted on 28 July 2010.

other domains. In particular, distributional effects on access to water produced by the bottling phenomenon already visible today can teach us something on how other processes of commodification may impact, for instance, access to other natural resources, knowledge and even justice. Moreover, the analysis of the role of the legal regimes governing the phenomenon can provide us with an understanding of what the role of law is in triggering or preventing such processes, and whether their outcomes are welcomed or worrisome.

2. *Objective and plan of the work*

Water is a vital element for human existence. It is estimated that “about 80% of the global population faces a human security challenge in relation to water.”⁵ This alarming scenario has triggered individual and local concerns, but has also led to significant political and legal debates all over the world regarding access to water.

However, bottled water has never been discussed in these debates for no particular reason other than the generalised belief that it is a marginal phenomenon with no relevant impact on water governance.⁶ Contrary to this shared belief, the reality appears quite different: according to the International Bottled Water Association’s (IBWA) 2016 statistics, the amount of bottled water produced in 2016 would be sufficient to provide a glass of water to the entire world population of 7 billion people every day.

Such a lacuna in the academic debate on water management appears inexcusable, especially since the development of the bottled water phenomenon is susceptible of generating social and economic inequality in access to water at best, if not completely preventing access altogether. Against this backdrop, bottling regulations appear to be a crucial element within the discourse on management and access to water. In most legal systems, the regulations provide for a regime of licences – either in the form of a concession or authorisation, depending on the underlying property regime – through which the public administration allows privates to bottle the good for commercial purposes. These licences determine the price for and limitations to this private use of the resource and, in so doing, play

5. C.J. VÖRÖSMARTY *et al.*, *Global Threats to Human Water Security and River Biodiversity*, in *Nature* 467, no. 7315 (September 30, 2010).

6. *Inter alia* see *Does Bottled Water Affect Water Availability?*, <http://Www.nestle-Waters.com>, accessed September 17, 2017, <http://www.nestle-waters.com>.

a crucial role in water distribution within communities, relative scarcity for essential uses, and commodification of the resource.

Within the broader scope abovementioned, the purpose of this work is to investigate the impact of the bottling phenomenon on access to water. In fact, bottled water not only influences the way people drink, but it also affects their possibility of accessing the resource, either economically or physically. The aim of the project is then to understand what role law plays in the production of this phenomenon and in water distribution. Indeed, bottling regulation is characterised by a tension in the legal conceptualisation of water as an essential resource or as a commodity.

In the field of economics, this tension is classically translated into a question on whether water should be treated as an economic good that is exchanged on the market. The tension has been addressed with regard to water supply systems for primary and secondary needs through social, political, and legal struggles on privatisation of water services and the creation of markets for water. However, bottled water remains an important and problematic exception to such normative balancing of the tension. In fact, bottled water is a “more perfect commodity”⁷ that through its regulatory regimes may trigger processes of “accumulation by dispossession.”⁸

This work relies on a comparative analysis of the legal regimes governing bottled water in Europe. In particular, the research focuses on the comparison of the French, the British, and the Italian regimes. This focus is dictated by two reasons: 1) Europe is the cradle where bottled water first appeared along with the first regulatory regimes that later became global archetypes; 2) Europe is arguably the context least affected by water scarcity, and yet it is also one of the major consumers of bottled water.

Bottled water constitutes a challenge to water access and distribution. The challenge is determined by the structure of property, an institution constructed around land, to govern water exploitation. Indeed, most of European legal systems, despite their differences, constructed a water regulatory regime that is based on the paradigm of property. The reliance on this paradigm brought about a qualificatory tension mentioned above. This tension is susceptible of enabling the bottling phenomenon to produce a *de facto* reallocation of water prerogatives, despite the formal legal regime.

The comparative study of these archetypes intends to unveil the discrepancy between the formal and substantial property regimes on bottled

7. D. JAFFEE - S. NEWMAN, *A More Perfect Commodity: Bottled Water, Global Accumulation, and Local Contestation*, in *Rural Sociology* 78, no. 1 (March 2013).

8. D. HARVEY, *The New Imperialism*, Oxford; New York: Oxford University Press, 2003.

water. Although, pursuant to black-letter law, water is either a public good or a *res communis*, the substantial regimes in the different models are in fact of a proprietary nature.

Aware of the difficulty and the challenges that such an approach would entail, the research that led to this work has taken the move from a direct observation of bottled water as a phenomenon that is at the same time social, economic, political, and legal. Only as a second step the research turned to law to see which is the relation between the phenomenon and law. The issues that emerged were many and each one of them would have been worth of a dedicated investigation. However, this work, leaving aside very relevant aspects such as the environmental and transnational externalities produced by the phenomenon, goes to the core of the issue to focus on the relation between bottled water and access to the resource.

Given the scarcity of literature on the matter, the first chapter provides a historical account of the development of the bottled water phenomenon, from its European origins up to nowadays. This account aims at highlighting the transformation of bottled water that, from niche and elitarian, became a global phenomenon of mass consumption. The chapter, then, focuses on the operation of mapping the legal regimes governing bottled water in the European countries selected: *i.e.* France, Italy, and the United Kingdom. The operation of mapping has been a necessary and uneasy step because the disciplines are the results of highly fragmented rules never recollecting in a legislative nor even academic effort of systematisation.

The second chapter unveils the tension underpinning the conceptualisation of bottled water. It does so by looking at how the tension has appeared in both the economic and the legal arenas, and tracks the reciprocal influence between one another. The investigation takes the move from the general debates on water government and the Dublin Principles on Water and the Environment of 1992 to follow the evolution of the ambiguous concept of “water as an economic good” coined by the principles. The chapter then provides an understanding of the value(s) and cost(s) of water to see how their perceptions frame the legal conceptualisation of water and its government.

Drawing on the analyses conducted in the previous chapters, the third one engages with an investigation of the fundamental architectures of the three legal regimes and analyses the actual functions of the legal institutions therein. In particular the chapter focuses on property and looks at the transformation that the institution underwent in the development of the legal regimes governing water distribution. The analysis aims to

highlight the transition of all the three legal regimes from property, as the key institution organising water distribution, to the 'right to use'.

Finally, the last chapter conducts a distributional analysis of the legal regimes governing bottled water in order to identify how they allocate prerogatives over the resource. In other words, how access to water is allocated by the different regimes. The analysis investigates the transformation of water destined to bottling into a commodity and the effects that this transformation comports. It appears that the process of commodification taking place in force of the legal regimes has significant distributional effects: in the legal sphere, property arrangements are reconfigured by the bottling phenomenon and, through the process of commodification, appear to trigger mechanisms of dispossession; at the same time, the transformation to which water is subject seems to have some responsibility in the increase of both physical, social, and economic scarcity of water.

1.

The Bottled Water Phenomenon and its Regulatory Regimes

1. *Water and Plastic: an account on a successful encounter*

1.1 *Ancient times*

The first bottles of water appeared in Europe in the 16th century and, at the time, the resource object of bottling was exclusively mineral water. However, to provide a comprehensive account of water for drinking there is no choice but to look at the 5000 years of history and tradition of water that, for a long time, has been confused and related with the history of thermalism.

By the time of ancient Egyptians, the healthy virtues of thermal water were already acknowledged. The ruins of wellness centres commissioned by *Phraortes* – king of Media – suggest that mineral and thermal waters were already used before 600 B.C. The Greeks as well, according to Homer, used to make an abundant use of water for health purposes.

Due to their smell, thermalism, aspect, and their taste mineral waters stimulated a considerable aura of curiosity around them. Ancient Greeks used to build temples in the premises of water springs and devotees would take baths, unctions and rubbing as rituals for their wellbeing. More than 500 years B.C. doctors were already recommending mineral waters for their therapeutic virtues. Nevertheless, always in Greece, Hippocrates was sceptical about those therapeutic virtues and more concerned for the negative consequences for the organism of a continuous and excessive use of water rich of iron, salt or copper.

Apparently, during the 3rd century B.C. the Greeks developed the first cures, in the modern sense of the term, and people started to go to places, such as *Adepsos* in Euboea or *Lebedos*, for therapeutic treatments with water. Interesting is that archaeologists found numerous *ex-voto* arms and legs, made of precious metals, that people would bring to thermal centres and dedicate to Hercules. In fact, the Myth wants him to be reinvigorated at the Thermopiles by a sulphuric spring consecrated to Vulcan.

According to Galen of Pergamon, in the 2nd century B.C. Greeks used to drink waters heavily charged with sulphur, bitumen and nitrate every spring and autumn for purging purposes. These treatments were particularly used to cure people affected by kidney stones.

However, it is with the Romans and its cult of water that the thermalism reached its highest level of glory. Vitruvius, in his work "*De Architectura*," gives us a sense of the relation with water of that time by stating: "Water is indispensable for human life as it satisfies pleasures and needs of daily life [...] Amongst all natural elements, no one appears more essential than this one [...] because without water no life form, be it animal or vegetal, may come to life, grow and survive. Hence, it is necessary to choose with the maximum care the springs guaranteeing healthiness to human life."¹

The Romans diffused and developed the hydrotherapy at its highest level in the ancient world. Greek doctors imported the culture of water to Rome when they started to prescribe thermal baths and the use of water for therapeutic purposes. We can appreciate today the ruins of what were glorious buildings upon thermal baths that Roman emperors directly funded. These baths, in fact, due to their importance were the centres of the public and political life.

Cato the Elder bought hot natural springs claiming that they were more lucrative than cultivated land. During the Roman Empire the knowledge of the different types of water and their virtues grows and becomes more sophisticated. Waters rich of aluminium were prescribed to people affected by paralyzes. The bituminous waters were used for their purgative virtues and waters rich in nitrate to combat kidney stones. Pliny the Elder, well-known naturalist who died during the eruption of the Vesuvius, promoted the *Ferrarelle* water and produced the first categorisation of mineral waters. He divided them into: sulphuric, purgative, cold, temperate, hot, purifying, fortifying, digestive, ferrous, sterile, and others.²

With the expansion of the Roman Empire new sources were discovered in Europe and new thermal centres were established. The Roman Gaul saw the construction of thermal centres in *Vicus Calidus* (today called Vichy), *Auditiacus* (today Saint-Galmier and its water is commercialised as Badoit), or *Aix-les-bains* (in Savoie). Similarly, in modern Belgium the Romans discovered *Tongres* that is today known as Spa.

1. VITRUVIUS, *De architectura*, 15 a.C. (ca).

2. EUROPEAN FEDERATION OF BOTTLED WATER (EFBW), *History of Bottled Water*, in <http://www.efbw.eu>.

This golden age of the thermalism lasted until the end of the decline of the Roman Empire. Nevertheless, the transfer of the capital of the Empire to Byzantium along with the barbaric invasions marked the end of this age, to which only few and isolated thermal centres survived thanks to a local clientele.

1.2 *The renaissance of mineral waters*

The cult of mineral waters in Western Europe appeared again in Spain, within the region of Cadiz, due to the Arab influences. Later on, the end of the crusades and the return of crusaders produced a rehabilitation of the use of these waters.

In the 13th century, Arnaud de Villeneuve, a Spanish doctor working in the area of Montpellier, published the *Traité des eaux médicales*. Two centuries later, a number of Italians started to study mineral waters. Amongst them worth citing are: Tura di Castello, doctor and master in Law, who published a study on the use of mineral waters; and Michele Savonarola who, in 1478, published his treaty *De balneis omnibus Italiae et totius orbis*. In this period the thermal centre of Vichy saw its rebirth thanks to Louis II of Bourbon who funded a monastery after which has been named the Célestins spring.

From then on, the mineral water fashion came up again and (semi) scientific studies start to be conducted mostly in Italy³ and Germany⁴. In France, at the beginning of the 16th century mineral water springs are used to cure war wounded. François I ordered that soldiers, wounded at Marignan, should be treated at the thermal centre of Eaux-Bonne in the Atlantic Pyrénées.

In 1541, Henri d'Albert, King of Navarre, went to Cauteret to recover from injuries he got in a riding accident. His wife, Marguerite, got impressed by the peace and beauty of the place, and wrote in her famous *Heptameron* about Cauterets. These thermal centres moved

3. BRANCALONE, *Sur les bains de Palerme*, Rome, 1534; ADRIA, *Sur les sources de Sicile*, 1536; *Des baneis omnia quae existant apud Grecos, latinos et Arabas*, Venise, 1553 (recueil de tous les principaux écrits de l'époque sur les eaux minérales); FALLOPIUS, *Des eaux médicales*, Venise, 1564.

4. ETSCHENREUTTER, *De la nature, de la force, de la vertu et de l'effet des sources et bains curatifs connus et expérimentés en Allemagne*, Strasbourg, 1571; THURNEISSER, *Eaux minérales et métalliques froides et chaudes*, Francfort-sur-l'Oder, 1572; TABEMAEMONTANUS, *Des nouvelles sources minérales et métalliques curatives*, Francfort-sur-le-Main, 1581; SOMMER, *De thermis*, Leipzig, 1596.

from being the centres of social and political life (epicurean conception) to rigorous sites where people would go for therapeutic purposes. A big influence played the Catholicism that transformed these centres in strictly therapeutic places where a rigorous code of behaviour needed to be observed.

1.3 *The birth of bottled water*

Notwithstanding the strong culture of thermalism and mineral water that took place in ancient Greece and Rome, the bottled water phenomenon and the bottled water market find their origins in the modern age. The first pharmacies were the pioneers of the bottling phenomenon.

The first bottled mineral water, which is historically documented, dates back in 1583 and comes from the thermal centre of Spa, a small town in the Arden, after which the modern wellness centres are called. The Romans discovered this spring and it was the Venetian Augustino – doctor of the king of England Henry VIII – to bring the source to celebrity in 1545. However, in 1583, Enri II of France obtained the exclusive right on the importation and use of that water for his personal consumption. The example of Enri II remained unique until the beginning of the 17th century, when the bottling of mineral water for therapeutic purposes became an authentic fashion. In the first years of the century, apothecaries and druggists started to move directly in the premises of the thermal springs to bottle and sell the mineral water.

The first form of regulation of the phenomenon was created in 1605 with an edict, of Enri IV king of France, on the exploitation of groundwater and phreatic waters. The regulation, and so the State, was recognizing officially the virtues of mineral water and provided for a basic regulatory framework on mineral water exploitation. With the edict, Enri IV nominated his first personal doctor – Jaques Duparcq – the superintendence of mineral and medicinal waters in France with the purpose of popularizing the effects of these waters for the benefit of all sick people. According to the Edict, under the supervision of the superintendent, there were the *intendants des bains et fontaines minérales* spread on the territory, whose task was to publish the properties of the water springs in their province, nominate the *concierges* for the preservation and maintenance of baths and fountains and water distribution.

With the beginning of the 18th century, the first tariffs on mineral water appeared. For instance, in 1709 the *lettres patentes* complementing Enri IV's edict accorded the monopoly over the selling and the transportation

of mineral water to those provided with an authorisation issued by the *intendants*. The first public tariff on “mineral and medicinal waters” was introduced in 1731. From then on, the market of bottled water developed all around Europe thanks to the activity of pharmacies and druggists. These latter developed chemical and biological analysis allowing them to classify mineral waters according to their properties against specific illnesses.

In the same century, with Luis XV began a systematic analysis of mineral waters that led to the first official taxonomy of waters and of their therapeutic virtues produced by a mineral water committee established by Luis XVI in 1778. According to the taxonomy, mineral waters were divided into four categories: ferrous, sparkling, sulphurous, and salty.⁵

However, it is only at the end of the 19th century that we can establish the birth of the industry of bottled mineral waters in some of the countries with the strongest thermal tradition. In Europe these were Italy, France, Belgium, and Germany while, on the other side of the Atlantic, were Texas and the State of New York. Indeed, it was in the State of New York – and more precisely in Saratoga – that the first bottling plant adopting industrial processes was built in 1820.

Up to the 1970s the market of bottled water was mostly related to mineral waters and mainly regional, anchored to the therapeutic connotation of these waters. It was representative of a small and specialized niche within the general market of non-alcoholic beverages, destined to the wealthy upper classes.⁶

From the early 1970s, bottling enterprises started to focus their business politics towards a wider range of people to increase their businesses both in geographical and economic terms. What these bottling enterprises did was to expand their business by loosening the relation of mineral water consumption with the therapeutic purposes. They began to promote bottled mineral water as a non-alcoholic beverage that, shortly later, became “the” beverage.

Two major elements are at the base of the increase of the bottled water phenomenon from the 1970s on. Firstly, the introduction of the PVC and later of the PET for the production of cheap and light plastic bottles that allowed to lower the price of the bottle as well as an easier management of bottled water in working and domestic environments. Secondly, the big investments in the advertisement sector done by bottling enterprises

5. EFBW, *History of Bottled Water*, cit.

6. MINERACQUA, *Storie dell'acqua*, 2010.

detached mineral waters from their therapeutic function and, more important, contributed to the creation of the demand of the good bottled water. Necessity that never existed before.

From then on bottled water consumption and production increased at an incredible rate, reaching every sector of population. The phenomenon was also exported by those companies to countries with no culture of mineral water. In these countries the water put in bottles was not coming from the mineral or thermal springs. The good “bottled water” was, hence, definitely detached from its therapeutic or healthy connotations and reduced to a pure commodity.

2. *The development of the legal regime on bottled water*

2.1 *Introduction*

Facing the unfeasibility of a world-wide in-depth analysis of the legal regimes governing bottled water of all the significant legal systems in the world, this research, in order to understand the birth and the development of the legal regime governing bottled water, focuses on the observation of three European legal systems, namely: France, Italy, and the U.K. The choice of focusing on Europe is dictated by historical reasons. Indeed, the bottled water phenomenon saw its birth and, later on, its first development in this continent. As mentioned before, the first bottles filled with mineral water appeared in the middle of Europe at the end of the 16th century and the phenomenon then consolidated in most of the European countries. From those countries the bottled water practice expanded to the west, gaining its place in both South and North America, and to the South – following the colonial routes – creating a culture of bottled water in countries where it never existed before.

The choice of focusing on France, Italy and the U.K. is dictated by the historical development of the bottled water phenomenon in those countries. France was the first legal system to regulate the production and selling of bottled water. The legal regime conceived to govern the bottling of water in this country played a determinant role as a model in the production of the bottled water regimes in other legal systems. Italy is included in the analysis because of the peculiarity of its regime that differentiated in some way from the French one. It is worth of consideration also because of the unique situation of the bottled water market in the Italian peninsula. Indeed, Italy is the third country in the world in terms

of per capita consumption of bottled water.⁷ Notwithstanding the fact that it is – unlike the first two in the rank: Saudi Arabia and Mexico – a country with great availability of high-quality water. The third country included in the analysis is the United Kingdom, with particular focus on the regime applied to England and Wales. The significance of this country for the purposes of the analysis relies on the fact that the U.K. developed a legal regime on bottled water within the common law tradition. Due to the influence of the U.K. over-sea and its power on (ex-)colonies this legal regime had been rather influent as a model in the global scenario.

Since the legal literature on the regulation of bottled water is rather scarce – if not almost inexistent – there is the need to start this work from a description of the way bottled water is governed. For this purpose this work presents how the three legal systems considered regulate the production of bottled water. This descriptive part aims at serving the purpose of a first rudimental mapping of the legal regimes on bottled water. In order to do so, it is proposed a historical account of the development of each different legal system up to its current form.

Each country developed its regulation for the abstraction of water, its bottling and selling in a rather autonomous way. In their development, however, the intervention of the European Union represented an important moment that constitutes a landmark for each of the legal regimes that are presented.

2.2 *The EU intervention on bottled water*

Before providing a description of the legal regimes of France, Italy, and the U.K. it is useful to give an account of the role played by the European Union in shaping the current national regimes of the member States. Indeed, right after the creation of the European Economic Community with the treaty of Rome in 1957, the various professional association of bottling companies in the Member States started to work and claim for an harmonization of the regulations on bottled water. They formed the “European Union of Natural Mineral Water Sources of the Common Market” (UNESEM) with the purpose of creating a piece of legislation able to guarantee the free movement of goods in Europe and to overcome the issues of unfair competition that the national regulations could produce by means of protectionist measures.

7. Source: INTERNATIONAL BOTTLED WATER ASSOCIATION (IBWA), *Market Report Findings 2014*, available at <http://www.bottledwater.org>.

In 1962, UNESEM produced a project of a European regulation on mineral water that was presented to the to the EU Commission. The Commission, although there were some aspects which failed to be covered, deemed the project worth of consideration and a valid draft from which to work on a European regime. In 1965, the Council of the European Community adopted a directive proposal aimed at producing a basic legal regime for the exploitation of mineral water and bottled water production. However, the process of negotiation and discussion took fifteen years. Such a delay in the elaboration of the directive was due to a number of different causes – as, for instance, the late intervention in the discussion of new Member States, and the negotiation of the Codex Alimentarius⁸ - but the main reason was the disagreement between the exporting countries and the non-producing countries.

In the effort of harmonizing the various legal regimes the discussion find some common point in the requirements for the exploitation of the sources and for the bottling process that appear rather similar in the national legal regime of the Member States. However, these latters had pretty different definitions of the category “natural mineral water”. Accordingly, the requirements related to the bacteriological content and labelling varied significantly from country to country. The major disagreement revolved around the two different conceptions of mineral water belonging, respectively, to the German and the Latin traditions.

Latin tradition – This tradition is embodied in the legal regime applied to mineral water in France, Italy and Belgium and the definitions refer to the health-related qualities of the water at its emergence from the source. Any further utilisation of the water does not enter into the definition. Hence, the therapeutic use or the destination to bottling processes for commercial purposes do not matter for definition purposes.

In the Latin tradition a special regime applies to mineral water and the recognition of water as mineral water is subjected to an evaluation of the health authorities. Thus, to this tradition diversifies mineral water from the category of foodstuff and the relative regime does not find application. Furthermore, since the therapeutic properties and the chemical composition of mineral water are conditions for its recognition by the health authorities, water cannot be subjected to any treatment that modifies its properties.

German tradition – This tradition takes a different perspective from the former and presents some similarities only with regard to the water

8. J.-F. AUBY, *Les Eaux Minérales*, Que Sais-Je?, Presses Universitaires de France, 1994.

destined to thermal cures. Apart from this exception, mineral water is governed by the general legal regime on foodstuff from where any reference to therapeutic properties is left out. The consequence is that bottled water only needs to meet the safety standards prescribed for food.

This implies that in the German tradition a water, in order to be defined mineral water, suffices to have a certain chemical composition, unlike the Latin tradition where the water needs to be analysed by health authorities. Another consequence of the application of the food regulation is that mineral water can be subject of various treatments like: carbonation or addition of other products for its transformation in beverage.

2.2.1 *The long way to the European Directive*

Notwithstanding the significant differences between the legal regimes of the Member States, in 1965 there seemed to be an agreement on the content of the directive to harmonize the bottled water market in Europe. The directive proposal presented found a compromise between the two traditions by providing for the coexistence of the two criteria for the recognition of mineral water. Mineral waters recognised according to either of the criteria could freely circulate in the European Community.

In the meanwhile, the WHO contested the appropriateness of the directive proposal objecting that, according to the Codex, no other product but drugs should make any reference to health related properties.⁹ This opposition was responsible of a further procrastination of the adoption of the directive.

After other discussions on the bacteriological content of mineral water on both the legal and political level, in 1980 the Council of the European Community eventually adopted the Directive 80/777/EEC on “the approximation of the laws of the Member States related to the exploitation and marketing of natural mineral waters”.

The Directive provided for much more than just some organizational rules for the free movement of mineral waters within the European Community. It brought about an entire body of rules concerning the conditions for the recognition of mineral waters, the bottling processes, labelling, and commercialisation. The Directive also provided for a definition of mineral water that represents a compromise between the two traditions. According to this definition, mineral waters are no more a therapeutic tool but can still be considered as waters having some “health-related

9. Ibid.

properties”¹⁰ and may report on the label their chemical composition and their appropriateness for a particular diet.

According to the definition provided in the Directive, a mineral water needs to be recognized by the competent authorities of the Member State in which they are abstracted. The authorities have to verify the quality of the water and, if labelled natural mineral water, it needs to go through an official publication by the aforementioned authorities. The recognition is then communicated to the European Commission which updates the list of natural mineral waters recognized in Europe.

The Directive forbids any kind of disinfecting treatment or the addition of any sort of substance that might modify the viable colony count. Mineral waters need to be subject of strict controls at the source and after the bottling. Indeed, a variation of microorganisms might be a sign of pollution. The only exceptions, to the prohibition of any kind of treatment, that the Directive allows are the addition carbon dioxide to sparkle the water and the utilisation of mineral water for the production of soft beverages.

2.2.2 *The Directive 2009/54/EC*

The Directive 80/777/EEC provided some common ground rules that Member States had to transpose in their national legislation. Its adoption constitutes an important moment in the history of each national legal regime regulating bottled water. In the decades after its adoption the Directive has being object of numerous amendments that found reorganisation in the new Directive 2009/54/EC, which repealed and substituted the former. The new Directive aims at preventing that the different national regimes “hinder the free movement of natural mineral waters, creating disparate competitive situations, and consequently directly affect the functioning of the internal market”.¹¹ In order to do so, it mainly focuses on a strategy based on “an obligation on each Member State to allow the marketing in its territory of the natural mineral waters recognised as such by each of the other Member States and by laying down common rules concerning in particular the microbiological requirements to be fulfilled and the conditions in which specific names must be used for certain of the mineral waters.”¹²

10. Art. 1, Directive 80/777/EEC.

11. Consideration no. 3, Directive 2009/54/EC.

12. Consideration no. 4, Directive 2009/54/EC.

Hence, the Directive produced a harmonisation of the national legal regime focusing in particular on the health of consumers, on the prevention of proliferation of misleading information, and on insurance of fair trading.¹³ Going into detail, the most salient aspects that the Directive regulates are the following.

1) The first concern of the Directive is to provide a definition of natural mineral water. Article 1 makes reference to the more detailed annex I part I and defines in a rather detailed manner natural mineral water which needs to be “microbiologically wholesome water [...] originating in an underground water table or deposit and emerging from a spring tapped at one or more natural or bore exits.”¹⁴ Accordingly, Annex I lists a series of features that differentiate natural mineral water from the others. Furthermore, natural mineral water may have properties favourable to health from the geological, hydrological, physical, chemical, physico-chemical, microbiological, if necessary pharmacological, physiological and clinical points of view. The composition, temperature and other essential characteristics of natural mineral water have to remain stable within the limits of natural fluctuation.

2) The Directive requires that waters, once they have been recognised by the competent national authorities, need to be included in the “list of the natural mineral waters recognised”¹⁵ and published in the *Official Journal of the European Union*. The process of recognition consists in controls of the source and of the water to verify that all the criteria the Annex I provides for are met. Thus, the criteria and parameters that water needs to meet in order to be recognised are homogeneous in all the Member States. The Directive does not identify the authorities competent for the recognition which, in fact, vary among the Member States.

3) Rather detailed are also the conditions for the exploitation of the natural mineral sources that the Directive sets forth. Indeed, each Member State has to incorporate the criteria provided in Annex II requiring as follow:

- The exploitation of a natural mineral water spring shall be subject to permission from the responsible authority of the country where the water has been extracted, after it has been established that the water in question complies with the provisions laid down in Annex I, Section I;

13. Consideration no. 5, Directive 2009/54/EC.

14. Art. 1, Directive 2009/54/EC.

15. Art. 1(5), Directive 2009/54/EC.

- Equipment for exploiting the water shall be so installed as to avoid any possibility of contamination and to preserve the properties, corresponding to those ascribed to it, which the water possesses at source. To that end, in particular:
 - a. the spring or outlet shall be protected against the risks of pollution;
 - b. the catchment, pipes and reservoirs shall be of materials suitable for water and so built as to prevent any chemical, physico-chemical or microbiological alteration of the water;
 - c. the conditions of exploitation, particularly the washing and bottling equipment, shall meet hygiene requirements; in particular, the containers shall be so treated or manufactured as to avoid adverse effects on the microbiological and chemical characteristics of the natural mineral water;
 - d. the transport of natural mineral water in containers other than those authorised for distribution to the ultimate consumer shall be prohibited.

Furthermore, the Directive regulates other aspects of the process of bottling. These are the controls that the national competent authority has to conduct periodically, the allowed and forbidden treatments, the information that need to appear on the bottle and those that cannot, and the advertising regime. This Directive represents a fundamental legal source of bottled water regulation in Europe as all the major producers of bottled water in the Union are indirectly subjected to the Directive. If it is true that the Directive 2009/54/EC is the most important legal source in the EU, it is worth noticing that other directives and regulations are relevant to the phenomenon.

2.2.3 Bottled water is not just mineral water

The Directive 2009/54/EC constitutes an important piece of legislation for bottled water. This is because the overall majority of bottled water produced and consumed in the European Union is natural mineral water. However, it is not the only type of water that is put in the bottled and destined to human consumption, especially outside Europe. Besides natural mineral water the other recognised categories are “spring water” and “bottled drinking water”.

Spring water

Spring water is defined by article 9 of the Directive 2009/54/EC as “water which is intended for human consumption in its natural state,

and bottled at source.”¹⁶ According to the Directive spring waters, unlike natural mineral waters, do not need a formal recognition from national health authorities, nonetheless they are subjected to the same provisions provided for the exploitation of natural mineral waters aimed at preserving the properties of water and prevent pollution.¹⁷ For this latter purpose the periodical controls prescribed in Annex II of the Directive find application spring water exploitation. Furthermore, spring waters need to satisfy the same microbiological requirements and their labels have to report the name of the spring as well as the information concerning any eventual treatment among those allowed by article 4 of the Directive. Finally, spring waters, for the aspects that are not regulated in this Directive, shall comply with the provisions of the Directive 98/83/EC on the quality of water for human consumption.

Bottled drinking water

This denomination is a residual category and refers to all waters that are neither natural mineral water nor spring water. The exploitation of this water for bottling purposes falls within the definition provided by the Directive 98/83/EC which regulates the exploitation of this water. More precisely, the Directive sets forth a wider definition within which bottled drinking water falls. The bigger category is named ‘water for human consumption’ and refers to “all water either in its original state or after treatment, intended for drinking, cooking, food preparation or other domestic purposes, regardless of its origin and whether it is supplied from a distribution network, from a tanker, or in bottles or container.”¹⁸ The Directive provides for some obligation on Member State to ensure that water intended for human consumption is wholesome and clean. For this purpose, water should: be free from any micro-organism and parasites and from any substances which, in numbers or concentrations, constitute a potential danger to human health; meet the minimum requirements set out in Annex I of the Directive, establishing the microbiological and chemical parameters.¹⁹ Thus, to this third category belong also filtered waters or waters that have gone through depurative treatments.

Natural mineral water, spring water, and bottled drinking water constitute the three types of water that is bottled in Europe and, with some

16. Art. 9, Directive 2009/54/EC.

17. Annex II, points 2 and 3, Directive 2009/54/EC.

18. Art. 2, Directive 98/83/EC.

19. Art. 4, Directive 98/83/EC.

slight differences, worldwide. As said, in the European Union the bottled water market is almost exclusively constituted by natural mineral waters. That is the reason why this section focused predominantly on the Directive 2009/54/EC. Finally, worth mentioning is that the European body of norms on food applies to the production and commercialisation of bottled waters. This body includes:

- Regulation no. 178/2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety;
- Regulation no. 852/2004 on the hygiene of foodstuffs;
- Regulation no. 882/2004 on official controls performed to ensure verification of compliance with feed and food law, animal health and animal welfare.

This preliminary description of the EU intervention in the regulation of bottled water was necessary as it set forth some general and technical rules that affected and influenced the development of the national legal regimes on bottled water. In particular, the Directive 80/777/EEC and, later on, the Directive 2009/54/EC played a particularly important role. Now, I will provide an account of the development and actual shape of the legal regime of each of the three legal system considered.

3. *France*

3.1 *Historical development of the legal regime*

France is historically one of the first countries to develop a legal regime concerning the production and commercialisation of bottled water. At the beginning of the 17th century the use of mineral water was pretty diffused in the country and the practice of bottling water was developing. During that time the first piece of regulation appeared. The king Enri IV, following the advice of his personal doctor Jaques Duparcq, published in May 1605 an edict conferring to the first doctor of the king the superintendence on all mineral and medicinal waters of France with the purpose of popularise the beneficial effects of these waters and make sure that all the ill people could take advantage of them. The superintendent functions as a supreme and coordinating authority, and chooses for each province the “*intendants de bains et fontaines minérales*” with the task of publishing the beneficial properties of the waters of the area and. The superintendent nominates

as well the concierges, the guardians and other officers for the protection and maintenance of fountains and baths.

During the 17th century, the fashion of mineral waters expands and starts to be a general phenomenon. The processes of bottling and transportation of mineral waters spread at the artisanal level. Example of this are the '*canettes*' (little bottles) that, from 1602, start to be produced in Vals with the purpose of supplying the court of the king of France.²⁰ Along the century the king Louis XIII orders the construction of the thermal centre of Vichy, which, from then on, will develop and become one of the most important centres in the Kingdom. However, some medical studies started to demonstrate that the particular properties and the composition of the waters modify as soon as the water comes out of the source and even more when put in bottles. This scepticism against mineral waters gained momentum in the second half of the 17th century. Some cases – such as the one of Boileau who unfruitfully went to Bourbon-l'Archambault to recover his voice – produced a general mistrust in mineral waters and thermal centres. Indeed, a current say at the time was, as doctor and writer Gui Patin writes in one of his letters, that "les eaux minérales font plus de cocus qu'elles ne guérissent de malades."²¹

Another cause of this scepticism was proliferation of an informal and particularly active commerce of mineral waters. Those waters were sold as remedies for particular maladies and an entire market developed around them. However, taking advantage of the informality of the commerce many traders started to bottle normal waters and sell them as mineral water with particular properties. In order to limit the phenomenon, in 1709 the *lettres patentes* amended the edict of Enri IV and accorded the monopole of transportation and selling of mineral waters to the people provided with an authorisation.

Some other minor normative interventions took place in the course of the 18th century. In 1731, Pierre Chirac, first doctor of the King and superintendent of the mineral water of France, produced a regulation establishing the tariffs for selling water. The existing regime was unable to guarantee high quality standards of the water circulating in the market. Hence, in 1772, more strict regulations were introduced and all the authorisations revoked. Those who wanted to continue to bottle and sell mineral waters had to apply again for the authorisation and undergo the controls predisposed by the authority. This measure turned out to be too strict as

20. Auby, *Les Eaux Minérales*, 11.

21. Translation: "mineral waters produce more cuckolds than cure ill people".

the authorisation was denied to all mineral waters but one: the Vichy water. The 1772 regulation was soon considered obsolete and unapplied. In 1778 a declaration of the new king Louis XVI organized the main rules set forth in the previous years and three years later distinguishes the sources belonging to the state – that constituted the overall majority – from the sources discovered by private owners on their land. This was the first time that the exploitation of mineral waters by private operator was officially recognised. From then on, private owners who discover a water source on their land are obliged to report it to the Royal Society of Medicine and, once obtained the authorisation, can freely exploit the source.

The advent of the first empire with Napoleon I constitutes a fundamental moment in the development of the legal regime of bottled water. Indeed, the system designed by the *lettres patentes* of 1549, establishing that all water sources belong to the state, was definitely overturned. The adoption of the *code civil* of 1804, the so called *code Napoleon*, introduced at article 552 a new general concept of property according to which the property of a piece of land determines the property of everything above it with an infinite extension toward the sky as well as the property of everything beneath. The introduction of the Roman conception of property – that is limited horizontally but that finds no vertical constraints, and extends in a vertical fashion above and beneath the land – had an extremely significant impact on the legal regime of waters. In fact, from now on mineral and thermal waters are not anymore exclusive property of the state but, unlike before, they are subjected to the general rules on property.

The introduction of the *code civil* in 1804 rearranged the property regime on water that now allocates the property of the sources to the owners of the lands containing them. The redefinition of the property arrangement was quite simple in theory, but the practical impact was relatively limited. In fact, during the industrial revolution the application of the new and more liberal regime on water turned out to be counter balanced by a significant use of the eminent domain for a large number of mineral sources.

Another landmark in the history of the development of the legal regime on bottled water is constituted by the two *ordonnances royales* of 1820 and 1823. The *ordonnance* of December 20, 1820, funded the ‘*Académie de médecine*’ whose role is to be the privileged interlocutor of the government on issues concerning public health, with special attention to mineral waters. The second *ordonnance* was issued the 18 June 1823 as a result of a three-year work aimed at reorganise all the legal provisions concerning

mineral water to produce one act providing a complete regulation. This *ordonnance* constitutes a cornerstone of the French legal regime on mineral water, representing the first systematic legal act on the topic.

The first main principle established in this act is the need of a previous authorisation in order to begin the exploitation of a source. The principle constitutes a fundamental part of the legal regime on bottled water even today. Article 1 of the *ordonnance* states that “*toute entreprise ayant pour effet de livrer ou d’administrer au public des eaux minérales naturelles ou artificielles demeure soumise à une autorisation préalable et à l’inspection d’hommes de l’art.*”²²

The *ordonnance* lays down another principle drawn from the previous regulation that subjects the thermal and bottling plants to regular controls of the competent authorities. It provides for a central role of the state in the exploitation, bottling and commercialisation of mineral waters. At the same time, the act provides for a more liberal regime as it abolishes fixed tariffs that can now be set by bottlers, provided that they inform the prefect of their tariffs and at any modification.

The reassessment of the property regime on water, determined by the introduction of the *code civil* of 1804, produced unpredicted consequences for the phenomenon of water abstraction. If before the property reform the mineral sources were generally discovered by chance, now, the introduction of article 552, created an incentive for private landowners to look for water sources on their land. Thus, people started to excavate their land looking for water. During the 1830s sounding and excavating techniques were imported from Germany and largely adopted in the French territory. A real fever for mineral water affected French landowners during that period and this new trend of digging holes and excavating produced significant damages to the existing plants. In fact, if the number of new sources was increasing the old ones in some cases suffered damages or dysfunctions produced by digging activities conducted in their premises. The damaged bottlers started to file lawsuits against their neighbours who altered, polluted, or deviated their water flow. The *Cour de cassation*, however, was unable to do anything as article 552 confer to landowners the absolute power on their land and everything beneath, including water. So, the Court did not have the power to stop those digging activities, power that neither the administrative nor municipal authorities detained.

22. Art. 1, Ordonnance royale du 18 juin 1823; translation: “every enterprise which delivers or administer natural or artificial mineral water to the public shall be subjected to a previous authorization and inspection conducted by the competent authorities.”

Acknowledging the necessity to put an end to the situation in January 1837 the minister of commerce and public works filed a legislative proposition to the parliament. He stated that “c’est nécessaire de protéger les sources, mais que l’esprit de nos institutions ne permet pas à l’autorité de restreindre par des règlements nouveaux, sans l’intervention de la législature, l’usage du droit de propriété.”²³ The intention of the legislative proposition was to protect the existing plants engaged in the exploitation of sources from the damages that might derive from their neighbours’ digging activities. In order to do so, the minister proposed the institution of the ‘*declaration d’utilité publique*’.

The project of the introduction of the declaration of public interest was object of a vivid discussion and, due to the historical vicissitudes of that time, did not see the light until 1856. In July 14 of that year was passed a law instituting the ‘*declaration d’intérêt public*’. The declaration of public interest would allow a source that is accorded such a declaration to benefit from a perimeter of protection within which no activity is allowed without a previous permission granted by the authority. Hence, the owners of the lands within this perimeter lose the ability to do a certain number of activities on their own land.

After the property reassessment brought about by the *code civil*, the *ordonnance royal* of 1823 and the law of 1856 instituting the declaration of public interest defined the legal regime on bottled water that – as said before – at the time was exclusively mineral water. The regime remained quite stable, with the exception of few minor interventions, until the European Union adopted the Directive 80/777/EEC in 1980.

3.2 Current legal regime on bottled water

The legal status – The general legal regime on water in France is the result of a progressive formation that finds its roots in Roman law. The French system drew from the Romans the distinction between running water which cannot be object of appropriation, and is defined ‘*res communis*’, and the water destined to public use – like rivers, ports, sea and seashores – which are defined as ‘*res publicae*’.²⁴ The development of the

23. AUBY, *Les Eaux Minérales*, 22; translation: “it is necessary to protect the sources, however the spirit of our laws does not allow the authority to restrict, by means of new regulation, the use of private property without the intervention of the legislative power.

24. M. MOISAN, *Essai sur le droit et l’administration des cours d’eau en France*, Thèse, université Paris I, 1996: 25.

legal regime in the last two centuries kept such a distinction along with an increased focus on the control over usages of water. In fact, according to the current general legal regime water does not belong to anybody, it is a ‘*res communis*’ pursuant to the provision of the *code civil*, art. 714, stating that “*Il est des choses qui n’appartiennent à personne et dont l’usage est commun à tous.*” This implies that there cannot exist ownership over rivers or aquatic environments but rather ‘*droit d’usage*’ on water. Nonetheless, a water basin or spring may be object of private property according to the general provision of art. 552 of the *code civil* and be subtracted to the common use. This constitutes the legal distinction between the ‘*domanialité publique*’ and ‘*eaux non domaniales*.’²⁵

If the law clearly identifies waters belonging to the public domain (*domanialité publique*), it is not the case for the non-public waters (*eaux non domaniales*) which constitute a residual category of all the water not included in the public domain. Notwithstanding the general provision that prevent water from being object of private appropriation, these waters, when clearly enclosed in a land, can be freely exploited by the landowner without damaging the public interest.

Within this taxonomy, waters destined to bottling belong to the category of non-public waters and, within this category, they can either be underground waters or source waters, depending on their natural status. Pursuant to art. 552 of the French civil code, property rights are applicable to underground waters and especially to the ones abstracted. It follows that the owner of a land containing an underground source can freely make use of the water regardless of the position of her neighbours.²⁶ Though, these rights may be restrained according to an evaluation of the utility of the abstraction or as a consequence of malicious intent.²⁷ Source waters as well, belong to the owner of the land who can freely exploit the source. She can even transfer the property of the source to a third person. Anyway, the owner can exploit the source inasmuch as it does not produce damage to the inferior lands, even though such a use is based on an acquired use.²⁸

Thus, bottled water – in its typologies of either natural mineral water or spring water – fall within the big category of non-public waters, the

25. B. DROBENKO, *Introduction au droit de l’eau*, 1st ed., Paris: Éditions Johanet, 2014: 35.

26. V. VARNEROT, *L’étrange pérennité du droit de propriété sur les eaux souterraines*, note sous *TGI d’Angers* du 12 juillet 2001, *RJE* n. 02/2002, 135.

27. DROBENKO, *Introduction au droit de l’eau*, 45; Cour de Cassation, 3^e civ., 26 novembre 1974, Société civile de gérance du domaine de Cheffontaine, req. n. 73-12.124.

28. Art. 642, French civil code.

property of which is determined by the common rules of property. A bit more complicated is the question of property in relation to the category of bottled drinking water. This water is generally tap water which does not fall in neither the category of underground water (the property of which goes with the land) nor of source water (which free use is accorded to the landowner). The European legislation on bottled water and on water destined to human consumption does not intervene on the matter of property, leaving to the Member State the decision.

Definitions – In terms of definition, the French legal regime on bottled water adopts the repartition that results from the combination of the Directives 98/93/EC and 2009/54/EC. It identifies three types of water within the category of water destined to human consumption. These are: natural mineral water, spring water and bottled drinking water.

Natural mineral water – The Definition of the EU Directive of 2009 has been transposed in the *code de la santé publique* where art. R1322-2 states that natural mineral water is a microbiologically wholesome water, meeting the requirements laid down in the code of public health,²⁹ originating in an underground water table or deposit and emerging from a spring tapped at one or more natural or bore exits. This water contains natural elements that accord it properties favourable to health. It is characterized by its original purity and its naturally high content of minerals, trace elements and other constituents. The code of public health details all further characteristics and aspects that a natural mineral water needs to have according to the European Directive 2009/54/EC.³⁰

Spring water – It is a water which gushes from the underground and that needs to be microbiologically wholesome and protected against any risk of pollution.³¹ Its exploitation can be carried on through one or more natural or bore exits and it needs to be bottled at the emergence in recipients suitable for its direct commercialisation. Unlike natural mineral waters, spring waters can be commercialised with a different name from the one of the spring but it has to be mentioned on the label.

Bottled drinking water – This, again, is a residual category that includes all the waters destined to human consumption that do not fall in either of the first two categories. This category is identified by the code of public

29. The parameters are listed in art. R1322-3 in which are transposed the parameters contained in the Directive 2009/54/EC.

30. See paragraph on “the EU Directive 2009/54/EC”, 8.

31. Art. R1321-39 of the code de la santé publique.

health as ‘*eaux rendues potables par traitement*.’³² This category represents a minor one in the French market as most of bottled water commercialised is natural mineral water or spring water.

Worth noticing is that the French legal regime on bottled water is special regime separated from the general regime on water. This separation comes from need of including in the bottled water regime some peculiar principles and partly subjecting water also to food law. Such a separation is in line with the same distinction made by the European Union in terms of sources of law for bottled water³³ and water in general.³⁴

Principle of bottling at source – According to the French legal regime, water destined to bottling needs to be bottled as closer as possible to the point of emergence. The bottling has to be done in the recipient – generally plastic or glass bottles – that will be commercialised and be used by the final user. This principle already existed in the French legal regime and was transposed in the EU Directive³⁵ which states in annex II, point 2, that “the transport of natural mineral water in containers other than those authorised for distribution to the ultimate consumer shall be prohibited.” This principle is rather theoretical as it is not homogeneously applied within the EU. In fact, this principle does not find application in those countries where the transport of water in cisterns was allowed before the entrance into force of the EU Directive of 1980.

Although this is a fundamental principle of the French legal regime aimed at preserving water purity and preventing any sort of chemical or microbiological alternation of water and its properties favourable to health, this principle is not universal. In the United States, natural mineral waters can be bottled in a place different from the point of emergence and can, therefore, be transported in containers before being bottled. The only exception that the French regime allows is the canalisation of water to bottling plants. The canalisation is allowed when it is not possible to build a bottling plant right next to the source.

Worth noticing is that the principle of bottling at source does not find application for the category of bottled drinking waters. These waters, in fact, do not emerge from a source but are bottled after being subjected to purifying treatments.

32. Art. R1321-92 of the code de la santé publique.

33. European Union Directive 2009/54/EC.

34. European Union Directive 98/83/EEC.

35. European Union Directive 80/777/EEC and then in the Directive 2009/54/EC.

Previous authorisations – Another cornerstone of the French legal regime governing bottled water is the system of previous authorisations. Already recognised in the *ordonnance* of 1823, the system of ‘*autorisation préalable*’ is today composed of two different authorisations, namely: the authorisation to exploit and the authorisation to bottle. Those authorisations are the consequence of the evolution of the regime on bottled water that increasingly strengthened its interaction with health, environmental and food laws.

1) The authorisation to exploit a spring or a water table is subjected to a number of prescriptions fixed by the code of public health,³⁶ which include prescriptions of very different nature as:

- prescriptions applying to geological and hydrological tests;
- prescriptions applying to physical, chemical and physico-chemical tests;
- criteria for the microbiological tests at the emergence;
- prescriptions applying to clinical and pharmacological tests.

The procedure for granting the authorisation to exploit is superintended at the local level by the mining authority whose role is to check that all the requirements are met and to evaluate the environmental impact of the exploiting activity. The authorisation, however, is released by the ministry of health that, once the *Académie de médecine* gave its opinion, is the only organ empowered of providing this authorisation which will then be published on the *Journal officiel*.³⁷

2) The authorisation to bottle was introduced at a later stage in the regime of bottled water. Since 1964 any person who wants to bottle water needs to have a previous authorisation granting her the possibility to bottle only if certain conditions are met. These include the hygienic condition under which the water is bottled, the system of controls predisposed on the bottling process and on the quality of water. The allowance of this authorisation implies also the control over a number of standards from food law that find application on the production and commercialisation of bottled water.

Both authorisations are granted for a limited amount of time in order to allow a periodical control of the hydrological, geological and environmental conditions of the source and of the protection zone.

Declaration of public interest – As said, the 19th century witnessed a problematic increase of conflicts between owners of water sources re-

36. See Art. L1322 of the code de la santé publique.

37. AUBY, *Les Eaux Minérales*, 80.

solved by the law of 1856 that introduced the declaration of public interest. In the aftermath of the introduction of the '*declaration*' most of the big French sources obtained the recognition of public interest. The institution is based on the idea that the sources of natural mineral water constitute an important resource for the national public health and, thus, require the protection of the state.³⁸

The declaration is conditional to qualification of the water abstracted as natural mineral water. Once the water is qualified as natural mineral it can be declared of 'public interest' either at the same time of the release of the authorisation to exploit or at a later time.³⁹

Depending on a case-to-case evaluation of the risks, the declaration of public interest may entail the institution of a protection zone with the purpose of forbidding or controlling all human activities. Within the perimeter of the protection zone some activities, in order to take place, need to be previously authorised, whereas others are subjected to prior declaration to the prefect. In any case, any other activity may be subjected to a prior control.⁴⁰

Within the perimeter of the protection zone, the owner of the source is allowed to conduct all the abstraction and management activities that are necessary for the exploitation of the source, even though they take place on third-party soil.⁴¹

The department prefect, after a public survey and once received the opinion of the municipality councils involved, along with the opinion of the department council for the environment, sanitary and technological risks, synthesises all the opinions. The *Conseil d'Etat* (the French administrative supreme court), on the base of a report of the minister of health, decides on the matter with a decree which may declare the public interest and establish a protection zone.

Water quality and commercialisation – Bottled water quality concerns two different types of aspects: on the one hand, there is a concern on the quality of water itself; on the other hand, the concern on the quality of the processes of bottling and the quality of bottles destined to commerce.⁴²

38. Ibid.

39. See Art. L1322-3 and R1322-17 of the code of public health.

40. See Art. L1322-4 and L1322-5 of the code of public health.

41. See Art. L1322-8 of the code of public health.

42. Drobenko, *Introduction au droit de l'eau*.

The former concern focuses on the exploitation of a source for the abstraction of water. The administrative decision that authorises the exploitation of a water source details the conditions for the exploitation – including abstraction limits, properness of the plant, etc. – and the requirements to which the exploitation activity is subjected.⁴³ Any change or alteration operated to process or the plant itself has to be reported to the prefect. Furthermore, the process of bottling natural mineral or spring waters has to meet the requirements determined by food laws in relation to materials and objects destined to enter in contact with foodstuff.⁴⁴

The latter concern, on the quality of the water commercialised, entails a greater role of the exploiter. In fact, the person authorised to undertake abstracting activities for bottling purposes is also required to ensure the properness of water destined to commercialisation.⁴⁵ Water has to meet microbial qualities both at emergence from the source and at the moment of its commercialisation.⁴⁶

The quality requirements and the different characteristics of each water that is commercialised are public.⁴⁷ The consumer needs to receive, at the moment of the purchase, a number of information, those need to appear on the label attached to the bottle. The label needs to identify:

- the type of water contained in the bottle, the category within which it is classified (e.g. natural mineral water, spring water or bottled drinking water);
- the place of origin of the water contained in the bottle and its name;
- the different characteristics of the water, along with several indications that are both the ones specific for bottled waters and the ones applicable to foodstuff.⁴⁸

Controls – The controls predisposed on the exploitation, production and commercialisation of bottled water are aimed at guarantying the quali-

43. See Art. R1322-8 of the code of public health.

44. See Art. R1321-95 and R1322-36 of the code of public health, in relation to the EU Regulation 1935/2004.

45. See Art. L1322-2 of the code of public health.

46. See Art. R1321-84 of the code of public health, decision of March 14, 2007, (modifié) concerning the quality requirements of bottled waters, its treatments, and particular labelling rules for natural mineral waters and spring waters.

47. See Art. R1321-94, R1322-44-10, R1322-44-9 et s., R1322-44-17, D1321-103 et s. of the code of public health.

48. See Art. R1322-44-9 et s. for natural mineral waters, R1321-88 for spring waters, R1321-91 et s. for bottled drinking waters.

ties of water and ensure the sanitary levels of the products commercialised. These controls are determined by consumer law as well as by requirements deriving from the safeguard of public health. For these purposes, the system of controls relies on two types of controls: the, so-called, administrative controls; and the controls conducted by the operator herself.⁴⁹

According to the French code of public health, the sanitary control is conducted by the state.⁵⁰ However, the controls are numerous and are conducted by the *Agence régionale de santé* (for what concerns the health-related controls), by the *Direction de la concurrence, de la consommation et de la répression des fraudes* (for the controls over the production and commercialisation). Furthermore, the national authorities for the sanitary security, the foodstuff, the environment, and labour also contribute in the determination of some parameters of control.⁵¹

The aforementioned authorities can access the plants with the purpose of conducting the controls. In the event in which the authorities find an irregularity during their controls they may have the prefect forcing the owner of the bottling plant to take the necessary arrangements.

The operator is also responsible for carry on controls on her own plants and on the activities conducted therein. Regardless of the particular activity – be it the exploitation, stocking, bottling or commercialisation – the operator needs to implement several controls and a system of surveillance, the modalities of which are determined by the authorisation decision.⁵²

To what concerns natural mineral waters, they are subjected to more control aimed at guaranteeing their mineral content and their properties favourable to health. Accordingly, the bottler has to have her water tested periodically by an authorised public laboratory.⁵³ These analyses constitute part of the annual report that the exploiter is required to submit to the prefect. The implementation of the program of analyses is composed of a system of monitoring and a series of scheduled sanitary analyses. This program is for the main aspects determined by the authority; the exploiter organizes the complementary aspects.⁵⁴

In conclusion, worth noticing is that the exploiter bears all the costs of the system of monitoring and analyses. She has to implement all the

49. DROBENKO, *Introduction au droit de l'eau*, 324.

50. See Art. L1322-13, R1322-44-2 et s., R1322-45 of the code of public health.

51. See Art. R1322-40, L1313-1, 1323-4 of the code of public health.

52. See Art. R1322-39 of the code of public health.

53. See Art. R1321-103, R1322-29, R1322-41 et s., R1322-44 of the code of public health.

54. See Art. R1322-41, R1331-43 of the code of public health.

necessary preventive measures, the measure for the protection of the abstraction areas, monitoring the conditions of abstraction, bottling, stocking and commercialisation of the water.

4. Italy

4.1 Historical development of the legal regime

Notwithstanding the long-standing tradition of mineral and thermal water that Italy received as a legacy tracing back to the Romans, the development of the Italian legal regime on bottled water began quite recently.⁵⁵ In fact, the Italian territory counts numerous centres of mineral and thermal waters that have been exploited since the times of the Roman Empire, but their exploitation has mainly been conducted at the local level. The richness of sources and the locality of the phenomenon arguably were some of the major causes of the late development of the bottled water phenomenon.

Indeed, it was not before the 1890s that mineral waters started to be bottled in a systematic manner in Italy.⁵⁶ In part, probably this delay is due to the recent formation of Italy as a state. Before 1861 the Italian territory was divided in several independent realities within which the transport of water was, allegedly, not a big concern. Thus, by the end of the 19th century the phenomenon of bottling water gained momentum, the first bottling plants were constructed and a market for bottled water started to appear.

In 1916, with the introduction of the statute n. 947 of July 16, the first piece of legislation concerning the production and commercialisation of natural mineral waters was produced in Italy. Three years later, the royal decree of September 28⁵⁷ gave application to the statute of 1916 and set forth a system of rules – on natural mineral waters and thermal and hydrotherapeutic centres – that designed the first legal regime on bottled water in Italy.

The Statute, in the effort of providing a definition of mineral water states that:

55. P. CALÀ, *Evoluzione Della Legislazione Delle Acque Minerali*, in *Boll. Chim. Igien.*, 2003.

56. MINERACQUA, *Storie dell'acqua*, 2013, available at www.mineracqua.it.

57. Regio decreto del 28 settembre 1919, n. 1924.

*Art. 1. Agli effetti della Legge 16 luglio 1916, n. 947, sono considerate acque minerali quelle che vengono adoperate per le loro proprietà terapeutiche od igieniche speciali, sia per la bibita, sia per altri usi curativi. Non si considerano acque minerali: le ordinarie acque potabili, comunque messe in commercio, le acque gassate e le acque di seltz, costituite da acqua potabile trattata con anidride carbonica; le acque preparate estemporaneamente, per ricetta medica; i fanghi.*⁵⁸

*Art. 2. Si considera acqua minerale naturale quella che viene offerta all'uso così come scaturisce dalla sorgente. ...[omissis]...*⁵⁹

In 1927 a royal decree, n. 1443, still partially applicable today, qualified mineral and thermal waters as a 'mineral suitable for industrial exploitation'⁶⁰ the utilisation of which, comprehensive of 'research' and 'cultivation' activities, constitutes in legal terms a mine. Hence, consequently to the adoption of the royal decree of 1927, mineral waters became a particular category of water subjected to the legal regime on mines and falling out of the scope of application of the general code on water.⁶¹ Further consequence of their qualification as minerals was that any issue involving mineral water fell within the exclusive jurisdiction of the administrative judge.⁶² Indeed, the Italian judiciary system includes special tribunals for water⁶³ related issues that have jurisdiction on disputes concerning all kind of water but the mineral ones.

The introduction of the Italian civil code in 1942 constituted a fundamental landmark – as it was the case for France – for the development of

58. Art. 1 of the royal decree of September 28, 1919, n. 1924: "Pursuant to the statute of July 16, 1916, n. 947, are considered mineral waters those waters that are used for their therapeutic or specially hygienic properties, both for drinking and for other curative purposes. Are not considered mineral waters: normal drinkable waters, regardless of the condition of their commercialization, sparkling and seltz waters derived from processes of carbonation with carbon dioxide of normal drinkable waters; waters treated for having special and temporary properties, prepared pursuant to medical prescription; muds."

59. Art. 1 of the royal decree of September 28, 1919, n. 1924: "It is considered mineral water a water that is safely drinkable without any treatment."

60. Art. 1, Royal decree of July 29, 1927, n. 1443: "*Sostanza minerale, industrialmente utilizzabile.*"

61. Royal decree of December 11, 1933, n. 1755, "*Testo unico delle disposizioni di legge sulle acque e impianti elettrici.*"

62. See, amongst others, Cass. Sez. un., April 23, 2001, n. 176.

63. This special judiciary is structured in two levels: for the first instance there are regional tribunals – *Tribunali regionali delle acque pubbliche* – and for the second and last instance the *Tribunale superiore delle acque pubbliche*.

the legal regime on bottled water. In fact, diverging from the model of the French civil code, the Italian one qualifies mineral waters as indisponible public property (*patrimonio pubblico indisponibile*). According to art. 826 of the Code, mines – understood as both veins or deposits and substances listed in art. 2(2) of the royal decree 1443/1927 – are part of the public property that cannot be alienated, as they constitute a public interest.

The regime on mines differs from the one of caves and peat bogs, for which the regime of indisponible public property applies only in the event where the good is subtracted to the owner, of the land containing the good, for one of the legitimate reasons. Otherwise, caves and peat bogs follow the general regime of property – of art. 840 of the Italian civil code – that extends the ownership of the land beneath and above its perimeter.⁶⁴ Unlike caves and peat bogs, mines are indisponible public property and cannot be alienated. Moreover, they cannot either form the object of a right to use, unless such a right is accorded by means of an administrative act of concession.⁶⁵

Hence, sources of mineral and thermal water, due to their legal qualification as mines, are considered as public goods – or, more precisely, good belonging to the indisponible public patrimony – the economic exploitation of which constitutes a public interest. Their exploitation may either be conducted by the public entity itself or entrusted to a private person by means of concession.

With the advent of the republican Constitution of 1948, mineral and thermal waters were transferred to the regions introduced by the Constitution (art. 114). This transfer was actually operated only in 1970 by the statute n. 281⁶⁶ stating that “*sono trasferite alle regioni e fanno parte del patrimonio indisponibile regionale [...] le acque minerali e termali.*” The presidential decree⁶⁷ of 1977 provided for a further transfer to the regions of the administrative functions related to mineral and thermal waters. In particular, the decree transferred the functions related to the research and exploitation of mineral and thermal waters, the monitoring on the implicated activities and the authority on the administrative concession.⁶⁸ The

64. See Art. 826 (3) of the Italian civil code.

65. See S. AMOROSINO, “*Le acque più ‘pregiate’: i regimi amministrativi delle acque minerali e termali*”, in *Il Diritto dell’economia* 3, no. 3/4 (2008).

66. Art. 11, statute of May 16, 1970, n. 281, *Provvedimenti finanziari per l’attuazione delle Regioni a statuto ordinario*.

67. Art. 61, D.P.R. 24 luglio 1977, n. 616.

68. See, for example, L. R. Piemonte 12 luglio 1994, n. 25, *Ricerca e coltivazione di acque minerali e termali*; L.R. Piemonte 26 aprile 2000, n. 44, *Disposizioni normative per l’at-*

only exception to the transfer provided for by the Decree, is the authority on the recognition of the properties favourable to health of mineral and thermal waters as well as on the control of promoting activities of the use of these waters for curative purposes.⁶⁹

Hence, in the period preceding the intervention of the European Union, with the Directive 80/777/EEC, the legal regime governing bottled water – which, right after the explosion of the phenomenon of bottling in the 70s, was almost exclusively constituted by natural mineral water – is based on a system of concessions granting to privates the permission to exploit water sources for the extraction and commercialisation of a product used for its properties favourable to health. The most important and peculiar features of this legal system are the qualification of natural resource as a mining product and the consequent application of the public property regime.

4.2 *The current legal regime on bottled water*

The legal status – With the interventions of the European Union in the 1980, and later on with the Directive 2009/54/EC, the Italian legal regime on bottled water went through a process of reconfiguration of certain aspects. One of these is the inclusion in the legal universe of bottled water of the other two categories of water: spring water and bottled drinking water. In fact, in the Italian market of bottled water natural mineral water has always represented the most important – if not the only – type of water that could be commercialised in a bottle. This peculiar pattern is arguably due to the fact that the Italian territory is extremely rich of water sources of high quality that fall within the definition of natural mineral water. With the transposition of the European Directives, spring water was qualified – similarly to mineral water – a mineral resource and subjected to the regime on mines. Bottled drinking water, instead, still represents a residual category of those waters that are bottled after a sanitary treatment. These waters are still quite irrelevant in the Italian bottled water scenario and are subjected to the general standards designed for potable water.

tuazione del Decreto legislativo 31 marzo 1998, n. 112 Conferimento di funzioni e compiti amministrativi dello Stato alle Regioni ed Enti locali, in attuazione del Capo I della legge 15 marzo 1997, n. 59, art. 27 e s..

69. See Corte Conti, Sez. contr., 8 giugno 1995, n. 77 on art. 30, lett. u, of the D.P.R. 24 luglio 1977, n. 616.

The EU Directives produced another effect on the Italian legal regime, they triggered a gradual expansion of the legal regime on bottled water, from its original position within the regime on mines, towards the general regime on food and foodstuffs. The expansion, however, did not imply the abrogation of the part of the regime on mines applicable to the bottled waters, but produced a twofold system in which both aspects of the mining regime and of the regime on foodstuff find application.⁷⁰

Notwithstanding the important influence of the *code napoleon* on the Italian civil code,⁷¹ the latter provides for a quite different property regime on water. Indeed, art. 909 of the Italian civil code, derogating to the general rule that accords the property on water to the owner of the land on or under which water stands, provides for a rather prevalent public property. In terms of legal architecture, the rule determining the general property arrangement on water is art. 840 which says that “*la proprietà del suolo si estende al sottosuolo, con tutto ciò che vi si contiene [...]*.”⁷² Nevertheless, art. 909 opens up for exceptions to the general rule by stating that “*Il proprietario del suolo ha il diritto di utilizzare le acque in esso esistenti, salve le disposizioni delle leggi speciali per le acque pubbliche e per le acque sotterranee.*”⁷³ The exception is now the rule as, since the introduction of the statute of 1994, n. 36, later on modified, all superficial and underground waters are subjected to public property and constitute a resource the use of which is regulated by the criterion of solidarity.⁷⁴

In this legal architecture, then, mineral and spring waters fall within the different and special qualification of mineral resources that, pursuant to art. 840 are expressly subjected to the regime of public property. These waters are part of the category goods identified as indisposable public patrimony. As mentioned before, these goods are public goods that, due

70. Amorosino, “Le Acque Più ‘pregiate.’”

71. The Italian civil code of 1942 represents a renovation of the first civil code of Italy. Few years after the unification of the state, in 1865 was emanated the civil code (codice Pisanelli) that reproduced many of the principles and contents of the French civil code of 1804.

72. Art. 840 (1) of the Italian civil code: “the property of the soil is extended to the subsoil, including everything it contains.”

73. Art. 909 of the civil code: the landowner has the right to use the waters upon or beneath her land, with the exception of provided by statutes governing public and underground waters.

74. Art. 1 l. n. 36/1994: “*Tutte le acque superficiali sotterranee, ancorché non estratte dal sottosuolo, sono pubbliche e costituiscono una risorsa che è salvaguardata e utilizzata secondo criteri di solidarietà.*”

to their public interest, are destined to serve public purposes. Hence, they cannot be appropriated or alienated to private persons, but their exploitation can be accorded to privates by means of concession.

For the economic exploitation of bottled water – and more specifically of natural mineral and spring waters – by private enterprises, the regime provides for an administrative procedure aimed at aligning private purposes with the public interest that the resource constitutes. The procedure in its essence is composed of:

- an authorisation or research permit;
- a concession for the exploitation of the source, which presupposes other two procedures:
 - a. the recognition of the mineral content of water and its qualification as mineral;
 - b. the evaluation of the environmental impact;
- a series of controls on the production of bottled water.

Definitions – In terms of definition, similarly to the French structure, the Italian legal regime on bottled water adopts the tripartite distinction that results from the combination of the Directives 98/93/EC and 2009/54/EC. Natural mineral water, spring water and bottled drinking water are all included in the category of water destined to human consumption and, accordingly, subjected to some sanitary rules concerning foodstuff.⁷⁵

Natural mineral water – The Definition of the EU Directive of 2009 has been transposed in the legislative decree of October 8, 2011, n. 176, where art. 2 states that natural mineral water is a microbiologically wholesome water, meeting the requirements laid down in Annex I and II of the Directive,⁷⁶ originating in an underground water table or deposit and emerging from a spring tapped at one or more natural or bore exits. This water contains natural elements that accord it properties favourable to health. It is characterised by its original purity and its naturally high content of minerals, trace elements and other constituents.

Spring water – Pursuant to the transposition of the Directive contained in the legislative decree of 2011 spring water is water gushing from the underground and that needs to be microbiologically wholesome and protected against any risk of pollution.⁷⁷ Its exploitation can be carried

75. See D. lgs. n. 176/2011.

76. Directive 2009/54/EC.

77. Art. 20 of the D. lgs. N. 176/2011.

on through one or more natural or bore exits and it needs to be bottled at the emergence in recipients suitable for its direct commercialisation.

Bottled drinking water – As a residual category that includes all the waters destined to human consumption that do not fall in either of the first two categories, bottled drinking waters do not have a peculiar definition but are water that have to meet the sanitary standards set for the category of water destined to human consumption. These are the same standards applying to tap water and, although they allow a larger number of treatments if compared to the other two categories of bottled water, they are stricter on the levels of concentration of certain substances. In terms of market share, the category of bottled drinking waters is almost non-existent as almost all of bottled water commercialised is natural mineral water or, in fewer cases, spring water.

Research permit and mineral recognition – As mentioned before, there are different procedures that the entrepreneur has to undertake in order to be able to exploit, bottle and commercialise water. The first in chronological terms is the *permesso di ricerca* (research permit) that is an authorisation allowing the potential exploiter to conduct the necessary activities to identify a mineral or spring source within a specific territory. The permit is functional to evaluate the consistence and the potential exploitability of the source.

In line with the decentralisation of property and government on water, the permit is released by the regional authorities – or by the local authority to which the administrative competence has been delegated – and generally it lasts for a maximum of three years. The process of evaluation is conducted according to statute n. 241/1990 and takes into account different aspects, amongst which: the previous existence of other sources, the hydrogeological situation of the zone, and, eventually, the environmental impact.

Once the existence of a source is ascertained, the exploiter may undertake another procedure aimed at qualifying the water pouring out of the source as natural mineral water. The procedure is based on a number of analyses evaluating the geological and hydrogeological features of the source, and the organoleptic, physical, physic-chemical, chemical, and microbiological features of water.

The procedure of recognition, named '*procedimento di riconoscimento della mineralità*', ends in an eventual recognition of the water as natural mineral by the ministry of health, which has to take care of the inclusion of the water in the national and the European list of mineral waters. An

equivalent procedure exists for the recognition of a water as spring water. Both procedures by recognising waters as either ‘natural mineral water’ or ‘spring water’ have the further effect of re-qualify water as mineral and subject it to the administrative regime on mines.⁷⁸

This recognition is one of the few administrative requirements on which the state is still competent after the reform of title V of the Constitution that expanded the regional competence at the expenses of the state’s ones. According to art. 5 of the legislative decree⁷⁹ of 2011, the ministry of health, after having received the opinion of the *Consiglio superiore della sanità*, promulgates a decree recognising the water as natural mineral water or spring water.

Along with the recognition comes the application of the principle of bottling at source. Indeed, as for the French regime, the principle constitutes a cornerstone of the Italian legal regime on bottled water as well. Once the water is recognised as either natural mineral or spring it cannot be subjected to any treatment – except for the few specifically mentioned by the legislative decree n. 176/2011 – and has to be commercialised in its original status. Thus, in order to preserve the purity and the peculiar properties favourable to health the water can only be bottled directly at its emergence from the natural or artificial bores.⁸⁰

Concession – Annex II of the European Directive 2009/54/EC states that the “exploitation of a natural mineral water spring shall be subject to permission from the responsible authority of the country where the water has been extracted [...]” Unlike the French regime, that provides for a system of previous authorisations, the equivalent role in the Italian legal regime on bottled water is played by the institution of concession.⁸¹ The difference derives from the different property regime underpinning the legal regime on bottled water in the two legal systems. Indeed, if in France mineral and spring waters are a chattel of the land and may be privately owned, in Italy mineral and spring waters are part of the indisposible public patrimony and cannot be privatised. In this scenario, the

78. AMOROSINO, *Le acque più ‘pregiate’*, cit.

79. Art. 8 and art. 24 of the D. lgs. N. 176/2011.

80. Art. 11 and art. 25 of the D. lgs. N. 176/2011.

81. See art. 6 and 7 of the D. lgs. N. 176/2011; Even though the legislative decree uses the word ‘*autorizzazione*’, when referring to the permission imposed by the EU for the exploitation of water springs, the actual legal institution that finds application is the concession as the only legal instrument allowing the private exploitation of a good included in the indisposible public patrimony.

concession represents the administrative instrument through which the public authority concedes the good to a private person, provided that the exploitation conducted is in accordance with the public interest that the resource embodies.⁸²

In accordance with the decentralisation of functions, the regional authority is competent for the release of the concession, which is subordinated to some conditions. Art. 6 of the legislative decree, providing the national guidelines for the release of the concession states that the concession is not released unless it is ascertained that the abstraction and bottling plants realised will prevent any danger of pollution and will preserve water properties that water has at its emergence, with the exception of the modification produced by treatments allowed by art. 7, letters *b*, *c*, and *d*, of the same decree.

The Concession, as said, is released by the regional authorities which can, in turn, delegate the function to the provinces or municipalities where the source is. As for the other minerals, object of the concession is the abstraction and the exploitation of the resource for commercial purposes. The concession also determines a perimeter within which no activity can be undertaken by third persons without a previous authorisation. Thus, the protection zone is present also in the Italian regime that grounds it on the public interest inherent to the water.

Since water is a public good, the concession allowing the private use of the public resource cannot be released without the imposition of a price that the exploiter has to pay to the public to compensate the economic loss for the private exploitation of the public good. The price is generally determined in relation to the land occupied by the plant, the quantity of water abstracted, and the quantity of water bottled.

Worth noticing is that the concession is released for a limited amount of time – ranging between 30 and 40 years – in order to grant an exploitation of the resource that is worthwhile but, at the same time, permitting a periodic evaluation of the hydrological and environmental consequences of the exploiting activity.

Water quality and commercialisation – The aforementioned concession plays an important role also in the determination of the quality of water. Similarly to the French authorisation, the Italian administrative act of concession details the conditions of the exploitation and the limits to be

82. See D. CASALINI, *Fondamenti per un diritto delle acque dolci*, Torino: G. Giappichelli Editore, 2014.

observed. These conditions concern the modalities of water abstraction – that cannot exceed the seasonal capacity of the source – as well as its limits, the standards that the plant has to meet and, above all, the conditions of bottling.⁸³ Furthermore, the process of bottling natural mineral or spring waters has to meet the requirements determined by food laws in relation to materials and objects destined to enter in contact with foodstuff.⁸⁴

In order to be commercialised, bottled water have to report on the bottle its denomination, which will either be *acqua minerale naturale*, *acque di sorgente*, or *acqua potabile condizionata*. They also need to have a commercial name that has to be unique and all water bottled from the same spring has to receive the same appellation.

Furthermore, the bottle needs to report mandatorily a number of information listed in art. 12 and 26 of the legislative decree. These information concern: the type of treatments applied to water (addition of carbon dioxide, decarbonated, etc.); the analytical composition of water resulting from the analysis; the mineral content; the concessionaire; for natural mineral water, the eventual properties favourable to health; and the possible contraindications.⁸⁵ The bottle may report other information that the exploiter can decide to include in the label.⁸⁶

Bottles cannot make reference to the comparative superiority of the water contained and, more generally, cannot include elements with commercial content.

In the matter of advertisement, the Directive 2009/54/EC laid down some general rules concerning advertisement, which were then transposed in art. 19 and 31 of the legislative decree of 2011. First of all, the Directive prohibits any reference to unverified properties or qualities in any kind of advertisement. If the exploiter wants to make reference to the ‘properties favourable to health’ of natural mineral water she has to obtain a previous authorisation by the ministry of health.⁸⁷ Furthermore, no commercial or advertising activity may refer to natural mineral water properties that prevent or serve as cure for a human disease. Finally, it is prohibited the use of signs or expressions, in the advertisement of bottled water, that is able to mislead the consumer on the name of the source or on the geographical origins.

83. Art. 6 and 7 of the D. lgs. N. 176/2011.

84. Art. 17 letters b and c of the D. lgs. N. 176/2011.

85. Art. 12 and 26 of the D. lgs. N. 176/2011.

86. *Ibid.*

87. *Ibid.*

Controls – Consequence of the transposition of the European Directive of 2009, the controls predisposed on the exploitation, production and commercialisation of bottled water are aimed at guarantying the qualities of water and ensure the sanitary levels of the products commercialised. These controls are determined by consumer law as well as by requirements deriving from the safeguard of public health.

Competent for the monitoring on the exploitation and the commercialisation of bottled water, with particular attention to the eventual treatments operated, are the regional authorities identified according to the specific regime existing in each region.⁸⁸ The authorities can proceed to a control at any time and have the authority to do inspections, take samples in any place of the plant, warehouse and at any exploiting phase.

In the event where some irregularity is registered, the authorities adopt measures to safeguard public safety and, once having ordered the necessary measures to the exploiter to eliminate the cause of the irregularity, they may suspend – or, in some serious cases, revoke – the concession. In the event of revocation of a concession, the ministry of health has to communicate the revocation to the European Union in order to delist the water from the European official list of natural mineral waters.

The control on the commercialisation of bottled water is also regulated by the regime on food and foodstuffs. Indeed, according to art. 17 and 30 of the legislative decree, to the monitoring on the usage and commercialisation of bottled water and the relative procedures of report to the health and judiciary authorities – for the seizure of products or plants and for the analyses – find application the regime on hygiene of production and commercialisation on foodstuffs and beverages.⁸⁹

In the firsts years of the 2000s a series of European regulations revising the regime on foodstuffs included bottled waters in their scope of application.⁹⁰ Even though it preserved the specific regulation on bottled water provided by the Directive of 2009, the regime on foodstuff constitutes a complementary regime that regulates all what is not regulated by the specific norms of the Directive of 2009. Thus, the introduction of bottled water in the scope of application of the regime on foodstuffs partially had a substantive influence on the system of controls.

88. *Ibid.*, Art. 8.

89. See D. Lgs of November 19, 2008, n. 194.

90. Amongst the others: Regulation of January 28, 2002, n. 178, and Reg. of April 29, 2004, n. 852.

The first type of control that results from this regime is conducted by the exploiter. Indeed, the main responsibility for the safety of the product is upon the exploiter. She has to actively guarantee the safety of the products that she introduces in the market, by undertaking predefined procedures and monitoring. She also has to guarantee the traceability of her products and provide for the withdrawal from the market of her product if it might represent a danger for the public health.

The regime then provides for an entire other array of administrative controls that have to be conducted by the competent public authorities. In fact, each Member State has to guarantee that the official controls are properly and effectively conducted in accordance to the risks and with a periodisation capable of preventing those risks. The instruments for the implementation of the official control are: the monitoring, the surveillance, the verification, the inspection, the sampling, and the audit.⁹¹ Those are the instruments that the public authority can use for the conduction of the controls.

Like the French system, the exploiter bears all the costs of the system of monitoring and analyses. She has to implement all the necessary preventive measures, the measure for the protection of the abstraction areas, monitoring the conditions of abstraction, bottling, stocking and commercialisation of the water.

5. *The United Kingdom*

5.1 *Historical development of legal regime*

The birth of the mineral and thermal water phenomenon in the United Kingdom is linked to a mystique that allegedly traces back to the 9th century B.C., rendering them sacred throughout the ages.⁹² According to the most notorious tale, the discovery of the thermal centre of Bath is attributed to Prince Bladud, who later on became the mythical God-King, father of King Leir – become ‘Lear’ in the Shakespeare play.

“The young Prince was banished from his father’s Royal Court after contracting Leprosy. Whilst working as a swine-herdsman he noticed that

91. See Art. 2, of the Regulation of April 29, 2004, n. 882.

92. *A History of the County of Wiltshire: Volume 4*, ed. Elizabeth Crittall, London, 1959, *British History Online*, <http://www.british-history.ac.uk/vch/wilts/vol4> [accessed 14 July 2016].

his pigs enjoyed wallowing in the hot muddy waters around Bath but also did not have common skin diseases. Prince Bladud began to bathe with the pigs and found himself cured. He returned to the Royal Court and founded the city of Bath in 863BC.⁹³

The centre of Bath remained popular in the years due to the paramount role that was attributed to it by the Romans, who named it '*Acque Sulis*' and transformed it in a sanctuary source of archaeological wonder in the middle ages. That health tourism, popular in the Roman-occupied Britain, disappeared until the 18th century when the phenomenon witnessed a renaissance. During the 1700s and 1800s people would travel across the country to 'take the waters' for bathing or drinking purposes.⁹⁴

The practice of 'taking the waters' declined significantly since the beginning of the 19th century when it was superseded by the phenomenon of bottled water. The practice of bottling and selling mineral waters first became popular for the rehabilitation of soldiers from World War I.⁹⁵ In the early century the British industry of bottled water appeared, but the market of bottled water on the island was quite consistently occupied by French waters. Only after World War I that the United Kingdom developed an industry of bottled water that, in line with what was happening all over Europe, saw an impressive increase in the 1970s.

The legal regime on bottled water, following the renaissance of the phenomenon in the United Kingdom of the 20th century, developed quite late if compared to the development in France or Italy. Indeed, many aspects of the regulation that developed in common law are the product of a combination of elements drawn from the already existing European regimes and the general legal regime on water and water exploitation in the UK.

The legal status of water in the British legal system is determined by the rules on property and a system of rights on water coming from the common law. As a general rule established in the common law, water has traditionally been treated and qualified as a 'commons' good: a resource that, because of its essentiality and its fugacious nature, belongs to the commoners altogether.⁹⁶

93. Ibid.

94. R.A. DOWNING, *Groundwater - our hidden asset*, Nottingham: British Geological Survey, 1998.

95. E. CRITTALL, *A History of the County of Wiltshire*, in *British History Online*, 1959, <http://www.british-history.ac.uk/vch/wilts/vol4>.

96. J. STERN, *Water Rights and Water Trading in England and Wales* (The Foundation for Law, Justice and Society, 2013), <http://www.fljs.org/sites/www.fljs.org/files/publications/Stern.pdf>.

Notwithstanding this qualification, ownership of water depends on the nature of water itself. Indeed, flowing waters – such as rivers or underground streams – do not belong to anyone due to their flowing nature they are of common interest and that water cannot form an exclusive property of an individual. Instead, ‘riparian rights’ find application on this type of water. They consist in rights of reasonable use of water and are generally associated with land ownership on the river banks. “The rationale underlying this is that water, in common with the air that we breathe, is a natural life-sustaining element common to all mankind.”⁹⁷

The consolidation of the common law principles of landownership with the elaboration of the doctrine of the ‘infinite carrot’ extends the ownership of the land above and beneath it in a – theoretically – infinite fashion. The doctrine was then enshrined in a statute in 1925 as s 205(1) (ix) of the Law of Property Act of that year. In determining the concept of land, the provision includes “land (of any tenure) and mines and minerals [...] buildings or parts thereof and other corporeal hereditaments.” Hence, according to this rule, if water is contained within the perimeter of a privately owned land – as for instance a water basin or an underground source – it belongs to the landowner who enjoys full property rights on it, including the right to exploit the source.

Thus, these are the more fundamental water ownership rights accorded to privates for the exploitation of the resource in the British legal system at the beginning of the 20th century. Right after World War II, however, the use of water for non-domestic purposes is subjected to licensing by the public authority. Indeed, in June 15, 1945 the British Parliament passed the Water Act 1945 regulating water supply to non-domestic customers and introduced the system of licences for water abstraction. Since then, the exploitation of water by private persons, for non-domestic purposes or, in any case, for a quantity exceeding the threshold, was subjected to the previous release of an abstraction licence. This subjection applies both for holders of riparian rights and for landowners willing to exploit their own water.

In the United Kingdom as well the bottled water phenomenon began and evolved with the industrial bottling of natural mineral waters. These waters were abstracted almost exclusively from underground sources privately owned. Hence, after the introduction of the Water Act of 1925 their exploitation was subjected to licensing, as all other non-domestic

97. B. CLARK, *Migratory Things on Land: Property Rights and a Law of Capture*, in *Electronic Journal of Comparative Law* 6, no. 3 (2002), <http://strathprints.strath.ac.uk/581/>.

uses. Waters destined to bottling could not be treated and some quality standards were set along with controls on the industrial processes. The phenomenon, however, relatively well spread in the first decades of the 20th century registered a decline in the middle of the century due to the difficulty of bottling companies to deal with the new sanitary requirements imposed to them. In fact, bottling processes became too expensive for them to be worthwhile until the introduction of plastic bottles in the 1970s. From that industrial innovation the business of bottled water developed and increased impressively in the United Kingdom.

5.2 *The current legal regime on bottled water*

Legal status of bottled water – After the industrial explosion of the bottled water phenomenon, followed by a proportionate increase in consumption, the European Union intervened on the matter with the Directive 80/777/EC of 1980. The transposition of this Directive, and of the later one of 2009, contributed to a reconfiguration of the British legal regime on bottled water. The European Directive of 1980 had, as for the Italian legal system, the effect of including in the legal universe of bottled water the category of bottled drinking water. In fact, the phenomenon developed around relatively small water sources of high quality bottled at their natural status.⁹⁸ This pattern, as for the case of Italy, is arguably due to the fact that the British territory is pretty rich of water sources that fall within the definition of natural mineral water. With the transposition of the European Directives, bottled drinking water was introduced as a residual category including waters that do not fall within the definition of either natural mineral water or spring water. These waters are also characterised by a different regulation concerning treatments and processes of bottling.

With the EU intervention the part of the legal regime of food and foodstuffs find application on the phenomenon of bottled water as it is now included in the category of foodstuffs. For this reason, the legal regime on bottled water includes a number of legislative acts concerning foodstuffs, such as: the Food Labelling Regulations of 1996, no. 1499, of 1999, no. 747 and 1483, and of 2003, no. 474; the Food (Lot Marking) Regulation of 1996, no. 1502; and the Food Safety Act of 2014.

In this scenario, water destined to bottling falls within the general category of water destined to human consumption, category that matters for the purposes of its exploitation as it subjects water to a number of

98. Crittall, “BHO.”

standards and basic controls. However, the qualification of ‘water destined to human consumption’ does not determine a particular status or qualification of that water in terms of public concern. Unlike Italy, where natural mineral and spring waters are subjected to the particular legal regime on mines and acquire the status of indisposable public goods, the British legal system does not provide for any particular status of water destined to bottling.

On the contrary, water destined to bottling is subjected to the common law and, as said, it is either a commons good belonging to nobody, the use of which is guaranteed by means of riparian rights, or subjected to private ownership when water falls over private land or water is obtained from wells or natural fountains located within private land, as long as it does not flow outside of the portion of land owned by the private person.⁹⁹ Nonetheless, the exploitation of the resource for commercial purposes – amongst which is bottling – requires a licence released by the public authority. The licence is supposed to serve as an instrument to control the exploitation of water balancing the needs of the population with the intrinsic or periodical scarcity of water.

Definitions – In line with the former two legal systems examined, the United Kingdom transposed the quite detailed definitions of bottled water provided by the Directives 98/93/EC and 2009/54/EC. The transposition is done by the Natural Mineral Water, Spring Water and Bottled Drinking Water Regulations of 2007 for England,¹⁰⁰ by the Natural Mineral Water, Spring Water and Bottled Drinking Water Regulations of 2015 for Wales,¹⁰¹ and by the Natural Mineral Water, Spring Water and Bottled Drinking Water Regulations of 2007 for Scotland.¹⁰² All these regulations provides for the three different definition of water destined to bottling, namely: natural mineral water, spring water and bottled drinking water. For the comparative purpose of this work it will be examined here the content of the English Regulations of 2007.

99. P. CULLET *et al.*, *Water Law for the Twenty-First Century: National and International Aspects of Water Law Reform in India* (Routledge, 2009).

100. Natural Mineral Water, Spring Water and Bottled Drinking Water (England) Regulations of 2007, No. 2785, and later amendments transposing the EU Directive of 2009.

101. Natural Mineral Water, Spring Water and Bottled Drinking Water (Wales) Regulations of 2015, No. 1867 (W. 274).

102. Natural Mineral Water, Spring Water and Bottled Drinking Water (Scotland) Regulations of 2007, No. 483, and later amendments transposing the EU Directive of 2009.

Natural mineral water – According to the Regulations of 2007 ‘natural mineral water’ is a legal designation that can exclusively be used following official recognition by the competent public authorities. Within the definition fall waters that are microbiologically wholesome, originating in an underground water table or deposit and emerge from spring tapped at one or more natural springs or bore exits. It is characterised by its mineral content, trace elements or other constituents and, where appropriate, by certain effects and by its original state. It has to be bottled at source – with some exceptions for mineral water sources in production before 1980 – and it has to receive no treatment other than carbonation, decarbonation, or filtration, provided that it does not alter the composition of water.¹⁰³

Spring water – Bottled water fall within the category of spring water only if it is extracted from a spring and comes from a single source, contains no property, element, organism or substance that are injurious to health. As for natural mineral water, spring water has to be bottled at source, unless the source is in production before 1996.¹⁰⁴ Moreover, it does not need to undergo the process of recognition required to natural mineral water, but it has to comply with all hygienic and compositional requirements in part 3 of the 2007 Regulations on bottled water.¹⁰⁵

Bottled drinking water – The category includes all waters destined to human consumption that do not fall in either of the first two categories. Bottled drinking waters do not have a proper definition but are waters that have to meet the sanitary standards set for the category of water destined to human consumption. This type of water can be subjected to a higher number of treatments and the water that is bottled may come from different sources as well as from a public supply.¹⁰⁶ The subjection of water to treatments results in the water achieving the compositional/microbiological requirements of the Regulations. Some companies may also add mineral salts to their waters to replace those minerals lost during treatments or to enhance those which already exist.¹⁰⁷

103. §4, Natural Mineral Water, Spring Water and Bottled Drinking Water (England) Regulations of 2007, No. 2785; See SWARD RESEARCH AND INFORMATION OFFICE, *Bottled Water: From Source to Shelf. An Overview of Legislative Requirements and Market Trends*, Seale-Hayne Faculty, University of Plymouth, June 2003.

104. Ibid.

105. Part 3, § 10, 11 and 12 of the Natural Mineral Water, Spring Water and Bottled Drinking Water (England) Regulations 2007.

106. SWARD RESEARCH AND INFORMATION OFFICE, *Bottled Water: From Source to Shelf. An Overview of Legislative Requirements and Market Trends*.

107. COUNTY COUNCIL BUCKINGHAMSHIRE, *Bottled Water Survey*, March 2005.

Recognition of mineral content – In the United Kingdom water cannot be bottled and branded as ‘natural mineral water’ without an official recognition. The competent authorities for granting the recognition are the district councils of the area where water is abstracted, the London borough council or, the competent councils in Wales and Scotland. A person seeking to have water which is extracted from the ground in England recognised as natural mineral water has to make application in writing to the relevant authority within whose area the water is extracted. She has to provide geological and hydrological surveys as well as any other information showing that the physical, chemical surveys and the microbiological analysis at source are in accordance with the requirements set by the Regulations.¹⁰⁸ The process of recognition consists in a series of control over a qualifying period of two years.

Where the aforementioned parameters and the one listed in part 1 of schedule 3 of the 2007 Regulations are met, the relevant authority may recognize the water as natural mineral water and, if so, publish an announcement of such recognition and the grounds on which it has been granted in the London Gazette.

Unlike natural mineral water there is no formal recognition process required for spring water, although to be qualified as such it must be registered with the local authority. Many natural mineral waters begin their lives as spring waters traded as such during the two-year testing period.¹⁰⁹ No recognition is required to bottled drinking water either. In fact, it does not need to have particular properties, but still has meet the sanitary standards required by 2007 Regulations and by the regime on foodstuffs.

Abstraction Licence – The European regime on bottled water requires the exploitation of water for bottling purposes to be subjected to permission from the responsible authority of the country where the water has been extracted. In the United Kingdom this function is carried out by the institution of licence regulated by the Water act of 2014 and the Environment Act of 1995. This institution is to some extent similar to the French system of previous authorisation as it produces a public control on water exploitation by conditioning property rights of private landowners. The licence is required for any activity of water abstraction for non-domestic use, independently from ownership rules applying to that water source.

108. See Schedule 3, parts 1 and 3, of the Natural Mineral Water, Spring Water and Bottled Drinking Water (England) Regulations 2007.

109. County Council Buckinghamshire, “Bottled Water Survey”

It serves the purpose of grandfathering the exploitation of water in the country.¹¹⁰

The abstraction for water bottling is qualified as a commercial activity and, thus, requires an abstraction licence. However, before the development of a new groundwater source or the exploitation of an existing one 'Consent' is required. As the first step of the process for the release of a licence, the Consent application needs to be addressed to the Environment Agency whose task is to assess the impact of the abstraction evaluating the proposed drilling location and the quantity of water required. The application must provide a number of information:

- A map of the property boundaries and the location of the water source contained;
- The type of source – e.g. borehole, well, shaft etc.;
- Maximum hourly, daily and annual abstraction requirements by type of use – such as agriculture, industrial or water bottling;
- The number of hours per day.

If the Environment Agency finds the result of the impact assessment satisfactorily, it grants the Consent. This latter is generally of the duration of twelve months within which the Environment Agency requires a pump test, to assess whether the quantity of water available and the abstraction sustainability, and analyses of water quality. If both the impact assessment and the quality analyses are satisfactorily the Environment Agency issues an invitation to apply for a licence to abstract.¹¹¹

The application for licence to abstract needs to have some publicity both in the London Gazette and in a local newspaper. The application is filed to the Environment Agency along with copies of the newspapers and the map of the land within which the source is. After an evaluation of all the material the Agency may issue the licence.¹¹²

The licence to abstract is required for all types of bottled water and is time limited. Once the licence is issued the beneficiary has to pay an annual charge that is proportionate to the amount of water abstracted. There is, however, a minimum threshold that the exploiter is required to pay regardless of the amount of water abstracted. If the source is not used for a certain period of time the authorities may revoke it, unless the non-use is justified.

110. STERN, *Water Rights and Water Trading in England and Wales*.

111. See Water Act of 2014; SWARD RESEARCH AND INFORMATION OFFICE, *Bottled Water: From Source to Shelf. An Overview of Legislative Requirements and Market Trends*.

112. *Ibid*.

Water quality and commercialisation – In the British legal regime on bottled water production the licence, as said, is the main necessary step to start the exploitation activity. The licence has a crucial role in the regime as it details the conditions of exploitation of the source and the limits to be observed. If the licence is the main legal instrument through which environmental and water availability concerns are evaluated, the Regulations of 2007 are the main legal source assuring water quality. Indeed, schedule 4 of the Regulations provide for the requirements for the “exploitation and bottling requirements for natural mineral water and spring water.”¹¹³

In particular, the Regulations require that the equipment for bottling the water has to avoid any possibility of contamination and preserve the properties corresponding to those ascribed to it which the water possesses at source. The spring also has to be protected from any risk of pollution. To what concerns the catchment, pipes and reservoirs, the Regulations state that they must be of materials suitable for water and so built as to prevent any chemical, psycho-chemical or microbiological alteration of water.¹¹⁴

The conditions of exploitation, particularly at the washing and bottling plant, has to meet hygiene requirements. In particular, the containers have to be treated or manufactured as to avoid any alteration or contamination of water. For the same purpose, water cannot be transported in containers different from those authorised for distribution to the ultimate customer. Exceptions are allowed only if a different practice was in place before July 17, 1980. Moreover, water distributed to the ultimate consumer in a bottle marked with the description of ‘spring water’ may be transported from the spring to the bottling plant in a container different from the one for ultimate distribution to the consumer if the practice was in place before November 23, 1996.¹¹⁵

As for its marking and labelling, water has to be sold in an authorised bottle as ‘natural mineral water,’ ‘spring water’ or bottled drinking water. The bottle has to report a number of information, amongst which: a statement of the analytical composition indicating the characteristic constituents of water; the name of the spring – which has to be unique as it serves the purpose of identifying the water; and the place of its exploita-

113. See Regulations 4(2)(b), 5(1)(c) and (2), 7(3), 9(2)(b), 10(1)(b) and (3) and 16(1)(a) (iv) and paragraph 1(b) of Schedule 1 and paragraph 4(b)(iii) of Part 2 of Schedule 3.

114. Ibid.

115. Ibid.

tion. Furthermore, the label has to report a statement of the analytical composition indicating the characteristic constituents of water. If water has been subjected to any treatment it needs to be reported on the label – e.g. adjunction of carbon dioxide.

Finally, natural mineral water and spring water cannot be sold in bottles marking or labelling a different source from the one of provenance. To water sourcing from a spring cannot be attributed more than one commercial name or trade description. No commercial or advertising activity may refer to natural mineral water properties that prevent or serve as cure for a human disease. It is prohibited the use of signs or expressions, in the advertisement of bottled water, that is able to mislead the consumer on the name of the source or on the geographical origins.

If all those requirements are set for both natural mineral water and spring water, they are not for bottled drinking water. Indeed, those latter are waters with no particular qualities and only have to meet the hygiene and health standards provided by the regime of food and foodstuffs. Worth noticing is that this regime finds application to all bottled water for the aspects that are not specifically regulated by the Regulations on bottled water.

Controls – The European intervention with the Directive of 2009, along with the set of quality standards for the exploitation and production of bottled water, requires some controls aimed at guaranteeing those standards. The Regulations of 2007 transposed the EU Directive and established a system of controls for the different types of bottled water.

To what concerns natural mineral water, the relevant local authority has the responsibility to carry out periodic checks to ensure the water still meets the requirements needed for the recognition of natural mineral water. The authority is empowered to enter the premises for this purpose. The local authorised officer has the discretionary power to establish the frequency of the checks; anyhow the checks have to take place at least on a yearly basis. The controls have to be undertaken both on the water bottled in its ultimate container and at its emergence. These controls have to make sure that the temperature and other essential characteristics of the water remain stable within the limits of natural fluctuation, and that those characteristics are unaffected by any variation in the rate flow. Moreover, the authority has to make sure that the viable colony count at source is reasonably constant, taking into consideration the qualitative and quantitative composition of water considered in the

recognition. If from the control results that the requirements are not met, the local authority may withdraw the recognition.¹¹⁶

The exploiter is required to arrange for a quality control laboratory in order to carry out routine chemical, physical and microbiological analysis of the water. The exploiter is also required to notify the local authority when the bottling of the water destined to be commercialised as natural mineral water begins.

Food authorities, within their own area of competence, are also required to enforce and execute these regulations and are empowered by §16 (3) of the regulations to take the necessary measures in relation to products to which the Directive 2009/54/EC applies – *i.e.* bottled waters.

To what concern spring waters and bottled drinking waters originating from a private water supply, it is the competent local authority that has the responsibility to determine when water samples are to be taken from water springs for their official analysis. The analysis for these two types of water is less strict than the ones set for natural mineral water. The minimum frequency of sampling and the parameters for analysis are established by the Regulations of 2007.¹¹⁷

Exploiters, on their side, have the burden to carry out only the basic analysis on a daily basis. These are temperature, taste, pH and conductivity to confirm the consistency of water conditions. The frequency of full chemical analysis depends on the volume of water and may be less frequent when the consistency of the source has been established. The Food Safety Act 1990, section 21 requires the exploiter to exercise due diligence and she has to check samples of spring water by analysis.¹¹⁸

Similarly to the French and the Italian regimes on bottled water, in the British legal regime the exploiter bears all the costs of the system of monitoring and analyses. She has to implement all the necessary preventive measures, the measure for the protection of the abstraction areas, monitoring the conditions of abstraction, bottling, stocking and commercialisation of the water.

116. R. BURDEN, *The Natural Mineral Water, Spring Water and Bottled Drinking Water (England) Regulations 2007 (as Amended) - Guidance to the Legislation*, Food Standards Agency, July 2010.

117. *Ibid.*

118. *Ibid.*

6. *An overview of tap water regulation*

6.1 *Tap water and the market*

The current regulatory debate on tap water management has polarised in two main opposite positions that are represented: on the one hand, by those who argue that public water management is flawed and needs to become more effective, therefore they propose to undertake the privatisation of water services, so that, introducing a competitive market, would help to make the management more efficient; on the other hand, by those who believe that water is a public good and its distribution should be managed by the state, outside the logic of profit maximization inherent of privatisation and market based management.

The major cause of this regulatory – as well as political and academic – debate has been the introduction of private companies into the water services over the last twenty years. Process that involved national and international institutions, multinational companies, consumers, trade unions and social movements both in the north and south.

The development of water services in countries of the global north followed some common patterns. In particular, in Europe in the 17th and 18th centuries urban water systems started to appear and develop as service limited to wealthy customers and to assist public fire control. If at its very beginning these systems were undertaken by private companies, the situation changed during the 19th century when the demand for water consumption grew and in almost all European countries the utilities were taken over by municipalities. The only exception was France where the initial private companies kept their business. That is also the explanation of why the largest water companies operating globally are French; examples are Suez (previously Lyonnaise des Eaux) and Veolia (formerly Vivendi and *Companie Générale des Eaux*).¹¹⁹

In the growth of the municipal socialism, centered to the public reclaim of gas and water services, that promoted the public sector as a mechanism to fulfill a number of political and economic objectives – such as economic development, social welfare and public health – municipalisation was undertaken as a way to overcome inefficiencies of the private sector. “During the 19th century, the previously private systems came under public ownership and public provision because of the inefficiency, costs

119. D. HALL - E. LOBINA, *Water Privatisation*, in *PSIRU Reports*, 2008, <http://gala.gre.ac.uk/1704/>, 2-3.

and corruption connected to them [...]. Democratically elected city councils bought existing utilities and transport systems and set up new ones of their own. This resulted in more effective control, higher employment, and greater benefits to the local people. Councils also gained the right to borrow money to invest in the development of their own systems.”¹²⁰

The municipalities were the first public authorities to intervene in the water management and distribution. Nonetheless, states themselves – through their governments – intervened in a significant way by financing water systems. This financing took place in different formulas depending on the country. In Ireland, for instance, the government paid directly for the water supply services in order to completely eliminate charges. In Canada, part of tax revenues collected by the central government is distributed to local authorities to support water services. A more indirect approach was adopted by the U.S. that provides for a system of loans with favorable conditions to allow local authorities to invest.¹²¹

In Europe, the EU provided for a system of public financing of water supply services for poorer member states along with numerous low interest loans from its public sector development instrument: the European Investment Bank. As Hall and Lobina ascertain, “France and the UK are the only two OECD countries whose water operations are now mostly run by private companies. However, in both countries the cost of extending water and sanitation networks has been met through public finance mechanisms.”¹²²

France – Among European countries, France represents a particularly interesting case given that it is homeland of the larger private water companies operating on the global scale. However, these private companies had a negligible contribution in the development of the water system in the country where the major investments for the improvement of the system largely depended on the public sector. During the 19th century the water system was operated by private companies who were granted concessions to provide water supply to public taps and fountains. However, such a system was far from being a universal water supply one as private companies had no obligation to provide tap water to every household.

120. P. JUUTI - T. KATKO (eds), *Water, Time and European Cities: History matters for the Futures*, 2005, <http://www.watertime.net/Docs/WP3/WTEC.pdf>.

121. HALL - LOBINA *et al.*, *Water Privatisation*, 2-3.

122. *Ibid.*

The situation at the beginning of the 20th century was still quite far from the contemporary one. At that time only 2% of households had direct connections to water pipes, and there was no effective method to improve the system through private companies.¹²³ The universal water service came along with a direct financing by municipalities and the government. The system, therefore, developed and, by the end of 1930s, 32 million French citizens were supplied with piped water financed by public local urban authorities rather than operating surplus of private companies.¹²⁴ A similar system to extend the connection to rural areas was introduced when, in 1954, was created a National Fund for Rural Water Supply to cover the expenses of bringing water pipes to the rural areas. The financing was covered by levying a tax per cubic meter of water on all water supplied in France, and then conveyed to rural areas. By the mid-1990s the water service reached over 95% of rural communes.¹²⁵

Today the French water resources management relies on three main pieces of legislation: the *Loi sur l'eau* of 3 January 1992, the *Loi 95-101 relative au renforcement de la protection de l'environnement* of 2 February 1995 – the so called *Loi Barnier* – and the *Loi sur l'eau et les milieux aquatiques* of 30 December 2006. The latter is the transposition of the EU Water Framework Directive into the French legal system. The water supply system is under the authority and responsibility of local municipalities. Many of these municipalities, especially the smaller ones, have associated among each others in order to benefit from economies of scale. However, if the municipalities are the ones responsible for water services most of the time lease out water supply services to private enterprises. According to the Ministry of Environment 75% of water supply services in France are provided by the private sector, and primarily by two companies: Veolia and Suez.¹²⁶ This trend has, however, an important exception represented by the city of Paris which, when the lease contract with Suez and Veolia expired in 2010, returned to publicly managed water supply system. The system relies on six water agencies that plan the management of water

123. Ibid.

124. C. PEZON, *The role of users' cases in drinking water services development and regulation in France: An historical perspective*, in *Utilities Policy*, 2007.

125. A. REYNAUD, *Private participation, public regulation and water affordability for low-income French households*, September 2006, <http://www.toulouse.inra.fr/lerna/cahiers2006/06.09.202.pdf>.

126. Ministère de l'environnement, de l'énergie et de la mer: http://www.developpement-durable.gouv.fr/recherche?form_build_id=&form_id=solr_query_form&query=privatization+eau&op=search.

resources, collect fees for the private abstraction of water from rivers and aquifers and employ the proceeds to subsidize investment in the water supply system.¹²⁷

Lastly, it is worth noticing that the French system does not envisage any national, regional or departmental regulatory agency with the task of approving tariffs and determine and control service standards. The economic regulation of the service provision by private companies is entirely based on contractual bargain with the municipality. The only institutional control is undertaken by the *Cour de Comptes* (National Audit Entity) that monitors water and sewer tariffs as well as expenditures by utilities.

The United Kingdom – Water supply services in England and Wales went through a radical transformation over the past three decades. The shift happened in 1989 when, with the privatisation of water services, “ownership passed from nationalized monopolies to private companies listed on the London stock exchange. Demand management is prioritized over dam building. Engineering expertise has been supplemented by that of economists and environmental scientists.”¹²⁸ This transformation happened along with a mutation in the perception of water as not anymore universally abundant. As the Department for Environment, Food and Rural Affairs pointed out, efficiency and cost-reflectiveness are prioritised over social equity in water pricing; national cross-subsidies have disappeared, and regional cross-subsidies have dwindled. Environmental and drinking water quality have improved; according to the environmental regulator of the industry, river water quality in Britain is at its highest level since the Industrial Revolution.¹²⁹

Grounded on the concept of social equity the water management system in place before its privatisation, provided for a non-metered household supply where bills were linked to property value, “supported through cross-subsidies between consumers and, in some instances, between regions and level of governments.”¹³⁰ Indeed, during the 20th century water

127. M.H.I DORE - J. KUSHNER - K. ZUMER, *Privatization of Water in the UK and France - What Can We Learn?*, in *Utilities Policy* 12, no. 1 (March 2004): 47.

128. K. BAKKER, *Neoliberalizing Nature? Market Environmentalism in Water Supply in England and Wales*, in *Annals of the Association of American Geographers* 95, no. 3 (September 1, 2005): 542.

129. DEFRA, *UK maintains record-breaking performance for river quality* (press release), London: Department for Environment, Food and Rural Affairs, 2001.

130. K. BAKKER, *Paying for Water: Water Pricing and equity in England and Wales*, in *Transactions of the Institute of British Geographers* 26 (2): 143-64.

services in England and Wales were run on a monopolistic basis regulated as a public service, with the central government and municipalities owning most of the relative infrastructures. However, “the much-lauded integration of water supply and regulatory functions in basin-wide regional water authorities, according to the principle of integrated river basin management, had the undesirable side effect of discouraging enforcement of water quality regulation (particularly sewage works), further aggravating environmental degradation.”¹³¹

With the election of the Conservative government led by Margaret Thatcher in 1979 in the middle of serious public sector fiscal crisis, the government initiated commercialisation of water supply sector, transforming the water industry “from a public service to a business organization.”¹³² In a decade, many nationalised industries among which water utilities were identified as publicly regulated private monopolies, operating on modified market principles.¹³³

The decision to privatise the water industry was an apogee of the Conservative government’s privatisation program. It came at the end of general privatisation trend that witnessed important contestation with regard to water services that brought the government to many policy reversals before going approving the initiative.¹³⁴ As Bakker points out “[p]art of its hesitation stemmed from the realization that water supply was somehow different from other utilities. Given the nature of the distribution networks, privatized water companies would remain monopolies, at least in the short term. Given the public health and environmental issues associated with water supply, a fairly comprehensive regulatory framework would be required—one that might not mesh easily with the “light touch” economic regulatory framework Treasury economists had devised to be applied to all privatized network utilities.”¹³⁵

In addition, important capital expenditure requirement, caused by years of underinvestment, were substantially increased by new EU legislation on water quality. The European Union’s decision to prosecute the

131. BAKKER, *Neoliberalizing Nature?*, 548.

132. E.C. PENNING-ROWSSELL - D. J. PARKER, *The changing economic and political character of water planning in Britain*, in *Progress in Resource Management and Environmental Planning* 4 (1983): 170.

133. D.J. PARKER - W.R.D. SEWELL, *Evolving water institutions in Britain: An assessment of two decades of experience*, in *Natural Resources Journal* 28 (4), 1988: 751-58.

134. J. RICHARDSON - W. MALONEY - W. RUDIG, *The dynamics of policy change: Lobbying and water privatization*, in *Public Administration* 70 (1992): 157-75.

135. BAKKER, *Neoliberalizing Nature?*, 548.

UK for noncompliance in the mid-1980s was politically decisive.¹³⁶ Hence, the main drivers that led to the government's decision to privatise water were: the imperative to avoid increasing public sector borrowing in light of the Conservative government's policy of fiscal constraint, and the desire to avoid inciting public displeasure over the rate increases necessary to fund required capital expenditure.¹³⁷

The current scenario of water supply systems in the U.K. is quite heterogeneous. In fact, in England water is delivered in the different regions by ten wholly private companies, providing for a regime of complete privatization. Unlike England, in Scotland and Northern Ireland water is provided through a system of public distribution. Northern Ireland Water is a government owned corporation, accountable to the Northern Ireland Utility Regulator. Scotland has a truly public water service. Scottish Water is a statutory organization, accountable to Scottish Parliament. It is able to borrow at more favorable conditions than the English water companies, as government debt is considered safer than private debt. In the last years Scottish Water invested important amounts of money into infrastructure and, even though it raised the bills for limited amount of time, they quickly reduced them to levels lower than the English ones.¹³⁸

In Wales, after the failure of a private concern, water is delivered by a non-profit organization. In sharp contrast to the English system of over indebted private companies, Welsh water is a non-profit organization under which "assets and capital investment are financed by bonds and retained financial surpluses. Financing efficiency savings to date have largely been used to build up reserves to insulate Welsh Water and its customers from any unexpected costs and also to improve credit quality so that Welsh Water's cost of finance can be kept as low as possible in the years ahead."¹³⁹

Italy – The situation in the Italian legal system differs from the examples of France and the UK mentioned before. Indeed, the history of the Italian water supply services is characterised by the, almost exclusive,

136. J. HASSAN, *A history of water in modern England and Wales*, Manchester, U.K.: Manchester University Press, (1998).

137. P. SAUNDERS - C. HARRIS, *Privatization and popular capitalism*, Philadelphia: Open University Press, 1994.

138. R. GRAHAM, *Water in the UK – Public versus Private*, in *Open Democracy UK*, available at <https://www.opendemocracy.net/ourkingdom/collections/modernise-deprivatise>.

139. *Welsh Water*, available at <http://www.dwrcymru.com/en/Company-Information.aspx>.

dominance of the public sector. At its beginning, water services were attributed to the local municipalities which were managing autonomously the services of water supply and sewerage.

In 1994 the regime was modified in order to face the numerous inefficiencies that such a fragmented system presented. It was then transformed with the purpose of reducing the number of suppliers and profit from economies of scale. In particular, the new system was based on two pillars: the introduction of the *Sistemi Idrici Integrati* (Integrated Hydric Systems) to which were assigned both the management of water supply services and sewerage services; and the division of the territory in *Ambiti Territoriali Ottimali* (Optimal Territorial Environments) gathering multiple municipalities in order to produce economies of scale. The reform, however, introduced a quite complex system of multilevel management in which the State has wide regulatory power, especially to what concerns tariffs and general statutory and operational rule of the ATOs.¹⁴⁰

The system was amended again with the law no. 152 of 2006 defining the power and responsibilities within the water sector by introducing: a National Regulatory Authority with the role of defining the national framework under which all firms must operate, choosing the tariff method and the service contract type, and periodically monitor the implementation of the rules in every area; a Local Regulator Authority (AATO) responsible for controlling the entities that locally manage the services; an entrusted water utility company which owns the service delivery and that is responsible for the implementation of the necessary infrastructure.¹⁴¹

The relationship among these three types of actors is characterised by an intense reporting flow aimed at providing regular information to the National Regulatory Authority. The relation between the AATO and the utilities is regulated by a contract negotiated between the parties and defining the standards of the service identifying the performance indicators to monitor the service itself. In these scheme water services might be entrusted to: private companies selected through a public competitive tender; a mixed ownership company; or a public company appointed through an in-house provision.

140. F. CAPORALE, *Acque. Disciplina Pubblicistica in 'Diritto on Line'*, accessed March 4, 2017, [http://www.treccani.it/enciclopedia/acque-disciplina-pubblicistica_\(Diritto-online\)](http://www.treccani.it/enciclopedia/acque-disciplina-pubblicistica_(Diritto-online)).

141. A. GORIA - N. LUGARESÌ, *The Evolution of the National Water Regime in Italy*, Istituto per La Ricerca Sociale. Euawareness EC Project, Milan, 2002.

In 2009, the Italian government, in an attempt to foster efficiency in the system of water supply and to align with the European standards, mandated the privatisation of water services by modifying the law no 133 of 2008, article 23 bis. The intent of the reform was to improve performance through the introduction of private investors whom the Italian government considered to be more efficient and effective than public investors. With this new reform, water and wastewater services had to be franchised to private or public-private utilities in which the private partner held at least 40% of the shares; no water management franchises could be awarded to totally publicly owned utilities after December 2011.¹⁴²

However, this privatisation attempt prompted an extensive political and legal debate in the country. As Gorla and Lugaresi describe it, the public opinion was divided into two opposite positions: those in favor of water industry privatisation believed that the private provision of water services would improve quality and efficiency and therefore reduce tariffs; supporters of public water systems were convinced that water services should not be privatised because water is an essential resource that should be subtracted to market logics. Moreover, they countered privatisation arguing that water is a natural monopoly, and that private players would not improve investments or water quality but only increase their profits.

This debate produced a social mobilisation that brought to a popular referendum, in 2011, on the privatisation of water supply services. The referendum was composed of two questions concerning water services. The first question regarded the privatisation of the service and, in the specific, the repeal of the law allowing to entrust to the private sector the management of local public services. The second question concerned the realization of profit on water services and its approval would have repealed the regulation governing the determination of tariffs for water supply services, in the part where they provided that the amount of the tariff must assure a return on the invested capital. An incredible majority of the population expressed its dissent for water privatisation and for the introduction of profit logics in water management. On the wave of a bottom-up movement combating water privatisation and reclaiming water as a commons, water services remained a responsibility of the public sector, with the express exclusion of the possibility to apply logics of profit and market dynamics to water supply

142. Ibid., see F. TESTA, *A proposito di acqua e servizi pubblici locali*, in *Management delle Utilities* 1 (2010): 97-98.

management.¹⁴³ Hence, in the aftermath of the 2011 referendum remains water supply services remain publicly run and financed through taxes.

6.2 Conclusions

Drawing on the examples of the water supply systems of the three European legal systems that we just presented, it is possible to see how the dichotomy of *public-private* management of water resources in all the examples is framed around the question of whether water should be managed within the market or excluded from it. Indeed, the market, understood in the Smithian conception¹⁴⁴ as a self-balancing mechanism grounded on the equilibrium of supply and demand, represents the core those legal and political debates. Interesting enough, however, is that those debates focus on the question of which is the most efficient way of regulating and managing water distribution. In the Italian example we saw that the question of profit was also raised. The 2011 referendum was, in fact, deciding on whether water services should be run upon a profit-seeking structure, or rather rely on public investments to pursue the target of universal access. In the examples of France and the UK, the objective of universal access, even though it formally exist as a regulatory target, is always left in the background. The main regulatory question in both examples is whether the private sector, vested of higher efficiency stimulated by competition and/or profit-seeking instances, is suited to run water services instead of the public sector, or whether the latter need to provide some sort of corrective measure.

A last note on the debate on water management concerns the object of such a regulatory and political confrontation. The focus of these debates between public and private is not actually on water itself, but rather on the privatisation of the infrastructure, management, and distribution of water. The dichotomy discussed leaves out the question on the nature of water and its consequent management. It focuses instead on the ownership of the infrastructures enabling access to water. The issue of water ownership is an ancient one, and has been addressed in different ways in civil law countries and in common law ones. As Cavallo Perin and Casalini frame it:

143. T. FATTORI, *From the Water Commons Movement to the Commonification of the Public Realm*, in *South Atlantic Quarterly* 112, no. 2 (April 1, 2013): 377-87.

144. A. SMITH - A.B. KRUEGER, *The Wealth of Nations*, annotated edition edition, New York, N.Y: Bantam Classics, 2003.

[s]ince Roman law [...] water resources have been constantly vested in sovereign power and thus considered as public, state-owned or common goods not subject to private or individual ownership but open to free individual use. However, this common legal framework leads to two very different water rights models. In the civil law model, water rights are designed as property rights over water, therefore water resources are vested in public domain and open to individual use only by means of a license, permit or concession granted by the public owner. In the common law model, water rights, like property rights, are not defined within physical belonging but rather as rights to use water: the need of defining the property regime over water resources never raised or soon disappeared. Attention was paid only to the allocation of the rights to access and use water.¹⁴⁵

However, the question of water ownership – and its underpinning question of what is water – did not appear in the regulatory debates happened in Europe. The only times it did was due to political pressure exercised by social mobilisation like in the Italian example of the referendum. Thus, the regulatory question engaged with the public-private dichotomy on water is, indeed, a question on ownership of water services rather than water itself. In fact, as Henry Smith observed, given the fugitive nature of water, defining water ownership is important as much as understanding how the rights of access and use of water are allocated.¹⁴⁶

145. R. CAVALLO PERIN - D. CASALINI, *Water Property Models as Sovereignty Prerogatives: European Legal Perspectives in Comparison*, in *Water* 2, no. 3 (August 18, 2010): 434-35.

146. SMITH, *Governing Water*.

2.

What is in the Bottle? *Economic and Legal Understandings of Water*

1. *Introduction*

When we say or we hear the term ‘bottled water’ we all know immediately what we are talking about. Indeed, we do think and refer to a very common and clearly identified object: a plastic (or, more rarely, glass) container filled up of H₂O. However, if the identification of the object linked to the words ‘bottled water’ is rather immediate and instinctive in everyday conversation, such reference becomes much less obvious when we try to understand what ‘bottled water’ means in the realm of social sciences. Do we refer to any kind of water that happens to be in a bottle, disregarding its physic and chemical composition, or do we refer to water with a particular composition or taste? Do we call bottled water all sort of water that meets a minimum threshold of health standards? If so, when we fill a bottle with tap water can we call it bottled water? Moreover, do we think of the plastic bottle containing the fluid, or do we indicate only the water contained?

These are all very basic questions the answer to which is, however, everything but unanimous. To have a taste of this complexity it is sufficient to notice that most of bottled water consumed in the U.S. is actually tap water (in fact, some of the most popular brands such as Aquafina, Dasani or Nestlé’s water are actually bottled from the tap), whereas it is not the case in Europe.

Bottled water is not a specific type of water. It rather represents a particular method of distribution and consumption of the liquid resource. Though, as it was mentioned in the previous chapter, the bottling phenomenon was born for the transportation of specific types of water used for therapeutic purposes.¹ Hence, at its very beginning the water involved in the bottling phenomenon was conceived as a particular type of water and

1. J.-F. AUBY, *Les Eaux Minérales*, Que Sais-Je?, Presses Universitaires de France, 1994.

distinguished from the others due to its peculiar properties. The special therapeutic use of these waters called for an *ad hoc* regulatory regime that was a combination of some general rules governing water, mining activities and sanitary products or foodstuff.

This peculiarity disappeared when, from the 1970s, bottled water became object of mass consumption, not anymore linked to therapeutic scopes. From then on, people started to consume bottled water as a primary source of drinking. This process is what Daniel Jaffee and Soren Newman describe as “one of the more dramatic shifts in consumption in recent years [...] which in the space of the three decades has been transformed from an elite niche product to a nearly ubiquitous consumer object in both global North and South.”² This mutation of the role of bottled water blurred the distinction between the latter and the category of water in general.

In fact, if some bottled waters are qualified by their particular composition and their natural purity at source, many others are subjected to the same exploitation criteria and sanitary requirements applied to tap water. The EU Directive 2009/54/EC on the exploitation and marketing of natural mineral waters, for instance, provides for a threefold taxonomy of drinking waters. The first two categories – ‘natural mineral water’ and ‘spring water’ – are types of water that presents particular sanitary features as well as peculiar chemical compositions. However, the third category identified as ‘water for human consumption’ includes all waters that may be exploited for drinking purposes. Bottled waters currently commercialised in the world – both in the global North and South – fall indiscriminately in one of the three categories. This is even more evident in the U.S. where, in compliance with the FDA regulations, the overall majority of bottled water commercialised is, as mentioned before, actually bottled from the tap.

Drawing on this fact, I notice that the ontology of bottled water does not enable to elaborate a separate category for bottled water. Notwithstanding this fact, “conflicts over bottled water extraction draw on rival narratives of the purity and uniqueness, or mundaneness, of this relatively new commodity, that have yet to be addressed by the scholarship on water privatization. These narratives illuminate both the rhetorical approaches used by the industry to facilitate commodification and the substance of local conflicts over specific instances of bottled water extraction.”³ The

2. D. JAFFEE - S. NEWMAN, *A Bottle Half Empty Bottled Water, Commodification, and Contestation*, in *Organization & Environment* 26, no. 3 (2013): 318.

3. *Ibid*: 319.

liquid contained in bottles is H₂O exactly like the one coming out from the tap. But if the water coming out of the tap and the one coming out of the bottle are – at least in numerous cases – the same, why there are two different ways to access and consume water?

This question is of extreme interest but goes beyond the purposes of this work. An answer would be better found in the realms of sociology and history, more equipped to identify the processes of construction of distrust in tap water along with the introduction of new fashionable trends that made bottled water an icon of wellness. However, what this work aims at doing is to compare the processes of privatisation of water services (providing tap water) with the bottling phenomenon. The goal is to identify the peculiar patterns that each category presents with regard to water distribution and the related processes of water commodification.

However, preliminarily to the issue concerning the nature and the qualification of bottled water, it is necessary to look, from a legal perspective, at the logically anterior question of what is water *tout-court*. Indeed, as said, bottled water is a particular typology of water or, better, a peculiar means for its distribution, the thorough understanding of which cannot be complete without a prior understanding of how water is conceptualised and treated. For this reason, the chapter begins with the investigation of the theoretical issues underpinning the taxonomy of water necessary to provide a consistent understanding of what bottled water is. The investigation focuses on a twofold analysis that considers the economic conceptualisations of water and the according legal definitions. In fact, the legal qualifications attributed to water are all expressions of the underpinning economic understanding or, in other words, of the principles of political economy that each model identifies as the fundamental and predominant ones.

This investigation is needed to unveil and better understand the tension underpinning the legal conceptualisation of bottled water, which relies on the dual understanding of water as a resource essential for human life⁴ and, at the same time, as a commodity. In order to have a thorough understanding of what the two terms of the tension constitute – and their consequences on water management, availability, and affordability – it is first necessary to understand the economics of water.

4. For a tentative definition of water as an essential resource see the working definition provided by De Schutter and Pistor which label resources essential if they are “indispensable for survival; at a minimum this include drinking water, adequate food, and shelter.” See K. PISTOR - O. DE SCHUTTER (eds.), *Governing Access to Essential Resources*, Columbia University Press, 2015: 3.

2. *The Economics of Water*

2.1 *Dublin and its Principles*

The legal qualifications of water – as an essential resource, and as a commodity – that constitute the two extremes of the aforementioned tension seem both grounded in different economic conceptions of water. Legal scholars, however, have the tendency to stay away from the science of economics and develop their reasoning within the legal sphere, proceeding with the belief that law and legal institutions inform and determine the economic principles applying to the case.⁵ Water history of the last three decades tells us a different reality. Reality in which economists have dominated the debates about water qualification and the more appropriate way to govern its use.

Indeed, the crucial questions concerning water management are inextricably linked to the economic features of water as a good: whether it should be managed according to market rules, or – on the contrary – whether water resources should be excluded from it; which economic characteristics water presents, and if it represents a public or private good. Therefore, whether it ought to be managed publicly or privately.

All these questions lied as the basis of the policy debate that brought to the adoption of the so-called four Dublin principles. In January 1992 the International Conference on Water and the Environment (ICWE) determined a crucial landmark in the history of water management. The expert meeting that took place in this occasion laid out a set of four principles on which water management should be based upon. These principles are the transposition, or the composition, of different economic perspectives into policy provisions.

These principles were adopted in the following phrasing:

- Water is a finite, vulnerable and essential resource which should be managed in an integrated manner.

5. This one-way approach is typical of both legal scholar and economists. Such an approach is described by Guido Calabresi as follow: “A century and a half ago John Stuart Mill said of English philosopher and political radical Jeremy Bentham, in effect, that he approached the world as a stranger. And, if the world did not fit his theory, utilitarianism, he dismissed what the world did as nonsense. Mill then said that what Bentham did not realize was that often that nonsense reflected the unanalyzed experience of the human race. Sometimes, Mill implied, the theory was right. But sometimes it is the world that is more sophisticated than the theory.” G. CALABRESI, *The Relationship between Law and Economics*, in *Yale University Press Blog*, January 26, 2016.

- Water resources development and management should be based on a participatory approach, involving all relevant stakeholders.
- Women play a central role in the provision, management and safeguarding of water.
- Water has an economic value and should be recognized as an economic good, taking into account affordability and equity criteria.⁶

These principles, as said, constituted a landmark in the sphere of policy making for water management. Among the four, the most striking is the fourth which introduced the principle of water as an economic good. A rather vague concept that, nonetheless, opened to the privatisation and the introduction of water into the market to be traded according to its rules of supply and demand, a place from where it was so far excluded.

2.2 *Water as an economic good: a compromise*

The principle of water as an economic good was laid out in Dublin as a declamatory one. The content and the consequences of such a declaration are in fact quite unclear. Its vagueness is deliberate as it is meant to compose or, better, to sidestep the underpinning economic contrast upon the qualification of the resource. Stating that water is an economic good does not say much about its nature or about the way in which it should be managed. On the contrary it hides the on-going economic debate that shapes legal provisions on water management, and it opens to various competing understandings of what water is in economic terms. As Perry *et al* say, stating that water is an economic good constitutes a proclamation that, like many others, “it has the virtue of being sufficiently vague to allow agreement, while leaving the implied operational content – over which there may be strong disagreement – unstated.”⁷

The proclamation is in fact the compromise between two different schools of thought. The first school maintains that water should be treated in the same way as other private goods, subject to allocation through competitive pricing.⁸ According to this perspective, if priced at its economic value, “[t]he market will then ensure that water is allocated to its

6. *The Dublin Statement*, International Conference on Water and the Environment: Development Issues for the 21st Century (ICWE), January 1992, Dublin, Ireland.

7. C.J. PERRY - D. SECKLER - M. ROCK, *Water as an Economic Good: A Solution, or a Problem*, Colombo, Sri Lanka: International Water Management Institute, 1998: 1.

8. See Ibid: 1.

best uses.”⁹ The second school, in the words of Savenije and van der Zaag, “interprets water as an economic good to mean the process of integrated decision making on the allocation of scarce resources, which does not necessarily involve financial transactions.”¹⁰ Perspective advocated by those who believe that water should be treated as a basic human need, therefore largely exempted from competitive market pricing and allocation.¹¹

The latter perspective is close to Green’s understanding of economics that he argues being “the application of reason to choice.”¹² Statement that Savenije and van der Zaag translate in: “making the right choices about the allocation and use of water resources on the basis of an integrated analysis of all the advantages and disadvantages (costs and benefits in a broad sense) of alternative options.”¹³

The second school also appears more in line with the spirit of the European Water Framework Directive¹⁴ that provides for an integrated management of water resources. A system that, as stated in article 1, is meant to “establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater.”¹⁵ The Directive, in fact, provides for a new geography for water management which, to some extent, transcends national borders to focus on the more functional identification of “river basin districts” in order to achieve an integrated management of the entire hydrological cycle. Accordingly, premise 34 of

9. H.H.G. SAVENIJE - P. VAN DER ZAAG, *Water as an Economic Good and Demand Management Paradigms with Pitfalls*, in *Water International* 27, no. 1 (March 2002): 99.

10. *Ibid.*: 98.

11. See PERRY - SECKLER - ROCK, *Water as an Economic Good*: 1.

12. R.C. GREEN, *If only Life Were That Symple; Optimism and Pessimism in Economics*, in *Physics and Chemistry of the Earth* 25, No. 4: 205.

13. SAVENIJE - VAN DER ZAAG, *Water as an Economic Good and Demand Management Paradigms with Pitfalls*, 1.

14. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

15. *Ibid.*, Art. 1; rather interesting to notice is that article 1 of the Directive identifies the following purposes:

- (a) prevent further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;
- (b) promote sustainable water use based on a long-term protection of available water resources;
- (c) aim at enhanced protection and improvement of the aquatic environment, inter alia, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances;

the Directive states that “[f]or the purposes of environmental protection there is a need for a greater integration of qualitative and quantitative aspects of both surface waters and groundwaters, taking into account the natural flow conditions of water within the hydrological cycle.”

Hence, as Savenije and van der Zaag argue, the fourth Dublin principle should be read in accordance with the first principle that recognizes water as a “finite, vulnerable and essential resource which should be managed in an integrated manner.” According to the authors, the first principle provides for what they call the Integrated Water Resource Management (IWRM) which implies: “considering all physical aspects of water resources at different temporal and spatial scales [...], applying an inter-sectoral approach, recognizing all the interests of different water users [...]; giving due attention to the sustainability of water use and rights of future generations; involving all stakeholders, at all levels in the management process, giving due regard to women.”¹⁶ This approach, according to the authors, constitutes a systematic understanding of the meaning of ‘water as an economic good’ in accordance with principle 1 of the Dublin Declaration. Treating water as an economic good entails considering water as a non-divisible good which needs to be considered in the context of its entire hydrological cycle, acknowledging its peculiarities as an economic good,¹⁷ and balance the application of economic principles with the long-term sustainability of the management.

On the other hand, the supporters of the first school claim that, since water is indeed an economic good, it should be managed according to market rule as described by neoclassical economics.¹⁸ The crucial aspects is however to get the price right; once it is set, water will be allocated to its best – or, at least most economically, valuable – uses. Amongst the supporter of the first perspective, the economist Briscoe purports that “[t]he idea of ‘water as an economic good’ is simple. Like any other good, water has a value to users, who are willing to pay for it. Like any other good consumer will use water so long as the benefits from the use of an additional cubic meter exceeds the costs so

16. SAVENIJE - VAN DER ZAAG, *Water as an Economic Good*, 98.

17. For a better understanding of how water is a peculiar economic good, see H.H.G. SAVENIJE, *Why Water Is Not an Ordinary Economic Good, or Why the Girl Is Special*, in *Physics and Chemistry of the Earth, Parts A/B/C* 27, no. 11 (2002).

18. See, among others, Anderson and Snyder who contend that a free market creates appropriate pricing and solves problems related to water use, including distribution and scarcity; T.L. ANDERSON - P. SNYDER, *Water Markets: Priming the Invisible Pump*, Washington, D.C.: CATO Institute, 1997: 104.

incurred.”¹⁹ Thus, in Briscoe’s perspective, effective and efficient water management and allocation depend on the proper determination of water value that can then be translated into prices. To determine the former Briscoe argues that “[t]he value of water to a user is the maximum amount the user would be willing to pay for the use of the resource.”²⁰ Hence, according to the first school of thoughts the fourth Dublin principle tells us that the management of water resources, since water is an economic good, should be determined by market forces, with the attention to setting the right prices determined by the marginal value of water.

The proclamation of the Dublin principle that ‘water is an economic good’ if, on the one hand, is vague enough to – at least apparently – allow for its declination into the perspectives of the two schools of thoughts, on the other hand constitutes a quite significant statement in terms of policy design with regard to water management as it opens the distribution and allocation of the resource to the market. The two perspectives, however, are also responsible for the definition of what water is in legal terms, and therefore on the shaping of policy measures. The second perspective emphasises the essentiality of the resource and tends to couple the economic nature of water with its social one. Meanwhile, the first perspective accords to the economic aspect a paramount importance and sees it as the determinant factor for water allocation.

Regardless of the two perspectives, declaring water an economic good implicates the attribution to water of a value and a cost. How they are to be determined is crucial to understand the actual effects that the two interpretations of the Principle trigger.

2.3 *Values and costs of water*

The process of understanding water as an economic good cannot depart from the determination of what is the value and what the cost of water. Indeed, both of them are quite controversial and context specific. Following the neoclassical economic perspective of valuing and, hence, charging water at its marginal cost results – besides being undesirable – rather unfeasible in reality. In fact both demand and supply of water varies quite significantly between contexts and quite rapidly in time. Water is an economic good as it falls within Robbins’ definition of Economics: it

19. J. BRISCOE, *Water as an Economic Good: The Idea and What it Means in Practice*, in Paper presented to World Congress of ICID, Cairo, Egypt, 1996.

20. Ibid.

has “alternative uses” as it serves a multiplicity of ends (drinking, bathing, irrigation, environmental uses, waste disposal), and is scarce in the sense that it often cannot satisfy all its alternative uses simultaneously.²¹ Nonetheless, a market approach that determines water value and costs according to supply and demand is not only undesirable but also inapplicable; it would “most certainly [result in] ball-park estimates [that] can never and should never be used to make technocratic decisions on allocations and prices (as has sometimes been proposed).”²²

2.3.1 *Value(s) of water*

As a consumable resource, water is used for many purposes. The most obvious of these are water for human consumption, for hygiene and sanitation purposes, and for food production. These are the most evident uses and are commonly identified as ‘primary needs.’ Other less apparent uses – although quite significant in terms of water quantity dedicated – are those for mining, agriculture, industry, municipalities, energy, navigation, and recreation. Not least, there are multiple purposes that water serves with regard to the environment.²³

In water management literature the value of the resource is most commonly assessed through comparative estimates of value regarding utility and investments for production.²⁴ Some of them tend to engage in extensive calculations for global estimates of water worth, whereas others focus their attention on the market values in local contexts. As already suggested by Briscoe,²⁵ valuations that rely on global estimates tend to result weaker because they inevitably are insensitive to local issues. On the other hand, studies that focus on narrow issues are not always exempted from misvaluations because they often neglect the complexity by which

21. Robbins defined Economics as “the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses,” see L. ROBBINS, *An Essay on the Nature and Significance of Economic Science*, London: MacMillan, 1935.

22. J. BRISCOE, *Water as an Economic Good*, in *Cost-Benefit Analysis and Resources Management*, R. Brouwer and D. Pearce (eds), Edward Elgar Publishing, 2005, 48.

23. For an account on the several purposes that water serves with regard to the environment see K.A. RUSSO - Z.A. SMITH, *What Water Is Worth*, New York: Palgrave Macmillan US, 2013.

24. See e.g. T.L. ANDERSON - D.R. LEAL, *Free Market Environmentalism*, San Francisco: Pacific Research Institute for Public Policy; Boulder: Westview Press, 1991; A. LINDGREN, *The Value of Water: A Study of the Stampriet Aquifer in Namibia*, in *Department of Economics, UMEA University*, UMEA University (1999); C.D.D. HOWARD - P. ENG, *The Economic Value of Water*, in *Conference: Mountains as Water Towers* (November 2003).

25. See § 2.3.

the tangible values of water have to be measured.²⁶ On this issue the Food and Agriculture Organization (FAO) of the UN reported that:

Estimating the value of water is not easy because its value varies with quality, use, location and time. During dry periods of the year, or during droughts or during drought years, water values will be much higher than in other periods. Moreover, certain seasons or times of the year may also be important [...] because of critical water demands for crop growth, heating, cooling, industrial production or shipping.²⁷

How should the value of water be assessed? The literature on water management addresses the issue quite extensively. Nonetheless, there is some convergence on how water value is composed. Such a solution was first proposed by Rogers *et al* and represents a quite significant point of reference on the issue. According to this construction water value depends upon the user and the use to which it is put. The value in use of water is the sum of the economic and the intrinsic values. The former is, in turn, composed of: the value to users of water; the net benefits from return flows; the net benefits from indirect use; and adjustments for societal objectives.²⁸

a) *Value to users of water*: The value to users varies depending on the type of activity water is used for. With regards to industrial and agricultural uses, the value to users is at least as large as the marginal value of the product. Whereas for household use, the lower bound of the value is the willingness to pay for water.²⁹

26. See RUSSO - SMITH, *What Water Is Worth*, 4.

27. *Water Sector Policy Review and Strategy Formulation: A General Framework*, in *Food and Agriculture Organization of the United Nations*, Food and Agriculture Organization of the United Nations, Rome (1995).

28. P. ROGERS - R. BHATIA - A. HUBER, *Water as a Social and Economic Good: How to Put the Principle into Practice*, Stockholm: SIDA - Swedish International Development Authority, 1999: 10.

29. There is a quite conspicuous number of studies that try to determine the marginal value and the willingness to pay. However, this investigation is only marginally relevant for the purpose of this work, and will not be elaborated further. For more on this issue see, for instance, J. BRISCOE, *Water as an Economic Good: The Idea and What it Means in Practice*, Proceedings of the ICID World Congress, Cairo, Egypt, 1996; D.C. GIBBONS, *The Economic Value of Water, Resources for the Future*, Washington, DC, 1986; C. GRIFFIN - J. BRISCOE - B. SINGH - R. RAMASUBBAN - R. BHATIA, *Contingent Valuation and Actual Behavior: Predicting Connections to New Water Systems in Kerala, India*, *The World Bank Economic Review*, 9, 1, 1995, 373-395; D. WHITTINGTON - J. BRISCOE - X. MU, *Willingness to Pay for Water in Rural Areas: Methodological Approaches and an Application in Haiti*,

b) *Net benefits from return flows*: Return flows from water diverted for industrial, agricultural or urban purposes represents a vital element of many hydrological systems; the effects of which must be taken into consideration when estimating the value and the cost of water. For example: “a part of the water diverted for irrigation may recharge the groundwater table in the region and/or increase the returns to the river/canal downstream. However, the benefits from the return flows will critically depend on the proportion of water that is ‘lost’ to evaporation (due to open drains and canals) or to other ‘sinks.’”³⁰

c) *Net benefits from indirect use*: This component of water value derives from side benefits that are triggered by a certain water uses. An example of these benefits is the improvement in health and/or higher incomes for rural poor derived from irrigation schemes that provide water for domestic use – such as drinking and sanitation – and livestock purposes.

d) *Adjustment for societal objectives*: Poverty alleviation, employment, and food security might constitute valuable objectives to be pursued.³¹ Therefore, there might be an adjustment made for societal objectives with regard to water use in the household and agricultural sectors. The authors maintain that these adjustments are “over and above the value of water to the user and should be added to reflect various societal objectives [...] with full consideration of the alternatives to meet the goals. The estimates of these values are not to be arbitrarily set, but should be determined on the basis of the best available methods that give the real gains to the society from price differentials among sectors.”³²

This latter aspect constitutes an interesting issue on which many authors have focused.³³ In particular a number of scholars focus on market distortions produced by government regulation intervening in matters like water delivery, water purity and associated increased costs. Gibbons, for instance, purports that market flexibility is negatively affected by the legal

WASH Project, Field Report No. 213, Washington, D.C., 1987; WORLD BANK, *The World Bank and Irrigation, A World Bank Operations Evaluation Study*, Washington, DC, 1995.
30. ROGERS - BHATIA - HUBER, *Water as a Social and Economic Good*, 10.

31. These might represent important sectors in which the public sector intervenes to incentivise specific uses; Rogers *et al* maintain that this is the case “in rural areas, where foodgrain prices tend to be high in the absence of the additional food output gained from irrigated agriculture, and where it may be difficult to supply imported foodgrains.”

32. ROGERS - BHATIA - HUBER, *Water as a Social and Economic Good*, 11.

33. See e.g. T.L. ANDERSON - P.J. HILL (eds.), *Water Marketing: The Next Generation*, Lanham, MD: Rowman & Little eld, 1997.

systems; hence, assessment of water value needs to take into account also time, space and administrative arrangements governing its use.³⁴

All the aspects described so far together compose what Rogers *et al* define the 'economic value' of water. Concept that does not attribute any value to variables such as stewardship, bequest values, and pure existence values. However, even though these values are difficult to measure "they are, nevertheless, valid concepts and do reflect real value associated with water use (or non-use)."³⁵ These values are named *Intrinsic value* – as opposed to the current user values³⁶ – and could be identified as externalities of use of the resource, therefore possible to incorporate. In some cases, such as bequest value, they might always be difficult to include in the conceptual scheme. In these cases, a pragmatic solution can be to approximate intrinsic values by estimating 'hedonic price indices' associated with the consumption of good and services.

This composition of different values of water have been visually represented by Rogers *et al* in the following scheme, where it is possible to distinguish the different compositions of the 'economic value' and of the 'full value.'

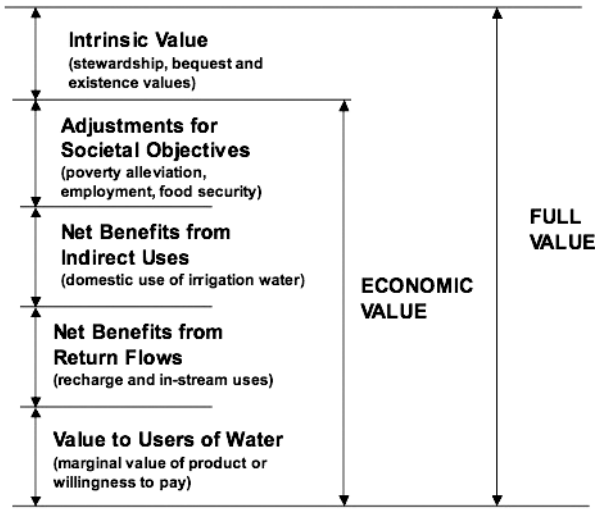
This distinction between the economic and the full value is helpful to understand part of the disagreement around the notion of water being an economic good. In fact, the first school of thoughts maintains that water should be priced at its economic value, thus neglecting the last component of the full value: the intrinsic value. The principal argument advanced for this exclusion is that it cannot always be quantified in monetary terms. Indeed, as said, the intrinsic value consists of cultural, aesthetics, and merit values of water that – although rather difficult to quantify – are fundamental aspects of water valuation and essential to the integrated decision process.³⁷

34. D.C. GIBBONS, *The Economic Value of Water*, Washington, DC: Resources for the Future, 1986: 1.

35. ROGERS - BHATIA - HUBER, *Water as a Social and Economic Good*, 14.

36. The current user values are the ensemble and sum of the two major categories of direct and indirect uses. For a comprehensive review of the different types of benefit occasioned by environmental management see W.H. DESVOUGES - V.K. SMITH, *Benefit-Cost Assessment for Water Programs*, Volume I, Prepared for the U.S. Environmental Protection Agency, Research Triangle Institute, North Carolina, 1993.

37. For an account on the two schools of thoughts and debate on the integrated decision process see *supra* § 2.2; SAVENIJE - VAN DER ZAAG, *Water as an Economic Good*, 101.



Source: Savenije and van der Zaag, “Water as an Economic Good,” 101

Finally, it is necessary to notice that the value of water varies also very significantly depending on the use to which water is destined. For instance, water for drinking has to the user a much higher value than water for irrigation purposes. Accordingly, it is possible to distinguish and locate the different uses on a scale from the most valuables – such as drinking, sanitation, and the so called primary needs – to the less valuables such as industry and irrigation for aesthetics purposes. The problem is, however, that these values are not associated to a corresponding scale of monetary value and, therefore, of costs. To have a clearer picture it is thus necessary to understand the costs of water.

2.3.2 Costs of water

Political objectives and approaches to water management may vary quite significantly. As I already presented in the first chapter, water might be understood and treated in different fashions: from being considered as a pure commodity subjected to market dynamics, all to the opposite understanding of water being an essential resource or a human right. Besides these understandings, water management and supply entail some costs that have to be borne by someone: be it the water user or the state. The costs are of various natures and their identification is not always unanimous among economists and policy makers.

What are these costs? On this matter is again useful to refer to the work of Rogers *et al* who analysed and listed the various costs related to water. Their well-accepted distinction of cost typologies identifies three categories: the full supply cost, the full economic cost, and the full cost.

a) *Full supply cost* – The first type cost is associated with the supply of water to a consumer without considering the alternative uses of water nor the externalities imposed upon the others. The full supply cost is constituted of two separate elements: the Operation and Maintenance (O&M) cost, and the Capital Charges.³⁸

O&M costs: The former consist in the costs related to the running of the distribution system. Such costs – according to the authors – include purchased raw water, labour, electricity for pumping, repair materials, and input cost for managing and operating storage, distribution, and treatment plants. These costs are relatively easy to assess and are not contested.

Capital charges: The latter costs, identified in the capital charges, include the consumption of capital and the interest costs associated with reservoirs, treatments plants, conveyance and distribution systems. As the authors maintain, the two typologies of costs, summed together, approximate the long-run marginal costs.³⁹

b) *Full economic cost* – This cost is the sum of the full supply cost before mentioned, the Opportunity Cost determined by the alternate use of the same water, and the economic externalities produced by the consumption of water by a specific actor.

Opportunity cost: The opportunity cost takes into consideration the scarcity of the resource and relies on the fact that the consumption of water by a specific individual deprives other users of the water. “If that other user has a higher value for the water, then there are some opportunity costs experienced by society due to this misallocation of resources. The opportunity cost of water is zero only when there is no alternative use – that is no shortage of water.” Moreover “[i]gnoring the opportunity cost undervalues water, leads to failures to invest, and causes serious misallocations of the resource between users.”⁴⁰

Economic externalities: The most usual externalities associated to water are those related to the impact of upstream diversion of water and to the release of pollution on downstream users, but also due to overex-

38. ROGERS - BHATIA - HUBER, *Water as a Social and Economic Good*, 6.

39. *Ibid.*

40. *Ibid.*, 7.

plotation or contamination of lakes and underground water. Other sorts of externalities may derive from production as, for instance, due to “agricultural production in irrigated areas damaging the markets for upland non-irrigated agriculture, or forcing them to change their inputs.”⁴¹ Externalities in the sphere of water management are particularly present due the fugitive nature of water. The standard economic approach with regard to externalities tends to design a system to internalise the externalities. They may be either positive or negative.⁴² The authors have distinguished between economic externalities and environmental externalities, even though in some cases it is not always easy to distinguish them. Only the economic externalities represent a component of the full economic cost.

c) *Full Cost* – The Full Cost of consumption is composed by the sum of all the components of the Full Economic Cost and the Environmental Externalities. These costs are assessed upon the damages caused, or as additional costs of treatment to return the water to its original quality.

Environmental Externalities: These externalities are generally associated with public health and ecosystem maintenance, unlike those entailing production or consumption costs which are instead more related to economic imbalances and, hence, labelled as economic externalities. By way of generalisation, environmental externalities are more difficult to assess in economic terms because values such as health or the environment are not directly economically measurable. Nonetheless, the authors argue that “it is possible, in most cases, to estimate some remediation costs that will give a lower bound estimate of the economic value of damages.”⁴³

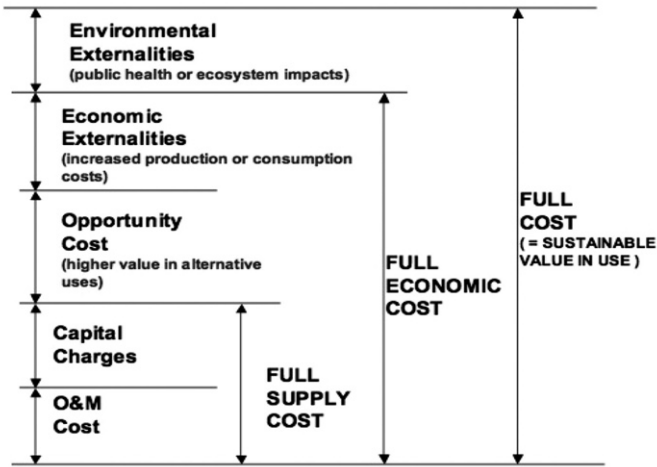
41. ROGERS - BHATIA - HUBER, *Water as a Social and Economic Good*, 8.

42. Rogers *et al* provide an explanation of what externalities consist of with regard to water. They explain that “Positive externalities occur, for example, when surface irrigation is both meeting the evapotranspiration needs of crops, and recharging a groundwater aquifer. Irrigation is then effectively providing a “recharge service.” However, the net benefit of this “recharge service” will depend on the overall balance between total recharge (from rainfall and surface irrigation) and the rate of withdrawal of groundwater.” On the other hand, negative externalities may impose costs on downstream users if the irrigation return flows are saline, or where return flows from towns impose costs on downstream water users. One method used to account for these externalities is to impose a salinity levy on users, depending on their water use patterns.” *Ibid*.

43. *Ibid*, 10; the methods for assessing these environmental externalities are not presented here, to explore further on these methods see J.A. DIXON - L.F. SCURA - R.A. CARPENTER - P.B. SHERMAN, *Economic Analysis of Environmental Impacts*, Earthscan Publications, 1994; D.W. PEARCE, *Environmental Economics*, Longman, 1976; and J.T. WINPENNY, *Values for*

Thus, there are different notions of water costs which are widespread in the literature. However, which of them should be adopted in order to estimate the costs of water and its allocation is still controversial. Among the three notions of cost only the latter, the full cost, provides for a cost that is comprehensive of all the different costs related to water use enabling to equilibrate the system.

Many scholars belonging to the first school of thoughts maintain that the full economic cost should be the one adopted to make estimates. They construct the full economic cost with the sum of the full supply cost and the opportunity cost, considering all other impacts to be externalities. Of these, particularly the impact on long-term sustainability and the environmental externalities are too difficult to quantify in monetary terms.⁴⁴



Savenije and van der Zaag, "Water as an Economic Good," 101

The second school of thoughts apply instead a broader definition that includes both the economic and the environmental externalities, arguing that "both of them should be part of the economic decision problem."⁴⁵ They maintain that in a neoclassical economic system, where water is

the Environment: A Guide to Economic Appraisal, Her Majesty's Stationery Office, London, UK, 1991.

44. SAVENIJE - VAN DER ZAAG, *Water as an Economic Good*, 101.

45. *Ibid.*

managed and allocated according to the interplay between water value and the overall cost for its use, the notion of full cost is the only one that guarantees the allocation and use of water in an economic, environmentally, and intergenerationally sustainable way.

Talking about costs is not the same thing as talking about prices. Water supply and use have a cost constituted by the different components presented so far. However, this cost does not automatically translate into a price that users have to pay for the water. Moreover, a long debate between economists, jurists, and policy-makers has been happening on the issue of how water values and costs interact and should be used to determine prices for water uses. In this debate two major positions can be identified which relate, to some extent, to the two school of thoughts mentioned before: on the one hand there are those, mainly from the first school, who maintain that water prices should be set at the marginal cost of supply, so that users – following the rules of neoclassical economics – will use water until the marginal cost equals the marginal benefit; on the other hand, those belonging to the second school of thoughts believe that price-setting for water use should not be determined only by the balance between the cost of supply and the value of uses.

2.4 *The price of water: different approaches for different uses*

Water is a single substance; a natural resource which moves along the various phases of its natural cycle. It may appear in the form of water springing from an underground source, rain, sea-water, and many other forms. This fact lays at the base of the concept of Integrated Water Resources Management⁴⁶ implied in the Water Framework Directive⁴⁷ of the EU. Concept that requires water management to consider “all physical aspects of the water resources at different temporal and spatial scales.”⁴⁸ Indeed, this aspect of the IWRM, in line with the first Dublin principle, implies that “water is not divisible into different types or kinds of water.”⁴⁹

46. The concept of IWRM became popular only a few years after the Dublin Conference as a necessary outcome of the first principle and was subsequently disseminated, largely through the action of the Global Water Partnership, see, for instance: *Integrated Water Resources Management, TAC Background Paper No. 4*, Technical Advisory Committee, Global Water Partnership, 2000, Stockholm, Sweden.

47. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

48. SAVENIJE - VAN DER ZAAG, *Water as an Economic Good*, 98.

49. Ibid.

Nonetheless, if water is one single natural element in physical terms, it cannot be treated the same way for economic and policy-making purposes. Water is used for different aims such as, for example: drinking, cooking, and sanitation, but also agricultural irrigation, industrial and power-production uses. These different uses insist on the same resource, each of them reducing the overall availability of water in the cycle. That is the reason why in the full cost of water-use is included the opportunity cost. Some of these uses (e.g. drinking) are more important, while others (irrigation for private gardening) are less socially relevant. Thus, since a specific use of water affects all the cycle diminishing water availability for other uses, the full cost has to include the lost opportunity to use that water for other purposes.

Moreover, water uses have different values. The 'value to users' varies significantly between typologies of use. It is typically high with regards to water for households and, on the contrary, generally lower for agricultural purposes. How should the price of water be determined then? The two schools of thoughts provide two different solutions.

The first school relies on the willingness to pay that varies according to corresponding – higher or lower – value of each different use. According to the supporters of this school, it seems reasonable to set the price of each water use according to its related marginal cost. In fact, according to neoclassical economics aggregate welfare is maximised when “water is priced at its marginal cost, and water is used until the marginal cost is equal to the marginal benefit.”⁵⁰ Benefit that derives from the water value to a user and translates in “the willingness to pay for the use of the resource.”⁵¹

The advocates of the second school believe that water is at the same time an economic as much as a social good. Therefore they maintain that, if the willingness to pay for water use may be a valid criterion for price-setting in some cases (e.g. water use for power-production or for some irrigational purposes), it does not constitute a desirable criterion for household and other essential uses. In fact, in the latter cases the willingness to pay for water use “depends largely on the ability to pay.”⁵² Moreover, with regard to uses destined to satisfy primary needs, water cannot be substituted by an alternative good. Users are forced into the choice of either pay for the water or not use it at all. The willingness to

50. J. BRISCOE, *Water as an Economic Good: The Idea and What it Means in Practice*, paper presented to World Congress of ICID, Cairo, Egypt, 1996.

51. Ibid.

52. PERRY - SECKLER - ROCK, *Water as an Economic Good*, 4.

pay may be a reasonable criterion only when the demand for water has some degree of elasticity, which is present when there are alternatives. In the case of water consumption for primary needs, users do not have alternatives to water and have no real choice but paying the price, as long as they can afford it.

How to compose the problem of covering the costs of water supply while providing access to water at reasonable conditions? Some people proposed that a minimum amount considered essential for covering the basic human needs should be accessible free of charge. This vision encountered the opposition of those who advocate for a minimum price, arguing that free water supplying would trigger the 'free water dilemma.' They maintain that:

If water is for free, then the water provider does not receive sufficient payment for its services. Consequently, the provider is not able to maintain the system adequately, and, hence, the quality of services will deteriorate. Eventually the system collapses, people have to drink unsafe water or pay excessive amounts of money to water vendors, while wealthy and influential people receive piped water directly into their houses, at subsidised rates. Thus the water-for-free policy often results in powerful and rich people getting water cheaply while poor people buy water at excessive rates or drink unsafe water.⁵³

Thus, it appears that an economically sustainable and socially just system of water supply is not a free-of-charge one. Two solutions seem plausible. The first would be to rely on fiscal imposition and public financing of water supply systems. The essentiality of water for human life and its importance for some economic activities, *e.g.* irrigation, led to systems of water supply at subsidised costs in numerous cases. These practices "may be popular among water users, but they are certainly a source of expense to be covered by the taxpayer and they tend, in general, to engender inefficient use."⁵⁴

The second solution is a system of 'increasing block tariffs' that charges users at a rate that increases with the decrease of the essentiality of the use. Thus, within the household sector water will be charged at very low (or no) price for the minimum amount considered essential, and at increasing

53. See *e.g.* SAVENIJE - VAN DER ZAAG, *Water as an Economic Good*, 100.

54. L. VEIGA DA CUNHA, *Water: A human right or an economic resource?*, in *Water Ethics*, eds. M. Ramòn Llamas, L. Martínez-Cortina and A. Mukherji, Marcelino Botin Water Forum 2007, *Taylor & Francis*, 2009: 98.

rates with the increase in consumption. Similarly, between sectors water use will be charged at a lower rate in sectors with higher value (such as household) and more in those with lower value, *e.g.* irrigation. Supporters of this system argue that “one can reach full cost recovery, institutional sustainability, equity and, purely as a fringe benefit, send out the message to the large water consumers that water is precious and needs to be conserved.”⁵⁵

Drawing on the analysis of value, cost, and price of water it is possible to grasp the complexity of water management. The issue of defining an appropriate water pricing system constitutes the instrument to harmonise the instances of economic sustainability of water use and social justice with regard to water access. The complexity of the issue raises another couple of related questions: how should the integrated system be managed? But also, who should run the system?

2.5 Inside or outside the market: water as a special good

Whether water should or should not be included in the market is a relatively recent question. It is only from the second half of the 20th century that market-based approaches to water management began to appear in the western legal tradition along with capitalism.⁵⁶ Notwithstanding the various attempts to subject water to market mechanisms, water has so far escaped any attempt to define and locate it in one of the categories: private or public good. I do not intend here to engage myself in an attempt to provide a definition of my own. On the contrary, I do not believe that providing a definition of water – at least at this stage – is of any help in addressing the issues of how to manage water effectively and guaranteeing access to water. Interesting is to look instead at the various features that water presents and that make it, as Savenije claims, a “special good.”⁵⁷

In his article titled “Why water is not an ordinary economic good, or why the girl is special” the author highlights a series of features that,

55. SAVENIJE - VAN DER ZAAG, *Water as an Economic Good*, 102.

56. With regard to the introduction of the market in water management is relevant to refer to what Wallerstein names the ‘commodification of everything.’ According to him Historical Capitalism “involved [...] the widespread commodification of processes – not merely exchange processes, but production processes, distribution processes, and investment processes – that had previously been conducted other than via a ‘market.’” I. WALLERSTEIN, *Historical Capitalism* (London: Verso, 1996).

57. SAVENIJE, *Why Water Is Not an Ordinary Economic Good, or Why the Girl Is Special*, 742.

altogether, distinguish water from all other goods. These characteristics, he argues, can be found in other goods, but the combination of them in water makes it a special good. These are the most significant ones:

a) Essentiality: There is no life without water, no economic production, no environment. There is not even human life; that is why it is a vital resource. This characteristic is not unique to water. The same feature is proper of air, land, and food. Such feature appears obvious and claiming that water is essential sounds trivial. Instead, it is a quite important statement whose consequences are still unclear and controversial as will be shown later on.

b) Scarcity: as explained already, water is a finite resource which is limited to the amount of water that circulates through the atmosphere on an annual basis. In fact, even though the Earth is full of water, the only part of it that can be used to serve human purposes is the tiny one that renews yearly through the water cycle. This amount is generally scarce or even insufficient to satisfy water demand. It is also unequally spread in time and space and some geographic areas experience cyclical or periodical shortages.

c) Fugitiveness: Water is almost impossible to stock. It is a good that moves constantly along its cycle following either gravity or evaporation rules. Therefore, it is difficult to make forecasts about its availability as well as to keep it for future uses.

d) Interconnectedness: As Savenije puts it, water is a system. "The annual water cycle from rainfall to runoff is a complex system where several processes (infiltration, surface runoff, recharge, seepage, re-infiltration and moisture recycling) are interconnected and interdependent with only one direction of flow: downstream. If you interfere upstream, there are downstream implications, externalities and third party effects."⁵⁸

e) Bulkiness: Unlike fuel and food, water cannot be easily transported from one place to another. If water could be easily moved, the issues related to the features so far presented could be overcome by moving water, as the author says, from the area of access to the area of shortage. But this does not happen because water is too bulky. Transporting water is incredibly difficult and too expensive.⁵⁹

58. SAVENIJE, "Why Water Is Not an Ordinary Economic Good, or Why the Girl Is Special, 742.

59. On this aspect Savenije makes a point by stating that "A domestic or industrial water user is willing to pay about 1\$=m3. A farmer is seldom able or willing to pay more than a small fraction of that amount. Other economic goods are much more expensive than

f) Non-substitutability: According to the neoclassic economic model economic goods have alternatives. The existence of alternatives represents one of the crucial requirements for a market system of supply-and-demand equilibrium to work. Water has none. For fuel, one can choose between oil, gas, coal, wood, hydropower or solar power. For food one can choose between bread, pasta, rice, or maize. But what alternatives are there for water: rainwater, groundwater, surface water? It is all the same water from the same system, from the same source. There is no alternative, there is no choice.

g) Free tradability: Given all the above features, water is a very difficult good to be traded. It is essential but, at the same time, bulky. The author concludes that the “consequence is that we should use it when and where it is available. There is no other economic good that has this complicated combination of characteristics [...] Water markets can only function if they are very localised and take account of the fact that water flows downstream [...]”⁶⁰ Water is a very difficult good to be traded. An exceptional case to this is bottled water which, as I will show, defies both tradability and locality.

Given these characteristics, including water in the market to make it a tradable good is, before even any judgement over its desirability, very difficult. Water is bound to localities where it originates. The costs of distributing infrastructures and of transportation are very high, and imply sunk costs that necessitate economies of scale to be repaid. Moreover, it has been shown before that the demand is very diverse comprehending small users with a high willingness to pay for their essential needs coupled with users of substantially bigger quantities but with a lower willingness to pay. Therefore, a market for water in Smithian terms is something rather unrealistic.⁶¹

Does all this mean that water markets do not exist? Not at all, in various countries or regions water markets have been created. The major proponents of these markets have been the World Bank and the In-

that. Fuel costs about 100\$=m3 and food in the order of 200\$=m3. A factor of 100 more than the value of domestic water and at least a factor of 1000 more than the agricultural value of water.” See *ibid*, 742.

60. *Ibid*, 743.

61. The idea of having a market for water with self-regulating capacities, that reaches its equilibrium by the operation of the ‘invisible hands’ of the market, is impossible because of the particular features of water. For more on the self-regulating market see A. SMITH, *Wealth of Nations: An Inquiry into the Nature and Causes of the Wealth of Nations*, Mobil-eReference.com, 2010.

ternational Monetary Fund (IMF) with structural adjustment programs and loan conditionalities that incentivised in some cases, and required in others, the privatisation of water supply systems to enhance efficiency and effectiveness.⁶²

The compatibility with, and desirability of, a market approach to water management considerably depends upon the considered water sector. In fact, in sectors such as agricultural irrigation, industry, and power production, the elasticity of the user demand with regard to water price may introduce a self-equilibrating mechanism of price setting. If market-based management of water supply may work for some sectors, it definitely does not for those sectors in which elasticity of water demand by users is very low. This is the case of the household sector that comprehends all the essential uses destined to satisfy the primary needs. These uses cannot be satisfied by anything else but water, and the user value for these types of uses is very high. If managed on a market-based approach these uses would arguably soon become more expensive and produce serious issues of access to water for low-income individuals.

Thus, market approach would only work for some sectors while being incompatible with the sectors related to the most essential uses. Furthermore, the market system would only work within each sector, but would need external coordination at the inter-sector level. This is what Savenije and van der Zaag argue. They maintain that within those sectors “water markets and marginal cost pricing may in some cases be compatible with the concept of Integrated Water Resource Management, [however only if] all externalities are indeed internalized and transactions are regulated by a public body.”⁶³ They also state that this may work only within a specific sector, but that “for the allocation of water between sectors no markets are required nor are desirable.”⁶⁴

62. Water markets and privatization processes took place through liberalisations of the water sector as happened in the regulatory arbitrage that took place between Argentina and Chile, or by means of public-private partnerships. The latter were introduced in India, where in the 90s there were no less than 30 of these collaborations, but also in New Zealand, Ghana, South Africa, and many others. See V. SHIVA - TECHNOLOGY, *Licence to Kill*, New Delhi: Research Foundation for Science, Technology, and Ecology, 2000: 53-58; and B. MORGAN, *Water on Tap: Rights and Regulation in the Transnational Governance of Urban Water Services*, Cambridge Studies in Law and Society, Cambridge, UK; New York: Cambridge University Press, 2011: 118 ss.

63. SAVENIJE - VAN DER ZAAG, *Water as an Economic Good*, p. 104; on the same line of argument see also PERRY - SECKLER - ROCK, *Water as an Economic Good*.

64. Ibid.

It appears that in sectors such as energy production, industry, or agricultural irrigation marginal cost pricing can work as a tool for an effective and efficient water allocation which, nonetheless, if managed by private entities on a profit base would miss the goal of responsible consumption. In fact, the adoption of measures incentivising efficient water use would benefit society as a whole, but not the private water suppliers because “a more efficient use will reduce the demand for water and consequently decrease the suppliers’ revenue.”⁶⁵ Moreover, since water is a single integrated system, each type of use affects water availability in the other sectors. This fact, coupled with the profit-based approach inherent of private suppliers, makes the market-based allocation of water among sectors, but even within them, socially unfeasible because water would be allocated to the most lucrative type of uses and charged at marginal cost that, as said before, does not take into consideration the ability to pay.

In conclusion, water may be priced differently according to the features of each sector. Marginal cost pricing might be adopted for non-essential sectors, whereas cost recovery – or a subsidized pricing system funded by surpluses from the non-essential sectors – should be applied to essential uses. Such a system, without any shadow of a doubt, would need to be regulated by the public authority. With regard to management, in theory private suppliers complying with the public regulatory framework could run water supply in non-essential sectors. In practice however, the interconnectedness of the water system and the heavy costs of building and maintaining supply facilities make water supply systems natural monopolies and water management a prerogative of the public sphere.

2.6 *What about bottled water: a preliminary understanding of the difference*

Where does bottled water locate in this scenario? Bottled water is a good that is purchased to satisfy primary needs, and in particular for drinking purposes. Thus, it may be seen as an alternative way for individuals to get access to water for, what have been classified before, an essential need. How should it be treated then? The Dublin principles, and the consequent economic and regulatory debate, certainly relate to bottled water as well. However, looking at bottled water from an economic perspective one has to be aware of the peculiar features that characterize the good in this regard. In fact, bottled water does not share the same characteristics that are usually associated to tap water. If the substance is the same, the

65. VEIGA DA CUNHA, *Water: A human right or an economic resource?*, 97.

bottled form in which the former is normally presented confers to it a number of different economic features.

Particularly useful for a preliminary understanding of this difference is Elinor Ostrom's taxonomy of economic goods.⁶⁶ In the effort to provide a categorisation of the good aimed at identify the core patterns essential for their optimal governance, she locates them in four categories according to the simultaneous application of two criteria: the (non-)rivalrous consumption of the good; and the (non-)excludability of the access to it. When the use of a good diminishes the ability of other users to use the same good then it is considered a rivalrous good as the consumption of an individual reduces the ability of other users to consume it. A classic example is crop; if I take some crop to produce bread, the crop I used cannot be used by someone else. Excludability instead refers to the possibility of an individual to prevent someone else's access to the good. Excludability is not measured in absolute terms, but it is assessed by looking at the cost necessary to prevent someone from having access to the good. If preventing someone else to have access to my book is rather easy, it is far more complicated to prevent someone else to benefit from the lighthouse I built to conduct my boat back in the harbour.

Following these criteria, Ostrom divides the goods in four categories that identifies: public goods, private goods, club goods, and common pool goods.

	Excludable	Nonexcludable
Rivalrous	Private Good	Common Pool Good
Nonrivalrous	Club Good Toll Good	Public Good

66. C. HESS - E. OSTROM, *Ideas, Artifacts, and Facilities: Information as a Common-Pool Resource*, in *Law and Contemporary Problems*, 66, no. 1/2 (2003): 118.

Let us now consider the tap water from Ostrom's perspective and evaluate the good 'water' in the light of the two criteria used in the aforementioned taxonomy. The rivalry in water consumption is very much related to the amount of water available. As Henry Smith points out, "water is a fugitive resource that is expected to fulfill many human needs, including drinking and household uses, raising farm animals, irrigation, mining, power, manufacturing, sewage, navigation, wildlife, recreation, aesthetic, and environmental values. Some of these uses require withdrawals of water, some involve discharges into water, and others presuppose some quantity of water left in place. To serve all these ends, many parties require access to water, and at the same time water itself moves easily and replenishes partially (and not completely predictably) as part of the hydrologic cycle."⁶⁷ Indeed, seawater it is understood quite straightforwardly as a non-rivalrous good. The consumption of seawater by someone, narrowly understood as the appropriation of an undefined amount of water, is perceived as not affecting the availability of water for other potential users.⁶⁸

The non-rivalry in water consumption, however, applies only to seawater because of its abundance in relation to its actual exploitation. Quite different is the situation with regards to water destined to human consumption – category including all sorts of water susceptible of being used for drinking purposes and other primary needs. This type of water is far scarcer than sea water and, what is more relevant, its demand is much higher, reaching in many cases the overall availability of the good. Therefore, the individual use of the good is very likely to affect the overall availability of the resource for other users relying on the same source. Coming back to Ostrom's dichotomy then, water destined to human consumption falls within the category of rivalrous goods.

Let us focus now on the second dichotomy Ostrom's taxonomy relies on: excludability. Water is a fugitive resource and its excludability "in the sense of land and chattels" is generally perceived as somehow difficult.⁶⁹

67. H.E. SMITH, *Governing Water: The Semicommons of Fluid Property Rights*, in *Ariz. L. Rev.*, 50 (2008): 445.

68. See for instance B. FISHER - R.K. TURNER - P. MORLING, *Defining and Classifying Ecosystem Services for Decision Making*, in *Ecological Economics* 68, no. 3 (January 2009): 645.

69. SMITH, *Governing Water*, p. 448; see also R.L. CRAFT, *Of Reservoir Hogs and Pelt Fiction: Defending the Ferae Naturae Analogy Between Petroleum and Wildlife*, 44 *Emory L.J.*, 697, 722-23, 727-28 (1995); D. LUECK, *The Rule of First Possession and the Design of the Law*, 38 *J.L. & Econ.* 393, 425 (1995); L.J. STRAHILEVITZ, *Information Asymmetries and the Rights to Exclude*, 104 *MICH. L. REV.* 1835, 1843 (2006).

Fencing a river or a lake to prevent others from accessing the good is a hardly implementable solution, though not impossible. To this regard is particularly helpful Henry Smith's approach to assess water excludability in terms of marginal cost. He argues that, even though in absolute terms it is possible to exclude access to water, in most cases "the marginal cost of employing the exclusion strategy rises especially quickly."⁷⁰ The application of the marginal cost approach enables us to assess, from a pragmatic perspective, the actual difficulty in excluding access to water due to costliness of whatsoever exclusion strategy may be applied. Hence, tap water can be classified in Ostrom's second dichotomy as a non-excludable good.

Drawing on the double qualification explained so far, qualification which sees water as both a rivalrous good and a non-excludable one, the resource in Ostrom's taxonomy falls within the category of 'common pool goods.'⁷¹ According to Ostrom these types of resources may be owned by national, regional, or local governments, by communal groups, by private individuals or corporations, or used as open-access resources by whomever can gain access. She argues that this category of good may be subjected to each of these broad categories of property regimes and that each of these categories presents both advantages and disadvantages. However, she agrees to Feeny *et al.*⁷² that most of the times they rely upon similar bundles of operational rules. "Thus, no automatic association exists between common-pool resources and common-property regimes – *or, any other particular type of property regime.*"⁷³

This investigation does not intend, at this stage, to engage with the question of which is the most appropriate property regime to regulate water management. For now, I intend to use Ostrom's taxonomy to the extent that it provides a fruitful categorisation to understand a fundamental difference between water in general and bottled water. In order to provide a meaningful comparison, I will focus now on tap water, as the primary source of water destined to human consumption, and bottled water. Tap water is, indeed, the most common way to access water – provided that

70. *Ibid.*, 448.

71. On this aspect Rogers *et al* agree in considering water resources as a common poll good. They maintain that in the assessment of the economic externalities constituting part of the full cost of water, one has to take into consideration the negative externalities that may derive from over-extraction or contamination of water resources that are common pool resources. See Rogers - Bhatia - Huber, *Water as a Social and Economic Good*, 8.

72. D. FEENY *ET AL.*, *The Tragedy of the Commons: Twenty-Two Years Later*, 18 *Hum. Ecology* 1, 2 (1990).

73. HESS - OSTROM, *Ideas, Artifacts, and Facilities*, 120-121.

in this category are included all systems and infrastructures implemented to make water from underground sources, rivers, lakes, and water tables accessible by means of water pipes, wells, springs, and fountains providing and distributing water on a large scale.

As seen before, tap water falls within the category of common-pool goods. It is in fact a good of rivalrous consumption and its exclusion comes at excessively high costs that make exclusion possible at the theoretical level, but unfeasible at the practical one. Different is the case for bottled water. Unlike tap water, the latter in its bottled shape is far easier to exclude. The bottling processes are relevant to this regard as they transform the typically fugitive and hardly excludable resource in a good that, due to the confinement in bottles, is possible to stock, contain, move, and – above all – measure. Indeed, the fact of water being divided into containers of pre-established quantity makes it a more suitable good for commercial exchange.

Hence, according to Ostrom's taxonomy bottled water is an excludable good. Or, at least, is a good that is way easier and cheaper to exclude compared to tap water.⁷⁴ To what concerns the second characteristic, bottled water is a type of water deriving from the same general category of water destined to human consumption. As such, it shares the same character of limited resource whose consumption is, therefore, rivalrous. In fact, the same bottle of water cannot be drunk by more than one person. It may be shared or spited, but if one person consumes it than there is nothing left for anybody else. What is even more interesting is that the rivalry in the consumption of bottled water is not limited to the realm of bottled water, but extends and affects the entire overall availability of water destined to human consumption. In fact, as noted before the water filling most of plastic bottles does not belong to a particular and separate category of water, but it is part of the general category.

Provided that bottled water is an excludable good of rivalrous consumption, pursuant to Ostrom's categorisation the good would fall within the category of private goods. A category of goods that, according to the economists would be more effectively governed by a regime of private property rights providing for private ownership. I do not go as far as making such an assertion, but I will limit the use of this analytical framework to the extent that it provides a useful insight to understand a key feature distinguishing bottled water from the general category of water. Indeed,

74. See R. WILK, *Bottled Water The Pure Commodity in the Age of Branding*, in *Journal of Consumer Culture* 6, no. 3 (2006): 306.

if the analytical framework is accepted as utile tool to unveil such a distinction, it derives a straightforward association of the characteristics of excludability and rivalrous consumption with a regime of private ownership as a potentially problematic with regards to the case of bottled water.

A last aspect that is worth of consideration in this preliminary understanding of the difference between bottled water and tap water is that their differentiation is not grounded on the natural resource itself. In fact, as mentioned before, both types of water belong to the same general category of water destined to human consumption and most of the time they derive from the same natural sources and reservoirs. The chemical and physical properties of these types of water are to some extent negligible and do not provide a significant diversification of the two categories. Thus, what distinguishes bottled and tap water is actually not water itself, but rather the way the natural source is exploited. Consequently, it is relevant to highlight the fact that when investigating what distinguishes the two types of water, the object of the analysis is not just water but is also the means through which it is consumed or, from another perspective, accessed. This analysis, hence, draws on the fact that an economic and legal analysis of water is actually an analysis of the means through which people have access to drinking water.

3. *Legal conceptions of water*

Determining what water is in legal terms is a very complex task. In fact water with its “characteristics of liquidity, fluidity and ability to renew” is a resource that escapes and transcends rigid legal taxonomies.⁷⁵ As mentioned in the previous part, I do not intend to engage in any attempt to define what is water – and more particularly bottled water. However, regulatory frameworks and law concerned with water management derive from or endorse – more or less explicitly – conceptions of water that have paramount implications on the way water is managed and allocated. These legal conceptions are themselves the result of different economic views and the translation in normative instances of different values. In particular, the legal and academic debate concerned with the conceptualisation of water has been shaped by the economic contrast between the different perspectives on water management. In fact, the Dublin Declaration of

75. U. MATTEI, *La Proprietà*, 2nd ed., in R. SACCO (ed.) *Trattato di diritto civile*, Torino: UTET, 2015: 283.

1992 has been a landmark for regulators as well which reproduced the contrast between economist, on the meaning of proclamation of water as an 'economic good,' in policy terms. The debate that originated focused on whether water should be publicly or privately managed without much attention on the object of management itself: water. This part will first look at this contrast from the regulatory perspective, it will then focus on the inherent tension concerning water qualification, and will finally locate bottled water in all this.

3.1 *The public-private dichotomy: is it really about water?*

Drawing on Ostrom's distinction examined before, it has been shown that water might fall into the category of either common or private good depending on the way people have access to it. The distinction is related to the means through which water is distributed. If this distinction is of theoretical value, it is not the way the question has been framed in the legal arena. Indeed, most of the times legal systems address water as either a private or a public good. It has been shown, for instance, that in Europe the question of what kind of good is water does not find a unanimous response. The Italian legal system locates water within the category of public goods the private exploitation of which is regulated in diversified fashions according to the modalities and purposes of the exploitation. In the French legal system, instead, water is either public or private depending on the importance of the water source taken into consideration: the main rivers and water tables are located into the public categorisation, whereas smaller and secondary sources are subjected to private property rules governing land ownership. In the United Kingdom, the legal system governing water is the result of the combination of the common law rule governing land ownership, on the one hand, and of the application of the public trust doctrine and of riparian rights on the other.

The two opposing terms – public and private – that polarise the debate on water regulation and management relate inevitably with the concept of *market*. In fact, the shifts from public supply regime of water to a private one comes along with the idea that the inclusion of the resource in the market, and its subjection to supply-demand dynamics would provide better solution to manage the good. On the other hand the advocates of the public supply regime maintain that the social importance of water for non-productive uses makes it a good to be excluded from the market and managed by the public. The advocates of the public management stress the idea that public and private law “provide the legal basis for activities

which follow different rationales. Most importantly, private law allows actors to act solely in pursuit of their self-interest, whereas public law requires a higher standard, often coined as the pursuit of a common good.”⁷⁶

Drawing on the examples of the water supply systems of the three European legal systems presented in the previous chapter, it is possible to see how the dichotomy of *public-private* management of water resources in all the examples is framed around the question of whether water should be managed within the market or excluded from it. Indeed, the market, understood in the Smithian conception⁷⁷ as a self-balancing mechanism grounded on the equilibrium of supply and demand, represents the core of those legal and political debates. Interesting enough, however, is that those debates focus on the question of which is the most efficient way of regulating and managing water distribution. In the Italian example the question of profit was also raised. The 2011 referendum was, in fact, deciding on whether water services should be run upon a profit-seeking structure, or rather rely on public investments to pursue the target of universal access. In the examples of France and the UK, the objective of universal access, even though it formally exists as a regulatory target, is always left in the background. The main regulatory question in both examples is whether the private sector, vested of higher efficiency stimulated by competition and/or profit-seeking instances, is suited to run water services instead of the public sector, or whether the latter need to provide some sort of corrective measure.

A last note on the debate on water management concerns the object of such a regulatory and political confrontation. The focus of these debates between public and private is not actually on water itself, but rather on the privatisation of the infrastructure, management, and distribution of water. The dichotomy discussed leaves out the question on the nature of water and its consequent management. It focuses instead on the ownership of the infrastructures enabling access to water. The issue of water ownership is an ancient one, and has been addressed in different ways in civil law countries and in common law ones. As Cavallo Perin and Casalini frame it:

76. A. VON BOGDANDY, M. GOLDMANN - I. VENZKE, *From Public International to International Public Law: Translating World Public Opinion into International Public Authority* (February 25, 2016), Max Planck Institute for Comparative Public Law & International Law (MPIL) Research Paper No. 2016-02: 26.

77. A. SMITH, *An Inquiry into the Nature and Causes of the Wealth of Nations*, London: W. Strahan and T. Cadell, 1776.

[s]ince Roman law [...] water resources have been constantly vested in sovereign power and thus considered as public, state-owned or common goods not subject to private or individual ownership but open to free individual use. However, this common legal framework leads to two very different water rights models. In the civil law model, water rights are designed as property rights over water, therefore water resources are vested in public domain and open to individual use only by means of a license, permit or concession granted by the public owner. In the common law model, water rights, like property rights, are not defined within physical belonging but rather as rights to use water: the need of defining the property regime over water resources never raised or soon disappeared. Attention was paid only to the allocation of the rights to access and use water.⁷⁸

However, the question of water ownership – and its underpinning question of what is water – did not appear in the regulatory debates happened in Europe. The only times it did was due to political pressure exercised by social mobilisation like in the Italian example of the referendum. Thus, the regulatory question engaged with the public-private dichotomy on water is, indeed, a question on ownership of water services rather than water itself. In fact, as Henry Smith observed, given the fugitive nature of water, defining water ownership is important as much as understanding how the rights of access and use of water are allocated.⁷⁹

Notwithstanding this, it is not possible to talk about ownership of water supply services without having assessed to whom water belongs but also, as a logical precedent, what water is. The determination of the public or private management of water supply services implies a prior decision upon the rule of water allocation; may they be shaped upon the criterion of marginal cost, or – on the other side of the spectrum – around the principle of universal access. Thus, focusing on the dichotomy public-private is misleading because the two positions rely on different values that provide for opposite conceptions of water. In the legal arena water qualification is underpinned by a tension: water as either an essential resource or a commodity.

78. R. CAVALLO PERIN - D. CASALINI, *Water Property Models as Sovereignty Prerogatives: European Legal Perspectives in Comparison*, in *Water* 2, no. 3 (August 18, 2010): 434-35.

79. SMITH, *Governing Water*.

3.2 Unveiling the qualificatory tension

Legal qualifications may be explicit in the black letter law or underpin the regulatory framework concerned. In the case of water, it is extremely important the moment of legal categorisation of the good. In fact, water qualification is not an exclusively legal action, but involves political choices on how water should be treated; involvement that will trickle more or less directly from the qualificatory moment.⁸⁰ The tension concerning water lays between two opposing conceptions: on the one hand there is the conception of water as a natural resource essential for human life, on the other hand stands the conception of water as a commodity.

The former conception is much older than the idea of water as a commodity, and prevailed as the only dominant conception on water. It is possible to notice that already in Roman law water is excluded from the market and located in the category of *res communes omnium*. In fact, the notion of 'good' in legal terms derives from the economic conception of good that implies the attribution of an exchange value.⁸¹ According to this perspective, the *res communes omnium* cannot be considered 'goods' in legal terms because their private appropriation was impossible. In Roman law they are instead qualified as *res extra commercium*. Things that are insusceptible of producing private economic value, but necessary for the fulfilment of individual and social needs.⁸²

A similar arrangement developed, for instance, in the common law tradition where water, at least before the introduction of the theories of prior appropriation, was excluded from the notion of ownership and approached only in terms of use.⁸³ This architecture got its seeds from the Roman tradition, but evolved in its own peculiar fashion. The centrality

80. The very action of legal qualification is political in the sense that it implies decisions over and determination of ground rules and allocation of prerogatives. On this matter, see D. KENNEDY, *Stakes of Law, or Hale and Foucault, The*, in *Legal Studies Forum* 15 (1991): 327-66.

81. See S. PUGLIATTI, *Beni e cose in senso giuridico*, Milano: Giuffrè, 1962: 26 s.

82. See D. CASALINI, *Fondamenti per Un Diritto Delle Acque Dolci*, Torino: G. Giappichelli Editore, 2014: 114.

83. See V. SHIVA, *Water Wars – Privatization, Pollution, and Profit*, North Atlantic Books: Berkeley, California, 2016: 22 s; Shiva explains how the rule of prior appropriation first appeared in the mining camps of the American West where absolute rights to property, including the right to trade and sell water, took the place of use rights. He maintains that due to the introduction of prior appropriation "[n]ew water markets blossomed and soon replaced natural water rights and the value of water was determined by the monopolistic first settlers.

of use in the common law tradition is a consequence of water being considered *publici juris*, not in the sense of *res nullius* susceptible of private and exclusive appropriation, but as public and collective in the sense that anybody who has title to access can make a reasonable use of the resource without any property claim on it.⁸⁴ The focus on uses and the exclusion of the property system emphasized the social importance of water.

Thus, the essentiality of water has been implicitly recognised in these legal systems through the exclusion of water from trade, given the absence of an exchange value, and through the application of use titles instead of property rights. However, these legal arrangements were also a consequence of water abundance. As Rifkin explains, if there is abundance and it is possible to satisfy everybody's material needs and aspirations, organize social relations on the concept of exclusion – namely, in terms of private and exclusive property – makes little sense.⁸⁵

As explained in the first chapter, the situation of abundance with regard to water gradually changed, and water became a scarce resource. This slow shift brought along the introduction of property rights and exclusion, shifting the paradigm from use to ownership. Along this process water qualification changed as well since water acquired inevitably an economic value. The Dublin declaration of 1992 represented a turning point in the sense that it qualified water as an economic good, declaration that attributed to water an exchange value and opened water management to market-based allocation mechanisms. The economic qualification of water as a scarce good with exchange value played as a major factor in the legal qualifications that provided for policies of privatisation aimed to a more efficient use.

If the Dublin declaration constituted an important qualificatory moment, another landmark in the qualification of water is represented by the UN Resolution of 2010 which recognized “the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights.”⁸⁶ This Resolution set a significant benchmark, but many legal systems proceeded even before to formal qualifications of water as an essential resource the access to which is a human

84. See *Embrey v. Owen* (1851) 6 Exch 353; but also *Liggins v. Inge* (1831), 7 Bing. 682; D. FISHER, *The Law and Governance of Water Resources. The Challenge of Sustainability*, Cheltenham-Northampton: Edward Elgar Publishing, 2009: 69 s.

85. J. RIFKIN, *The Age of Access: The New Culture of Hypercapitalism, Where All of Life Is a Paid-for Experience*, J.P. Tarcher/Putnam, 2000.

86. United Nation Resolution No. 64/292 of 28 July 2010.

right. Countries such as South Africa, the Republic of Gambia, Ethiopia, Zambia, Iran, Nicaragua, Venezuela, Uganda, and Panama provided for the Human right to water in their constitutions, which many others recognized the human right in their national legislations.⁸⁷ These declarations are quite important declaratory principles, but leave unresolved the issue of water allocation. In fact, in order to guarantee the universal access implied by the human right, it is necessary a water supply system which is run in an economically sustainable way, *i.e.* according either to the principle of cost recovery, or to programs of public financing. Moreover, the human rights discourse is controversial because “whilst many see [it] as addressing broader issues of justice, others warn it can subvert water equity if efficiency and full-cost recovery are prioritised.”⁸⁸

Hence, it is apparent how the legal qualification of water is underpinned by a tension between the advocators of water as an essential resource and those who claim for management of the resource according

87. See for instance: Angola, Article 10, Water Act, 2002: The government must provide the population in a continuous and sufficient manner with potable water; Madagascar, Article 37, Water Code, Law No. 98- 029: The public service is responsible for the universal provision of potable water, which is based on the obligation to provide a minimum quantity and a minimum service of potable water; Tanzania, Article 10 of the Water Utilization Act, 1974, as revised in 1993: The right to water for domestic purposes; Algeria, Article 3, Water Law No. 05-12, 2005: The right to access to water and sanitation to satisfy the basic needs of the population, respecting equity; Sri Lanka, The National Policy on Drinking Water 2007: Access to water as an inalienable right of its people; Kazakhstan, Article 9, The Water Code, Law No. 482-2, 2003: First priority is the provision of the population with drinking water in the necessary quantity and the guaranteed quality, fair equal access of the population to water; Paraguay, National Water Law, 2007: All water in its territory the property of the State, and access to water a fundamental human right; Peru, Water Law 2009: Water is a human right and it cannot be bought and used as private property; Greece, Article 2, Joint Ministerial Decision Y2/2600/2001 Water is a public good and its provision is a State obligation; Dominican Republic, Article 127, Law No. 64-00, General Law on the Environment and Natural Resources, 2000: All persons have the right to utilize water in order to satisfy their vital human needs of alimentation and hygiene, those of their family and their animals; Guinea, Article 6, Water Code, Law No. L/94/005/CTRN, 1994: Subject to the provisions stipulated in article 4 of the present law, everyone has an inalienable right to access water resources and a right to use them for domestic purposes.

88. F. SULTANA - A. LOFTUS, *The Right to Water: Politics, Governance and Social Struggles*, Routledge, 2013: 2; concerning the controversy see, for example, C. BRANCO - D. HENRIQUES, *The political economy of the human right to water*, in *Review of Radical Political Economics*, Vol. 42, (2010), 142-155; S. SPRONK, *Water and sanitation utilities in the global South: re-centering the debate on 'efficiency'*, in *Review of Radical Political Economics*, Vol. 42, (2010), pp. 156-174; and PSIRU, *Water and the Multinational Companies*, Public Service International Research Unit, University of Greenwich, London, 2002.

to principles of efficiency and market, implying a qualification of water as a commodity. The latter, however, do not deny the essentiality of the resource but rather stress the desirability of a market system for a better management of water. Notwithstanding the formal and shared recognition of water as essential, the disagreement upon the practical implications of such qualification resulted, as Morgan explains, in the “the turbulent upheavals of 1990–2005 that held up two models of governance as answers to the urgent questions posed by the provision of collective and essential goods such as water. One was managed liberalisation, the other a reinvigorated image of public provision that aspired to infuse or even supersede bureaucratic state management with participatory democracy.”⁸⁹

It is indeed a clash of values: the essentiality of water, that implies universal access, or the efficiency and economic soundness of the supply system. These two values are ultimately at odds, and the primacy of one over the other is a political question that civil societies in many places have clearly answered: water is first of all a resource essential for human life. These answers have been stated rather clearly in numerous occasions such as the various movements in South America – among which the movement of Cochabamba in Bolivia⁹⁰ – or the protests of Plachimada in India.⁹¹ Also in the European context civil society has not been silent on the matter; the first European Citizen Initiative ever promoted in front of the EU Commission was indeed meant to reclaim the recognition of a right to water that would guarantee universal access.⁹²

89. MORGAN, *Water on Tap*, 2.

90. For more on the issue, see O. OLIVERA - T. LEWIS, *Cochabamba!: Water War in Bolivia*, South End Press, 2004.

91. C.R. BIJOY, *Kerala's Plachimada Struggle: A Narrative on Water and Governance Rights*, in *Economic and Political Weekly* 41, no. 41 (2006): 4332-39.

92. The European Citizens' Initiative titled “Water and sanitation are a human right! Water is a public good, not a commodity!” was the first successful ECI that was presented. The ECI is a procedure regulated by EU law that consists in an invitation to the European Commission to propose legislation on matters where the EU has competence to legislate. A citizens' initiative has to be backed by at least one million EU citizens, coming from at least 7 out of the 28 member states. The ECI for the right to water gathered more than 1.6 million signatures of support to invite the European Commission to propose legislation implementing the human right to water and sanitation as recognised by the United Nations, and promoting the provision of water and sanitation as essential public services for all. In particular the ECI urged that: 1) The EU institutions and Member States be obliged to ensure that all inhabitants enjoy the right to water and sanitation. 2) Water supply and management of water resources not be subject to ‘internal market rules’ and that water services are excluded from liberalisation. 3) The EU increases its efforts to achieve universal

Although the ECI did not translate into formal recognition by the EU Commission and Parliament, the European legislation acknowledges the social importance of the resource in the Water Framework Directive, where in premise no. 1 states that “[w]ater is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such.”⁹³ An even more clear and radical statement derives from the European Water Charter of 1968 with which the Council of Europe declares that “[t]here is no life without water. It is a treasure indispensable to all human activity.”⁹⁴

Thus, water qualification as an essential resource appears in formal declarations at the international and European level. This conception has been translated into European national legal systems as well; it happened in different forms: either through the legislative power – as, for example, in the U.K. and Italy – or through the judiciary. In the U.K. for example (and specifically in England and Wales) the 1999 *Water Industry Act* prohibits the domestic water disconnection of poor households who fail to pay the bill. Prohibition that does not apply to industrial or agricultural users; differentiating water accessibility for different types of use.⁹⁵ In the Italian legal system more recently the *legge 221/2015* and the *DPCM 270/2016*⁹⁶ introduced a minimum amount of water (50 litres per day) that water providers have to grant regardless of the payment of bills. The DPCM provides also for the introduction of progressive tariffs that are determined according to user wealth and the type of use. The practical implementation of this system is devolved to the regional level and its configuration is still

access to water and sanitation. See the Official Register website of the ECI, (last accessed 06.09.2017) available at <http://ec.europa.eu/citizens-initiative/public/initiatives/successful/details/2012/000003?lg=en>.

93. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

94. Principle 1 of the European Water Charter adopted in Strasbourg on May 6, 1968 by the Council of Europe.

95. See C. STADDON - T. APPLEBY - E. GRANT, *A right to water? Geographico-legal perspectives*, in SULTANA - LOFTUS, *The Right to Water*, 61-77.

96. Legge no. 221 of 28 December 2015, and *Decreto del Presidente del Consiglio dei Ministri* of 13 October 2016 provides that: “L’Autorità per l’energia elettrica, il gas e il sistema idrico, nel disciplinare il bonus acqua, dovrà garantire mediante il metodo tariffario e la relativa articolazione tariffaria, il recupero dei costi efficienti del servizio e degli investimenti, l’equilibrio economico finanziario della gestione e la tutela degli utenti tenendo conto: a) del criterio di progressività, a partire dal consumo eccedente il quantitativo minimo vitale giornaliero; b) della differenziazione dell’uso della risorsa idrica, nel rispetto del principio del «chi inquina paga».”

not clear. Nonetheless, the shift of principles informing the water supply system is clear and important.

The French legal system as well provides for a minimum amount of water to be guaranteed. In 2015 the *Conseil Constitutionnel* ruled for the constitutional legitimacy of article L. 115-3 of the *code de l'action sociale et des familles* prohibiting the interruption of water supply for household uses, in the 'first' house, for non-payment.⁹⁷

In many European legal systems rather clear formal recognitions of water essentiality have been translated into practical arrangements. In some countries more than others, but the choice in the qualificatory tension among which value should come first seems clear with regard to tap water services. In fact, even though some regulatory frameworks, such as the Italian one, contain social goal of providing poor people with minimum amount of free water with the need of sound economic management of the supply system, which – according to the Italian DPCM – should run on a cost-recovery base, they clearly recognise the essentiality of the resource.

In these countries water tariffs are also differentiated depending on the type of use that is made of the resource. If water is used for domestic purposes – *i.e.* presumably to satisfy primary needs – tariffs are generally kept low in order to guarantee access to the resource. If, on the other hand, water is used for non-domestic purposes, but for commercial, industrial, agricultural, or power production purposes, higher tariffs are applied in order to incentivise efficient use and cover supply costs for essential uses. In some cases, such as the Italian one, tariffs are supposed to be differentiated even within the domestic use sector according to household income. This is in order to guarantee a minimum access to lower income individuals. Thus, it appears that in these legal systems the issue of water management is, to some extent, closer to the interpretation of Dublin principle advocated by the second school of thoughts which claimed that water is first of all a human need and should be largely exempted from competitive market pricing and allocation.⁹⁸ Indeed, the French, Italian, and British systems all provide for tariffs differentiation, somehow implementing – at least at the level of principles – the system of increasing block tariffs proposed by Savenije and van der Zaag to cope with both the social goal of universal access and economic sustainability of water management systems.⁹⁹

97. See Conseil Constitutionnel, Décision n° 2015-470 QPC of 29 May 2015.

98. See PERRY - SECKLER - ROCK, *Water as an Economic Good*, 1.

99. See SAVENIJE - VAN DER ZAAG, *Water as an Economic Good*, 102.

3.3 To market or not to market, experiences of tap water commodification

The question on the public or private nature of water and, therefore, of water services discussed before, is afoot of further indirect implications. The most significant of which is the triggering of processes of tap water commodification.¹⁰⁰ If these issues are not so visible within the European context, they are evident in the numerous experiences of privatisation and de-privatisation that took place in some countries of the global South such as Bolivia, Chile, Argentina, India, South Africa, and Ghana.

In the last forty years, many cities of the global South have been the most affected by what has been termed a water crisis. A phenomenon that, due to inadequate spending on public infrastructure, ecological degradation, climate change, and population growth, left an estimated 40% of world population without reliable access to potable water.¹⁰¹ The emergence of this crisis of both quantity and quality, “water has been characterized as the figurative “blue gold” of the 21st century [as Barlow and Clarke describe it,]¹⁰² and is increasingly viewed as a profitable commodity to be sold to consumers at market rates. This context has facilitated the emergence of a global water industry, now dominated by two French-based corporations, Veolia (formerly Vivendi) and Suez.”¹⁰³

100. The term originated in 1968 from the resurgence of Marxist theory on attribution of value according to use-value deriving from the ability of a commodity to serve the “conveniences of human life.” Marx described commodification as the process through which unequal use-value of different commodities are reduced to a third non-commodified value, i.e. the exchange value. See K. MARX, *Capital: A Critical Analysis of Capitalist Production*, vol. 1, London: Lawrence & Wishart, Ltd, 2003: 44 s. The term commodification is opposed to the term ‘commoditization’ which emerged in 1965 from business theory. It is understood as the process by which goods become discernible among others in the marketplace. They are distinguishable due to different qualities that, altogether, render them unique so that the market can create a perfect competition among competing brands. See RUSSO - SMITH, *What Water Is Worth*, 2 ss.

101. See M. BARLOW, *Blue covenant: The global water crisis and the coming battle for the right to water*. New York, NY: New Press, 2007; and V. SHIVA, “From water crisis to water culture,” *Cultural Studies*, 22 (2008), 498-509.

102. M. BARLOW - T. CLARKE, *Blue gold: The fight to stop the corporate theft of the world's water*, New York, NY: New Press, 2002; Gus Lubin already in 2011 stated that many commodity consultants agree that water is “the single most important physical-commodity based asset class, dwarfing oil, copper, agricultural commodities and precious metals.” GUS LUBIN, ‘Citi's Top Economist Says The Water Market Will Soon Eclipse Oil’, *Business Insider*, July 12, 2011, available from: <http://www.businessinsider.com/willem-buiter-water-2011-7#ixzz3SgYDtjwT> [last accessed September 6, 2017].

103. JAFFEE - NEWMAN, *A Bottle Half Empty Bottled Water, Commodification, and Contestation*, 321.

In this scenario, many countries of the global South were forced to privatise their public water services, during the 90s, due to loan conditionalities and structural adjustment programs of the IMF and the World Bank that entailed the opening up of public utilities for sale, lease, or concession. This wave of privatisation was argued to be necessary to counter the failure of public utilities to attract sufficient investment to extend water services to meet the needs of the growing population. Even though the failure of the public sector to successfully manage water services was arguably more the outcome of strictures of foreign debt than of inefficient or corrupt public management, the rhetoric of state failure dominated public policy and development discourses for two decades.¹⁰⁴

According to the rhetoric of state failure in the management of water supply services, the only effective solution to improve the services and ensure water conservation in an era of scarcity was the creation of a market for water. A market in which private enterprises undertake the management of distribution and foster both the expansion and the improvement of water services in their attempt of profit maximisation.¹⁰⁵ At the same time, the creation of a market for water would attribute to water an economic value transforming it in an economic good. This phase of marketisation of water initiated in 1992 with the *Dublin Statement on water and sustainable development* of the United Nations, which declared that “water has an economic value in all its competing uses and should be recognized as an economic good.”¹⁰⁶ In the eyes of the private water industry, the World Bank and some governments, this was the only way to provide for an efficient management of water and for its conservation especially in areas of scarcity.

The rhetoric of water service marketisation, aimed at improving water access and eliminating the inefficiencies of the public management, became predominant in some global South countries during the 1990s. Therefore, a number of large transnational companies, helped by the structural adjustment programs imposed by the World Bank and the IMF as conditionalities for loans, took over the management of water services in those countries. Thus, in these countries water services were undertaken

104. K. BAKKER, *Privatizing water: Governance failure and the world's urban water crisis*, Ithaca, NY: Cornell University Press, 2010.

105. M. GOLDMAN, *Imperial Nature: The World Bank and struggles for social justice in the age of globalization*, New Haven, CT: Yale University Press, 2005.

106. UNITED NATIONS, *Dublin Statement on water and sustainable development*, New York, NY: United Nations, 1992.

by multinational corporations that, along with the privatisation of the sector, introduced market on which water was priced with the aim of disincentivise superfluous consumption and stimulate efficiency in its management.

Examples of these processes may be found in Argentina, Chile, and Bolivia, but also in India, South Africa, Ghana, Nigeria, or Malaysia and New Zealand. For instance, in India the public-private partnership affaire, that brought to at least 30 collaborations, is meant to substitute public water service. These partnerships are largely financed by the World Bank and focus firstly “on *commercial orientation* through institutional reform and restructuring. For example, [by a] restructuring of the water and sewage department on a profit center basis. [...] The second aspect relates to the need of an appropriate regulatory framework [moving] towards a commercial and consumer orientation in service provision.”¹⁰⁷ In Chile the process of privatisation was triggered by the imposition of a loan condition by the World Bank that guarantee a 33 percent profit margin to the French company Suez Lyonnaise des Eaux.¹⁰⁸ In Argentina a World Bank-financed water privatisation project was bid by a consortium of two of the largest French companies – Suez and Compagnie Generale des Eaux – two British firms – Thames Water and Northwest Water – and a the Spanish Canal Isabel II. The project produced a decrease in the number of people employed in water services while, at the same time, an increase of water prices that increased, in 1993, by 13.5 percent.¹⁰⁹

However, water is also essential for human survival, irrespective of consumers’ ability to pay.¹¹⁰ The wave of privatisation in countries of the global South and the consequent introduction of a supply-demand based price of water made it “so unaffordable that citizens [were] forced to drink water from contaminated sources.”¹¹¹ This paradox produced by the essentiality of water and the limitation of its access based on the ‘ability to pay,’ generated social conflicts on resource management in some of those countries.

107. M. MEHTA, *A Review of Public-Private Partnerships in Water and Environmental Sanitation Sector in India*, New Delhi: Department for International Development, 1999: 7.

108. BARLOW - CLARKE, *Blue gold*, 15.

109. E. IDELEVITCH - K. RINGKEG, *Private Sector Participation in Water Supply and Sanitation in Latin America*, World Bank, 1995: 27-50.

110. JAFFEE - NEWMAN, *A Bottle Half Empty Bottled Water, Commodification, and Contestation*.

111. N.B. KURLAND - D. ZELL, *Water and business: A taxonomy and review of the research*, in *Organization & Environment*, 23(2011): 329.

Hence, the same legal and political debate on whether water should be managed by the public sector, on the principle of universal access, or whether it is better managed by private companies fostering higher efficiency and incentivizing water conservation through prices. The dichotomy public-private erupted with particular emphasis in the social protests happening in the countries experiencing the aforementioned privatisation of the water industry. In these cases the resulting commodification of tap water caused by privatisation was particularly evident.

Worth mentioning is that the commodification processes triggered by privatisation did not take place spontaneously from within the private sector. In fact, these processes required the intervention of public authority to facilitate commodification. “The state-capital nexus and the intervention of public authority to foster the accumulation of previously common (or public) resources is not a prerogative of supply chain capitalism and global forms of production. On the contrary, the functional and supportive role of states in capitalist expansion is evident in multiple situations, including in the global North.”¹¹²

In order to understand the dynamics of tap water commodification, the notion of “accumulation by dispossession”¹¹³ of the geographer David Harvey provides useful analytical insights. Harvey’s notion draws on Marx’s framework of primitive accumulation. However, the notion emphasizes how capital reacts to a situation of critical overaccumulation: “a condition where surpluses of capital [...] lie idle with no profitable outlets in sight.”¹¹⁴ According to Harvey, accumulation by dispossession appeared as a new capitalist approach that started to be applied since the beginning of the 1970s and gained momentum in the current neoliberal era. Unlike Marx’s notion of primitive accumulation, accumulation by dispossession is a process through which “hitherto uncommodified or inaccessible assets are released into the market at little or no cost, offering renewed opportunities for profit.”¹¹⁵ Harvey argues that accumulation by dispossession is a process taking place mainly through the wave of privatisation promoted by

112. T. FERRANDO, *Land and Territory in Global Production: A Critical Legal Chain Analysis*, thesis defended at Sciences Po Law School, 2015, p. 46; For the role of governments in favouring the circulation of commodities through legal and military intervention, see D. COWEN, *The Deadly Life of Logistics*, University of Minnesota Press, 2014.

113. D. HARVEY, *The New Imperialism*, Oxford, New York: Oxford University Press, 2005.

114. *Ibid.*, 149.

115. JAFFEE - NEWMAN, *A Bottle Half Empty Bottled Water, Commodification, and Contestation*.

international financial institutions of services, goods and property on southern countries undertaking structural adjustment regimes. The process is, however, visible in northern countries as well. An example that the author presents is the 1989 privatisation of water services implemented by Thatcher's government in England. "The corporatization and privatization of hitherto public assets, [...] to say nothing of the wave of privatization (of water and public utilities of all kinds) that has swept the world, indicate a new wave of 'enclosing the commons.'"¹¹⁶ Hence, the Harvey's process implies a contemporary phenomenon of enclosures that combines commodification with exclusion – either physical or economic.

Tap water is a typical example of resource that has been subjected to such a process of accumulation by dispossession. In the case of water the process does not take place spontaneously or, better, the private initiative is not sufficient by itself. State intervention is fundamental to foster capital accumulation. As Swyngedouw points out, "water privatization illustrates that without the various state levels paving the way and imposing conditions that guarantee privatization [...] this accumulation by dispossession could not possibly take place."¹¹⁷ Indeed, some goods are more easily subjected to marketization and, therefore, to undergo a process of commodification, whereas others do need a more elaborated process to achieve their commodification. The distinction is clearly made by Polanyi who divides goods in genuine commodities and what he defines "fictitious commodities." Labor, land, money are examples of the latter category, and water is an element of Polanyi's land.¹¹⁸ His sharp taxonomy, by dividing the good in genuine and fictitious, intends to move a critique to the "self-regulating market," and provide us with a useful insight to better understand the dynamics underpinning commodification. In fact, when looking at the marketisation of water services it immediately pops out the first problematic aspect related to the sunk costs that the market operator has to sustain for the realization of the infrastructures necessary to distribute water. Thus, unlike other goods water is less of a straightforward commodity or, as Mariola argues with regard to markets for water, "the process of commodification is not as straightforward as predicted [...i]

116. HARVEY, *The New Imperialism*, 148.

117. E. SWYNGEDOUW, *Dispossessing H2O: The contested terrain of water privatization*, in *Capitalism Nature Socialism*, 16-1(2005): 89.

118. K. POLANYI, *The great transformation*, Boston, MA: Beacon Press, 1944.

t is contradictory and contested and ultimately more mediated by state intervention than a more typical commodification process might be.”¹¹⁹

Hence, privatisation transformed water from a public or common good into a private commodity, dispossessing those who were entitled before to access the good. As mentioned before, the phenomenon is more apparent in some realities of the global South where privatisation was led by the World Bank and the IMF through structural adjustment regimes. However, various experiences can be noticed in the global North as well, exemplified by Thatcher’s service privatisation in England, and the dominance of private enterprises in France. The attempt to create a market for tap water – sustained by the argument that transforming water in a commodity with an economic value attached would foster efficiency in its management as well as reduce water waste – dominated the 1990s. Notwithstanding this momentum, the privatisation trend declined soon after, and was followed in a considerable number of the examples proposed by an opposite trend of deprivatisation.

Indeed, multinational companies have pulled out from most of long-term concessions in the global South, keeping their business only in some countries with significant growth as China.¹²⁰ Apart from that, in many countries the privatisation trend has been inverted by the retreat of private actors who, according to a voluminous literature,¹²¹ “has failed to meet the stated goal of providing water for all.”¹²² The introduction of market incentives that was supposed to foster the development of water services did not extend water distribution infrastructures and, in some cases, registered a decrease of water quality. These consequences have been registered by the World Bank itself that acknowledged that concessions contracts related to the structural

119. M.J. MARIOLA, *The commodification of pollution and a preemptive double movement in environmental governance: The case of water quality trading*, in *Organization & Environment*, 24 (2011): 237.

120. K. BAKKER, *Privatizing water: Governance failure and the world’s urban water crisis*, Ithaca, NY: Cornell University Press, 2010.

121. See J.E. CASTRO, *Water struggles, citizenship and governance in Latin America*, in *Development*, 51 (2008): 72-76; I.N. KESSIDES, *Infrastructure privatization and regulation: Promises and perils*, in *World Bank Research Observer*, 20 (2005): 81-108; E. SWYNGEDOUW, *Dispossessing H2O: The contested terrain of water privatization*, in *Capitalism Nature Socialism*, 16-1 (2005): 81-98.

122. JAFFEE - NEWMAN, *A Bottle Half Empty Bottled Water, Commodification, and Contestation*, 321.

adjustment programs did not generated a significant number of new water connections.¹²³

The inversion of the trend and the deprivatisation of water services were produced mainly by two factors. On the one hand, public opposition to water privatisation have been essential to “the cancellation of individual concessions and in changing the broader industry calculus.”¹²⁴ Many social mobilisations, of which the case of Cochabamba in Bolivia¹²⁵ is the most representative, took place in South America as well as in some African countries such as Tanzania and South Africa. These protests were backed by international movements for justice to water pushing for the recognition of water as a human right rather than a commodity; recognition that was eventually made by the United Nation General Assembly in 2010. On the other hand, the pull out of multinational companies was a consequence of the “failure to make large enough profits.”¹²⁶ In fact, the profit-based management undertaken by private firms needs short-term full-cost recovery, need that cannot be satisfied by investments on water distribution infrastructures that require long-term investment in system maintenance and water quality. Analysing the processes of privatisation and deprivatisation, Harvey states that “the same logic took Argentina through an extraordinary wave of privatization (water, energy, telecommunications, transportation) which resulted in a huge inflow of over-accumulated capital and a substantial boom in asset values, followed by a collapse into massive impoverishment (now extended to more than half of the population) as capital withdrew to go elsewhere.”¹²⁷

123. WORLD BANK, *Infrastructure development: The roles of the public and private sectors. World Bank group's approach to supporting investments in infrastructure*, Washington, DC: World Bank, 2005.

124. JAFFEE - NEWMAN, *A Bottle Half Empty Bottled Water, Commodification, and Contestation*.

125. In 1999, the World Bank recommended the privatisation of the municipal water service of Cochabamba. The privatisation took place through a concession of the Servicio Municipal del Agua Potable y Alcantarillado (SEMAPA) to International Water, a subsidiary of Betchel. The result was an increase of water bills up to \$20 a month; a unsustainable cost for an area where the minimum wage does not reach \$100 a month. The unsustainable situation led to social mobilization resulted in marches and manifestations violently suppressed by the government. Nonetheless, in April 2000 Betchel left Bolivia and the government had no choice but to revoke the water privatization legislation. See SHIVA, *Water Wars*, 102-103.

126. E. LOBINA - D. HALL, *Water privatisation and restructuring in Latin America*, London, England: Public Services International Research Unit, 2007.

127. HARVEY, *The New Imperialism*, 159-60.

Thus, tap water in the last fifty years has gone through processes of privatisation and deprivatisation. These processes carried along a different theoretical legal requalification of water itself. As seen above, this wave of privatisation fostered the commodification of tap water. A transformation of water into a commodity with an economic value determined by the market drivers of supply and demand. The opposite process of deprivatisation brought about a different conceptualisation of water as a natural resource essential for human life. Coming back to Ostrom's taxonomy, some authors argue that tap water is incompatible with a regime of private property. In particular, Bakker affirms that the status of water is "irrevocably ambiguous," it is neither a public nor a private good, but should rather be addressed as a common-pool resource.¹²⁸ An opposite view is proposed by other authors presenting water services as an example of public goods that "first originated as private goods before being absorbed into the public domain after hard-fought political and social campaigns and concerted state action."¹²⁹

Particularly useful in this contrast appears Bakker's notion of water as an "uncooperative commodity." According to the author "[t]he conversion of water into an economic good require[s] the introduction of true competition (via integrated, trans-watershed-infrastructure networks), and cost-reflective pricing (requiring new environmental valuation techniques and technologies such as meters in order to convey price signals)." Conditions that require an important public intervention and that failed to be created in most of the privatisation attempts of the abovementioned countries subjected to structural adjustment regimes. Thus, the tension between the two qualifications of tap water as a commodity or as common essential resource seems to be dissolved by the failure of the numerous attempts of privatisation. Moreover, as argued before the analysis of water is intrinsically an analysis of the means of its distribution. To this regard Jaffe and Newman provide a sharp view recognizing that "whereas tap water does not meet economists' technical definition of a public good, universal and affordable access to clean tap water is clearly a common good with great societal benefit."¹³⁰

128. K. BAKKER, *Privatizing water: Governance failure and the world's urban water crisis*, Ithaca, NY: Cornell University Press, 2010: 201.

129. J. VAIL, *Decommodification and egalitarian political economy*, in *Politics & Society*, 38 (2010): 324.

130. JAFFEE - NEWMAN, *A Bottle Half Empty Bottled Water, Commodification, and Contestation*, 322.

3.4 What about bottled water? The qualificatory struggle

It has been shown that water qualification is underpinned by the tension between the two extremes: water as a natural resource essential for human life or as a commodity. The two previous sections examined such tension, the ultimate perception of the predominance of the feature of essentiality, and the arrangements that some European countries adopted to meet both the goals of universal access and economic sustainability of the management.

When it comes to bottled water the tension becomes even fiercer. Indeed, bottled water may very well be perceived as an essential resource. The main purpose for which it is produced is drinking, arguably the most important and essential use of water. In fact, before any other sort of need that may be satisfied with water, humans need to drink for their survival. Bottled water represents not only a type of water that is destined to a very essential use, but it also concerns top quality water suited for serving this purpose. This derives from the fact that water used for bottling necessarily meets the criteria for being considered ‘water destined to human consumption,’ therefore meeting all the hygiene, physical, chemical, and microbiological standards. But in numerous cases – especially in Europe – the water bottled is ‘natural mineral’ or ‘spring water,’ categories of water which allegedly are of better quality than normal potable water.¹³¹

At the same time, bottled water is very much a commodity whose production, distribution, and – in more general terms – management is subjected to market dynamics. This aspect is most clearly evident in the large application of *mining* regulations to water extraction for bottling purposes.¹³² These regulations, based on licences, have typically been designed for the commercial exploitation of raw resources of no relevance to wider society but for their commercial value. Moreover, at its origins bottled water was not born as a means of water distribution, but as a consumption good; a commodity. That is probably also part of the reason why the application of marginal cost pricing – accorded to consumers’

131. For a thorough understanding of the difference between the different categories of ‘water destined to human consumption,’ ‘spring water,’ and ‘natural mineral water’ see chapter 1.

132. Most of the European legal system subject, at least partially, water extraction for bottling purposes to the regime of extraction of mineral resources. France, Italy, and the United Kingdom all adopt rules proper of the mining regime. For more on this see chapter 1.

willingness to pay – has never been questioned either in terms of efficiency of water management or effectiveness in water allocation.

Thus, it seems that the clash between the two qualifications of water reappears even stronger in the case of its bottled form. Indeed, bottled water cannot be considered outside the context of water in general. It is the same resource which is destined to a particular use. In order to try to dissipate the tension it is useful to look at bottled water from the perspective of the Integrated Water Resource Management, proposed by Savenije and Van der Zaag, to understand where bottled water locates in terms of water use sectors.¹³³

Water is a single complex system that moves in its natural cycle, and “should be managed in an integrated manner” as laid out in the first Dublin principle. According to this principle every use inevitably affects the overall availability of the resource. As seen above, the use of water from a river upstream for industrial purposes will reduce the availability or compromise the use of water downstream. Ostrom has highlighted the same feature with the feature of rivalrous consumption.¹³⁴ Against this backdrop bottled water constitutes a water-use sector on its own. How, then, this sector locates among the others? Should it be deemed essential use like the domestic uses (drinking, cooking, sanitation), or non-essential like irrigation for agriculture, power production, and industry?

In order to assess this, it is first necessary to understand who the user is in the case of bottled water. If the attention is focused on the purpose for which bottled water is produced – *i.e.* drinking – the use may be perceived as essential due to the fact that individuals use bottled water to satisfy a primary need. However, if bottled water is understood as a means of water distribution unresolvable problems of accessibility and distribution need to be faced. In fact, bottled water is managed as a market good, and is sold at its marginal cost. The result is that access to bottled water is between 200 and 400 times more expensive than access to tap water in the legal systems observed. This implies that access to bottled water is restricted to those who have the economic ability to sustain a regular expense of this entity.

In order to face the problem of accessibility the only possible measure seems to be to oblige bottling companies to price bottled water according to the principle of cost recovery. However difficult to impose this measure may be, the situation would be only partially solved because the price would still be significantly higher if compared to tap water. Moreover,

133. See SAVENIJE - VAN DER ZAAG, *Water as an Economic Good*.

134. HESS - OSTROM, *Ideas, Artifacts, and Facilities*.

relying on bottled water for satisfying drinking needs is highly undesirable due to the high negative externalities that bottled water production entails. To mention only two of the most important: 1) bottling produces enormous quantities of plastic waste that are impossible to manage through recycling processes; 2) bottling processes require significant quantities of additional water – ranging between 0.5 and 3 litres to produce a bottle of 1 litre – that is lost.¹³⁵ Bottled water prices today do not include any cost for the internalisation of the negative externalities. Therefore, even though the price would lower thanks to the elimination of profit, it would still remain very high due to additional externality costs that would need to be added for a full cost recovery.

Considering bottled water consumption a water use is however misleading. In fact, when individuals purchase bottled water they buy commodified water that have already been used by bottling companies. The real water use is made by private enterprises which use water to put into the bottle and sell it as a commercial product at its marginal cost. It is indeed clearly a commercial use made by private companies that use water for profit seeking purposes. The odd aspect is that bottling companies do not really conduct a productive activity because – and this is their peculiarity – they take water to sell it.

Pursuant to the regulatory frameworks, the legal systems of France, Italy and the U.K. provide for, bottling companies use water in force of either an authorisation, a concession, or a licence allowing them to exploit the resource for commercial purposes. It follows that they are the actual water users and, since their use is evidently commercial and non-essential, their use should be charged accordingly: *i.e.* at high rates enabling the cost recovery of water supply for essential uses. In other words, since water use for bottled water production is an activity undertaken for commercial purposes it should bear the costs of subsidised essential uses pursuant to the system of increasing block tariffs. Indeed, only this option would tend

135. There is a significant amount of additional water that is used to produce bottled water. Estimates as well vary quite significantly depending also on what is considered in the calculation. Nestlé Waters declares that the additional amount of water needed is on average 0.53 litres for each 1litre bottled produced, see *Bottled Water Production: How Is Bottled Water Made*, in [Http://www.nestle-waters.com](http://www.nestle-waters.com), accessed September 3, 2017, <http://www.nestle-waters.com/creating-shared-value/environmental-performance/manufacturing>. Other estimates, such as the one made by the Pacific Institute, purports that bottled water production consumes 3 additional litres of water, see *Bottled Water and Energy Fact Sheet*, in *Pacific Institute*, accessed September 3, 2017, <http://pacinst.org/publication/bottled-water-and-energy-a-fact-sheet/>.

towards the goal of universal access while providing for the economic sustainability of the system.

3.5 (*Bottled*) water commodification

The qualification and positioning of water use by bottling companies in the system of increasing block tariffs before explained is relegated very much to theory. In fact the authorisations, the concessions, and the licences impose very low tariffs for water exploitation that are far from providing any sort of economic compensation aimed at sustaining universal access. On the contrary, these regulatory frameworks trigger processes of commodification.

Section 3.3 investigated the process of tap water commodification that took place in the 1990s and that still goes on in some legal systems. Yet, it discussed how the process has encountered some intrinsic limits related to the nature of tap water and of the infrastructures for its distribution. The legal and political debate on tap water privatisation and commodification has gained much attention in the academia. A considerable scholarly literature has investigated the issues underpinning tap water commodification and its consequences. Nonetheless, this literature has almost completely neglected another form of water appropriation and distribution: bottled water. A phenomenon that Jaffee and Newman define as a “parallel modality of commodification.”¹³⁶

Bottled water is nothing different from tap water. Indeed, it is the same substance – water – regardless of the way it is used. Yet, the means through which it is accessed and used (or consumed) entails numerous consequences that require a separate investigation of tap water and bottled water. Indeed, the latter “renders water far more mobile and profitable than municipal delivery systems can, and its insertion into consumption patterns and accumulation strategies raises fundamental questions about how processes of commodification unfold differently within what is superficially a single resource.”¹³⁷

The interaction between water and the plastic bottle is well described by Hawkins, Potter, and Race as follow:

Unlike many commodities, bottled water draws attention to its packaging. The ubiquity of water as a reticulated service, as something that flows (at least in the

136. JAFFEE - NEWMAN, *A Bottle Half Empty Bottled Water, Commodification, and Contestation*, 319.

137. *Ibid.*

global north), is disrupted by foregrounding the mode of delivery. The bottling of water turns an ordinary liquid into a mobile commercial beverage. The bottle doesn't simply contain the water; it makes it available for new forms of branded exchange and new practices of drinking.¹³⁸

Examples may be found in numerous and different contexts. Yet the most problematic appear in areas where water supply systems are already scarcely sufficient and the average income is low. An example is the struggle of dwellers of Hyderabad, the capital of Andhra Pradesh in India, where the market of canned water is producing incredible revenues for the companies providing water. In the capital in fact, the highest profits registered by bottling companies are raised in the areas with major problems with public water infrastructure. In these areas, well water is sold in 20 litres cans for 31 cents (the price goes up to \$2.80 USD with the can included); a prohibitive price if compared to the fact that more the 36 percent of urban population survive with less than 1.25 (USD) per day. However, without alternatives the dwellers are forced to resort on and accept the option of privatised, for-profit water. A similar situation is present in Nigeria where the bottled water business grown at incredible speed rates to the extent that it now represents more than the 15 percent of the total manufacturing output from the country small and medium enterprises. A major cause also in this case is represented by the inadequacy of the public water supply systems.¹³⁹

Recalling Ostrom's taxonomy, I explained before that both tap and bottled water fall within the category of rivalrous goods, since water suitable for human consumption is limited (and in some situations even scarce) individual consumption of the good affects the overall availability. However, unlike tap water, the bottled version is an easily excludable good. Once corked, water can be stocked and someone else consumption can be prevented. The fugitive nature that leads Ostrom¹⁴⁰ to qualify water a common-pool resource or Smith¹⁴¹ to define it as a semi-common, does not extend to bottled water. Thus, according to Ostrom's categorization of goods, bottled water would fall within the

138. G. HAWKINS - E. POTTER - K. RACE, *Plastic Water – The Social and Material Life of Bottled Water*, The MIT Press, Cambridge, Massachusetts, 2015: 3.

139. R. GIRARD, *Bottled Water Industry Targets a New Market: The Global South*, in *Alternet*, June 15, 2009.

140. HESS - OSTROM, *Ideas, Artifacts, and Facilities*.

141. SMITH, *Governing Water*.

category of private goods. A category that is easily and better organised by private property rules.

If bottled water shares all the features of a private good it, nonetheless, remains an essential resource for human survival. Consequently, a resource of public concern the access to and distribution of which should arguably be ensured by the state according to the principle of universal access. That is why Laxer and Soron state that “[t]he commodity of bottled water sits intriguingly at the intersection of current debates regarding the appropriate boundary between the private and public spheres.”¹⁴²

When referring to the processes of tap water commodification I looked at the causes and the limits that such commodification introduced through privatisation initiatives. Those processes are somehow related to the bottled water phenomenon. Nonetheless, the process of water commodification produced by the bottled water phenomenon “involve[s] processes of accumulation by dispossession that are more extreme, far-reaching, and long lasting than those at work in the privatization of tap water.”¹⁴³ In particular, Jaffee and Newman have advanced two arguments to this regard. First, that bottled water constitutes a challenge to the primary way in which scholars have so far understood and represented water privatisation and commodification. In particular, it is not limited by the barriers to capital accumulation that tap water networks present, “rendering it a ‘more perfect commodity’ for accumulation.” Second, that the increase of bottled water production and the expansion of its market alters the prospects for the publicly provided tap water contributing to its devalorisation and deterioration.¹⁴⁴ The two authors provide then some examples that draw on economics highlighting the distinctiveness and peculiarity of bottled water.

First, bottled water production does not involve any of the sunk fixed costs and obligations of municipal water systems. The latter require important investments in order to meet the increasing public health and environmental standards, and to guarantee the maintenance of the distribution network, the physical water treatments and water quality in general. On the other hand, bottled water production bears neither the same initial investments nor the maintenance costs, especially when water is bottled from tap water network.

142. G. LAXER - D. SORON, *Not for sale: Decommodifying public life*, Peterborough, Ontario, Canada: Broadview, 2006.

143. D. JAFFEE - S. NEWMAN, *A More Perfect Commodity: Bottled Water, Global Accumulation, and Local Contestation*, in *Rural Sociology* 78, no. 1 (March 2013): 23.

144. *Ibid.*, 3.

Second, “bottled water defies, at least partially, the locality of water.”¹⁴⁵ Bottled water contrasts with tap water that, due to its characteristic of fugitive resource and of the costs of expanding water networks, is typically used and disposed at a local level, close to the source. The bottled version is rendered an easily movable product thanks to the invention of the plastic integument, and today “one quarter of all bottled water crosses national boundaries, making it truly a global commodity.”¹⁴⁶

Third, bottled water as a commodity benefits from far more elasticity in price than tap water. In affluent nations bottled water sales are adjusted to income where people can afford to spend hundreds of dollars per year on it. However, the good is sold also in realities of the global South where safe public water supplies are lacking. “While many of the effective popular protests against tap water privatization in the South were triggered by rate increases of 20 to 30 percent, the (often poorer) residents of the same countries not served by the municipal piped water system already typically pay many times those rates for water from local vendors, much of it bottled.”¹⁴⁷

Fourth, bottled water producers have been able to build up a new market. This has been created out of the invention of the product that did not exist before and that is not a necessary one, and by acting to foster public disinvestment and increase common distrust in tap water. As Gleick points out, “the bottled water industry is successfully capitalizing on, and profiting from, the decay of our comprehensive safe drinking water systems, or, in the poorer countries of the world, their complete absence.”¹⁴⁸

Fifth and last example that Jaffee and Newman provide focuses on the form of accumulation that the process of water commodification implemented by bottled water produces. They argue that while the extraction of spring water for bottling is clearly an instance of primitive accumulation, the bottling of already-treated municipal tap water (altered merely with further filtration and mineral additives) represents a strange paradox. It constitutes a particularly extreme example of accumulation by dispossession.”¹⁴⁹

145. Ibid.

146. M. BARLOW, *Blue Covenant*.

147. JAFFEE - NEWMAN, *A More Perfect Commodity*, p. 22; see also T. DRIESSEN, *Collective Management Strategies and Elite Resistance in Cochabamba, Bolivia*, in *Development* 51-1(2008): 89-95.

148. P.H. GLEICK, *Bottled and Sold: The Story behind Our Obsession with Bottled Water*, Washington, DC: Island Press, 2010: 176.

149. JAFFEE - NEWMAN, *A More Perfect Commodity*, 22.

Thus, the two authors present, through this set of examples distinguishing bottled water from tap in economic terms, how bottled water constitutes a different phenomenon with its own rules. As they argue, the economic patterns characterising bottled water make it a “more perfect commodity” that generate more serious, far reaching and long-lasting processes of commodification in the forms of both primitive accumulation and accumulation by dispossession.

As said, Jaffee and Newman argue that there are two different processes of commodification undertaking bottled water production. The process of primitive accumulation takes place whenever spring water or natural mineral water is extracted for bottling purposes. According to them in this case water is accumulated by the bottling company, which will then sell the bottled product on the market. On the other hand, the process of accumulation by dispossession takes place in the cases where the water bottled is tap water coming from municipal or public infrastructure. A process that, “[b]y piggybacking on public water systems in this manner, [allows] bottled water [to] parasitizes the public investment in clean tap water by serving up the very same substance for hundreds of times the cost, while the industry simultaneously “actively delegitimizes public water.”¹⁵⁰

The authors’ distinction of the processes of accumulation has salience, however the sharp divide that they draw might be a dangerous one. In fact, according to them if the process of tap water destined to bottling purposes entangles dispossession, the extraction of spring water does not. Such a distinction presupposes, hence, that spring or natural mineral water extracted by bottling companies are subjected to different regimes which subtract them from the category of public or common goods. Differentiation favoring the exclusion of these types of water from an integrated consideration of the hydrological cycle. This is a dangerous affirmation that justifies private appropriation and exploitation of water destined to human consumption that are not already included in the supply of public water infrastructures.

A pragmatic counterargument could be found by looking at various cases, especially in the global South, where groundwater tables or streams which constitute the principal source of water for local communities. Realities that, however, rely on artisanal means of abstraction constructed to face the absence or insufficiency of public tap water services. In these cases, the arrival of a bottling company building an abstraction plant to bottled water from that source would actually constitute an ultimate form

150. Ibid, 23.

of Harvey's process of commodification by dispossession. An archetypal example of this phenomenon is represented by the Plachimada case in India, state of Kerala, where Coca Cola started a plant for the abstraction of groundwater to produce bottled water. The activity of the company caused the drying of the wheels surrounding the water basin that were used by the local communities as their unique provision of clean water. In the Plachimada case, the basin constituted also the main source of water for agriculture on which the surrounding communities in the area – known as the “rice bowl of Kerala – rely on.”¹⁵¹

Jaffee and Newman's distinction has further problematic implications also on a more global scale, affecting North as well as South countries, and theoretical level. Indeed, the qualification of the processes of water abstraction for bottling purposes as phenomena of primitive accumulation has the effect of segregating the best water sources – legally qualified as either spring waters or natural mineral waters – as particular categories of water. This qualification has a twofold consequence: it excludes these types of water from the debates on privatisation, and more generally on water management; and while qualifying these waters as the best categories of water destined to human consumption, deprive them of the pattern of essential resource reserved to the more common and debated category of tap water.

Moreover, this requalification of the best typologies of water and their separation from the general category of water has also produced the paradoxical effect of distancing them from water. In other terms, these types of water have gone through a process of legal recategorisation that blurred their essential feature of being, first of all, water. For instance, it is possible to notice this metamorphosis in the three national examples treated in this work. In the Italian legal system spring and natural mineral waters are legally qualified as mineral resources in the first phases of exploitation and, once corked into the bottled, they are subjected to the food and foodstuff regime. The same is true in the French and English legal systems where, however, the abstraction process is regulated by private law rules and water becomes a chattel of the privately owned land. Such a reconfiguration of water exacerbates its commodification by blurring water ultimate feature of being a resource essential for life. Such a separation is evident in the European system of directives that does not contemplate bottled water in the general Water Framework Directive,¹⁵² establishing a framework

151. See S. KOONAN, *Legal Implications of Plachimada*.

152. Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

for the Community action in the field of water policy, but disposes of a special directive, Directive 2009/54/EC, regulating “the exploitation and marketing of natural mineral waters.”¹⁵³

Hence, water commodification finds its ultimate exacerbated version in the bottled water phenomenon. A process that commodifies water both at the practical and at the theoretical level. It is also, as said before, a process that is far reaching and long lasting than tap water commodification. Indeed, it produces water accumulation in the hands of private bottling companies by dispossessing the public or the citizens of previously public or common good essential for life. A process that, unlike the one characterizing tap water commodification, is not inherently linked with privatisation. In fact, surprisingly enough, almost all regulatory regimes governing bottled water production provide for a private exploitation of water. They do so in two different manners: either by a system of concessions (e.g. Italy) allowing water abstraction by private bottling companies that produce a *de facto* transformation of water abstracted in private property; or by a system that qualifies water destined to bottling as a good subjected to private property rules (e.g. France, U.K.) and, therefore, paving the way to private exploitation and commodification on which the public authority might have a limited control through a system of authorisations.

153. Directive 2009/54/EC of the European Parliament and of the Council of 18 June 2009, on the exploitation and marketing of natural mineral waters.

3.

Property, Use, and Value of (Bottled) Water. Understanding the Regimes Governing the Resource

1. *Introduction*

The previous chapter explored the tension between the different conceptualisations of water in the economic arena and presented how they translate into the legal sphere through the public-private dichotomy. The chapter explored as well the close tie between some of these conceptualisations and the processes of water commodification and privatisation. The economic conceptualization of water as an 'economic good' led to various interpretations advocating either for considering water a private good subjected to market rules, or as an essential resource to be managed outside of the market. In the present chapter the question of legal qualification of water will be further developed and linked to the related regulatory regimes. Particular attention will be dedicated to the latter and specifically to the question of the property of water.

For a more thorough understanding of the implications of the legal regimes regulating bottled water it is necessary to take some step back and look at the basic and fundamental elements composing the legal architecture regulating bottled water. A legal scholar who intends to approach the bottled water phenomenon would start her investigation by asking herself a set of preliminary questions: What is water? To whom does it belong? Or, what kind of property regime applies to it? The simple fact of raising these questions here does not imply a belief in their validity or utility of addressing the core aspects of water management and unveils the issues at stake. Indeed, the paradigmatic framework presumed by those questions is likely to leave some elements out of the frame or, even more problematically, introduce elements susceptible of transforming water qualification. Nonetheless, they are useful to address the key aspects upon which these legal systems build the conceptualisation of everything that may be conceived as an object (fruits, cars, houses, human body, and – of course – water) together with the legal structure governing the human interaction with the object thereof.

For the above reasons, this chapter begins by focusing on those questions to, then, engage in a critical understanding of their more profound meaning that, it will be argued, may function as instruments to check the inner consistency of the legal regime regulating bottled water. In fact, the legal architectures of the regulatory regimes governing bottled water traditionally build upon three intertwined elements: the legal conceptualisation of water, the property regime applied to it, and the public law rules intervening in the processes of water allocation. These three elements are said to be intertwined because their systematic interdependence in providing for a coherent regime in many cases generate operational regimes of water use that blur the public, private, or common nature of water.

A first, and only apparently trivial, observation on which this chapter builds is that bottled water is a social phenomenon primarily and essentially concerned with water use and distribution. From the legal perspective, this observation is not self-evident because the main body of law and regulatory instruments at play very often identify bottled water either as a consumer product, foodstuff, or mineral resource.¹ The process of putting water into a bottle seems to produce a migration of this new ‘thing’ – bottled water – from the legal domain of water law to the fields of consumer law, food law, and mining law. The incredibly fortunate encounter of water and plastic² had the result of transforming bottled water into something new: something that is not (just) water anymore, but a commodity.

1. See, for instance, the application of European Regulation (EC) No 178/2002 establishing the European Food Safety Authority to bottled water in the Member States, but also the UK’s Food Safety Act 1990 or the Food Labelling Regulations 1996, as well as the competence of the *Direction générale de la concurrence, de la consommation et de la répression des fraudes* (DGCCRF) in France and the application of the *Code de la Consommation* 2018. The Italian system is not an exception and, for example, the *Autorità garante della concorrenza e del mercato* has authority over bottled water to which the D.Lgs. 6 September 2005, n. 206 “*Codice del Consumo*” applies.

2. See G. HAWKINS - E. POTTER - K. RACE, *Plastic Water - The Social and Material Life of Bottled Water*, MIT Press, 2015, the authors explain how the invention of plastic (PET) and its encounter with water in the 1970s was such a successful event, making the fortune of both the material and of water. However, the successful encounter did not made the fortune of water itself, but of its commodification. In fact, this moment marked the beginning of a rapid development the bottled water phenomenon that brought along two major implications: the significant increase of plastic production and the exponential growth of water commodification.

The role of this chapter is hence to reconsider bottled water as, first of all, water and bring it back into the discussion on the legal regimes governing the resource. For the sake of this operation the chapter is dedicated to the analysis of the systems of property rights in water in France, Italy, and the UK with the intent to assess the regulatory and distributive potential of the regimes in allocation of prerogatives over water. Thus, the first part addresses the complicated relation between the legal institution of property and water. The second part draws on the problems arising from the land-related aspects of water government to analyse the transitions that took place in water government that saw a similar movement from property regimes to regimes of use rights. The third part is dedicated to the analysis of the challenges that bottled water brings to the regimes of use rights, especially with regard to the issue of value extraction and water commodification.

2. *Property and water: the impossible binomial*

Before engaging in the investigation of the phenomenon of bottling *vis-à-vis* the legal regimes governing water resources, it is necessary to consider the relation between water and property. The extreme relevance of this relation derives from the central position occupied by this institution in the western legal culture. Since the Roman *dominium*, an institution informing not only patrimonial relations, but extending to the relations within the family of the *Pater*, the concept of property sets its roots in the soil of the western legal culture.³ The *dominium*⁴ organised social relations by placing the *domini* at the top of, largely understood, familiar nuclei upon which they had almost absolute power. This construction is proper of the Judeo-Christian tradition in which the Book of Genesis brought along the very idea of *dominium*.⁵ Concept that, later on, can be found

3. For an account on the influence of the Roman institutions in the shaping of the Western legal culture see P.G. MONATERI, *Black Gaius: A Quest for the Multicultural Origins of the Western Legal Tradition*, in *Hastings LJ* 51 (1999).

4. G. AGAMBEN, *Tra diritto e vita*, preface to Y. Thomas, *Il Valore Delle Cose*, ed. M. Spanò, Macerata: Quodlibet, 2015.

5. “God blessed them and said to them, ‘Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish in the sea and the birds in the sky and over every living creature that moves on the ground.’ (Genesis 1, 28).” See also H.P. GLENN, *Legal Tradition of the World*, Oxford University Press, 2014; and D. CASALINI, *Fondamenti per Un Diritto Delle Acque Dolci*, Torino: G. Giappichelli Editore, 2014.

in the Blackstonian configuration of absolute property in the common law,⁶ and that was reaffirmed by the French revolution in the continental tradition of civil law.⁷

Property as a legal concept gained its central role in western legal systems. As Yan Thomas accurately pointed out, property is not just one of the legal institutions governing social relations within a society. It is the institution that, by determining the impossibility of some things – such as the religious or sacred ones – to form objects of property, implicitly subjects all other things to its rules. According to Thomas, the process of exclusion of the sacred from the property paradigm creates and legitimises the imposition of property as the funding principle of a legal system.⁸

Property developed through its elaboration in relation to land. The construction of an absolute dominium developed upon the construction and attribution of a number of prerogatives attributed to the owner of the land: the landlord. Such an institution became arguably the most important organizational pillar of both civil and common law traditions. This holds true today where not much has changed and property remains a fundamental organizational principle constructed around land ownership.⁹

Against this backdrop, a legal analysis of bottled water cannot avoid the question of water ownership. Indeed, the question ‘who owns water?’ is unavoidable in the analysis of water government in legal systems constructed around the institutions of property and sovereignty. This question has been hunting legal scholars for centuries and came back with renovated impetus since the second half of the 20th century when the presumption

6. See, for instance, D.B. SCHORR, *How Blackstone Became a Blackstonian*, in *Theoretical Inquiries in Law* 10, no. 1 (2009): 103 s.

7. The experience of the French revolution was translated in the notorious art. 544 of the post-revolutionary *Code Napoleon* of 1804 stating: “*La propriété est le droit de jouir et disposer des choses de la manière la plus absolue, pourvu qu’on n’en fasse pas un usage prohibé par les lois ou par les règlements.*” On the effects of the article in the modern conceptualisation of property see S. RODOTÀ, *Il terribile diritto*, Bologna: il Mulino, 2013: 87 ff.

8. THOMAS, *Il Valore Delle Cose*, 25 s.

9. On the principal role played by property see C.M. ROSE, *Property as the Keystone Right*, in *Notre Dame L. Rev.* 71 (1995): 329; with regard to the construction of property around land, see C.M. ROSE, *Possession as the Origin of Property*, in *The University of Chicago Law Review* 52, no. 1 (1985); and D. SCHORR, *Water Rights*, in *Comparative Property Law: Global Perspectives*, by M. Graziadei and L. Smith, Cheltenham: Edward Elgar, 2017: 280-81.

of water abundance appeared to be a thing of the past.¹⁰ The inadequacy of the resource availability in relation to human consumption brought to the attention the question of prerogatives on water both at the international and national levels.¹¹ Scarcity in European countries is primarily a relative issue, *i.e.* the overall water quantity in a given region might be enough to satisfy all needs, but the physical distribution of the resource or the legal attribution of prerogatives thereof impede the full satisfaction of those needs. Absolute and relative scarcities have been the propellers of a renewed legal investigation on the relation between water and property.¹²

The legal investigation of water as an object of law has been going on for thousands of years. Notwithstanding that, the resulting legal architectures applying to water today are – in the words of Jean-Louis Gazzaniga – embarrassing. The author maintained that water, similarly to air, is difficult to grasp for jurists, theorists as well as artists. Produce a legal definition of water, introducing it into a legal framework or in a painting are very difficult tasks. Gazzaniga explains that the western jurist, facing the issue of water systematisation within her legal system, has been unable to use instruments other than the traditional ones with which she was familiar, leading her to the difficult – but, at this point, unavoidable – question: who owns water? The question, however, already frames the issue by linking the analytical operation to property. The analytical framework of jurists from the western legal tradition engaging with water government has always been shaped by the necessity to solve the issue of water ownership. Even admitting – as Gazzaniga does – that water is owned by nobody does not save the jurist from the question of property. It remains a crucial and unavoidable lemma of the impossible binomial: property and water.¹³

10. From the early 80s and throughout the 90s water scarcity was perceived as a major concern and was used as a primary argument by the advocates of efficiency-based systems of water management. The seek for efficiency was also one of the major reasons triggering the wave of privatisation that took place in the 90s operated through the loan conditionalities of the World Bank and the structural adjustment programs of the IMF; see M. BARLOW - T. CLARKE, *Blue Gold: The Battle Against Corporate Theft of the World's Water*, Earthscan, 2003; and V. SHIVA, *Water Wars: Privatization, Pollution, and Profit*, Reprint edition, Berkeley, California: North Atlantic Books, 2016.

11. Examples are the conspicuous interventions on the matter in the international scene. See for instance the Dublin Statement on Water and Sustainable Development of January 1992 and the Water related measures taken at the Rio Earth Summit only some months after.

12. On this matter see P. CULLET, *Water Law, Poverty, and Development: Water Sector Reforms in India*, OUP Oxford, 2009.

13. See J.-L. GAZZANIGA ET AL., *Le Droit de l'eau*, III, Litec, 2011.

The difficulty in thinking about water in proprietary terms also derives from the fact that this legal institution has been constructed around land, creating an idiosyncratic, uncooperative and monolithic property that is unable to grasp and govern water. Carol Rose maintains that water constantly challenges property and that, if the institution were to be rethought having in mind water as the object model, the outcome would be rather different. The author writes: “If water were our chief symbol for property, we might think of property rights – and perhaps other rights – in a quite different way. We might think of rights literally and figuratively as more fluid and less fenced-in; we might think of property as entailing less of the awesome Blackstonian power of exclusion and more of the qualities of flexibility, reasonableness and moderation, attentiveness to others, and cooperative solutions to common problems.”¹⁴

Similarly, David Schorr argues that “Property can sometimes connote land, the classic resource of property law; yet water often serves as land’s alter ego, an exemplar of the odd, the esoteric, the colourful, or the cutting-edge in property law, set against the staid familiarity of land law.”¹⁵ Water introduces a number of tensions into the process of configuration of property. It undermines the land-related features of the institution, putting property itself into question. The link between land and property results problematic when the latter is applied to water government. The analysis of this link, however, necessitates a preliminary understanding of the relation between property and water.

2.1 *The question of property*

In the legal systems taken into consideration in this work law frames human relations with water in rather different manners. Nonetheless, the French, the UK, and the Italian systems are rooted on the question of property with regard to water. The question is to be understood in two different ways: 1) property appears in all the three systems as a preliminary question to be addressed for the construction of the legal regimes governing water; 2) from an opposite process, the imposition of the paradigm of property on water has turned back at property, challenging the foundational elements of the institution.

14. C.M. ROSE, *Property as the Keystone Right*, in *Notre Dame L. Rev.* 71 (1995): 2 s.

15. SCHORR, *Water Rights*, 280.

This question finds different formulations. In many legal systems water is sanctioned as public or state property.¹⁶ However, most civil law countries, developed upon Roman law, contemplate both public and private waters. The regime in force in some states of the US still rely on the 'absolute dominion' rule of the common law according to which water is a *res nullius* appropriable by the owner of the land enclosing the water body.¹⁷ Another solution adopted in the common law views water as a common property on which the landowners abutting the source have use rights.¹⁸ The system of prior appropriation applied in the western United States allocates private property rights to amounts of flows of water. In Australia and Western Canada water is property of the Crown and is distributed through a permit system.¹⁹

Against this backdrop the three legal systems under analysis delineate two major patterns of development of water regimes in Europe. If the Italian and the French legal systems, on the one hand, seem to subject water to some form of either public or private ownership, the UK, on the other, apparently denies those forms of ownership of water. Notwithstanding this difference, all of them are constructed upon the preliminary question on the relation between property and the resource. The term property is used in a generic sense – and, to some extent, improperly – to refer to the various formulations that different legal system deploy to identify the institutions governing the legal forms of relation between man (or the social group) and the thing (water).²⁰ The elaboration of a common terminology to identify similar patterns and institutions of the different legal systems is

16. See F. TRELEASE, *Government Ownership and Trusteeship of Water*, in *California Law Review* 45 (1957): 638; M. CANTIN CUMYN, *The Legal Status of Water in Québec*, in *Québec Studies* 42 (2007): 7; D. SCHORR, *Property Systems and Conservation of Instream Flows: Israel and the Western United States Compared*, in S. MEGDAL - R. VARADY - S. EDEN (eds.), *Shared Borders, Shared Waters: Israeli-Palestinian and Colorado River Basin Water Challenges*, London: CRC Press, 2013: 119; X. Sun, *Introduction: The Development of a Water Rights System in China*, in *International Journal of Water Resources Development* 25 (2009): 189.

17. See J.W. DELLAPENNA, *The Rise and the Demise of the Absolute Dominion Doctrine for Groundwater*, in *University of Arkansas Law Review* 35 (2013): 291.

18. See J. GETZLER, *A History of Water Rights at Common Law*, Oxford: Oxford University Press, 2004.

19. See P.N. DAVIS, *Australian and American Water Allocation Systems Compared*, in *Boston College Industrial and Commercial Law Review*, 9 (1968): 647; D.R. PERCY, *Responding to Water Scarcity in Western Canada*, in *Texas Law Review*, 83 (2005): 2091.

20. See P. GROSSI, *La proprietà e le proprietà nell'officina dello storico*, in *Quad. Fiorentini per la storia del pensiero giuridico moderno*, 1988, 359; R. SACCO, *Antropologia Giuridica*,

a task that would require a reconceptualisation of the systems themselves. However, such a task transcends the intention and possibility of this work. In order to analyse the different relations of the institutions of property, *proprietà*, and *propriété* with water, the term ‘ownership’ will be used here to generically identify those situations where an individual (or a group) is entitled of a number of prerogatives on water that are sanctioned by law.

The regulatory regimes on water here analysed are all part of the Western legal tradition and find their roots in the Roman structure of water government. This latter is the first model of water regulation sufficiently documented in Europe.²¹ The Roman model associates the major water bodies to the legal categories of *res publicae* and *res communis omnium*. The use of these water bodies is free and open to everyone, but the body itself is subtracted from any possibility of individual appropriation. The category of *res publicae* attributes the ownership of the body to the public authority or the community of citizens, preventing any private possession of the entire body. In opposition, a regime of private ownership governs water bodies too small to serve a public purpose and to provide for a common use. This fundamental distinction is reaffirmed by the multitude of models developed in the middle ages, juxtaposing regimes of private ownership to others of indefinite (or non-)ownership. From this juxtaposition two major models developed in Europe. The systems of civil law structured water regimes around public and private ownerships, whereas the common law – first elaborated in the England – developed a tradition of non-ownership.

2.2 *The non-ownership model of the English common law*

The English model of water government, as well as the continental legal systems, draws on Roman law. However, unlike the latter, the English common law did not elaborate a system of water ownership. It focused, instead, in the development of a system of rules of access to the resource.²² The characterization of the UK system as one without ownership on water does not imply that the question of property has not played a role in the process of construction of the regime. In fact the entire system is organised

Bologna: Mulino, 2007: 263 s; U. MATTEI, *Basic Principles of Property Law*, Santa Barbara, California: Greenwood Press, 2000.

21. CASALINI, *Fondamenti per un diritto delle acque dolci*, 6.

22. J. GETZLER, *A History of Water Rights at Common Law*, Oxford Studies in Modern Legal History, Oxford; New York: Oxford University Press, 2004.

upon the impossibility of individual ownership of water bodies, in order to allow the organisation of an apparatus of use rights. This construction arguably developed upon the Roman conceptualisation of water as a *res communis omnium*.²³

2.2.1 *The architecture of the model*

The reconstruction of the Roman discipline of water is difficult due to the multiplicity of sources not always consistent with one another. They are indeed often the result of interpretations of the law or products of processes of deliberate manipulation of which the Justinian *Corpus Iuris Civilis* is the most important example.²⁴ In particular, the reconstruction of the ownership regime of water appears to be extremely complex because of the interpolations just mentioned, but also because of the complexity of the multiple models of ownership coexisting and applying to different typologies of water bodies. This complexity grew exponentially in the Middle Ages when the feudal system propelled the emergence of local arrangements of water government under the big umbrella of the Empire. The fragmentation of the discipline of water prevented the systematisation of the relation between property and water.²⁵

Notwithstanding this, it is clear that Roman law subjects water to two different regimes: with regards to the water bodies of minor importance (such as torrents and other non-perennial rivers) find application a regime of private ownership; on the contrary, the major water bodies capable of serving social and common needs are public goods. The certainty is limited to the existence of the distinction, but the conceptual and substantive implications of the public qualification of the second category remains unclear.²⁶ In fact, in Roman law the adjective *publicus* may indicate the public nature of property over water, as well as the openness of a water body to public and free use. In this ambivalence the concept of *res communes omnium* progressively appears adding an element of complexity as to how the different regimes are complementary in their application to the various typologies of water bodies. It appears that the category of *res communis* refers to flowing water, notwithstanding the fact that it

23. See D.A. CAPONERA - M. NANNI, *Principles of Water Law and Administration: National and International*, 2nd ed., Taylor & Francis Group, 2007.

24. See, for instance, MONATERI, *Black Gaius*, 16 s.

25. See CASALINI, *Fondamenti per un diritto delle acque dolci*.

26. See P. BONFANTE, *Il Regime Delle Acque Dal Diritto Romano Al Diritto Odierno*, in *Studi Generali*, vol. 4, Roma: Sampaolesi, 1925.

has been elaborated around the free use of the sea and the seashore. It is a category not corresponding to a clear property regime. The category of *res publicae* appears, instead, more clearly defined by attributing the ownership of the major rivers to the public, be it the territorial authority or the community of citizens.²⁷

Since the beginning of the first century AD some *res publicae* start to be considered insusceptible of any subjection to the regimes of property. Slowly the concept of *res communis* starts to be juxtaposed to the well-known *res publicae* to identify a category of things subtracted from any regime of public or private property, but destined to the general use by the entire human community to whom water belongs in force of *ius naturale*.²⁸ The notion of *res communes omnium* appears for the first and the last time at the beginning of the 3rd century AD in a fragment of the third book of the *Institutiones* of Marciano, later on inserted in the *Institutiones* of Justinian.²⁹ Marciano describes that this category of things – including air, all flowing water, the sea, and the seashore – does not constitute a form of collective property but, on the contrary, is a category of indisposable things (*res extra commercium*) because necessary to the satisfaction of essential needs of the society. These things are appropriable by individuals insofar as their private use does not prevent the general use of the resource.³⁰

The notion of *res communes omnium* appears more difficult to locate into the systematisation of the property discipline on water because the very subjection of the water to property was challenged. In fact, the notion of *res communis* identifies a category of things that, due to their essentiality on the one hand and the abundance on the other, could not be appreciated economically. They could not have an economic value. This is evident from the fact that the *res communis* are also categorised as *res extra commercium*. Hence, things not amounting to enter the legal category of goods. Category that, at least initially, was influenced by the economic conception of good, which includes all and only the utilities deriving from the appropriation or use of a thing. According to this perspective, a good is so if it has an exchange value. The *res communes*, being subtracted from any form of

27. See, amongst others, M.G. ZOZ, *Riflessioni in tema di res publicae*, Torino: Giappichelli, 1999.

28. A. DELL'ORO, *Le "res communes omnium" dell'elenco di Marciano e il problema del loro fondamento giuridico*, in *Studi Urbinati*, 1962, n. 31, 23, 237 s.

29. P. BONEANTE, *Corso di diritto romano*, II, *La proprietà*, Roma, 1962, 42 s.

30. B. WINDSCHEID, *Diritto delle Pandette*, it. trans. by C. Fadda and P.E. Bensa, vol. I, p. 2, UTET, 1902.

appropriation, are insusceptible of producing any exchange value. Thus, according to Roman law are not included in the legal category of good.³¹

The water regime of the English common law developed in continuity with the Roman conceptualisation of *res communis*. It increasingly focused on the regulation of water uses, without reaching the configuration of a regime of property. Therefore, there is no subject – not even the Crown or the Parliament – entitled to the ownership of water.³² The notion of property in this common law model is denoted by detachment from the corporality of the object of dominium, and is elaborated upon the nature of the utility deriving from the object. The utility itself constitutes the object of the legal relation between the subject and the good. Property, in this sense, does not entail absolute ownership, but is a category gathering all use, possession, and enjoyment rights deriving from a direct relation with the good.³³

The English model got influenced as well by the German tradition. Since the Middle Ages a tension arose between the will of recognition of the formal legitimacy of Roman law and the need to acknowledge the effectiveness of the new socio-economic instances produced by the doctrine of the shared domain. Unlike the Roman conception of *dominium* – based on the owner and on her almost absolute power to use, dispose, and enjoy the object of property – the German model of shared dominion envisages the possibility of coexistence of multiple proprietary positions at the same time on the same good, opening to a fragmented and relativised structure of property.³⁴

From this multiplicity of prerogatives on the same good derives the discipline of model of the English common law. In the tension between the absolute dominion of Roman law and the fragmented property of the

31. On the notion of legal and economic goods, see S. PUGLIATTI, *Beni e cose in senso giuridico*, Milano: Giuffrè, 1959: 168 s.; on the relation between the category of good and the exchange value, see T.N. NARASIMHAN, *Water, Law, Science*, in *Journal of Hydrology*, 349, 128 s.; and RIFKIN, *The Age of Access*.

32. See G. DELLA CANANEA, *Dalla proprietà agli usi: un'indagine comparata*, in A. POLICE (ed.), *I beni pubblici: tutela, valorizzazione e gestione*, Milano: Giuffrè, 2008: 63 s.; A. SIMONATI, *Il "Crown estate" nell'ordinamento inglese: configurabilità dell'istituto in termini di "public property"*, in *Diritto pubblico*, 1996: 699 s.

33. A. GAMBARO, *La proprietà nel common law anglo-americano*, in A. CANADIAN, A. GAMBARO, B. POZZO, *Property – Propriété – Eigentum. Corso di diritto privato comparato*, Padova, 1992: 13; See also A. GAMBARO, *La proprietà*, in G. IUDICA - P. ZATTI (eds.), *Trattato di diritto privato*, Milano: Giuffrè, 2017.

34. See P. GROSSI, *L'ordine giuridico medievale*, Bari: Laterza, 2006; J.-L. HALPÉRIN, *Histoire du droit des biens*, Paris: Economica, 2008: 149 s.

shared dominion doctrine, the UK opted for the latter in the development of the legal discipline governing water. The growing power of the public authority – initially only jurisdictional, and progressively transferred to the executive – detains the power to destine and allocate water resources among the different uses. The public power is still today the only one that can be exercised on water.³⁵ It is a power detached from the property structure and the prerogatives; its purpose is to regulate water uses and the conservation of the resource.

Thus, the English common law has not systematised a property regime on water but, drawing on the Roman concept of *res communes*, it has developed a system of use rights for the allocation of water. In particular, a variety of water rights have been developed since the 13th century. They are grounded on different theorisations like the riparian rights, the theory natural flow, of reasonable use, and of prior appropriation. These theories, and the water rights thereof, coexist and provide for a regime of water distribution that is not always coherent but that is, nonetheless, characterised by the same theoretical principle of denying an ownership of water and grounding the management of the resource on the allocation of use rights. Their coherence is found in the minimum common element that requires a “possessory interest based on current usage” of the resource.³⁶

The reference to an ownership regime of water bodies in the common law model has only been identified to elaborate the system of use rights. The definition of water bodies as public or common goods is operated with the only purpose to entitle with the use rights in water all the landowners directly interested by a particular water body, and to provide legal remedies to right holders against the related public or common nuisances. These latter legitimise an individual to file a claim to prevent or stop a nuisance perpetrated on a common or a public good (*e.g.* water pollution, floods, and any impediment to the use of the public or common water body). The peculiarity of the instrument is that it entitles an individual to act for the protection against a nuisance to a common good.³⁷

From this systematisation follows that the qualification of water as *publici iuris* does not imply the possibility of appropriation of water by the

35. S. HODGSON - FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, *Modern Water Rights: Theory and Practice*, Food & Agriculture Org., 2006.

36. J. HASSAN, *J. Hassan, A History of Water in Modern England and Wales*, Manchester: Manchester University Press, 1998. J. GETZLER, *A History of Water Rights at Common Law*, 2.

37. *Ibid*, 107 s. and 184 s.

first occupant (as if water were a *res nullius*) acquiring an exclusive right. On the contrary, *publici iuris* qualifies water as a public or common good in the sense that it enables those entitled to access the resource to make a reasonable use of it, with nobody being able to acquire the ownership of the water body. Individual ownership is only envisaged on the portion of water withdrawn from the body, and only for the time necessary for the specific use.³⁸

The legal construction here explained recalls the Roman law category of *res communis omnium*. It does so not just to exclude the possibility of private ownership of water bodies, that are indeed unsusceptible of occupation. The category of *res communis* is the premise on which access to water is guaranteed as a right to those entitled by the law.³⁹ In this sense, explains Blackstone, water rights are conceived as private rights of use of a public good, rather than private prerogatives deriving from a proprietary position.⁴⁰ In the case of riparian rights, for instance, the occupation and temporary possession of a determined quantity of water are legal prerequisites of the use of water by the riparian landowner. They do not contradict the original qualification of water as *res extra commercium* proper of Roman law. The legal architecture constructed upon this concept produces an artificial separation of water, which is *extra commercium*, from its utilities that are susceptible of private and exclusive appropriation.

Contradictory to this understanding may appear the doctrine of prior appropriation, which seems to guarantee an exclusive ownership to the person who first started to use the water body. However, the prior appropriation doctrine does not presuppose a property regime. The appropriation refers to the user rights on the water body without presupposing any private property structure on water itself. The public or common nature of water relies on the legal arrangement allowing the private appropriation of water only after the abstraction or derivation of water from the body. This is the reason why user rights are not absolute and exclusive (like in a regime of private property), but limited to the satisfaction of the essential needs of the individual. The concept has been confirmed by equity courts.⁴¹

38. See *Embrey v. Owen* (1851) 6 Exch 353; *Liggins v. Inge* (1831), 7 Bing. 682; *William v. Morland* (1824), 2 B. & C. 910; R. MACRORY, *Water Law*, London: Longman, 1985: 3 s; D. FISHER, *The Law and Governance of Water Resources. The Challenge of Sustainability*, Cheltenham-Northampton: Edward Elgar Publishing, 2009: 69 s.

39. GETZLER, *A History of Water Rights at Common Law*, 57 s.

40. W. BLACKSTONE, *Commentaries on the Law of England*, vol. II, Oxford, 1766, 17-18.

41. R.A. EPSTEIN, *Playing by Different Rules? Property rights in Land and Water*, in D.H. COLE - E. OSTROM (eds.), *Property in Land and other Resources*, Cambridge: Lincoln

Thus, even though the common law presents different configurations of the legal relations between humans and water, they are all incardinated on the same model. In fact, all the different constructions of the riparian rights, the prior appropriation rights, and the theories of reasonable use and natural flow are grounded on the system of water uses here explained that gathers all the different solutions of rights allocation. This common law model has been identified as the model of non-ownership, and its archetype is the English common law regime regulating water resources.⁴²

Bottled water in the UK is mainly produced with water abstracted from underground basins or sources. The regime of water use for bottling purposes relies on the general architecture of use rights just described. Therefore, water is not subjected to property but water rights may be granted for the person entitled of those rights, *i.e.* the owner of the land under which the source is located or, indirectly, the person who got such rights via the landowner. Thus, the strong link to land is present also with regard to bottled water.

The peculiarity is that, since water used for bottling is mostly mineral water, the bottler needs to apply for recognition of the water source as a natural mineral before being able to start the bottling activity.⁴³ This recognition is issued by the local competent authority,⁴⁴ which has the purpose of evaluating water quality of the source. The abstraction and bottling activity can then start, but only after the issuance of an abstraction license by the local public authority. The license system falls within the general discipline of water licenses through which the public authority controls and governs water distribution between users. However, in the case of a license for bottling purposes the act also provides for some limitations to water related activities on neighbouring properties meant to protect the integrity and uncontaminated nature of mineral water.

Institute of Land Policy, 2012, spec. 338 s.; D.B. ANDERSON, *Water Rights as Property in Tulare v. United States*, in 38 *McGeorge Law Review*, 2007, 461 s.

42. See CASALINI, *Fondamenti per Un Diritto Delle Acque Dolci*, 12 s.

43. Official recognition of a water source as natural mineral water is required and regulated by the “Natural Mineral Water, Spring Water and Bottled Drinking Water Regulations” of 2007.

44. In the case of water originating in England, for example, the relevant authority responsible for granting official recognition is the District Council or London Borough Council.

2.3 Models of (public) ownership

The other principal model of water government is represented by the legal regimes on water operating in France and Italy. These systems as well find their roots in the Roman regime of water government. However, unlike the common law model developed in the UK, the French and the Italian ones evolved by differentiation both from Roman law and from the regimes on water developed in the middle ages. This model, especially in the French form, determined the institutionalisation of property on water.

The ownership model is traditionally understood as born from the French post-revolution experience.⁴⁵ The reaction of the bourgeoisie against the sovereign power exercised by the monarchy determined the institutionalisation of the different positions of public and private property.

The model developed by differentiation from Roman law and the law of the middle ages primarily with regard to two aspects: the distinction of water bodies between public and private, with the latter being the object of exclusive appropriation; and the definition of the discipline of ownership of water bodies which is expressly attributed to the nation, *i.e.* the state in its most modern configuration.⁴⁶ If in the common law model the legal regime regulating water never elaborated a systematisation of property of water, the model that developed in the European continent articulated system of subjectification of ownership. In particular, the state got to the forefront of this regime.⁴⁷

The key concept in the development of this model is the French *domaine* or the Italian *demanio*, which are expressions of the sovereign power. This concept already present in Roman law traditionally identifies the power of the sovereign meant to manage some social relations and some 'things' for the common good. Therefore, domain has for quite some time denoted sovereignty. Connotation that became weaker and has gradually been replaced by a form of property denoted by a particular regime: public property.

The strengthening of the relation, and the eventual, identification of domain with a defined property regime came as a need in the case of

45. See C. CHAMARD, *La Distinction Des Biens Publics et Des Biens Privés*, Paris: Dalloz, 2004: 370 s; see also P.TERNEYRE ET AL., *Droit administratif des biens*, Précis, Dalloz, 2016; CASALINI, *Fondamenti per Un Diritto Delle Acque Dolci*.

46. See G. GIORGI, *La dottrina delle persone giuridiche o corpi morali*, vol. III, Firenze: Fratelli Cammelli, 1900: 329.

47. M.-A. LATOURNERIE, *Point de Vue Sur Le Domaine Public*, Paris: Montchrestien, 2004: 11 s.

water management. Indeed, the emersion of new uses of the resource (for instance, power production) summing on the already existing ones, such as agricultural or navigational uses, transformed water from an abundant to a scarce resource.⁴⁸ The transformation brought along in the system the need to define clear situations of ownership on water; identifying as owners not only the privates, who may have ownership over the water within their property, but also the state, now the owner of the major water bodies.

The distinction between the public or private regimes of water bodies in Roman law was hinged on its perennial nature. The perennial watercourse was in fact adequate to serve public uses and interests and was, therefore, a regime of *res publicae*. On the other hand, a non-perennial watercourse was, lacking the technologies to deviate and use water far from its natural flow, inadequate to serve the community and the public good. Thus, if private waters were susceptible of exclusive appropriation, public waters were subtracted from it and accorded the protection *ad interdicta* of the *usus publicus*.⁴⁹

The public-private distinction of water bodies persisted in the French discipline. However, the distinction was based on the different criterion of navigability. The watercourses that were suitable of navigation and transportation of materials were qualified as publics. This paradigm was subverted with the French revolution where the discipline of water was reconnected to the Roman tradition, as elaborated in the feudal systems throughout the middle ages. The indeterminacy of ownership of public water paved the way to the introduction of sovereign prerogatives (royalties) on water.⁵⁰ To the fragmentation of the unity of the Roman political power followed a long feudal period in which the power and prerogatives on water was exercised by a multitude of local feuds and municipalities. In this system the exercise of power by the local lord or municipality through the imposition of royalties on public waters brought to a gradual confusion over the nature of this power.⁵¹ The confusion of sovereignty and property brought to a shift from the former to the latter. As a con-

48. On the transition from abundance to scarcity see D. ZETLAND, *The End of Abundance: Economic Solutions to Water Scarcity*, Aguanomics Press, 2011.

49. See N. DE MARCO, *I loci pubblici dal I al III secolo. Le identificazioni dottrinali, il ruolo dell'usus, gli strumenti di tutela*, Napoli: Satura, 2004: 188.

50. CASALINI, *Fondamenti per Un Diritto Delle Acque Dolci*, 37; see F. PACELLI, *Le acque pubbliche*, Padova: Cedam, 1934; M.A. BENEDETTO, *Demanio (storia del diritto)*, in *Novissimo Digesto Italiano*, vol. V, Torino: UTET, 1960.

51. See BONFANTE, *Il regime delle acque dal diritto romano al diritto odierno*, 253; P. GROSSI, *Le situazioni reali nell'esperienza giuridica medievale*, Padova: Cedam, 1968: 57.

sequence, watercourses entered into the prince's patrimony and became royal prerogatives.⁵²

At the breakout of the French revolution, the complex system of royalties on water bodies appeared under a new light. The confusion of the dispositive powers of the sovereign with the use rights, emanation of property, was understood as an oppressive instrument of the individual freedom, limiting the free development of the market. The different uses of water were in fact subordinated to the payment of a royalty, with the effect of raising the costs of any activity requiring the use of water. With the French revolution, and the affirmation of the bourgeoisie in contraposition to the monarchy and the state, the need to reconceptualise the correlation of the sovereign power with the individual freedoms became a core issue. According to this new conceptualisation – meant, at least at the level of rhetoric, to bring back the ancient function of the *publicus* as conceived in Roman law – the sovereign power was conceived now as covering directly all major watercourses, and instrumental to the protection of the various individual usages of the resource. It was indeed the bourgeoisie that, in the attempt of reclaiming some economic freedom, restructured the contraposition of the public *vis-à-vis* the private power. The former, connoted of the sovereign element, is functional to the existence and guarantee of the latter.⁵³

Consequence of the juxtaposition of public power and private freedom operated by the bourgeois revolution is the identification of the state as the owner of those water bodies upon which it exercises the sovereign power. This creation of public property over water, however, does not eliminate the coexistence of private water bodies. Nonetheless, from this point on the regime of water will revolve around the ownership of the resource, and not anymore around the resource as object of feudal relations.

2.3.1 *Bottled water in the ownership models*

The ownership model that developed out of the French revolution inspired most of the legal systems of continental Europe. As seen in the

52. See CASALINI, *Fondamenti per un diritto delle acque dolci*, 37; PACELLI, *Le acque pubbliche*, 9; C. MANES, *Le acque pubbliche nel diritto italiano vigente*, Roma: Athenaeum, 1922: 8; M.A. BENEDETTO, *Demanio (storia del diritto)*, 424.

53. For a deeper account on the conception of *demanio* or *domain* see F. CAMMEO, *Demanio*, in *Digesto Italiano*, Torino: UTET, 1898: 847, in which he explains the relation between the conception of the domain as an instrument for the exercise of power and the personal possession of the sovereign power along with the temporary and revocable nature of the rights on material goods.

previous paragraph, the model developed around the shift of perspective that moved from a taxonomy of water – deriving from Roman law – based on the utility of the resource to a classification grounded on the identification of the owner of water. While this shift constitutes the core feature characterising all legal regimes belonging to this model, it developed differently in France and Italy. The differentiation is of practical importance and particularly to what concerns bottled water. Hence, it is necessary to look at the two different developments of the regimes to observe how they embody the model – and are trapped in the question of property – and how their differentiation determines two similar and, yet, concretely diverse regimes on bottled water.

2.3.2 *The French model*

The current French discipline governing water relies on the distinction between public and private water bodies. As said, it derives from the Roman distinction of waters dependent on their suitability to serve the public utility. Throughout the development of the French discipline, the distinction moved from the Roman criterion to adopt the one of navigability proper of the German tradition. Therefore, water resources within the French territory are subjected to two different regimes – of private or public property – depending on the suitability of the water body to be used for navigation. The criterion of navigability indirectly serves the purpose of identifying those water bodies that, because of their perennial flow and their suitability to be used for transport, are deemed of public interest.⁵⁴

The public-private dichotomy is the result of the structural constraint of water into the property paradigm. In fact, what the distinction identifies are different situations of ownership on water. The French legal regime, not differently from the other European regimes described, constructs the architecture of water government drawing on the categories of property. Construction that derives the features of a specific water body from its relation to an entity: the public (*i.e.* the state or the territorial entities), or the private landowner. In other words, the use of the navigability criterion is functional to the attribution of the property of the natural resource to someone.

However, the French system does not formally admit any form of public or private property on water itself. According to the interpretation given to Article 714 of the French civil code, water is something that does

54. LATOURNERIE, *Point de Vue Sur Le Domaine Public*, 11 s.

not belong to anybody and it is to be used in common.⁵⁵ In fact, among the *choses* that the Article 714 refers to is pacifically included water, that has never ceased to be considered, at least formally, by the French legal system a *chose commune*. Article 714 is itself a transposition of Marciano's description of the concept *res communes omnium* elaborated in Roman law.⁵⁶

The incompatibility of the conceptualisations of water as a *res communis* and as an object of property is overcome in the French discipline through an elaboration that distinguishes the water body conceived as a whole (*i.e.* a source, a lake, or a stream) from water itself. According to this elaboration, water cannot form the object of property but is a *res communis* pursuant to Article 714 of the civil code. At the same time, the water body conceived in its entirety is subjected to the institution of property and, consequently, belongs to the public domain or is the object of private property. This configuration has been reaffirmed by the *Code de l'environnement* that expressly qualifies water as a common patrimony of the nation.⁵⁷

The public domain extends on all water bodies that present a socio-economic utility of public interest. It is distributed between the state and the local authorities, which own all water bodies of interest for navigation, agriculture, industry, community supply, etc. The inclusion in the public domain is done through an administrative act pursuant to the law of 1964⁵⁸ and can have different forms: voluntary (purchase or exchange), coercive (through acts of nationalisation, expropriation, or pre-emption), or for free of charge (in the events of donation or succession, etc.).

Private water bodies, on the other hand, are not defined in the French regime and constitute a category regrouping all waters that are not expressly declared public. This categorisation has the effect of subjecting waters that are not deemed of public interest to the regime of private property. However, since the discipline provides for a regime of private or public

55. Art. 714 of the French civil code; for a more extensive account on the application of art. 714 see F. DUHAUTOY, *L'accès à l'eau, Droit de l'homme Ou Loi Du Marché?*, Johanet, 2015.

56. On the notion of *res communes* as provided by Marciano see L. DE GIOVANNI, *Giuristi severiani. Elio Marciano*, Napoli, 1989.

57. Art. L210-1 of the *Code de l'environnement* states that "l'eau fait partie du patrimoine commun de la nation. Sa protection, sa mise en valeur et le développement de la ressource utilisable, dans le respect des équilibres naturels, sont d'intérêt général."

58. Art. 2111-12 of the Code General de la Propriété des Personnes Publiques – CGPPP (JO du 22/04/2006).

property of the water body but not of water itself, what does the distinction in the property regime implies?

With regards to waters subjected to the regime of public property, the ownership of water is with the state or the local authority which holds all the prerogatives on the resource. Nonetheless, the private use of public water is allowed through a system of authorisations, given by the competent authority, permitting a specific use of the water body in return of a fee (*redevance*) to be paid for the private use of the *res communis*. On the other hand, the category of private waters – or, as the formal qualification states, non-public waters – regroups a number of water bodies of different nature that are disciplined by the law in somewhat different fashion. However, they all share the common feature of being a property of the private landowner. If the water body is subjected to a regime of private property, water itself cannot be the object of private appropriation. In these cases, however, since water is enclosed in a private property, the owner is entitled to freely use the water, within the limits of the general interest. The limitations to the private use of the owner are the general limitations to the institution of property, for example the emulative acts or the public interest.⁵⁹

Thus, in the French legal system water cannot be appropriated but its exploitation is subjected to a regime of use rights. The uses are regulated according to their typology (e.g. household, agricultural, industrial, power production) identified by the law. However, the uses are inherently linked to the property structure of water bodies. In fact, if on public water the uses are granted with an authorisation, in return of a *redevance*, the use rights on private water appear to be prerogatives of the ownership of the water body.

The regime of water use for bottled water production relies on the general architecture of water uses and, yet, presents some peculiarity. The abstraction of water for the purpose of bottling is always subjected to a previous authorisation, which serves at the same time the function of a minimal pre-emptive control on the standards of exploitation and as the public act attributing the right to use the water body. Interesting is that water abstraction for bottling can occur on both public and private water bodies and, yet, the authorisation is a prerequisite in both cases. Hence, even in the situation in which the owner of the private water body wants to start a bottling activity, she has to receive a previous authorisation from the

59. In fact, to this situation apply the general limits imposed on property by the French civil code, art. 544 s.

competent authority. This rule was first introduced with the *ordonnance* of the 18 June 1823⁶⁰ to prevent illegitimate and excessive proliferation of excessive water bottling. However, the existence of a previous authorisation also serves the function of attributing the right to use water and legitimises the bottling activity.

Thus, if on the one hand bottled water appears restricted by its subjection to a stricter regime requiring a previous authorisation, on the other hand it may be declared of public interest. Indeed, the French regime provides for the possibility to recognise the use of a water body for bottling purposes of public interest. Such a declaration implies the prohibition of any other use of the resource, with the effect of guaranteeing the exclusive use of water to the bottler. Thus, it results paradoxically that when a water body is subjected to the legal regime regulating bottled water production two things happen simultaneously: 1) the water body is accorded special protection aimed at protecting the public interest; 2) water is subjected to a regime of exclusive exploitation accorded to the bottler, regime that, in terms of operative rules, looks very much like private property.⁶¹ However, this similarity is, at least formally, excluded by the qualification of water given by Article 714 of the civil code.

2.3.3 *The Italian model*

The events of the French revolution influenced the Italian model of water government as well. The discipline on water introduced in France with the *code Napoleon* was translated into the post-Unitarian Italian civil code of 1865. Thus, following the French model of ownership, water bodies are either public or private depending on whether they satisfy the criterion of navigability (*i.e.* of public interest). Similarly to the French regime, from the ownership of the water bodies does not automatically descend a regime of private or public property on water itself. In fact, in this system flowing waters cannot be the object of property because they are qualified as *res communis*.

In this regime, private uses requiring small quantities of water – such as drinking, sanitation, or washing – were permitted and free for anyone

60. *Ordonnance du 18 juin 1823 portant règlement sur la police des eaux minérales.*

61. On the procedure and implications of the *declaration d'intérêt public* see articles R. 1322-17 et R. 1322-23 of the *Code de la santé publique*, and in particular the *Arrêté* of the 26 February 2007 *relatif à la constitution des dossiers de demande de déclaration d'intérêt public d'une source d'eau minérale naturelle, d'assignation d'un périmètre de protection et de travaux dans le périmètre de protection.*

on both private and public waters. The regime was progressively changed with the intention of reducing the general and free use of water in favour of productive uses, economically valued more efficient.⁶² The progressive expansion of the category of public water, backed by the judiciary, was combined with the introduction of a mechanism of concessions for the private uses of water. The concession was introduced to accord the public authority a double function: evaluate the compatibility of the use, object of the concession, with the public and general use of the water body; decide on the allocation of water to specific uses to control the efficiency of the exploitation of the resource. With the advent of productive uses of the resource, the new qualification of water as a limited and rivalrous good gained momentum at the expenses of the roman qualification of *res communis*. Water was from now on a scarce resource that could be used only in force of a concession granted by the public authority for a limited time and in return of a fee, meant to compensate the public for the economic loss.⁶³

The Italian legislator in the process of expansion of the category of public waters tried to avoid the elaboration of a definition of those waters. However, with the legislative reform of 1916 a definition appeared necessary.⁶⁴ The legislative decree remained vague and sidestepped the qualificatory process by declaring public waters all those water bodies included in public lists. Therefore, the qualification of a water body as public was dependent on its inclusion in the list; inclusion operated by the public authority evaluating a non-specified public interest. The criterion for qualify waters as public was introduced by technical regulation that followed the law of 1916⁶⁵ and put in place a mechanism that raised some reaction. In fact, the law of 1916 would recognise a water body as public

62. O. RANELLETTI, *Concetto, natura e limiti del demanio pubblico. Capitolo II: i beni demaniali nel nostro diritto positivo*, in *Giurisprudenza italiana* (1898), IV, 141.

63. L. GABBIOLI, *Le nuove disposizioni sulle derivazioni di acque pubbliche*, Torino: UTET, 1917: 7.

64. D. Lgt. 20 November 1916, n. 1664, identified the attitude of water resources to be used or destined to the public interest as the criterion for their qualification. The criterion is further detailed in the *Regolamento tecnico e di procedura dinanzi al tribunale delle acque pubbliche* 24 January 1917, n. 85, art. 1.

65. *Regolamento tecnico e di procedura dinanzi al tribunale delle acque pubbliche*, 24 January 1917, n. 85 which stated: "alla iscrizione in elenco si procede considerando le acque tanto isolatamente tanto per la loro portata o per l'ampiezza del bacino imbrifero, quanto in relazione al sistema idrografico al quale appartengono, tenuto conto dell'attitudine ad essere utilizzate o comunque destinate a qualsiasi uso di pubblico interesse."

if included in the list predisposed by the regulation. The main criticism on this mechanism has been that water bodies would change regime and owner in force of a simple administrative act, and not in force of a law. Against this criticism was observed that the inclusion into the list was a mere declarative act of the public administration, but that what mattered was the potential suitability of the resource to serve the public interest identified in general and abstract terms by the law. Indeed, the inscription of a water body into the list constitutes a different act with respect to the act of destination of waters to the public domain. The act of destination is the law that declared waters public domain of the state. According to this reconstruction, the act of inscription of water in the list is a mere declarative act following the will expressed by the legislator in the law.⁶⁶ In this sense, the change of regime of water takes place at the moment of the inscription, but with an effect *ex tunc*.⁶⁷

This construction of the public domain of waters raised another criticism. The qualification of water bodies as public, and the related transfer from the private to the public domain, was opposed by former private water owners claiming for a right to be compensated for the economic loss suffered. However, the Royal decree of 11 December 1922, n. 1775, provided for an original reserve of waters vested of a public interest into the public domain. Therefore, no compensation was compatible with the legal provision, but for the former private owners was possible to receive a concession for the use of the resource compatible with its public destination.⁶⁸

Thus, the complex property regime resulting from the numerous legislative interventions found a systematisation in the civil code of 1942 that predisposed two categories of public domain: ‘necessary’ for rivers, torrents, lakes and other waters included in this category by specific laws, and ‘possible’ for those waters that are public only if they are actually owned by the state. The system elaborated in the article 822 of the civil code left out underground waters that remained subjected to the general property regime, according to which the property of the land extends to

66. See O. RANELLETTI, “Della formazione e cessazione della demanialità, in *Giurisprudenza italiana*, 1899, IV, 11 s.

67. See *Tribunale Superiore delle acque*, 11 May 1965, n. 10 in *Consiglio di Stato*, 1965, II, 241; Id. 29 January 1940, n. 343, in *Diritto dei beni pubblici*, 1940, 299; G. ZANOBINI, *Corso di diritto amministrativo*, vol. IV, Milano: Giuffrè, 1958.

68. Art. 3 Royal decree 11 December 1933, n. 1775; see V. CERULLI IRELLI, *Acque pubbliche* in *Enciclopedia del diritto*, vol. I, Roma: Treccani, 1988: 8 s.

all that there is underneath, water included. Such exclusion was due to the little use that was done of underground waters. The technical and technological tools available at the time did not enable a significant economic exploitation of those waters.

The situation changed in 1994 when, due to an increased exploitation of water resources, both surface and underground, all water bodies were declared public, with the only exception of rainwaters. Thus, all water bodies became part of the public (necessary) domain of the state pursuant to art. 822 of the civil code, after the reform of 1994.⁶⁹ Mineral waters constitute a particular typology of water subjected to a differentiated treatment. These waters, originally property of the state, were transferred to regions and included in their indisposable patrimony.⁷⁰

Mineral waters represent the primary type of waters used for bottling activities in Italy. Interesting is that a water body, once recognised by an administrative act as a mineral water, change regime and is subjected to the discipline of mineral waters built upon the system of mining concessions. Hence, pursuant to the special regime the regional (or local) authority⁷¹ grant the concession to exploit a specific source. Being the act of the public authority a concession, what the region concedes is not the property of the water body, but the right to use the resource within the modal and time limits prescribed in the act of concession. This institution is, indeed, directed at enabling the private use of a public 'thing' when such use is prodromal to the public interest, and provided that the economic loss suffered by the public is compensated with a fee corresponded by the concessionaire.

This mechanism is structured on the separation of the *dominium utilis* on water, which is transferred temporarily to the bottler, from the *dominium eminens* that remains a prerogative of the public authority. This separation appears a heritage of the feudal system where separation on the dominion between the emperor and the local lords was the norm. Similarly to France and the UK, the Italian system structures water government around the institution of property. However, unlike the other two regimes, there is no distinction between the property of the water

69. Art. 4, Law 5 January 1994, n. 36.

70. Art. 11, Law 16 May 1970, n. 281.

71. With the constitutional law of 2001, n. 3, which reform of the *Titolo V* of the *costituzione italiana*, natural mineral waters have been transferred to the patrimony of regions, which can in turn delegate the power of administration to local authorities (provinces or municipalities).

body and water itself. Thus, in the Italian system the resource is an object of property. The utilities deriving from its use are allocated by the owner through a separation of *dominium utilis* that is accorded to the user.

3. *From the link to landownership to the modern use rights*

The continental systems, regrouped under the ownership model, and the non-ownership model of the common law tradition just described present some differences as well as quite significant similarities. In fact, if they are constructed upon radically different property arrangements, they all provide for a control of the public authority over water exploitation that, at least with regard to bottled water production, is always subjected to a formal act of the public power. Moreover, both the ownership models and the non-ownership one have a regime developed around the concept of property, with a tight link to land-ownership. This section first shows the relation between access to water and land-ownership. It then presents the problems and limits of this relation, and how the use rights progressively became independent from property regimes on water.

3.1 *Land based construction of water prerogatives*

The previous section pointed out the different architectures of the legal regimes governing water resources in the UK, France, and Italy. A fundamental difference lies right at the basis of these systems. It is the subjection of water to property rules. In the UK legal system, water bodies cannot be object of property. Ownership applies only in the case a specific quantity of water is captured. In that event, the person who separated a bulk from the water body can claim ownership over that bulk, but has no similar claim over the water body itself.⁷² This configuration can be found in John Locke's Second Treatise of Government where he points out that "Though the Water running in the Fountain be every ones, yet who can doubt, but that in the Pitcher is his only who drew it out? His labour hath taken it out of the hands of Nature, where it was common, and belong'd equally to all her Children, and hath thereby appropriated it to himself. . ." ⁷³

72. GETZLER, *A History of Water Rights at Common Law*, 268 s.

73. J. LOCKE, *Second Treatise of Government*, in *Two Treatise of Government*, ed. by P. Laslett, Cambridge: Cambridge University Press, 1960: 331.

On the contrary, the French legal regime specifies in article 714 of the civil code that water in itself cannot be appropriated. Being a *res communis*, water in France, even when captured, does not form an object of exclusive ownership as it happens in the UK system. However, in some cases ownership can be claimed over the water body. It appears that the two systems are constructed in a sort of mirrored fashion: If the water body is not appropriable in the UK, it can be publicly or privately owned in France. On the other hand, the resource itself becomes private property when captured in the British system, whereas in France water capture does not entail any proprietary claim. The Italian system formally differentiates itself from this mirroring because water resources are public property. Therefore, water capture in this system does not imply appropriation, but only a use of a public good authorised by the state. As mentioned before, this is the situation after the legislative reform of 1994⁷⁴ that declared all waters public property, and consequently erased any proprietary claim on water by privates.

However, all these three legal regimes share a common feature. Their construction of the property arrangements allocating water prerogatives is linked in one way or another to land-ownership. This commonality has been a strong feature for a long time in the history of these regimes. The system of the English common law considered for a long time water a chattel of the land. Rights on water constituted a subsidiary component of land tenure rights.⁷⁵ In fact, “nineteenth-century courts commonly described water rights as naturally connected to land or a concomitant of ownership of riparian land, in the sense that ownership or occupation of abutting land was both necessary and sufficient to afford a right to appropriate the benefit of a running stream.”⁷⁶ The link to land-ownership even more evident with regard to underground water that, according to the common law rule on property, constitutes part of the property of the landowner when such underground water body is contained within the

74. Art. 1 of the Legge of the 5 January 1994, n. 36, *Disposizioni in materia di risorse idriche*, states that all surface or underground water resources, also those not yet extracted from the underground, are public and constitute a resource to be safeguarded and used in accordance with the principle of solidarity.

75. See S. HODGSON, *Land and Water - the Rights Interface*, FAO Legislative Study 84, Rome: Food and Agriculture Organization of the United Nations, 2004.

76. Getzler reports also that Lord Blackburn noted that the modern natural-right doctrine ‘can hardly be considered as settled law in England before the case of *Mason v. Hill* in 1833’: *Orr Ewing v. Colquhoun* (1877) 2 App. Cas. 839, 854 (H.L.(Sc.)), see GETZLER, *A History of Water Rights at Common Law*.

horizontal boundaries of the property. In this case, the landowner is entitled to freely use and dispose of the water. The link to land is extended also with regards to the powers of the landowner who can use water within the limits imposed on landownership: the infliction of damages derived from a malicious or futile use of the resource.⁷⁷

Similarly, the French and the Italian systems, in their first development from the Roman model, linked water rights to landownership. Apart from public waters that were subjected to a regime of public law regulating water uses, rights on non-public waters were based on property of riparian or abutting lands. Very much like in the system prescribed by the common law on property, underground water bodies contained within the horizontal limits of a private land constituted a chattel of the land object of property. Such a system was enshrined in the Code Napoleon where in article 552 was adopted the Roman law conception of land ownership extending *usque ad sidera, usque ad inferos*.⁷⁸ Before the introduction of the civil code more complex disciplines of water resources existed, along with property regimes of mines and forests deriving from the feudal system. However, with the French revolution new instances brought about by the bourgeois class, struggling to free the land from the numerous and sometimes personal servitudes and royalties accumulated since the Middle Ages, determined the imposition of the monolithic conception of property enshrined, then, in the code Napoleon.⁷⁹ Direct consequence of this transformation was the exclusion of those alternative forms of property from the civil code if not from the legal sphere itself. Water was no exception to this and was, at least initially, captured by the monolithic property.⁸⁰

3.2 *Issues derived from the link to landownership and the introduction of use rights*

The subjection of water resources to the property regimes on land, as an ancillary chattel of the soil, is somewhat problematic. Water is a

77. This arrangement found one of its last application in the *Acton v. Blundell* case in which the principle of *sic utere tuo ut alienum non laedas* was not applied to the use of underground waters interesting multiple landowners.

78. The *dominium ex iure quiritium* translated into the Code Napoleon limited the horizontal boundaries of landownership to the physical delimitation of the soil object of property, while extending property vertically almost infinitely.

79. See A. GAMBARO, *La Proprietà*, in G. IUDICA - P. ZATTI (eds.), *Trattato Di Diritto Privato*, Milano: Giuffrè, 2017: 46.

80. See ID., *Proprietà privata e disciplina urbanistica*, Modena: Zanichelli, 1977: 8 ss.

flowing resource that can hardly be contained. Most of human relations with water consist in a use of the resource that, in a way or another, soon or later, returns to the ecosystem to continue the hydrological cycle. Unlike land, water hardly ever is permanently located in one place but follows cycles in which the phases between the precipitation on the soil (rain or similar) and the flow into the sea are interested by human exploitation. Appropriation is almost always temporary as the water captured, once it served the human purpose, returns into the cycle. That is why water appropriation very often coincides with the content of a use right.

Another problematic aspect descending from the flowing nature of water is that it is a shared resource. Water bodies hardly ever coincide with the horizontal boundaries of land ownership. Even when they do, water bodies are interconnected. Hence, the exploitation of an underground source or a lake may affect the conditions of a river or a spring. Moreover, in the West, water diverted for irrigation purposes has an average return flow amounting to 50%, making one user's return flow the source of supply for another.⁸¹

Given these two characteristics – of flowing nature and being a shared resource – water results incompatible with the land-based institution of property. In particular, the 'exclusive possession,' which is a central prerogative of property, allows the landowner to keep others off her property. This right is reinforced in the common law through the institution of trespass,⁸² whereas it is protected in the continental systems through the *actiones petitoria* or *possessorias*.⁸³ The exclusive possession is not possible with a shared resource such as water. In fact, sharing the same drop of water or the same water body "is not the same thing as sharing land under the joint tenancy arrangements recognized by normal property law."⁸⁴

Technological development had two important consequences on water law. On the one hand, a deeper knowledge of underground water resources and courses developed, bringing about the interconnectedness of underground water bodies. On the other hand, the industrialisation

81. GA. GOULD, *Water rights transfer and third-party effects*, in *Land and Water Law Review*, 23, 1988, 1-41.

82. See, amongst many, HODGSON - NATIONS, *Modern Water Rights*; L.A. TECLAFF, *Water Law in Historical Perspective*, Buffalo, N.Y: William s Hein & Co, 1985.

83. See, amongst many, for the Italian system GAMBARO, *La Proprietà*; and U. MATTEI, *La Proprietà*, 2nd ed., *Trattato Di Diritto Civile*, Torino: UTET, 2015.

84. O.P. MATTHEWS, *Water Is Not 'Real' Property*, in *Water Resources Update* 85 (1991), 19.

determined a significant increase of water demand for steam engines and cooling plants. Such an increase of water use, made possible by the development of mechanic processes of abstraction, brought to the forefront the inadequacy of landownership-based regimes on water government. Hence, in all the three countries a system of use rights on water developed with the purpose of separating water access from landownership.

3.2.1 *The common law development*

In the UK, nineteenth-century courts commonly described water rights as naturally connected to land or a concomitant of ownership of riparian land, in the sense that “ownership or occupation of abutting land was both necessary and sufficient to afford a right to appropriate the benefit of a running stream.”⁸⁵ However, the multiplication of industrial and urban uses brought to the separation of water enjoyment from the neighbouring land. Water was indeed separated from the incidents of landownership like light or air. This new configuration led to a multiplication of legitimate users that triggered a sensible increase of conflicts over appropriation of finite available water. The courts reacted to this situation by adhering to, as Getzler describes it, a “natural incident theory of riparian rights, based on a discretionary standard of reasonable usage of natural flow, which limited the class of legitimate users to riverbank owners and balanced the requirements of competing users.”⁸⁶

The emergence of this position was long and troublesome; multiple theories found application in British courts until the first half of the 19th century.⁸⁷ In this period courts deployed at least four different theories on water use. First, the ‘prior appropriation doctrine’ was the more recent and often simplified by judicial application.⁸⁸ This theory, based on the principle *prior in tempore potior in iure*, accorded the prevalence to the litigant who started to use (and appropriate) water first in time.⁸⁹ The second theory was the ‘natural rights doctrine’ derived from Roman law. This theory recognised a natural right to appropriate water to riparian

85. GETZLER, *A History of Water Rights at Common Law*, 44-45.

86. *Ibid.*

87. According to Lord Blackburn the modern natural-right doctrine ‘can hardly be considered as settled law in England before the case of *Mason v. Hill* in 1833’: *Orr Ewing v. Colquhoun* (1877) 2 App. Cas. 839, 854 (H.L.(Sc.)).

88. GETZLER, *A History of Water Rights at Common Law*, 204.

89. See, *among others*, *William v. Morland* (1824) 2 B. & C. 910; 107 E.R. 620 (K.B.) and *Liggins v. Inge* (1831) 7 Bing. 682; 131 E.R. 263.

landowners as intrinsic content of their property right on land.⁹⁰ Third theory that found application was the 'prescriptive theory' legitimising and granting protection only to water uses of unmemorable duration or, alternatively, legitimised by an express and specific title. This theory applied to all the water uses exceeding the natural rights of riparian landowners or the use rights commons to the members of local communities. Finally, the most ancient 'riparian rights doctrine' allocating use rights on water to riparian landowners. This doctrine – based on the natural flow theory – presumed water abundance and allowed riparian landowners to use and divert water with the only limit of preserving the natural flow of the water course.⁹¹ This doctrine turned out to be inadequate to deal with the limited availability of water resources and the increasing demand for both industrial and urban uses. The limited availability of water made evident that the use by one riparian landowner inevitably affects water access for the others.

Against this new backdrop developed in the British system a theory of the reasonable use elaborated in the United States. This theory takes into consideration the limitedness of water and grants to each riparian landowner the right to use water in a 'reasonable' way; the amount of water that can be used by the right holder related to the overall water availability, regardless of the extension of the land owned. Until the last decades of the 19th century, water rights accorded to riparian landowners were inalienable. Influenced by the continental experience enshrined in the code Napoleon,⁹² water rights were conceived as deriving from the landownership itself. This new theory – called by some authors 'modern riparian doctrine'⁹³ – limited the use of water exceeding the domestic use

90. The natural rights doctrine was later rejected in *Mason v. Hill* (1833) 5 B. and Ad. 1; 110 E.R. 692 (K.B.) and stated that water is not a *res nullius* susceptible of appropriation, but a public or common good insofar as everybody can use it for essential needs and nobody is entitled to divert the watercourse in such a way that deprive other riparian landowners of their use rights.

91. The preservation of the natural flow of the water course is to be measured both in terms of water quality and quantity. See T.E. LAUER, *The Common Background of the Riparian Doctrine*, in *Missouri Law Review*, no. 28 (1963): 81; CASALINI, *Fondamenti per Un Diritto Delle Acque Dolci*, 138 s.

92. The link to landownership of the English common law that conceives water rights as prerogatives of property constitute a share element with the French model; in the decision of the Privy Council in *Miner v. Gilmour* (1858) 12 Moo. P.C. 131; 14 E.R. 861 (P.C.) Lord Kingsdown expressly notices that the riparian doctrine of the English common law is not distinct from the architecture of the regime provided for in the French civil code.

93. GETZLER, *A History of Water Rights at Common Law*, 275.

(personal, hygienic, for the cattle, and more generally household uses) in a way not to impede other contextual uses.

At the end of 19th century English courts begin to admit the alienability of the water rights of the riparian landowner, provided that no unreasonable harm is inflicted to other users.⁹⁴ This new possibility for non-owners to use water gave birth to the so-called water markets that first started in the United States. This move had the effect of unlocking the rigid system of land related water rights that made water available for non-owners, providing for a more efficient allocation of water resources which were before trapped by the landed aristocracy. Since then, water lost its strong tight with landownership at the benefit of efficiency.⁹⁵

The combination of the riparian rights doctrine with the reasonable use did not provide a solution to the difficulties of determining the limits of the 'reasonable' use. It had to be determined on case-by-case basis by the judicial power. Such an arrangement turned out to be inadequate and required the intervention of the Parliament that, with the emission of thousands of statutes or private bills, allocated exclusive rights on water use. This system translated into the Water Resources Act of 1963, which subjected water use to a previous grant of a license. Pursuant to the Act, water diversion or abstraction is prohibited without a previous license, unless it is used by riparian landowners for domestic use or less than 1000 gallons.⁹⁶ This system improved efficiency in water allocation. However, the increase of efficiency did not imply an improved equality in access to water. Indeed, water rights are still derived from riparianism and access to water is made available only through the purchase (or compensation) of use rights from the riparian landowner; still diversifying the initial positions of landowners and non-owners who are allocated different water rights.

3.2.2 *The development of the continental models*

In the continental legal systems of Italy and France the discipline governing water exploitation was marked, as mentioned before, by the events of the French revolution. In both systems the resurgence of the institution

94. See *Ormerod v. Todmorton Mill Company* (1883) 11 Q.B.D. 155 (Q.B.); *Kensit v. Great Eastern Railway* (1884) 27 Ch.D. 122 (C.A.); *Owen v. Davies* (1878) 10 Ch.D. 707 (Ch.); *Pennington v. Bishop Hall Company* (1875) 5 Ch. D. 769 (Ch.); *Bunting v. Hicks* (1894) 70 L.T. 455 (C.A.); *Roberts v. Gwyfrai District Council* (1899) 2 Ch. 608 (C.A.).

95. See GETZLER, *A History of Water Rights at Common Law*,

96. Water Resources Act (1963), § 23-24.

of property determined a reconfiguration of water regulatory regimes. With the intent to get rid of the feudal past that saw the multiplication of royalties burdening land and water, the system was revolutionised by the affirmation of absolute property, soon after included in the Napoleonic codification of private law.⁹⁷

This landmark brought on the one hand to the exclusion of the water discipline from the codification process⁹⁸ and, on the other hand, to the subjection of water to land property regime. Indeed, in this new legal architecture, water bodies fell under the regimes of either public or private ownerships. Such a system presented a strong link to landownership especially with regard to private water bodies, but public ones were not immune.

France

Private water bodies included within the boundaries of private land (such as springs or underground basins) constituted a chattel of landownership pursuant to art. 552 of the code Napoleon.⁹⁹ In these cases the landowner was free to exploit the water body at her will. In the case of private flowing waters, the riparian landowner or the owner of a water source springing from her land can use the water and divert the watercourse provided that water prerogatives of lower riparian landowners are preserved.¹⁰⁰ Moreover, the landowner cannot divert the water flow when it supplies the inhabitants of a commune, village, or hamlet, with water for their necessary use.¹⁰¹ These constitute the only limits to water prerogatives allocated by the property system to landowners. It is apparent how access to private water was almost entirely a prerogative of those who owned the land to which water rights were attached.

97. See art. 544, *Code Napoleon* of 1804, which states that “property is the right of enjoying and disposing of things in the most absolute manner, provided they are not used in a way prohibited by the laws or statutes.” A similar ‘revolution’ of property has been observed with the advent of the industrial revolution during which property was hailed as the basis of liberty, see amongst others C.A. REICH, *The New Property*, in *The Yale Law Journal* 73, no. 5 (April 1964): 733-87; F. PHILBRICK, *Changing Conceptions of Property in Law*, in *University of Pennsylvania Law Review* 86, no. 7 (May 1, 1938): 691.

98. See A. GAMBARO, *Proprietà privata e disciplina urbanistica*, Zanichelli, 1977: 15.

99. See P. BONFANTE, *Il regime delle acque dal diritto romano al diritto odierno*, A. Sampaolesi, 1925: 253; E. COSTA, *Le acque nel diritto romano*, Zanichelli, 1919: 11.

100. Art. 640, *Code Napoleon* of 1804.

101. Art. 648, *ibid.*

Public water bodies were, on the other hand, property of the State, provided that water itself remains a collective (or common) good. These waters, which at the beginning represented only the navigable or floatable waters, could be used by privates and for private purposes, but only after an authorisation issued by the competent public authority.¹⁰² The authorisation was needed only for rivalrous uses, *i.e.* those uses requiring the abstraction or diversion of water from the resource body.

Notwithstanding the existence of public waters, private water bodies represented a main source for different uses. This system presented a structural problem that became impellent with the wave of industrialisation. Most of water uses were allocated according to landownership; the right to use water derived either from riparian rights attributed to the landowner or from the inclusion of the water source in the vertical property, granting almost absolute exploitation prerogatives to the proprietor. Such discipline, developed upon the Proudhonian conception of property,¹⁰³ codified the distinction between the *domaine public* – comprising goods open to general use, on which property prerogatives of the State were recessive to the collective use and incardinated on the principles of inalienability and imprescriptibility – and the *domaine privé* on which property rules applied without exceptions.¹⁰⁴

However, as it happened in the UK, with a process that started from the industrialisation and interested the entire 19th century, water use registered a significant increment that raised the issue of rivalry of uses between private water bodies to which the property regime was unable to provide solutions.¹⁰⁵ The increase of water demand triggered the need of a control of allocation of water rights taking into consideration both qualitative and quantitative issues. In fact, as Gambaro points out, if a water exploitation that does not alter water quality (such as for hydropower production) results in a temporary appropriation of the resource – that may be properly qualified as use – water exploitation altering water quality entails a

102. B. DROBENKO, *Introduction au droit de l'eau*, 1st ed., Paris: Éditions Johanet, 2014: 36-44.

103. P.-J.L. PROUDHON, *What Is Property?: An Inquiry into the Principle of Right and of Government*, Charleston, SC: Forgotten Books, 2008; F. LAURENT, *Principes de droit civil*, vol. 6, Paris: A. Durand et Pedone-Lauriel, 1878: 6 s.

104. DROBENKO, *Introduction au droit de l'eau*, 35 s; see also A. INGOLD, “Gouverner les eaux courantes en France au XIX^e siècle Administration, droits et savoirs, in *Annales. Histoire, Sciences Sociales* 66^e année, no. 1 (May 5, 2011): 69-80.

105. *Ibid*, 24 s.

(almost) permanent appropriation of the resource which cannot be used by others, at least until it has undergone a purification process.¹⁰⁶

Thus, throughout the late 19th and the first half of the 20th century the focus of water discipline moved from the property regime to the public control of uses. It was a twofold transition that aimed at limiting property prerogatives of landowners on private waters and absorbed an increasing number of water bodies under the *domaine public*. With regard to the first aspect, riparian landowners and those with a source or a basin enclosed in their property saw their prerogatives on ‘their’ water transformed in use rights subjected to the conditions dictated by the law.¹⁰⁷ The second limit to property prerogatives happened by way of expansion of the public domain on water resources as a means to exercise a public control over water allocation. This took place with the *Loi*¹⁰⁸ of 1964, which abandoned the criteria of navigability for the definition of hydrological public domain, which is today determined by an administrative act in force of different considerations on public interest.¹⁰⁹

Therefore, the French discipline on water, while maintaining a distinction between public and private water bodies, developed a system of control over and allocation of water rights through which use of the resource is regulated. This system is the one in force today that through a number of legislative measures including environmental considerations in water government transformed a system based on property regimes into a system of use rights governed by the public authority. The *loi* of 1964, establishing the principles for a public government of the resource based on equilibrium, protection, and taxation, and establishing controls on those exploiting activities susceptible of impacting water quality and ecosystems, was only the first step. Later on, the legislative intervention

106. See GAMBARO, *La Propriété*, 355 s.

107. This construction has always existed in the French system that considered, at least formally, water as a *res communis*. However, the formalistic distinction between the resource itself (a commons) and the water body as a whole (object of property regime) brought to a *de facto* appropriation of water resources according to the rules of property on land. At the end of the 19th century there have been attempts to reverse the process restating the nature of use right of the prerogative over water accorded to the landowner; see TC. 26 May 1894 S. 1896, 3, p. 34. art. L. 215-1 c. env. CAA Bordeaux 10 February 2005, Préfet de Tarn et Garonne, req. n° 00BX02386.

108. *Loi n° 64-1245 du 16 décembre 1964* on the regimes and distribution of water resources and for the fight against their pollution.

109. DROBENKO, *Introduction au droit de l'eau*, 25; see also Y. JEGOUZO, *Le Droit et La Gestion de l'eau En France: Organisation Administrative et Conciliation Des Usages*, 2 s.

is enriched by the *loi* of 1995¹¹⁰ including in considerations on the natural risks of exploiting activities, and with the reception of the Water Framework Directive in 2004.¹¹¹ The discipline of uses is updated by the so called “*lois Grenelle*”¹¹² elaborating a more ‘green’ approach to water exploitation. Important step has taken place in 2013 with the introduction of a progressive taxation of uses.¹¹³

Italy

The Italian legal regime spun-off the French model with the major landmark being the recognition of all water resources as public in 1994. Before this, water bodies were subjected to a public or private property regime developed along the same line of the French post-revolutionary system. That system presented similar issues related to access to water. The link of water rights to landownership accumulated water prerogatives and prevented both an equal and efficient distribution of the resource.

In order to enhance a more efficient allocation, Italy enlarged the category of public waters way before the French system. In order to face the demand for water needed for agricultural purposes, the civil code of 1865 sanctioned the introduction under the *demanio pubblico* of the main water bodies. The operation was not limited – like in France – to the navigable bodies, and this arguably determined a more advanced system of water government that was, at the time, relatively more advanced than the different solutions provided in other continental systems. Such a regime has indeed been indispensable for the development of the hydric agriculture, which represented a relatively evolved and florid system,¹¹⁴ which took place in France almost a century later.¹¹⁵

110. *Loi n° 95-105 du 2 février 1995* on the reinforcement of environmental protection, *Journal Officiel* of 3 February 1995.

111. *Loi n° 2004-338 du 21 avril 2004* transposing the Directive 2000/60/CE of the European Parliament and Council, cit.

112. *Loi n° 2009-967 du 3 août 2009* for the realisation of the “Grenelle” of the environment – *JO n° 0179* of 5 August 2009, *loi n° 2010-788 du 12 juillet 2010* on the national engagement for the environment – *JO n° 0160* of 13 July 2010.

113. *Loi n° 2013-312 du 15 avril 2013* for the energetic transition and on water taxation, *JO n° 0089* of 16 April 2013.

114. G.D. TIEPOLO, *Acque Demaniali, Pubbliche e Loro Concessione* (Milano: Monitore dei Tribunali, 1887), 6 s.

115. Such evolution happened in France with the introduction of the Code général de la propriété des personnes publiques (CGPPP): art. L2131-2 and s. and art. 2124-12.

The Italian system took a radical turn at the end of the 20th century, when with the reform of 1994 all water resources – both superficial and underground – were brought under the *demanio pubblico*, with the only exclusion of rainwater not yet flown into a natural or artificial water body.¹¹⁶ The transition of water resources into the public domain happened regardless of the actual or potential public interest attributed to the water body. The rationale is, indeed, that the interest is intrinsic in the resource which is in itself essential for the survival of the local community.¹¹⁷ This change of regime has been described as moving from a mere reserve of water destination, requiring an act of the public authority granting the use, to a generalised public reserve of the resource.¹¹⁸

The outcome of this reform has been a new regime of public property on water granting access to the resource in mainly two ways: a so-called general use for which water is used for the public or common good and is freely accessible or, in similar instances, is accessible through an authorisation; and uses for individual purposes which are subordinated to a concession system.

This new system produced further consequences. If, on the one hand, water was declared in itself a resource of public interest because of its indispensable role in the survival of the community, on the other hand the translation of all waters into the public sphere was constructed in a subjective way. Indeed, the public nature of water derives from the fact of it being property of the public (state or territorial authority). Logic that replaces and eliminates the relation with the objective characteristics of the resource. In this sense, water is now public because it is property of the public authority and not because it is suitable for serving the public interest.¹¹⁹

The relocation of water resources in the public domain concentrated the property, with all the correlated rights, in the public hands. This concentration solved, at least partially, the issue deriving from the relation between water rights and landownership, and put in place a system of use rights through which water can be accessed. Therefore, the Italian system as well moved from a system of water access based on landownership to

116. Art. 1, Law 5 January 1994, n° 36, Dispositions regarding water resources.

117. Ibid; see also d.P.R. 18 February 1999, n° 238, applying the law of 1994, n° 36.

118. M. TAMPONI, *Aspetti Privatistici Del Regime Delle Acque*, in *Rivista Di Diritto Agrario*, no. 3 (2001): 347 s.

119. See CASALINI, *Fondamenti per Un Diritto Delle Acque Dolci*, 68 s.

another that concentrates the property prerogatives in the hand of the public authority, which allocates rights to use water to privates.

4. *Use rights vis-à-vis bottled water: the systems of permits, uses, and the question of value appropriation*

The regimes governing water in the three legal systems have transitioned from a discipline allocating water prerogatives according to the rules of landownership to a more complex system of public control on the attribution of rights to use water. The case-by-case determination on the allocation of water rights by the public authority has been introduced for the purpose of having a control over the distribution of water prerogatives by taking into consideration the conditions of the hydric system and the availability of water resources as a whole. Such considerations were, in fact, difficult to introduce in a system of water rights allocation regulated by the various systematisations derived from the property-based regimes.

Therefore, without eliminating the underpinning regimes of property arrangements on water, each legal system introduced an administrative law instrument to provide the public with control of water exploitation. However, as it has been shown above, these instruments have been introduced along with a reconfiguration of the entire regimes of water rights that placed the right to use at the basis of legal arrangements of water exploitation. On the one hand, in the common law system the regime of 'modern riparian rights' has been integrated, and reconfigured, by the system of licenses needed for water abstraction.¹²⁰ On the other hand, "the civil law's distinction between public and private waters has often ceased to exist in practice, with state approval being required for use of private waters as well as public."¹²¹

These reconfigurations brought to the forefront the category of 'use.' Indeed, all the three legal systems introduced a regime of permits¹²² meant

120. S. HODGSON - FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, *Modern Water Rights: Theory and Practice*, Food & Agriculture Org., 2006; GETZLER, *A History of Water Rights at Common Law*.

121. SCHORR, *Water Rights*, 282; CAPONERA - NANNI, *Principles of Water Law and Administration*.

122. The term 'permit' is used here with a generic meaning in order to regroup the different legal instruments adopted in the three countries observed. In Italy the system is based on the instrument of concession, the UK adopted a system of licenses, whereas France relies on the instrument of authorisation. The use of different legal instruments to govern water

to govern the allocation of water prerogatives amongst the different users. What the permits allocate are rights to use the resource for various purposes specified thereof. The regimes of permit vary in the legal systems investigated by this work, and the act with which the public authority attributes the right to use the resource to privates may take the forms of license, authorisation, or concession.

Thus, the legal regimes are based on an architecture relying on the property paradigm, but ultimately provide for a system of access to water organised on use rights. If it has been shown that water is either public property, common property of the nation, or in the common law conception a *res communis* not subjected to property, access to the resource is granted by the public authority responsible of governing water allocation. The aim and effect of this architecture is to separate ownership of the resource to access thereof; water users receive with the permit a right to use water for a specified purpose.

As it will be shown more in detail, the permit transfers – in a particular way depending on the system – a ‘use right’ to privates for the exploitation of the resource. The use right is separated from the bundle of property rights and attributed temporarily to the permit holder, who is entitled of the *ius utendi*. Therefore, the recipient of the permit is entitled with the *usus* as opposed to the proprietor’s position¹²³ that entails also the *usufructus* along with the right to the (limited and contested) right to abuse and, more importantly, to dispose of water. The right to use attributed to the recipient of the permit allocates to the right holder the exclusive use of water for the time granted by the public authority. Such a right attributes to the recipient the *usus*, *i.e.* the power to appropriate the use value of water.¹²⁴

distribution is determined by the overall configuration of the discipline and, in particular, by the property regime applied to water (more on this *infra*). The generic use of this term is borrowed by CAPONERA - NANNI, *Principles of Water Law and Administration*, 133 s.

123. As explained by Caponera: “the concept of ownership should not be confused with that of right of use. Ownership includes the right to use, but the contrary is not true. Ownership gives the right to alienate a property through sale, donation, transfer, inheritance, or to constitute different rights on the same, whatever their nature, at the discretion of the owner. It derives from the Roman concept according to which one had the right to use (and abuse of) his property (*ius utendi et abutendi*).” CAPONERA - NANNI, 137; see also S. HODGSON, *Land and Water - the Rights Interface*, FAO Legislative Study 84, Rome: Food and Agriculture Organization of the United Nations, 2004.

124. On the definitions of and differentiation between ‘use value’ and ‘exchange value,’ and the process of commodification implicated, see K. MARX, *Capital, A Critique of Political Economy by Karl Marx*, ed. E. Mandel, trans. B. Fowkes, Penguin, 2004, chapter 1.

Access to water and its exploitation is based in all the three systems under analysis on the attribution of prerogative to appropriate the use value of the resource. This is true for all water uses. Both small and general uses – such as the domestic ones – and the more water-demanding and idiosyncratic uses – agriculture, power production, etc. – allocate to the right holder the power to use the resource. Hence, not the power to dispose of the resource by, for instance, transforming water into a marketable good. In fact, the legal mechanism entitling to the appropriation of the exchange value is the right to dispose, which enables the right holder to put in place processes of value extraction through the power to retain or alienate the good. This is an exclusive prerogative of ownership that, however, is not part of the prerogatives attributed by the use right, which only entitles to the appropriation of use value.

4.1 *The systems of permit*

The systems of permits developed in the three legal systems provide for a transfer of the right to use water to privates allowing them to utilise the resource for particular purposes within the limits and at the conditions specified by the permit. Indeed, the act with which the public authority attributes the water right determines: the conditions for the exploitation, the duration of such right, and the fee that the user has to pay in return of the grant of the permit.

There are a number of conditions that may apply to a permit. These consist in obligations, limitations, or other restrictions restraining the water use depending on the importance of the exploitation. Such conditions may be of technical, financial, or other natures and may include: modalities of use, protection of the rights of third parties, volume of water to be taken and timing of use, the quality to be maintained, specification and standards for construction works, obligation to recycle effluents or reuse wastewater, drainage and waste treatment or disposal requirements, the circumstances under which permits may be suspended, forfeited or cancelled by the granting authority, the penalties for improper use, and the powers of the water administration to intervene. The conditions placed upon the permit take into account also environmental considerations such as the embankment protection, prevention of soil erosion, pollution control, sedimentation, the maintenance of minimum flows.¹²⁵

125. CAPONERA - NANNI, *Principles of Water Law and Administration*, 143.

The limited duration of the permit is a fundamental principle in both the continental and the common law systems. The precariousness on the permit, in the continental systems based on the public nature of water, is a necessary consequence of the inalienability of the resource as well as of the fact that the exclusive use granted by the permit needs to be compatible with the public (or common) destination of water.¹²⁶ In the common law system, where water ownership is attributed neither to the public nor to the private exploiters, the precariousness of the permit is consequence of the public planning of water uses; a centralised programming of water allocation that is periodically revised according to the mutated needs, and therefore requires some level of flexibility of the permit system.¹²⁷

Water use permits entail the payment of a fee. This is one of the principal obligations of the user both in the case of a license, a concession, or an authorisation. The rationale of the fee is twofold: it serves as the payment for the exploitation of the resource, which is destined by the permit to an idiosyncratic use; and it constitutes a compensation to the community for the subtraction of water available for the general use.¹²⁸ The structure for the calculation for the fee generally reflects the public interests that the permit is meant to protect; the fee is supposed to recover the economic value of the utilities attributed by the permit to the user and compensate for the negative externalities (environmental and social) produced by the idiosyncratic use. The calculation of the fee is particularly difficult in the case of water uses because the evaluation of the fee is not constructed upon the internalisation of externalities in the Coasian understanding,¹²⁹ but in the compensation of the use value of the resource that the community is deprived of.¹³⁰

126. C. GUETTIER, *Droit administratif des biens*, Thémis-droit (PUF, 2008), 155 s; Y. GAUDEMET, *Traité de droit administratif*, vol. 2, Paris: LGDJ, 2008: 274 s; see also art. 3111-1, CGPPP.

127. See the (English) Water Resources Act of 1963, §30(1) and (5); A.S. WISDOM, *The Law of Rivers and Watercourses*, 4th ed., London: Shaw & Sons, 1979.

128. For instance, in France art. L2125-3 of the CGPPP states that the fee for the use of resources of the public domain takes into account the utilities of any nature deriving to the recipient of the authorisation; *Conseil d'État*, 10 February 1978, n. 7652, *Ministre de l'Économie et des finances c. Scudier*; TERNEYRE ET AL., *Droit administratif des biens*.

129. According to Coase, and his economic analysis of law, the compensation is serves to 'internalise' in the exchange value the negative externalities that the idiosyncratic enjoyment of the good cause to third parties, R.H. COASE, *The Problem of Social Cost*, in *The Journal of Law & Economics* 3 (1960): 1 s.

130. In this sense, Smith maintains that some externalities are difficult to calculate because they are actually not exchange value but use value, S. SMITH, *Environmental Economics: A Very Short Introduction*, Oxford; New York: Oxford University Press, 2011: 70 s.

Precariousness, conditions, and fees are the principal elements contained in permits for water use. Indeed, they translate into practical and operational terms the regime of distribution of prerogatives amongst a community. As it has been shown, the permit transfers the right to use water. It attributes to the private the *usus*, *i.e.* the right to exclusive appropriation of the use value deriving from the utilisation of water. This is, in fact, the rationale underpinning the permit regimes that – given the precarious, limited, and derivative nature of the right to use – subject water rights to time limit, conditions, and fees. These permit structures are applied also, and mostly, to the productive and commercial uses such as agriculture, power production, industry, etc. In these cases, water is used in some way or another to pursue an ulterior goal. For instance, in agriculture water is used for irrigational purposes, in the power production it is used as a source of kinetic energy, in the industry sector it is used in many different ways that vary from cooling machineries to processing and transportation. Some of these uses are more consumptive than others (examples are cases of water pollution or use for treatments) in the sense that the amount of water returned after the use or its quality are, at least immediately, sensibly inferior with regard to the amounts or quality of water used. It has to be kept in mind that all uses, soon or later, return water to the hydric cycle. That is why water diversion or abstraction is always considered temporary and not a proper appropriation of the resource itself, but of its use value. Indeed, what the recipient of the permit retains are the utilities derived from the use of the resource.

In the case of bottled water something different takes place. Through the process of bottling the resource is not used, but enclosed (or appropriated) in view of its alienation to a final drinker (or user). The peculiarity of the relation between water and the bottler is that it is not based on a use of the resource instrumental to an activity, but consists of a process of water abstraction finalised at its commodification and commercialisation. Process that enables the bottler to appropriate not (only) the use value of water, but its exchange value. Unlike other uses, in the case of bottled water the resource is abstracted for the sole purpose of alienating it. Therefore, the recipient of the permit does not extract the utilities deriving from the prerogatives of exclusive use of the resource but from a more stringent proprietary prerogative: the right to dispose. This latter is not exactly transferred by permits, but the process of commodification – taking place through bottling – enables the transformation of water into a commercially valuable good that can then be

traded in the market. The introduction in the market is the crucial step in which the permit holder in fact alienates a resource that she does not own; she disposes of a right that was never transferred to her but that, in force of the transformation of water into a commodity, she is able to exercise. Through the trade of water the bottler appropriates the exchange value of water.¹³¹

This process is made possible by the way legal regimes on water government regulate water use for bottling. In fact, these legal regimes designed for the government of water uses do not recognise such processes of water appropriation taking place in bottled water. These regimes are based on two different mechanisms that have as common result the enablement of the private appropriation of water exchange value; an appropriation that falls outside of the law and that the very same law prohibits in general terms. The first type of mechanism subjects water destined to bottling to a separate regime that obfuscates the recognition of the principal characteristics of water. The second mechanism does not provide for any diversification of the regime regulating bottle water production and subjects it to the general regime of water uses. As seen above, each of the three legal systems provide for a regime that combines legal status of resource with a public law mechanism for the allocation of water uses. It is, thus, necessary to understand how these mechanisms operate with regard to bottled water in each legal system.

4.1.1 *The Italian system of concessions: the metamorphosis of water*

Given the public nature of all water resources in the Italian legal regime, the private particular use of water is possible only in force of a permit of the public authority. This permit takes the form of concession. The instrument is utilised for the attribution to a private person of a particular use of the resource. This use is called ‘particular’ because of its characters of rivalry and idiosyncrasy. It is opposed to the ‘general uses’ that the public authority recognises on some public goods (such as water) as they are not – or at least not problematically – rivalrous and are recognised as preconditions for the full development of the human being and for its “participation in the political, economic and social organisation of the country.”¹³² The particular uses, on the other hand, do not have such function and, therefore, necessitate of

131. For a deeper account on the extraction of the exchange value see MARX, *Capital, A Critique of Political Economy by Karl Marx*.

132. Art. 3 of the Italian Constitution.

a particular instrument for enabling the private and exclusive use of a public domain.¹³³

The concession of a resource belonging to the public domain is expression of the relation between the private interest in the exploitation of the utilities of the good and the public interest proper of the public domain. Through the concession, the free and general use that historically characterised the public domain is overcome by the grant of a particular use, which may coexist or exclude other particular uses and limit the general use.¹³⁴ Hence, the concession constitutes the only instrument through which a resource belonging to the public domain can be granted (temporarily and with compensation) to the exclusive private use.

Even though the concession system is very similar, bottled water in the Italian system is subjected to a differentiated discipline than the one governing water resources. In fact, mineral waters and spring waters¹³⁵ are subjected to the regime regulating mineral extraction pursuant to articles 826 and 830 of the Italian civil code.¹³⁶ This legal operation has a number of consequences; some of them quite evident whereas some others not so much. First consequence is that at the moment in which a water source is recognised 'mineral' or 'spring' water – and, hence, is considered a water of purer quality, potentially the best water to satisfy human needs – it is transferred by law from the public domain to the public indisposable patrimony. This legal category includes along with some forests – whose inclusion in this category is also problematic – mines, pits, and peat bogs.¹³⁷ When water is recognised as mineral or spring, and

133. See E. CASSETTA - F. FRACCHIA, *Manuale di diritto amministrativo*, Milano: Giuffrè, 2017: 231 s.

134. V. CAPUTI JAMBRENGHI, *Beni pubblici e di interesse pubblico*, in L. MAZZAROLI ET AL., *Diritto Amministrativo*, 4th ed., Bologna: Monduzzi, 2005; S. ROMANO, *Corso Di Diritto Amministrativo*, Padova, 1937: 174 s.

135. These are in fact the two types of water that are almost exclusively bottled in Italy as well as in France and the UK. If this is true for the European context, this is not the same in other contexts where tap water or other waters destined to human consumption are used for bottling purposes. For an explanation of the different qualifications of water see chapter 1.

136. The articles 826 and 830 of the Italian civil code lists the goods belonging not the public domain, but to the public indisposable patrimony of the State and the regions. Within the category of mines already the r.d. 194/1927, art. 2 included the natural mineral waters and spring waters, and the d.p.r. 616/1977 transferred from the State to the indisposable patrimony of the regions.

137. See art. 826 of the Italian civil code.

therefore destined to bottling, the regime of concessions designed for the particular use of mines applies to it.¹³⁸

This regime relies on the very same institution of concession, however what is conceded in this case is the mine itself, and the mineral that will be extracted only a *fructus* of the good conceded. In the case of mining concessions minerals, such as carbon, are appropriated by the recipient of the concession, who is then entitled to commercialise them. It appears evident that the mineral concession transfers to the recipient the *usufructus* of the mine and the property over the minerals extracted. The same structure applies to water sources that are treated as mines, the *usufructus* of which is transferred to the exploiter who is then entitled to appropriate all prerogatives of water abstracted from the source.¹³⁹

However, this construction has an ulterior and less obvious consequence: in the change of regime applicable to water destined to bottling, from the discipline of water resources to the mining regime, something gets lost. Bottled water ceases to be considered water and is treated as a mineral product. In this passage at least two crucial elements are obliterated: the qualification of water as an essential good, and its inclusion in the integrated management system of water resources.

In fact, if water abstraction for bottling purposes is subjected to a number of controls on the hydrological and environmental impact of the exploitation,¹⁴⁰ water resources used for bottling activities do not participate in the general distribution of water amongst the different uses. Therefore, if the law provides for an evaluation of water distribution assessed on the basis of an integrated management¹⁴¹ – in which domestic uses are prioritised to the industrial ones – the use for bottled water production, use that relies on the best water to satisfy primary needs, is actually subjected to a separate system of concession. This mechanism may lead to

138. See art. 2, r.d. 194/1977 and art. 826 of the Italian civil code.

139. This framework is already visible in F. SQUARZINA, *Codice Minerario: Miniere, Cave, Torbiere e Saline*, Milano: Giuffrè, 1960.

140. The impact of the activity on the hydrological stability and the environment is assessed with an evaluation that takes place before the release of the permit to exploit the resource. However, such evaluation is meant to determine the quantity of water that can be exploited without an irreversible alteration of the equilibrium of the source that would lead to its drying. This evaluation is prescribed and regulated by art. 21-*quinques* and s. of the law 7 August 1990, n. 241.

141. In accordance with the Integrated Water Resource Management system provided for by the Water Framework Directive 2000/60/EC, transposed in the Italian system by the D.Lgs 152/2006.

prioritisation of the bottling activity even in a case of water shortage for primary needs, given the different nature and the longer term of these types of concessions.¹⁴²

Moreover, the essentiality of water resources seems to disappear in the regulation of bottled water. In fact, not only water destined to bottling is subtracted from the system of Integrated Water Resource Management that, at least in its objective, provides for a scale of priorities in water allocation. The exclusion from such an integrated system also excludes bottled water from the system of proportional tariffs determined in relation to the essentiality of the use. This exclusion has produced the paradoxical situation in which water tariffs for water abstraction for bottling purposes (*i.e.* commercial activity) are disproportionate to water tariffs for domestic uses and unsustainably inferior to the other commercial uses. Indeed, in Italy water tariffs for domestic uses average around 1 €/m³ and industrial uses range from approximately 2 to 6 €/m³,¹⁴³ whereas tariffs for bottled water production average around only 1,1 €/m³.¹⁴⁴

4.1.2 *The French system of authorisation between privileges and the intérêt public*

The legal architecture governing water exploitation for bottling purposes in France relies on somewhat different premises. As discussed above, after the reform of 1992 water resources expressly constitute a common patrimony of the nation.¹⁴⁵ Their status of *res communis* is acknowledged since the introduction of the French civil code of 1804.¹⁴⁶ However, water bodies are subjected to property regimes that in most cases constitute public property but, in the limited cases in which the water body is contained within the perimeter of a privately owned land, they may be subjected to private property.

One of these cases is represented by water sources. When an underground source is contained within the property of a landowner, she has

142. As said, water exploitation for bottling purposes is disciplined by the D. Lgs. 176/2011 in combination with the administrative regime of mining concessions.

143. Data elaborated by *Cittadinanzattiva-Osservatorio prezzi e tariffe*, “Il Servizio Idrico Integrato” (Cittadinanzattiva, March 2016).

144. Data elaborated by *Legambiente* and *Altreconomia* on data provided by regions, “Regioni Imbottigliate” (Legambiente, 2014).

145. Art. 1 of the loi n. 92-3 du 3 janvier 1992 sur l'eau, stating that “*l'eau fait partie du patrimoine commun de la nation.*”

146. Art. 714 of the French civil code of 1804 stating that “*Il est des choses qui n'appartiennent à personne et dont l'usage est commun à tous.*”

almost full rights to freely use the water.¹⁴⁷ These rights are subjected to a balancing with other users' prerogatives when the water from the source emerges into a stream or a river flowing outside of the boundaries of the private land; limits may be represented by servitudes and the existence of downstream use rights.¹⁴⁸

Water underground sources constitute, in France too, the principal water bodies used for bottled water production. Such abstraction is, however, conditioned by the release of a permit by the public authority that is often accompanied by an act recognising the resource as either 'mineral' or 'spring' water. The form of permit adopted in the French regime is the authorisation. As seen before, this instrument is used in the French legal system to guarantee a public control over distribution of water uses. The same instrument is applied in the case of water abstraction for bottling purposes. In this case, in fact, the *Code de la santé publique* requires the release of an *autorisation préalable*.¹⁴⁹ The distinction between the instruments of authorisation and concession is not neat, however it is possible to notice in the case here observed how the two instruments are used differently in the Italian and the French systems. If in Italy the concession serves the purpose of allowing the private use of a resource belonging to the public patrimony, in France the authorisation serves a function of governing the distribution of a common resource and, in the specific case of water sources, waves an impediment lying on the right to use water that the owner of the source holds as right deriving from proprietary position.¹⁵⁰

Even though the source is subjected to private ownership, water itself remains a common resource on which the landowner – or the person entitled by the landowner – holds a right to use. Again, what the public authority authorises is not the appropriation of the resource, but the exercise of a use right on water. In other words, through the release of the authorisation the public 'authorise' the individual to use water for private (and, in this case, commercial) purposes. Thus, the private bottler is entitled to exploit the private source for its private activity and is

147. This principle derives from the rule of landownership extending the powers of the owner to the underground, see art. 552 of the French civil code.

148. Art. 642 of the French civil code stating the private nature of the source when it is contained within the boundaries of private property.

149. Art. 1322-4 s. of the Décret n. 2003-462 of 21 May 2003 *relatif aux dispositions réglementaires des parties I, II et III du code de la santé publique*.

150. DROBENKO, *Introduction au droit de l'eau*, 273 s.

authorised to use the common resource for such activity. However, what the authorisation grants is the right to an exclusive use of water and not to its appropriation. The act of the public authority serves the purpose of regulating and governing different uses on a common resource that does not constitute property of the state. Thus, the authorisation only accords the right to use the common resource but does not transfer a property right, since that right does not belong to the state.

This is the rationale underpinning the discipline of the authorisation for the different water uses accorded to non-domestic exploiter. What these users are entitled to appropriate is the use value of the resource. In the case of water used for bottling purposes, the 'use' done by bottlers, that capture and stock water, enables them to treat water as their property. This process of water accumulation – process that is hardly possible with regard to other uses – enables the bottler to commodify the resource by selling it as a commercial product and, therefore, appropriate the exchange value of water generated by this operation. Through the process of bottling, water is not 'used' but it is retained (appropriated) and sold with the consequent appropriation of the exchange value.¹⁵¹

The system of authorisation for bottling activities is coupled with another instrument of some relevance. When the water of a source is recognised of the type 'mineral water' the owner of the source can seek to obtain a declaration of the public interest of the water body.¹⁵² This declaration comports the delimitation of a perimeter of protection around the source within which all activities susceptible of affecting the conditions of the source are prohibited or subjected to a regime of previous authorisation.¹⁵³ The goal of this measure is to guarantee special protection to those waters that are considered of particular high quality, as they constitute the best waters available to meet the demand of water necessary to satisfy the primary needs. That is why the declaration of public interest produces a rebalancing of the conflicting rights at stake *vis-à-vis* the preservation the condition of the source. The, perhaps unintended, consequence of this declaration is to prioritise the bottling activity over a direct access of non-authorized individuals. Therefore, it prioritises the commodification of this high quality resource over a

151. To a similar conclusion arrive D. JAFFEE - S. NEWMAN, *A More Perfect Commodity: Bottled Water, Global Accumulation, and Local Contestation*, in *Rural Sociology* 78, no. 1 (March 2013).

152. Art. 1322-17 of the *Code de la santé publique*.

153. Art. 1322-23 of the *Code de la santé publique*.

system of direct distribution and, unwittingly, secures to the bottler the accumulation of water exchange value.¹⁵⁴

4.1.3 *Public licensing in the United Kingdom: a regulated system of privatisation*

Due to the mutual influence with the French model that took place in the 19th century, the British system of common law presents some similarities with the continental experience developed from the French revolution and the post-revolution civil code. The most relevant trait shared by the two systems is the subjection of bottled – ‘mineral’ and ‘spring’ – waters to the general regime governing water. In fact, unlike the Italian experience, water destined to bottling in the UK system does not mutate its legal status, but is only subjected to the additional discipline regulating treatments and commercialisation for the safeguard of water quality. Hence, even when recognised as ‘mineral’ or ‘spring’ water, the resource is still qualified within the general category of water resources.

Consequence of this is that a single regime of permits applies to water exploitation. This is the system of licenses that, as seen above, was born through judicial intervention for the recognition of use rights. Then, due to the inability of the judicial mechanism to cope with such demand, was taken on by the direct intervention of the Parliament through the issuance of statutes or private bills allocating exclusive rights on water use.¹⁵⁵ Finally, the process of use rights allocation was systematised in 1963 with the Water Resources Act.¹⁵⁶ The systematisation of the discipline governing water exploitation introduced, as a precondition for any non-domestic use over a certain amount,¹⁵⁷ the generalised system of licenses. These permits are granted by the local public authority and attribute to the recipient a right to use water at the conditions specified in the license. Unlike the French

154. This represents a clear example of the processes of accumulation by dispossession described by Harvey, in which a public or common resource is first privatised to be then offered back to citizens at a cost; see D. HARVEY, *The New Imperialism*, Oxford, New York: Oxford University Press, 2005.

155. GETZLER, *A History of Water Rights at Common Law*, 350 s; the literature on the matter is quite conspicuous, among the many contributions see Hassan, J. Hassan, *A History of Water in Modern England and Wales (Manches-Ter, 1998)* 1–50. F. CLIFFORD, *A History of Private Bill Legislation*, vol. 2, London, 1885.

156. Water Resources Act (1963), § 23-24.

157. The domestic use undertaken by riparian landowners and other uses not exceeding the threshold of 1000 gallons do not require the grant of a license issued by the local competent authority.

authorisation or the Italian concession, the license is often granted without a time limit; what is transferred with the license is in fact a proper right. However, this difference is reduced by the fact that, even though some licenses are not limited in time,¹⁵⁸ they can be revised or revoked if changes in the hydrological system require it.¹⁵⁹ Furthermore, no compensation is due for the revocation of the license, but some procedural guarantee needs to be respected.¹⁶⁰

Bottled water produced in the UK is mostly abstracted from underground sources. The activity is subjected to the general instrument of the license, which applies to both flowing surface water and underground water. The system of licenses is in fact predisposed to the control and the government of water distribution through the allocation of use rights.¹⁶¹ This system applies regardless of the status of water, *i.e.* whether it is flowing water belonging to the community or an underground source enclosed within the limits of private landownership. All non-domestic uses are subjected to the previous grant of a license through which overexploitation of the resource is to be avoided and a balance between conflicting uses takes place.

A relatively important peculiarity characterises the British system: it is the principle underpinning the ‘rule of capture’¹⁶² that allows for the appropriation upon capture. Indeed, according to the common law model water is property of nobody and is a common resource (a *res communis*), but when a defined quantity of water is ‘captured’ it becomes private property of the person who enclosed it. Such an appropriation is of no particular importance in the British system since water appropriation for most purposes (agriculture, industry, or power production) results

158. See DEFRA, DEFRA, “Water Abstraction Licensing: Changes to Exemptions in England and Wales” (Department for Environment, Food & Rural Affairs, January 2016).

159. J. WENTWORTH, “POSTnote 546 January 2017 Reform of Freshwater Abstraction” (The Parliamentary Office of Sciences and Technology, January 2017): 3.

160. An example of these procedural guarantees is the notice that the public authority needs to respect that, in some cases, amounts to three years. The limitlessness of licenses, even though moderated by corrective measures, is not without consequences. The position of the license holder is inevitably stronger and provides for a higher level of immobilism in water government. That is why the system is under a process of reform to subject all licenses to a time limit, see DEFRA, “Water Abstraction Licensing.”

161. GETZLER, *A History of Water Rights at Common Law*, 350 s.

162. The rule of capture (or law of capture) is common law from England, adopted by some jurisdictions of United States (It is particularly relevant in the state of Texas). It establishes a rule of non-liability and ownership of captured natural resources including water, gas, and oil.

in a *de facto* use of the resource that then is returned to the hydric cycle. Indeed, licenses grant use rights over water streams or sources, and the system is designed to control the private appropriation of water use value undertaken by exploiter for their idiosyncratic uses. The principle by which water, once captured, is ownership of the private individual has largely been overlooked in the common law model as its consequences in most of the cases appear of secondary importance. The main concern is the allocation of use rights as, in fact, it is almost impossible for water user who appropriate water to retain it after their use.¹⁶³

This impossibility, however, becomes possible in the case of bottled water production as the resource is actually retained and stocked into the bottles. Pursuant to this principle, the legal regime governing water resource provides for the exclusive appropriation of property rights on the water captured by the bottler who, unlike other uses, is able to retain water. In fact, her principal purpose is not the use of water, but its retention for its consequent commercialisation.¹⁶⁴ In force of the license the bottler can acquire the ownership of the amounts of water abstracted. This acquired ownership enables her to do what other users are unable to do and that private water suppliers are prevented from doing:¹⁶⁵ commodify water. Through the acquisition of ownership private bottlers are enabled to retain water and distribute it on the market; operation that allow them to appropriate the exchange value of water.

5. *Conclusions*

The purpose of this chapter has been to introduce and analyse the critical aspects of the legal regimes governing water distribution. The analysis has intended to highlight the structural foundation of the different water regimes on the institution of property, to show the limits that

163. An exception is constituted by water uses that entail the pollution of the resource. In this case water is, more or less, permanently compromised. However, these uses are highly regulated and taxed, if not limited entirely.

164. On the process of water commodification see JAFFEE AND NEWMAN, "A More Perfect Commodity?"

165. The system of tap water supply in England and Wales is privatised since 1989. Private companies are responsible for providing water services and directly charge users. However, the determination of the fees is strictly regulated and monitored by OFWAT in order to prevent (or limit) water commodification and the appropriation of water exchange value by private suppliers; see § 11 and s. of the Water Act 1989.

such an approach has produced on water government. Indeed, access to water has been based for a long time – and, to some extent, it still is – on landownership.¹⁶⁶ However, the three legal regimes developed their own systems of permits that restructured, somehow, the property arrangements on water. The instruments of concession, authorisation, and license are deployed today for the control of water uses and for the government of water distribution pursuant to the principles of efficiency and equity and ecological sustainability.¹⁶⁷

It has been shown that the different systems of permits provide for an allocation of use rights to the recipient of the permit. Water users are, in fact, provided with access to the resource that entitles them to make use of water and appropriate the use value thereof. It emerged that the regulatory architectures have been designed to govern water uses that typically rely on water as a resource necessary to pursue ulterior purposes (*i.e.* agriculture, power production, industry). However, these regimes appear unable to govern water use for bottling purposes. The main reason for this shortcoming is that the bottling phenomenon does not constitute an actual use of water, but it rather consists in a commodification of the resource for the ultimate purpose of value extraction and accumulation.¹⁶⁸

Thus, the regulatory regimes appear not only unable to regulate the bottled water phenomenon, but they unwittingly set the preconditions enabling water commodification by the bottling activity. Indeed, water regulatory regimes have been designed for the government and allocation of use prerogatives on the resource. Bottling activities do not constitute an actual use of water. Bottlers assume an intermediate position aimed at transferring water to the actual users: the drinkers. However, in this intermediate position bottlers subject water to a process of commodification through which the extraction of exchange value of the resource takes place, when bottled water is sold to the – not anymore drinker, but – consumer. Throughout this process, water, which is legally conceptualised as a public or common resource, becomes private property of the bottling company. This process is not formally acknowledged by the different regimes but,

166. CULLET, *Water Law, Poverty, and Development*, 35 s.

167. These are, indeed, the principles laid down in principle n. 4 of the Dublin statement of 1992, which goes as follows: “[...] Managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.” These principles are also underpinning the Water Framework Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000.

168. See JAFFEE - NEWMAN, “A More Perfect Commodity”; and BARLOW - CLARKE, *Blue Gold*.

as seen above, the systems of permits, aimed at guaranteeing an efficient and equal allocation of water uses, enable the bottler not only to use the resource but to dispose of it. The structures of the permit system of each country enable an unrecognised transfer of property rights to the bottler who, then, is entitled to sell water as if it were the owner.

The very process of bottling amounts to a privatisation (to an exclusive appropriation) of the resource and to its subsequent alienation. The privatisation takes place in different forms: the Italian regime enables it through the application of the mining regime to water abstraction for bottling purposes, regime that finds exceptional application in force of the recognition of water as 'natural mineral,' in the UK the privatisation is rendered possible by the principle attributing exclusive ownership on the water captured; in France water itself is never formally privatised, but the mechanism of authorisation coupled with the *déclaration d'intérêt public* triggers an exclusive right to exploit, which is necessary for water appropriation and its later alienation. All the three forms provide for the necessary legal frameworks enabling a value extraction and accumulation that is expressly prohibited for all other uses of water. This process of commodification escapes the regulatory restrictions imposed on other water related activities for an important difference. Unlike other water uses in which the extraction of exchange value may derive from the privatisation of the water supply infrastructures, the bottled water phenomenon is peculiar because the object of privatisation and commodification is water itself. The following chapter will be dedicated to implications of these processes, with special regard to the impact of the commodification on water access and distribution.

4.

A Distributional Analysis of Water Commodification. The Impact of Bottled Water on Access to Water

1. *Introduction*

The relation between humans and water has significantly changed in the last fifty years. The overall growth of world population coupled with the increase of water demand for various productive, commercial, and human activities has brought about the need to face the limitedness of the resource. Underpinning this need there is a paradigmatic shift from abundance to scarcity.¹ However, as it will be further discussed, if some contexts face an issue of absolute scarcity, often water scarcity is dependent of processes of water distribution.² This paradigmatic shift, as seen in the second chapter, has brought about new approaches to water government focused on the achievement of efficiency in the allocation and use of the resource. Efficiency, however, has been regarded as an objective to be achieved along with the principle of equality in access to water.

The tension between the two principles has been foregrounded and ambiguously formalised by the Dublin Statement of 1992 which, in principle n. 4, states that “[m]anaging water as an economic good is an important way of achieving efficient and equitable use.”³ The quest for a balance between efficiency in water government and equality in its use translated into the tension upon the conceptualisation of water locating in a spectrum ranging between water as a commodity and as essential resource.

1. See V. SHIVA, *Water Wars: Privatization, Pollution, and Profit*, Reprint edition, Berkeley, California: North Atlantic Books, 2016; D. ZETLAND, *The End of Abundance: Economic Solutions to Water Scarcity*, Aguanomics Press, 2011.

2. P. CULLET, *Water Law, Poverty, and Development: Water Sector Reforms in India*, Oxford: OUP, 2009.

3. “The Dublin Statement on Water and Sustainable Development” adopted January 31, 1992 in Dublin, Ireland by the International Conference on Water and the Environment.

The bottled water phenomenon that came about in the last four decades modified the relation of humans with water. It introduced a new mechanism of water distribution subjected to market dynamics in which water is transformed into a commodity to be purchased. The bottling phenomenon produced a new equilibrium in the tension that came about after the Dublin statement; equilibrium that is peculiar to the water managed and distributed through the bottle. However, the effects on water distribution and, more importantly, on access to water have not been limited to bottled water consumption, but affected on a more general level the mechanisms of access to water for drinking purposes.

Indeed, it is argued here that while the bottled water phenomenon may, in some instances, facilitate access to clean water of higher quality, at the same time it may trigger processes of dispossession catalysed by the legal regimes governing the phenomenon. These processes appear to be a by-product of the water commodification underpinning the bottling activities and have the effect of extracting exchange value. Thus, the question of value (re-)distribution appears here inevitable in order to understand what the role of bottled water may be in the government of water access for drinking purposes.

For these reasons this chapter takes the move from an overview of the role played by bottled water in the satisfaction of drinking needs in the legal systems under analysis. In a second step, the process of commodification is investigated more closely to observe its functioning and success in water allocation. Then, the effects of commodification are observed in relation to water scarcity and distribution to assess the dispossessing processes and understand what role bottled water can have in the struggle towards a universal access to water.

2. *The role of the bottle in access to water*

The appearance and development of bottled water has transformed the way people access water for drinking purposes. If at the beginning of the 20th century water was taken from the tap, wheels, or other sources, bottled water constitutes today an important means to satisfy people's thirst. This is true both in contexts like Europe, where the resource is relatively easy to access, and in arid or semi-arid zones such as India or Mexico.⁴

4. Mexico represents the country with the highest per-capita consumption of bottled water, Euromonitor 2017.

The rationale behind the incredible success of bottled water appears somehow mysterious. Indeed, the transition of bottled water from a niche good to a phenomenon of mass consumption is at odds with any economic theory of rational behaviour. As seen, no reason can be found to justify, from an economic perspective, the choice of bottled water over the tap. Some authors that tried to look into the phenomenon were at loss to explain why consumers would choose to buy bottled water since it is so similar, yet so costly and environmentally damaging.⁵ The explanation of such 'consumer' choice provided by these authors is that the demand for bottled water has been manufactured through active interventions of bottled water promotion and campaigns of tap water demonisation.⁶

Other authors, among whom Mark Harvey, reject to identify the rationale behind the bottled water success with the outcome of operations of manufactured demand, and advocate for a more complex understanding of the role of bottled water in contemporary societies. They claim that bottled water demand can only be understood by looking at how it is produced, marketed, distributed and consumed in different societies. Drawing on this more comprehensive analysis they point out a whole range of different reasons that contributed to the development and success of not a single global phenomenon, but a multiplicity of different social phenomena.⁷

The two different analyses are of particular use here as they, indirectly, depict the role of bottled water in the social contexts examined. Indeed, while pursuing the objective of understanding the reasons behind bottled water consumption, by way of comparison to other means of thirst satisfaction, *i.e.* tap water and soft beverages, they provide us with an understanding of how much people rely on bottled water for drinking; in other words, how important is the bottling phenomenon in providing access to water.

5. See amongst others P.H. GLEICK, *Bottled and Sold*, Island Press, 2010; M. BARLOW - T. CLARKE, *Blue Gold: The Battle Against Corporate Theft of the World's Water*, Earthscan, 2003; B. PAGE, *Paying for Water and the Geography of Commodities*, in *Transactions of the Institute of the British Geographers* 30, no. 3 (September 2005); J. SALZMAN, *Drinking Water: A History*, London: Duckworth, 2013.

6. See GLEICK, *Bottled and Sold*; D. JAFFEE - S. NEWMAN, *A Bottle Half Empty Bottled Water, Commodification, and Contestation*, in *Organization & Environment* 26, no. 3 (2013).

7. See amongst others M. HARVEY, *Drinking Water: A Socio-Economic Analysis of Historical and Societal Variation*, Routledge, 2015, who draws on the works of M. CALLON - C. MÉADEL - V. RABEHARISOA, *The Economy of Qualities*, in *Economy and Society* 31, no. 2, January 1, 2002; and F. HEUTS - A. MOL, *What Is a Good Tomato? A Case of Valuing in Practice*, in *Valuation Studies* 1, no. 2 (November 27, 2013).

2.1 *A global phenomenon with local differences: how global is bottled water?*

It is undeniable that bottled water is a phenomenon that assumed a global dimension. In the last decades it has grown in size and importance in many countries worldwide, developing in very different social, economic and cultural settings. In fact, bottled water has affirmed itself in the United States as well as in India and China, but also in South Korea and in several countries of the Middle East and Africa. Bottled water production and consumption appears of a particular complexity because of its being at the same time a truly global phenomenon, characterised by the dominance of transnational corporations busy in bottling and moving water around the globe, and a very local phenomenon presenting peculiar patterns that vary from a country to another, or even within their borders.

The role attributed to bottled water ranges quite significantly. It represents a primary means to access safe water in some places where water supply services are deficient, whereas it is sometimes perceived as a luxury product in some other contexts where tap water is regarded as a safe and reliable source. The global market of bottled water is dominated by no more than ten multinational corporations that, nonetheless, have to operate in very different ways to adapt to the local needs and habits of people.⁸ Hence, the bottled water phenomenon is characterised by global trends and actors as well as very localised markets and social dynamics of consumption.

Even among rather similar contexts bottled water assumes quite different roles with regard to the overall economy of water use for drinking purposes. Such differences are visible in the three legal systems object of this work, where the role of bottled water appears to be understood differently in each legal tradition. The role of and the reasons behind bottled water consumption have been the topic of research of geographers and anthropologists. Of particular interest is the work conducted by Mark Harvey in his book *Drinking Water* where he, with the collaboration of Adrian Evans, provides an explanation of the development of the bottled

8. According to the data of Euromonitor of 2015 the market of bottled water has a very small number of 'significant' protagonists. In fact, there are around ten multinational companies holding large shares of the market juxtaposed to a plethora of much smaller companies with a strong local dimension. Amongst the biggest companies can be found the following: Danone (23.4 billion litres), Nestlé (20.1), Coca-Cola (16.2), PepsiCo (8.6), Yangshengtang (4.4), Acqua Minerale (3.2), Ting Hsin (3.1), China Resources Ent. (3), Alma Hangzhou (3), and Wahaha (2.9).

water phenomenon in the European countries that departs from the more affirmed hypothesis of manufactured demand.

Harvey conducts a more in-depth analysis of the UK market for bottled water and points out how it is relatively young and still in the process of growth. It is also significantly smaller if compared to other European countries. In fact, consumers in Italy and Germany drink almost four times as much bottled water per person. France ranks to a somewhat lower quantity that is, however, sensitively higher if compared to the UK average.⁹

The smaller quantity of bottled water consumed in the UK might be a misleading datum per se. Indeed, it needs to be read in relation to the consumption numbers of other soft beverages registered. If Britons consume $\frac{1}{4}$ the amount of bottled water consumed by Italians, the amount of bottled beverages (other than water) drunk in the UK is almost four times higher.¹⁰ Thus, the lower amount of bottled water is, on average, compensated by a proportional higher consumption of other soft drinks that, and this is another peculiar feature of the British market, are produced by the same companies bottling water. Almost all water that is bottled in the UK is qualified as either 'spring' or 'mineral' water according to the EU taxonomy provided for in the Directive 2009/54/EC. This pattern is common to the European countries, and the British preference for these typologies of water has been reaffirmed by the Dasani failure in 2004.¹¹

According to the findings of Harvey's research, in the UK only 30% of household drink bottled water regularly, and consumption increases along with the increase of income. Harvey describes this pattern as attributing to water an ambiguous role, "with clear differences between the lowest and highest income groups in terms of their likelihood of consuming bottled

9. The per-capita consumption for the year 2016 goes as follow: Italy 188.1 litres, Germany 175.4, France 125.2, and the UK only 35.9 (Source: EFBW 2016 statistics). This difference is highlighted by Harvey who stresses the importance of treating each phenomenon distinctively, HARVEY, *Drinking Water*, 48 s.

10. Source: statistics Euromonitor 2016 and Unesda 2016.

11. At the beginning of the years 2000s the Coca-Cola company introduced in the UK market a new product called "Dasani." This is a type of bottled water that Coca-Cola had been selling on the US market for quite some time. However, the product was retrieved from the UK market soon after its launch for its poor success. In fact, Dasani is processed water (*i.e.* tap water subjected to filtering and enriching treatment) that did not meet the trust of UK consumers, used to purchase 'higher quality' water bottled directly from the spring. See B. GARRETT, *Coke's Water Bomb*, in *BBC News*, June 16, 2004.

water” that locates bottled water in between “a staple necessity such as bread [...and] a high-end luxury product such as an expensive wine.”¹² These data on absolute and relative per-capita consumption, in Harvey’s view, seem to depict bottled water as “a relatively marginal discretionary good, complementary to, rather than wholly substituting for, tapwater.”¹³

Drawing on Harvey’s research, bottled water, once understood in the broader context of consumption processes, appears to be a different consumption good from tap water. It is mostly consumed in specific instances (sport, work, travelling, etc.) that not often overlap with tap water consumption. However, something else emerges from his research. What can be drawn from the investigation of the “type and frequency of drinks consumed” is that very few quantities of tap water are drunk in the UK. Tap water is either filtered or used for coffee or tea.¹⁴ The main reason of this low reliance on tap water for drinking purposes in the UK is due, according to consumers’ opinion, to a sense of fear or dislike of tap water because of its chemical content and its chlorine taste.

The Italian context is rather different from the UK one. The pattern of bottled water consumption is the primary and most important difference. With a per-capita consumption average of 188 litres per year, Italy ranks at the third place among the countries registering the highest consumption of bottled water globally.¹⁵ The bottled water market is more centralised than the in the UK. In fact, the top four companies produce more than the 50% of the bottled water consumed in the country.¹⁶ Another feature of the market is that, unlike the British context, supermarket private labels are fewer and smaller, unable to determine or impose their conditions on bottlers. A bold attempt was undertaken by Coop that, with a campaign *acqua di casa mia*, promoted the purchase of local bottled water over other brands and incentivised the use of the tap for drinking purposes.

12. HARVEY, *Drinking Water*, 51.

13. HARVEY.

14. HARVEY, table 3.2 “The type and frequency of drinks consumed by UK diary participants,” 54.

15. Italy remains the third country in the world for per-capita consumption of bottled water. This is confirmed by the 2010 statistics of Euromonitor and by the more recent ones provided by Statista 2016.

16. According to the findings of Carlucci *et al* “the industry is highly concentrated considering that the four largest players (Nestlé Waters, San Benedetto, Norda and Fonti Vinadio) control more than the half of domestic market,” D. CARLUCCI - B. DE GENNARO - L. ROSSELLI, *Competitive Strategies of Italian Bottled Water Industry: Evidence from a Hedonic Analysis*, in *Rivista Di Economia Agraria* 71, no. 1 (2016).

This campaign cost Coop a loss of 20-30 million euros in direct payment from bottled water companies besides the sales of its own private label.¹⁷

Bottled water in Italy constitutes a regular item of consumption of daily life. An interesting element observed by Harvey is the pattern of consumption characterising the Italian market. Most of bottled water purchased in the Italy is bottled in containers of 1.5-2 litres (generally sold in packs of 6 bottles). This is quite different from the British market where most bottled water is sold in smaller bottles. Such pattern denotes a more substantial role of bottled water in everyday supply of water for drinking. Indeed, the bottle constitutes the primary and direct substitute for tap water. The phenomenon is alimeted by a diffused distrust in the quality and safety of water coming out of the tap that, notwithstanding the average good quality and the efforts of the public in the improvement of water supply services, remains the dominant perception.

In France the consumption of bottled water is more resembling the Italian one. Indeed, per-capita consumption is around 125 litres per year; positioning France in the global top ten of the countries for bottled water consumption. French people consume exclusively 'natural mineral' and 'spring' waters in almost equal proportion.¹⁸ This is a peculiar characteristic of France because both in Italy, where spring water is almost non-existent, and in the UK 'natural mineral' waters are sensibly predominant. The different pattern of consumption registered in France signals a difference in the role exercised by bottled water in the overall picture of water consumption for drinking purposes. A differentiation that finds a common feature in the fact that both Italians and French heavily rely on bottled water for drinking.

However, if in Italy the high consumption of bottled water appears to be determined by a generalised distrust in tap water quality and reliability, the same is not true in France. There, tap water is not only objectively reliable and of good quality – 99.1% of French population has access to good quality water – but also the 87% of French declare to be satisfied with tap water quality.¹⁹ These data delineate a peculiar characteristic of

17. HARVEY, *Drinking Water*, 67.

18. In France the consumption of natural mineral water amounts to 4483.6 million litres and spring water registers a little lower consumption around 3877.7 million litres. The situation is quite different in Italy where bottled water consumption is almost entirely represented by natural mineral water (11408 million litres) while spring water is non-existent on the market. Source: Key statistics 2018 EFBW.

19. Sources can be found in V.A. BREI, *How Is a Bottled Water Market Created?: How Is a Bottled Water Market Created?*, in *Wiley Interdisciplinary Reviews: Water* 5, no. 1 (January 2018): 2.

bottled consumption in France: bottled water is not a substitute for tap water. Even though the latter is perceived as a source of good quality water for drinking, bottled water is considered of a somehow higher quality and meant to be used for specific purposes. In particular, natural mineral water is treated and consumed as an expensive beverage or, more generally, a luxury good, to be consumed in special contexts, purposes, or occasions (such as at the restaurant or for therapeutic treatments). On the other hand, spring water's role belongs to daily life where it fulfils particular uses. In France bottled water has become an important item in people's consumption through the creation of different and specific-purpose waters. As Brei points out in its research, "companies have successfully built different meanings for each type of water. For example, advertising for mineral water has usually been associated [...] with gastronomy (especially sparkling brands), important business, social, and personal gatherings. For every day, less important moments, advertisements recommend source [spring] waters, corresponding to consumer perceptions."²⁰

2.2 *A single global phenomenon or a multitude of local phenomena?*

Bottled water appears to be a chameleonic phenomenon that assumes and develops different patterns according to the socio-economic and cultural context of the case. This is evident in the comparison of the three countries under analysis where bottled water has a peculiar role in each of them. Such difference is quite surprising once the socio-cultural affinity of Italy, France and the UK is taken into account. However, the bottled water phenomenon cannot be described as a national one because it maintains some constant characteristics, especially at the level of legal regimes. A common trait to all these countries is that bottled water constitutes an important means of access to water for drinking purposes. Especially in Italy and France, but also in the UK if bottled water is considered within the bigger category of soft drinks, in many cases bottled water constitutes the primary source of drinking. In these contexts the reliance on bottled water is ultimately a choice of the drinker, for whom the bottle is an alternative to the tap system. In other contexts, such as in some parts of India, bottled water became the only reliable source of clean water.

Moreover, the bottled water market is populated by a variety of actors that are quite different. In the three countries under analysis can be found numerous small and highly localised brands producing bottled

20. BREI, 7.

water for a relatively local consumption. These companies operate within the national boundaries or even at regional levels. At the same time, however, the bottling business is predominantly led by a small number of multinational corporations operating in a variety of countries.²¹ These corporations model their commercial activity upon the socio-cultural habits that predominate in each context. They also have to shape their activity in order to cope with the legal regime governing water use in each legal system, even though in some instances they actively engage in the reorganisation of the legal regimes to which they have to comply with in a two-ways process of influence.

Notwithstanding the different contexts in which the phenomenon is present, one common feature is of some relevance: bottled water constitutes a major means of access to water for drinking. Even though in the European countries observed it can ultimately be claimed that bottled water consumption is a matter of choice, whereas in other countries is more a need deriving from a lack of safe alternatives, in both types of contexts bottled water amounts to an important portion of the overall water used to satisfy people' thirst. The way this choice is formed is at the same time very interesting and very difficult to assess; it can in fact be conscious or not, voluntary or dictated by external factors.²² Surprising is that bottled water consumption is actually higher in countries where it is – said to be – a choice. The purpose of this chapter is to identify the effects on access to water deriving from the bottling phenomenon, as framed by the legal regimes governing it in the European countries considered.

3. *A Distributional analysis of bottled water regulation*

Regardless of the reason behind the success of bottled water in a specific country, is undeniable that bottling has become one of the most important means of water consumption for drinking purposes. Bottled water, whether a matter of choice or need, is today part of many people' everyday drinking diet. The phenomenon has modified individuals' hab-

21. The top most influential companies are Nesté, Danone, Coca-cola and Pepsi. They altogether roughly control the 42% of bottled water production globally in value, and 34% in volume. See Crédit Suisse Global Enquiry Research, "Water: Strategy," June 7, 2007, 33.

22. For a more thorough analysis of the dynamics determining people' choice to consume bottled water see D. SPAR - K. BEBENEK, *Profitable springs : the rise, sources, and structure of the bottled water business*, in *Entreprises et histoire* 50, no. 1 (2008): 114 s.

its of water consumption inducing many to rely, at least partially, on the bottle. This mutation of social habits took place because of the synergic interaction of a number of factors; one of them is certainly law. In fact, the legal regimes governing the phenomenon contributed and contribute in a significant way to shape the bottling phenomenon by producing the legal framework within which prerogatives over water are allocated and the resource is used. It is, thus, important to identify and understand the functioning of not only the specific rules governing bottled water production but also the background rules determining the framework in which the abstraction, production, and consumption take place. Indeed, the framework determines as well the positions and powers of the different actors and stakeholders involved. Hence, the purpose of the following analysis is to identify the various actors interested by bottled water and assess their roles and conditions determined by the background rules set by the legal regimes.

3.1 *How to proceed: methodological issues*

Before proceeding into the analysis itself, some methodological remarks appear important to set identify the nature and functions of the distributional analysis conducted here. Such an approach is in fact an analytical tool for critique and intervention, which an important number of critical legal writings recommend. Distributional analysis has been used as critique to unveil the intrinsic uncertainty of law reforms and the limitations of rights discourses.²³ On the other hand, when the analysis relies on sophisticated accounts of law, including the conflicts, identity and distribution, it may be functional to the proposal of a way of intervention as an elaborated policy analysis “with just the right dose of scepticism.”²⁴

This type of analysis derives from economics where it, substantially, entails the calculation of costs and benefits while considering the char-

23. See for instance KENNEDY, *Legal Economics of U.S. Low Income Housing Market in Light of 'Informality' Analysis*. D. KENNEDY, *The Critique of Rights in Critical Legal Studies*, in *Left Legalism/Left Critique*, by R. Thompson Ford et al., ed. W. Brown and J. Halley, Duke University Press, 2002; J.E. HALLEY ET AL., *From the International to the Local in Feminist Legal Responses to Rape, Prostitution/Sex Work and Sex Trafficking: Four Studies in Contemporary Governance Feminism*, in *Harvard Journal of Law & Gender* 29, no. 2 (June 1, 2006).

24. I.C. JARAMILLO-SIERRA, *Distributional Analysis as Critique and Reconstruction: Adopting Uncertainty as a Method*, 2013, unpublished manuscript; see also J.E. HALLEY, *Split Decisions: How and Why to Take a Break from Feminism*, Princeton University Press, 2006.

acteristics of the population that may affect the type, amount or perceived value of the resources involved.²⁵ The underlying assumption of this analysis is that cost and benefits are distributed among a community in a certain manner, and the analysis aims at taking into consideration, for the purposes of evaluating cost and benefits, the identity of the parties defined by some features like geography, income, race, gender, class, location, business, etc. Distributional analysis is, thus, understood to have a critical part and a reconstructive one. The latter entails a certain degree of normativity that relies on some sort of alleged accuracy, soundness of the outcome of such normative evaluation of the legal regime under analysis. As Isabel Jaramillo argues, however, a more cautious use of distributional analysis in academia might be desirable. In fact, she sees such kind of analyses threatened from two opposite dangers – on the one side the “empirical trap” and, on the other, the danger of “decisionism” – and proposes a “methodological uncertainty” which, according to her, can either introduce uncertainty in the status quo or focus on one aspect of the analysis.²⁶

The analysis conducted here is undertaken with this awareness of the difficulty and undesirability of providing a normative proposal. Instead, the aim is to analyse the distribution produced by the legal regimes governing water to foreground the unperceived effects that the legal framework within which the bottling phenomenon is regulated produces. There are various ways to conduct a distributional analysis. Critical legal scholars have identified three principal uses. Isabel Jaramillo defines them as follow: “the first one consists of a call to pragmatism or consequentialist thinking. The second implies a critique of identity politics. The third focuses on the role of law in social change.”²⁷

3.1.1 *Uses of distributional analysis*

The pragmatist approach is often used in critical works on human rights in order address the actual implications of a realm otherwise dominated by deontological or principled thinking. This approach, in fact, unveils the adversarial nature of human interactions, most of the time based on conflicts of power over resources. Against this backdrop human rights

25. See for instance M.A. LIVERMORE, *Can Cost-Benefit Analysis of Environmental Policy Go Global*, in *New York University Environmental Law Journal* 19 (2012 2011).

26. I.C. JARAMILLO, *Distributional Analysis as Critique and Reconstruction: Adopting Uncertainty as a Method*, Unpublished, March 10, 2013: 20.

27. JARAMILLO, 3.

play a distributive role and not just reflect a pre-established distribution. Hence, adopting human rights has consequences on the ultimate distribution of the resources at stake. In his reflection upon the International Human Rights Movement, David Kennedy emphasises this use of distributional analysis. In *The Dark Sides of Virtue* he points out how thinking pragmatically about human rights means taking into consideration the costs, bad implications and harms deriving from the implementation strategy adopted, and understanding “benefits as distributions of power, status, and means toward those who share these objectives and away from those who don’t.”²⁸ Duncan Kennedy, instead, proposed a critique of rights that looks into the conflict that happens over a right, and over the contingent and precarious relation between rights and nature or truth.²⁹

The second use of distributional analysis has often been to critique identity. Indeed, by the analysis of the empirical elements it enables to pass through the opposition of identities inherited by the liberal tradition. This process permits to overcome the deadlock of the dichotomy victim/victimiser, and identifies the costs involved in the transfer of rights between winner and losers. This kind of analysis has been adopted by Janet Halley who used distributional analysis to identify the costs produced by feminist orthodoxy in “making difference costless.”³⁰ In her work *Split Decisions* she identified the costs that feminist achievements have caused to men by feminist policies as, for instance, the costs caused to racialised men in the U.S. and beyond.

Another example is the one adopted by Hila Shamir who showed the different positions of women and costs allocated to men provided by a feminist-oriented conception of sex work regulation. In her view a distributional analysis perspective enables a wider approach taking into consideration a multiplicity of stakeholders impacted by the legal regime, such as “local and migrant sex workers, but also women who stopped working as sex workers due to a changing in legal regime, men who buy

28. See D. KENNEDY, *The Dark Sides of Virtue: Reassessing International Humanitarianism* (Princeton University Press, 2005): 4.

29. See KENNEDY, *The Critique of Rights in Critical Legal Studies*; see also M. PAZ, *The Tower of Babel: Human Rights and the Paradox of Language*, in *European Journal of International Law* 25, no. 2 (May 1, 2014), in which she investigates the language rights and challenges the assumption that language diversity is a good in itself in relation to human rights. In particular, through a pragmatist approach, she conducts a distributional analysis pointing out how the actual enactment of language assimilation proved to have more positive than negative effects on the stakeholders involved.

30. HALLEY, *Split Decisions*, 285-290.

sex services and men who do not, the women who live with men who buy sex services and those who do not, and ripple effects caused by women entering or exiting the sex industry on other labor markets.”³¹

A last example is provided by Duncan Kennedy’s work on US low-income housing market in which he advances a critique of identity. He provides for an understanding of the conflict from a perspective involving property interests, may them be residential, industrial, institutional or commercial owners of land and buildings. In the analysis he questions the relevance of racial identity as the key criterion for segregation and housing discrimination.³² He proposes instead an analysis that understands the conflict as configured not so much by pre-constituted identities as by stakes. Kennedy points out that conflicts over low-income housing are shaped by race in so far as most poor people are people of colour and “each American ethnic and racial group, native born whites very much indeed, has its own culture of poverty, no matter how strongly radicals and minority organizers once denied it.”³³

The third use of distributional analysis focuses on the relation between law and the “reality” or, in other terms, social interactions. This approach draws on, and emphasises how, law is not just a passive reflection of reality, but constitutes it. Law is one of the constitutive elements that together contribute to the production of “reality” through the distribution of power, resources, and prerogatives over them. In this sense, law does not just “sanctify political arrangements reached in some extrajudicial or prejuridical realm” but participates in their production.³⁴ Drawing on this perspective, the role of distributional analysis is to identify the spaces where law determines what is a legal damage (a tolerated abuse) and defines the boundaries of and the modalities of everyday bargaining.³⁵ The

31. HALLEY ET AL., *From the International to the Local in Feminist Legal Responses to Rape, Prostitution/Sex Work and Sex Trafficking*, 394-395.

32. KENNEDY, *Legal Economics of U.S. Low Income Housing Market in Light of ‘Informality’ Analysis*, 92 s.

33. D. KENNEDY, *The Limited Equity Cooperative as a Vehicle for Affordable Housing in a Race and Class Divided Society*, in *Howard Law Journal* 46, no. 85 (2002).

34. JARAMILLO, *Distributional Analysis as Critique and Reconstruction: Adopting Uncertainty as a Method*, 7.

35. D. KENNEDY, *Sexual Abuse, Sexy Dressing and the Eroticization of Domination*, in *New England Law Review* 26, no. 1309 (1992); see also R. COOTER - S. MARKS - R. MNOOKIN, *Bargaining in the Shadow of the Law: A Testable Model of Strategic Behavior*, in *The Journal of Legal Studies* 11, no. 2 (June 1982); and R.L. HALE, *Coercion and Distribution in a Supposedly Non-Coercive State*, in *Political Science Quarterly* 38, no. 3 (1923).

process underpinning this kind of distributional analysis, thus, involves the foregrounding of background rules to identify the effects of rules established by law on the initial allocation of resource, wealth, but also the rules of the game attributing the bargaining powers and prerogatives at play in the daily interactions between different actors and stakeholders.

An institutional critique performed through the distributional analysis has been undertaken by Robert Hale that explained how the actual power dynamics and the ultimate allocation of resources can be better understood through the foregrounding of background rules. Hale's analysis of the impact of law on distribution suggests an investigation of certain legal rules in order to understand their effect on bargaining power and on the distribution of income between individuals and groups. This is indeed, as Duncan Kennedy points out, an analysis that finds very little space in legal academia and, nonetheless, is a daily operation for those who propose legislation and legislators.³⁶

Focusing on the regime of property, Hale emphasised how such regime may allow a potential unlimited accumulation of property or, on the other side of the spectrum, an almost absolute destitution. If property rights are formally the same for every individual belonging to a community, they may result in a substantial unequal distribution provided for by the background rules determining not the bargaining rules, but the initial positions at the bargaining table. Hale argues that:

[T]he law endows some with rights that are more advantageous than those with which it endows others [...] It is with these unequal rights that men bargain and exert pressure on one another. These rights give birth to the unequal fruits of bargaining [...] With different rules as to the assignment of property rights, particularly by way of inheritance or government grant, we could have just as strict a protection of each person's property rights, and just as little governmental interference with freedom of contract, but a very different pattern of economic relationships.³⁷

Duncan Kennedy in his *The Stakes of Law, or Hale and Foucault!* draws on the theorisations of Hale and Foucault to show how they have both developed essential critiques to the institutional understanding of the role

36. D. KENNEDY, *Stakes of Law, or Hale and Foucault, The*, in *Legal Studies Forum* 15 (1991): 322.

37. R.L. HALE, *Bargaining, Duress and Economic Liberty*, in *Columbia Law Review* 43 (1943): 628.

of law with regard to “reality” but that both had a somehow incomplete vision. Kennedy proposes a synthesis that encompasses the two visions by claiming that “[l]aw is one of the things that constitute the bargaining power of people across the whole domain of private and public life. One of the things this power produces is a distribution of income, understood as a distribution of whatever people value that is scarce. But another product of the deployment of power in unequal relations is knowledge, meaning particular understandings of the world and how it works.”³⁸

These dynamics take place in various fields of law and inform neighbourhood relations as well as commercial or civil transactions between different kinds of actors. Duncan Kennedy advances an analysis that takes into consideration not just the “regimes on paper” but also the “regimes on the ground.” In so doing he considers both the intended and desirable effects of the legal rules and the unintended and undesirable effects thereof.³⁹ He argues that these legal regimes are composed of a layer of private rights and of a regulatory overlay. The former is composed of criminal law, torts, and contract rules, whereas the latter “creates official, public bureaucracies – federal, state and local – that are formally charged with enforcing distinct but overlapping, sets of statutory regulations that reach the conduct of different kinds of actors.”⁴⁰

Another significant use of distributional analysis as institutional critique can be found in Helena Alviar’s work on land distribution in Colombia where she illustrates the effects of contradiction of property rights, established upon the 19th century conception of property provided in the Colombian civil code, with the rules introduced by constitutional reforms. Alviar shows the importance of the regulatory overlay in restricting the substantive impact on the ground of the land reforms adopted.⁴¹ This use of distributional analysis relies on the idea that law produces effects even when the interaction between individuals or groups does not take place in formal settings. Even when transactions or, more generally, interactions happen outside the boundaries of law, law – in its form of regulatory overlay – still plays a role in shaping those interactions. Robert Mnookin points out this aspect in his analysis by suggesting “an alternative way of

38. D. KENNEDY, *Stakes of Law, or Hale and Foucault*.

39. KENNEDY, *Legal Economics of U.S. Low Income Housing Market in Light of ‘Informality’ Analysis*, 77.

40. KENNEDY, 80.

41. H. ALVIAR, *The Unending Quest for Land: The Tale of Broken Constitutional Promises*, in *Texas Law Review* 89 (2011).

thinking about the role of law in the time of divorce. [His article] is concerned primarily with the impact of the legal system on the negotiations and bargaining that occur *outside* the courtroom. We see the primary function of contemporary divorce law not as imposing order from above, but rather as providing a framework within which divorcing couples can themselves determine their postdissolution right and responsibilities.”⁴² Thus, according to this perspective, law informs behaviours and, in a broader sense, “reality.” This use of distributional analysis is meant to address exactly the gap between “law” and “reality” pretending to unveil this unperceived distance produced by the impact of the legal rules in their role as bargaining framework. As Jaramillo argues, “law shapes behaviour and molds reality not when a decision is made in Court but when we make decisions as to what and when to buy, what and when to pay, etc.”⁴³

It is, indeed, this last use of distributional analysis that appears to be most useful in addressing the issues at stake in the legal regimes governing bottled water. In fact, the purpose of the present analysis is to unveil the gap existing between the formal legal regime governing bottled water and the substantial regime applying on the ground, shaping social interactions between actors and determining the allocation of the resource.

3.1.2 *Actors and stakeholders*

The distributional analysis conducted here intends to understand the effects on water access and distribution produced by the legal rules governing bottled water in the three legal regimes. Distribution in the analysis takes into consideration the allocation of legal prerogatives over water entitling the different actors involved to access and use the resource. Necessary to proceed with the analysis is the identification of the actors and or the stakeholders that needs to be considered. It is a difficult process that is condemned to be approximate, because some actor or category of stakeholders will inevitably be left out, and arbitrary, as the identification will ultimately result in a choice undertaken by the investigator. The identification of the actors and stakeholders involved is defined as limited and arbitrary as ultimately encountering two major challenges: the availability

42. R.H. MNOOKIN - L. KORNHAUSER, *Bargaining in the Shadow of the Law: The Case of Divorce*, in *The Yale Law Journal* 88, no. 5 (April 1979); see also J. HALLEY - K. RITTICH, *Critical Directions in Comparative Family Law: Genealogies and Contemporary Studies of Family Law Exceptionalism*, in *American Journal of Comparative Law* 58, no. 4 (September 1, 2010).

43. JARAMILLO, *Distributional Analysis as Critique and Reconstruction: Adopting Uncertainty as a Method*, 11.

of information, that will never be complete nor allow for perfectly objective understanding of “reality,” and the Heisenberg’s principle of uncertainty that, brought to the extreme, professes the impossibility to analyse the object of observation without altering the observation by this very act; in the same way the identification of actors and stakeholders is inevitably influenced by the purpose of the analysis itself.⁴⁴

However, the identification of the actors and stakeholders does not necessarily consist in a research of some pre-existing identities to consider in the analysis. On the contrary, most of the time those identities are actually created by the process itself. In fact, as pointed out by Duncan Kennedy, if Foucault is to be taken seriously “we have to come to terms with the idea that we do not “find” identities for our analysis, but rather produce those identities as we choose to imagine them as pre-existing our analysis.”⁴⁵ Actors and stakeholders are constructed as identities for the purpose of the analysis through an inevitable process of abstraction to which our cognitive and thinking abilities depend.⁴⁶

Identities are chosen or produced in order to conduct the distributional analysis. This process ultimately relies on the goal that the analysis aims to achieve. It depends on what the analysis intends to highlight. Even though there is an arbitrary component in the choice it does not weaken the analysis, but constitutes a necessary step of the process, as long as the identification respects the internal coherence of the analysis. To this end, Isabel Jaramillo, Tatiana Alfonso, and Helena Alviar suggest a four step methodology for conducting such a distributional analysis: 1) representing the situation as conflict among individuals differently situated and about a resource or set of resources (be it power, money, ideas, representations, etc.); 2) establishing what counts as an advantage or trump of some over others; 3) figuring out how these advantages are legally constructed by foregrounding background rules, both substantive and procedural, and thinking about law as shadowing daily life; 4) thinking about alternative arrangements or reforms to show how incremental reforms could actually affect distribution.⁴⁷

44. See JARAMILLO, 20-21.

45. D. KENNEDY, *Stakes of Law, or Hale and Foucault*.

46. Very inspiring in this sense is the short novel *Funes the Memorios* where the limit of human cognitive nature is wonderfully pictured, see *Funes the Memorios* in J.L. BORGES, *Ficciones*, A.A. Knopf, 1993.

47. See I.C. JARAMILLO SIERRA, *Derecho y Familia En Colombia: Historias de Raza, Género y Propiedad (1540-1980)*, 1st ed., Universidad de los Andes, Colombia, 2013.

According to this methodology actors and stakeholders are identified through the issue object of conflict. This is, indeed, the logic process that has been undertaken in this work in order to identify the different subjects holding stakes in the bottling phenomenon. The perspective adopted in this work looks at the bottling phenomenon to understand what role it plays in providing access to water for drinking purposes. In other words, the aim is to understand how it affects people's ability to satisfy their drinking needs by looking at the distribution of water, money, and externalities provided for by the legal regimes. For this purpose, three categories of actors/stakeholders are identified.

The first category is composed by the "state" or the "community" as the formal owner of water which is then destined to bottling. In the three legal systems under analysis water formally belongs to either the state (as in the Italian example), the nation (France), or it is a common resource of the community. The attribution of water to a community as a whole or to the institutionalised entity that governs the community – the state – has some relevance as to what concerns the effects on each member of the community and her claims on the resource. In fact, the more or less direct legal relation of each member of the community to water determines the power and prerogatives that the exponential institution (the state) can exercise on the resource. The significance of the difference between attributing water ownership to the state or to the community has been addressed in the constitutional law literature. In this work the state is understood and treated as an independent entity that, nonetheless, is legitimised by, and bound to, the community of citizens constituting it. No *a priori* understanding of the relation community-state is adopted for this distributional analysis, but the relation will be assessed in each concrete case.

The second category regroups the "bottlers" understood as all the private individuals and enterprises conducting a commercial activity consisting in the abstraction of water for the purpose of bottling and offering the final product, bottled water, on the market. This category identifies the recipients of authorisations, concessions, or licenses granted by the public authority allowing them to use the resource for bottling activities. The public authority, in its role of grantor of permits, determines whether bottlers can use water – which belongs to the state or the community – for private commercial purposes. In the context of the distributional analysis bottlers are identified as the actors appropriating water that, through the legal mechanisms operating in each country, is transferred from the state or the community to the bottling enterprise.

The third category gathers the “drinkers.” These are identified in all individuals as living beings that depend on water for their existence and survival. This category is constituted by all types of drinkers, regardless of what their primary source of thirst satisfaction may be. This category re-groups both individuals that rely on bottled water as their primary source of drinking as well as those who rely on tap water. Indeed, both categories are directly or indirectly affected by the bottling phenomenon. Individuals included in this category should not be considered homogeneous as their level of economic income also differentiates their choices and the burden that bottled water purchasing may have on their budgets. Nonetheless, they are all identified as a common category through their essential reliance on water for survival and for their being to a certain degree the direct or indirect original owners of water. Ownership that descends from the fact of their being part of the community composing the state.

Thus, the distributional analysis looks at the positions of these actors and stakeholders by investigating how the legal rules governing bottling produce these identities and provide for the allocation of prerogatives over water amongst them. The purpose of the analysis is to show the gap between the formal purpose underpinning the regimes and the substantial consequences that it provides for in its *de facto* application. First the analysis shows how the intrinsic tension in the legal conceptualisation of bottled water determines a misalignment between principles and their translation in the practical regulation. Second, provided that the legal rules formally identify the desirable allocation of the resource, the analysis looks at how the allocation works in practice by looking at the distributional impact of commodification.

3.2 The tension in the legal regimes: between general principles and operational rules

All the three legal regimes under analysis have legal rules governing water distribution informed by a certain conceptualisation of water. Such a perception of water translates into systems of rules providing for an allocation of water, and of access thereof, according to the principles recalled by the legal conceptualisation given to water. However, the purpose of the law does not always and necessarily translate into its practical application. It is, thus, adopted a pragmatic approach to consider the actual functioning of the legal rules, by taking into consideration also the rules lying in the background. These latter are, most of the times, disregarded even though they actually determine the general framework as well as the reciprocal

position of the different actors. The investigation of the functioning and the effects of those background rules is crucial in understanding the distribution of prerogatives over the resource.⁴⁸

The gap between the abstract goal underpinning the legal principles informing a discipline and the practical effects of legal rules in “reality” may be quite wide or, in some cases, even paradoxical. This is, sometimes, due to the complex structure and functioning of the legal regime that has been designed without taking into the necessary consideration the background rules. Hence, to understand the effect of the legal regime on the allocation of prerogatives and the distribution of water is necessary to “foreground the background rules.”⁴⁹

Another reason of such a gap may derive from the unforeseen and unexpected effects that the legal regime produces when new social phenomena appear or undergo a radical change. This is clearly visible in the contemporary technological development and the rapid advancement of artificial intelligence and internet, where phenomena like virtual social networks assume an increasingly important and pervasive role. It is this a particularly interesting example of the “new property.”⁵⁰ In these cases the law governing those phenomena has very often been designed in order to deal with and regulate a rather different situation. These situations have modified throughout time but are, however, still governed by those same rules that produce unexpected and sometimes unintended effects. Bottled water is one such example. Indeed, in the European countries here analysed the fundamental architecture of the legal regimes was firstly designed when bottled water was still a very niche and elitarian phenomenon, the consumption of which was almost entirely related to therapeutic purposes and destined to a restricted public. The growth of bottled water into a phenomenon of mass consumption was not just a matter of size but modified the social role of bottled water itself. It acquired a more central and important position in people’ access to water for drinking purposes and progressively involved most of the higher quality water available in these countries, which are those suffering the least from the, so called, water scarcity.

48. HALE, *Coercion and Distribution in a Supposedly Non-Coercive State*, 103-105; D. KENNEDY, *Stakes of Law, or Hale and Foucault!*, 339-240.

49. SIERRA, *Distributional Analysis as Critique and Reconstruction: Adopting Uncertainty as a Method*.

50. For an introduction to the challenges posed by the so-called new properties see U. MATTEI, *Proprietà (Nuove Forme di)*, in *Enciclopedia Del Diritto*, Milano: Giuffrè, 2012.

3.2.1 *Declamatory rules and the choice of principles*

The legal architecture informing water government in the three countries is not saved from the qualificatory issue concerning bottled water. The tension between efficiency of water management and equality in access to the resource constantly underpins every element of the legal regimes. Each one in its own way, every legal regime made a choice on how water should be conceived and, therefore, governed. Notwithstanding the ambiguity introduced by Principle n. 4 of the 1992 Dublin declaration, that defined water as an “economic good,”⁵¹ the legal conceptualisation of water in the three countries settled on defining water as a natural resource essential for human life. Thus, in the tension between the market-based approach to water designed to pursue efficiency and the opposing approach informed by equality in the access to a resource that is essential, the latter has been recognised as the preponderant feature characterising water.

The choice is, indeed, one that, from a perspective of distributional analysis, identifies what counts as value in the decision that a legislator has to make. From this choice then the allocation of prerogatives for water distribution descends. The choice has been avoided for quite sometimes when, relying on the ambiguous definition provided by principle n. 4, efficiency and equality have been kept together artificially, as if they could be not just compatible but even complementary.

This perspective translated into the adoption of the Integrated Water Resource Management (IWRM). According to the UNEP it is a “framework for governments and other stakeholders to manage their water resources as an integrated part of policies related to water in different sectors of society.”⁵² The IWRM approach has been adopted by a number of countries⁵³ and enshrined in various international agreements, in

51. Principle n. 4 of the Dublin Declaration states that “Water has an economic value in all its competing uses and should be recognized as an economic good. Within this principle, it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price. Past failure to recognize the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.” *Dublin Statement of Water and Sustainable Development*, International Conference on Water and the Environment (31 January, 1992).

52. UNEP Collaborating Centre on Water and Environment, *Support for Achieving the 2005 IWRM Target – Accelerating the Process* (Horsholm: UNEP Collaborating Centre on Water and Environment, 2005).

53. An example of this is represented by Germany, for a more thorough account on this see CULLET *ET AL*, *Water Law for the Twenty-First Century: National and International Aspects of Water Law Reform in India*, Routledge, 2009: 49.

particular in Chapter 18 of Agenda 21. The IWRM proposes a holistic approach to the government of water as an all-encompassing, shared natural resource in order to, according to UN-Water, pursue an efficient, sustainable and equitable management of water resources. This framework promotes a managerial approach for the government of a natural resource, understating the issues inherent to the conjugation of the objectives of efficiency with equity. The approach presents, however, major problems due to its focus on the conceptualisation of water as an economic good and its managerial approach based on full-cost recovery.⁵⁴ The IWRM was in fact the framework through which major IFI, the IMF and the World Bank, promoted significant water law reforms leading to the privatisation of water supply services in various countries.

This framework, that got the support of the World Water Forum as well, focuses primarily on water scarcity and promotes the IWRM as a solution providing for a more efficient management of water resources. However, this approach focuses on the economic dimension of water to reduce waste and inefficient allocation, but falls short in taking into consideration the essential nature of water. In this regard, the equity dimension has been relegated to a secondary position as, in fact, the issue of scarcity was considered to be more compelling. This choice in principle was quite evidently translated in the promotion of privatisation reforms and the focus on the economic nature of water, at the expenses of the equity and access concerns. The tension does not seem to be totally disregarded when, notwithstanding the managerial approach, the Fourth World Water Forum acknowledged “the critical importance of water, in particular freshwater, for all aspects on sustainable development” and the need to ensure access to water and sanitation for all.⁵⁵ Nonetheless, the issue of equity in access to water remained in the background as the failure to recognise the concept of a human right to water by the World Water Forum witnesses.⁵⁶

At the EU level the tension underpinning the legal conceptualisation of water appears to be addressed in a somehow different manner. Indeed, the Water Framework Directive, in its recital n. 1, states that “water is not

54. The International Water Association, *Industry Sector Report for the World Summit on Sustainable Development* (London: International Water Association, 2002).

55. Fourth World Water Forum, *Ministerial Declaration, Local Actions for a Global Challenge* (16-22 March 2006).

56. I. ZODROW, *International Aspects of Water Law Reforms*, in P. CULLETT ET AL., *Water Law for the Twenty-First Century: National and International Aspects of Water Law Reform in India*, Routledge, 2009.

a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such.”⁵⁷ This recital embodies the legislative choice that Member States and the EU have made in relation to water distribution. They endorsed and provided for legal rules establishing a system that, at least in theory, allocates prerogatives over water in such a way to guarantee a minimum level of equality with regard to access to the resource for primary needs. That system has been designed through a flip of perspectives introduced by the IWRM that moves from the acknowledgement of water scarcity and proposes a system of water allocation that attributes higher importance to the prioritisation of the more essential uses over the more essentially commercial ones. However, unlike the IWRM, these countries, while still pursuing a government system of full-cost recovery, are trying to implement regimes enhancing equality in access to water.

The three countries designed systems of uses for the government of water, which is ultimately a resource held in common or belonging to the state. The decision to attribute water control to the public in all the three countries witnesses the willingness not to leave the allocation of the resource completely to private and market interactions, but to provide for a general system of water distribution sensitive to issues of equality in access to water. In fact, none of the countries rely solely on a system of full-cost recovery for water distribution but all of them envisage, at least at the level of principles, some form of subsidised mechanism or minimal guarantee in order to enable a universal access to water for the primary uses.

The affirmation of water as a heritage to be protected and not a commercial product laid down in the recital n. 4 of the Water Framework Directive, besides being declared in terms of principle in the national legislations is, most relevantly, mirrored by the regimes governing water distribution. In fact, all the three legal systems operated a separation of use from the bundle of prerogatives on water. The former, which is a precondition for any form of particular or general use of water, is attributed temporarily to water users. The latter remains in the hands of the public that governs it either as direct owner, like in the case of Italy, or as a trustee as it happens in the UK; France represents an ambiguous example laying in between. These are the general legal architectures that define ownership over water and, with the intent of preventing socially undesirable

57. Recital n. 1 of the Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

accumulation and trading of the resource, limit the rights of users to the appropriation of the 'use value' of water.

In the United Kingdom water is treated as a *res communis* and no formal title of ownership is attributed. At the same time, the legal regime entitles the public authority, which is locally competent to govern the distribution of water through the licencing of particular use rights to individuals for various purposes. Such a legal construction appeared through a progressive reinforcement of public control over water uses in order to face, since the wake of the industrial revolution, the issues deriving from the increasing rivalry of water uses.⁵⁸ The previous system of legal entitlements over water based on landownership reached a point of unsustainability due to water limitedness and its shared nature. The very legal mechanism of separation of the right to use from all the other entitlements on water managed by the public authority acting as a sort of trustee for the government of the common resource signals the embeddedness of the conceptualisation of water as an essential resource. In order to facilitate the private use, however, an ancient rule still finds application in this regime: *i.e.* once water is captured by the private user, operating in force of a license, she gets the ownership of the portion of water captured. The rationale of this rule is that, once the private user uses the resource, nobody else can claim that water or interfere with the private use.

This set of rules, constituting the pillars of the water regime, are meant to attribute the distributional power to the public authority which allocates use rights on the common resource according to both principles of efficiency and equality. The system of licenses is, in fact, designed to implement a redistribution of water and wealth in a way that the least essential and more lucrative uses subsidise the most essential ones. Moreover, the general license system provided for by the Water Act of 2014 differentiates water uses depending on the "water loss" they imply. In other words, uses – such as spray and trickle irrigation, dust suppression where water, after use "is not returned either directly or indirectly to any source of supply"⁵⁹ but has to proceed through the entire hydric cycle in order to be used again – are considered "high loss uses." On the other hand of the spectrum there are the "low loss uses" which typically return a higher quantity of useable water after the use is done (examples are: mineral washing and vegetable washing). Uses are distributed on a spectrum of

58. See J. GETZLER, *A History of Water Rights at Common Law*, Oxford Studies in Modern Legal History, Oxford; New York: Oxford University Press, 2004.

59. THE ENVIRONMENT AGENCY, *Scheme of Abstraction Charges 2018-2019*, 6.7.4.

and regrouped in the following categories: high, medium, low, and very low loss. The categorisation corresponds to a multiplier of the tariff (from 1.0 for high uses to 0.003 for very low uses) meant to compensate for the common loss of the resource. Moreover, for the sake of fully understand the mechanism of determination of the tariff, the latter is determined by a number of multipliers of the Standard Unit Charge (SUC): the annually authorised volume (V); the source factor (A); the season (B); and the loss factor (C).⁶⁰

The decision over the allocation of water is in the hands of the public authority, whereas the conflict between different users – and between economically efficient and essential uses – is composed by the redistributive effect of the license system. Hence, pursuant to the formal rules the potential conflict between ‘bottlers’ and ‘drinkers’ is composed by the redistributive mechanism operated through the system of licenses that compensate the subtraction of common resource for the private commercial use through a mechanism of monetary compensation. In this system, water abstraction for bottling purposes is categorised as a commercial and high loss use, and the abstraction charge is determined accordingly. With this arrangement, the system aims at rebalancing and redistributing part of the gain that the recipient of the license has from her particular use of the resource – through which she appropriates the use value of water – through the tariff calculated according to the social importance of the use and the general loss of water caused by the use.

The French regime appears a bit more fragmented and not always coherent. In fact, it relies on a *summa divisio* between the property of water itself and of the water bodies. This division is purely legal since the two properties insist on the same physical object at the same time. The resource itself is proclaimed “common property of the nation” by the *code de l’environnement*⁶¹ while the article 714 of the *code civil* identifies it as a “thing” which does not belong to anybody and that is used in common.⁶² These two norms allocate water to the community broadly understood; the nation as a whole. However, if the environmental code identifies the nation

60. Water Act 2014 as detailed by the “Scheme of Abstraction Charges 2018-2019,” § 4 issued by the Environment Agency. The SUC is geographically based and there are 10 regional charge areas listed by the scheme.

61. L. 210-1 *Code de l’environnement*.

62. Art. 714, Code Civil: Il est des choses qui n’appartiennent à personne et dont l’usage est commun à tous.

as the owner of the resource, the civil code seems to deny any subjectivity of ownership prerogatives. The latter, instead, sets the basis for the system of use rights by proclaiming water as a “thing” to be used in common.

The common trend of water regimes, of which France does not constitute an exception, witnessed a shift from the institution of property to the instrument of permits to use for the control of water allocation. In the French system this control is exercised by the local public authorities which authorise a use that, unlike the British system, is an already existing prerogative derived, more or less directly, from a position of landownership. Indeed, the user may have a legal prerogative to access and make use of the resource in force of the fact that the water body is enclosed in her property – and, therefore, is qualified private water – or because her property is somehow related to a public water body from which she can access the resource. Such prerogatives cannot be fully exercised until the competent public authority authorises the use. Through this legal mechanism that subjects the actual use of water to a decision of the public authority – which determines also the purpose, the length and the amounts permitted – control over water distribution is attributed to the state, through its local representatives. Thus, according to the general rules governing water distribution, the decision power over water allocation is attributed to the state. All water users, bottlers included, depend on the grant of the authorisation from the public authority and have no power over the distribution of the resource, and very limited possibility of accumulation. In fact, according to the systems of use rights subordinated to authorisation, the only accumulation that is permitted by the regime is the accumulation of use value.

Moreover, the discipline provides for a mechanism of redistribution of such accumulation through the imposition of *redevances* upon the users. Charges that are calculated on the nature and quantity of the water used. Similarly to the British system, the French regime provides for several criteria determining the amount of the *redevance*. The environmental code, articles L213-10-9 and R213-48-14, sets the general parameters for calculating the amount. They have been specified by an *arrête* of 2011,⁶³ according to which the tariff depends from: the type of use (irrigation, household, cooling and other industrial uses, and other economic uses); the volume of water exploited; the type of water source.⁶⁴

63. Arrêté du 19 décembre 2011 relatif à la mesure des prélèvements d'eau et aux modalités de calcul de l'assiette de la redevance pour prélèvement sur la ressource en eau.

64. The type of water source does not relate to the quality of the resource. Provided that water meets the requirement of potable water, the other certifications (such as the spring

In this system, water abstraction for bottling purposes is not identified as a specific category, but falls within the residual category of “other economic uses.” The actual amounts of the *redevance* determined by use and category are voted by the boards of directors and approved by the *Comités de Bassin* of the different *Agences de l'eau* locally competent. Thus, the rules governing water abstraction for bottling purposes formally attribute the distributional power to the public that controls water allocation through the system of authorisation. The discipline attributes to the public the competence, and the power, to approve the amount of the *redevance* paid by bottlers.

The general legal framework of the French regime identifies bottled water production as one of the many uses of water falling in the miscellaneous category of “other economic uses.” A category that, notwithstanding the discretionary power of the public authority in determining the entity of the tariff, is meant to provide, through the *redevances*, for a redistribution of the loss in value suffered by the community because of the private use of water with the economic compensation paid by the bottlers.

The Italian regime on water sets forth a clear distributional choice by attributing the property on water to the public. This collocation of water within the public patrimony allocates the distributional power to the state and closes to any blurred arrangement of private engagement in the distributional decision process. Indeed – unlike the French system where water bodies can be private, or the British where water supply is privatised – in Italy the government of water distribution is a prerogative of the public authority, which can only delegate the supply service to privates, provided that water is distributed through non-profit based supply services.⁶⁵

Hence, in Italy the system of allocation of use rights on water has been completely delinked from the previously existing prerogatives deriving from landownership. Prerogatives that still determine the distribution of private water bodies in France as well as the attribution of the riparian

water qualification, or the recognition of a specific source as containing natural mineral water) which identify water of higher quality are not reflected in the *redevances* which only take into consideration the strategic importance of the source for the purposes of water distribution depending on the *zone de repartition*, and from whether the it is superficial or underground resource.

65. This prohibition has been a clear outcome of the referendum of 2011. The answer to the second referendum question produced the abrogation of comma 1 of art. 154, D.Lgs 152/2006 allowing to private actors running water supply services to include the remuneration of the invested capital in the tariffs paid by water users.

rights on the UK. The Italian regime clearly qualifies water as an essential resource and prohibits the subjection of water to distributional mechanisms based on market exchange dynamics. In other words, the regime prohibits the commodification of the resource.

With regard to bottled water the Italian system presents a peculiarity of primary relevance. The sources of water used for the purposes of bottling undergo a preliminary process through which they are re-qualified. In fact, when recognised as spring or natural mineral waters they assume the legal qualification of mineral resources and fall under the scope of application of the regime governing mining.⁶⁶ The requalification of the resource brings along the transformation of the property arrangements. The general regime on water allocates use rights on water that do not entail the legal appropriation of the resource through the act of use. On the other hand, the application of the discipline on mining relies on a different legal structure. If the discipline on water allocates use rights, the mining regime attributes to the bottler the *usufructus* of the source understood in its entirety. The bottler does not become the owner of the source. However, in force of the usufructuary right, she is entitled to the exploitation of the source. The water becomes the *fructus* of the abstraction activity and, as such, is rightfully appropriated by the bottler.

The requalification of water in the Italian system produces a somewhat paradoxical effect. Water, which the general regime prevents from privatisation, when re-qualified becomes appropriable by private bottlers. Indeed, its qualification shifts from natural essential resource to *fructus* extracted through the abstracting activity of the bottler. This latter, holding the right to usufruct, is entitled to appropriate the fruits of the source: *i.e.* water.

Provided that the activity of bottling is not reducible to a use, but rather a privately run system of water distribution, bottled water triggers a reconfiguration of the property arrangements designed by the general discipline governing water distribution. The bottler acquires the ownership of the water used for the purposes of bottling at the moment in which water is abstracted. In fact, that is the moment when the fruit (water) is detached from the asset (source) object of usufruct. This shift of property from public state property to privately owned constitutes an essential element, without which the selling of bottled water could not take place.

66. Once water sources are recognised as “*acqua minerale naturale*” or “*acqua di sorgente*” they fall under the scope of application of the D.Lgs. 176 of 2011, implementing the EU Directive 2009/54/CEE, which provides for the requalification of water as mineral resource and the consequent subjection to the regime of mining.

Indeed, the bottler could not sell the water inside the bottle if it were not hers. The property transfer constitutes the legal basis for such a purchasing.

However, the transfer of property from the public to the private bottler does not take place in a form of *sinallagmatic* operation between the state (or the community) and the entrepreneur. The legal regime does not envisage a property transfer, but water becomes ownership of the bottler because of its abstracting activity. The private ownership of water derives from the exploitation of the source, on which the bottler has the right to exploit. This right is attributed to the entrepreneur by a concession in return of the payment of a fee meant to compensate the economic loss of the public. The law considers mines for the economic relevance of the resources contained that, in order to be exploited, needs to be extracted. That is the reason why the institution of usufruct has been applied to the bottling of mineral and spring waters in Italy. This way, water becomes a fruit once separated from the source. Water property is, thus, never formally transferred by an act of disposition of the public, but changes owner as a consequence of the abstraction.

3.2.2 *The redistributive effect of the Italian discipline of bottled water*

In principle, the Italian legal architecture would probably comport distributional consequences very similar to the formal regimes prescribed in France and the UK. It is still the state (or the public authority) which determines to whom water uses and concessions are allocated. However, if *de jure* the distributional power is attributed to the public by allocating to it the ownership of the resource and the power over use rights allocation, *de facto* the mechanism of concessions for bottling alters the power allocation, substituting the principles underpinning access to water that, for an important part of water resources, shift from publicly governed distribution to a market based one.

The concessions accorded to bottlers come with a fee. These are, however, conceived as a canon for the exploitation of a mine and are meant to compensate the state for the impoverishment that the private exploitation of the source causes to the public. The composition of these fees varies from region to region. All of them include a voice measured on the extent of soil occupied by the bottling plant, but only some of them have an additional voice measured upon the amount of water abstracted and/or bottled. This means that in some cases there is no form of economic offset of the water used for bottling. This aspect appears problematic because, through abstraction and bottling, water is privatised by entrepreneurs which, in those cases, do not pay a price for appropriating the resource.

This mechanism of fee-based concession produces a different distribution from the one set forth by the general regime on water. In fact, the resource is appropriated by bottlers without a direct payment of a price for such privatisation. Even when the fee is measured upon the amount of water bottled, the price paid for the acquisition of private property of the resource is significantly less than the fee paid for the water uses directed at satisfying the primary needs. Thus, a paradoxical situation where water appropriation – prohibited by the general regime and exceptionally permitted in the case of bottling – costs less than water uses for essential purposes. It appears evident that the discipline governing bottling has a redistributive effect of primary importance on the allocation of the prerogatives over water. The subjection of the resource to the regime of mining comports a partial reconfiguration of the property arrangements. High quality water is subjected to a process of privatisation that takes place in force of the requalification of the resource operated by the legal regime. The general discipline governing water resources, based on a public-controlled distribution of use rights, is substituted in the case of bottled water by a privatisation of the resource. Property is transferred when the bottler abstracts water and, at that very moment, she acquires the property rights on the resource. Thus, the Italian regime if, on the one hand, reserves property rights to the state in order to subject water distribution to public control, on the other hand, attributes exclusive property rights to privates at the moment in which they abstract water.

Provided that such appropriation is not operated for the purposes of direct use, this reallocation of property rights to private bottlers produces a reconfiguration of the mechanisms of water distribution of this water that, transformed into a commodity, is subjected to a market-based system of allocation. The attribution of property rights to bottlers, and the conjunction of the right to exclude with the enclosure operated through bottling, subjects access to water to the market and transforms the resource into a commodity. Such a system shifts the distributional power from the public authority, which only has an initial power at the moment of releasing the concession, to private bottlers that transform the mechanism of distribution. Pursuant to this regime, water is allocated and priced through the system of supply and demand proper of the market. A system based on the generation of profit out of the control of access to water; system that contrasts with the outcome of the 2011 referendum.

Hence, the water destined to bottling, once appropriated, is put into the market in order to be allocated to drinkers. This mutated system of distribution is a key element of water commodification. In fact, the

system of public property and allocation of use rights is substituted in the bottling case by a parallel system of private property of the resource and distribution through private contracts. The discipline of bottled water attributes property and its power to exclude to bottlers, relegating the public authority outside of the distribution mechanism, which takes place within the classic power struggle between producers and consumers. Bottled water alters the distribution of prerogatives. Whereas access to water for all uses (more or less essentials) consists in a direct relation between users and the state, bottled water regulation transfers the power of allocating water to private enterprises. These latter, unlike the state, do not distribute use rights but subject access to water to contracts of sale alienating property of the resource. Thus, being bottled water in Italy the major source of drinking, bottlers hold the ultimate power over water allocation for drinking.

3.2.3 *Foregrounding the background rules: two examples across the Channel*

The Italian system provides for a formal separation of water destined to bottling from the general regime governing water as well as for a formal transformation of this water into a mineral resource; hence, susceptible to a process of commodification. Neither the British nor the French systems envisage such a formal requalification of water. Both systems have procedures through which specific sources are recognised either as “spring water” or “natural mineral water.” However, these recognitions do not comport the exit of water sources from the general regimes governing water resources and the application of different regimes as in the Italian case where water becomes a mineral resource.

In the two countries across the English Channel water abstraction for bottling is one among the many uses regulated by the public authority in its power of allocation of use rights. Thus, formally water abstraction for bottling falls within the system of distribution of uses upon which access to water for various purposes is governed by the public. Notwithstanding the formal maintenance of bottled water within the general regime of water government, the two systems provide the bases for water commodification through bottling accompanied by a redistribution of prerogatives over water. These effects appear to be in contrast with the principles informing both the British and the French systems and, yet, it is the very regimes that trigger the bottled water phenomenon as it is today. In order to understand the distributive effect of the regimes governing bottled water in these two legal systems it is necessary to take the analysis a step further since the focus on the formal rules falls short in explaining

the distributive mechanism triggered by law. For this reason, in analysing the distributive potential of the two regimes it is necessary to foreground the background rules.⁶⁷

The UK

It is true that the British system of water government developed, after and as a consequence of the industrial revolution, into a system of public controlled distribution of use rights on water. It is also true that this system has been altered by the appearance of the bottled water phenomenon, which, relying on the very same rules, transformed a use-right based exploitation of water into an appropriating activity. In fact, the peculiarity of bottling is that it is based on a prerogative that is almost impossible for the other types of water exploitation activities to exercise: the right to exclude.

The exercise of this prerogative is legitimised by the common law rule attributing ownership of the portion of water captured to the extractor. As highlighted before, this norm represented a coherent element of the discipline configured as a background rule meant to guarantee to the use right holder the peaceful exercise of her right. Indeed, the water user temporarily captures the resource in order to utilise it for her purpose. Pursuant to this rule, the user, once captured water, acquires ownership over the resource. She, therefore, excludes anybody else from interfering with her use. The application of the institution of property to the water captured was probably the easier and less costly way in order to vest the user with a clear position *vis-à-vis* the community.

However, the attribution of ownership to the user has, before the advent of bottling, limited its operative function to the protection of the inevitably temporary use of the person who captured the specific portion of water. Once water had been used, it would get lost or released into streams and would return to the hydric cycle. Thus, the application of the institution of property to water captured used to have no other function than protecting the temporary use of the resource. This norm did not create any alteration of the distribution of power of water allocation, which progressively was centralised in the hands of the state for the government of the allocation of the resource to the different uses.

The advent of the bottling phenomenon relied on this very norm and transformed its operational role. From a background rule with a moderate role of guaranteeing a system organised upon the centralised distribution of use rights, it has become a central norm enabling the private appropri-

67. HALLEY, *Split Decisions*.

ation of the common resource. This is in fact the distinctive element of bottling. Even though it formally relies on the acquisition of a right to use a water body, the ultimate scope of the activity is not using the resource, but enclosing it in order to subject it to a different mechanism of distribution. A market-based mechanism according to which bottlers, once gained ownership of the resource, can release bottled water into the market and alienate it through sale contracts. Unlike the choice of the Italian legislator, in the UK the transformation of the operative discipline governing bottling into a system of privatisation and commodification of the resource did not happen through a deliberate choice of subjecting “spring” and “natural mineral waters” to a different regime. It was the different nature of the abstraction activity for bottling that, relying on the general discipline of licensed use rights in accordance with the common law rule on captured water, transformed the right to use in a full-fledged property.

This transformation plays a role in the allocation of power over the distribution of the resource. In fact, bottling introduces the unprecedented ability of water users to accumulate. As mentioned in the previous chapter, if normally water uses are driven by the appropriation of the use value of the resource, bottling relies on the exchange value of water that is appropriated through private contracts of sale. In this dynamic, the buyer (the drinker) purchases water in order to appropriate its use value (satisfy her thirst), but she purchases it at a price that is set on the exchange value as the bottle released and distributed by the bottler through the market is transformed into a commodity.

Such a mechanism is based on the possibility of the bottler to acquire the ownership of water. The acquisition of this position, however, alters the power dynamics underpinning access to water. In fact, on the one hand, the effect of water abstraction for bottling is the accumulation of the resource as property of the bottler; on the other hand, this accumulation is done with the only purpose of water redistribution in the commodified version. Thus, the initial distribution that sees the water as a common resource distributed through the system of use rights allocated by the public is transformed, with regard to access to water for drinking purposes, into a system where water is not anymore a common resource, but private property. It becomes ownership of the private bottlers who reconfigure the distributional mechanism, which subjects access not anymore to water availability and common desirability of the use, but the willingness to pay of drinkers.

Moreover, the privatisation of the resource and its commodification taking place with water abstraction for bottling affects distribution not

only at the level of reallocation of legal prerogatives on the resource, reallocation that alters the initial positions of the three categories of actors (public, bottlers, and drinkers) and, consequently, their bargaining power. The privatisation has also a more direct effect consisting in the concrete reconfiguration of the property arrangements on water that provokes the constitution of private ownership of the resource without a corresponding compensation of the community.

The license system operating in the UK predisposes fees in order to compensate the communities for the loss of water that they suffer in consequence of the private use of the resource. As seen these fees are calculated according to many factors that consider the importance of the water body and, more relevantly, the nature of the use. Provided that water abstraction for bottling relies on a license to use a water source but results in the appropriation of the resource, the different nature of the exploitation activity is not reflected in the fee system. In fact, the general system of licenses for water uses parameters the entity of the fee upon the impact that the specific use has on the general availability of water for the general use of the community. These fees are calculated to balance the economic gain that the license holder receives from the appropriation of the use value of the resource, which is only temporarily subjected to exclusive property.

The license granting the use right to abstract water for bottling purposes is qualified within the miscellaneous category of “other economic uses” and charged with a fee applied to the more lucrative uses. However, what the fee is not designed to balance is the private gain derived from a permanent appropriation of the resource. In fact, the exclusive property gained by the bottler as a result of the abstracting activity is not temporary like the ones characterising other uses. Water is stocked in the bottles and the bottler loses ownership only as a consequence of a contract of sale with which she alienates the ownership of the good (previously, a resource) in return of the payment of its exchange value. Thus, the economic offset of the private gain played by the fee system is calculated on the abstraction, without taking into consideration the capacity of accumulation of the bottling activity.

Thus, the British regime governing bottled water produces a reallocation of water ownership of the resource that is destined to bottling. Indeed, from a common resource it is transformed into private property through abstraction and bottling. At the same time, the process of reallocation of water ownership alters the reciprocal positions of the actors and stakeholders involved. Bottlers assume a distributional power determined by their ability to hold the water on which they acquired ownership. This

process of accumulation attributes to them the decision power over the modalities and result of the allocation. On the other hand, there are the drinkers who, instead of accessing water through a public system of water supply, guarantee their own access to drinking water through purchasing the resource on the market.

France

France presents a discrepancy between the distribution set forth by the principles governing the water regime and the actual distribution resulting from the operational rules regulating bottled water that is quite similar to the British one. In fact, it is possible to observe how the general regime qualifies water as a common resource of the nation and allocates the power of granting access and use of water to the public authority. This system preserves the property of the resource to the nation as a whole preventing any possibility of private appropriation. Like in the British regime, only the use of a particular water body can be temporarily appropriated. The temporal element of the right to use a specific water body does not find application with regard to the private waters, which, where enclosed, can be subject to a permanent right of exclusion by the landowner.

This entitlement to exclude someone else use of the water body coupled with the practical ability, peculiar of bottling, to stock and accumulate water constitutes the basis for the transformation of the right to use a water body for bottling purposes into a *de facto* acquisition of the private property of water itself. Indeed, the French system of authorisations grants to bottlers the right to use the water bodies without transferring ownership of the resource. In fact, the local authority is competent to authorise the use of the resource, but has no power to transfer the ownership of the resource that does not belong to the state, but to the non-better defined nation.

Unlike in the British system, in France there is no background rule attributing ownership of water once it is captured. This is, in fact, the effect of the legal distinction between the water bodies, which are subject to either private or public ownership, and the resource itself that is common property of the nation. Thus, water users do not become owners of the portion of the resource that they capture or abstract for their particular use. Nonetheless, they might have ownership over the water body. The ability of the bottling activity to retain the resource – preventing its flowing downstream, evaporating, or percolating into underground streams – enables bottlers to control redistribution. More accurate is to say that the very purpose of the bottling activity is to capture water to subject it to a different process of allocation. As seen for the other two cases, bottling

has to do with the transformation of water into a marketable good which can be stocked, measured, transported and sold.

The implications of this transformation of the resource common property of the nation into a, substantially, privately owned asset sets the basis for a redistribution of the legal prerogatives over water in a very similar manner as it happens in the other two countries. While still formally being a common resource, water subject to bottling exits the publicly controlled mechanisms of allocation to enter the private market-controlled mechanism of exchange where water is allocated through contracts of sale. Being bottled water in France one of the two major sources of access to water for drinking, this transition inevitably alters the conditions of access to water for drinkers. In fact, if access to tap water is charged with a progressive (and, in some conditions, subsidised) tariff necessary to cover the costs of the supply system, with bottled water access to the resource depends upon the ability to pay a market-determined price of the commodity.

Moreover, the fees paid by bottlers for being accorded the authorisation to abstract water are calculated very similarly as it is done across the English Channel. The factors composing the amount of the fees are the one set by the general regime governing water uses. In fact, water abstraction for bottling is, at all effects, considered a water use. The use is qualified as “*autre usage économique*” and is determined by the local public authorities. This implies that the fee paid by bottlers is set to cover the economic loss of the community – as a fraction of the nation – for the subtraction of resource to the general use. What the fee does not offset is the economic gain of bottlers derived by the exchange value that they appropriate when selling bottled water to drinkers. Gain that is privately accumulated by the bottlers at the expenses of drinkers; in a bargain where the third actor (the state) appears to have little or no role in redistributing the rent accumulated by bottlers, in force of their position as *de facto* owners of the resource.

3.3 The “*alternative*” distribution of bottled water regimes

From a distributional point of view bottled water and its legal regimes have produced a parallel – an alternative – distribution to the one predisposed by the general regimes governing water in the legal systems observed. An allocation of water prerogatives that produces bottlers as third identity between the state and the variegated category of drinkers. In all the three legal systems – each one in its own way – bottlers have assumed the power of distributing the water subject to bottling. A role

that, with the transition of the base to access water from a property to a use right, the three countries have attributed in an exclusive manner to the public authority, identified as the actor able to take care of an efficient management of the resource while guaranteeing equality and solidarity in access for the essential needs.

The redistributive effect is twofold or, better, it takes place on two subsequent levels. The first effect can be registered within the legal sphere. The Italian and British regimes legitimise the formal privatisation of the resource. When water is abstracted from the underground source and bottled, ownership is transferred from the state, in Italy, or constituted, in the UK, in the hands of the bottler. Provided the ability of accumulation of the resource, this process of water privatisation produces a reconfiguration of property over water. In fact, a significant amount of high-quality water (mostly spring and natural mineral waters) becomes private ownership, in spite of the fact that the general rules in both countries determine a different property arrangement. In France the redistribution has the same effect, notwithstanding that the acquisition of private ownership of the resource takes place only at the substantial level and can be recognised as producing legal effects at the moment in which bottled water is sold.

Thus, the transformation of the right to use in ownership produces the emergence of bottlers as a category that cannot be located among the heterogeneous category of water users along with households that are here called, with a synecdoche, drinkers. Even though they rely on a temporary right to use a water source, bottlers constitute a category *per se* precisely because they accumulate water in order to distribute it to a specific category of water user: drinkers. Bottlers interpose between the public authority, holding the power of allocation of water prerogatives, and drinkers whose access to water is governed by the public. The triangulation of the relation poses bottlers in the middle as a Janus. *Vis-à-vis* the public authority bottlers assume the role of water users and act pursuant to permit to use water. *Vis-à-vis* the individual drinkers, they act as owners of the resource which can only be accessed through a purchase.

The second effect concerns the mechanism of allocation of bottled water. Indeed, if the first effect interests the relation of bottlers with the public, the second effect involves the relation of the formers with drinkers, *i.e.* the way in which drinkers' access to the resource is shaped by bottled water. Having bottled water acquired a predominant role in people' access to water for drinking purposes, its mechanism of water distribution has come to constitute the primary alternative to tap water or, in some

instances would be more accurate to say that, has transformed tap water into the first alternative to access water for drinking.

The second effect is consequential to the first in a relation where the reconfiguration of the legal entitlements on water constitutes a prerequisite for the transformation of the mechanism of distribution. The two effects may also be described by the two separate processes of 'privatisation' and 'commodification' that they respectively enact. As Karen Bakker argues, the concepts of privatisation, commercialisation, and commodification has to remain analytically distinct. *Privatisation* entails an organisational change of ownership or management shifting from the public to the private sector.⁶⁸ This is the process underpinning the first distributional effect of the legal regimes. In all the three countries, water ownership is subject to a transfer from a public or common property to a private one.

Commercialisation, on the other hand, involves institutional change whereby commercial principles, methods, and objectives are introduced to management practices. This process is not independently identifiable in relation to the bottled water phenomenon, while it has been, for instance, the dividing point of the Italian referendum on water management of 2011. In this case, the possibility of water commercialisation was radically opposed by the popular vote, limiting the determination of water tariffs to the principle of cost-recovery. Another case is represented by the English system of tap water management run by private companies. After a Thatcherian period of commercialisation of the service, the introduction of a heavy public regulation of the privatised water supply service limited the subjection of water distribution to commercial practices.⁶⁹

However, neither privatisation nor commercialisation can describe the process taking place through bottling, that is the transformation of water into a commodity. *Commodification*, explains Bakker, "entails the creation of an economic good through the application of mechanisms intended to appropriate and standardise a class of goods or services, enabling them to be sold at a price determined through market exchange."⁷⁰ Bottled water involves processes of privatisation and commercialisation of the resource

68. K. BAKKER, *Neoliberalizing Nature? Market Environmentalism in Water Supply in England and Wales*, in *Annals of the Association of American Geographers* 95, no. 3 (September 1, 2005): 544; see also A. ROBERTS, *Privatizing Social Reproduction: The Primitive Accumulation of Water in an Era of Neoliberalism*, in *Antipode* 40, no. 4 (September 1, 2008): 538 s.

69. See K. FITCH, *Water Privatisation in France and Germany: The Importance of Local Interest Groups*, in *Local Government Studies* 33, no. 4 (August 2007).

70. BAKKER, *Neoliberalizing Nature?*, 544.

but its effect is not limited to this. It transforms water from a resource into an economic good. Moreover, as Bakker points out:

Commodification is understood to be much more than merely economic. Commodification is a process whereby goods formerly outside marketized spheres of existence enter the world of money and, as such, is multidimensional: *socioeconomic*, entailing changes in pricing (pricing and the creation of price-signalling mechanisms), charging methods, and allocation and exchange mechanisms; *discursive*, entailing transformations in the identities of and values ascribed to natural objects such that they can be abstracted from their biophysical context, valued, and displaced; and *material*, entailing physical interventions and adaptations such that desired nature(s) can be alienated from their ecological context as standardized goods, amenable to exchange.⁷¹

This transformation of water into an economic good brings along an alternative mechanism of water distribution. A market-based mechanism that subjects access to water for primary needs to the payment of not just the cost of supply, but of a price determined by the exchange value of the resource transformed into a commodity. Such transformation has the consequential effect of transforming drinkers, whose access to the resource in its tap form is based on cost-recovery and the solidarity principle, into consumers. Thus, drinkers are not anymore identified by their basic need, but by their position of commodity buyers within a market economy.

4. *Taking bottled water seriously*

The present chapter, and the whole work, draws on the recognition of the importance that the bottled water phenomenon assumed in the last fifty years. It appears undeniable the fact that bottled water is today a primary source of access to water for drinking. This holds true in those semi-temporary situations where, due to contingent or structural insufficiency of the tap water supply systems, bottled water represents the allegedly only solution to provide an effective access to clean water. However, as it has

71. BAKKER, 545; see also M. KAIKA - E. SWYNGEDOUW, *Fetishizing the Modern City: The Phantasmagoria of Urban Technological Networks*, in *International Journal of Urban and Regional Research* 24, no. 1 (March 2000); and N. CASTREE, "Commodifying What Nature?", in *Progress in Human Geography* 27, no. 3 (June 2003).

been shown, the phenomenon occupies a rather important position as a means of access to water also in those contexts where tap water supply systems are suited to guarantee widespread access to clean water like in the European countries here analysed.

Having investigated the mechanisms of commodification triggered by the different legal regimes and how they produce a redistribution of legal prerogatives on water, on the one hand, and a reconfiguration of the mechanism of allocation of the resource on the other, it appears important, as a last analytical effort, to point out a few further distributional effects that the regimes governing bottled water produce. In particular, two aspects seem worth of mention: 1) the dispossessing effect of bottled water; 2) its impact on water scarcity.

4.1 *Bottling: an act of water dispossession?*

It has been argued that the act of bottling is key in the transformation of water into a commodity and how such a process has a redistributive effect on the ability to access water. However, the distributional effect of bottling is more radical and far reaching. It can be understood as an act of legalised, or tolerated, dispossession.

Dispossession is a term commonly utilised to identify mechanisms of coercive appropriation of property, typically of private property by a public entity (either directly or indirectly). In this sense, dispossession overlaps with the legal concepts of expropriation and eminent domain.⁷² For the purpose of this analysis the term dispossession stands for those processes in which property is transferred or generated in the hands of a subject through the alienation of the object from someone else. Dispossession consists in a process that does not necessarily imply a pre-existing situation of possession. As Robert Nichols delineates it, dispossession may also take place in a situation where “property is generated under conditions that require its divestment and alienation from those who appear, only retrospectively, as the original owners.”⁷³ Dispossession is, hence, understood here not only as a mechanism of forcible transfer of property, but also as a process of transformation into

72. For a more thorough account see R. NICHOLS, *Theft Is Property! The Recursive Logic of Dispossession*, in *Political Theory*, 2017; A. FITZMAURICE, *Sovereignty, Property and Empire, 1500-2000*, Cambridge University Press, 2014; P. GARNSEY, *Thinking about Property: From Antiquity to the Age of Revolution*, Cambridge University Press, 2007.

73. NICHOLS, *Theft Is Property! The Recursive Logic of Dispossession*, 3.

property, in a manner – as Nichols adds – that is “structurally negated for some, *i.e.* the dispossessed.”⁷⁴

This process can be tracked in the very act of bottling. In the countries under analysis water is held in a somehow common manner. In fact, the legal prerogatives composing the bundle of property rights are through different legal constructions attributed to the public authority, as the exponential entity charged with the role of governing the limited resource essential for the community of citizens. Without entering into the public law debate on the alterity and separation of the state as a self-standing entity different from its citizens or, vice versa, as an exponential entity that can be ultimately identified with its citizenry, water government appears to ineludibly stress the latter understanding of such relation.

All the three countries have attributed some property rights to the state as a way to preserve a public government of people’ access to the resource. However, the public prerogatives on the resource draw on a more or less direct link between water and the community. This conception is clearly evident in the UK where water is, actually, not property of the Crown but held as common without a formalisation of ownership, which is actually denied in favour of the common use of the resource. In France as well the formal control of the public authority over water derives from the exponential conception of the state, as the governor of a resource that is not state property, but common property of the nation. Finally, in the Italian legal construction the qualification of water as part of the public patrimony of the state appears as the historical development of the French *patrimoine commun*. The transformation of all water bodies into public patrimony in 1994 was, indeed, an operation to eliminate any private claim of ownership over the resource. In this sense, water ownership either does not exist at all (like in the UK) or is deployed as a mechanism to govern the common access to the limited resource.

Against this backdrop intervenes bottled water as Janus-faced in relation to commodification. As Mark Harvey points out, “on the consumer-side it is very clearly a commodity to be bought and sold; enclosed by a bottle; [...] and priced by companies often in negotiation with retailers, purchased and transported by consumers. [...] In contrast, prior to abstraction, as the ‘common pool’ water resource occurring naturally in the ground, it is definitely not a commodity.”⁷⁵

74. NICHOLS.

75. HARVEY, *Drinking Water*, 59.

The act of abstracting water to bottle it generates property rights of bottlers on the resource. It constitutes private property upon a formally common or public good. In doing so, bottlers dispossess the community – composed by the multitude of drinkers – of the resource formerly common or public resource. By triggering water commodification, bottling subtracts the resource from the general use governed by some public authority to subject it to a property-based access. In a sense, bottled water dispossesses the community by physically and legally appropriating the resource and exercising the right to exclude access thereof. In fact, the only way to access water subjected to bottling is to buy it. If access to tap water requires, but does not depend upon, the contribution to the collective costs of water supply, access to bottled water is subject to the purchase of the resource from the bottler.

Thus, drinkers find themselves buying something that, more or less directly, belongs collectively to them. This affirmation does not go as far as advocate the existence of individual property rights on the public, or common, resource. However, it intends to point out how bottling, by transforming water into private property, produces a substantial dispossession not only of the public – which, for instance, in the Italian case is the formal owner – but of drinkers. By transforming water into a commodity and subordinating its access to a market-set price of purchase, drinkers are dispossessed of direct access to water. In this manner access to water for drinking, which, according to the general regimes governing water use, is free or subject to a supply-service fee metered on drinkers' ability to contribute, is transformed into a commodity.

Drawing on Nichols' understanding of dispossession, this process takes the form of transfer of property in the Italian and the French cases. In fact, both regimes affirm the existence of property arrangements that get reconfigured by the bottling activity. Different is the situation in the UK where water ownership does not exist. In this case water abstraction for bottling generates property; it transforms water into an object of private ownership non-existing before this very act. Property-generating process implies the subtraction of water from the common use. In other words, it dispossesses drinkers of the resource which cannot be used anymore, but only bought.⁷⁶

Some authors, such as Gerald A. Cohen, argued that dispossession is not normatively wrong in itself. In fact, being the unequal distribu-

76. NICHOLS, *Theft Is Property! The Recursive Logic of Dispossession*, 20; see also MATTEI, *Proprietà (Nuove Forme di)*.

tion of access to productive resources, it could potentially trigger positive outcomes. However, it is wrong inasmuch as it enables the kind of coercive transfer characteristic of exploitation. In this sense, dispossession is causally but not normatively bad.⁷⁷ Moreover, the dispossession that takes place with bottling is accompanied by accumulation.⁷⁸ An accumulation of wealth derived from the appropriation of the exchange value of water extracted from drinkers. The process of water commodification that provokes the transformation of the resource into marketable private property is prodromal to the transformation of the access to water into an act of purchase of a high-value commodity.

These conditions specularly dispossess drinkers and enable the accumulation by bottlers of the spread between the use value of water and the exchange value that drinkers must pay in order to access water. This accumulation by dispossession, coming back to Cohen, is negative as it results in an exploitation of drinkers. Indeed, the existing choice between tap and bottled water as the source of water for satisfying thirst does not appear to be a conscious and rational decision that drinkers take, but rather a way of behaving perceived or even recommended as the safe option for drinkers. In this scenario, water abstraction and bottling appear to be acts of forceful accumulation of wealth, extracted from the commodification of an essential resource.

4.2 *The impact on water scarcity*

The last aspect worth of mention with regard to the distributional consequences of bottled water is the relation between bottling and water scarcity. The transition from the paradigm of water abundance to the other of scarcity has already been discussed previously to point out how the adoption of the Dublin principles on water management represent a landmark in the paradigm shift and in the introduction of efficiency as a core principle to reduce issues of water scarcity. However, even though there is an issue in absolute terms as the amount of water available is, especially in some areas, becoming insufficient for the satisfaction of human needs, the major challenge today is about relative water scarcity. In fact, in many situations (among which the ones of southern European countries) water is not scarce in absolute terms, but issues in access to the

77. G.A. COHEN, *Self-Ownership, Freedom, and Equality*, Cambridge University Press, 1995.

78. D. HARVEY, *The New Imperialism*, Oxford ; New York: Oxford University Press, 2003.

resource are determined by the insufficient and/or unequal distribution. Those are situations where the overall amount of water available would be sufficient to satisfy the demand, but the resource is allocated in a manner that grants to parts of the population access to insufficient quantities of water, or provides access to water bodies that are not suited for drinking.

Moreover, as Philippe Cullet observed, “[i]f physical water scarcity is indeed an immense and increasing problem around the world, it is by no means the only problem we must address. Thus, economic and social scarcity of water is often the actual constraint on access to basic water for millions of people around the world.”⁷⁹ Hence, water scarcity, besides being a quantitative problem, it more often is a matter of impossibility to access the resource. A matter of economic and social barriers impeding access to water. An example for all is represented by the inequalities in access to the resource experienced by people living in poor neighbourhoods of Delhi and those living in more wealthy ones. If the latter enjoy cheap access to clean tap water provided to their homes by the public water supply service, the former have no alternative but to spend an important part of their income to buy bottled water, since it represents for them the only safe alternative.⁸⁰

When it comes to scarcity of water for drinking, bottling plays a very important role. In fact, bottled water represents in many contexts a primary source for drinking, along with tap water and, as in the peculiar case of the UK, soft drinks.⁸¹ The importance of the role of bottled water in constituting a source of access to the resource is registered in very different contexts, where the factors on which the success of the phenomenon depends vary significantly.

To this regard bottled water assumes at the same time a double role. To what concerns the physical relative scarcity, bottling may appear an instrument to face this type of scarcity. Indeed, due to its transportability and widespread mechanism of distribution reliant on the market, bottled water is physically easier to access. Moreover, it can bring the resource in

79. P. CULLET, *Innovation and Trends in Water Law*, in *The Oxford Handbook of Water Politics and Policy*, 2017, 13.

80. See Y. TRUELOVE, (Re-)Conceptualizing Water Inequality in Delhi, India through a Feminist Political Ecology Framework, in *Geoforum* 42, no. 2 (March 2011); see also K. MALAKAR - T. MISHRA - A. PATWARDHAN, *Inequality in Water Supply in India: An Assessment Using the Gini and Theil Indices*, in *Environment, Development and Sustainability* 20, no. 2 (April 2018); and P. CULLET, *Water Law, Poverty, and Development: Water Sector Reforms in India*, OUP Oxford, 2009.

81. HARVEY, *Drinking Water*.

areas where there is no other clean water alternative readily available. At the same time, however, it is crucial to focus also on the “source that is the precondition of the sip.”⁸² In other words, it is important to remember that bottling implies the private appropriation of water springing from a source. This entails that part of clean water available for drinking is transformed into private property that is, as said, only accessible through its purchase. Provided that buying bottled water is between 200 and 400 times more expensive than the tariffs for benefitting of the tap water supply systems, bottled water constitutes on an economic level a far less accessible solution. Furthermore, the transformation of water into a commodity excludes any consideration for a solidaristic system proportioned on drinkers’ ability to pay. Bottled water prices are, in fact, determined within the market on the base of drinkers’ willingness to pay which, provided that bottled water is often perceived as the only reliable means to access clean water for drinking, is inevitably high.

Taking into serious consideration the trend of increasing consumption of bottled water worldwide imposes to acknowledge the inversion of roles between tap and bottled water in some contexts. If bottled water has been perceived as an alternative to tap water; the relation of norm and exception is increasingly blurred. However, the increase of bottled water consumption produces what has been called economic and social scarcity.⁸³ On the one hand the subjection of access to the payment of a price set upon the exchange value of the resource determines a significant increase of the “cost” of water that burdens drinkers, whose access become limited by their economic ability to bear such expense. On the other hand, the subordination of access to bottled water to a market-determined price equal for everybody determines social scarcity of water insofar as drinkers with different abilities to pay are charged the same price to buy water. The price system inevitably produces social scarcity as the conditions to access the resource have become increasingly more challenging.

Finally, the transformation of bottled water into a commodity inevitably obscured the feature of essentiality characterising the resource. Conceptualised as a commodity, bottled water is insensitive to any difference in drinkers’ economic conditions. In fact, drinkers’ wealth is taken into consideration only for the determination of the price of bottled water to reach the point of profit maximisation, given by a balance between the increase of price per bottle and the amount of bottles sold. If the bottled

82. HARVEY, 59.

83. CULLET, *Innovation and Trends in Water Law*, 13.

water phenomenon is to be taken seriously, it needs to be acknowledged that economic and social scarcity of water are accompanied by a mechanism of unequal distribution of the resource. When bottled water, as a commodity, is priced equally within a given market the cost produces an unequal ability to access the resource. Ability that in the case of bottled water depends on drinkers' income; *i.e.* their ability to bear the costs of buying water. The ultimate result of the progressive transformation of bottled water into the major source of water for primary needs is, beyond the consequences mentioned above, the transition from a public system of water supply directed at guaranteeing universal access to a private market-based mechanism guaranteeing access to water to those able to pay.

Conclusions

The present work intended to contribute to the investigation of the processes of commodification that since the beginning of the twenty-first century have been gaining an increasing importance. *Vis-à-vis* these processes the jurist is charged with the responsibility of understanding the role that law has in promoting or limiting such commodification as well as to identify the distributional effects of the transformation of public or common goods into commodities. Within this framework this work focused on the bottled water phenomenon, and analysed it as a vanguard example of the wave of commodification that is taking place today. Bottled water presents a number of characteristics that make it an interesting case study. Indeed, it is a phenomenon that developed precisely upon the possibility, offered by the legal regimes, to transform water into a commodity and, among the processes of commodification of its size, is arguably one of the earliest. Therefore, it appeared a particularly useful case study in order to investigate the consequences that such phenomenon has produced.

The investigation conducted in this work provides some relevant insights with specific regard to the debates in the field of water law concerning the appropriate management in order to prevent scarcity, and more generally with reference to the government of natural resources. This work intended to bring into both academic and policy discussions a serious reflection on the challenges posed by the morphological transformation of the legal institutions structuring the regulatory frameworks governing the bottling phenomenon. As to what concerns bottled water, the phenomenon has produced a reconfiguration of the property arrangements on water and, consequently, re-determined the conditions of access to the resource.

Moreover, the comparative analysis conducted in this work intended to offer an example of the detachment between the legal principles informing a discipline and the operational rules applying on the ground. Indeed, the comparison of the legal regimes governing bottled water in

the European context – in particular France, the United Kingdom, and Italy – have shown how, notwithstanding the existence of significantly different declamatory principles in the three legal systems observed, the operational rules governing the phenomenon in those systems appear to have a very similar practical functioning.

Lastly, this project proposed an application of the instruments developed within the distributional analysis literature to investigate the practical effects of the bottling regimes. The distributional analysis built upon the comparative work in order to provide a concrete understanding of the gap existing between the principles adopted by the countries studied and their actual implantation on the ground.

With the aim of providing an organised description of the evolution of the regulatory regimes governing bottled water, the first chapter provided a historical account of the transformation of both the bottled water phenomenon, from its European origins back in the 17th century up to today, and of its disciplines. Such a historical account was essential to understand the crucial role that law played in the impressive development that the phenomenon has had in the last fifty years. Development that has brought bottled water to be a commodity of mass consumption at the global scale.

The second chapter focused on the conceptualisation of water and bottled water. It has presented the tension between the conception of water as natural resource essential for human life and the conception of water as a commodity. It has done so by looking at how the tension has appeared in both the economic and the legal arenas, and looked at the reciprocal influence between the two spheres. The investigation drew on the general debates on water government, beginning with the landmark declaration of the Dublin Principles on Water and the Environment of 1992 in order to follow the evolution of the ambiguous concept of “water as an economic good” coined by the Principles. The chapter then analysed the predominant understandings of the values and costs of water to see how their perceptions frame the legal conceptualisation of water and have brought about a managerial approach to the government of the resource.

The third chapter relies on the comparative mapping of the legal regimes described in the first chapter and on the economic and legal analysis of the second. The purpose of this chapter was to investigate the fundamental architectures of the legal regimes that, with a comparative approach, were studied to highlight the discrepancy between the declaratory principles of the general regimes governing water resources and the operational rules applying to bottling. The analysis tracked the common

pattern of transformation of the three legal regimes from property, as the key institution organising water distribution, to the 'right to use.'

The last chapter has engaged in a distributional analysis of the legal regimes governing bottled water in order to identify the allocation of prerogatives over the resource produced by those regimes. The analysis has pointed out the transformation of water destined to bottling into a commodity and the effects that this transformation is producing. From the distributional analysis it emerged that the process of water commodification is not without effects. To what concerns the disarray between the formal regimes and the operational rules, the analysis, by an operation of foregrounding of the background rules, showed that the property arrangements are *de facto* reconfigured by the bottling phenomenon. From a formal regime of public or common property, water is substantially subjected to private appropriation.

These processes cannot only be understood as privatisations. In fact, they entail further consequences. Water, once appropriated for bottling purposes is then released on the market as a commodity. This process of commodification permits the appropriation by bottlers of the monetised equivalent of the exchange value of water, which, once bottled, can be accessed only through the purchase of the bottle. Thus, drinkers have to pay a price for buying a resource that would have been freely accessible or accessible upon the payment of a supply-service fee. Drinkers, whose use of the resource consists in the appropriation of the use value, are dispossessed of the difference between the exchange value, that they have to pay to access bottled water, and the use value that they appropriate. Such surplus is appropriated and accumulated by the bottlers, whose ability to appropriate is determined by the background rules of the different regimes. Accumulation that does not find any mechanism of offset in the public system tariffs over water use.

Moreover, having bottled water become a major source of water for drinking purposes in the countries analysed, the bottling phenomenon is contributing to relative water scarcity. In particular, given the high costs of bottled water accompanied by the absence of any mechanism of pricing sensitive to drinker ability to pay, bottling is determining social and economic water scarcity even in high income countries.

The outcome of the distributional analysis conducted in this work points out the urgency of a serious reflection on the role of law *vis-à-vis* these processes of water commodification. Having showed how these processes can only take place because of the legal infrastructures on which they rely, a legislative intervention would need to take into

consideration the distributional effects produced by bottling. Starting points for a reflection on the matter could be the following. A moderate operation could probably take into consideration the recalibration of tariffs imposed on the permits to use water for bottling purposes in order to offset the accumulation perpetrated by bottlers and, indirectly, return via the public the value of which drinkers have been dispossessed. This offset would, however, also need to take into account the significant environmental and social negative externalities that the bottling system inevitably produces.

This work was conducted with the awareness of its incompleteness. Indeed, many other aspects of the bottled water phenomenon would have been worth to be taken into consideration. However, tempting an analysis of all aspects together would have inevitably resulted in a superficial work of little significance. This work was undertaken with the intent of providing a first systematic analysis of the legal regimes governing bottled water in the European context to address their role in water distribution, scarcity, and commodification.

As said, this project focused on some European legal systems as they have been the first one developing a regime for the government of bottled water. Arguably, these regimes have served as archetypes that have been the object of legal transplants in other countries by means of voluntary transplants, intellectual or economic hegemony, colonisation, or through the intervention of the so-called rational exporters, *i.e.* bottling companies themselves. Conceiving this project as the first stone of a bigger endeavour, it would be interesting to extend the comparative analysis to track the circulation of the European models in order to investigate their reception and implementation. The perception is that the European models – especially the British and the French – have been adopted extensively. It would then be of interest to investigate the consequences that those same models have produced in contexts where physical water scarcity is a bigger issue and where social, economic and environmental conditions are sensitively different.

Another line of research that would need to be addressed concerns the environmental aspects of the bottled water phenomenon. Indeed, bottled water production and consumption has a profound impact on the environment. Let us think about the amount of plastic produced and then wasted, the energy needed for running bottling plants, but also transportation which is, by the way, one of the major costs for producers and that in many cases covers impressive distances. On average, a bottle of water in Italy travels a thousand kilometres before being drunk.

These are all environmental externalities that are borne unequally in different parts of the World. An example for all is the systematic shipping of plastic bottles consumed in the United States to India, where they are discharged in massive landfills. This is just one of the many environmental issues of global scale. An important reflection is needed on the matter because all these environmental transnational externalities do not find any mechanism of offset. To say more, the very success of the lucrative business of bottling is made economically sustainable only because the costs of the negative externalities are not internalised. Thus, a serious reflection on the environmental effects of bottling is much needed in order to identify solutions going beyond the mere economic compensations of environmental damages that, as it is today evident, cannot be repaired by money.

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How does the bottling phenomenon impact on the fundamental value of access to water? It influences the way people drink and affects their possibility to access the resource, either economically or physically. This work analyses the role of law in the uprising of this phenomenon focusing on the implications on water distribution. Bottling regulations contain a tension in the legal conceptualisation of water as an essential resource and as a commodity. This tension encompasses the discourses on privatisation of public or common goods and is used to investigate the processes of accumulation by dispossession that it triggers.

Through a comparative approach this work engages in a distributional analysis of the French, the Italian and the British legal regimes to unveil the hurdles of using property, a legal institution constructed around land, to govern water distribution.

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