

## WP5.2

Development of standard protocols and procedures for efficient and effective cross border water supply. Technical protocols for the cross-border water supply addressing 7 different topics: planning, design, operation and maintenance, financing, water quality, contingency management, governance.



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DRINK ADRIA



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REPUBLIC OF SLOVENIA  
**GOVERNMENT OFFICE FOR DEVELOPMENT  
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**DRINK ADRIA**

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# 1 Introduction

Protocols are developed for different type of scenarios and present an accepted code of behaviour in a given circumstance. Protocols vary from one utility / country to another.

Cross border water supply systems (CB WSS) are very rare on international scale but still are described by several authors (Onn 2003; EUDialogue 2014; Gleick 2015; Banovec et al. 2015). Major geopolitical transformations in last 100 years in Europe led to change of status of WSS from local to cross border or cross regional (Ljubuski.Info 2014; R.I. 2015; Mojžumberak 2014; Občina Metlika 2010; Banovec et al. 2015; ITALY and YUGOSLAVIA 1975).

Inside DRINKADRIA framework it was recognized that there exist several possible new cross border water supply connections. Water utility managers that are involved in project, have stated that their cross border water supply systems (CB WSS) do not obtain a document regarding protocol on how to negotiate a new CB WSS with neighbouring country on either utility or national level.

This reveals a huge gap in the current legislation at national level and even at EU level. Procedure for new cross-border/region water supply system was intensively researched before guidelines were developed (Graham 1985b; Ahammad et al. 2015; Weber et al. 2009; Ghauri & Usunier 2003; Weiss 2006; Tinsley et al. 1999; Tinsley 2001).

While the project was evolving and the whole story was starting to be discovered, it was revealed that 7 different topics (planning, design, operation and maintenance, financing, water quality, contingency management and governance) are simultaneously interconnected. After several discussions on numerous meetings it was stressed by all project partners that these topics cannot be separated and that is of utmost importance to provide as an outcome a unified document that will cover all 7 topics. Appendix 1 provides Draft Contract that covers all 7 topics in great detail. Chapter 3 (Contract) of this document explains how the Draft contract and 'A list of minimum contents' has occurred. Financing of CB WSS was pointed out as one of key problems that needed to be addressed. Specifics of pricing mechanisms of drinking water in Adriatic area are presented in Deliverable 5.3 (Banovec, Domadenik, et al. 2016). Water quality was additionally reviewed from researchers point of view (Karleuša & Radman 2016; Žvab Rožič et al. 2014) and from practical point of view (VERITAS S.p.A 2014). Water governance, planning, design, operation and maintenance are additionally discussed in chapter Legislation and technical standards.

This report opens a new view on the CB WSS history, because firstly, is talking about the idea (potential new CB WS connection); secondly, how it will be achieved (protocols for new CB WS and negotiation framework) and finally, in the last phase, a Draft Contract is presented (where all 7 topics are covered) in Annex 1. Within the scope of this story it was also made as part of support – an overview of a large are of available legislation and technical standards that of key importance to CB WSS.



## 2 Procedure for new cross border/region water supply system

Procedure is a challenging long term process in domestic environment but in case of DRINKADRIA project, negotiation process is even more challenging because it goes international. Unfortunately, there was no written process on negotiation procedure for cross border water supply provided by project partners. Nevertheless, general negotiation process for water sector is analysed through various articles hereinafter.

Several studies were made where factors that have influence in negotiation processes in cross border issues were studied (Graham 1985a; Ahammad et al. 2015; Weber et al. 2009). Literature, that describes negotiations, is usually investigated from social psychological and behavioural decision perspectives (Bazerman et al. 2000; Ghauri 2003; Thompson et al. 2009). International business negotiations receive a bigger weight in managerial processes, because it was recognized that this is one of key issues for successful implementation of international business strategies ranging from macro-strategic perspective on organizations to micro-behavioural perspectives on individuals (Ghauri & Usunier 2003; Weiss 2006). Ghauri (2003) has structured the international business negotiation process in terms of the pre-negotiation, negotiation, and post-negotiation stages and each of this stage is influenced by several factors (culture, strategy, background and atmosphere). As a metaphor, intercultural negotiation process resembles a dance, where one person does a waltz with another doing a tango (Adair & Brett 2005). Cultural differences and different cultural scripts will present themselves at the bargaining table, while differences in preferences present opportunities for both parties (Tinsley 2001; Tinsley et al. 1999). Multiple models of negotiation exist (Lewicki et al. 1992; Weiss 1993; Gelfand & Brett 2004; Brett et al. 1999; Gelfand et al. 2006) and literature on culture and negotiation is increasing although a lot it awaits further scholarly inquiry (Gelfand & Dyer 2000). Culture is a major factor when deciding about strategies and tactics in international business negotiation, one needs cultural knowledge and skills for successful intercultural communication (Ghauri & Usunier 2003; Graham 1985b). It should be noted that business negotiations vary across cultural groups (Graham et al. 1994) and that understanding cross-cultural issues is the key to understanding negotiations (Gelfand & Brett 2004).

Procedure for new cross border water supply system was proposed and schematically process is divided into three key steps: (1) antecedent phase (preparation time), (2) concurrent phase (current status and negotiation framework) and (3) consequent phase (contracting process and closure of negotiation) (Figure 1).







Figure 1: Scheme of procedure for new cross border/region water supply system (Ghuri & Usunier 2003; Graham et al. 1994).

In the following chapters is described conceptual framework of negotiation process that is more concentrated on individual partner approach to negotiations and could be used in a way to assess probability of successful formation of cross border agreement. As negotiations for cross border water supply are very specific, more detailed and more oriented topics on the goals and outputs are suggested which involved parties wish to discuss and achieve.



## 2.1 Antecedent phase

In the initial stage the interested party first has to take an initiative to start communicating with the party of their interest. A clear understanding of activities undertaken during pre-negotiation preparation is essential. Four critical for success pre-negotiation phases are described as follows:

- (1) **Intelligence gathering** – is the act of collecting, processing, analysing and evaluating available data (Peterson & Lucas 2015). Understanding the market conditions, future trends, and how such issues will affect each party is only the first step. Information on the other participants involved should be a priority as well. This phase is often considered the most important by negotiators because it provides them with a foundation for all future decisions and recommendations.
- (2) **Formulation** – setting goals and determining objectives are an inherent part of any planning phase (Wilson & Putnam 1990; Futrell 1996). Negotiators are expected to define the issues to be deliberated. In the formulation phase, one would see efforts targeted at deciding what issues are relevant to the encounter. Among the most important activities are setting limit levels (realistic, pessimistic, and optimistic) on each issue to be discussed. Most seasoned negotiators understand the power, and the responsibility, of crafting the document that will guide the issues to be deliberated, and quite possibly how much time will be spent on each issue. Hence, the formulation step in the pre-negotiation process is focused heavily on setting the financial parameters, general objectives, and goals of the negotiation. This process does not occur within a vacuum. Deciding what will be discussed, and what will not, can significantly influence the objectives of the negotiation.
- (3) **Strategy** – is a plan, chosen to bring a desired future such as achievement of solution to a problem. Negotiators should devise general strategies that drive the specific tactics they will deploy (Wall 1985). A well-prepared negotiator will also come with a predesignated trade-off strategy (Lewicki et al. 1997). A preformulated scheme regarding what can be sacrificed in order to obtain more favourable consideration on other issues is another area that is often planned before one reaches the confines of the negotiating table. This is similar to concession strategy development. At what time will certain concessions be offered, who will offer them, and what might be the expected reciprocation? These issues should be driven by predetermined strategies.
- (4) **Preparation** – involves rehearsing verbal communication, arranging/creating support materials and attending to logistical concerns. Greater accomplishments can often be achieved in a well-planned and prepared thirty minute session than a poorly prepared two hour marathon (Peterson & Lucas 2015). Active role-playing has also been put forth as a means to improve one's negotiation performance (Younger 1992; Byham & Robinson 1996; Georges 1996).



As the preparation phase enters into the final stages there are two very important facts that should be established (Ahammad et al. 2015):

- (1) **Level of interest** – both parties should make clear to other party their level of interest to establish new cross border water supply and especially explain why (what is their motivation to do that).
- (2) **General financial status of partners** – they should prove each other good financial status and that there are resources or investors who support the idea of cross border water supply.

Stated topics are necessary to insure that parties trust each other. They can assess quality level and reliability of water supply of other party and their intentions in future. Although as (Wiltermuth & Neale 2011) state, only relevant information should be shared.

Therefore, it can be said that networking of water utilities is very important. Companies can improve their networking through attending various workshops, conferences and similar events. Likewise, cooperation in (international) projects here play enormous role. If the parties successfully cooperated before it is more likely that they will do that in the future, maybe even in case of establishment of new cross border water supply.

In case parties are satisfied with shared information and discussed details, they should do Pre-feasibility studies, especially focused on technical and economic aspects. They should access the cost of building infrastructure for cross border/region water supply and do multiple scenarios if applicable. Also they should make comparison with alternative water supply from other sources. Here it is important to have in mind that even if one scenario costs are higher, maybe it is more justifiable as water quality and quantity is better and more reliable than of other scenarios.

When a scenario for construction of new infrastructure is chosen, it is strongly recommended that also studies on the scenario of closing cross border water supply is done. Meaning: study of conditions that can occur in the water supply system after closure of cross border connection (flow, pressure, chlorination, quality of water, economics, etc.).



## 2.2 Concurrent phase

In the negotiation process, certain concurrent and consequent variables are a function of other antecedent variables (Peterson & Lucas 2015). However, special attention should be paid on how following factors influence on development of concurrent phase and how the process perspective of negotiation in cross border acquisitions should be considered:

- (1) **Communication** – is of critical importance in affecting negotiation process. It is urged to take a contextual view of communication in order to understand negotiation process, whereas different situational conditions can affect the patterns of frequencies, sequences, and phases of negotiation communication (Weingart & Olekalns 2004). Face-to-face communication enabled participants to foster greater rapport and cooperation than audio-only communication (Drolet & Morris 2000). The technological advancement and availability of communication channels, such as telephone, fax, email, etc., can affect the negotiation process. Contact between employees of the two companies is needed for managerial and cultural integration (Shrivastava 1986), and the creation of communication channels can facilitate the coordination and knowledge flows between firms (Chesbrough & Teece 2002). The communication patterns are slow to change. A clear communication strategy, aligned with the integration strategy and the desired culture of the new organization, is a critical component of a successful integration strategy (Gomes et al. 2011). According to Datta and Yu (1991) the better informed is the interested firm of the target firm, the better are the odds of attaining the greatest benefits from the negotiation process. Coff (1999) found that the lengthening of negotiation process in knowledge-intensive industries leads slower momentum thus allowing the negotiating parties to better share information without time pressures.
- (2) **National cultural differences** – cross-cultural research comparing negotiations in different cultures suggests the distinctive negotiating styles (Graham 1993; Graham & Lam 2003; Graham et al. 1994; Sebenius & Qian 2008). In the realm of international negotiations, studies stated that cultural differences, such as individualism versus collectivism, affect negotiation process (Gelfand & Realo 1999), judgement biases in negotiation (Gelfand et al. 2002), negotiation behaviour (Adair et al. 2001), conflict resolution strategies (Tse et al. 1994), and negotiation joint gains (Brett & Okumura 1998). Tension felt in international business negotiations affect trust of negotiators' counterparts (Lee et al. 2006). A recent 33-nation study reveals the differences between tight and loose cultures (Gelfand et al. 2011). In their view, tight cultures have many strong norms and a low tolerance of deviant behaviour, whereas loose cultures have weak social norms and a high tolerance of deviant behaviour. An integrated multilevel system was suggested which incorporates both historical factors and contemporary processes to understand the national cultural differences. As a



conclusion it should be pointed out that national cultural difference in most cases negatively influence the concurrent phase of process.

- (3) **Organizational cultural differences** – scholars argue that organizations or institutions may serve as barriers to negotiations (Wade-Benzoni et al. 2002). The relationships between organizational cultural differences and other human factors to the effectiveness of the integration process are complex and vary across different industry sectors (Weber 1996; Weber et al. 1996). It is recommended that the negotiations committee assess the culture of each organization and understand the existing differences (La Piana & Hayes 2005). A recent study empirically tested the effects of organizational cultural preservation, multiculturalism, and partner attractiveness on post-acquisition conflicts (Sarala 2010). The results indicate that organizational cultural differences and organizational cultural preservation increase conflicts.

Moderating effect of culture on communication and negotiating process – it could be said that national culture distance affects the extent to which interested partners communicate during negotiation process and integration process. Several studies report that national culture has an important influence on how people interact with others (Schneider & De Meyer 1991; Tayeb 1994; Doney et al. 1998). For example, Hofstede (2001) explained that in cultures that are characterized by large power distance, centralisation of communication is popular, whereas in small power distance cultures decentralization is popular. These differences are likely to lead to very distinct communication styles and expectations from communication.

During the concurrent phase, interested and target firm can convey critical information about the target firm's capabilities and provide, or ask for, clarification and explanation about these capabilities. Moreover, communication functions as an important driver of trust between groups (Citera & Rentsch 1999). However, culture distance makes it more difficult for employees to interact and share ideas, and, as a result, impedes communication. Even when language differences are not present, or are overcome through training and education, organization members are likely to prefer, and have greater opportunities for, communicating with other members from similar cultures rather than with members from distant cultures (Lane et al., 2004).

### **2.2.1 Analysis of current status in Adriatic region**

When a goal is set – achieving a new cross border water supply connection – then a future state has been defined. To achieve this goal an analysis of current status should be prepared, containing more detailed information. A suggestion of topics that should be discussed in greater details, is prepared in this chapter.



In the framework of DRINKADRIA project an analysis of current status per involved countries was made:

- (1) **Preceding (successful) cross border water supply** - it is strongly advised to present information on current or previous experience with cross border water supply of any water utility. In case of unsuccessful past cross border water supply party should have the right to explain reasons for it. Preceding procedure of establishment of water supply should not be the model for the new one, but it should be integrated or improved with suggested procedure in this document.  
Analysis of preceding cross border water supply for the countries in Adriatic region information is collected and available to public in deliverable Joined report on historical developments of CB WSS (Banovec et al. 2015) and web platform (UL 2014b).
- (2) **A list of Authorities** which regulate water supply (water sector) for countries in question should be made.  
Project partners have provided us with information for their country and all data is collected on web page (UL 2014b) and in deliverable (Banovec, Domadenik, et al. 2016).
- (3) **A list of Legislation and technical standards** which water utilities must abide in their country/region should be prepared.  
For countries involved in DRINKADRIA project this can be checked via online pivot table (UL 2014c) and in this report (4. Legislation and technical standards).
- (4) **A list of Legislation regarding water resources monitoring and monitoring drinking water quality** which water utilities must abide in their country/region should be prepared.  
For countries involved in DRINKADRIA project this can be collected in report Common protocol for water sources monitoring activities in the Adriatic region (Karleuša 2015).
- (5) **Water resource availability and vulnerability reports** should be prepared by the party that is intended to supply water.  
An analysis was made and report prepared (Čenčur Curk & Žvab Rožič 2016).
- (6) **Water supply system status:** maintenance level, water losses, active leakage control, salt intrusion problems and other indicators. To identify this, Waterloss project results (Aristotle University of Thessaloniki & University of Ljubljana 2012) can be used: decision support system (DSS) and benchmarking system. For some water utilities in DRINKADRIA project results of decision support system can be viewed (UL 2014a).
- (7) **Water safety plans** (WSP) should be discussed because their implementation is of key importance for quality long term water supply. WSPs take into account emergency incidents and the small scale supplies particularities that could provide



effective management of potable water systems, critical to ensure the delivery of safe drinking water.

WSP with detailed guidelines and analysis of questionnaire for Adriatic region is found in report: Cross border resources management: Water safety plans (Čenčur Curk et al. 2016).

- (8) **Action plan** – future development scenarios for long term cross-border water supply have been researched. Guidelines have been prepared (Banovec, Matič, et al. 2016).

Comprehensive list helps both sides to more easily coordinate on important issues. Quality information is of key importance for long term and successful partnership.

## 2.2.2 Negotiation framework per partner countries

In any negotiation, the negotiator is always interacting with individuals, but real purpose is to influence a larger organization – representing a diverse set of interests – to produce a meaningful yes. In an international deal, just as at home, negotiator needs to know exactly who is involved in that larger decision process and what roles they play. But in unfamiliar territory, the answers might surprise the involved parties. Indeed, applying ‘home’ views of corporate governance and decision making to international deals may seriously hinder the negotiation process.

Unfortunately, knowing who is involved in the process is only half the battle. While negotiators are negotiating with people, they are typically seeking to influence the outcome of an organizational process. That process can look different in different cultures, and different processes may call for radically different negotiation strategies and tactics (Sebenius 2002).

Cross-cultural diversity in partner’s countries attending DRINKADRIA project are enormous and because of this variance an analysis of different negotiation styles per countries was made. The basics of cross-cultural etiquette and behaviour are presented downstream in this chapter:

### (1) Doing business in Albania

Foreign companies in last years have discovered numerous business opportunities in Albania, which is becoming one of fastest growing economies in Europe.

#### ***Business Communication***

Albanians are warm and hospitable people. Therefore, hugs and kisses in welcoming are not very uncommon even among potential business partners. Personal recommendations and acquaintances opens even so closed doors in the business world. Nurture personal relationships with business partners. The official language is Albanian, although most of the people, especially the younger generation speaks English, also Italian, some French and Greek. It is therefore worth to consider hiring a translator for a business meeting. Albanians tend to pay a business lunch or dinner, even if you suggested it. However, they expect that you will return favour.





### ***Business Meetings***

Business meetings may often take place in unconventional places: café houses, residential dwellings, as well as during taxi rides. The dress code is not as strict as it is in European countries. The exchange of business cards is not a compulsory part of the business meeting as Albanians do not have this habit. But gifts are an important part of business culture, so be prepared that you will receive gifts. It is advised to have yourself prepared a gift for a business partner. During business talks avoid political and religious topics but during the informal chatting and drinking coffee also be prepared for questions about your family.

### ***Negotiation***

Business negotiations can be very demanding. Their first offer is never final. Try to conclude negotiations before the end of meeting or agree that discussion will be continued at the second meeting.

### ***Agreements and contracts***

Handshake and verbal agreement are considered equal to signed agreement. Albanians are one of the few nations where verbal agreements apply same as a signed contract. The contracts are concluded both orally and in writing. Albanians are not enthusiastic about a lot of paper and prefer rather simple arrangements. (Bricelj 2010; PiRS 2016)

It can be safely concluded for now that each country has its own dynamics in which business practice is set. Negotiator's characteristics that influence the process of negotiation are usually: (1) experience, (2) age, (3) gender, (4) education and (5) national culture. A keen interest for the country where are negotiations set is every advisable as each country has its own habits and customs which influence every business negotiation. Acquaintances in the target company are very desirable or another possibility – to have a trustworthy intermediary that can introduce you to a contact in your target company.

## **(2) Doing business in Bosnia and Herzegovina**

There is no single best way to do business in Bosnia and Herzegovina. New entrants to the market will most likely be displacing / supplanting nearby suppliers, such as Croatia and Serbia, as well as dominant EU member country exporters. Of course, a regional strategy can build on existing trading patterns and customers, if the market does not justify a full-time presence. Sales agents, representatives and distributors all have important roles to play in this market. Regardless of which channel is selected, sales support and after-sales service are critical. Financing is a key factor for a Bosnian company, making a decision to take on a new product line.





### ***Business Communication***

Loud voices and animation are common. This does not signify anger; people just tend to be expressive. It is important to be aware of the sensitivities between the different ethnic communities within Bosnia and Herzegovina. This is becoming less of an issue as time passes.

### ***Business Meetings***

It is not unusual to discuss business over coffee or lunch.

### ***Negotiation***

Business takes time due to complicated business laws. Be prepared to deal with long term bureaucracy. Choose negotiating style that includes bargaining because it happens more often than not and decisions can be slow. Explanation and clarification may be needed as people like to be well informed.

### ***Agreements and contracts***

It is advised to work with legal counsel that is familiar with the local laws to create a solid contract that includes non-competition clauses, and confidentiality/non-disclosure provisions (PiRS 2016; COBCOE n.d.; United States Embassy Sarajevo 2015).

## **(3) Doing business in Croatia**

### ***Business Communication***

Direct and straightforward talk is valued in Croatia, however there is also an emphasis on choosing your words correctly and being diplomatic so as not to cause upset. Often, the level of the relationship will determine how direct someone is or can be. For newly established relationships diplomacy is the key, so you may find people, who are not always willing to speak up their minds.

### ***Business Meetings***

Business in Croatia is formal and consequently initially reserved. Once a relationship develops this will change, so it is highly recommended the following: (1) initially at least use the handshake with eye contact and a smile; (2) wait for a woman to extend her hand first; (3) greet the person with the appropriate salutation for the time of day; (4) use professional business titles; (5) business cards are exchanged without formal ritual, (6) include titles and professional qualifications on business cards, and (7) although not a absolutely necessary having one side of your business card translated into Croatian shows some thought.

Be prepared for lengthy meetings. People may go off on tangents plus time is never a factor to bring a meeting to a close.



## ***Negotiation***

It might take several meetings for your Croatian business partners to warm up and be more receptive and less formal, it is therefore better to take the time to develop a more personal relationship with him/her to facilitate smoother business cooperation. A degree of cross cultural adaptability is also necessary. Remember that business is conducted slowly and there is a great deal of red tape to get through; Croatians are not straight forward to deal with. They often say things in a roundabout fashion. Politeness prevents many Croatians from giving an irrefutable “no” and phrases such as “It is difficult” or “We will see” are often negative responses.

## ***Agreements and contracts***

A great deal of patience is needed in order to acquire contracts or to cut through bureaucratic red tape when they are starting a new business. The main problem in Croatia seems to be the legal system, which has a backlog of over a million cases waiting to be heard (Katz 2014; PiRS 2016; Passport to Trade 2.0 2014; Terterov & Bojanic 2004).

## **(4) Doing business in Greece**

### ***Business Communication***

Relationships are the linchpin of business dealings, since Greeks prefer to do business with those they know and trust. They maintain an intricate web of family and friends to call upon for business assistance, since they can be confident of their trustworthiness. Nepotism is not viewed negatively and it is very common for relatives to work for the same company. Greeks prefer face-to-face meetings rather than doing business by telephone or in writing, which are seen as too impersonal. It takes time to develop relationships: this can be done in the office, over extended lunches, dinners, and social outings. Never say or do anything that can be construed as challenging the honour or integrity of a business colleague. Under no circumstances should you publicly question someone's statements. Greeks do not like people who are pretentious or standoffish. Although business is relaxed, it is also serious. Acting informal, before a relationship has developed, is considered discourteous. If your Greek business colleagues become quiet and withdrawn, you may have said or done something to upset them.

### ***Business Meetings***

Appointments are necessary and should be made 1 to 2 weeks in advance, although, it is often possible to schedule them on short notice. Confirm meetings one day in advance by telephone. Many businesspeople eat lunch between 1 and 3 pm, so this is not the optimal time for a meeting. Quite often it is not apparent, until the third meeting, that business is actually conducted. During the first meeting, your Greek business colleagues will want to



get to know something about you as a person. The second meeting is used to develop trust and mutual respect. By the third meeting, business may begin. Have printed material available in both English and Greek. Meetings are often interrupted. Several people may speak at the same time. Greeks will deviate from agendas. They view agendas, as starting points for discussions and will then follow the discussion to the next logical place. Although some business people speak English, it is a good idea to hire an interpreter.

### ***Negotiation***

Forming a personal relationship is critical to developing a successful business relationship. Companies are hierarchical. Greeks respect the age and position. Business is conducted slowly. You will have to be patient and not appear ruffled. Demonstrate how your product or service enhances your colleague's reputation. Do not lose your temper or appear irritated during business discussions. Greeks are skilled negotiators. They quite enjoy haggling. Decision making is held at the top of the company. Imposing a deadline on reaching a decision may end the negotiations.

### ***Agreements and contracts***

Contracts are often quite simple, since the personal relationship dictates, that accommodations will be made on either side, should the need arise (Katz 2006; PiRS 2016; Passport to Trade 2.0 2014).

## **(5) Doing business in Italy**

Italian business people usually have experience in doing business with visitors from other countries. When business needs to be done in Italy, one may realize that some are expecting things to be done 'their way'. The Italian culture is relatively homogeneous but it should be noted that business cultures are considerably different from North and the South. On the North are people more serious, business oriented and a little bit reserved. People that are south of Bologna or even more south from Rome, are much more relaxed in business and negotiations and get often more personable. These variances influence any aspects of negotiations in Italy.

### ***Business Communication***

Italians prefer to do business with people they know and trust. A third party introduction will go a long way in providing an initial platform, from which to work. Italians much prefer face-to-face contact, so it is important to spend time in Italy developing the relationship. Your business colleagues will be eager to know something about you as a person, before conducting business with you. Demeanour is important as Italians judge people on appearances and the first impression you make, will be a lasting one. Italians are intuitive. Therefore make an effort to ensure, that your Italian colleagues like and trust you.



Networking can be an almost full-time occupation in Italy. Personal contacts allow people to get ahead. Take the time to ask questions about your business colleague's family and personal interests, as this helps build the relationship. Italians are extremely expressive communicators. They tend to be wordy, eloquent, emotional, and demonstrative, often using facial and hand gestures to prove their point.

### ***Business Meetings***

Appointments are mandatory and should be made in writing (in Italian) 2 to 3 weeks in advance. Reconfirm the meeting by telephone or fax (again in Italian). Many companies are closed in August, and if they are open, many Italians take vacations at this time, so it is best not to try to schedule meetings then. The goal of the initial meeting is to develop a sense of respect and trust with your Italian business colleagues. Have all your printed material available in both English and Italian. Hire an interpreter, if you are not fluent in Italian. It is common to be interrupted, while speaking or for several people to speak at once. People often raise their voice to be heard over other speakers, not because they are angry. Although written agendas are frequently provided, they may not be followed. They serve as a jumping off point for further discussions. Decisions are not reached in meetings. Meetings are meant for a free flow of ideas and to let everyone have their say.

### ***Negotiation***

In the south, people take a more leisurely approach to life and want to get to know the people with whom they do business. Allow your Italian business colleagues to set the pace for your negotiations. Follow their lead as to when it is appropriate to move from social to business discussions. Italians prefer to do business with high-ranking people. Hierarchy is the cornerstone of Italian business. Italians respect power and age. Negotiations are often protracted. Never use high-pressure sales tactics. Failing to follow through on a commitment will destroy a business relationship.

### ***Agreements and contracts***

Always adhere to your verbal agreements. The final contract is certainly based on previous informal agreements (Katz 2006; PiRS 2016; Randlesome et al. 1997; Cantino 2009; Passport to Trade 2.0 2014).

## **(6) Doing business in Montenegro**

### ***Business Communication***

In general business is conducted in Montenegro similarly that is in the rest of Europe. Usually there is a handshake at the beginning and end of a meeting. Care should be taken to shake the hand of everyone present at the meeting. In the presence of a woman, her hand should be shaken before shaking hands with men. The usual dress code for a business



meeting in Montenegro is a formal suit for men. Recommendation for women is to dress fashionably but not flashy.

### ***Business Meetings***

It is very important at a business meeting, to indicate your colleague's title first and then his surname. Use of first names is intended only for private meetings, after a personal relationship has been established. If you are invited to your colleague's home in Montenegro, it is customary to bring a small gift, such as a selected wine or a box of chocolates, etc. Most business people in Montenegro have a good knowledge of English. Because of the ethnic tension that exists in Montenegro, it is advisable to follow the media. You are recommended to avoid making business appointments for the months of July and August as well as around the dates of national holidays in Montenegro.

### ***Negotiation***

In negotiations it is advised to be patient. It may take several visits to accomplish a simple task. Negotiations can be tough as Montenegrins are concerned about being taken advantage of by foreigners. Decisions can easily be reversed. Use an indirect negotiating style. Being too direct is viewed as poor manners.

### ***Agreements and contracts***

Contracts function as statements of intent. It is expected that if circumstances change, the contract will accommodate the revised conditions (Terterov 2004; PIRS 2016; U.S. Embassies 2015; COBCOE 2016; SmileMontenegro 2016).

## **(7) Doing business in Serbia**

### ***Business Communication***

Most Serbian businesspersons are very interested in forming business links with Western Europe. Very important is to form a personal relationship for successful long-term relationship. Serbians respect the age and position in the company.

### ***Business Meetings***

In Serbia is no particular preferred time at which business meetings and negotiations should be held, they are during working hours or even after hours. The best way to set up a meeting is by telephone call directly to person you wish to see or the company secretary. Another possibility is through e-mail correspondence. A week before is usually enough in advance, although meetings can also be arranged only two or three days in advance.

Setting up an agenda is not common practice, usually only general topic that will be discussed is known. Some businesspeople speak English but it is a good idea to hire an interpreter. Meetings are often interrupted. Several people may speak at the same time.



## ***Negotiation***

The Serbian party is usually prepared in terms of having a strategy based on analysing the other party's strengths and weakness or its interest in negotiations. Negotiators rely a lot on improvisations and base their decision primarily on their judgement of the level of trust that has been built among parties. They enjoy haggling. Imposing a deadline on reaching a decision may end the negotiations. Do not lose your temper or appear irritated during business discussions.

## ***Agreements and contracts***

Contracts are often quite simple, because it is assumed that with personal knowledge the context can be changed if necessary (Cantino 2009; PiRS 2016; Terterov 2006; Ternar 2012).

# **(8) Doing business in Slovenia**

## ***Business Communication***

Slovenians are nice and honest, and interestingly they are willing to adapt their business communication to the person, with whom they are conversing. They prefer to communicate directly with people. But even when giving a straightforward response, they will generally proceed cautiously. Business decisions are often based on personal sentiments and past business experiences. Therefore, it is a good idea to spend time in relationship building. Slovenians admire modesty and honesty in business associates. Slovenians are polite, courteous, and respectful to others. They do not interrupt a speaker, preferring to wait for their turn to enter the conversation. They are very tolerant of differences and view it as rude behaviour, to publicly criticize or complain about people. Although Slovenians have a good sense of humour, in business conversation they prefer to be direct and serious.

## ***Business Meetings***

Meetings typically start after a brief period of social chit chat. Make sure this is not rushed as it is all part of the relationship building process. Although not a relationship-driven culture in the classic sense, Slovenes prefer to do business with those they know and trust. When meeting with a company for the first time, this period of social interchange may be somewhat extended, so that your Slovene colleagues get the opportunity to learn something about you as a person and analyse your character. Expect your Slovene business colleagues to be somewhat reserved and formal initially. It may take several meetings to establish a sense of rapport and relaxed attitude between people. The Slovene business culture is a mix of German efficiency and Italian "gusto for life"; however, this second attribute is not always readily apparent. Business decision-making processes are often based on hierarchy, and many decisions are still reached at the highest echelons of the company. Final decisions tend to be translated into comprehensive action plans that are followed explicitly. The hierarchy is relatively flat. Although the team leader is considered to be the expert, all members are deemed to have something to contribute. With a culture based on tolerance,



disagreements are based on different interpretation of information. Actual decisions are based on concrete facts and business strategies.

### ***Negotiation***

Negotiation in Slovenia is a bit of a give and take. To obtain a win-win situation, show the Slovenians their personal and corporate benefits, for the deal to have great chances of success. When negotiating the senior managers from the older generation usually like to take their time before coming to a decision. Moreover, they dislike being rushed and resent aggressive negotiating behaviour; they also tend to prefer to talk to someone in their own age group. Though not emotionally attached, they will endeavour to create a friendly atmosphere and try to be humorous. Managers from the younger generation are more westernised, as many have studied for their postgraduate degree in Western Europe or America, and their negotiating style will be more American than Slovenian. When making a presentation, it is important to ensure that all the research has been done to provide a valid and convincing argument that will give good reasons to gain the Slovenians' involvement. A key issue will be the benefits of the partnership to the host company. To substantiate their reputation, the Slovenians will present a list of references from their business partners and will expect you to reciprocate with references from your own partners, where possible. Negotiation with the public sector usually takes longer than with the private sector and other key factors in concluding business deals are product or service quality and the flexibility to negotiate on price.

### ***Agreements and contracts***

Once a verbal agreement has been reached, the Slovenians will expect a written contract to be drawn up with the terms and conditions detailed in full, to make the agreement official (Katz 2013; PiRS 2016; Passport to Trade 2.0 2014).

## **2.3 Consequent phase**

The product of antecedent and concurrent constructs is a negotiated outcome, which is usually measured in profits and negotiator satisfaction (Graham et al. 1988).

When negotiations are mature for closing the agreement it depends on the situations what are the signs. One of most important signs is opinion between both parties that they have reached a state where this agreement is better than no agreement. At the same time they must both be convince that they cannot achieve further concessions at the opponent (Možina & Damjan 1994).

Negotiators must recognize the right moment for finishing the negotiations since finishing too early or too late can cause a lot of problems. Side that offers closure dictates the pace of closure. Ideal timing to finish negotiations is when both parties believe they have reached maximum of what they can achieve (Kavčič 1996).

There are several tactics that are commonly used for finishing the negotiations:

- (1) **Alternative** – Also known as the "either/or close" technique, in this approach one party makes a final offer consisting of a choice for the other side. For example,





one party is willing to lower its commission rate if the other agrees to deliver the goods to the warehouse at its own cost.

(2) **Summarizing** - this is a technique requiring one negotiator to summarize all the issues being discussed, emphasize the concessions made and highlight the benefits the other side would gain by agreeing to the proposal. As the discussions near the deadline and consensus is reached on all outstanding issues, one side summarizes the points and asks the other to approve them. The summaries should be short and reflect accurately what has been discussed. This is an approach that can be applied in any cultural environment or business situation.

(3) **Assumption** - with this method the negotiator assumes that the other side is ready to agree and proceed with detailed discussions of delivery dates, payment schedules and so forth. This is a technique used frequently by sellers to rush buyers into agreement. It is a useful approach when the initiating party has more than one option to offer to the other side.

(4) **Concession** - This technique is characterized by the negotiator keeping a few concessions in reserve until the end to encourage the other party to come to an agreement. It is particularly effective in situations in which concessions are expected as a sign of goodwill before final agreement is given. These last-minute concessions should not be overly generous; they should however be significant enough to encourage the other party to finalize the talks.

(5) **Incremental** - Another approach is for the negotiator to propose agreement on a particular issue and then proceed to settle others until accord is reached on all pending matters. This method is used when the negotiation process follows an orderly sequence of settling one issue after another.

(6) **Linkage** - Linking a requested concession to another concession in return is still a different approach. Linkage is usually most effective when both sides have already agreed on the outstanding issues and need to settle remaining ones prior to reaching consensus.

(7) **Prompting** - "Prompting" is used to reach immediate agreement by making a final offer with special benefits only if accepted immediately. For example, this may consist of overcoming all objections and offering special incentives, e.g. free installation and maintenance, no price increase for next year's deliveries and free training, if the other party agrees to conclude the transaction on the spot.

(8) **Splitting the difference** - A useful closing technique is "splitting the difference," in which both parties are close to agreement and the remaining difference is minimal. At that point, it may be preferable to "split the difference" rather than continuing endless discussion on minor issues that may be secondary to the overall objectives and possibly jeopardize the relationship. Splitting the difference supposes that both sides started with realistic offers - otherwise it would give an Unfair advantage to the party with an extremely low offer (by the buyer) or a high





offer (by the seller). This is a common technique that can expedite closure, but negotiators must ensure that it does not result in an unbalanced agreement.

(9) **Trial** - "Trial" is a technique used to test how close the other side is to agreement. In a trial offer, one party makes a proposal, giving the other an opportunity to express reservations. Objections to the trial offer indicate the areas requiring further discussion. By making a trial offer, the initiating party is not committing itself, while the other party is not obligated to accept. Generally, a trial offer results in a constructive discussion on remaining issues while maintaining a fruitful dialogue between the parties until a consensus is reached. This is a useful technique to test the remaining matters to be clarified.

(10) **Ultimatum or else** - Another technique is to force the other side to make a decision on the last offer. If the other side fails to respond or accept the offer, the initiating party walks away from the negotiation. The "or else," also known as "ultimatum," is generally not recommended for negotiations in which trust and goodwill are required to execute the agreement (Cellich 2016).



### 3 Contract

During negotiation process is of key importance that all topics that will be included in contract are discussed behind the negotiation table. Contract is a strategic document that is basis for definition of regulation and management of CB WSS. Generally, water utilities are focused mostly on two important aspects: quantity of water and methodology for calculation of price of water. However, there are many other aspects, which are necessary to be included in the contract for successful reliable long term CB WSS.

#### 3.1 Short overview of Existing CB/CR water supply contracts in Adriatic region

An overview was made to establish current status regarding CB/CR WSS as a starting point. Partners in the project have identified 26 active CB/CR WSS in Adriatic region (Banovec Primož et al. 2015; University of Ljubljana 2014). Contracts between CB water utilities were received for 14 active CB WS. Some of the latter contracts are extended or limited by bilateral agreements between neighbouring countries.

All partners have done research for their countries and a list of all known CB/CR WSS in 8 participating countries in DRINKADRIA project are listed in Table 1 (CB/CR WSS for which contracts/agreements were acquired) and Table 2 (CB/CR WSS for which contracts/agreements were not acquired) .

Table 1: List of CB/CR WSS, for which contracts/agreements were provided.

Type of WSS	Countries	No.	Water supply <i>from-to</i> and short description of signed contracts/agreements
Cross border	CRO - BIH	1.	<i>from Neum (Bosnia and Herzegovina) to Dubrovačko Primorje (Croatia)</i> Decree of Neum Municipality (2012, definition of price), general transnational agreement (1996), water utilities contract (1991, 1982 - agreement on construction).
		2.	<i>from Buzet (Croatia) to Koper (Slovenia)</i> Contract in 2002 with annex in 2009 which is not valid anymore. Valid contract is from 2013 with annex in 2015.
	SLO - CRO	3.	<i>from Ilirska Bistrica (Slovenia) to Starod (Slovenia), Šapjane (Croatia), Jelšane (Slovenia), Klana (Croatia), Mučići (Croatia), Matulji (Croatia)</i> Contract is only between Ilirska Bistrica and Liburnijske vode. From Čakovec to Ormož (Međimurske vode) is just potential CB WSS. Contracts/agreements were done in: 1972, 1976 (it is unknown if these two are still valid), 1992, 1997, 2014.
		SLO - ITA	4.



	Small CB WSS, 32 inhabitants in 2002. Contract in 1986 and redefined price in contract for Mrzlek and Gorizia in 2007.
	<i>from Mrzlek (Slovenia) to Gorizia (Italy)</i>
5.	CB WSS exists already from 1947. Agreement from 1957 is very well defined, but not valid anymore. Agreements: 1947, 1957 (between countries). Valid: 1979 (agreement) and 2007 (contract).

Type of WSS	Countries	No.	Water supply from-to and short description of signed agreements
Cross border	SLO - ITA		<i>from Trieste (Italy) to Sežana (Slovenia)</i>
		6.	Emergency and temporary water supply for BOTH WAYS. Permanent water supply is only from ACEGAS to KRASKI. There are negotiations on permanent water supply. Contracts in 2001 and 2002.
Cross region	ITA		<i>from Bolognola to San Ginesio</i>
		7.	Only contract from 1993. Also defines design and construction of the system. National laws define details.
			<i>from Cingoli to Camerano</i>
		8.	Contract in 2007. Also includes construction (investments) rules for delivery point.
		9.	<i>from Montefortino to Sarnano to Civitanova Marche</i> Contract in 2003.
	10.	<i>from Montefortino to Sarnano to Montecosaro</i> Contract in 2002.	
	11.	<i>from Sefro to Matelica</i> Contract in 1998.	
		<i>from Kruševac to multiple Municipalities</i>	
	12.	There are 4 similar contracts for CR WSS: to Čičevac (2010), Aleksandrovac (2010), Stopanja-Trstenik (2010), and Varvarin (2010). Agreement for Čičevac was analysed.	
		<i>from Ljuberađa to Niš</i>	
	SRB	13.	There are 3 CR WSS. Contracts from 1980 on construction of infrastructure for Municipalities of Babušnica and Bela Palanka. There is annex in 1991. Contract in 2009 between Water utility and municipalities of Niš and Babušnica.
		14.	<i>Rzav (the municipalities of Arilje, Požega, Lučani, Čačak and Gornji Milanovac)</i> Contracts in 1987 on construction of infrastructure. Statute of water utility in 2005.



Table 2: List of CB/CR WSS for which contracts do not exist or were not retrieved.

Type of WSS	Countries	No.	Water supply from-to and short description of signed agreements
Cross border	CRO - BIH	15.	<i>from Doljani (Bosnia and Herzegovina) to Metković (Croatia)</i> Contract was not received.
		16.	<i>from Imotski (Croatia) to Drinovačko Brdo and Puteševica (Bosnia and Herzegovina)</i> Contract was not received.
		17.	<i>from Posušje (Bosnia and Herzegovina) to Imotski (Croatia)</i> Contract was not received
		18.	<i>from Tomislavgrad (Bosnia and Herzegovina) to Imotski (Croatia)</i> Contract was not received.
		19.	<i>from Vrgorac (Croatia) to Ljubuški (Bosnia and Herzegovina)</i> Contract was not received. CB WSS was cancelled during the time of the DRINKADRIA project (2015, (R.I. 2015)). Reason for cancellation were enormous water losses and dispute over price of water (Ljubuski.Info 2014). Villages of Ljubuški are now connected to their own source.
	CRO - MNG	20.	<i>from Bileća Lake (Bosnia and Herzegovina) through Konavle (Croatia) to Herceg Novi (Montenegro)</i> Only available agreements between MNG and CRO are on general cooperation, construction and rent of pipeline. To MNG only RAW water is transported. There is dispute and ongoing negotiations on how much Montenegro should pay for water source as part of Bileća Lake is in Montenegro.
	SLO - CRO	21.	<i>from Atomske toplice (Slovenia) to Luke poljanske (Croatia)</i> There is no information on existence of contract. CB WSS is only made for 20-30 households.
		22.	<i>from Brest (Croatia) to train station Rakitovec (Slovenia)</i> No known contract, small WSS.
		23.	<i>from Kuželj (Croatia) to Kuželj (Slovenia)</i> No contract, small CB WSS.
		24.	<i>from Rogaška Slatina (Slovenia) to Hum na Sutli and Zagorska sela (Croatia)</i> No contract.
SLO - ITA	25.	<i>from Kambreško (Slovenia) to Strada Provinciale (Italy)</i>	



		Small CB WSS, no known contract.
<b>Cross region</b>	<b>ALB</b>	<p>from Berat to Kucove</p> <p>26. Before aggregation of Berat Water Supply and Sewerage Company and the Kuçova Water Supply and Sewerage Company there was no contract for stated CR WSS. Nowadays water supply system from Berat to Kucove is under one water utility.</p>

Finished overview revealed that in some cases only bilateral agreements between countries regulate the cross border water supply.

In case of 6 existing CB WSS between Croatia and Bosnia and Herzegovina we can point out contracts were not provided because utility managers views are that CB WSS contracts should not be available to public and they did not deliver them.

In 2015, Bosnia and Herzegovina and Croatia signed bilateral agreement (Figure 2) which is an example of first such signed document in Adriatic region, which provides general guidelines and some obligatory topics and regulations, which all cross border water supply contracts have to include. Therefore, all existing cross border water supply contracts between these two countries need to legally adopt obligatory articles that are provided in accordance with the bilateral agreement.

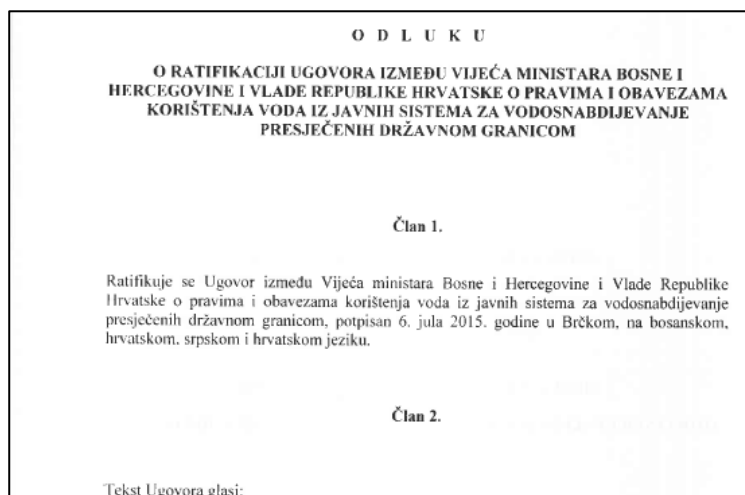


Figure 2: Front cover of bilateral agreement between Bosnia and Herzegovina and Croatia: Contract rights and obligations of water use for cross border public water supply.

More detailed information of the identified CB WS (potential, active, inactive) can be found in Joined report on historical development of cross-border drinking water supply systems (report on activity 5.1) and on the web platform: <http://drinkadria.fgg.uni-lj.si/> (UL 2014b).



### 3.2 Short overview of international examples of good bulk water supply contracts

After analysis of acquired contracts from project partners in DRINKADRIA and review of gathered legislation in partner countries it became obvious that additional research will need to be done. Several good examples of bulk water supply contracts (Table 3) were identified (Table 3) and based on them the assessment of existing contracts in Adriatic region was made.

Table 3: Good examples of analyzed bulk water supply contracts

Country	Document (year)	Document type	Area	link
USA	<i>Issues to consider in wholesale water supply agreement negotiations (2011)</i>	Contractual framework	Kentucky	<a href="http://smallutilities.ky.gov/Portal/0/Wholesale_Contract_Negotiations.pdf">http://smallutilities.ky.gov/Portal/0/Wholesale_Contract_Negotiations.pdf</a>
	<i>Water supply agreement (2008)</i>	Bulk water supply contract	From Pennsylvania to Borough of Sharpville	<a href="http://tally.com/Boro/Water/Bulk%20Water%20Agreement.pdf">http://tally.com/Boro/Water/Bulk%20Water%20Agreement.pdf</a>
	<i>Sample Bulk Water Purchase Agreement (2005)</i>	Draft bulk water supply contract	Iowa	<a href="http://www.cvcia.org/content/projects/7.water.and.wastewater.collaboration/alternative.legal.arrangements/sample.bulk.water.purchase.agreement.pdf">http://www.cvcia.org/content/projects/7.water.and.wastewater.collaboration/alternative.legal.arrangements/sample.bulk.water.purchase.agreement.pdf</a>
Great Britain	<i>Negotiation bulk supplies - a framework (2013)</i>	Negotiation framework	-	<a href="http://webarchive.nationalarchives.gov.uk/20150624091829/http://www.ofwat.gov.uk/competition/review/pap_pos201308bulksupply.pdf">http://webarchive.nationalarchives.gov.uk/20150624091829/http://www.ofwat.gov.uk/competition/review/pap_pos201308bulksupply.pdf</a>
South Africa	<i>Model Bulk Water Supply Contract (2006)</i>	Draft bulk water supply contract	-	<a href="http://ppp.worldbank.org/public-private-partnership/library/model-bulk-water-supply-contract">http://ppp.worldbank.org/public-private-partnership/library/model-bulk-water-supply-contract</a>
Australia	<i>Bulk Water Supply Agreement (2013)</i>	Bulk water supply contract	From Melbourne to Barwon	<a href="http://www.melbournewater.com.au/aboutus/customersandprices/Documents/Bulk_Water_Agreement_-_Barwon_Water.pdf">http://www.melbournewater.com.au/aboutus/customersandprices/Documents/Bulk_Water_Agreement_-_Barwon_Water.pdf</a>

A short description of every contract or negotiation framework from Table 3 is provided:

- **USA - Issues to consider in wholesale water supply agreement negotiations (2011).** Document provides guidelines on wholesale (bulk) water supply negotiations. Issues that are addressed need to be considered: quantity, capacity, rate, master



meter issues, water quality, point of delivery, provisions to avoid unnecessary litigation, contract term and payment.

- **USA - Water supply agreement (2008)**. This is bulk water supply contract between Company Aqua Pennsylvania and Municipality Borough of Sharpville. Latter has a need for a new source of water supply and has considered alternative means of obtaining water supply. Following the consideration of other alternatives, the Borough has determined to obtain its water supply from the Company. The contract is not long and shortly addresses most important aspects and topics important for definition of bulk water supply.
- **USA - Sample Bulk Water Purchase Agreement (2005)**. This is draft contract and product of Community Vitality Center Project #7: Water & Wastewater Collaboration Project. It is very short draft contract, which is only part of the whole project. It shortly addresses most important aspects and topics important for definition of bulk water supply. The aim of the project was to propose some solutions like providing low cost and high quality service as a challenge due to the aging infrastructure, population, remote location of Iowa's small towns and twenty regional water systems.
- **Great Britain – Negotiation bulk supplies - a framework (2013)**. Document provides guidelines on preparing a written bulk water supply contract. It also provides a framework for negotiating suitable bulk supply agreements for the appointed water companies in England and Wales. A checklist of 14 areas, which a bulk supply agreement should cover, is contributed.
- **South Africa – Model Bulk Water Supply Contract (2006)**. This is an agreement between Water Services Authorities (WSA) and bulk Water Services Providers (WSP) and it is an important building block in the regulatory framework to ensure that water supply and sanitation are provided by institutions in a manner which is efficient, equitable and sustainable.
- **Australia – Bulk Water supply Agreement (2012)**: This is contract between Melbourne Water Corporation and Barwon Region Water Corporation. It grants a bulk entitlement to Barwon Water to take and use water from the Melbourne headworks system, including from the Victorian Desalination Project. Annual volume is projected for every financial year. For the first year of the contract, Annual volume was set to 16.000.000 m<sup>3</sup> with maximum flow rate of 48.000 m<sup>3</sup>/day. Essential Services Commission regulates the prices charged by Melbourne Water for bulk water services.



### 3.3 Analysis of existing contracts in Adriatic region and internationally

In order to develop Draft Contract an overview of all presented literature was made (Chapter 3.1 and 3.2). Next steps were firstly, a comparison of all received existing contracts in Adriatic region and secondly, a comparison between existing contracts in Adriatic region with selected examples of international contracts, to be made.

#### 3.3.1 Comparison of existing contracts in Adriatic region

Project partners have provided us with 14 contracts. Table 4 shows the comparison of analysed CB water delivery contracts based on key chapters and sub-chapters..

Table 4 has only the components/chapters that are included in the analysed contracts from Adriatic macro-region.

Table 4: Analysis of CB WSS contracts in Adriatic region (Banovec & Gartner 2016).

#### LEGEND:

- Chapter / subchapter included in the contract  
 Chapter / subchapter **not** included in the contract

		CB water supply contract														
		Cross-border						Cross-regional								
		BIH-HRV	HRV-SLO	SLO-HRV	ITA-SLO	SLO-ITA	ITA-SLO	ITA	ITA	ITA	ITA	ITA	ITA	SRB	SRB	SRB
Chapters	Sub-chapter	No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Introduction	Partners		x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Objectives													x		
	Contractual history			x												
Obligations	Supplier													x		
	Common								x							
Term of the contract	Commencement		x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Duration			x	x	x	x	x			x	x	x	x		
	Extensions							x	x		x		x			
Delivery type	Temporary						x									
Water source	Nominal availability			x				x								
Water supply standards	Water quantity and upgrade of delivery point			x	x		x	x	x		x	x	x	x	x	x
	Limited supply (drought / high demand)			x			x						x			x
	Water quality		x	x	x		x	x			x	x		x		
	Flow rate		x	x	x	x	x	x		x	x	x	x	x	x	x
	Water pressure					x		x		x						
System operating standards	Normal maintenance and repairs - interruptions in supply			x		x	x	x						x		





**LEGEND:**

x	Chapter / subchapter included in the contract
	Chapter / subchapter <b>not</b> included in the contract

			CB water supply contract													
			Cross-border						Cross-regional							
			BIH-HRV	HRV-SLO	SLO-HRV	ITA-SLO	SLO-ITA	ITA-SLO	ITA	ITA	ITA	ITA	ITA	SRB	SRB	SRB
Chapters	Sub-chapter	No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Unexpected failures and leaks				x	x	x									
	Drought		x													
	Ownership and responsibilities of delivery point					x					x	x		x		
<b>Water meter(s)</b>	General		x	x	x	x	x		x		x	x	x	x		
	Maintenance													x		
	Testing / calibration						x	x						x		
	Malfunction					x	x	x						x		
	Meter reading / measurement		x	x	x	x	x		x					x		
<b>Price of water delivered and payment procedure</b>	Invoicing (date)							x								
	Water price per m <sup>3</sup>		x	x	x	x	x	x		x	x	x	x	x	x	x
	Revalorization of price						x								x	
	Deadline to pay the invoice		x	x	x	x	x			x	x	x		x	x	
	Interest on late payments				x			x			x			x		
	Currency exchange rate				x											
	Costs of customs declaration				x											
	Recipient query for incorrect invoice							x								
<b>Infrastructure investments / maintenance cost</b>							x	x								
<b>Costs</b>	Other costs											x	x	x		
<b>Protocols</b>	Common defined protocols													x		
<b>Risk management</b>	Bank guarantee							x						x		
<b>Breach of contract</b>	Minor breach										x	x				
	Material breach										x	x		x		
<b>Vis major</b>	Supplier free of duties and obligations		x					x			x			x		
	Obligatory written notice to other party				x			x						x		
	Remedy ASAP							x						x		
<b>Damage caused between parties systems</b>	Parties acknowledge that it could be possible							x								
<b>Termination</b>	Reasons		x	x	x	x	x	x			x		x			
	Termination process							x	x							
<b>Disputes resolution</b>	Negotiation		x	x												x
	Arbitration							x	x		x	x				x



**LEGEND:**

x	Chapter / subchapter included in the contract
	Chapter / subchapter <b>not</b> included in the contract

		CB water supply contract														
		Cross-border						Cross-regional								
Chapters	Sub-chapter	No.	BIH-HRV	HRV-SLO	SLO-HRV	ITA-SLO	SLO-ITA	ITA-SLO	ITA	ITA	ITA	ITA	ITA	SRB	SRB	SRB
	Court of Jurisdiction		x	x	x					x				x		
<b>Communication and coordination</b>							x	x								
<b>Principal and Operating Representatives</b>	Contact information and appointment of representatives							x								
<b>Possible amendment/annex</b>												x		x		
<b>In accordance with customs and countries regulations</b>				x		x										
<b>Design and construction agreement</b>	Economic and financial management		x						x	x					x	x
	(Joint) design and construction								x	x					x	x

From the comparison of different CB WSS contracts performed and presented in the Table 4, we can identify some important areas that are currently under-regulated (Banovec & Gartner 2015; Banovec & Gartner 2016):

- Contractual history.
- Rules regarding contract extension.
- Clear definition of water supply types.
- Declared availability of the water resources.
- Rules applicable in the case of limited service.
- Regulations addressing pressure management on the delivery location.
- Water supply system operating standards – maintenance and repair procedures, unexpected failures, leakage, water scarcity, ownership, delivery location management.
- Maintenance, testing and calibration of water meters.
- Rules in case of water meter failure.
- Price change (revalorization) management.
- Interest on late payments.
- Allocation of future maintenance and investment costs.
- Other protocols (i.e. peak discharge rates, daily volume of water).
- Bank guarantees.
- Contract breach rules.
- Vis major scenarios.



- Communication and coordination rules, nominated representatives and contact information.
- Attachments to the contract.

A few contracts are addressing financing, planning, and construction of infrastructure (contracts that refer to more recent new CB connections) that are necessary for normal operation of CB WS. This content can be additionally defined in separate contract/annex and is usually based upon the standard construction contractual framework (FIDIC 1913).

One can easily identify the articles that are obligatory and areas of service that are not very well defined in contracts. In order to establish how a more developed contract should look like an overview and comparison to some good examples of bulk water supply contracts over the world was done.

### **3.3.2 Comparison and analysis of existing contracts in Adriatic region and selected international examples of contracts**

Deficiencies identified in the previous chapter can lead to misunderstanding and conflicts in the implementation of the contract between contractual partners.

The main cause for dispute are most of the time finances undefined or poorly defined mechanisms that regulate water prices, no set regulations in case of bad payment discipline, conditions that enable renegotiation for new water tariff etc.

Another problematic area is a limited set of contractually defined scenarios, which can occur in the lifetime of specific project, and is the main reason for the different interpretations of the scenarios (e.g. drought).

Comparing the existing CB contracts in the Adriatic region (Table 1) with the good examples of international bulk water supply contracts (Table 3) additional items can be identified, which are omitted from all listed CB WSS contract currently applied in the Adriatic macro region.

Key identified concepts missing in the existing contracts in the Adriatic region are listed here:

- Definitions of terms for common definition of addressed phenomena.
- Definitions of vis major. This is especially addressing firewater demand on supply, as well as demand side when it is usually difficult to sustain normal operating conditions (pressure, discharge) in WSS.
- Possible temporary request for the exceptional increase of supplied water.
- Paragraphs with the defined access to information on the water supply system of opposite collaborate (e.g. technical and economic data).
- Analysis of future scenarios – forecasting the water resource availability, future water demand, forecasted water cost and prices etc.



- Infrastructure insurance and liabilities - which part of the WSS is insured by which partner and to which level.
- Defined scenarios for the contract termination (vis major, long term suspension of water delivery – or water demand etc.).
- Requested fulfilment of contractual obligations (especially water delivery and consumption) during active disputes between partners.
- Coverage of costs related to dispute solution.
- Rules regarding the information provided to the contractual partner.
- Penalties defined for different scenarios of contractual obligations breach (i.e. unjustified water delivery suspension).
- Common commitment of partners that they will engage in finding solutions for quality and successful cooperation.
- Rules on water delivery/demand above the defined thresholds. Option is to provide extra charge on the authorized water consumption above the contractually defined range.
- Payment for water losses.
- Allowed change of pressure (range and dynamics).
- Improved dispute resolution mechanisms (engagement of negotiation procedure, mediations, and arbiters before the judicial process).
- Improved mechanisms for the water price definition and re-negotiations.

This list presents a wider view on CB WSS problematics and displays possibilities that should be considered when negotiating a new contract.



### 3.4 Proposed Draft Contract for CB/CR WSS

Based on work that was done in chapters 3.1, 3.2 and 3.3, a proposed Draft Contract for CB/CR WSS was developed. Diversity of all involved partners in project and their different needs (e.g. Albanian and Greek partners face totally different problems than Slovenian and Italian partners) has led to fairly broad proposed Draft Contract.

It must be stressed that Draft Contract is set out very widely. Decision on which article is important for CB WSS in question is put in the hands of negotiation crew and decision makers. Several other documents were used to improve Draft Contract (Fontaine & Ly 2009; Forest 2010; Bradford 2012; Forest 2012; Ziebertz & Staff 2012; Raftelis 2014). Full version of Draft Contract is available in Annex 1.

Content of Draft Contract is summarized here:

1. **PREAMBLE** defines general agreements, statements and objectives. Most importantly, definitions are specified and preceding contracts validity or invalidity is defined.
2. **OBLIGATIONS** define main obligations of both parties (supplier, recipient) and joint obligations.
3. **DURATION** specifies start commencement and duration period of the contract. It also provides rules on review (changes) and extension of the contract in future. Uttermost, it provides legitimate reasons for termination, exact termination date (notice is recommended beforehand), and termination process. For later, it is important to point out that after termination date, any debt should be still compensated.
4. **CURRENT DATA AND PROJECTIONS** specify general rules on forecast of demand and nominal capacity, which should be reported to other party in case of significant (forecasted) changes. Yearly reports are recommended to be done.
5. **TYPE OF WATER SUPPLY** defines which type of cross border water supply will be established: permanent or temporary (seasonal, urgent, etc.).
6. **WATER SUPPLY STANDARDS** determine thresholds for water quantity, quality, flow, pressure, pipeline diameter and water allocation ratio in case of limited water supply. Thresholds ensure reliable operation of cross border supply without harming the water supply system. Water quantity rules define how much water supplier will sell to recipient.
7. **SYSTEM OPERATING STANDARDS** define rules on performance of the cross border water supply system regarding monitoring, maintenance, failures, emergency, urgent supply and drought. Especially for case of drought, it is important to have defined rules on procedures and actions.
8. **DELIVERY POINT** is installation point on the border between supplier and recipient. Usually it has water meter but it can also involve other installations. Ownership and access rules to the delivery point are defined.



- 9. WATER METER** rules and operation are more defined in detail because measurements must be accurate and reliable. Therefore, parties can trust each other about the registered water volume. Important rules are about accuracy thresholds, maintenance, testing and calibration, replacement, reading and methodology to assess water volume in time of inaccurate or no measurements.
- 10. REGULAR CHARGES AND PAYMENTS** are those which are charged and paid every accounting period. Likewise, water meter rules, rules on regular charges are very important as it strongly affect the actual payment of the recipient. The most critical is definition of methodology on which the regular charges are defined. Detailed explanation should be provided with contract annex. To have flexible and fair charges, yearly price recapitulation (settlement) is proposed. Other most important rules are defined on accounting period, invoice, late payment and query for incorrect invoice and more.
- 11. IRREGULAR CHARGES AND PAYMENTS** are defined to cover costs, which are not included in the definition of regular charges. That can be investment cost, testing and calibration of the installations, unpaid claims etc.
- 12. PENALTIES** are defined for minor and material breach of the contract. In addition, penalty for unauthorised excessive withdrawal of water by recipient is defined.
- 13. BREACH** of contract is explained and divided to sections: (1) not a breach, (2) minor breach and (3) material breach.
- 14. RISK MANAGEMENT** addresses rules on deduction of water supply in case recipient fails to pay to the due date, infrastructure insurance, guarantee as a security due payment and acknowledgement of possible caused damage between parties.
- 15. VIS MAJOR** is defined as event, occurrence, and circumstances or similar, which are beyond the reasonable control of either party. Performance rules are explained on suspension of obligations, remedy of the event, mitigation and in the worst case scenario, even contract termination.
- 16. DISPUTE RESOLUTION** procedure is defined with successive steps: negotiations, mediation, arbitration and the last court of jurisdiction. For example, if negotiations fail, dispute resolution advances to next step of meditation. If later fails, arbitration is applied and so on.
- 17. RECORD KEEPING AND INFORMATION ACCESS** ensures that both parties archive the data and recipient has access to the information, which is related to the cross border water supply.
- 18. CONTACT INFORMATION, COMMUNICATION, NOTICE AND MEETINGS** specify obligatory contact information of parties which should be shared, appointment of each party representatives regarding cross border water supply, notice and communication rules by different media and meeting frequency.
- 19. PUBLIC RELATIONS** prohibit direct communication with end customers of other party and define confidentiality rules on information of other party.



- 20. CONSTRUCTION** applies for new cross border water supply systems which will be build and gives general guidelines for planning, design, construction, timeline and construction. Additional option is that construction terms could be defined in separated contract/annex.
- 21. GENERAL** chapter provides rules on regulatory approval, legal authority, legislative and regulatory changes, relationship between parties, contract binding on successors in title, counterparts, governing law, sub-contracting and liability of expenses incurred in negotiating and executing this contract.
- 22. PROCOTOLS** gives opportunity for parties to more easily define or withdraw detailed protocols on management and performance by agreement between principal representatives or directors.
- 23. APPENDICES** should specify all appendices of the contract (water quality thresholds, drafts of forms, map of delivery point etc.).
- 24. SIGNATURE AND APPROVAL** is for final confirmation of the contract by signatures and data on contract number, date and location.



### 3.5 Analysis of survey on suggested Draft Contract

Analysis of contract Survey was a base for us to define 'A list of minimum essential content'. One comment was mutual and pointed out by all partners – proposed draft contract is too long. Common interest was that draft contract must be shortened and a categorized list to be prepared. Twelve key partners were addressed – six of them are water utility managers and six are research institutions or faculties that are involved in activities of WP5.

Draft Contract proposed 24 chapters in which are 103 sub-articles. Partners have assessed (Figure 3) that 35 % of all Articles should be included as obligatory (Table 5) in every contract, 41 % are very recommended (Table 6) and 24 % are optional (Table 5) – depends on specifics of every CB WSS (partners agree that these topics should at least be discussed behind the negotiation table).

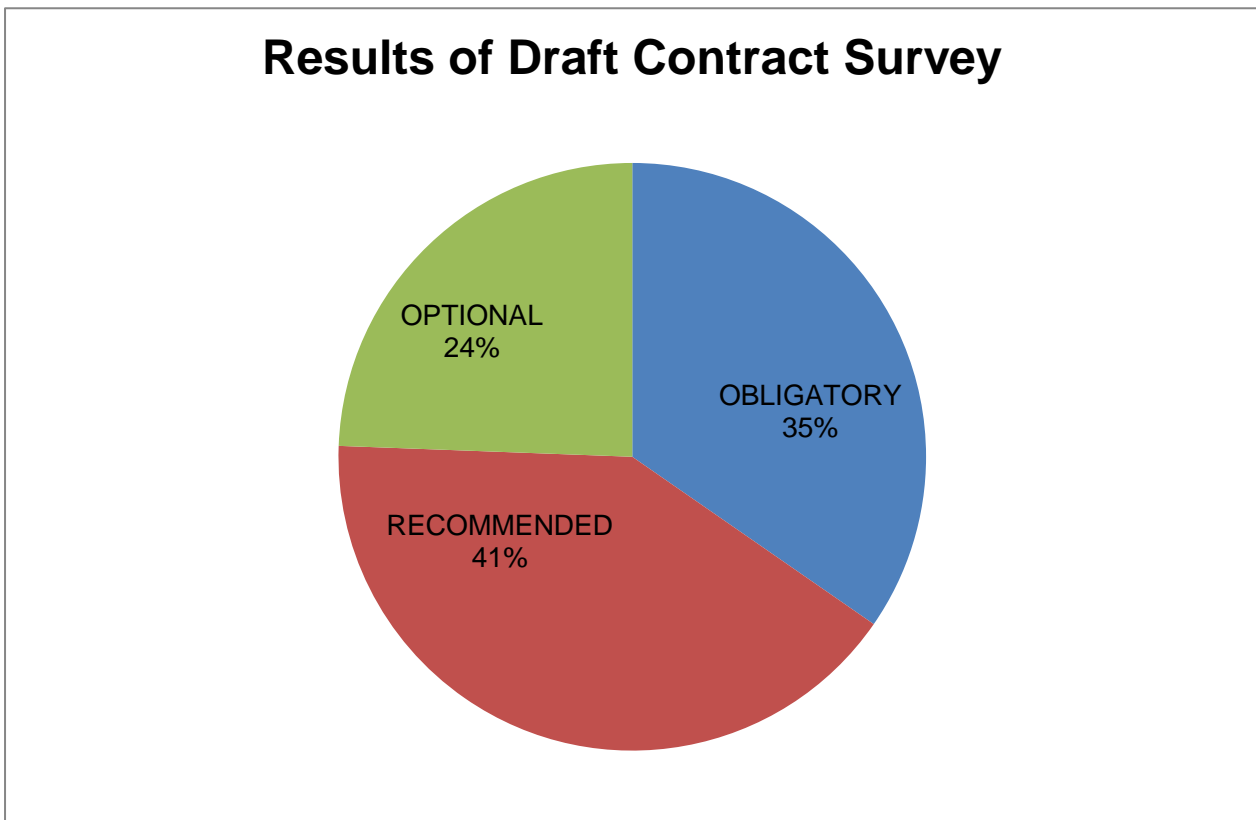


Figure 3: Results of Draft Contract Survey





Table 5: A list of minimum essential content (all partners agree that this is extremely important to include in contract for CB/CR WSS).

<b>1</b>	<b>PREAMBLE</b>
1.1	Legislative alignment
1.2	Statements and objectives
1.3	Definitions
<b>2</b>	<b>OBLIGATIONS</b>
2.1	Obligations of Supplier
2.2	Obligations of Recipient
2.3	Joint obligations
<b>3</b>	<b>DURATION</b>
3.1	Commencement
3.2	Period
3.3	Review
3.4	Extension
3.5	Termination
<b>6</b>	<b>WATER SUPPLY STANDARDS</b>
6.1	Quantity of water
6.3	Limited water supply
6.4	Water Quality
6.5	Flow rate
6.7	Pipeline diameter
6.8	Water pressure
<b>7</b>	<b>SYSTEM OPERATING STANDARDS</b>
7.7	Water losses
<b>8</b>	<b>DELIVERY POINT</b>
8.2	Location
8.3	Ownership, operation and maintenance
<b>9</b>	<b>WATER METER</b>
9.1	General
9.6	Inaccurate and not measured quantity
9.7	Reading
<b>10</b>	<b>REGULAR CHARGES AND PAYMENTS</b>
10.2	Types and amounts of regular charges
10.2	Methodology on defining charges



10.3	Regular charges and withdrawn quantity
10.4	closing balance accounting
10.5	Projections
10.6	Accounting period
10.7	Issue of invoice
10.8	Deadline to pay invoice
10.9	Late payment
10.10	Special payment arrangements
10.11	Currency exchange rate
10.12	Method of payment
10.13	Data on invoice
10.14	Recipient query for incorrect invoice
<b>24</b>	<b>SIGNATURE AND APPROVAL</b>

Table 6: A list of recommended content (all partners agree that this is important to be included in contract for CB/CR WSS).

<b>1</b>	<b>PREAMBLE</b>
1.4	Interpretation
1.5	Preceding contracts
<b>4</b>	<b>CURRENT DATA AND PROJECTIONS</b>
4.1	Demand
4.2	Nominal capacity
<b>6</b>	<b>WATER SUPPLY STANDARDS</b>
6.2	Water source quantity permit limit
6.6	Flow velocity rate
<b>7</b>	<b>SYSTEM OPERATING STANDARDS</b>
7.1	Monitoring
7.2	Normal maintenance and repairs
7.3	Unexpected failures and leaks
7.4	Emergency
7.5	Urgent supply
7.6	Drought
7.8	General rules on ownership, operation and maintenance of the system
7.9	Active leakage control, Salt intrusion, Water safety plan
<b>8</b>	<b>DELIVERY POINT</b>
8.1	General



8.4	Access
8.5	Rules on Delivery point
<b>9</b>	<b>WATER METER</b>
9.2	Accuracy thresholds
9.3	Maintenance
9.4	Testing and calibration
9.5	Water meter replacement
<b>11</b>	<b>IRREGULAR CHARGES AND PAYMENTS</b>
<b>12</b>	<b>PENALTIES</b>
12.1	Minor breach penalty
12.2	Unauthorised excessive withdraw of water penalty
12.3	Material breach penalty
<b>15</b>	<b>VIS MAJOR</b>
15.1	Event of Vis major
15.2	Suspension of obligations
15.3	Remedy of an event of Vis major
15.4	Mitigation
15.5	Unavoidable contract termination
<b>16</b>	<b>DISPUTE RESOLUTION</b>
16.1	General
16.2	When dispute arises
16.3	Negotiations
16.4	Mediation
16.5	Arbitration
16.6	Court of Jurisdiction
<b>18</b>	<b>CONTACT INFORMATION, COMMUNICATION, NOTICE AND MEETINGS</b>
18.1	Contact information
<b>20</b>	<b>CONSTRUCTION</b>
20.1	Planning, design and construction
20.2	Timeline of construction
20.3	Finances
<b>21</b>	<b>GENERAL</b>
21.3	Legislative and regulatory changes
21.5	Supremacy of this Contract
21.6	Contract binding on successors in title
21.10	Liability of expenses
<b>23</b>	<b>APPENDICES</b>



Table 7: A list of optional content (all partners agree that depends on specific case whether to be included in contract or not for CB/CR WSS).

<b>5</b>	<b>TYPE OF WATER SUPPLY</b>
5.1	Permanent water supply
5.2	Temporary water supply
<b>13</b>	<b>BREACH</b>
13.1	Not a breach
13.2	Minor breach
13.3	Material breach
<b>14</b>	<b>RISK MANAGEMENT</b>
14.1	Deduction of water supply
14.2	Insurance
14.3	Guarantees
14.4	Damage caused between Parties
14.5	Water safety plan
<b>15</b>	<b>VIS MAJOR</b>
<b>17</b>	<b>RECORD KEEPING AND INFORMATION ACCESS</b>
17.1	Record keeping
17.2	Information access
<b>18</b>	<b>CONTACT INFORMATION, COMMUNICATION, NOTICE AND MEETINGS</b>
18.2	Notice and communication
18.3	Notices in accordance with Protocol
18.4	Meetings
<b>19</b>	<b>PUBLIC RELATIONS</b>
19.1	Communication with end customer
19.2	Confidentiality
<b>21</b>	<b>GENERAL</b>
21.1	Regulatory approval
21.2	Legal authority
21.4	Relationship between Parties
21.7	Counterparts
21.8	Governing law
21.9	Sub-contracting
<b>22</b>	<b>PROTOCOLS</b>

Several project partners have suggested that chapter 4, 5 and 6 should be joined together. Careful analysis showed that 47% of all articles are considered to be obligatory, 33 % are recommended and 20 % are optional (Figure 4).



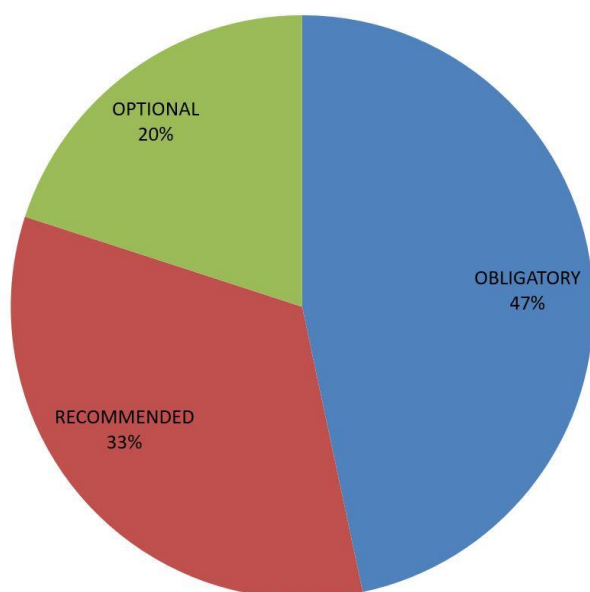


Figure 4: Analysis of joining chapters 4, 5 and 6.

Chapter 4 is considered Recommended (Table 9), Chapter 5 as Optional (Table 10). Chapter 6 is the most important chapter that should be included in every cross border water supply contract (Table 8).

Table 8: List of Obligatory articles of joint chapters 4, 5 and 6.

6	WATER SUPPLY STANDARDS
6.1	Quantity of water
6.3	Limited water supply
6.4	Water Quality
6.5	Flow rate
6.7	Pipeline diameter
6.8	Water pressure

Table 9: List of Recommended articles of joint chapters 4, 5 and 6

4	CURRENT DATA AND PROJECTIONS
4.1	Demand
4.2	Nominal capacity
6	WATER SUPPLY STANDARDS
6.2	Water source quantity permit limit
6.6	Flow velocity rate



Table 10: List of Optional articles of joint chapters 4, 5 and 6

5	TYPE OF WATER SUPPLY
5.1	Permanent water supply
5.2	Temporary water supply

Another suggestion was to join chapter 8 and 9. Careful analysis revealed 43 % of articles should be obligatory (Table 11) and the rest considered as recommended (Table 12) articles (Figure 5) of 12 listed.

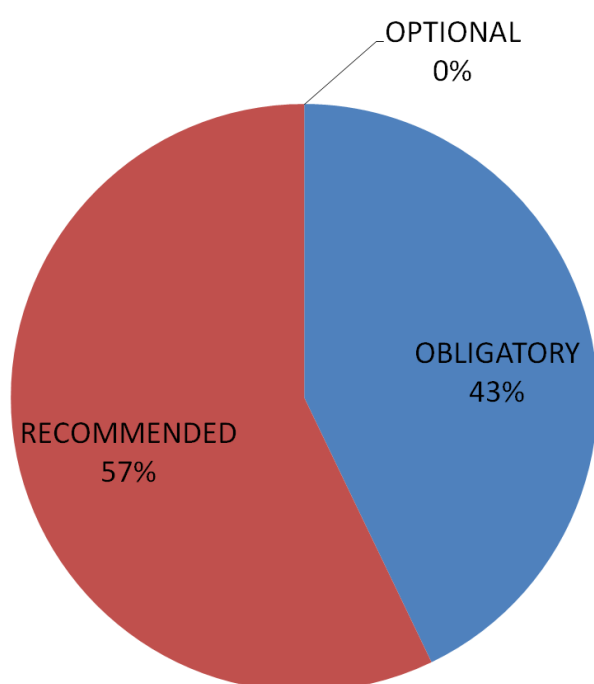


Figure 5: Analysis of joining chapters 8 and 9.

Table 11: List of Obligatory articles of joint chapters 8 and 9.

8	DELIVERY POINT
8.2	Location
8.3	Ownership, operation and maintenance
9	WATER METER
9.1	General
9.6	Inaccurate and not measured quantity
9.7	Reading



Table 12: List of Recommended articles of joint chapters 8 and 9.

<b>8</b>	<b>DELIVERY POINT</b>
8.1	General
8.4	Access
8.5	Rules on Delivery point
<b>9</b>	<b>WATER METER</b>
9.2	Accuracy thresholds
9.3	Maintenance
9.4	Testing and calibration
9.5	Water meter replacement



## 4 Legislation and technical standards in Adriatic region regarding Water Supply Systems

Crucial part of every contract is also a reference to currently active legislation in involved countries. Technical standards are not necessarily part of contract. In that case they usually appear in separate documents or annexes.

### 4.1 Overview of existing legislation

Legislation was collected for eight countries that are involved in the DRINKADRIA project. Collected content is accessible on web platform (UL 2014c). Legislation may be sorted in two different ways:

- Legislation (overview) - Overview of legislation for individual country by level and area of legislation.
- Legislation (comparison) – two different views of comparison for legislation are available between multiple countries: (1) by level or by (2) area of legislation.

Part of proposed procedure for new cross border water supply under chapter 2, where we are speaking of concurrent phase, is analysis of current situation. List of legislation, which water utilities must abide in individual countries/regions inside area of DRINKADIRIA project was gathered and compared.

Short description of: authority level (EU, national, regional, municipal etc.), area of legislation, short comment etc. In addition, PDF and link to online content of the legislation is presented in Table 13 (Banovec, Domadenik, et al. 2016).





Table 13: General information on WSS - regulatory framework (institutions and their roles) (Banovec, Domadenik, et al. 2016).

Country	Italy	Slovenia	Croatia	Bosnia and Herzegovina	Serbia	Montenegro	Albania	Greece
1_1 Participants in the process of water supply	State	State (competent agencies and ministries)	State: Ministry of Agriculture - Water management department and the Croatian waters	Local community or municipality	Municipalities (or cities)	State	State: Ministry of Transport and Infrastructure: • General Directorate of Water Supply and Sewerage • General Directorate of Policies	National Water Commission
	National Regulatory Authority (AEEGSI)	Municipality	Local governments (cities and municipalities)	Water utility	Public water utility companies (PUC) are established by municipalities	Municipality	Water Regulatory Authority	National Registry of Water Points (EMSY)
	Regional Administrations	Public water utility company (public service contractor - public or private)	Exceptionally counties			Public water utility	Institute of Public Health/Ministry of Health	National Water Council
	Local Regulators						Ministry of Environment/Water Administration Unit	Ministry of Reconstruction of Production, Environment & Energy
	Entrusted Utilities						Local Government Units (Municipality/Commune)	Decentralized Administration and Regional Authorities
1_2 Owner of the water supply infrastructure	Water Utility	Municipality which charges the public service company the rent for infrastructure	In most of the cases property of the public companies.	Municipality	Municipality	State	Water Supply and Sewerage Utilities	Municipal Enterprises for Water Supply and Sewerage (DEYA)
							Local Government Unit (Municipality/Commune).	Municipal Enterprises for Water Supply and Sewerage. In some cases they are also the owners of the water supply infrastructure
	Municipality		No private ownership			Municipality		



## Continued...

Country	Italy	Slovenia	Croatia	Bosnia and Herzegovina	Serbia	Montenegro	Albania	Greece
1_3 Management of the water supply	Private company chosen through public competitive tender	Public service company (public or private)	Local government	Public water utility	Management through PPP (with up to 49% private sector ownership) is legally possible but in practice does not exist	Public Water Utility company	Joint Companies/ Corporate Structure under the Shareholder Assembly	The Municipal Enterprises for Water Supply and Sewerage
1_4 Regulatory institution	Public company	Municipality manages it "in-house"	Exceptionally county	Municipality. Municipal approves water supply price proposed by the utility	Ministry responsible for self-government and utilities	No established regulatory organ for price control, service standards, service performance – efficiency, etc.	Water Regulatory Authority (WRA) - independent natural monopoly regulator that reports, by law, directly to the Parliament of the Republic of Albania	Except in the cases of Athens Water Supply and Sewerage Company (EYDAP S.A.) and Thessaloniki Water Supply and Sewerage Company (EYATH S.A.) The Special Secretariat for Water
	National Regulatory Authority (Autorità per l'Energia Elettrica, il GAS ed il Sistema Idrico – AEEGSI)	The state is the owner of the water source and its agency issues the water permit to municipalities, which are the holders of water right.	Croatian waters					
	Local Regulator Entities (Enti di Governo dell'Ambito, EGATO)	Water utility company has to report the performance of its services to the Ministry of the environment and spatial planning	Ministry of the Agriculture					The municipal water utilities and the municipalities are the responsible institutions for the determination of the pricing policies in each territory



## Continued...

Country	Italy	Slovenia	Croatia	Bosnia and Herzegovina	Serbia	Montenegro	Albania	Greece
1_5 Price setting/ confirming authority	National Regulatory Authority (AEEGSI)	The state forms the methodology for definition of water service price	Public Utility company with prior approval of the Local government units	No general methodology for determining the price of water supply on defined national or any lower level. This process is currently ongoing	Each Municipality define price of water. Generally, water prices are not sufficient to cover all costs (sometimes not even regular maintenance	Competent companies propose prices, which have to be approved by local authorities.	a) Proposal by water utilities supported by opinion of Local Government Units b) Cost analysis (deduction of unacceptable cost) c) Performance analysis (performance adjustments) d) Setting of tariff level (average tariff) e) Setting of tariff structure (tariff categories)	Each water utility is responsible for the determination of the pricing mechanisms in its territorial coverage
	Local Regulators	The municipality confirms the price of water supply service (proposed by water utility) calculated according to prescribed methodology			In the moment, there is no uniform methodology on tariff setting	Each municipality defines its methodology of determining the price.		The water utilities in Greece that are responsible for the development of domestic water pricing policies, are municipal enterprises (called DEYA)



Regarding the regulatory framework (Table 13), in most cases, the participants in the process of water supply are the states (through ministries, agencies or commissions), municipalities (local governments) and water utilities. In some cases, there are also special regulatory authorities present (e.g. in Italy – National Regulatory Authority AEEGSI, in Albania – Water regulatory authority, in Croatia – Croatian Waters).

Generally, the owners of the water supply infrastructure are municipalities. The management of the water supply is in all cases performed by water utility companies (privately or publicly owned). In Croatia, no private ownership is allowed for water utilities. In Greece, there are 2 water companies (Athens and Thessaloniki) where the state holds more than 50% of the shares.

There are certain differences regarding the price setting authorities. In Italy for example, the price setting/confirming authority is defined on national level – AEEGSI and on local level, by local regulators that apply the methods introduced by the National authority. In other cases, public utility companies present the proposal for the price of water to municipalities which approve it or not. However, generally, they should abide methodology proposed by state or municipality.

Table 14 and Table 15 show the comparison between EU and non EU countries by level of legislation (EU, national, county, regional etc.). As it was expected EU countries (Croatia, Greece, Italy, Slovenia) do abide the European Directives (Measuring instruments Directive, The Drinking Water Directive, Water Framework Directive) and implement them with legislation on national level. Non EU countries in project are striving to implement principles of the European directives. Albania, Montenegro and Serbia are candidate countries and Bosnia and Herzegovina is potential candidate for EU. Bosnia and Herzegovina has partially implemented The Drinking Water Directive. Other non EU countries have very similar water quality thresholds to EU Directive.

It is obvious that all countries in the project have legislation on national level, which is the strongest in Greece and Albania. In addition, latter country has defined only legislation regarding water supply on national level. Greece has on lower level defined just Water pricing policy, which is on Municipal level.

Strong regional legislation is in Italy, Serbia and Bosnia and Herzegovina (entity and country level). In addition, Bosnia and Herzegovina has legislation on municipal level, as well as Greece, Montenegro and Slovenia.



Table 14: Legislation for EU countries (Croatia, Greece, Italy and Slovenia) by level.

Level	Country	CRO	GRC	ITA	SVN
EU		<ul style="list-style-type: none"> <li>•The Drinking Water Directive</li> <li>•Water Framework Directive</li> <li>•Measuring instruments Directive</li> </ul>	<ul style="list-style-type: none"> <li>•Measuring instruments Directive</li> <li>•The Drinking Water Directive</li> <li>•Water Framework Directive</li> </ul>	<ul style="list-style-type: none"> <li>•Water Framework Directive</li> <li>•The Drinking Water Directive</li> <li>•Measuring instruments Directive</li> </ul>	<ul style="list-style-type: none"> <li>•The Drinking Water Directive</li> <li>•Water Framework Directive</li> <li>•Measuring instruments Directive</li> </ul>
National		<ul style="list-style-type: none"> <li>•Agreement between Bosnia and Herzegovina and Croatia on contract rights and obligations of water use for cross border public water supply</li> <li>•Metrology act</li> <li>•Regulations of metrology requirements for water meters for cold water</li> <li>•Waters Act</li> <li>•Act of financing water management</li> <li>•The Water Management Strategy</li> <li>•Water for human consumption Act</li> <li>•Regulations on parameters of conformity and methods of analysis of water for human consumption</li> <li>•Regulations of sanitary - technical, hygiene and other condition which have to obey water supply facilities</li> </ul>	<ul style="list-style-type: none"> <li>•Water management and protection - harmonization with the WFD 2000/60/EC</li> <li>•Determination of measures and procedures for the integrated water protection and management in compliance with the WFD2000/60/EC</li> <li>•Foundation of municipal water supply and sewage companies</li> <li>•Water use permits and water exploitation works</li> <li>•National Registry of Water Abstraction points</li> <li>•Amendment of the Law 3199/2003</li> <li>•Identification of the 45 River Basin Districts and their competent regional authorities</li> <li>•Redefinition of the responsibilities of the ministries</li> <li>•Quality of drinking water for human consumption in compliance with the Directive 98/83/EC</li> <li>•Amendment of JMD Y2/2600/2001: Deviations</li> <li>•Amendment of JMD Y2/2600/2001</li> <li>•Measures for the drinking water quality assurance in cases of exceptional climatic events and natural disasters</li> <li>•Additional monitoring for drinking water quality</li> <li>•Identification of the national monitoring network for the monitoring of water quality and quantity determining the monitoring stations</li> <li>•Technical Specifications</li> </ul>	<ul style="list-style-type: none"> <li>•Environmental code</li> <li>•Rule book of losses</li> <li>•Partial abrogation water price rules</li> <li>•Urgent measures for economic growth</li> <li>•Provisions on water resources</li> <li>•Implementation of Measuring instruments Directive 2004/22 / EC</li> <li>•Regulation specifying criteria for following checks on water meters and heat meters, according to D.Lgs. 20 February 2007, n. 22, implementation of Dir. 2004/22/EC (MID)</li> <li>•Water tariff method</li> <li>•Guidelines'</li> <li>•Management'</li> <li>•Regulation for materials and pieces that can be used in water supply and distribution systems</li> </ul>	<ul style="list-style-type: none"> <li>•Rules on measuring instruments</li> <li>•Waters Act</li> <li>•Decree on drinking water supply</li> <li>•Action plan</li> <li>•Decree of tariff system for public service on the environmental field</li> <li>•Rules on drinking water</li> </ul>
Regional				<ul style="list-style-type: none"> <li>•Provisions on water resources in Marche Region</li> <li>•Provisions on water resources in Veneto Region</li> <li>•Provisions on water resources in Friuli Venezia Giulia Region</li> <li>•Provisions on water resources in Puglia Region</li> <li>•Management'</li> <li>•Regional Decree'</li> <li>•Actions plans for 3 different periods'</li> <li>•Carta dei Servizi (Rules Book)</li> <li>•Regolamento di Acquedotto (Regulation for the Potable Water Supply System)</li> </ul>	
Municipal			<ul style="list-style-type: none"> <li>•Water Pricing Policy</li> </ul>		<ul style="list-style-type: none"> <li>•Order on drinking water supply</li> </ul>
Utility		<ul style="list-style-type: none"> <li>•General and technical conditions of delivery of water services</li> <li>•Decision about the price of water services</li> </ul>			<ul style="list-style-type: none"> <li>•Rules on technical performance, operation and management of facilities and instruments on public water supply system</li> </ul>



Table 15: Legislation for non-EU countries (Albania, Bosna and Herzegovina, Montenegro, Serbia) by level.

Country	ALB	BIH	MNE	SRB
<b>Level</b>				
<b>EU</b>		•The Drinking Water Directive		
<b>National</b>	<ul style="list-style-type: none"> <li>•For determination of the environmental quality standards for surface waters</li> <li>•Integrated Management of Water resources Law</li> <li>•Metrology Law</li> <li>•Hygiene and health regulation for the control of drinking water quality, design, construction and supervision of systems of drinking water supply, dated 26.02.1998</li> <li>•Regulation On The Water Supply and Sewage services in the service area of the water-joint stock Supply and Sewage Utilities, dated 11.12.2009</li> </ul>	<ul style="list-style-type: none"> <li>•Agreement between Bosnia and Herzegovina and Croatia on contract rights and obligations of water use for cross border public water supply</li> <li>•Drinking water regulations</li> </ul>	<ul style="list-style-type: none"> <li>•Regulation on the hygienic quality of drinking water</li> <li>•Water Law</li> <li>•Law on water management financing</li> <li>•Law on communal activities</li> <li>•Regulations on methods for determining and maintaining sanitary protection zones for drinking-water sources and restrictions in the related zones</li> <li>•The Law on meteorology</li> </ul>	<ul style="list-style-type: none"> <li>•Regulation on the hygienic quality of drinking water</li> <li>•Water Law</li> <li>•Regulation on water source protection zones</li> <li>•Rules on measuring instruments</li> <li>•Water Management Master Plan of r. of Serbia</li> <li>•(Law should be adopted in 2015)</li> </ul>
<b>Entity</b>		•Law on water of the Federation BiH		
<b>County</b>		•Law on water at the level of Herzegovina-Neretva County		
<b>Regional / Utility</b>				•Decision of water treatment and distribution
<b>Municipal</b>		<ul style="list-style-type: none"> <li>•Decision on household garbage disposal and water supply prices</li> <li>•Water Supply Study for Municipality Neum</li> </ul>	•The Decision on the water supply and sewage	
<b>Utility</b>		•Water utility Statut		

In Table 16 and Table 17 legislation is presented for every country by area of legislation (bilateral agreements, quality of drinking water, regulations on materials, action plans etc.).



Table 16: Legislation for EU countries (Croatia, Greece, Italy, Slovenia) by area of legislation.

Area of Legislation	Country	CRO	GRC	ITA	SVN
Action Plan		•The Water Management Strategy		•Actions plans for 3 different periods'	•Action plan
Bilateral agreement		•Agreement between Bosnia and Herzegovina and Croatia on contract rights and obligations of water use for cross border public water supply			
Extreme events			•Measures for the drinking water quality assurance in cases of exceptional climatic events and natural disasters		
Guidelines				•Guidelines'	
Quality and quantity of water			•Identification of the national monitoring network for the monitoring of water quality and quantity determining the monitoring stations		
Quality on drinking water		•The Drinking Water Directive •Water for human consumption Act •Regulations on parameters of conformity and methods of analysis of water for human consumption •Regulations of sanitary - technical, hygiene and other condition which have to obey water supply facilities	•The Drinking Water Directive •Quality of drinking water for human consumption in compliance with the Directive 98/83/EC •Amendment of JMD Y2/2600/2001: Deviations •Amendment of JMD Y2/2600/2001 •Additional monitoring for drinking water quality	•The Drinking Water Directive	•The Drinking Water Directive •Rules on drinking water
Regulation on materials				•Regulation for materials and pieces that can be used in water supply and distribution systems	
Supply Service Management		•Waters Act •General and technical conditions of delivery of water services		•Management' •Regional Decree •Carta dei Servizi (Rules Book) •Regolamento di Acquedotto (Regulation for the Potable Water Supply System)	•Decree on drinking water supply •Order on drinking water supply
Technical Regulations		•General and technical conditions of delivery of water services	•Technical Specifications	•Rule book of losses	•Rules on technical performance, operation and management of facilities and instruments on public water supply system
Water management				•Urgent measures for economic growth •Provisions on water resources in Marche Region •Provisions on water resources in Veneto Region •Provisions on water resources in Friuli Venezia Giulia Region •Provisions on water resources in Puglia Region	
Water management and meters				•Provisions on water resources	
Water management and protection		•Water Framework Directive •Waters Act •Act of financing water management	•Water Framework Directive •Water management and protection - harmonization with the WFD 2000/60/EC •Determination of measures and procedures for the integrated water protection and management in compliance with the WFD2000/60/EC •Foundation of municipal water supply and sewage companies •Water use permits and water exploitation works •National Registry of Water Abstraction points •Amendment of the Law 3199/2003 •Identification of the 45 River Basin Districts and their competent regional authorities •Redefinition of the responsibilities of the ministries	•Water Framework Directive •Environmental code	•Water Framework Directive •Waters Act
Water meters		•Measuring instruments Directive •Metrology act •Regulations of metrology requirements for water meters for cold water	•Measuring instruments Directive	•Measuring instruments Directive •Implementation of Measuring instruments Directive 2004/22 / EC •Regulation specifying criteria for following checks on water meters and heat meters, according to D.Lgs. 20 February 2007, n. 22, implementation of Dir. 2004/22/EC (MID)	•Measuring instruments Directive •Rules on measuring instruments
Water price		•Decision about the price of water services	•Water Pricing Policy	•Partial abrogation water price rules •Water tariff method	•Decree of tariff system for public service on the environmental field



Table 17: Legislation for non EU countries (Albania, Bosna and Herzegovina, Montenegro, Serbia) by area of legislation.

Area of Legislation	Country	ALB	BIH	MNE	SRB
Action Plan			•Water Supply Study for Municipality Neum		•Water Management Master Plan of r. of Serbia
Bilateral agreement			•Agreement between Bosnia and Herzegovina and Croatia on contract rights and obligations of water use for cross border public water supply		
Operation and Management Standards and Regulations		•Regulation On The Water Supply and Sewage services in the service area of the water-joint stock Supply and Sewage Utilities, dated 11.12.2009			
Quality on drinking water		•For determination of the environmental quality standards for surface waters •Hygiene and health regulation for the control of drinking water quality, design, construction and supervision of systems of drinking water supply, dated 26.02.1998	•The Drinking Water Directive •Drinking water regulations	•Regulation on the hygienic quality of drinking water	•Regulation on the hygienic quality of drinking water
Supply Service Management			•Water utility Statut	•Law on communal activities •The Decision on the water supply and sewage	•Decision of water treatment and distribution
Water management and protection		•Integrated Management of Water resources Law	•Law on water of the Federation BiH •Law on water at the level of Herzegovina-Neretva County	•Water Law •Law on water management financing •Regulations on methods for determining and maintaining sanitary protection zones for drinking-water sources and restrictions in the related zones	•Water Law •Regulation on water source protection zones
Water meters		•Metrology Law		•The Law on meteorology	•Rules on measuring instruments
Water price			•Decision on household garbage disposal and water supply prices		•(Law should be adopted in 2015)

Actions plans are currently not implemented only in Albania, Greece and Montenegro. Actions plans are mostly defined on national level. Exceptions are in Italy (regional) and in Bosnia and Herzegovina (municipal).

Italy has very well defined action plan, which consists of 3 actions plans for different periods:

- Area Plan (Piano d'Ambito) – up to 30 years (long-term),
- Works plan – period for 3 to 5 years (medium-term),
- Annual works program (short-term).

For all three action plans regional authority gives planning guidelines for the management and the realizations of works in the area.

An interesting observation was made - the only country which has special legislation on extreme events is Greece. Rules on water meters are usually implemented in the methodology (Bosnia and Herzegovina is an exception). Water price rates are defined and published in every country, but for some cases there is no clear methodology (e.g. Albania, Bosnia and Herzegovina, Montenegro and Serbia). Serbia is in process of preparing methodology which will hopefully be accepted.





More detailed analysis of the legislation would be very broad and extensive. In this report only general analysis is done and presented. For more detailed insight on the legislation on water supply area in countries of the DRINKADRIA project, interested party/person can use online pivot table, which is accessible on: <http://drinkadria.fgg.uni-lj.si/water-supply/legislation-technical-standards/>. Click on the cell of the pivot table displays details of the selected legislation as it can be seen on Figure 6. PDF icon and link show the stated legislation.

**Legislation overview for: SRB**

Select one country:

SRB ▾

For details: click into any cell of the table.

Level	Country	SRB					
	Area of Legislation	Action Plan	Quality on drinking water	Supply Service Management	Water management and protection	Water meters	Water price
National		•Water Management Master Plan of r. of Serbia	•Regulation on the hygienic quality of drinking water		•Water Law •Regulation on water source protection zones	•Rules on measuring instruments	•(Law should be adopted in 2015)
Regional / Utility				•Decision of water treatment and distribution			

Level	Country	Area of Legislation	Document Name	NO	Authorities	PDF(s)	URL link	Comment
Regional / Utility	SRB	Supply Service Management	Decision of water treatment and distribution	Official Gazette of the City of Belgrade No 23/2005	City of Belgrade Assembly		<a href="#">link</a>	The Decision set the basic rules for operation of Public water supply in the City of Belgrade.

Figure 6: Legislation overview for Serbia. By clicking the cell with title of the legislation, details are shown under the table. In addition, details include PDF and online link to the whole legislation document.



## 4.2 Overview of existing technical standards

Overview of technical standards is available in separated pivot tables on web platform (UL 2014c). Comparison of technical standards is possible in following ways:

- Technical standards (comparison) - Comparison of technical standards between chosen countries by classification. Three different views are available:
  - (1) simplified view (displays only country and category of technical standards),
  - (2) normal view (displays country, category and sub-category) and
  - (3) detailed view (beside all mentioned, even more detailed description is provided).
- Technical standards (common) - Identification of common international technical standards between multiple countries.

In connection with technical standards hereinafter, these are obligatory only if they are requested by legislation. Greece has special legislation act (Technical Specifications - Official Gazette 2221/B/30.7.2012), which specifies all technical standards which are obligatory in the country (not only for the area of water supply). Other countries have definition of obligatory technical standards defined in the scope of other laws or do not have defined obligatory technical standards.

Table 18 shows obligatory technical standards for all countries in the project.



Table 18: Obligatory technical standards for all 8 countries in the DRINKADRIA project in simplified view (UL 2014c).

ELEMENT	Country	ALB	GRC	ITA	SRB	SVN
classification				UNI 9737:2007		
earthwork			TS 1501-08-01-03-02:2009 TS 1501-08-01-03-01:2009			
general layout		EN 805:2000	EN 805:2000 TS 1501-08-06-08-01:2009	UNI EN 805:2002 DM 27291:1985 UNI 7990:2015		SIST EN 805:2000
installations	EN 1295:1997 (part 1) EN 1508:1998	EN ISO 4064:2014 EN ISO 1452:2010 (part 3) EN ISO 1452:2010 (part 1) EN ISO 1452:2010 (part 2) EN ISO 1452:2010 (part 4) EN 12842:2012 EN ISO 1167:2006 (part 1) EN 681:1996 (part 1) EN 1295:1997 (part 1) EN 1508:1998 EN 1610:1997 EΛOT EN 1796:2013 EN 14364:2013 EN 19:2002 EN 1226:2012 (part 1) EN 1226:2012 (part 2) EN 1074:2000 (part 3) EN ISO 5211:2001 EN 593/A1:2011 EΛOT EN 558/A1:2012 EΛOT EN 60529:1994 EN 1092/A1:2013 (part 1) EΛOT EN 1092:1997 (part 2) EN 12613:2009 EN 1917:2002 TS 1501-08-07-01-05:2009 TS 1501-08-08-02-00:2009 EΛOT EN 10025:2005 (part 2) EN 10217:2002 (part 1) EN 10253:2007 (part 2) EN 14154/A2:2011 (part 1) EN 14154/A2:2011 (part 2) EN 14154/A2:2011 (part 3) TS 1501-08-06-02-01:2009 TS 1501-08-06-06-01:2009 TS 1501-08-06-07-02:2009 TS 1501-08-06-07-03:2009 TS 1501-08-06-07-05:2009 TS 1501-08-06-07-06:2009 TS 1501-08-06-07-07:2009 TS 1501-08-06-08-06:2009 TS 1501-08-06-08-07:2009 TS 1501-08-08-01-00:2009 TS 1501-08-08-05-00:2009	DM 2445:1971 UNI EN 124:2011 UNI EN 1591:2009 (part 2) UNI 10521:2012		SIST EN 1295:1998 (part 1) SIST EN 1508:2000 SIST EN 1717:2001 SIST EN 545:2011 ISO 4179:2005 ISO 4427:2007 DIN 2440:1978 DIN 2441:1978 DIN 2442:1963 SIST EN 10025:2004 DIN 2460:2006 ISO 2531:2009 SIST EN 14901:2014 SIST EN 681:2005 (part 1) DIN 8076:1994 (part 3) SIST EN 10242/A2:2003 SIST EN 14384:2005 DIN 3221:1986 SIST EN 1610:2001 DIN 4279:1975 SIST EN ISO 4064:2014 SIST 1007:1998 SIST 1005:1996	
installations, material				CIRC 2136:1966		
management	EN 45011:1998 EN 45012:1998 EN ISO 9001:2015	EΛOT EN ISO 9001:2008 EN 45011:1998 EN 45012:1998			SRPS EN 45011:1998 SIST EN 45012:1998 SRPS EN 45012:1998 SRPS EN ISO 9001:2008	SIST EN 45011:1998 SIST EN 45012:1998 SIST EN ISO 9001:2008
material	ISO 48:2010	EN ISO 12162:2009 EΛOT EN ISO 9080:2012 ISO 48:2010 EΛOT EN 1563:2012 EΛOT EN 1561:2011 EN ISO 175:2010 EN ISO 527:2012 (part 1) EN ISO 846:1997 EΛOT EN ISO 6892:2010 (part 1) TS 1501-01-02-01-00:2009 EN 8051:2007 (part 1)	ISO 17885:2015 UNI 7616/A90:1976/1979 UNI 9561:2006 UNI 9562:1990	ISO 48:2010	ISO 48:2010 ISO 4663:1986 SIST EN 12165:2011	

From Table 18 it can be easily identified that Bosnia and Herzegovina, Croatia and Montenegro do not have obligatory technical standards. In addition, it can be recognised that Greece has the strongest definition of obligatory technical standards. They even have special technical specification standards (e.g. TS 1501-08-06-02-01:2009 and similar).

Table 19 shows only recommended technical standards in the area of the DRINKADRIA project.



Table 19: Recommended technical standards for all 8 countries in the DRINKADRIA project in simplified view (UL 2014c).

ELEMENT Category	Country	ALB	BIH	CRO	GRC	MNE	SRB	SVN
drinking water preparation							SRPS EN 12902:2010 SRPS EN 12903:2010 SRPS EN 12904:2010 SRPS EN 12915:2010	
general layout				HRN EN 805:2005			SRPS EN 805:2007	
management		EN 15975:2011 (part 1) EN 15975:2013 (part 2)	BAS ISO 24510:2010 BAS ISO 24512:2010 BAS EN 15975:2012 (part 1) BAS EN 15975:2014 (part 2)	EN 45011:1998 EN 45012:1998 EN ISO 9001:2015	EΛOT EN 15975:2012 (part 1) EΛOT EN 15975:2013 (part 2)	MEST EN ISO 9001:2009 MEST EN 15975:2014 (part 1)	SRPS EN 15975:2011 (part 1) SRPS EN 15975:2011 (part 2)	SIST EN 15975:2011 (part 1) SIST EN 15975:2013 (part 2)
material			BAS EN 14718:2008	ISO 48:2010		MEST EN ISO 12162:2012 MEST EN 1171:2011 MEST EN 12266:2014 (part 2) MEST EN 12334:2010 MEST EN 12351:2010	SRPS EN 12873:2007	



Table 19 is continued...

		Country						
ELEMENT Category		ALB	BIH	CRO	GRC	MNE	SRB	SVN
installations			BAS EN 14154:2012	EN 1295:1997 (part 1)		MEST EN 14154:2011	SRPS EN 124:2011	SIST-TP CEN/TR 1046:2014
			BAS EN 1074:2011	EN 1508:1998		MEST EN SRPS EN	SRPS EN	SIST EN ISO
			BAS EN 12201:2013	HRN EN 1333:2007		12256:2012	1295:2011	1452:2010 (part 3)
			BAS ISO 559:2008	HRN EN 1074:2008		MEST EN SRPS EN	SRPS EN	SIST EN
			BAS ISO 9349:2009	HRN EN 681:2005 (part 1)		14901:2013	14801:2011	14801:2006
			BAS ISO/TR 4191:2012	HRN EN 681:2007 (part 2)		MEST EN SRPS EN	SRPS EN	SIST EN
			BAS EN ISO 8795:2010	HRN EN 681:2007 (part 3)		1074:2009	512:2011	14830:2007
			BAS ISO 21004:2013	HRN EN 681:2007 (part 4)		MEST EN SRPS EN	SRPS EN	SIST EN ISO
			BAS ISO 2531:2011	HRN EN 1092/A1:2008 (part 1)		1092:2014	639:2011	11298:2011 (part 1)
			BAS ISO 25780:2013	HRN EN 10216:2008		MEST EN SRPS EN	SRPS EN	SIST EN ISO
			BAS ISO 4427:2013	HRN EN 10217:2007		12100:2012	640:2011	11298:2011 (part 3)
			BAS EN ISO 1452:2011	HRN EN 10220:2003		15655:2014	SRPS EN	
			BAS ISO 21307:2013	HRN EN 10224/A1:2008		MEST EN SRPS EN	641:2011	
			BAS EN 12502:2007	HRN EN 10240:2007		713:2012	SRPS EN	
			BAS EN 1508:2008	HRN EN 10255/A1:2008		MEST EN SRPS EN	642:2011	
			BAS ISO 3114:2013	HRN EN 10288:2007		12162:2010	SRPS EN	
			BAS EN 15014:2010	HRN EN 10289:2003		MEST EN SRPS EN	1508:2007	
			BAS EN 12256:2009	HRN EN 10290:2003		12483:2013	SRPS EN	
			BAS EN 14901:2009	HRN EN 10298:2007		MEST EN SRPS EN	1717:2011	
				HRN EN 10329:2008		14396:2009	SRPS EN	
				HRN EN 10339:2008		MEST EN	545:2013	
				HRN EN 545:2010		1917:2011	SRPS EN	
				HRN EN 1092:2001 (part 2)			SRPS EN	
				HRN EN 14525:2008			4064:2014	
				HRN EN 14628:2008				
				HRN EN 14901:2008				
				HRN EN 15542:2008				
				HRN EN 15189:2007				
				HRN EN 579:2003				
				HRN EN 580:2004				
				HRN ENV 1046:2004				
				HRN EN 1716:2004				
				HRN EN 1796:2009				
				HRN EN ISO 1452:2010				
				HRN ENV 1452:2001 (part 6)				
				HRN ENV 1452:2001 (part 7)				
				HRN EN ISO 11298:2011 (part 1)				
				HRN EN ISO 11298:2011 (part 3)				
				HRN EN 12106:2002				
				HRN EN 12201:2011				
				HRN EN ISO 13844:2007				
				HRN EN ISO 13845:2007				
				HRN EN ISO 13846:2003				
				HRN EN 14409:2004 (part 1)				
				HRN EN 14409:2004 (part 3)				



Looking at Table 18 and Table 19 it can be identified that most of the technical standards are about detailed specifications of different installations on water supply system. Especially for Bosnia and Herzegovina and Croatia, there are a lot of recommended technical standards on installations.

Strong definition of detailed technical rules on level of water utility is present in Bosnia and Herzegovina, Croatia, Serbia and Slovenia.

Table 18 and Table 19 show the technical standards in simplified view. On online table the classification can be also done in details: not only by element category, but also by element and action (requirements, design, classification, etc.).

Overview of common obligatory and recommended technical standards.

In Table 18 and Table 19 it is very difficult to identify, which are common standards in the all countries of the DRINKADRIA project. Therefore Table 20 gives such classification.



Table 20: Common obligatory and recommended technical standards for all countries in the DRINKADRIA project.

Technical standard	In which country?
EN 124:1994	ITA,SRB
EN 545:2010	CRO,SRB,SVN
EN 681:1996	CRO,GRC,SVN
EN 805:2000	ALB,CRO,GRC,ITA,SRB,SVN
EN 1074:2000	BIH,CRO,GRC,MNE
EN 1092/A1:2013	CRO,GRC
EN 1092:1997	CRO,GRC
EN 1295:1997	ALB,CRO,GRC,SRB,SVN
EN 1508:1998	ALB,BIH,CRO,GRC,SRB,SVN
EN 1610:1997	GRC,SVN
EN 1717:2000	SRB,SVN
EN 1796:2013	CRO,GRC
EN 1917:2002	GRC,MNE
EN 10025:2004	GRC,SVN
EN 12201:2011	BIH,CRO
EN 12256:1998	BIH,MNE
EN 14384:2005	SRB,SVN
EN 14801:2006	SRB,SVN
EN 14901:2006	BIH,CRO,MNE,SVN
EN 15014:2007	BIH,MNE
EN 15975:2011	ALB,BIH,GRC,MNE,SRB,SVN
EN 15975:2013	ALB,BIH,GRC,SVN
EN 45011:1998	ALB,CRO,GRC,SRB,SVN
EN 45012:1998	ALB,CRO,GRC,SRB,SVN
EN ISO 1452:2010	BIH,CRO,GRC,SVN
EN ISO 4064:2014	GRC,SRB,SVN
EN ISO 9001:2015	ALB,CRO,GRC,MNE,SRB,SVN
EN ISO 11298:2011	CRO,SVN
EN ISO 12162:2009	GRC,MNE
ISO 48:2010	ALB,CRO,GRC,SRB,SVN
ISO 2531:2009	BIH,SVN
ISO 4427:2007	BIH,SVN

It can be identified that there are 32 technical standards which are common for at least 2 countries and only 12 technical standards, which are common for 4 countries or more. The most important common technical standard is identified as EN 805:2000: Water supply – Requirements for systems and components outside buildings, which provides rules on general layout of the water supply system. It covers water supply system outside buildings and its components, inclusion in product standards, and regarding installation, site testing



and commissioning (in use in Albania, Croatia, Greece, Italy, Serbia and Slovenia). Adaption of this standard by national institutes for standardization incorporates also following technical standards:

- EN 1295-1, Structural design of buried pipelines under various conditions of loading - Part 1: General requirements,
- EN 1508, Water supply - Requirements for systems and components for the storage of water,
- EN 45011, General criteria for certification bodies operating product certification,
- EN 45012, General criteria for certification bodies operating quality system certification,
- EN ISO 9001, Quality systems – Model for quality assurance in design/development, production, installation and servicing,
- EN ISO 9002, Quality systems – Model for quality assurance in production, installation and servicing and
- ISO 48, Rubber, vulcanized or thermoplastic- Determination of hardness (hardness between 10 IRHD and 100 IRDH).

All mentioned standards are specified as undated and in this case the latest edition of the publication referred applies. For example, EN ISO 9001 and EN ISO 9002 were both replaced with newer version of EN ISO 9001: Quality management systems -- Requirements. However, it is maybe not straightforward, what is the status of the technical standards, which were withdrawn and replaced by standards with different number. For example: EN 45011 and EN 45012 were withdrawn and replaced with:

- EN ISO 17065: Conformity assessment - Requirements for bodies certifying products, processes and services and
- EN ISO 17021-1: Conformity assessment - Requirements for bodies providing audit and certification of management systems - Part 1: Requirements

It was also pointed out that some of the technical standards, which are obligatory or recommended, were already withdrawn or replaced (e.g.: DIN 3221:1986 for Slovenia, HRN EN 579:2003 for Croatia).

Obligatory and recommended technical standards, which are common in most countries involved in project, are following:

- EN 1074: Requirements for valves to be used in, or connected to, water supply pipe systems, above or below ground carrying water intended for human consumption,
- EN 14901: Ductile iron pipes, fittings and accessories - Epoxy coating (heavy duty) of ductile iron fittings and accessories - Requirements and test methods,
- EN 15975-1: Security of drinking water supply - Guidelines for risk and crisis management - Part 1: Crisis management,





- EN 15975-2: Security of drinking water supply - Guidelines for risk and crisis management - Part 2: Risk management,
- EN ISO 1452: Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure - Unplasticized poly(vinyl chloride) (PVC-U)

As seen on Table 18, only Albania, Greece, Italy, Serbia and Slovenia have obligatory technical standards referenced in legislation. Table 21 shows common obligatory technical standards of specified countries.

Table 21: Common obligatory technical standards for all countries in the DRINKADRIA project.

Technical standard	In which country?
EN 681:1996	GRC,SVN
EN 805:2000	ALB,GRC,ITA,SVN
EN 1295:1997	ALB,GRC,SVN
EN 1508:1998	ALB,GRC,SVN
EN 1610:1997	GRC,SVN
EN 10025:2004	GRC,SVN
EN 45011:1998	ALB,GRC,SRB,SVN
EN 45012:1998	ALB,GRC,SRB,SVN
EN ISO 4064:2014	GRC,SVN
EN ISO 9001:2015	ALB,GRC,SRB,SVN
ISO 48:2010	ALB,GRC,SRB,SVN

There are only 11 technical standards in the countries of the DRINKADRIA project, which are obligatory at least for 2 countries. This shows quite bad harmonization of the obligatory technical standards in the area of water supply even between EU countries. The main reason for at least partial harmonization on obligatory standards is reference of technical standards EN 805:2000.

Interesting conclusion follows based on Table 18, Table 19, Table 20, Table 21 and that is that there are in total 58 identified obligatory technical standards in the DRINKADRIA area.



### Technical standards comparison: ALB vs BIH

Select to compare:

ALB, BIH ▾ in  Simplified view  Normal view  Detailed view for TS which are: Obligatory, Recommended ▾

For details: click into any cell of the table.

ELEMENT Category	ELEMENT	ACTION	Country	ALB	BIH	
general layout	piping,layout	design,requirements		EN 805:2000		
installations	fittings	requirements			BAS EN 12256:2009 BAS EN 14901:2009	
	pipes	requirements		EN 1295:1997 (part 1)		
	pipes,accessories,joints	requirements,testing			BAS ISO 2531:2011	
	pipes,fittings	general aspects			BAS ISO 4427:2013	
	piping	requirements	assessment			BAS EN ISO 8795:2010
			laying			BAS ISO/TR 4191:2012
			requirements			BAS EN 12201:2013 BAS ISO 559:2008 BAS ISO 9349:2009 BAS ISO 21004:2013 BAS ISO 25780:2013 BAS ISO 3114:2013 BAS ISO 21307:2013
	pipng,fittings	procedure requirements			BAS EN 15014:2010	
	storage system	requirements,testing	requirements,testing			BAS EN ISO 1452:2011
			procedure requirements			BAS EN 12502:2007
requirements				EN 1508:1998	BAS EN 1508:2008	
valves	requirements,testing			BAS EN 1074:2011		
water meters	requirements,installation,testing			BAS EN 14154:2012		
management	authority	certification		EN 15011:1998 EN 15012:1998		
	crisis	management		EN 15975:2011 (part 1)	BAS EN 15975:2012 (part 1)	
	quality management system	assessment,improvement			BAS ISO 24510:2010	
		management,improvement			BAS ISO 24512:2010	
material	hardness	testing		EN ISO 9001:2015		
	influence	requirements, testing		EN 15975:2013 (part 2) ISO 48:2010	BAS EN 15975:2014 (part 2)	
					BAS EN 14718:2008	

Level	Country	Name	Name-national Label	Year-foreign	Comment	Status	MATERIAL
Utility	ALB	Water supply - Requirements for systems and components for the storage of water	EN 1508:1998	1998	(Incorporated in EN 805:2000).	active	

Figure 7: Comparison of obligatory and recommended technical standards between Albania and Bosnia and Herzegovina in detailed view.

For more detailed insight on the technical standards on water supply area in countries of the DRINKADRIA project, interested party/person can use online pivot table, which is accessible on: <http://drinkadria.fgg.uni-lj.si/water-supply/legislation-technical-standards/>. Click on the cell of the pivot table displays details of the selected technical standard as it can be seen on on Figure 7.



## Conclusion

This document contains an overview of existing legislation and contents of contracts that are currently available in Adriatic region. No existing protocol was found in written form but extensive research was made and a proposed protocol for CB WSS was prepared, based on good examples that were found.

Suggested Procedure for new cross border water supply was developed based on literature available. Unfortunately, there were no sources for Adriatic region, so literature that described international examples, was used. Three steps are proposed: (1) antecedent phase (preparation), (2) concurrent phase (establishing current state and negotiation framework) and (3) consequent phase (conclusion of negotiation and contract signature). A very huge impact factors present human factor – different nationalities that are sitting behind negotiation table. Procedure is also applicable in case of existing water supply – renegotiation of price or renegotiation of contract (adding new possible scenarios etc.).

There is no standardized contract for cross border water supply in Adriatic region. This is one of key issues that were addressed in project proposal. First stage required involvement of our partners. They collected contracts from their CB WSS and provided us with them. An analysis and comparison of all collected contracts was made. The conclusion was that CB WSS contracts are seriously malnourished. In next phase international examples of good contracts were searched. Based on all collected and available literature the Draft Contract was developed and presented to partners (Annex 1). First partner's reactions were that it is too long (24 main chapter, 103 sub-articles). A Draft Contract Survey was prepared and send to 12 key project partners. Answers were collected and three lists were prepared: (1) Obligatory articles (35% of all contract articles), (2) Recommended articles (41%) and (3) Optional articles (24%).

All existing legislation and technical standards were gathered and comparison was made. Most obvious is that countries that are already in EU (Slovenia, Italy, Croatia and Greece) have more coherent legislation because they must implement currently existing EU guidelines. Countries that are not part of EU (Serbia, Bosnia and Herzegovina, Montenegro and Albania) have less legislation (is being prepared) or more specific legislation that usually follows their internal organization on national level.

This output presents a solid foundation for fine tuning of negotiation process that provides as output Draft Contract. It presents platform where all current legislation is collected and possibility for future update regarding legislation and technical standards. Procedure for new cross border water supply is very difficult to test in reality. Experiences in Adriatic region show that a lot of politics is involved and different stakeholders are involved in final decision. Hopefully this report has shed some light on this complex topic.



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## 6 Appendix

Appendix 1: Proposed Draft Contract

Appendix 2: Comments provided by Italian partners (LB, FB1 and FB2) (10.5.2016 & 21.6.2016)

Appendix 3: Comments provided by Institute Jaroslav Černi (FB10) (11.5.2016)

Appendix 4: Draft Contract Survey - Empty



## Appendix 1: Proposed Draft Contract



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## Appendix 2: Comments provided by Italian partners (LB, FB1 and FB2) (10.5.2016 & 21.6.2016.)



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## COMMENTS REGARDING CONTRACT (10.5.2016)

### CONTRACT FOR CROSS BORDER WATER SUPPLY (WP 5.2)

The proposed model of contract for cross border water supply is extremely detailed and it tries to regulate every aspect of the transaction.

It is good to have analytically detailed all the aspects involved in the transaction. The aim of the document is that to be taken as a model for the preparation of new supply contracts, avoiding the risk of forgetting some of the elements described. It appears extremely ambitious, instead, to believe that the document itself could be considered as a binding template to be used in all cases of cross-border supply.

The proposed contract seems to be interesting and applicable as a whole, for cross-border supplies of important strategic value, e.g. those that have a relevant impact on both sides of the supplier and the recipient and the respective local markets, making it necessary to have a contract that analytically governs every aspect of the transaction.

However, the contract does not appear to be fully applicable in case of "normal" wholesale supplies: the costs for the delineation of the contract would in fact result excessive, given the nature of the transaction, and the time required for its definition would be extremely long.

Moreover, the level of detail appears so deeply binding that the actual risk is that instead of reducing the possibility of litigation and the related costs, could provide more reasons for disputes. It seems then necessary to point out that the proposed contract model cannot and should not be considered rigid and binding in all its parts, as also clearly explained in the document introduction: *"Naturally, parties should not sign exact copy of this model contract. They should adapt it to their needs as every region or country can have specific natural or legal requirements and limitations."*

In conclusion it is suggested and considered appropriate to provide, in addition to the complete model, a synthetic document listing the "minimum essential contents" for the conclusion of a supply contract. Alternatively, it could be considered appropriate to create a short handbook summarizing the essential points, to be included without exception in every contract, the parts that contain information to be considered necessary and that it is strongly recommended to enter into the contract, and those information and data to be considered useful but optional, with possibility for the parties to insert or not.

The form to prepare and generate the contract in electronic format, accessible from DRINKADRIA webpage, should also follow the logic described above, possibly highlighting with different colors categories of information (essential, recommended, optional) that the user is asked to enter.



## COMMENTS REGARDING CONTRACT (21.6.2016)

### Italian Partners position about “the contract for CBWSS” WP 5.2.

#### CONTRACT FOR CROSS BORDER WATER SUPPLY (WP 5.2)

The proposed model of contract for cross border water supply is extremely detailed and it tries to regulate every aspect of the transaction.

It is good to have analytically detailed all the aspects involved in the transaction. The aim of the document is that to be taken as a model for the preparation of new supply contracts, avoiding the risk of forgetting some of the elements described. It appears extremely ambitious, instead, to believe that the document itself could be considered as a binding template to be used in all cases of cross-border supply.

The proposed contract seems to be interesting and applicable as a whole, for cross-border supplies of important strategic value, e.g. those that have a relevant impact on both sides of the supplier and the recipient and the respective local markets, making it necessary to have a contract that analytically governs every aspect of the transaction.

However, the contract does not appear to be fully applicable in case of "normal" wholesale supplies: the costs for the delineation of the contract would in fact result excessive, given the nature of the transaction, and the time required for its definition would be extremely long.

Moreover, the level of detail appears so deeply binding that the actual risk is that instead of reducing the possibility of litigation and the related costs, could provide more reasons for disputes. It seems then necessary to point out that the proposed contract model cannot and should not be considered rigid and binding in all its parts, as also clearly explained in the document introduction: *“Naturally, parties should not sign exact copy of this model contract. They should adapt it to their needs as every region or country can have specific natural or legal requirements and limitations.”*

In conclusion it is suggested and considered appropriate to provide, in addition to the complete model, a synthetic document listing the "minimum essential contents" for the conclusion of a supply contract. Alternatively, it could be considered appropriate to create a short handbook summarizing the essential points, to be included without exception in every contract, the parts that contain information to be considered necessary and that it is strongly recommended to enter into the contract, and those information and data to be considered useful but optional, with possibility for the parties to insert or not.



The form to prepare and generate the contract in electronic format, accessible from DRINKADRIA webpage, should also follow the logic described above, possibly highlighting with different colors categories of information (essential, recommended, optional) that the user is asked to enter.



## Appendix 3: Comments provided by Institute Jaroslav Černi (FB10) (11.5.2016)



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Adriatic IPA  
Oružinski Sektor 2007-2013



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Dear Primož, Polona, Vesna, dear all,

We have had relatively good skype link until 11:00. Connection were breakdown twice before that, but just for a few minutes, so we heard great majority of conversation. After 11:00 we didn't have connection, so we wait for video film or audio tape for that part of meeting, as weell as for later parts. We will listen that, and give you our feedback in the next 3 or 4 weeks, including feedback for all other already sent documents.

We think that today discussion was very good (until 11:00, we hope later too), and that was gone in a really good direction. But, we want to **agree/comment/suggest** few things:

1. We agree that DRINKADRIA (DA) project give just a Frame and Recomendated Methodology for solving relations between two CB DWS.
2. We agree that should be recomendated that in each particular case should establish one Common Body (with the members of both sides-PUCs, and maybe one outside respectable expert), which could have permanent or role just in unexpecting and unsolving situations.
3. We agree with Full recovery principe for water price.
4. We want to suggest that Economic water price has two level and one separate cost: General level, Detail level, and Cost for unexpecting sitiations.
  - a) General level you have done: Water price has fixed and variable costs, each of them cover very generally *that, that and that*.
  - b) Detal level has the same approach as General level, but he is in more detail: it consider what is *that, that and that*. We agree that DA can not consider all details, but probably should numerate them and maybe for some of them could give recomendation (as example see point 6.)
  - c) Cost for unexpecting situations are aplicable just when such situation is happened (restriction of water, quality of drinking water is above the limits, accident pollution, etc. It could happen due to objectiv situation or mistake of one side).
5. We comment situation related to confidence: It should be at one acceptable level for both sides (probably this level is not the same in different cases) - it can not be without limit, but also it can not be that by ex. each measurement is done with representatives of both sides (maybe in some cases even that could be arranged, but not recomendated from DA project).
6. We want to comment some specific issues:
  - a) 1 year can not be representative for variable costs. It should be taken or one average of 5 or 10 years, or to calculate in detail real depreciation of one system or part of the system (which should not be done in DA, but just left opportunity).
  - b) How to calculate part of water price for new Investment (Funds planned for unusual, but needed activities in the next period or next year): probably just recomendation in DA should be given, like "Common Body will make decision according to accept recomendation which is the relevant additional ammount of water price for both sides."
  - c) Following today's discussion, we comment/agree that cost for water resource protection zones should be included, but probably split in fixed cost on detail level, and Cost for unexpecting sitiations (accident situation).

We hope that we gave you support, maybe some useful ideas, and that we will be present next time on the similar meeting.

Best regards,  
Dejan Dimkic, Sladjana Milojkovic, Branislava Matic



# Appendix 4: Draft Contract Survey - Empty



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## DRAFT CONTRACT

### CONTENTS

		Final Beneficiary	Comments (optional)
<b>1</b>	<b>PREAMBLE</b>		
1.1	Legislative alignment		
1.2	Statements and objectives		
1.3	Definitions		
1.4	Interpretation		
1.5	Preceding contracts		
<b>2</b>	<b>OBLIGATIONS</b>		
2.1	Obligations of Supplier		
2.2	Obligations of Recipient		
2.3	Joint obligations		
<b>3</b>	<b>DURATION</b>		
3.1	Commencement		
3.2	Period		
3.3	Review		
3.4	Extension		
3.5	Termination		
<b>4</b>	<b>CURRENT DATA AND PROJECTIONS</b>		
4.1	Demand		
4.2	Nominal capacity		
<b>5</b>	<b>TYPE OF WATER SUPPLY</b>		
5.1	Permanent water supply		
5.2	Temporary water supply		
<b>6</b>	<b>WATER SUPPLY STANDARDS</b>		
6.1	Quantity of water		
6.2	Water source quantity permit limit		
6.3	Limited water supply		
6.4	Water Quality		
6.5	Flow rate		
6.6	Flow velocity rate		
6.7	Pipeline diameter		
6.8	Water pressure		
<b>7</b>	<b>SYSTEM OPERATING STANDARDS</b>		



7.1	Monitoring		
7.2	Normal maintenance and repairs		
7.3	Unexpected failures and leaks		
7.4	Emergency		
7.5	Urgent supply		
7.6	Drought		
7.7	Water losses		
7.8	General rules on ownership, operation and maintenance of the system		
7.9	Active leakage control, Salt intrusion, Water safety plan		
<b>8</b>	<b>DELIVERY POINT</b>		
8.1	General		
8.2	Location		
8.3	Ownership, operation and maintenance		
8.4	Access		
8.5	Rules on Delivery point		
<b>9</b>	<b>WATER METER</b>		
9.1	General		
9.2	Accuracy thresholds		
9.3	Maintenance		
9.4	Testing and calibration		
9.5	Water meter replacement		
9.6	Inaccurate and not measured quantity		
9.7	Reading		
<b>10</b>	<b>REGULAR CHARGES AND PAYMENTS</b>		
10.2	Types and amounts of regular charges		
10.2	Methodology on defining charges		
10.3	Regular charges and withdrawn quantity		
10.4	closing balance accounting		
10.5	Projections		
10.6	Accounting period		
10.7	Issue of invoice		
10.8	Deadline to pay invoice		
10.9	Late payment		
10.10	Special payment arrangements		
10.11	Currency exchange rate		
10.12	Method of payment		





10.13	Data on invoice		
10.14	Recipient query for incorrect invoice		
<b>11</b>	<b>IRREGULAR CHARGES AND PAYMENTS</b>		
<b>12</b>	<b>PENALTIES</b>		
12.1	Minor breach penalty		
12.2	Unauthorised excessive withdraw of water penalty		
12.3	Material breach penalty		
<b>13</b>	<b>BREACH</b>		
13.1	Not a breach		
13.2	Minor breach		
13.3	Material breach		
<b>14</b>	<b>RISK MANAGEMENT</b>		
14.1	Deduction of water supply		
14.2	Insurance		
14.3	Guarantees		
14.4	Damage caused between Parties		
14.5	Water safety plan		
<b>15</b>	<b>VIS MAJOR</b>		
15.1	Event of Vis major		
15.2	Suspension of obligations		
15.3	Remedy of an event of Vis major		
15.4	Mitigation		
15.5	Unavoidable contract termination		
<b>16</b>	<b>DISPUTE RESOLUTION</b>		
16.1	General		
16.2	When dispute arises		
16.3	Negotiations		
16.4	Mediation		
16.5	Arbitration		
16.6	Court of Jurisdiction		
<b>17</b>	<b>RECORD KEEPING AND INFORMATION ACCESS</b>		
17.1	Record keeping		
17.2	Information access		



18	CONTACT INFORMATION, COMMUNICATION, NOTICE AND MEETINGS		
18.1	Contact information		
18.2	Notice and communication		
18.3	Notices in accordance with Protocol		
18.4	Meetings		
19	PUBLIC RELATIONS		
19.1	Communication with end customer		
19.2	Confidentiality		
20	CONSTRUCTION		
20.1	Planning, design and construction		
20.2	Timeline of construction		
20.3	Finances		
21	GENERAL		
21.1	Regulatory approval		
21.2	Legal authority		
21.3	Legislative and regulatory changes		
21.4	Relationship between Parties		
21.5	Supremacy of this Contract		
21.6	Contract binding on successors in title		
21.7	Counterparts		
21.8	Governing law		
21.9	Sub-contracting		
21.10	Liability of expenses		
22	PROTOCOLS		
23	APPENDICES		
24	SIGNATURE AND APPROVAL		

Legend:

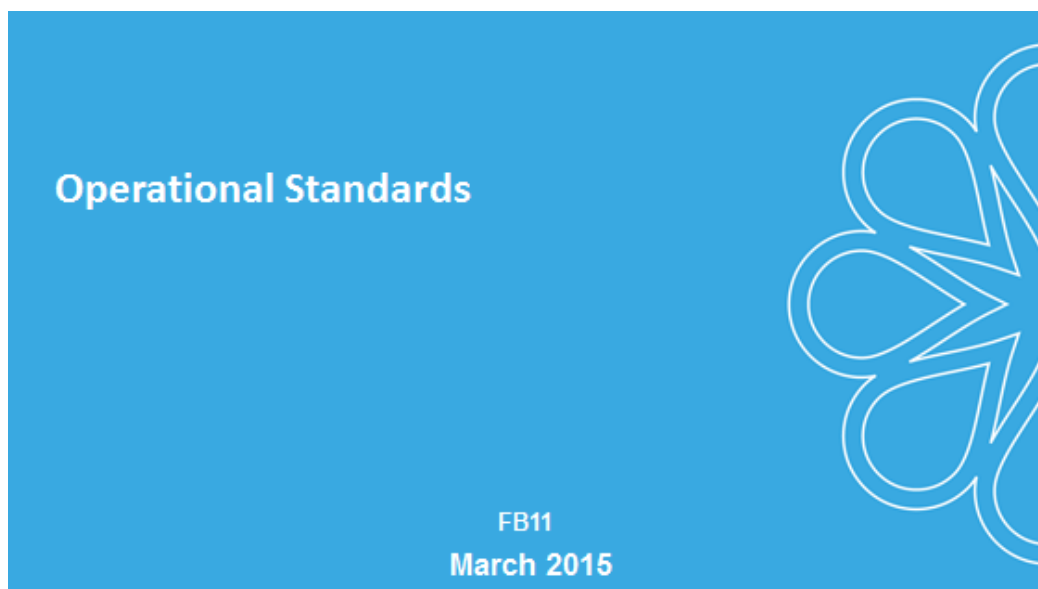
	<b>Must be filled out</b>
	Optional

RATES:

- 1 Not at all important
- 2 Slightly important
- 3 Neutral
- 4 Important
- 5 Very important



Name of the organization/institution: Water Supply and Sewerage Association of Albania  
Beneficiary number: 11



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## Standards and Regulations for Water Supply and Sewerage Sector

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### National Level



### Local Level

WSS utility have regulations conform with the national legislating in force

---

10-13 March, Sarajevo



## Design and Maintenance Standards and Regulations

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### Albanian Standard Book 2003:

- EN 1508:1998 Water supply - Requirements for systems and components for the storage of water
- EN 805:1996 Water supply – Forecasting water network outside the building and its components
- EN 805:2000 Water supply - Requirements for systems and components outside buildings

*Incorporated: EN1295-1:1997, EN 1508:1998, EN 45011:1998, EN 45012:1998, EN ISO 9001:1994, ISO 48:1994, EN ISO 9002:1994*

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10-13 March, Sarajevo



## Operation and Management Standards and Regulations

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**Regulation "On The Water Supply and Sewage services in the service area of the water-joint stock Supply and Sewage Utilities"**, approved with DCM no 1304, dated 11.12.2009

This Code provides a legal base for the water supply and sewage consumers with the WSS utilities.

1. To guarantee provision of potable water in compliance with the respective standards and legislation in force
2. To guarantee appropriate water supply and sewerage collection systems, including the protection of water sources
3. An efficient environmentally and hygienically appropriate disposal of wastewater
4. To contribute in reducing losses and amount of non-billed water, increase of revenues from billing, as well as reduction of misuse and thefts in the system

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10-13 March, Sarajevo



## Safety and Quality Standards and Regulations

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**Hygiene and health regulation for the control of drinking water quality, design, construction and supervision of systems of drinking water supply**, approved with DCM no 145, dated 26.02.1998 (approx.DRINKING WATER DIRECTIVE)

The purpose of this regulation is to ensure healthy and high quality drinking water supply in order to protect the public health from adverse effect of water pollution. In this regulation are established:

1. Parameters of the safety of water for human consumption
2. Equipment of water supply from catchment area to the user
3. Frequency of analysis and monitoring of the water quality
4. Laboratory methods for testing the safety of water for human consumption

---

10-13 March, Sarajevo



## European Union Water Directives

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As applicant for EU membership, Albania strives to achieve compliance with the following [EU Water Directives](#):

- [Water Framework Directive \(2000/60/EC\) of 23 October 2000](#)
- [Drinking Water Directive \(98/83/EC\) of 3 November 1998](#)
- [Urban Waste Water Treatment Directive \(91/271/EEC\) of 21 May 1991](#)
- Principles of Full Cost Recovery under COM (2000) 477

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10-13 March, Sarajevo



## Standards not Applied Yet

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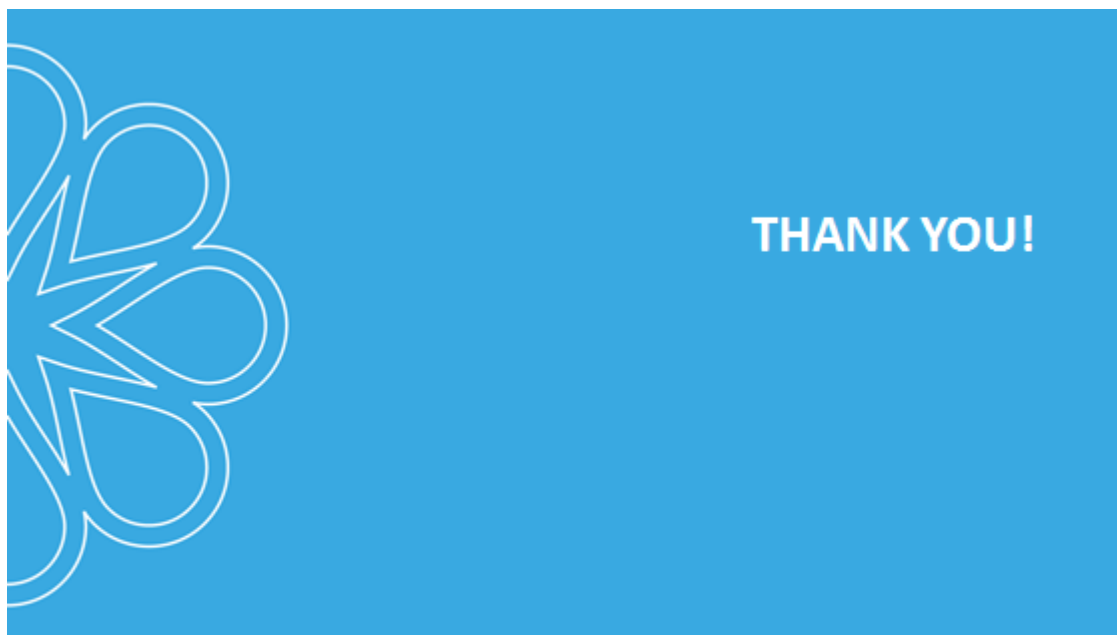
**Technical standards for the water and sanitation sectors in Albania:** 8 books for design, operation, maintenance and implementation of WSS sector, based on 62 EU standards.

1. Trenches and earthworks,
2. Pumping Systems,
3. Water Production,
4. Reservoir,
5. Design of drinking water supply systems
6. Design of Sewage System
7. Water treatment plants polluted wastewater treatment over 50 residents,
8. Treatment of water in place of his generation , septic tanks

---

10-13 March, Sarajevo





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**Name of the organization/institution: Water Supply and Sewerage Association of Albania**  
**Beneficiary number: 11**



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## WP5.2 – OPERATIONAL STANDARDS P.C.UTILITY NEUM BOSNIA AND HERZEGOVINA



DRINKADRIA SARAJEVO MEETING – MARCH, 2015



### REGULATIONS - NATIONAL LEVEL

#### • **Drinking Water Regulations (Official Gazette of Bosnia and Herzegovina, No. 40/10)**

Document of Council of Ministers of Bosnia and Herzegovina defines requirements and standards of drinking water quality, limit values of water health safety parameters, methods of laboratory testings as well as the measures for water safety monitoring. The main objective of this document is protection from the negative issues of all sorts of water pollution that could affect consumers health.

DRINKADRIA SARAJEVO MEETING – MARCH, 2015





## REGULATIONS - ENTITY LEVEL

- **Law on Spatial Planning and Utilization of Land at the Level of the Federation BiH (Official Gazette of FBiH, No.02/06)**

This law defines a system of spatial development of Bosnia and Herzegovina, ways and conditions of construction of buildings, as well as other issues of importance for spatial development and construction of facilities.

- **Law on water of the Federation BiH (Official Gazette of FBiH, No.70/06)**

This law regulates the legal status and the method of integrated water management in Bosnia and Herzegovina, water and coastal land and water facilities, conditions and terms for performing water activities and other issues of importance for water management and water resources.

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DRINKADRIA SARAJEVO MEETING – MARCH, 2015



3

## REGULATIONS - HERCEGOVINA-NERETVA COUNTY LEVEL

- **Law on water at the level of Herzegovina-Neretva County (Official Gazette of HNC, No.06/2013)**

This law regulates the legal status and the method of integrated water management in HNC, conditions and terms for performing water activities and other issues of importance for water management and water resources.

- **Law on Spatial Planning at the level of Herzegovina-Neretva County (Official Gazette of HNC, No.06/2013)**

This law defines a system of spatial development in HNC, ways and conditions of construction of buildings, as well as other issues of importance for spatial development.

- **Law on Construction at the level of Herzegovina-Neretva County (Official Gazette of HNC, No.2013)**

This law defines requirements on technical documentation, construction of facilities, procedures for construction permit issuing, supervision and other aspect of importance in this area.

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DRINKADRIA SARAJEVO MEETING – MARCH, 2015



4



## REGULATIONS - MUNICIPAL LEVEL, WATER UTILITY LEVEL

- **Decision on household garbage disposal and water supply prices (Official Gazette of Municipality of Neum Council, No.01/12)**

This Decision defines household garbage disposal and water supply prices for the natural and legal entities in Neum.

Water supply includes abstraction, treatment and delivery of drinking water to customers through the water supply system to the customer's meter, including the measuring device.

Disposal of household garbage means collection and disposal of garbage from the customer's disposal points to the municipal waste depot.

- **Water utility Statut**

P.C.Utility statut as a document defines, prescribes and declares policies and all formal regulations in the field of legal acting of the Utility.

- **Water Supply Study for Municipality Neum**

As well as overviewing the present situation of the water supply system, the Document also defines Investment priority plans and Feasibility study for the priority measures.

DRINKADRIA SARAJEVO MEETING – MARCH, 2015



5

## STRATEGIES

### **Water Management Strategy Of The Federation Of Bosnia And Herzegovina defines:**

- Water Status in BiH
- Background Information on the Relevant Area
- State of Affairs in the Area of Water Management
- Water Management Objectives and Measures
- Plan for implementation of measures for fulfilling Water Management objectives.

### **Strategy of transposition of EU legislatives into Bosnia and Herzegovina legislations in the sector of Water Management**

- This documents has been prepared within EU project " Water Management support in BiH"
- EU Drinking Water Directive 98/83/EC has been completely transposed into national Law on water and according to that obligatory by national legislation.

DRINKADRIA SARAJEVO MEETING – MARCH, 2015



6



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## STRATEGIES

### Protocol on Water and Health

- The Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes is the first major international legal approach for the prevention, control and reduction of water-related diseases in Europe,
- Although the implementation of the Protocol on water and health is still to be expected in Bosnia and Herzegovina, most of its directives and objectives are already implemented as a common practise .

DRINKADRIA SARAJEVO MEETING – MARCH, 2015



7

SARAJEVO, MARCH 2015

DRINK ADRIA  
DRINKADRIA SARAJEVO MEETING – MARCH, 2015

**Name of the organization/institution: Public utility Vodovod i kanalizacija Niksic – Technical Department**  
**Beneficiary number: 14**



## WP5.2 Operational standards

### NATIONAL LEVEL

- **Law on Communal activities (Official Gazette on RoM, No. 12/95)**

This Law determines the communal activities, principles, general conditions and manner of performance communal activities.

- **Law on meteorology (Official Gazette on RoM, No. 79/2008)**

This law regulates the system of measurement units and standards of Montenegro, methods of assessment of compliance with required standards, competence in the field of metrology, as well as other issues of importance for metrology.

- **Law on Water Official Gazette on RoM, No. 32/2011 & 47/2011)**

This law regulates the legal status and the method of integrated water management, water and coastal land and water facilities, conditions and terms for performing water activities and other issues of importance for water management and water resources.

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SARAJEVO, MARCH 2015



2

## WP5.2 Operational standards

- **Law on Financing Water Management (Official Gazette of RoM, No. 65/2008)**

This Law regulates the sources of funds for financing water management, manner of calculation and payment of fees for the protection and use of water and water resources and other issues of importance for the provision and use of these funds. This law applies to water, water resources and water facilities and systems established by the law governing water.

- **Law on Spatial Planning and Construction (Official Gazette of RoM, No. 51/2008)**

This law defines a system of spatial development of Montenegro, ways and conditions of construction of buildings, as well as other issues of importance for spatial development and construction of facilities

## WP5.2 Operational standards

### MUNICIPAL LEVEL

- **Decision on water supply and sewage (Official Gazette of RoM, Municipal regulations No. 2/96)**

It defines conditions and procedures for water supply of the city of Niksic and suburban areas, as well as requirements for management, operation and maintenance of water supply and sewage system facilities. Water supply includes abstraction, treatment and delivery of drinking water to customers through the water supply system to the customer's meter, including the measuring device. The treatment and disposal of wastewater means collection and disposal of water from the customer's connection to the road network, drainage through sewerage system, treatment and discharge.

*The process of harmonizing national standards with EU directives is underway.*



DRINK ADRIA  
DRINKADRIA SARAJEVO MEETING – MARCH, 2015



**Name of the organization/institution: University of Thessaly**  
**Beneficiary number: 16**



UNIVERSITY OF THESSALY

**WP5.2: Operational standards**  
**FB16: University of Thessaly, Greece**  
 Coordinator: Associate Professor Vasilis Kanakoudis

Sarajevo, 10-13 March 2015



Let's grow up together



## Operational Standards

### National Level:

Law N. 1069/1980 (Off. Gaz. A-191): Foundation of Municipal Water and Sewage Enterprises

### Municipal Level:

Every utility operates individually

Water pricing: The Board of Directors of the utility decides and the Municipal Council approves

Operations: Each water utility has its own operating rules

### Standards:

- Technical Specifications (according to ISO standards; EU Directives): Off. Gaz. B 2221/2012
- Water Quality Specifications: Joint Ministerial Decision Y2/2600/01 (Off. Gaz. 892/11-7-01) in compliance with the Drinking Water Directive 98/83/EC



## Operational Standards – Law 1069/1980

- The national law regarding the foundation of the Municipal Water and Sewage Enterprises (municipal utilities)
- Athens and Thessaloniki are excluded (not municipal)
- Operating purpose:
  - Drinking water supply
  - Sewage
  - Urban wastewater treatment
- The utilities have in their ownership the water distribution networks. They are responsible for the construction, management, maintenance and operation of the networks
- There are 129 Municipal Water Utilities in Greece plus 2 Water Companies (Athens and Thessaloniki where the state holds more than 50% of the shares)

## Operational Standards – Operating Rules Book

- Each Water Utility has its own book of operating rules containing:
  - Technical terms: pipelines; customer connections (household, firefighting, worksite); water meters (ISO 4064, diameters); location of water meters; internal water supply installations (technical standards)
  - Connection of the estates to the water supply network: terms and conditions; procedure; necessary documents
  - Financial terms: permission for connections; connection fee; water meter fee; other charges; water bills; water supply interruption
  - Others: illegal connections; etc.



## Operational Standards – Technical Specifications

### Off. Gaz. B 2221/2012

1501-08-06-02-01:2009	Pressurized u-PVC pipe networks	EN 1452-1	EN 1452-2EN 1452-3	EN 1452-4	EN 12642	EN ISO 12162	EN ISO 9060	EN ISO 1167-1	EN ISO 661-1	EN ISO 9001	TS 1501-08-01-03-02
1501-08-06-06-01:2009	Glass-reinforced polyester produced by filament winding (FW-GRP) pipe networks	EN 805	EN 1610	EN 1796A1EN 14364		TS 1501-06-01-03-02					
1501-08-06-07-02:2009	Cast iron gate valves	EN 19	EN 1565	EN 1561	EN 681-1	EN 12266-1	EN 12266-2				
1501-08-06-07-03:2009	Cast iron butterfly valves	EN 1074-EN 12266-3	EN 12266-2	EN ISO 5211	EN 593	EN 558	EN 60529	EN 1561	EN 1563	EN 1092-1	EN 1092-2
1501-08-06-07-03:2009	Pipeline components dismantling joints	EN ISO 9001									
1501-08-06-07-06:2009	Pressure relief valves	EN 1561	EN 1092-2EN ISO 9001								
1501-08-06-07-07:2009	Double orifice air relief valves	EN ISO 9001									
1501-08-06-08-01:2009	Warning tape above buried utilities	EN ISO 12653	EN ISO 175	EN ISO 5274	EN ISO 646						
1501-08-06-08-08:2009	Prefabricated concrete manholes	EN 1917AC 1	EN 10003-EN 681-1/A1	EN ISO 9001		TS 1501-01-06-07-01-05					
1501-08-06-08-07:2009	Prefabricated manholes made of polymer-reinforced concrete (PRC)	EN ISO 14364	EN ISO 9001	TS 1501-06-01-03-02	TS 1501-06-07-01-05						
1501-08-08-01-00:2009	Pumps for water supply and irrigation pumping stations	EN 1561	EN 1563	EN ISO 9001							
1501-08-08-03-00:2009	Pipelines and control devices for water supply and irrigation pumping stations	EN 10025-2	EN 10217-1	EN 1561	EN 10255-2	EN 1092-1	EN 1092-2	EN ISO 9001-1			

## Operational Standards – Technical standards

- Especially for water meters the Metering Instruments Directive 2004/22/EC is applicable from 30 Oct. 2006
- [Commission directive 2009/137/EC](#) of 10 November 2009 amending Directive 2004/22/EC on measuring instruments in respect of exploitation of the maximum permissible errors, as regards the instrument-specific annexes MI-001 to MI-005 - OJ L 294

CEN	EN 14154-1:2005+A2:2011 Water meters - Part 1: General requirements	EN 14154-1:2005+A1:2007 <a href="#">Note 2.1</a>	31/10/2011
CEN	EN 14154-2:2005+A2:2011 Water meters - Part 2: Installation and conditions of use	EN 14154-2:2005+A1:2007 <a href="#">Note 2.1</a>	31/10/2011
CEN	EN 14154-3:2005+A2:2011 Water meters - Part 3: Test methods and equipment	EN 14154-3:2005+A1:2007 <a href="#">Note 2.1</a>	31/10/2011

## JMD on quality for drinking water (in compliance with the EU Directive 98/83/EC)

- sets the competent authorities for the implementation of the current legislation: the Ministry of Health, the General Directorate of Public Health and Social Welfare of the Region, the Department of Public Health and Social Welfare of the Regional Units and the Hellenic Food Authority
- regulates procedures and reporting in case of deviation; the liability of legal persons engaged in the supply of water; monitoring of the safety of water; the protected areas; and the parametric values to ensure the safety of water for human consumption
- The JMD was amended in 2007 while in 2011 a circular was issued
- In 2014 a Ministerial Decree ( $\Delta\Upsilon\Gamma 2.0\kappa 9283$ ) was issued to suggest measures that need to be taken when extreme phenomena happen (earthquakes, floods) to guarantee water safety

Table 1: Microbiological parameters – general requirements for drinking water

Parameter	Parametric value (number / 100 ml)
Escherichia coli ( <i>E. coli</i> )	0
Enterococci	0

Chemical parameters are also presented in ANNEX I (Table 2).

Table 2: Chemical parameters of drinking water

Parameter	Parametric value	Unit
Acrylamide	0.10	µg/l
Antimony	5.0	µg/l
Arsenic	10	µg/l
Benzene	1.0	µg/l
Benzo(a)pyrene	0.010	µg/l
Boron	1.0	mg/l
Bromate	10	µg/l
Cadmium	5.0	µg/l
Chromium	50	µg/l
Copper	2.0	mg/l
Cyanide	50	µg/l
1,2-dichloroethane	3.0	µg/l
Epichlorohydrin	0.10	µg/l
Fluoride	1.5	mg/l
Lead	10	µg/l
Mercury	1.0	µg/l
Nickel	20	µg/l
Nitrate	50	mg/l
Nitrite	0.50	mg/l
Pesticides	0.10	µg/l
Pesticides - total	0.50	µg/l
Polycyclic aromatic hydrocarbons	0.10	µg/l
Selenium	10	µg/l
Tetrachloroethene and Trichloroethene	10	µg/l
Trihalomethanes - total	100	µg/l
Vinyl chloride	0.50	µg/l

## JMD on quality for drinking water (in compliance with the EU Directive 98/83/EC)

Table 3: Indicator parameters of drinking water

Parameter	Parametric value	Unit
Aluminium	200	µg/l
Ammonium	0.50	mg/l
Chloride	250	mg/l
Clostridium perfringens (including spores)	0	number/100 ml
Colour	Acceptable to consumers and no abnormal change	
Conductivity	2500	µS cm <sup>-1</sup> at 20 °C
Hydrogen ion concentration (pH)	≥6.5 and ≤9.5	pH units
Iron	200	µg/l
Manganese	50	µg/l
Odour	Acceptable to consumers and no abnormal change	
Oxidisability	5.0	mg/l O <sub>2</sub>
Sulphate	250	mg/l
Sodium	200	mg/l
Taste	Acceptable to consumers and no abnormal change	
Colony count at 22 °C and 37 °C	No abnormal change	
Coliform bacteria	0	number/100 ml
Total organic carbon (TOC)	No abnormal changes	
Residual chlorine		mg/l
Turbidity	Acceptable to consumers and no abnormal change	

Table 4: Radioactivity of drinking water

Parameter	Parametric value	Unit
Tritium	100	Bq/l
Total indicative dose	0.10	mSv/year

Table 5: Parameters for check monitoring  
Physical-chemical and chemical

Aluminium
Ammonium
Colour
Conductivity
Clostridium perfringens (including spores)
Escherichia coli ( <i>E. coli</i> )
Hydrogen ion concentration (pH)
Iron
Nitrite
Nitrate
Odour
Pseudomonas aeruginosa
Taste
Colony count at 22 °C and 37 °C
Coliform bacteria
Turbidity
Residual chlorine

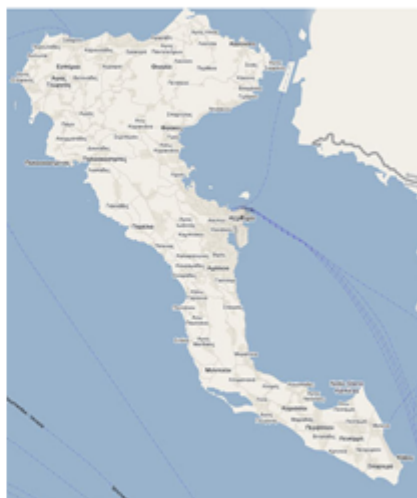
Table 7: Frequency of sampling and testing drinking water regarding amount of water distributed in the supply area

Water Volume distributed or produced per day within a supply zone m <sup>3</sup> /day	Check monitoring number of samples per year	Audit monitoring number of samples per year
≤100	1	
101-500	4	1
501-1000	6	1
1001-2000	9	1
2001-3000	12	1
3001-4000	15	1
4001-5000	18	2
5001-6000	21	2
6001-7000	24	2 + 1 for every 3300 m <sup>3</sup> / day
7001-8000	27	3
8001-9000	30	3
9001-10000	33	3
.....	+ 3 for every 1000 m <sup>3</sup> / day	
19001-20000	63	4
.....	+ 3 for every 1000 m <sup>3</sup> / day	+ 1 for every 10000 m <sup>3</sup> / day
29001-30000	93	5
.....		
99001-100000	303	12
100001-200000	603	16
.....	+ 3 for every 1000 m <sup>3</sup> / day	+ 1 for every 25000 m <sup>3</sup> / day
900001-1000000	3000	52



## Operational Standards – Corfu Water Utility

- The Municipal Water and Sewage Utility of Corfu is founded in 1982 (Presidential Decree 171-Off. Gaz. 28/8-3-1982): municipality of Corfu (not the whole island)
- In 2011 ten municipal utilities were merged in one: the Municipal Water Utility of Corfu (Decision 30998 – Off. Gaz. 155/7-6-2011) – one water utility for the whole island
- The water utility has its own book of operating rules (draft, not approved yet)



## FB16 input to the project: WATERLOSS DSS tutorial video

- University of Thessaly prepared a tutorial video for how to use the DSS platform in English and in Greek
- Part of them is uploaded in the DRINKADRIA site
- <http://drinkadria.fgg.uni-lj.si/nrw-dss-tutorials/>

[Cross border water supply GIS](#)
[Water protection areas and water resources](#)
[WRI Test Areas](#)
[WRI surveillance](#)
[Hardware warehouse](#)
[Non revenue water reduction DSS](#)

[Related projects](#)
[login](#)

### NRW DSS Tutorials

\*DSS Tutorial in English

DSS platform  
 Language: [EN](#) [GR](#) [SL](#) [HR](#) [HU](#) [IT](#) [PT](#) [RO](#) [SK](#) [SI](#) [TR](#) [UK](#)  
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Let's grow up together



The project is co-funded by the European Union, DRINK ADRIA, Instrument for Pre-Accession Assistance