

INTERNATIONAL LAW AND TRADE OF WATER**DIREITO E COMÉRCIO INTERNACIONAL DE ÁGUA***Andréia Costa Vieira¹***ABSTRACT**

Four distinct negotiations have been identified as ‘international trade of water’, encompassing i) international and foreign investments for privatization of water services; ii) international trade of bottled water; iii) international trade of bulk water; and iv) international trade of ‘virtual water’. After introducing each one of these kinds of water trade, this essay analyses their main features and challenges for international law. Regulation is the commandment to deal with privatization of water services whenever the private sector comes into play. Lack of regulation is the distinct mark for trade of bulk water. Many concerns related to environmental protection and internalization of externalities are pointed out on the market of bottled water and on the trade of virtual water. The water crisis within these four kinds of water trade is part of a ‘global governance crisis’ and, as such, distinct actors and rules have had to be taken into account in order to achieve sustainability of the water sector.

KEYWORDS: International Trade of Water, Privatization of Water Services, Trade of Bottled Water, Virtual Water, Trade of Bulk Water, Global Water Governance.

RESUMO

São identificadas quatro distintas negociações como ‘comércio internacional de água’, a saber: i) investimentos internacionais e estrangeiros para a privatização dos serviços de água; ii) o comércio internacional de água engarrafada; iii) o comércio internacional de água *in bulk*; iv) o comércio internacional de água virtual. Após apresentar esses quatro tipos de comércio de água, faz-se uma análise de suas principais características e desafios para o Direito Internacional. Regulação tem sido o mandamento para a privatização dos serviços de água, toda vez que a porta é aberta para o setor privado. Por sua vez, a falta de regulação é um marco distintivo para o comércio de água *in bulk*. Muitas preocupações têm sido apresentadas em relação à proteção ambiental e à internalização das externalidades ambientais em relação ao comércio internacional de água engarrafada. A crise da água, visualizada dentro desses quatro

¹ Professor of International Economic Law and the Environment at the PhD and Masters Program of the Catholic University of Santos; PhD in International Law (USP-Brazil); LLM in International Commercial Law (University of Nottingham, UK); Visiting Fellow at the Lauterpacht Centre for International Law (University of Cambridge, UK); Representative of the University of Cambridge Alumni in Brazil; Former UNHCR/Caritas Legal Counsellor for Refugees in Brazil; Legal Adviser (andrea.vieira@unisantos.br).

tipos de comércio, é parte de uma crise de governança global e, como tal, distintos atores e normas têm sido levados em consideração para alcançar a sustentabilidade do setor hídrico.

Palavras-chave: Comércio Internacional de Água; Privatização dos Serviços de Água; Comércio de água engarrafada; Água Virtual; Comércio de Água *in Bulk*; Governança global da água.

INTRODUCTION

Water has an economic value and it has become a commodity. Water has been carried from one side of the world to the other through ships and water bags. It has been negotiated in stock exchange markets and has become a big world business. Such statements represent a reality that surrounds the international trade of water.

In 1992, the United Nations Conference held in Dublin established the Water Principles² and among them there is the principle of economic value ('water has an economic value'), which has been adopted in many different countries.

What does it mean to say that water has an economic value? In the 2002-2003 Pacific Institute Biennial Report, it was reached the conclusion that such principle raises the market competitive value of water. Put it in other words, water would be employed in such a manner that its value would be maximized³. Such maximization refers not only to the prices that water might have on the market but as well as to the 'value consciousness' and importance that water has gained socially, politically and economically.

In this essay, I have identified four distinct negotiations that might be termed 'international trade of water' within a broad meaning, which encompasses:

- i) International and foreign investments for privatization of water services;
- ii) International trade of bottled water;
- iii) International trade of bulk water; and
- iv) International trade of 'virtual water'.

In the following paragraphs, I will introduce each one of these 'water markets' and their main challenges under International Law.

² Document available on <<http://www.un-documents.net/h2o-dub.htm>> Access on 13 March 2016.

³ GLEICK, P. H. et al. The World's Water 2002-2003. The Biennial Report on Freshwater Resources. Pacific Institute. Washington: Island Press, 2002.

1. INTERNATIONAL AND FOREIGN INVESTMENTS IN PRIVATIZATION OF WATER SERVICES

Water governance can also be understood as a pluralistic pragmatism that has driven society and knowledge nowadays⁴. Therefore the management of water resources would not be only at the public hands of the State, which does not mean the mere inclusion of the private sector. The efficiency of water governance demands action from the public and the private sector together as well as from civil society.

In the 19th century, water supply services and basic sanitation were already a public concern in the United States and Europe. The first water supply systems were private ones and consisted of supplying the upper classes. Governments took the water supply services into public hands, mainly in Europe, when they realized that it was a matter of public health and economic development. In the beginning of the 20th century, public management of water sources was already adopted in most European countries and in the United States⁵.

In the 1980s, the United Nations proclaimed the International Decade for Freshwater and Basic Sanitation, as an attempt of awakening the interest of the international community for water issues, mainly in developing countries⁶. High defined goals were established for water supply and basic sanitation. At the end of the decade, such goals were far from being reached by most nations.

The neoliberal ideology that was implemented, mainly in Europe and in the United States, from the 1970s onwards, greatly influenced the water sector in developing countries. Inefficiency of the public sector for adequately supply fresh water and basic sanitation suggested that the private sector should be involved.

In many countries, such as in England, in the 1980s, public deficit was very high and public policies were developed to deal with that concern. Besides, water supply and basic sanitation represented high costs for public coffers, since the demand for reparations on equipment and technology updating as well as quality of the water supplied and labor issues meant increase in public deficit in England. Privatization meant a solution for that financial issue since higher taxes would instead raise unpopularity for the government.

Moreover, the financial institutions that commanded the wave of international loans and financing – mainly the IMF and the World Bank, were the major preachers of that neoliberal policy, supporting investments by private companies in the water

⁴ CASTRO, J. E. Water Governance in the twentieth-first century. *Ambiente e Sociedade*. Campinas, v. X, n. 02, 2007, at 102.

⁵ BUDDS, J.; MCGRANAHAN, G. Are the debates on water privatization missing the point? Experiences from África, Asia and Latin América. *Environment and Urbanization*. International Institute for Environment and Development, SAGE, p. 87-114, 2003, at. 90.

⁶ UN Resolution n. 35/18, available on:

<<http://www.un.org/documents/ga/res/35/a35r18e.pdf>> Access on 26 March 2016.

sector⁷. Within the neoliberal understandings supported by the IMF and the World Bank, there was the principle of minimum government intervention in the economy and the entry of the private sector to deal with the inefficiency of the public sector.

In the 1992 United Nations Conference on Water and Environment held in Dublin, a Declaration on Water Principles was produced. Among the many principles therein enshrined, there is the polemic declaration that water has an economic value (Principle n. 4), which has been interpreted by many scholars as a door for the entry of the private sector into water management. Notwithstanding its interpretation, the fact is that the international financial sector has adopted a privatization speech for conditioning to privatization many loans and international investments in developing countries as well as to renegotiate their international debts.

The term 'privatization of the water sector' has been used for different management contracts adopted worldwide. Budds and MacGranaham suggest that privatization comprehends private enterprises participation on the water supply and basic sanitation services, assuming risks and making investments, but not necessarily having the transfer of property to private hands⁸.

There are different kinds of contracts that have been used for the water sector, which range from service contracts (for a short period and a specific service) to Build, Operate and Transport contracts (BOTs) and concession contracts. Besides, there can be mentioned also joint ventures and cooperatives.

In all contract standards implemented in Latin America, there was not much competition in the public procurement procedures. Three main companies were competing among themselves: Suez, from France, Aguas de Barcelona, from Spain, and Veolia/Vivendi, also from France⁹. In Africa and Asia/Oceania, Thames Water, from Germany, and Sauer International, from France, were also in competition, besides Veolia/Vivendi and Suez. In fact, Thames Water, Sauer, Veolia/Vivendi and Suez represent about 80% of all water services privatization that has taken place in the world¹⁰.

There cannot have intra-regional competition on water services, since water services are a natural monopoly. Installation costs would not allow it otherwise. Consumers would be too vulnerable if more than one company, using distinct mechanisms, supplied the service¹¹. If it was not a natural monopoly, every time a supplier was replaced, under contract, by another one, there would be new equipment

⁷ BUDDS; MCGRANAHAM, 2003, op. cit., at 91.

⁸ Ibid., at 89.

⁹ FOSTER, V. Ten Years of Water Service Reform in Latin America: toward an Anglo-French model. Water Supply and Sanitation Sector Board Discussion Paper Series, n. 3, The World Bank Group, Washington DC, January, 2005., at 7.

¹⁰ BUDDS; MCGRANAHAM, 2003, op. cit., at 104

¹¹ GONZÁLEZ-GÓMEZ, F.; GARCÍA-RUBIO, M. Efficiency in the management of urban water services. What have we learned after four decades of research? *Revista de Economía Pública de la Hacienda Pública Española*. Instituto de Estudios Fiscales, n. 185, v. 2, pp. 39-67, 2008., at 4.

and new installation, which would render the service supplied physically and economically unfeasible. Whenever there is competition, it happens only on inter-regional basis.

Many have raised a case for privatization of water services on the claim that the private sector is the best way to assure that such services will reach the grass roots of society. However, as it has been remarked:

A number of multinational water companies have asserted that low income populations do not represent an attractive market because they are too poor to be profitable and represent too great a financial risk. The chief executive of Saur said that there was little scope for users in the South to be able to pay prices that represent the levels of investment needed, that the goal of connections for all users was “unrealistic”, and that public sector subsidies and soft loans were essential for meeting these needs. Representatives of Veolia stated that profits depend on “sufficient and assured revenues from the users of the service”, which are unlikely to include poor groups. Bewater’s general manager, referring to Zimbabwe, also claimed that: “From a social point of view these kinds of projects are viable but, unfortunately, from a private sector point of view they are not¹².

In fact, the private sector cannot be left alone for such social concerns and issues might not be the right political decision to adopt.

A 2008 research collected data related to four decades of water services management from different parts of the world, wherein it was reached the conclusion that efficiency in the water sector is not related to the public or private nature of that service or its management. This study also clarifies that whenever the private sector enters into the business, it only remains if there is profit, which has not always been matched with the public interests involved. Even in countries where water services were almost totally privatized, the State has had to regulate in order to assure environmental and consumer’s protection¹³.

There is a growing perception that the governance of water resources and water services functions more effectively with an open social structure which enables broader participation by civil society, private enterprises and the media, all networking to support and influence government. Moreover, examining the role of networks or distributed governance helps to overcome the sterile debate about private versus public water service delivery and the role of the community. (...) There is no single model of effective water governance; indeed to be effective governance systems must fit the social, economic and cultural particularities of each country. Nevertheless, there are some basic principles or attributes that are considered essential for effective water governance¹⁴.

¹² BUDDS; MCGRANAHAM, 2003, op. cit. at. 109.

¹³ See González-Gomez and García-Rubio, 2008, op. Cit.

¹⁴ ROGERS, P.; HALL, A. Effective Water Governance. The Background Papers.

More than 90% of all water supply and sewage services in the world is provided by the public sector and it is probable that such a situation remains, even though the public sector has been accused of inefficiency and of not having enough resources to undertake due investments¹⁵. It is certainly not the right policy to transfer the property of water services to the private sector in any circumstance, but it is important to allow it to make investments in water services, under regulation, ever since the public sector does not have enough public revenue to make the necessary investments.

Next, there will be presented the implementation of procedures of privatization of water services within different countries. The cases herein analyzed are of those countries that have been pointed out, in most published studies, either as a positive or a negative example of privatization.

1.1 Privatization of Water Services in France

In the 19th century, water services in France were first supplied by the private sector, whose main concern was to take water to the upper classes. Such water supply services structure spread throughout most parts of Europe. However since demand increased, the private suppliers, having a short revenue, faced difficulties to manage it.

Therefore, the British system, which adopted a public local water management, became the management model to be adopted in the beginning of the 20th century. England was then celebrated as the birthplace of ‘municipal socialism’¹⁶. Such management model was exported to different European countries, but it did not prevail in France, even though the private suppliers in this country could not find alternatives for their financial problems.

The success attributed to the private model for water services in France is due to the incapacity of the *communes françaises* to adopt a public municipal model¹⁷. Implementation of a liberal State in France had already left the *communes* under a precarious situation of balance of payments and, as such, there was not revenue for investment in water services.

That explains why there was a large specialization of the French private sector in water services. Two French water companies – Vivendi and Suez – are the largest ‘water industries’ in the world and they have figure out, respectively, as the 91st and 118th global trade fortunes, as they supply water services for more than 100 million people spread by 130 different countries worldwide¹⁸.

Global Water Partnership. n. 07. Suécia, 2003, at 26.

¹⁵ Ibid., at. 32.

¹⁶ BARRAQUÉ, B. Politiques de l’eau em Europe. Revue Française de Science Politique, v. 45, n. 3, 1995, at. 427.

¹⁷ Ibid.

¹⁸ Information published in Global Fortune 5000 (2000), mentioned by BARLOW, M.; CLARKE, T. Blue Gold. The Battle Against Corporate Theft of the World’s Water, London: Earthscan Publications, 2002, at. 85

Moreover, Human Rights had as a starting point, in France, la *Déclaration des droits de l'homme et du citoyen*, which was strongly cemented and firmly consolidated on the right to private property. That was a historic achievement for the *citoyen français*. Water, in France, is historically a matter of right to private property and, as such, water has been considered a good for consumption.

Such overview was mitigated, in France, with the introduction of environmental protection and the polluter-pays principle¹⁹. In the second half of the 20th century, there were established the river basins committees in France and ever since a policy of regulatory agencies for each basin has been adopted.

The French Regulatory agencies worked under a decentralized system, which did not depart from the private administration of water services. These agencies are in charge of regulation and supervision, having had to manage mainly quality and environmental protection²⁰. They have local financial and administrative autonomy. Nevertheless, they lack administrative policing power and management capacity of water resources, which is a hindrance for the exercise of political representation of local interests.

Recently, due to a continuous increase in public tariffs for water supply services, there were social movements that claimed water as a public asset in France – mainly in Paris and other larger French cities.

The first claims occurred in the city of Grenoble. Citizens went to the streets to complain about the high tariffs and low quality of water services. After many disputes, the Grenoble citizens won a battle in Court and, in the year 2000, there was a termination of contract signed with Lyonnaise des Eaux (a Suez's subsidiary company), which had the right to supply water services in Grenoble since 1989²¹.

In Paris, water supply services were taken over to public hands in January 2010. A public company was founded - the Eau de Paris, for the management of water supply services. Up to 2010, two different private companies run the water business in the city of Paris, each one operating on a different bank of the Seine River. This Paris social upheaval for public water was similar to the one that happened in Grenoble, which claimed water as a public asset whose management should be totally on public hands. Since 2010, tariffs price reduction has been registered mainly because Eau de Paris adopted a policy of decrease in profits margins. Public transparency and lower tariffs, besides improvement in water quality, changed the habits of the *citoyens de Paris*, who left aside consumption of bottled water for domestic use. Besides, Eau de Paris installed 953 sources of drinking water in public places, such as parks, squares, cemeteries and others²².

¹⁹ BARRAQUÉ, 1995, op. cit., at. 441

²⁰ DORE, M. H. I.; KUSHNER, J.; ZUMER, K. Privatization of water in the UK and France: What can we learn? *Utilities Policy*, v. 12, n. 1, pp. 41-50, March, 2004, at. 41

²¹ BARLOW, M.; CLARKE, T. *Blue Gold. The Battle Against Corporate Theft of the World's Water*, London: Earthscan Publications, 2002, at 189.

²² Information available on: <http://www.paris.fr/politiques/les-politiques-parisiennes/l-eau/rub_9706_stand_82999_port_24008> Acesso em 4 March 2016.

In a comparative study related to tariffs of water services, in France, it has been published that the tariffs set by private companies were about 29% higher than the tariffs of public companies (data based on the year 2004)²³.

Participation of the private sector in water services management, in France, is due to historic reasons. The French system is, nevertheless, far from being the ideal one and it can neither be used as a selling point for efficiency of the private sector's management of water services nor as a model to be exported to other countries, since it has an intimate relation with the history of human rights in France²⁴. Besides, the recent social upheavals in Paris and other large French cities have led to a takeover of the water services to public hands, mainly due to lowering of tariffs, decrease in profits margins, transparency and water quality.

1.2. Privatization of Water Services in the United Kingdom

At the end of the 19th century, water services were taken over by local public authorities in the United Kingdom; only few initiatives remained at private hands.

There was a reorganization of the sector in 1974 and the government centralized the water services management, creating ten regional authorities on water resources, according to each river basins in the country.

In 1987, the Thatcher's government, under a neoliberal ideology, restructured the sector, initiating a process of privatization, based on arguments that the private sector would be more efficient, the private companies would have better conditions to finance the high investments that were necessary for the water services supply and that privatization would create a scenario of competition for the good functioning of the market²⁵.

The *UK 1988 Water Act* transferred the property of the water system management to private companies. In 1989, there were ten water companies in the UK: Anglian Water, Welsh Water, North West Water, Northumbrian Water, Severn Trent Water, Southern Water, South West Water, Thames Water, Wessex Water and Yourkshire Water. Moreover, the 1988 Act granted concession of water services to these companies for a period of 25 years, free from any competition, creating therefore a system of regional monopolies. The 1988 Act created also a system of subsidies to assure the survival of those ten companies, financing it sometimes through consumers' payments and sometimes thorough taxpayers. The Water Services Regulation Authority (OFWAT) was also created to manage, regulate and supervise the just born UK private water system²⁶.

²³ See HALL, D.; LOBINA, E. Water Privatization. Public Services International Research Unit (PSIRU). In: <[http://gala.gre.ac.uk/1704/1/PSIRU_Report_\(9820\)_-_2008-04-W-over.pdf](http://gala.gre.ac.uk/1704/1/PSIRU_Report_(9820)_-_2008-04-W-over.pdf)> Access on 4 March 2016.

²⁴ See Dore, Kushner e Zamer, 2004, op. cit.

²⁵ LOBINA, E.; HALL, D. UK Water Privatization – a briefing. Public Services International Research Unit, February, 2001, In: <<http://www.psiru.org>> Access on 6 March 2016, at. 6.

²⁶ GONZÁLEZ-GOMEZ, F.; GARCÍA-RUBIO, M. Efficiency in the management of urban water services.

In the following years, there was not a positive general public opinion related to those private companies. Water services had very high tariffs, quality was not an advantage of these private system, there were published exceeding annual profits of these companies, employment rates had decreased, the high costs of the system caused social exclusion in many UK regions and diseases related to water increased due to lack of access to potable water²⁷.

In the second half of the 1990s, the new Labour Government adopted a policy contrary to interruption of water supply due to non-payment. The water companies created a new system of pre-payment meters, by which consumers could buy 'water cards' with a pre-established amount of water. There was a widespread popular dissatisfaction and, in 1998, the new Water Act was published, prohibiting interruptions of water supply for non-payment and the pre-payment meters.

In a comparative work on the two systems – the British and the French one – it has been concluded that none of them advocate in favor of efficiency of the private sector for water services²⁸.

In the same way, others have come to a conclusion that privatization did bring about some technical changes but there is no evidence that they have improved the standards of efficiency in the water sector²⁹.

In fact, privatization in the UK was liable for higher tariffs – around 39% higher, which occurred in order to keep the companies' profits margins far above inflation, within the years taken into analysis. Besides, efficiency assessed through productivity was not verified in the water supply sector in the UK. Instead, in some regions there was observed a lower productivity in that sector³⁰.

In the years 2007-2008, there were registered the highest rates of complaints on water services in the UK Consumer's Council for Water. In the following years, there were reported much less consumer's complaints mainly due to social movements that influenced government and water companies' last policies towards water supply management, water quality and tariffs. However, in 2011, consumer's complaints were reported high again by the Council, even though they represented only one third of the complaints reported in the years 2007-2008³¹.

What have we learned after four decades of research? *Revista de Economía Pública de la Hacienda Pública Española*. Instituto de Estudios Fiscales, n. 185, v. 2, pp. 39-67, 2008, at 53.

²⁷ Lobina and Hall 2001, op. Cit. at. 8

²⁸ Dore, Kushner e Zamer, 2004, op. cit. at. 41

²⁹ González-Gomez and García-Rubio, 2008, op. Cit at 53.

³⁰ See Hall e Lobina, 2008, op. cit.

³¹ Consumer Council for Water – Complaint Handling in the Water Industry in England and Wales – April 2010-March 2011, In: <http://www.cwater.org.uk/upload/pdf/Complaint_Handling_in_the_Water_Industry.pdf> Access on 9 March 2016.

1.3. Privatization of Water Services in Argentina

In the 1990s, Argentina privatized many public services, adopting a neoliberal policy recommended by the IMF and the World Bank, which pointed to such liberalization policy as necessary for international debts payment. Argentine water services, in many important regions, went to private hands. A regional organization of the private companies that entered the Argentine market was adopted.

The water sector was considered a potential service for decentralization, since it was a constant demand and a necessary service. Any eventual increase in tariffs would not make consumers adopt alternative services³². A majority of the Argentine provinces privatized their water companies. Actually around 65% of all Argentina water companies are in private hands³³.

In Buenos Aires and its surroundings, there were public procurement procedures for this privatization in 1993. A consortium named Aguas Argentinas, led by Suez, won the bid. Under contract, the company proposed reduction in tariffs, besides improvement in water quality.

A regulatory agency was created – so termed ETOSS (Entre Tripartito de Obras y Servicios Sanitarios), which was in charge of supervision of the concession contract as well as representation of the consumer in Buenos Aires. After eight months that the contract was in force, ETOSS authorized Aguas Argentinas to raise tariffs, based on a contractual clause that made tariffs dependent on the dollar rate. The same contract required consideration from the company on the basis of more investments. Three years later, the investments verified were far low than the contracted ones. The Ministry of Natural Resources and Sustainable Development took over the concession control from ETOSS, which had been privileging the water company with continuous authorizations for higher tariffs and no penalties for breach of the investment clauses³⁴.

In 2002, the Argentine government adopted a price-freeze provision for all public services tariffs. That was the climax of the Argentine economic crisis. Aguas Argentinas raised a claim under the International Centre for Settlement of Investment Disputes (ICSID), for breach of contract. The IMF and the World Bank sent representatives to Buenos Aires. The Kirchner government decided to terminate the contract with Aguas Argentinas, on the basis of public necessity.

In a region in the south of Buenos Aires, water supply had such a high level of nitrate – around 44%, that was said to be inadequate for pregnant women and children³⁵.

³² BRZEZINSKI, M. L. N. L. Água doce no século XXI: serviço público ou mercadoria internacional? São Paulo: Lawbook, 2010, at. 123.

³³ AZPIAZU, D. et al. Agua potable y saneamiento en Argentina. Privatizaciones, crisis, inequidades y incertidumbre futura. Cuadernos del Cendes, v. 22, n. 59, Caracas, Mayo, p. 45-68, 2005, at 45.

³⁴ CELLI JUNIOR, U. Comércio de Serviços na OMC. Liberalização, Condições e Desafios. Curitiba: Juruá, 2009, at 219.

³⁵ Ibid., at. 220.

The water crisis in Argentina was spread all over the country and lack in investments and poor quality of the water supplied was a common place in many other Argentine regions. In Argentina, the high tariffs set to keep the profit margins of the water companies were all supported by the Argentine consumer³⁶.

Some have remarked that the regulatory agencies from Argentina became, in fact, a reallocation for public employees, who had lost their jobs because of privatization³⁷.

In general, the Argentine government has lost completely its capacity to regulate the private water system. It acceded to all demands from the private companies to raise tariffs and it did not intervene in the lack of infrastructure investments that were stated in the contracts, nor reacted under the evidence of breach of environmental legislation.

Moreover, in Argentina, the consumer became a mere 'client' for water services, with no right to take part of the decision procedures or water services management. In the intervenin years, the population in Argentina has just got used to pay very high tariffs for water services, with no consideration for water quality³⁸.

1.4. Privatization of Water Services in Bolivia

The privatization of water services in Bolivia took place in the end of the 1990s, when the Bolivian government was pressed up by the IMF and the World Bank to introduce liberalization policies in public services, in order to guarantee payment of the external debt³⁹.

In 1999, a concession contract was awarded for an international consortium - so named Aguas del Tunari, led by International Water Ltd. Aguas del Tunari took over the debts of the previous water administration, but it transferred them, through tariff adjustments, to consumers. These tariff adjustments had an increase of about 200%, not allowing a large part of the Bolivian population to have access to water services.

In 2001, the civil population of Cochabamba, in Bolivia, organized social upheavals against Aguas del Tunari's water management. There was general strike and eight died in the protest, while many from the protesting group went to jail⁴⁰.

After strikes and direct involvement of Human Rights groups, the law on water services privatization was repealed and the concession contract was cancelled in the year 2000. Aguas del Tunari raised a claim in the ICSID.

The water services, in Bolivia, have remained in public hands since 2000. A public agency was created to regulate and supervise the water sector.

³⁶ BUDDS; MCGRANAHAM, 2003, op. cit., at. 100.

³⁷ FOSTER, V. Ten Years of Water Service Reform in Latin America: toward an Anglo-French model. Water Supply and Sanitation Sector Board Discussion Paper Series, n. 3, The World Bank Group, Washington DC, January, 2005, at. 15.

³⁸ See Azpiazu et al., 2005, op. cit.

³⁹ CELLI JR., 2009, op. cit. at 217.

⁴⁰ CAUBET, 2006, op. cit. at 173.

1.5 Privatization of Water Services in Uruguay

In 1992, the Uruguayan people, under referendum, voted against privatization of public services. Nevertheless, under pressure of the IMF and the World Bank, in the year 2000, there was privatization of the water services in Uruguay and the Aguas de Barcelona won the bid within a public procurement procedure. Aguas de Barcelona signed up a contract for thirty years of concession for water management and sanitation services in Montevideo and other Uruguayan cities. Another subsidiary of Suez also won a bid to exploit the underground waters in Uruguay⁴¹.

Tariffs increased a lot in the privatized regions and there was no improvement in quality of water services. There were identified some environmental damages caused by the private water companies. In 2004, the Uruguayan population voted, under another referendum, against the privatization of water services. In this referendum, the right to water was considered a human right and it was determined that the water management should return to public hands. An amendment to the Uruguayan Constitution was voted in Parliament and such amendment included the human right to water in the constitutional text. Uruguay was the first country in the world to consider illegal privatization of water services and the first in Latin America to have a human right to water in the Constitution. The water concession contracts were terminated and were held to be unconstitutional in Uruguay.

However, after complaints of the private water companies and the IMF, it was created, in Uruguay, a public-private partnership to manage the water supply services. Under Uruguayan legislation, such partnership might be found to be unconstitutional, but it has prevailed in the management of water services so far.

1.6. Privatization of Water Services in Chile

In the end of the 1990s, the EMOS – the Chilean Public Water Services was privatized and a Regulatory Agency was created to supervise it. It was established that tariffs would be readjusted every five years, in order to cover investments. The government has shouldered and carried on the commitment of never adopting a confiscatory policy.

Transparency was a commitment assured under the concession contract and allowances for tariff adjustment were part of the many government incentives for the new private water company⁴².

The public demand for water was met. Tariffs adjustments were compensated with a high subsidy policy, benefiting the consumer – the subsidies covered around 60% to 80% of the water bills in the registered houses.

The Chilean experience has been said to be a successful one, mainly due to

⁴¹ BARLOW; CLARKE, 2002, op. cit. at 189.

⁴² CELLI, 2009, op. cit. at 220.

the public policies adopted to adjust and compensate the private entry into the water sector. The Chilean Water Regulatory Agency has been called a ‘model agency’ and has gained respect from the Chilean population⁴³.

Nevertheless, some have criticize the privatization model adopted by Chile, saying that the private companies that undertook the concession contracts had too broad a power over water resources in Chile and there was lack of environmental or social counterpart⁴⁴.

The private companies that have controlled the Chilean water market have often increased tariffs, mainly in drought periods in Chile. However, it must be said that water quality and water accessibility, in Chile, has improved considerably since the private companies entered the Chilean market.

It is true that a system based on high subsidies for essential public services is quite a fragile one and things might change whenever there is economic crisis due to dependency on the international investments system. However, no one can deny the power of a previous good regulation that takes into account environmental, social and consumer’s concerns.

1.7. Privatization of Water Services in the Philippines and Thailand

In 1997, Suez won the bid for the water supply services, in the Philippines. The company’s proposal, under contract, was a tariffs reduction to half the amount that was practiced, which was something unachievable under fair market conditions⁴⁵.

The concession contract was signed for a period of 25 years. Between 1997 and 2003, tariffs rates had increased around 500%, representing 10% of the overall income of the Philippine families⁴⁶.

In 2003, due to no authorization from the government to have increase on tariff rates, the company decided to terminate the contract.

In Thailand, privatization of water services took place in 1998, putting into practice the neoliberal approaches for economic growth in the country. The main issues that led to privatization were water access, quality and high tariffs. Water access and quality have considerably improved in Thailand since privatization. Nevertheless, water tariffs have had significant increases and have raised concerns among the working and grass-roots classes⁴⁷.

⁴³ Foster, 2005, op. cit. at 21.

⁴⁴ Barlow and Clarke, 2002, op. cit. at 73.

⁴⁵ Budds e McGranham, 2003, op. cit. at 99.

⁴⁶ BRZEKINSKI, 2010, op. cit. at. 125.

⁴⁷ ZAQUE, S.; AMIM, A. T. M. N. Does basic services privatization benefit the urban poor? Some evidence from water supply privatization in Thailand. *Urban Studies*, n. 46, p. 2031-2327, 2009, at 2301.

1.8. Privatization of Water Services in Sub-Saharan Africa

Fourteen countries of the Sub-Saharan Africa passed by a privatization process of water services - Burkina Faso, Cape Verde, Central African Republic, Chad, Ivory Cost, Gabon, Guinea, Mali, Mozambique, Nigeria, Republic of Congo, Senegal, South Africa e Uganda.

In most cases, privatization took place due to influence from the IMF and the World Bank within the process of renegotiation of debts and loans concessions⁴⁸.

The situation of deep poverty in most urban areas of these countries, combined with high demographic density have led to breach of most contract clauses related to water access, water quality and water low tariffs by the private companies that entered the water market in Africa⁴⁹.

In South Africa, the scenario is different from the other Sub-Saharan countries, since its per capita income is much higher and attracts more foreign investments, at the same time that it is possible to have also domestic investment. Therefore the margin of profits for the private companies that entered the water market in South Africa is much higher.

In the year 2000, due to a cholera epidemic, there was the publication of the South African Declaration 'Lifeline Free Water', which assured 25 liters of water per person per day. Such Declaration was an appropriate policy response to the uncompromised water concession contracts, which transferred the investment costs to the consumer, making tariffs very high and water inaccessible to a large part of the population, who could not afford the costs of water services installation and started to use non-potable water and to have very poor sanitary conditions – the ideal conditions for propagation of cholera.

It has not been easy to keep up the commitments of the 'Lifeline Free Water Policy' in South Africa, since the private companies have adopted the policy of disconnection for non-payment of bills, even though the human right to water is guaranteed under Constitutional Law. The companies' argument is that the concession contracts do not have any provision for free water supply⁵⁰.

1.9. Privatization of Water Services in the United States and Canada

In the United States, most of water services are under public management. According to a research published by the U.S National Research Council, in 2002, in some regions of the country, there are public-private partnerships (PPPs) for water supply and basic sanitation. However, after the world economic crisis, this scenario has changed with the introduction of many other PPPs.

⁴⁸ BUDDS; MCGRANAHAM, 2003, op. cit. at 106.

⁴⁹ Ibid.

⁵⁰ Ibid.

There are about two thousand PPPs in the US for water supply, which is considered, to certain extent, to be privatization of water services. There is nothing in the US national legislation that regulates water services or their privatization. Whenever there is any Bill related to water services, such legislation is under local government management, because the United States is a Federation of States, wherein each one has a large administrative and legislative autonomy⁵¹.

In 2009, around three quarters of the municipalities in the United States had public water services. There has been, nevertheless, a strong appeal for privatization in most regions of the United States and, at the same time, a strong resistance by local citizens. In 1998, the City of Atlanta privatized its water services. In 2002, due to bad management and poor quality of the water services provided by the private company, the Government took the water services over to public hands⁵².

There was a takeover of water services to public hands in the cities of Pekin – State of Illinois, in 1999, and Dayton, State of Ohio, in 1995. There was also public protests against privatization of water services in the cities of Birmingham – State of Alabama, Nashville, State of Tennessee, and Orange Count – State of California, in 1998⁵³.

In Canada, all water services are public. The Canadian people have protested against all the attempts of privatization of its water services. There were public protests, in 2001, in Vancouver (against proposals from Vivendi and Bechtel) and in Kamloops – province of British Columbia, after a government's attempt to create a PPP for water services⁵⁴.

1.10. Privatization of Water Services in Brazil

In Brazil, water supply and basic sanitation are predominantly at the public hands. However, many regions and large cities have had high investments from the private sector, since 1996, according to the “Associação Brasileira das Concessionárias Privadas de Serviços Públicos de Água e Esgoto⁵⁵”. Such investments are based on concession contracts and it has been estimated that around 4% of the Brazilian urban population has had water supply and basic sanitation services from private companies.

The concession contracts have established public property of the water services infrastructure, but private management of the sector. Under Brazilian Federal Constitution (Articles 20 and 26) water is a public asset that belongs to the Union, States and Municipalities, which does not mean that water services cannot be privatized in Brazil.

⁵¹ CRAIG, A. A. Water Privatization Trends in the U.S. William and Mary Environmental Law and Policy Review. v. 33. n. 3, 2009.

⁵² *ibid.*

⁵³ Barlow e Clarke, 2002, *op. cit.* at 190.

⁵⁴ *Ibid.*

⁵⁵ The Brazilian Association of Private Water Companies, Available at: <<http://www.abcon.com.br/>> Acesso em 10 March 2016.

In fact, there are 65 concession contracts for different cities/regions and States in Brazil⁵⁶. An example of such contracts that have raised concerns among environmentalists is the concession contract signed with a subsidiary of Suez, for the city of Manaus, for a period of 30 years, starting from the year 2000. Some studies have pointed out to a considerable increase in tariffs since privatization took place⁵⁷.

In the State of Parana, in Brazil there are researches that show a water exclusion for a large layer of the grass-root population, since the concession contract was signed with a Vivendi's subsidiary, which made tariffs increase⁵⁸.

The water sector in Brazil is quite a complex one. Due to the nature of the service, which is a natural monopoly, there are only regional monopolies via concession contracts. Such regional monopolies operate as public or as private managers – sometimes State companies, such as SABESP (for the State of São Paulo); sometimes Municipalities' companies (with public or private management)⁵⁹.

The National System for Information on Basic Sanitation (SNIS), in Brazil, indicates that, in 2011, there were 23 State companies that operated regional services; 95 Municipalities companies and 27 private companies⁶⁰. The SNIS related to the year 2009, but published in 2011, presented an analyses of a table which shows that the regional companies supplied water services for about 77,8% of the total population (92.7% of the urban population). The Municipalities companies supplied for about 92.6% of the total local population (around 98.7% of urban population). Public companies supplied for about 86.9% of the total population, while the private companies supplied for about 93.2% of its local population⁶¹.

The studies that have been published about the privatization policies of the water sector in different countries around the world show the concerns towards water

⁵⁶ In the States of São Paulo (the cities of São Carlos and Ribeirão Preto), Rio de Janeiro (Búzios, Cabo Frio, São Pedro da Aldeia, Iguaba, Petrópolis and 90 other cities), Espírito Santo (Cachoeiro do Itapemirim), Mato Grosso do Sul (Campo Grande), Mato Grosso (some small cities), Santa Catarina (some small cities), Minas Gerais (some small cities), Paraná (all the State), Pará (some small cities) eand Amazonas (the capital city Manaus).

⁵⁷ OLIVIER, Anne. Water Tariff Increase in Manaus (Brazil): an evaluation of the impact of households. Document de Travail, Paris, DT/2006-10, 2006. In: <<http://www.dial.ird.fr>> Access on 10 March 2016.

⁵⁸ LOBINA; HALL, 2003, op. cit.

⁵⁹ FERRAZ, K. C. Subsídio Metodológico à integração de gestão de recursos hídricos com a gestão territorial, considerando as políticas florestal, agrícola e municipal urbana. Dissertação (Mestrado em Engenharia Ambiental) Universidade Federal do Espírito Santo, Vitória, 2010.

⁶⁰ Sistema Nacional de Informações sobre Saneamento (SNIS); Available in <<http://www.snis.gov.br/>> Access on 20 March 2016.

⁶¹ It is true that such a Picture is a generalized one and it does not show the real distribution according to the geographic regions in Brazil, which is quite distinct when analyzed the subdivisions. The North Region has had 58.5% of its regional population supplied with water services. The Northeast Region has had 69.7% of its population supplied with water services. The Southeast Region has 90.6% of its population supplied with water services. The South Region has about 85.9% of its population supplied with water services. The Middle-West Region has 89% of its population supplied with water services. In Brazil, as a whole, 81% of is population have been supplied with water services (95.2% of the Brazilian urban population). Table available at: <<http://www.snis.gov.br/PaginaCarrega.php?EWRErterterTERTer=89>> Access on 20 March 2016.

governance in the 21st century. On the one hand, it is undisputable the diversity of ‘water conflicts’ that have existed; on the other hand, it is quite uncertain what is the best way to deal with them.

The often mentioned successful experiences of water services privatization – France and Chile – cannot be adopted as models for most countries. In France, historic reasons advocate in favor of private water companies and even so, in the last decades, there has been a takeover of ‘water management’ to public hands (such as the one that happened in the cities of Grenoble and Paris). In Chile, the political moment combined with a good previous regulatory policy were the factors for the success of privatization of water services. Nevertheless, the system is based on high subsidies and it makes it uncertain for the sustainability of such a policy.

In fact, researches related to water governance seem to give some tips as to what really matters in the sector. They do not draw standard models to be followed by the many countries. It is quite the opposite – they indicate that one should not trust in such models⁶². There is as water crisis and such researches indicate that this is a ‘governance crisis’. Categorically, they all affirm that the governability of the water sector is closely linked to the historic necessities of each country. All of them show the importance and necessity to have regulation from government before any sort of privatization is carried on. Even in countries where the private sector has ruled for water issues for more than a century – such as in France, public regulation has been a contemporary commandment for due respect to environmental protection, consumer’s concerns and human rights.

2. A COMMODITIZATION PROCESS

Besides privatization of water services, other concerns have also been raised on the principle of economic value – the international trade of bottled water, the international trade and carriage of bulk water as well as the international trade of virtual water. This new face of water resources has been termed ‘commodification of water’, that is, water has had the face of a commodity, having being standardized and offered to sale. Some scholar’s criticisms go a way beyond and state that there has been verified a ‘commodification of the commons’. Everything is on sale, even those issues of life, such as social services and natural resources, which were considered, in other times, common goods for humanity⁶³.

⁶² ROGERS; HALL, 2003, op. cit.; CASTRO, 2007, op. cit. ; RIBEIRO, W. C. Geografia Política da Água. São Paulo: Annablume, 2008.

⁶³ Barlow e Clarke, 2002, op. cit. at xii.

2.1. The International Trade of Bulk water

One of the phenomena that explains such a commodification process of water is globalization - within a moment that companies become transnationals, crossing borders easily and making a free area for their products, sometimes within a regional integrated market, sometimes with the nationalization of their products in the countries where they have established production chains.

In this process of globalization, there is a large interdependency among the economies of the different countries. Therefore, whatever goes inside the territory of a country cannot and should not be ignored by others. The situation is not different for the contemporary international trade of water.

The water natural cycle makes this natural resource a renewable one. Nevertheless, there are some sources of water that are slowly renewable and, within certain circumstances, they cannot be renewed at all – such as the confined aquifers. Mining or inadequate use of such underground waters above its rechargeable capacity is compared to oil extraction; that is, it has a deadline for extinction or for becoming inappropriate for human consumption. Therefore one cannot consider all waters the same, since they have different rechargeable capacity⁶⁴.

In the State of California, the international trade of ‘property of water’ has become a big business. In 1992, the United States Parliament published a Bill that allows farmers to sell their ‘rights to their waters’ (the ‘waters within their properties’), for the first time in the history of the United States. In 1997, the then US Secretary of the Interior made plans for opening a market on the waters of River Colorado, allowing the ‘interstate sale’ of the water river between the States of Arizona, Nevada and California. That was the largest deregulation on a natural resource property since the Homestead Act, 1862, which transferred public ownership of land to many landless people in the US⁶⁵.

Due to the world’s population growth, to climatic changes and many other reasons, companies worldwide have engaged into the ‘water business’, taking account of the many possibilities of trading bottled water as well as piping potable water from an abundant region to a scarce region, or carrying water through large ships or through water bags carried by smaller ships that cross the seas, or even trading and transporting icebergs.

In Canada, the United States (Alaska), Malaysia, Iceland and Turkey, such bulk water business has already become reality⁶⁶. In most cases, the water in bulk is moved through large ships or water bags that largely exceed the size of ships or even in a piped way. Such negotiations have produced social and environmental concerns, and many protests have been raised by the local social or environmental institutes in the regions

⁶⁴ Gleick et al., op. cit. 2002, at 39.

⁶⁵ Barlow e Clarke, 2002, op. cit. at 73.

⁶⁶ Gleick et al. 2002, op. cit. at. 42.

that export these waters, mainly because no study on environmental and social impacts has been developed. However, that has not been the concern of many governments.

In 1999, some Canadian newspapers published an estimate that, in 2010, there would be a 'Water OPEP', similar to the oil organization, and that Canada would be leading it and would be its main negotiator⁶⁷. According to that newspaper publication, Canada would be a large exporter of bulk water, not just to the United States but as well as to many other regions in the world. There would be created a 'water cartel', formed by the countries with the largest water reservoirs – Brazil, Canada, the US, Norway, Russia, Austria, Malaysia and others, all led by Canada, and the water prices would be controlled by such cartel⁶⁸. Within this new big business, there would also have a control over water offer and water demand in the market, so that prices would not be under free market conditions, just as it happens on the oil market. A margin of profits would be calculated and kept for this water market⁶⁹.

Fortunately, such provisions did not succeed and this water cartel did not come to existence. Nevertheless, the reality is that water has been commoditized and has been carried around the world, departing mainly from Canada to scarce regions, such as the Middle East, the United States, Mexico, China, Singapore, some African countries and many others⁷⁰.

In 1999, the Sun Belt Company, from California, raised a claim under the NAFTA arbitration system, against Canada, for having won a bid for water supply. This contract was terminated by the Canadian government under no consideration⁷¹. Sun Belt is a company that was created, in 1990, to deal with situations of water scarcity in the Southeast of the United States. The carriage of the contracted water would be made by ship. The Canadian government terminated the contract with Sun Belt and signed a new contract with another company, alleging that carriage of freshwater by sea was forbidden under Canadian law for matters of public interests and emergency, remaining permitted all other kinds of carriage of water. Such prohibition was published by the Canadian government four days after the formal communication that Sun Belt had won the bid. The claim raised under the NAFTA system was not taken further for reasons that were not informed by Sun Belt⁷².

The State of California has gone through a water supply crisis. Its alternative has been to buy water from the region of Ottawa, Canada. In fact, the issue related to water supply might be a critical one between the government of Canada and the United States and might remain as such for the next hundred years, depending on the long drought periods in the US⁷³.

⁶⁷ BARLOW; CLARKE, 2002, op. cit. at 130.

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Dispute reported on <http://www.naftaclaims.com/disputes_canada_sunbelt.htm> Access on 9 March 2016.

⁷² Dispute reported on <http://www.naftaclaims.com/disputes_canada_sunbelt.htm> Access on 9 March 2016.

⁷³ Barlow and Clarke, 2002, at 138.

In the United Kingdom, water has been transported from Scotland to England and Wales in droughts periods. In some regions, there is water piping from one place to the other; in others, carriage of water has been made by ship.

Some countries have taken the advantage of been upstream ones in order to run a 'water business'. That is the case of Turkey, which has managed the Great Anatolia Project, controlling in a whole the water flows in the region, with the capacity to keep water in its territory, just as it has managed to do with the Ataturk dam. Water, in Turkey, is used for irrigation. The surplus water has been sold to Israel, under a bilateral agreement that covers the use of the River Manavgat waters. The carriage of these waters has been made by water bags and it has amount to an annual 40,500 cubic feet of water⁷⁴.

Such a 'water business' has also been run in other bulk water international negotiations. In 1960, ships carried water from the Houston River, USA, to Hong Kong for supply of refineries. In the years 1980, bulk water was also sold from the United Kingdom to Gibraltar, from Dominica to Aruba, from Australia, New Zealand and Fiji to Nauru. In the 1990s, Majorca bought water bulk from Spain. In 1994, due to long drought periods, Japan bought bulk water from Alaska, Vietnam, Hong Kong, South Korea and China. In the year 2000, Spain entered negotiations with France for the sale of bulk water that would be piped from Montpellier to Barcelona (a 320 km aqueduct)⁷⁵.

Whenever there is sharp criticism over the bulk water business, one might be willing to make a distinction between sale and sharing of bulk water. In a situation of widespread water scarcity or long drought periods, sharing of bulk water would perhaps be more efficient than its sale, under an environmental and social approach. Sale of water could be helpless for the needy people that will not afford it, since it would probably be sold only to those that can afford it. On the other hand, sharing of water between States, under bilateral treaties, for example, under situations of emergency, could happen for a specific period of time and could be conditioned mainly to water for drinking and basic sanitation. It has been suggested that the strongest argument against sale of bulk water is the possibility of perpetuating the cause itself of the water scarcity – that is, the presumption that the consumerist needs of people can be supplied simply with an increase in water supply⁷⁶.

Despite all the environmental concerns that may surround it, it is not the sale of bulk water that raises greater concerns. Goods might be sold either as raw material or as value-added products. The largest international trade of water is of value-added water, well represented by trade of bottled water.

⁷⁴ Caubet, 2006, *op. cit.* at 173.

⁷⁵ GLEICK et al., 2002, *op. cit.* at 44.

⁷⁶ Barlow and Clarke 2002, at 214.

2.2. The International Trade of Bottled Water

Bottled water has been erroneously called ‘mineral water’. However, the water industry has traded ‘potable water’ instead of ‘mineral water’. There is a technical difference between potable and mineral water. Mineral water cannot be treated to be so called. It must be bottled in nature or, at the most, with addition of carbonic nitrate. There has had a wide advertising campaign to conduct public opinion, in many parts of the world, to consumption of bottled mineral water. Such campaigns have told that mineral waters are healthier, which is a mere advertising approach and marketing strategy, but which might not be the truth in many countries. The bottled water companies have transformed bottled mineral waters or bottled potable waters into a big business market⁷⁷.

International trade of bottled water has grown on an average of 10%/year since the 1970s. In 1990-1995, international trade of water exceeded the amount of 50 billion bottled liters. In 1999, the bottled water industry, in the USA, negotiated around 17 billion liters of water, generating a profit margin of US\$ 5 billion dollars. From this total negotiated, around 8% were imports from many different regions of the world, mainly from Canada, France and Italy⁷⁸.

Nestlé is the world leader on international trade of bottled water, operating 68 different trademarks, such as Perrier, Vittel and San Pellegrino. Nestlé has worked on two different kinds of the bottled water market: the luxurious water market (for bottled mineral water) and the market of potable water in countries where it is not safe to drink water from the tap. Nestlé Pure Life represents this second kind of market that sells bottled potable water. Coca Cola has also entered this market and its trademarks are Bon Acqua and Dasani. PepsiCo owns Aquafina. Both rule the bottled water market in the United States⁷⁹.

In general, freshwater goes into treatment and every liter is bought by the companies for a cent of a dollar and is sold to consumers for, at least, one dollar. The U.S. Natural Resources Defense Council published a research, in 1999, reporting that all this bottled water market, which has produced millions of disposable PET bottles every year, is far from being the safest or purest one. Sometimes, in many countries, tap water is safer. Moreover, in many places, the bottled water companies do not pay any extra taxes for exploiting this natural resource. In some of them, such as in Canada, mining and selling water is part of the property rights⁸⁰. In others, such as in Brazil, there are modest charges for licensing of freshwater mining and bottling.

A new category of water negotiators have emerged in the international market. They are the so called ‘water hunters’⁸¹. These hunters have bought properties that

⁷⁷ PETRELLA, R. *Le Manifeste de l’eau pour le XXI^e siècle. Pour un pacte social de l’eau*. Montréal: Fides, 2009.

⁷⁸ Gleick et al. 2002, op. cit. at 43.

⁷⁹ BARLOW; CLARKE, 2002, op. cit. at 143.

⁸⁰ Ibid.

⁸¹ Ibid, at 93.

contain water springs in order to enter the bottled water market. They represent the large transnational water companies and are responsible for the commoditization process that the water business has gone through. Speculative margin profits start to dictate the water market. Investments in the sector might have inputs and outputs within stock exchanges and market agents, controlling the price of water. Risks of increases in the pricing power of water companies have attracted speculative investors.

Despite all the negotiations around freshwater, there is little international regulation for the sector. In general, the Agreement on Tariffs and Trade (GATT) does not exclude value added water as a commodity. The Harmonized Tariff Schedule, Section 2201.90.0000, gives evidence that water has been treated as a commodity in its potential, including natural mineral waters, artificial or fizzy ones (no sugar, flavors or sweeteners added), including ice and snow, but excluding sea water.

Another kind of water market is the so called 'virtual water' trade, which has also raised concerns among scholars and policy makers worldwide.

2.3 The International 'Virtual Water' Market

'Virtual water' is a term whose definition was developed by Economics and it means the amount of water that is necessary to produce a commodity, virtually incorporated within it. Water scarce countries will not produce goods that demand too much water in the production process, such as agricultural goods. In order to supply the domestic demand, these countries will import those products from countries rich in water resources, which allow them to be large 'virtual water' exporters. Therefore 'virtual water' has become an alternative source of water.

Another term that has been used by Economics in a similar situation is 'water footprint', which also means the amount of water used in the production process. That term was developed in 2002, by Hoekstra⁸², and has been made public by the Water Footprint Network (WFN)⁸³. The WFN explains that 'water footprint' is a broader concept compared to 'virtual water' since it also incorporates the use of water by the consumer (the 'consumer's water footprint') – measured by the amount of goods and services used, and by the good or service itself (the 'good's or service's footprint'). In this case, it coincides with the definition of 'virtual water'.

The so termed Global Water Footprint Standard was developed by a joint effort from WFN and its partners and researchers from the University of Twente, in the Netherlands, and it was published, in 2011, in a manual to guide management of public policies⁸⁴. This manual has won public approval, not only from the academy as well as from companies, governments and distinct States and scientists from different parts in

⁸² HOEKSTRA, A. Y. et al. *The Water Footprint Assessment Manual – Setting the global standard*. London: Earthscan, 2011.

⁸³ Available at <<http://www.waterfootprint.org/?page=files/home>> Access on 5 March 2016.

⁸⁴ Available at: <<http://www.waterfootprint.org/downloads/TheWaterFootprintAssessmentManual.pdf>> Access on 5 March 2016.

the world, who have taken into consideration that it represents an important step to guide global water issues. Three 'stamp terms' are used in this manual: blue water footprint, which means consumption of freshwater – surface and underground waters alike; green water footprint, which means consumption of rain water; and grey water footprint, which means water pollution. In general, such terms help to make analysis of human activities or specific products that are related to water scarcity and water pollution as well as to identify how such activities and products might become sustainable⁸⁵.

Econometrics developed a formula to calculate the amount of virtual water that is exported⁸⁶. In general, the equation comprehends the amount of international trade of a specific good multiplied by the quantity of water that was used in its production⁸⁷.

With such equation, Chapagain and Hoekstra reached the conclusion that 61% of all virtual water that is negotiated are represented by agricultural goods; 17% are represented by products of animal origin and 22% are represented by industrial products⁸⁸.

The largest world exporters of virtual water are the USA, Canada, France, Australia, China, Germany, Brazil, the Netherlands and Argentina. The largest world importers of virtual water are the USA, Germany, Japan, Italy, France, the Netherlands, United Kingdom and China⁸⁹.

Such approach related to virtual water proves the contemporary economic interdependency among the nations, which is, in this case, measured by the consumption of virtual water. Around 16% of all water used in the production of goods are not destined to domestic consumption but to exports and that percentage may vary from country to country⁹⁰.

One might say that a large part of concerns related to the world's water management is due to the increase in the international trade of virtual water. In general, the costs of water used in the production process of many goods are not repassed to the final product. Consumers around the world are not aware of such costs and have not had to pay for them. One such example is the final cost of agricultural products, exported in nature, with no consideration for the amount of water used in the production process. Therefore, the indirect effects of an increase in consumption of these products are externalized to those countries that are potential exporters of virtual water.

⁸⁵ Available at: <<http://www.waterfootprint.org/downloads/TheWaterFootprintAssessmentManual.pdf>> Access on 5 March 2016.

⁸⁶ CHAPAGAIN, A. K.; HOEKSTRA, A. Y. The global component of freshwater demand and supply: an assessment of virtual water flows between nations as a result of trade in agricultural and industrial products. *Water International*, v. 33, n. 01, p. 19-32, March, 2008, at 20.

⁸⁷ $VWF [ne, ni, c] = CT [ne, ni, c] \cdot VWC [ne, c]$

Sendo que:

VWF = Virtual Water Flow; ne = exporting country; ni = importing country; c= commodity; CT = commodity Trade; VWC= Virtual Water Content

⁸⁸ *Ibid.*, at 22.

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*

CONCLUSIONS

Considering all the above remarks, it appears that the ‘water crisis’ is part of a ‘global governance crisis’ and this is not mere rhetoric. Global governance of different natural resources has been one of the widespread contemporary polemic issues and that could not be different in the water sector.

Management of water resources would not be only at the public hands of the State, which does not mean the mere inclusion of the private sector. The efficiency of water governance demands action from the public and the private sector together as well as from civil society.

After some analysis, it must be remarked that efficiency of the water sector is not related to the public or private nature of the water service or its management. Whenever the private sector enters into the business, it only remains if there is profit, which has not always been matched with the public interests involved. Even in countries where water services were almost all privatized, governments have had to regulate in order to assure environmental protection and consumer’s rights.

Regarding sale of bulk water, it has been suggested that the strongest argument against it is the possibility of perpetuating the cause of water scarcity – that is, the presumption that the consumerist needs of people can be supplied simply with an increase in water supply. However, despite all the environmental concerns that may surround it, it is not the sale of bulk water that raises greater concerns. Goods might be sold either as raw materials or as value-added products. The largest international trade of water is of value-added water, well represented by trade of bottled water, which has called attention of a new category of negotiators - the so called ‘water hunters’. These hunters have bought properties that contain water springs in order to enter the bottled water market. They represent the large transnational water companies and are responsible for the commoditization process that the water business has gone through. Speculative margin profits start to dictate the water market. Investments in the sector might have inputs and outputs within stock exchanges and market agents, controlling the price of water. Risks of increases in the pricing power of water companies have attracted speculative investors.

The last kind of water trade herein analyzed was the virtual water market. Water scarce countries will not produce goods that demand too much water in the production process, such as agricultural goods. In order to supply the domestic demand, these countries will import those products from countries rich in water resources, which allow them to be large ‘virtual water’ exporters. Therefore ‘virtual water’ has become an alternative source of water.

International law has been an instrument to guide international politics and, within it, international policies related to water resources. Since concerns related to water resources range from environmental to economic and human rights issues, water governance has to comprise an interaction of all these issues taken together in order to point out instruments to deal with such water crisis.

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