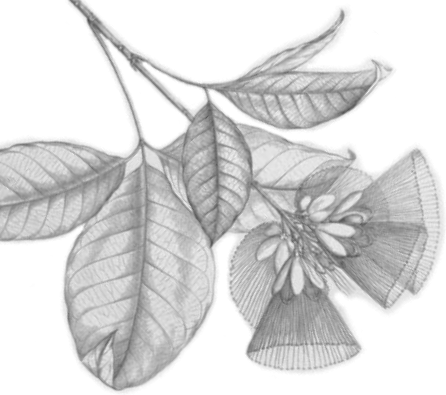

The Management of Water Resources in a Disputed Border: The Case of Gazivoda Reservoir (Kosovo)

Miguel Borja Bernabé-Crespo [1]
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ABSTRACT

This paper aims to study the importance of a good management of the Gazivoda reservoir. In the instable region of Balkans, water is considered a strategic resource. Crossing the disputed border between Kosovo and Serbia, Gazivoda's water plays an important role for economies and water supply in both countries. The desire of controlling Gazivoda may disrupt the relationship that Kosovo and Serbia report. Claims from ethnic minorities of Serbs in Kosovo, and Albanians in Serbia might pose risks to current frontiers. Borders need to be respected to achieve stability. Foreign models of cooperation can be followed in order to achieve a good management successful for society on both sides of the border.

Keywords: Shared Water Resources; Transboundary Cooperation; Disputed Border.

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Partially recognized as a sovereign state, Kosovo faces new challenges to its water safety arisen from geopolitical issues. Firstly, it must be pointed out the path to the independence followed by Kosovo, the reason why it is not a fully-recognized state and the poor relations with Serbia, its neighbor. The Constitution of the Socialist Federal Republic of Yugoslavia, SFRY (1946) included the actual land of Kosovo in the Autonomous Province of Kosovo and Metohija, inside the Socialist Republic of Serbia. 1974 Constitution gave broad autonomy to the province, but after Tito's death and the Constitution of 1989, autonomy was suspended (Kitanics & Pap 2012). SFRY ceased to exist in the early 1990s when some Socialist Republics (Slovenia, Croatia, Macedonia and Bosnia-Herzegovina) declared independence. Kosovo's claim for independence was first made also in 1991, including a formal referendum, although it received no international recognition or attention (Bieber 2015). SFRY's successor was the Federal Republic of Yugoslavia (FRY), which launched a new war against Albanian population in Kosovo in the late 1990s. In the territory of the so-called province of Kosovo and Metohija, a protectorate was created by the United Nations under American influence in 1999. FRY survived until 2003, when it newly became the Union of Serbia & Montenegro. Montenegro held a referendum in 2006 and gained independence, which marked the split of the Union into two separate states: Montenegro and Serbia. It was not until 2008 when Kosovo declared unilateral independence from Serbia.

Obstacles and requirements for Kosovo's independence were bigger than those required for Montenegro in 2006 or the other republics in 1991-1992 (Bieber 2015), as Kosovo's only difference was that it was not a Socialist Republic but an Autonomous Province. Despite that, the International Court of Justice (ICJ) stated in 2010 that Kosovo's declaration of independence did not violate international law:

> The Court has concluded above that the adoption of the declaration of independence of 17 February 2008 did not violate general international law, Security Council resolution 1244 (1999) or the Constitutional Framework. Consequently, the adoption of that declaration did not violate any applicable rule of international law (ICJ 2010).

Since then, 110/193 countries of the United Nations recognize Kosovo and 23/28 of the European Union do so. Only Greece, Romania, Slovakia, Spain and Cyprus have not recognized Kosovo yet, mainly because of internal political fears of nationalism and secession. The new Republic of Kosovo has still a long way to resolve many issues, including the borders and relations with its neighbour Serbia, which considers Kosovo still as its province.

Serbs and Albanians cohabited for centuries in Kosovo. The country is inhabited mainly by ethnic Albanians, who define themselves as both Albanian and Kosovar. The word *Albanokosovar*

reflects this relation: Albanians living in Kosovar territory (Figure 01). After the war launched by Serbia against Albanians, Serbs only maintained majority in some towns spread throughout Kosovo (Brod, Strpce, Gracanica) and kept the north of Kosovo under Serbian influence, which is *de facto* Serbian territory. Thus, Kosovo is populated at least 90% (KASA 2013, p.126) by Albanokosovar people, while the largest minority are Kosovar Serbs (09%, most of them living in North Kosovo). Other minorities are Roma people (02% in 1991), widespread through the territory, Turks (0.5%), Bosniaks (03%) and the Gorani, living the latter in the southwestern angle (Restelice and Dragash). Islami & Ejupi (2015) made great research in the trend of population in Presevo Valley, rising up to 80% the Albanokosovar people in this area, which lays in Serbia. That is, ethnicity exceeds borders.

Figure 01. Albanian flags as a sign of Kosovar identity, south of Kosovo.

Source: Miguel Borja Bernabé-Crespo (28/11/2016)

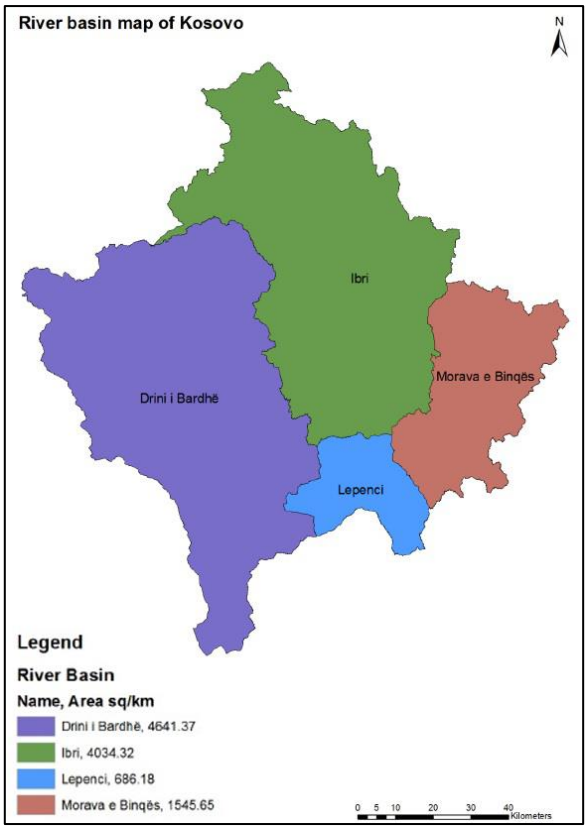
Mountainous and landlocked, Kosovo only counts plains in the central region and in the north, alongside the Ibar River. Its hydrographic net flows into three different basins (Figure 02): to the Danube (Black Sea), Aegean Sea and Adriatic Sea.

Gazivoda Lake is a reservoir built in the disputed border between North Kosovo and Serbia, making controversial the use of its water. In fact, 15% of the reservoir belongs to Serbia itself. The three municipalities of Presevo Valley (Presevo, Medvedja and Bujanovac) are considered of strategic importance, as the main communication infrastructure and roads cross this area, serving as a route from Central Europe to the Aegean Sea. The geopolitical importance of these two areas is evident.

The structure of this paper tries to draw a general overview of the context and management situation in Gazivoda. First, it is necessary to know the territorial frame and the way that Kosovar Serbs are organised within Kosovo. A deep research in the water supply is made to outline the importance of this dam with respect to the water consumption of the whole country; followed by the current use of this water. It is also convenient to make mention to the instability of borders, which can cause troubles

and affect the water management and ethnic groups. Finally, this paper aims to throw some light regarding possible solutions to the end of this conflict in the use of water.

Figure 02. River basin map of Kosovo.



Source: Government of Kosovo (2017)

OBJECT AND METHODOLOGY

Conflicts over water may lead to the assumption that they can pay for a war. Some scholars share this approach like Gleick (1993), Postel (2000), and Seckler et al. (1999) even causing armed conflicts (Duda & El-Ashry 2000). On the other hand, Meierding (2016, p.263) states that natural resources may not be the main reason of an attack, but a "significant incentive" for aggression, meaning that "wars are made for predominantly other reasons" (Meierding 2016, p.275), something that Elhance (1999, p.04) supported contributing that although it does not lead to an interstate conflict, scarcity may make riparian states prone to it. Meierding (2016, p.260) also identifies four costs, coming from invasion, occupation, international relations and investment, which make a war non-profitable. Additionally, Toset et al. (2000, p.979) conclude that the more shared a river is, the more probability of a militarized dispute, although water is not the reason itself for a war, but an instrument of war.

Whichever approach one can choose, it does not necessary mean that Gazivoda might lead to an armed conflict, but it will be probably a tension spot between the two states. The "geohydric", as noted by Del Valle (2015, p.42) brings together the assumption of water as a source of power and a strategic resource, along with a geopolitical revalorization of water. Geohydric has been widely studied, for example in the Mekong basin (Sneddon & Fox 2006) or in Central Asia (Abdolvand et al. 2015). It is interesting to remark the methodology proposed by Kucukmehmetoglu (2009) to evaluate the impacts of reservoir projects in the Tigris-Euphrates basin, in the territory of Turkey and affecting Syria and Iraq.

Gonen & Zeitouni (2010) suggest the risk management methodology to achieve success in water agreements, which was carried out in their previous research (Gonen & Zeitouni 2008). This is established by planning the risk assessment, identifying all risks, assessing the risks, writing a response plan and control plan, and a constant assessment of the program risks.

The model followed to analyze the situation in Kosovo is the case study. This type of study means an indirect contribution to the generation of hypothesis, and consequently, to the construction of theories of Political Science: it is a space where variables change under determinate conditions, what can prove how a specific context affects these variables. Even more in this case study of the water management in a non-recognized border, which has not been studied deeply in transboundary water research. The advantages of this method are listed by Szmolka & De Cueto (2011, p.218), remarking among them the great capability of detailing, the better access to sources and the possibility to visit the area. This approach has been chosen due to the need of specific treatment, as there is not much information regarding the situation presented and it has not widely transcended to public consciousness; and the will of find a solution to this problem, which requires a detailed study and proposals. This is an explanatory study, specific and relevant per se, and it is unique: as mentioned above, little attention has been paid to water disputes in contested borders. Its hybrid character, due to the importance of history affecting the evolution of the 'newborn' state, and the present threats and paths to follow, makes this study a key piece to understand the importance of a correct management of the Gazivoda reservoir between the two states that share this dam: Serbia and Kosovo.

The aim of this paper is to put into the light the largely unknown situation of the Gazivoda reservoir, lying in a disputed border that causes troubles due to its lack of full international recognition. It is essential to discuss why it is important to achieve a good management of shared water resources, presenting the current situation of water supply in Kosovo and proposing foreign cooperation models to follow.

The methodology followed has been previous research, about the historical review of the current situation in Kosovo, including the situation of political bodies concerning municipalities, and analyzing the water supply panorama in Kosovo, outlining the significance of Gazivoda reservoir. A visit to Kosovo and the University of Prishtina took place in November-December 2016 to know the geographical mark and consulting local bibliography. Some models of cooperation are proposed to be followed as examples. Finally, a SWOT (Strengths, Weaknesses, Opportunities and Threats) study shows which skills must be enhanced or downed, leading to the discussion of results and proposals for a solution.

TERRITORIAL ORGANISATION IN KOSOVO

The Republic of Kosovo counts on the same borders as the former province used to have. But actually, Serbia *de facto* controls North Kosovo (municipalities of Zubin Potok, Leposavic, Zvecan and Mitrovica). The rest of the country, populated mainly by Albanokosovars, has an important minority of Kosovar Serbs in some municipalities like Strpce or Gracanica. The most iconic situation takes place in Mitrovica/Mitrovicë, where Ibar River divides North Mitrovica/Kosovska Mitrovica populated by Serbs at the north, and Mitrovicë populated by Albanians at the south.

Some agreements have been made and the relations counts on highs and downs. The IBM (Integrated Border Management) agreement made in 2011 "gave Serbia strong formal and informal roles in Kosovo, leading to a de facto degree of shared sovereignty in parts of Kosovo" (Bieber 2015, p.19). The continuity of Serbian population along the north border until Ibar River made that Serbia claimed for an autonomous region of North Kosovo inside Kosovo itself (Beha 2015). The four municipalities populated by Serbs in North Kosovo held an unofficial referendum which was not recognized by Kosovo nor by Serbia, which a result of 99.74% rejecting the institutions of the Republic of Kosovo, what meant its opposition to talks that would pursue Kosovo's full independence (Bieber 2015, p.21).

The Ahtisaari Plan, or the Comprehensive Proposal for the Kosovo Status Settlement is a proposal for decentralized govern that may provide unity as it ensures the territorial integrity of Kosovo. The plan offers a protection of minorities' rights and enhances cooperation in diversity. This allows Kosovar Serbs to have their own local institutions inside a multi-ethnic Kosovo, but also to have linkages to Belgrade, as for example, to receive funds (Gallucci 2011). It is also considered the possibility to form entities of cooperation and partnership, which marks the roots for the Community of Serb municipalities. Although it offered a degree of local self-government, including enhanced competences to North Mitrovica, it was perceived as recognition of Kosovo independence, and some

argue that rights for Serbs in Kosovo were not very well known. Finally, Ahtisaari Plan was rejected not only by Serbia but by Serbs in Kosovo too. So, the northern Kosovo remains under Serbian rule.

Brussels Agreement (2013), or the First Agreement of Principles Governing the Normalization of Relations is of historical importance, as it marks the beginning of cooperation between Serbia and Kosovo. It continues the idea of the Community of Serb municipalities, though it does not have a defined organisation or structure, and the Agreement does not throw much light to this imprecise and ambiguous idea (Bieber 2015). The Government of Kosovo puts as a condition the retreat of parallel Serbian structures in North Kosovo to create the Association of Serb municipalities, as Edita Tahiri, the Minister for Dialogue, stated in 11/10/2016 (Independent Balkan News Agency 11/10/2016). Moreover, the rising party *Vetevendosje* heavily opposes this agreement considering no talks should be held with Serbia over Kosovo's integrity. As of late 2016, the creation of this Association is not yet in sight (Balkan Insight 21/11/2016).

Plans proposed do not contain agreements on natural resources such as the Gazivoda reservoir or the Trepca mines (important mineral resources in North Kosovo). Government of Kosovo reaffirms that "this Association will not eventually manage natural resources" (Independent Balkan News Agency 11/10/2016), making their control a hard political problem.

It is important to understand that the 'unfinished' territorial organisation in Kosovo, which comprises a piece of territory controlled by Serbia and the disagreement about the creation of the Association of Serb Municipalities, is a disrupting factor to hold a solid dialogue between all parties and, regarding this study, to manage righteously water resources. The fact that Gazivoda reservoir lays not only in an international disputed border, but also in a double disputed border (Serbia and Kosovo border; North Kosovo and the rest of Kosovo border) makes it necessary to solve the problem of internal organisation and to find a territorial solution.

THE NEED OF WATER IN KOSOVO

Kosovo faces an uncertain panorama regarding water supply and the availability of drinking water may be in doubt. Tumbovska (2011. p.09) pointed out that "according to the UN and Organization for Security and Co-operation in Europe (OSCE) representatives, Kosovo has a real problem with the drinking water to such extent that in the future may have to import it". Not for nothing, 52% of the water resources are consumed by urban and rural water supply; while agriculture takes 41% and the industrial use only represents the 08% (Government of Kosovo 2017).

Five reservoirs or artificial lakes are spread through the Kosovar land: Batlava, which provides about 70% of water for Prishtina (OSCE 2008), Gazivoda, Radoniqi, Perlepnica and Badovci. In addition, 20 more are planned to be built (Table 01).

Table 01. Reservoirs planned for construction.

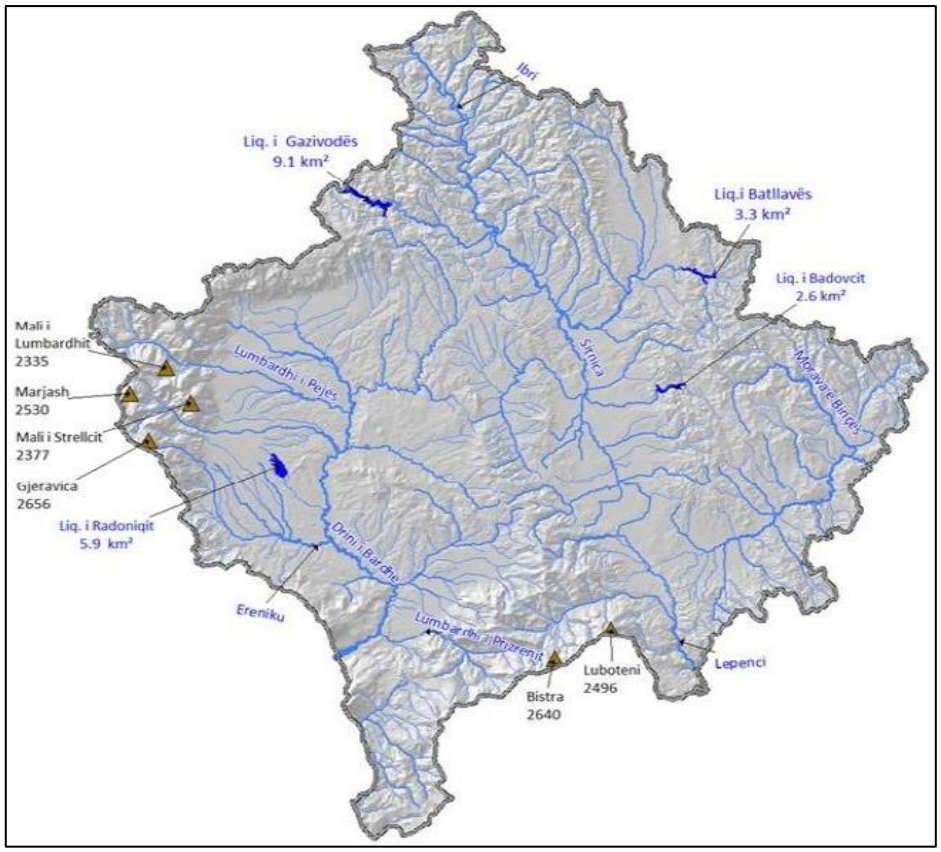
NAME OF ACCUMULATION	RIVER	SURFACE (km²)	VOLUME (million m³)
Drelaj	Pejë-Bistrica e Pejës	173	84.5
Kërstovc	Lumi i Binçës	118	40
Movë	Lumi i Klinës	239	34
Morinë	Llabenica	26	38
Ripaj	Lumi Trava	59	36
Reçan	Lumi Bistrica e Prizrenit	155	68
Dragaçin	Lumi Dragaçin	36	6.76
Kremenata	Lumi Kremenatë	56	8.75
Binçë	Lumi i Madhë	72	1
Konqul	Lumi Morava e Binçës	1632	120
Firajë	Lumi Lepenc	229	16.5
Shtime	Lumi Topillë	102	113
Cecelija	Lumi i Zi	47	21
Makovc	Lumi Prishtevka	26	10
Majanc	Lumi i Kançandollit	88	30
Vaganic	Lumi Lushta	46	8
Miraçë	Lumi Tërstena	31	6
Dobroshevcë	Lumi Drenica	35	23.2
Pollata	Lumi Llap	111	37.5
Bistrica	Lumi Bistricë e Prizrenit	159	25

Source: MESP & KEPA (2010, p.39)

Out of the other Balkan countries, Kosovo has the smallest reservoir capacity (Figure 03), 290 m^3/person. Croatia ranks just above (329), while the other countries reach higher figures (Romania, 624; Serbia & Montenegro, 737; Albania, 1455 the highest) (Government of Kosovo 2017). The five main water storage reservoirs of Kosovo gather 500 million m^3 of volume capacity and represent 55% of the drinkable water. Out of them, Gazivoda Lake takes more than 350 million m^3, which means the 70% of the country's total capacity. That gives an idea of how essential is Gazivoda for Kosovo's water supply.

The other source of drinkable water (45%) comes from underground water (MESP & KEPA 2010). Groundwater shows a scarcity in Kosovo, although its quality is much better than surface waters. Groundwater reserves are limited and are located mainly in Western Kosovo (WBG 2015). It is unequally distributed, from the east part of the country with very low porosity rocks and no significant presence, to the crowded aquifers along the main rivers (Drini i Bardhë, Sitnica, Llapi, Reka e Keqe, Morava e Binçit, Iber) (Avdullahi et al. 2008).

Figure 03. Map of current reservoirs in Kosovo.



Source: KAS (2016, p. 16)

The limited water resources of Kosovo make essential its right management. Efforts are made in the direction to improve the situation as "Kosovo has insufficient water resources, and in the future it will be a limiting factor for economic and social development of the country" (MESP & KEPA 2010, p.16).

WATER PROVIDERS

The Law on Waters of Kosovo, in its article 23 states that "The competent authorities at the state level must coordinate plans and measures for program administration and management of inter-border waters". Besides that, the Law on Local Self-Government in Kosovo enacts that municipalities are responsible for providing public water supply. Water is supplied through Service Agreements between municipalities and the respective regional companies (MESP & KEPA 2010, p.27).

Regional Water Companies (RWC) are licensed and corporatized public service providers. Seven RWCs serve 67% of the population, while 33% is "self-provided with water systems managed by communities (non-public systems) or individual systems" (WBG 2015). These ones take place when the

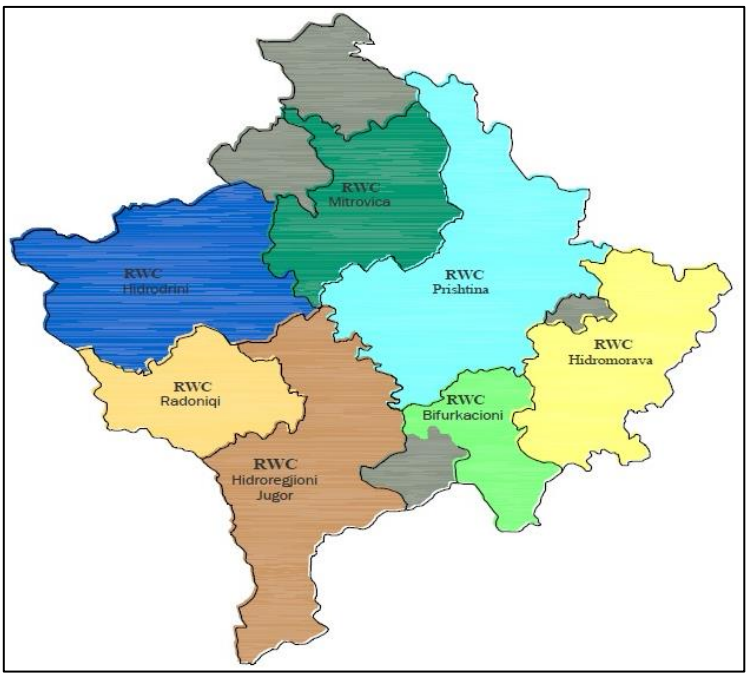
community resists integration, mostly because of tariffs. The other 10% count on a system not managed by RWCs.

Public enterprises committed to supply drinking water are (MESP & KEPA 2010, p. 28):

- Central Public Enterprises: Public Company Hydro-system Iber-Lepenc.
- Regional Water Companies: RWC Pristina (Prishtina), RWC Hidrodrini (Peje/Pec), RWC Hidroregjioni Jugor (Prizren), RWC Mitrovica (Mitrovice), RWC Hidromorava (Gjilan) and RWC Radoniqi (Gjakova).
- Local Public Enterprises: Water and Waste Company Ibri (Zubin Potok), Water and Waste Company 24 Nentori (Leposaviq/Leposavic) and Water Company Bifurcation (Urosevac/Ferizaj-Kaçanik).

In addition, there are two regional irrigation companies: Drini i Bardhe and Radoniqi-Dukagjini.

Figure 04. Map of RWCs in the territory of Kosovo.



Source: WSRA (2016, p.83)

These RWC provide their services in 25 municipalites of Kosovo (Figure 04), while they do not in the municipalities populated mainly by Serbs (Strpce, Novoberde, Leposavic, Zubin Potok, Zvecan and North Mitrovica) (MESP & KEPA 2010). In Strpce, water is provided directly by the Ministry of Environment and Spatial Planning (Kosovo). The situation in the Serb populated municipalities in the north of Kosovo is different. In Leposavic water is managed by the Ministry of

Agriculture, Forestry and Water Management (Serbia) (OSCE 2008). In the northern part of Mitrovica, supply comes from bulk water from Mitrovica RWC due to technical conditions, paying the government subsidies for these water services (WBG 2015).

WATER SUPPLY: ACCESS AND INFRASTRUCTURE

Several years ago, the situation was poor and undeveloped. Korca (2006, p.02) wrote that "only 44% of Kosovo's population is connected to public water distribution system". That number downed to 07% in rural population, where people used independent water supply systems… "An estimated percentage of 60% of people in rural areas use own-built wells for their supply". They were uncontrolled and did not have any health measure, and it is estimated that 80% of them drank contaminated water.

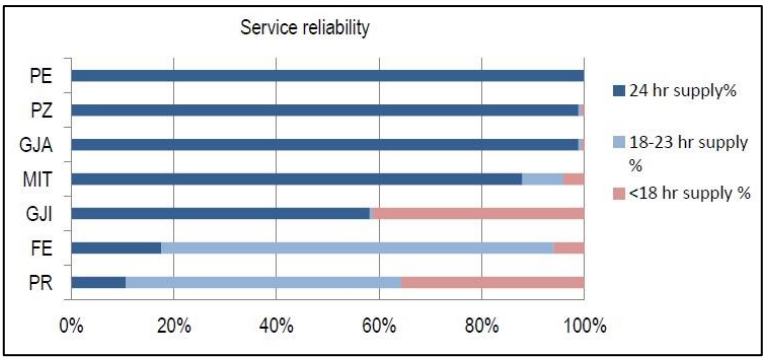
Currently, 96% of the population has access to piped supply and 100% of urban population has access to a public water supply (WBG 2015), whereas rural field keeps being disadvantaged with a rate of 66%. On the whole of Kosovo, the main sources of drinking water are as follows: piped into dwelling, 58.3%; from protected wells 16.8%; from protected spring 08%; while bottled water only reached 4.3%. This situation differs among municipalities. For example, in Viti/Vitina, bottled water reached 31.5%, United States Agency for International Development & United National Development Programme (USAID & UNDP 2012).

Apart from the access of water, the continuity of flow must be taken into account as a fact of progress and adequate supply. "Before 2005, water cuts in Kosovo were mostly of a technical nature" (OSCE 2008, p.04). It was not until 2006 when Prishtina was provided with 24 hour supply. Water shortages took place in 2007, when Batlava Lake decreased dramatically. Prishtina local government banned the use of water for washing streets, cars or gardens (OSCE 2008, p.03). The towns of Mitrovica, Prishtina, Gjilan and Urosevac/Ferizaj commonly suffer from cuts, especially during summer months when consumption is higher (MESP & KEPA 2010).

At the present, 41% of the population enjoys unrestricted water supply, while average restrictions in Kosovo are of "11 or more hours" (17%); "from 05 to 10 hours" (14.5%); or "from 01 to 04 hours" (14.1%) (USAID & UNDP 2012). Differences are also found, from 100% unrestricted supply of Partesh, 97% of Junik, and 79.1% of Deçan, the three of them on top, to the worse situation of Vushtrri (5.4%), Novobërdë (7.1%) and Fushë Kosovë, the worst with 4.7% of unrestricted supply (USAID & UNDP 2012).

Peja (PE) holds the best service reliability (Figure 05) with almost unrestricted supply, followed by Prizren (PZ) and Gjakova (GJA). Mitrovica (MIT) faces more problems with some hours of no supply. Main problems affect Gjilan (GJI), Ferizaj (FE) and Prishtina (PR), where due to high demands cut waters are frequently.

Figure 05. Water service reliability in Kosovo.

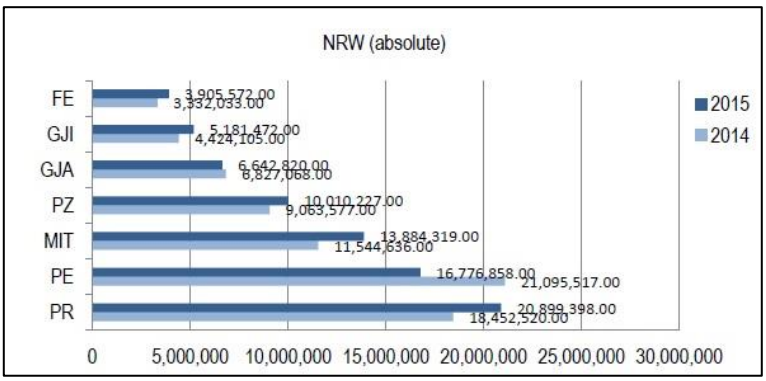


Source: WSRA (2016, p.17)

This cuts need to be resolved as they mark risks, highlighting the "precarious situation" of health risks due to the very-improvable infrastructure, and the political disputes that may occur if access to water is limited, as well as the contamination of water sources.

In numerous cases, uninterrupted supply is not possible due to high losses of water and insufficient production capacity. OSCE (2008) identified as problems to Kosovo's right supply the leaking water pipes and the steal of valves. Furthermore, non-revenue water was at 75% after the war; 57% in 2013 (WBG 2015) and after the improvement of infrastructure now it downed to 49% (Abdullahu & Kërpaçi 2015). Still though, it is a high value, as half of the water is lost in its way. The highest percentage of non-revenue water is located in areas with a higher consumption (Figure 06). Peje/Pec is the only region where in 2016, non-revenue water decreased from 2015 levels.

Figure 06. Non-revenue water in different municipalities.



Source: WSRA (2016, p.19)

Finally, some mention has to be addressed to the investment made (Table 02). Since the end of war in 1999, more than 250 million € have been invested in water sector. 74% of those investments were granted by international donor institutions and 26% by the central government budget. Recently, the international aid declined to 42%, contribution of government to 54% and the water companies 04% (WBG 2015). With the intention of have the capacity to maintain the network and improve it, it must be taken into account the high number of unpaid water. It is estimated that 56% of the water is not billed because of technical and administrative problems. In 2008, only 62% of consumers paid their water bills (OSCE 2008).

Table 02. Investments made in RWCs.

RWC	2012	2013	2014	2015
Prishtina	5,079,692.45	9,027,944.72	1,592,704.13	961,127.00
Hidroregjioni Jugor	3,388,492.59	1,552,776.75	909,195.35	1,151,166.31
Hidrodrini	4,742,892.56	901,564.07	802,008.43	2,028,852.00
Mitrovica	21,850.82	2,060,992.78	0.00	0.00
Radoniqi	397,359.49	1,348,647.11	1,166,757.54	1,306,505.82
Bifurkacioni	702,391.82	58,461.05	3,060,203.32	278,347.00
Hidromorava	1,367,079.59	32,350.48	1,971,970.76	204,227.69
Total	**15,699,759.32**	**14,982,737**	**9,502,839.53**	**5,930,225.82**

Source: WSRA (2016, p.48)

In short, the distribution net in Kosovo has room to be improved. It relies on 9 treatment plants and 3836 km of network (WBG 2015). Although infrastructure has been improved and is "relatively well developed" (WBG 2015, p.06), the number of water-treatment plants need to increase and better work, as quality of water needs to be improved. The main problem in Kosovo remains the wastewater treatment and sewage.

QUALITY AND EXPECTATIONS

Water's quality in Kosovo has been an issue of a huge attention in the last years. In 2000, the World Health Organisation ranked Kosovo as the European country with the highest morbidity rate in terms of disease transmitted by water. Probably the reason is the non-existing wastewater treatment and the direct deposal to the rivers. In fact, industries and the discharge of wastewater without treatment make rivers so polluted that downstream from Prishtina, water cannot be used for supply (Avdullahi et al. 2008). Not only rivers but also water springs in North Kosovo are contaminated with heavy metals (Avdullahi et al. 2013).

Deep research concerning the quality of waters indicate that rural population were in the poorest situation, and as they lacked adequate sanitation systems, about 80% consumed contaminated water from domestic wells (WWC 2007, p.04), thanks to improvements made, recently this number

decreased to 65% of population not meeting hygienic standards (MESP & KEPA 2010, p.104). Nevertheless, the National Institute of Public Health in Kosovo (NPHIK) warns that the drinking water quality is "still not reliable". Despite all this, the number of diseases (Hepatitis A, Diarrhoea) is downing every year (MESP & KEPA 2010, p.106).

With the purpose of providing an adequate supply and guarantee water of quality and the coverage of all the population, Kosovo National Water Strategy 2015-2034 indicates as strategic objectives in the use of water the following ones:

- Implementation of Priority Investments to increase water resource storage by up to 50%.
- Continued investment in refurbishment and extension of water supply systems.
- Prioritisation of cost saving measures and measures leading to achievement of reliable 24-hour supply of health safe water at adequate pressure.
- Reductions in theft and losses
- Gradual extension of irrigation coverage leading to a total coverage of 30,000 hectares.

To finish, this paper wants to underline some considerations about the future expectations of water supply.

The EU Water Framework Directive (WFD) sets up a "legal framework to protect and restore clean water and ensure its long-term sustainable use". It includes inland surface waters, transitional waters, coastal waters and groundwater. In its Article 03, WFD suggests the creation of international river basin districts to implement coordination between the sharing states (GIZ 2012). Furthermore, the Drinking Water Directive (98/8/EC) establishes standards of quality to ensure the water EU citizens consume, which need to be met.

The availability of water is a limiting factor, what makes of a great importance the correct study and implementation of right measures. With a consumption in residential water of 93 liters/capita/day, with a 22 hours/day continuity (WBG 2015), demands are expected to grow as population does. Moreover, the need to invigorate the economy will need of a higher consumption. Irrigation for fields, industry and the indispensable tourism will need certain water safety.

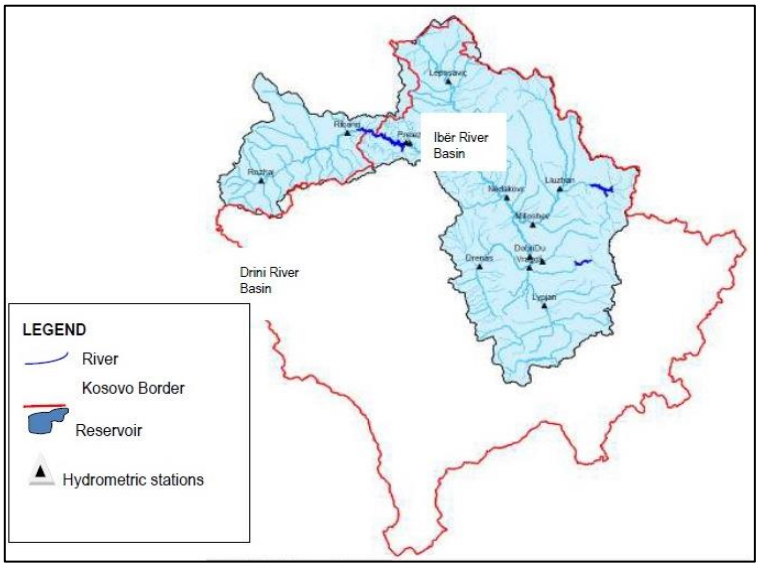
Water must be well managed. Advantage should be taken from the current reservoirs, likewise the largest one, Gazivoda, must be managed fairly. It is essential that before starting searching for new sources of water, investments in improving water infrastructure need to be made, in order to reduce non-revenue water and losses. By the same token, awareness campaign in the responsible use of water

should reach the entire population, to create a saving-water climate. Wastewater treatment and sewage are priorities and should be expanded to the whole territory. This would solve many problems of quality and consequently, the amount of available water.

CURRENT USE OF GAZIVODA WATER

The dam of Gazivoda, situated in the Ibar River (Figure 07), has a catchment area of 1060 km2. Its system irrigates the lands of Zubin Potok, Mitrovicë, Vushtrri, Prishtina, Skenderaj and Drenas. More than 20,000 ha are irrigated with this water (KAS 2016, p.14), which means 30% of the Ibar basin occupied by croplands. Currently, it provides water to all the territory between Mitrovica and Prishtina, and it gets to be the emergency supplier to Prishtina city in case of drought or emergency. Water from Gazivoda is treated in Sipolje, just in the southern part of the divided Mitrovica, then it goes north under the main bridge of the city. This all is managed by the company "Ibar", funded by Belgrade. Cooperation between Serbs and Albanians in Kosovo is of crucial importance, as 01) the reservoir is situated in a shared territory, in the north alongside the Serb-Kosovar boundary and 02) distribution net crosses ethnic limits. Nonetheless, disputes continue arguing who should use water first and the direction the nets should go.

Figure 07. Iber River basin map and situation of Gazivoda reservoir.



Source: Baudry (2012, p.40)

The dam also provides water for irrigation and energy supply. The latter has a strategic significance, as OSCE (2008, p.09) reported that industry depends on the energy supplied by hydro-electric plants "Kosovo Energy Corporation's Kosovo B power station in Obiliq/Obilic needs a large amount of cooling water which is currently provided by the Gazivoda reservoir in order to be

operational. A potential disruption of water supply from Gazivoda could create a chain reaction". As of 2015, the amount of water consumed by this power plant reached 17.3 million m3 (KAS 2016, p. 25).

Kosovo's agriculture is an important sector, contributing 13% of the GDP and employs 42% of the population. 16% of the total export value comes from agricultural products, even though Kosovo has to import many ones, rising to more than 24% of overall imports. Irrigation fields are being planned in Central Kosovo and they count on the water of Gazivoda for their running. Main products are potatoes, berries, wheat, corn and production of wine.

This proves that water is appreciated not only for drinking use but also for industrial and agricultural affairs. Limited availability of water can pose threats to Kosovo's economy.

VOLATILE BORDERS: THE KOSOVO PARTITION. EXCHANGE OF ALBANIAN & SERBS MUNICIPALITIES OF NORTH KOSOVO & PRESEVO VALLEY

As a result of ethnic national minorities being majority in bordering municipalities to their motherland, an exchange of territories has often been argued. This would mean the partition of Kosovo, giving the North (Leposavic, Zubin Potok, Zvecan and North Mitrovica) to Serbia, while receiving from the latter the three Albanian municipalities of Presevo Valley. The main purpose is to ensure the rights of civilians and arrange the correspondence ethnic – nation belonging. Few Albanians from Presevo Valley get to work in Serbian public sector, their unemployment rate is very high and they demand more attention in the use of their language (Huszka 2007), something that recently has been tried to overcome as Serbia launched a campaign that let schools use Albanian textbooks. Situation of Albanians in Presevo Valley is exposed by Zejnullahi (2015, p.92) citing lack of health system, education in mother tongue or media coverage in Albanian. It is also specified the unwillingness to use Albanian as an administrative language or the use national symbols. On the other side, Kosovar Serbs do not feel confident about the respect of their rights in a new state ruled by Albanians, a feeling shown in the multiple boycotts to the elections held. Moreover, Serbia does not seem to be keen on letting go this piece of land, as it represents to a certain extent, the *de facto* control of Serbia over a piece of the sacred Kosovo to the Serbian legend.

Precisely before the declaration of independence, Albanians in Presevo Valley made public their desire to join Kosovo if municipalities of North Kosovo joined Serbia (Huszka 2007). Konculj Agreement made possible the end of the UCPMB (Liberation Army of Presevo, Medvedja and Bujanovac) and the implementation of the Covic Plan, whose goal was to integrate Albanians of Presevo Valley "into the political, government and social system" (ICG 2006). In fact, the Albanian councillors of the municipalities of Presevo, Bujanovac and Medvedja adopted a common political

platform in January 2006 in which they "commit to unification of Presevo Valley with Kosovo in case of a possible change of Kosovo borders" (Huszka 2007, p.07).

If this exchange and partition plan succeeds, Gazivoda would lay under total Serbian influence. So, all plans of water supply for drinking, industrial and agricultural use would have to be changed. But what makes it more dangerous is the effect that this idea (of re-drawing borders in order to include minorities) could have. Regarded as a quick and good solution to maintain peace and secure civil rights of minorities (in that case under their motherland state), this example may be followed by the same situation in other parts of Europe, such as Srpska Republika (the Serb entity of Bosnia & Herzegovina which has tried to reunite to Serbia in several times by organising referendums, the last one in 2016) or any other state which holds minorities in neighbour countries: Albanians in Montenegro, FYR Macedonia and Greece; or Croatians in Herzegovina, are visible examples. For all the reasons given, it is essential to respect the current borders and the national sovereignty of every state. But, in order to prevent rebellions and ensure the meet of minorities' rights, decentralisation and empowering local autonomy may be good options to gain stability. In this sense, the official position of Kosovar Government is to respect the borders that Kosovo inherited from the previous Autonomous Province, not to lose North Kosovo and not to gain Presevo Valley. Efforts are being made, with the both help and demand of the EU of respecting rights of all civilians and to promoting equality.

CONCLUSIONS

In South Eastern Europe, due to the great density of borders and shared river basins, water resources must be treated in an international cooperation perspective. Regional cooperation in South East Europe includes several water organisations whose missions are to enhance cooperation between countries and develop an integrated basin management. For example, the Sava Basin Commission integrates Croatia, Serbia, Montenegro and Bosnia and Herzegovina. Danube River is considered "international waters" as it crosses ten countries and shares its basin with nine countries more. The Danube Comission is one of the most effective basin institutions in the world.

The UN Water Convention, adopted by the UN General Assembly in May 1997 is the only universal instrument regarding this issue, providing framework for setting rights and obligations. The most important rule in every treaty of transboundary water resources is the principle of equitable and reasonable use, both a right and a duty. Cooperation must be in the highest level to reduce impacts on transboundary damage. In this sense, UNWC encourages watercourse States to create joint bodies in order to facilitate cooperation on relevant measures and procedures.

Nonetheless, this international law only applies for sovereign states so the fact that Kosovo is not fully recognized might be a key factor to take into account. However, human consumption is given priority to other alternative uses, so the need of water for Kosovo's correct supply must be outlined in order to gain some attention and help to solve the problem. Perhaps dealing a non-treaty-based engagement could be a good start choice, which is typical in particular during the early stages of cooperative processes in transboundary basins. If cooperation continues, cooperation will increase and finally it will end up in treaties to achieve more stability and predictability in their mutual engagements. It is not of small importance; in fact 37% of these treaties focus mainly on water supply.

In 2009, Jäkerskog and Zeitoun listed three lessons learned about transboundary water cooperation:

- Cooperation should not be seen as a goal, but as a path to achieve the goals of the co-riparians;
- Cooperation is most effective when there is equal participation and decision among all parties;
- Cooperation is more successful if it starts from bottom to top (from community to international level).

To finalize this case study, a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis is presented below:

- Strengths: great importance for both countries in human consumption, irrigation and industrial use; interest in EU accession.
- Opportunities: EU accession dialogue, investment funds, increasing international recognition, belonging to Danube River Basin.
- Weaknesses: poor water distribution net, disputed border, great pressure on water demands.
- Threats: plans of partition, water disputes, political radicalisation, lack of democratization, no full recognition by EU.

Plans and actions taken must enhance strengths and reduce weaknesses, and take advantage of opportunities and avoid threats.

It is essential to adopt strategies aiming to achieve a win-win cooperation. Plans of partition and radicalism may disrupt and alter the tense and difficult status of this piece of land, so they should

be avoided. Efforts must be made in the direction of supporting an effective democratization, empowering local government and upgrading the existing water supply in Kosovo. Opportunities like EU accession dialogues should be profited in a peaceful climate, emphasizing the interest that both countries show in becoming an EU member.

Seen as a priority for both countries, the future EU accession has made possible a dialogue between them with occasional agreements to normalize relations, showing a common interest. This fact encourages both Serbia and Kosovo to hold a climate of respect. The normalized relations and lack of disputes are essential to become an EU member. Normalization of relations with Kosovo is included in Chapter 35 of Serbia's accession negotiations. EU membership must be made reality in the future in order to bring credibility to all the reforms and progress in curse. It is important to outline that this 'Europeanization' may be much more of a policy rather than a process, so efforts must be made in order to accomplish full democracy, respect and values and not only to achieve own goals and needs. In this sense, OSCE is not aware of any discrimination concerning water supply to Serbs in Kosovo, although it warns about the possibility in the future if water is not managed properly and its lack becomes permanent.

In this way, agreements made by Serbia and Kosovo, mediated by the EU since 2011 represent a major step towards EU membership for both countries. A deal must be reached between Kosovo and Serbia on the management of its shared resources and to establish a particular partnership as it has been already developed with other neighbour countries. As noted in other cases, the construction of huge dams, although it previously arose international tensions, it then lead to more cooperation as the upstream country could prevent the downstream one from floods, receiving the latter benefits. Only by the cooperation of these two Ministries and the fair use of water resources, requirements for EU accession will be met. Thus, Gazivoda Lake is big matter to be solved in order to continue both Kosovo and Serbia's path to the EU.

REFERENCES

Abdolvand B, Mez L, Winter K, Mirsaeedi-Glossner S, Schütt B, Rost KT, Bar J 2015. The dimension of water in Central Asia: security concerns and the long road of capacity building. *Environmental Earth Sciences* 73:897-912.

Abdullahu I, Kërpaçi A 2015. Water loss reduction-experiences and practices. *Journal of Earth Sciences* 1:55-68.

Avdullahi S, Fejza I, Syla A 2008. Water resources in Kosova. *Journal International Environmental Application & Science* 3(3):51-56.

Avdullahi S, Fejza I, Tmava A, Rama M, Hetemi M 2013. Assessment of heavy metal in the water springs, Stan Terg, Kosovo. *International Journal of Engineering and Applied Sciences* 2(4):12-17.

Baudry F 2012. *Water security for Central Kosovo*. SCE Amenagement & Environment, Office International de l'eau, 211 pp.

Beha A 2015. Disputes over the 15-Point Agreement on Normalization of Relations between Kosovo and Serbia. *Nationalities Papers: The Journal of Nationalism and Ethnicity* 43(1):102-121.

Bieber F 2015. The Serbia-Kosovo Agreements: An EU success story? *Review of Central and East European Law* 40:285-319.

Brussels Agreement 2013. First Agreement of Principles Governing the Normalization of Relations;

Del Valle J 2015. Water as a strategic resource: international cooperation in shared basins and geowater. *Revista del Instituto Español de Estudios Estratégicos* 5:1-52.

Duda A, El-Ashry M 2000. Addressing the global water and environment crises through integrated approaches to the management of land, water and ecological resources. *Water International* 25(1):115-126.

Elhance AP 1999. *Hydropolitics in the third world. Conflict and cooperation in international river basins*. Institute of Peace Press, Washington DC, 300 pp.

Gallucci G 2011. The Ahtisaari Plan and North Kosovo. Transconflict [updated 2011 Nov; cited 2017 Nov 2]. Available from: http://transconflict.com/10/wp-content/uploads/2011/11/PolicyPaper_AhtisaariPlanNorthKosovo.pdf.

GIZ (Deutsche Gessellschaft für Internationale Zusammenarbeit) 2012. *Feasibility Study. Strengthening Regional Cooperation / Networking in the Forestry and Water Management Sector and Sustainable Development in the River Basins of the South-Eastern European Countries. Final Report*, On behalf on Federal Ministry for Economic Cooperation and Development of Germany (BMZ), Regional Rural Development Standing Working Group (SWG RRD) [cited 2017 Nov 2]. Available from: http://edepot.wur.nl/215459.

Gleick P. (Ed.) 1993. *Water in crisis: A guide to the world's fresh water resources*. Oxford University Press, New York, 498 pp.

Gonen A, Zeitouni N 2008. Using risk management to increase the flexibility of transboundary water conflict resolutions. *International Journal of Risk Assessment and Management* 10(4):373-385.

Gonen A, Zeitouni N 2010. Risk management of water resources in a changing climate. In G Nota, *Advances in risk management*, InTech, p. 199-222 [cited 2017 Nov 2]. Available from: https://cdn.intechopen.com/pdfs-wm/11560.pdf.

Government of Kosovo. *Kosovo National Water Strategy 2015-2034*. [cited 2017 Nov 2]. Available from: http://kryeministri-ks.net/tfu/repository/docs/Kosovo_Water_Strategy_-_Version_2_95a.pdf.

Huszka B 2007. The Presevo Valley of Southern Serbia alongside Kosovo: The case for Decentralisation and Minority Protection. *Centre for European Policy Studies* 120:1-10.

ICG (International Crisis Group) 2006. Southern Serbia: In Kosovo's Shadow. *Policy Briefing* 43, Belgrade/Pristina/Brussels, 27 June, p. 3.

ICJ (International Court of Justice) 2010. *Accordance with international Law of the Unilateral Declaration of Independence in Respect of Kosovo (Request for Advisory Opinion),* 22 July.

Independent Balkan News Agency: Association of Serb Communes held to ransom by parallel structures in the North [updated 2016 Oct 11; cited 2017 Nov 2]. Available from: http://balkaneu.com/association-serb-communes-held-ransom-parallel-structures-north/

Islami H, Ejupi A 2015. *Popullsia dhe vendbanimet shqiptare të luginës së Preshevës (Albanian Population and settlements of the Presheva Valley: present situation and trends)*, Kosova Academy of Sciences andArts, Special Editions CXLVI. Section of Social Sciences, Book 50, Prishtina, Kosovo, 639 pp.

Jägerskog A, Zeitoun M 2009. *Getting transboundary water right: theory and practice for effective cooperation. Report nr. 25*, Stockholm International Water Institute (SIWI), 30 pp.

KAS (Kosovo Agency of Statistics) 2016. *Kosovo Water Statistics 2015*, Kosovo Agency of Statistics.

KASA (Kosova Academy of Sciences and Arts) 2013. *Kosova. A monographic survey*, Kosova Academy of Sciences and Arts, Prishtina, 507 pp.

Kitanics M, Pap N 2012. Las relaciones geopolíticas de las áreas albanesas. *HAOL* 27:103-116.

Korca B 2006. Case study on the right to water sanitation in Kosovo. In S Hoffmann, *The implementation of the right to water and sanitation in Central and Eastern Europe*, Solidarité Eau Europe, p. 2-16.

Kucukmehmetoglu M 2009. A game theoretic approach to assess the impacts of major investments on transboundary water resources: the case of the Euphrates and Tigris. *Water Resources Management* 23:3069-3099.

Meierding E 2016. Dismantling the Oil Wars Myth. *Security Studies* 25:258-288.

MESP & KEPA (Ministry of Environment and Spatial Planning & Kosovo Environmental Protection Agency) 2010. *Report: The state of water in Kosovo*, Agjencia e Kosoves per Mbrojtjen e Mjedisit.

OSCE (Organization for Security and Co-operation in Europe - Mission in Kosovo) 2008. *Water supply issues in Kosovo*, United Nations Mission in Kosovo (UNMIK).

Postel S 2000. Entering an era of water scarcity: the challenges ahead. *Ecological Applications* 10:941-948.

Seckler D, Barker R, Amarasinghe U 1999. Water scarcity in the twenty-first century. *International Journal of Water Resources Development* 15:29-42.

Sneddon CH, Fox C 2006. Rethinking transboundary waters: A critical hydropolitics of the Mekong basin. *Political Geography* 25:181-202.

SRFY 1946. Constitution of the Socialist Federal Republic of Yugoslavia.

Szmolka I, De Cueto C 2011. *Objeto y método de la política comparada*, Universidad de Granada, Granada.

Toset HPW, Gleditsch NR, Hegre H 2000. Shared rivers and interstate conflict. *Political geography* 19:971-996.

Tumbovska K 2011. *Water resources management in the Western Balkan region (Case study of Macedonia, Albania, Kosovo and Montenegro*, Global Institute for Water, Environment and Health (GIWEH).

USAID & UNDP (United States Agency for International Development & United National Development Programme) 2012. *Kosovo Mosaic 2012: Overview of perceptions on public services and local authorities* [cited 2017 Nov 2]. Available from: http://lr.undp.org/content/dam/kosovo/docs/Mozaik/Kosovo_Mosaic_2012_Eng_735317.pdf

WBG (World Bank Group) 2015. *Water and wastewater services in the Danube Region: Kosovo country note*, World Bank Group, International Association of Water Supply Companies in the Danube River Catchment Area, Danube Water Program.

WSRA (Water Services Regulatory Authority) 2016. *Annual performance report for water service providers in Kosovo, in 2015.*

WWC (World Water Council) 2007. *The right to water in Kosovo*, World Water Council.

Zejnullahi V 2015. Albanians in Presevo Valley and their national rights. *European Journal of Language and Literature Studies* 2(1):89-94.

A Gestão dos Recursos Hídricos em uma Fronteira em Disputa: O Caso do Reservatório de Gazivoda (Kosovo)

RESUMO

Este trabalho pretende estudar a importância de uma boa gestão do reservatório de Gazivoda. Na região instável dos Balcãs, a água é considerada um recurso estratégico. Atravessando a fronteira disputada entre o Kosovo e a Sérvia, a água de Gazivoda desempenha um papel importante nas economias e no abastecimento de água em ambos os países. O desejo de controlar Gazivoda pode interromper a relação que o Kosovo e a Sérvia relatam. Reclamações de minorias étnicas de sérvios no Kosovo, e os albaneses na Sérvia podem representar riscos para as fronteiras atuais. As fronteiras precisam ser respeitadas para alcançar a estabilidade. Modelos estrangeiros de cooperação podem ser seguidos para alcançar uma boa gestão bem sucedida para a sociedade em ambos os lados da fronteira.

Palavras-Chave: Recursos Hídricos Compartilhados; Cooperação Transfronteiriça; Fronteira em Disputa.

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