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MASTER'S THESIS

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EXPLORING POSSIBILITIES FOR PUBLIC-PRIVATE PARTNERSHIPS FOR THE INFRASTRUCTURE DEVELOPMENT IN BOSNIA AND HERZEGOVINA WITH FOCUS ON THE ENERGY SECTOR

Ljubljana, September 2021 VEDRAN SOTONICA

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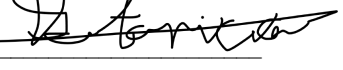
Ljubljana, September 2nd, 2021 Author's signature: 

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LIST OF ABBREVIATIONS

B&H – Bosnia and Herzegovina

BD – District of Brčko

CBB&H – Central Bank of Bosnia and Herzegovina

DERK – State Electricity Regulatory Commssion

EBRD – European Bank for Reconstruction and Development

EIB –European Investment Bank

EP B&H – Elektroprivreda Bosne i Hercegovine

EP HZHB – Elektroprivreda Hrvatske Zajednice Herceg Bosne

EP RS – Elektroprivreda Republike Srpske

FB&H – Federation of Bosnia and Herzegovina

FERK – Federal Electricity Regulatory Commssion

IEA – International Energy Agency

IMF – International Monetary Fund

KPI – Key Performance Indicator

LCP – Large Combustion Plant

LEC – Liberian Electricity Company

NOSB&H – Independent System Operator of Bosnia and Herzegovina

NPM – New Public Management

PPP – Public-private partnership

REEP – Regional Energy Efficiency Programme

RERS – Regulatory Commission for Energy of Republic of Srpska

RS – Republika Srpska

WBIF – Western Balkans Investment Framework

INTRODUCTION

Public infrastructure and services play a huge role in how we lead our everyday lives. To get to work we might be using highways and roads, water and sewage infrastructure is used to provide us with clean water, a lot of people rely on public schools and universities for education and are treated within public hospitals and medical centres (Hodge & Greve, 2005, p. 1). Besides the major importance of public infrastructure and services for the average citizen, studies worldwide have also shown the importance which public expenditure has for the economic growth of one country. Straub (2008, pp. 18-19) has reviewed 64 studies published between 1989 and 2007 exploring the relationship between public expenditure and economic development. Two-thirds of these studies have shown that there is a positive, statistically significant relationship between the two. Trebilcock and Rosenstock (2015, p. 348) point out that this relationship is especially important in developing countries, where the provision of high-quality infrastructure significantly contributes to an increased quality of life.

Although governments have always played a major role in providing public infrastructure and services (Tičar & Zajc, 2010, p. 194), the way through which they are being provided has changed in the last few decades. With growing budgetary limitations, public quality improvement pressures, increased competition and accelerated economic growth needs within the last couple of decades, governments had to look beyond traditional financing methods for growing infrastructure needs (Grimsey & Lewis, 2004, p. 19; Schwartz, Corbacho & Funke, 2008, p. 1). As an answer, governments within developed and developing countries equally have started using private-public partnerships in order to secure the necessary means to work on further infrastructure development (Alfen, Jan, Kaladindi & Singh, 2009, p. 9; Iossa & Martimort, 2009, pp. 2-3; Siemiatycki & Farooqi, 2012, p. 286). This concept became immensely popular during the eighties in the United Kingdom (through Thatcher's New Public Management paradigm) and the United States of America (through the Reagan administration) (Hammami, Ruhashyankiko & Yehoue, 2006, p. 5). The presence of Western non-governmental organisations, associations and agencies in developing countries has facilitated the spill-over of this concept into public procurement systems in these countries (Miraftab, 2004, p. 9).

PPPs (hereinafter PPPs) are perceived to have an advantage over traditional public procurement solutions in the way that they provide greater value for the same amount or less money (Wall & Connolly, 2009, p. 708). As Huxham and Vangen (2000, p. 293) and McQuaid (2000, p. 11) argue, the real value of PPPs comes from their cooperation – the two sides working together on a project will provide better results through synergy than if the sides would be working on a project on their own.

Despite the fact that PPPs have been increasingly used by developed and developing countries in order to foster growth and quality of infrastructure, public-private partnerships still have many issues and controversies surrounding them (Grimsey & Lewis, 2004, pp. 128-129). They are, primarily, very complex projects, which need to be planned meticulously and managed carefully. This represents a major challenge in developing countries, as PPP projects might require know-how and skills which the current government structures do not have. It also may require introduction or changes to the current regulatory and legal framework (Kwak, Chih & Ibbs, 2009, p. 61). Risk identification, allocation and mitigation represent some of the most important tasks when it comes to PPPs (Hodge & Greve, 2005, pp. 12-13).

The purpose of this master thesis is to explore different particularities of PPPs, as well as to elaborate the importance of PPPs in infrastructure development in countries like B&H. The special focus will be on its energy sector.

The objectives of the thesis are the following:

- to analyse and examine the concept and models of PPPs;
- to examine the major benefits and risks usually connected to the implementation of PPP projects;
- to assess current regulatory, legal and political frameworks surrounding PPPs in B&H;
- to analyse the PPP projects in the energy sector worldwide;
- to identify potential barriers and drivers for the implementation of the PPP form of financing in B&H;
- to provide recommendations for possible PPPs in the energy sector of B&H.

The purpose and objective of the thesis will be reached by employing primary and secondary research. Secondary research, encompassing also the literature review, will be used to present the public-private partnerships, to examine and assess their benefits and risks and some examples of good practices around the world. Secondary research will also be used to establish the current state of play in the PPP arena in B&H and to assess the currently set legal and regulatory framework. Primary research will be used to assess the possibilities of using PPPs for the infrastructure development in B&H in particular its potential for the investments in the energy sector. Primary research will be done in the form of in-depth structured interviews with relevant representatives from the private, public and non-governmental sector in B&H.

The first chapter of this master thesis establishes the necessary theoretic background for understanding how PPPs contribute to economic development, and why PPPs are particularly important for developing countries. The chapter firstly explores the origins of PPPs and how they were developed and utilised throughout the history. A special emphasis in this chapter is given to the exploration of benefits and risks involved in the preparation, planning and implementation of PPPs. The popularity of PPPs shows that governments around the world find them efficient. But the implementation of PPPs is everything but easy, and a solid basis must exist in order for a country to be able to enjoy all the added values which come from utilising PPPs instead of traditional procurement models. Also, PPP projects, like every other project smaller in its scope, carry risks with themselves. In this case, the risks are quite substantial. This is the main reason why there needs to be a careful approach towards risk management whenever a government chooses PPPs as the preferred procurement mode. Furthermore, the first chapter is focused on exploring the different types and classifications of PPPs. PPPs are very complex projects and they come in different forms and possibilities. Which type of PPP a government will choose for a particular project depends on numerous factors, all of which need to be carefully analysed in order to make the correct decision.

The second chapter of the master thesis is focused on presenting the complex regulatory and legal framework for the implementation of PPPs in B&H. B&H, like many transitioning countries, is facing a growing issue of public debt, which needs to be handled carefully. At the same time, being a developing country, B&H has huge infrastructure needs. In order to be able to provide this infrastructure to its citizens, without putting further pressure on

national accounts, PPPs seem like a good way forwards. A major prerequisite to do so is having the minimum required legislation, not only in order to be able to even start with PPP activities, but also to provide a certain level security to foreign investors which could be involved in the projects as the private-sector parties, but could potentially be scared off by a loose or even non-existent regulatory framework which is going to protect them in case of any legal issues during the implementation of the project. This Chapter provides a comprehensive overview of the legal, regulatory and institutional framework for PPPs in B&H.

The third chapter of the thesis is focused on exploring the possibilities of utilising PPPs for the development of the energy sector in B&H. First, it provides a complete overview of the current state of the different parts of the energy sector in B&H, and gives a comprehensive overview of the legal and institutional framework of B&H's energy sector. B&H is one of the few countries in Europe whose gas and electricity markets are still not completely open and liberalised and where these markets function in a quasi-monopoly held by state energy companies. Not only is market liberalisation one of the major issues within the energy sector, but also the necessary infrastructure, as well as lack of investment into renewable energy options. This Chapter offers examples of three successful PPP projects in three developing countries and three different energy sectors to illustrate the necessary requirements for a PPP project to be implemented successfully. It also provides and overview of potential investment opportunities in the energy sector in B&H and gives a short overview of potential private sector partners.

The third chapter concludes with a summary of the primary research which aimed to collect the opinion of persons identified as experts for PPPs and PPP legislation or active in the energy industry in B&H on potential opportunities as well as major barriers for PPPs in the energy sector in B&H. As a result of these inputs, this master thesis is concluded with recommendations for potential PPP deployment in the development of the energy sector in B&H.

1 PUBLIC PRIVATE PARTNERSHIPS FOR INFRASTRUCTURE CONSTRUCTION

Public-private partnerships (PPPs), have various definitions. A lot of authors and organizations have given their contribution to defining and understanding this term. Essentially, one can simply describe them as "cooperative ventures between the state and private businesses" (Linder, 1999, p. 35). Another popular definition is given by Savas (2000, p. 4) where he defines PPPs as "any arrangement between the government and the private sector in which partially or traditionally public activities are performed by the private sector". Hodge and Greve (2005, p. 1) see them as "cooperative institutional arrangements between the public and the private sector." An overview of relevant PPP definitions from different authors and institutions is given in Table 1:

Table 1: A Compiled Set of PPP Definitions by Different Authors

Authors	Definition
Akintoye & Kumaraswamy (2016)	Public-Private-Partnerships (PPPs) are joint ventures, in which business and government cooperate, each applying its strengths to develop a project to deliver public services more quickly, more efficiently or otherwise better than a government could accomplish on its own.
Van Ham and Koppenjan (2002)	PPPs are a cooperation of some sort of durability between public and private actors in which they jointly develop products and services and share risks, costs, and resources connected with these products.
Asian Development Bank (2008)	PPPs present a framework that—while engaging the private sector—acknowledge and structure the role for government in ensuring that social obligations are met and successful sector reforms and public investments achieved.
Grimsey & Lewis (2004)	PPPs can be defined as arrangements whereby private parties participate in, or provide support for, the provision of infrastructure, and a PPP project results in a contract for a private entity to deliver public infrastructure-based services.

Sources: Asian Development Bank (2008), Akintoye, A., & Kumaraswamy, M. (2016), Grimsey, D., & Lewis, M. (2004), van Ham, H., & Koppenjan, J. (2002), Building Public-Private Partnerships: Assessing and Managing Risks in Port Development, Public Management Review, 4(1), 593-616.).

Hodge and Greve (2005, pp. 4-7) state that there are two ways in which you can look at PPPs:

- **organisational** – in which PPPs are seen as institutional arrangements of cooperation which are established through new organizational units, or
- **financial** – in which PPPs are seen as a financial model utilized by the government to make use of private finance capital.

Yescombe (2007, p. 3) defines PPPs through four key elements, as shown in Figure 1:

Figure 1: Four Elements of PPPs according to Yescombe (2007)

Source: Yescombe, E.R. (2007).

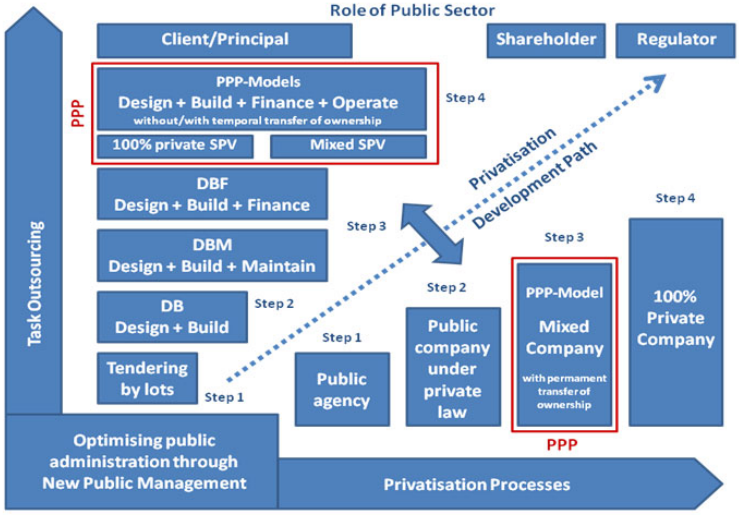
Going through different literature connected to PPPs, one can clearly isolate some of its most commonly mentioned characteristics (Alfen et al, 2009, pp. 9-10; van Herpen, 2002, p. 2):

- a long-term contractual partnership/arrangement;
- efficiency increases through risks and responsibility sharing and allocation;
- performance-based outcomes;
- innovation fostering;

- involvement of private-sector investment for project financing;
- usage of tolls and different types of fees for project financing.

On a continuum between traditional public procurement and private provision of goods and services, PPPs are placed somewhere in the middle (Tičar & Zajc, 2010, p. 195). They can be seen as a more complex derivative of the privatisation movement of the 1980s (Linder, 1999, p. 36; Calabrese, 2008, pp. 1-2; Savas, 2000, pp. 105-106; Pongsiri, 2002, pp. 487-488). Figure 2 shows how PPPs are placed on a continuum between traditional public procurement and a fully privatised company:

Figure 2: The Position of PPPs on a Continuum between Traditional Public Procurement and Full Privatisation



Source: Alfen et al. (2009).

The term privatisation was coined in Great Britain in order to avoid the usage of the term de-nationalisation in the period when British Aerospace was being sold to private investors and when using the term de-nationalisation would have created big controversies and more negative connotations (Calabrese, 2008, p. 1). This term was used to describe a reduced role of the government in the production of goods and services and a more increasing role of private investors and businesses (Savas, 2002, p. 104). Back in the 1980s, privatisation was seen as a way to enhance the provision of public services (Pongsiri, 2002, p. 488). Nowadays, when the government and private businesses have an equally important role in the economy, it is less contentious to use the term public-private partnerships (Savas, 2000, p. 106). Authors Teisman and Klijn (2002, pp. 197-198) consider the term public-private partnership not only to be a less contentious term, but rather a language game, suggesting a new way of governance – one in which the public and private sector are working hand-in-hand in order to achieve set goals. In such a constellation, the government is not anymore above the private sector and civil society, but rather in line with them (Teisman & Klijn, 2002, pp. 197).

Pongsiri (2002, pp. 488-489) mentions that it not possible to observe and divide the economy into a profit-maximizing private part and a public-interest government part. As he states,

such a concept no longer "reflects the dynamics and interdependencies of economics and the social environment". A move away from a traditional view to a more management-oriented government organisation has been observed, bringing with itself competition into the provision of public services (Weihe, 2009, pp. 5-6). The future will bring an expansion of public-private partnerships, as they will increasingly be seen as just another form of the widely acceptable and used inter-organisational partnerships in the private sector (Pongsiri, 2002, p. 487).

Broadbent and Laughlin (2003, p. 332) state that private-public partnerships can be seen as a form of liberalizing the provision of goods and services, meaning that through PPPs, public services are not any more exclusively provided by organisations owned and controlled by the government, but rather in a partnership with the private sector. A creation of such a mixed economy became necessary when it was realized that pure public goods and services cannot be exposed to market volatilities, which have been especially difficult during periods of economic crises and depressions. Namely, such cyclical economic movements showed how a pure public good or service was very unstable and flawed (Hodge & Greve, 2005, p. 2).

The question about what goods and services should be provided by the government and what should be provided by the private sector goes back centuries ago (Hodge, 2004, p. 37). Governments have been providing infrastructure and other services for hundreds of years. Often this has happened through a contract with private sector partners (Hodge, 2004, p. 37). So, one cannot claim that private-public partnerships are something essentially new (Hodge, 2004, p. 37; Boerzel & Risse, 2005, p. 1). It is more correct to state that the current level of contract complexity, new types of financial arrangements and an altered government role are the novelty. The mere concept has been around for a much longer time (Hodge, 2004, p. 38).

A clear trend can be observed, one which unmistakably shows a greater and greater involvement of private business in the provision of what was traditionally considered to be a public good or service. As mentioned above, PPPs have been looked at as a derivative of the privatisation movement. Privatisation, on the other hand, was just a part of a much bigger social movement and new concept of public governance in literature known as "new public management reform". This reform has taken many forms in different countries – privatisation, contracting out services, creating internal markets, decentralisation, etc. (Drewry, 2005, p. 57-58) – with PPPs just being the latest chapter in the book (Hodge & Greve, 2005, p. 3), dominating the discourse about 21st century government governance (Wettenhall, 2003, pp. 77-78). Such tendencies have been most profoundly noticed in the USA, Canada, most of Europe, but also in some developing countries (Iossa & Martimort, 2009, p. 2).

So, to wrap up, one can look at PPPs as an alternative to privatisation and contracting-out. It is aimed at combining the strong sides of both, the public, and the private sector (Hodge & Greve, 2005, p. 10). PPPs do not mean that traditional market mechanisms will enter into public goods and services provision, but rather that the government and private businesses are working together to achieve mutually beneficial objectives, taking advantage of each other's strengths (Pongsiri, 2002, pp. 488-490). PPPs actually want to "harness the incentives of private markets to the public interest criteria of the state." (Parker & Hartley, 2003, p. 97). The ultimate goal is to actually gain an advantage by delivering some sort of added value to the public, which would not have been possible if the public and private sector would not have entered into a partnership. This added value can take the form of greater value for money, increased quality, cost optimisation, etc. (Weihe, 2008, p. 103). The core

benefit of a partnership should be that its structure enables optimal risk allocation and cost minimisation, while at the same time improving the performance (Asian Development Bank, 2008, pp. 3-5). Another important benefit is that through PPPs the public sector wants to transfer tasks and responsibility for providing goods and service to the private sector, with the aim of increasing efficiency, cost reliability and financial stability (Alfen et al, 2009, p. 10).

PPPs are becoming more popular (Watson, 2003, p. 2) and gaining more and more support (Teisman & Klijn, 2002, p. 197). A lot of global and local institutions and organisations have helped promote the ideas and benefits of PPPs (Verhoest, Petersen, Scherrer & Soecipto, 2015, pp. 118-119), including development banks, national governments, the EU, etc, (Hall, 2015, pp. 8-9) as well as multinational companies, global advocacy coalitions, and multilateral agencies addressing global policy issues and tackling worldwide economic development (Brinkerhoff & Brinkerhoff, 2011, p. 9).

However, as Watson (2003, p. 3) states, it is still not quite clear, why there is so much support for PPPs. He states that possible reasons could include the reduction of government debt and the failure of traditional models to produce the anticipated value for money (Watson, 2003, pp. 3-4). Also, it became evident that effects of PPPs have been very different across different countries. Also, national governments have responded differently to the newly awakened interest in PPPs (Verhoest et al, 2015, pp. 118-119). Besides, in recent years, a lot of researchers have started investigating the effects of PPPs cross-nationally and globally, instead of focusing only on effects in the national economy. These researchers believe that PPPs can help solve a whole variety of multinational, cross-national and global issues, mainly focusing on raising the effectiveness and legitimacy of international governance in terms of democratic participation and accountability (Boerzel & Risse, 2005, p. 1).

1.1 A Historical Overview of PPP Development

It is very difficult to pinpoint an actual moment in history when the public and the private sector have not been collaborating with each other (Carroll & Steane, 2005, p. 38). Brinkerhoff and Brinkerhoff (2011, p. 3) underline that PPPs have had a strong and long tradition in the provision of public goods and services in municipalities, as well as in the provision of urban services.

Examples of early PPPs during different historical periods are numerous. Some of the first historical traces of PPPs as we know them today can found during the Colonial period in the United States of America, when President Benjamin Franklin founded the American Philosophical Society, whose main task was encouraging correspondence with fellow scientists from different fields in the colonies. Another example is the cholera epidemic in 1822, when the government sponsored research which led to finding a cure. Samuel Morse received a $30,000 investment from the government after patenting his electric telegraph in order to set up an experimental line between Baltimore and Washington and in order to further support his development and research (Link, 2006, p. 9-10).

The reasons for supplying citizens with public goods and services can be different - political, social, economic (Tičar & Zajc, 2010, p. 194). Theoretical background and explanation for the phenomenon of public-private partnerships can be traced back to the x-efficiency theory developed by Leibenstein (1966, pp. 404-406). In its most basic form this theory states that public institutions cannot fail in the provision of goods and services as long as they have

expansionary fiscal and monetary policies. Any inefficiency actually comes from the government's highly bureaucratic organisational structures or from distortionary government interventions. Thus, Leibenstein argues, PPPs are necessary in order to reduce the inefficiency levels of the public sector and in order for them to become more competitive.

The origin of the term "public-private partnerships" comes from the United States of America, where this term was used to describe joint funding for educational programmes. Later on, this joint funding expanded to utilities provision, and ultimately to projects of urban renewal in 1960s (Yescombe, 2007, p. 2).

Goods and services can be delivered in different ways to the public. But, when it comes to for example, infrastructure, neither a purely public, nor a purely private investment could be efficient in the long-term. For example, some known government inefficiencies or failures in the provision of public goods and services include ineffective decision-making processes, inefficient institutional frameworks, lack of competition, etc. On the other side, the private sector has as well some flaws, the major one being inequalities in the distribution of services. So, in order to be really efficient in the provision of specific public services such as infrastructure, it is necessary to incorporate the strengths of both sides, ie. for the two sides to cooperate with each other (Kwak et al, 2009, p. 52). In this way, through the implementation of PPPs, the government transforms its role from a public services provider to a public service buyer (Siemiatycki & Farooqi, 2012, p. 287).

A major trigger for the PPP expansion in the USA was the economic recession of the 1970s. It taught local and state governments to look for more efficient ways for the provision of public goods and services in order to maintain better fiscal stability (Pongsiri, 2002, p. 488).

Furthermore it is the paradigm of "new public management" in the UK (then under Margaret Thatcher) and USA (under Ronald Reagan), that popularised the concept of PPPs even more in these countries. "New Public Management" (hereinafter NPM) was especially popular in countries with a strong Anglo-Saxon tradition (Hammami et al, 2006, p. 5; Miraftab, 2004, pp. 90-91). This paradigm wanted to introduce some of the functioning principles of private companies into the public sector, with the major objective to reduce public spending, increase the management efficiency of public companies, and overcome the lack of managerial skills in the top management of such companies. The emergence of NPM is now seen as one of key reforms responsible for making PPPs more popular (Hammami at al, 2006, p. 5).

It is important to emphasize that the development and adoption of PPPs throughout the world has not been uniform (Broadbent & Laughlin, 2003, p. 333; Alfen et al, 2009, p. 2). While the popularisation of PPPs in Anglo-Saxon cultures can be traced back to the adoption of NPM, it is still pretty much unclear why so many third-world countries also adopted this model of public service provision. Miraftab (2004, p. 90) mentions that one of the possible reasons for the increasing adoption of PPPs in third world countries could be the huge advocacy of PPPs by multilateral agencies such as USAID and UNDP.

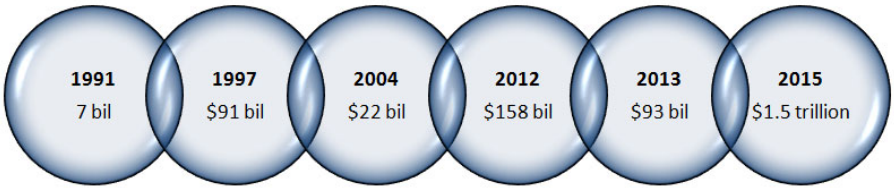
Osborne (2005, p. 1) mentions that by the 1990s, PPPs have established themselves as a key to tool for implementing public policies. As privatisation seemed to start fading, PPPs began to flourish, especially in the area of infrastructure, and became the major way for the public sector to obtain private-sector capital and management expertise (Tičar & Zajc, 2010, p. 194). Both, developed and developing countries saw a spike in the number of PPP projects

undertaken. This did not happen only in "traditionally" privatised industries such as transport, energy and gas, but also for very complex services, and services who previously no one could have had imagined being outsourced to private companies. These include prison operations, school design and maintenance, waste disposal, and, increasingly, concessions for toll roads, rails, ports, and bridge (Iossa & Martimort, 2012, pp. 442-443). However, which services are chosen to be provided through PPPs, highly depends on a country's development level. While industrialized countries have used PPPs in the field of education, health services, waste management and public buildings, developing countries have been using them to finance investment into basic infrastructure (power, water, transport) (Alfen et al, 2009, p. 2).

The number of PPPs grew until the late 2000s, when the financial crisis hindered the involvement of the private sector in big infrastructure projects. Namely, it became too expensive and difficult for private companies to obtain necessary financing, which has lowered the level of PPP commenced in this period. In 2012, Europe had the lowest PPP investment in ten years (66 new deals worth €11.7 billion), most of them coming from the UK, France and the Netherlands, while the rest of Europe made little use out of PPPs. The major reasons behind such a rapid decline include a changing political climate, lack of government guarantees and general cuts in public spending plans (Hall, 2015, p. 9).

According to data compiled by the World Bank (2016a, pp. 7-8), investment in PPP infrastructure projects in developing countries in the period from 1991-2015 amounted to a total of $1.5 trillion for over 5,000 different infrastructure projects. This data set includes 121 low- and middle-income countries. During that 25-year period, there have been two strong growth periods. The first expansion happened in the years leading up to the Asian financial crisis (1997-1998) supported by a generally healthy global economy, together with strong structural reforms undertaken in developing countries (The World Bank, 2016a, pp. 7-8).

Figure 3: Growth of PPP Investment in Developing Countries



Source: The World Bank (2016).

Surprisingly, the second strong growth period happened in 2005-2012, despite the global financial crisis. The last global crisis had a much smaller impact on investment, largely due to the fact that a lot of developing countries increased the amount of public spending and kept pursuing structural reforms. Since 2013, investment has been growing slowly in absolute terms (7 percent). However, what's increasingly worrying is the fact that there was almost no growth in PPP investments in terms of percentage of GDP. During this period, the biggest PPP investors in absolute terms have been Argentina, Brazil, China, India and Mexico (World Bank, 2016a, p. 10).

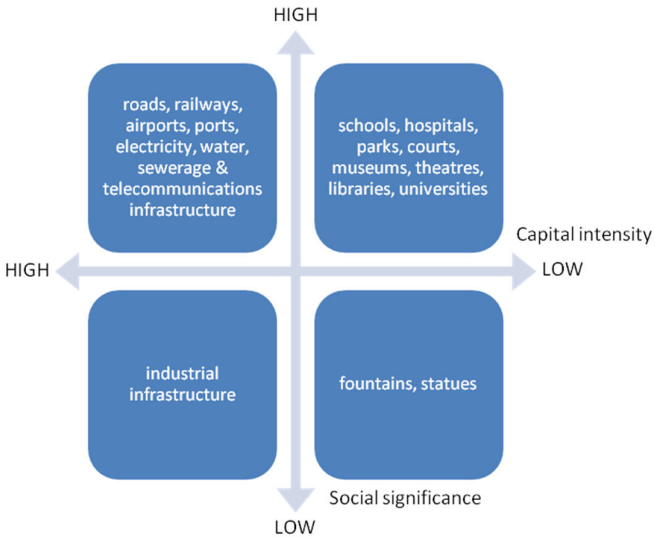
1.2 Importance of PPPs for Infrastructure Development

Infrastructure is all the facilities which are necessary for an economy and society to function (Yescombe, 2007, p. 1). It can be defined as a "large, indivisible, and non-rival capital good producing services for its users" (van Herpen, 2002, p. 1).

Infrastructure can either be economic (for example, roads and utilities) and social infrastructure (prisons, hospitals, schools, etc) (Grimsey & Lewis, 2002, p. 108; Yescombe, 2007, p. 1). Also, one can differentiate between hard (facilities and goods) and soft infrastructure (services) (Yescombe, 2007, p. 1). Besides, infrastructure includes all aspects of public services (van Herpen, 2002, p. 1-2).

Palei (2015, p. 169) suggests that infrastructure can be differentiated by two factors: its capital intensity ie. the size of the investment and its social significance. So infrastructure can for example be huge, but not necessarily used by the wider public, ie socially it would be insignificant. Examples of these combinations are given in Figure 4.

Figure 4: Classification of Infrastructure Based on Capital Intensity and Social Significance



Source: Palei, T. (2015).

The huge investment necessary for building infrastructure makes a perfect basis for infrastructure to be considered a public good (van Herpen, 2002, p. 1). These huge investment requirements often limit or even completely eliminate competition, creating natural monopoly conditions. However, as mentioned, the state and the private sector have worked together throughout history in providing infrastructure. Due to this private sector involvement, infrastructure can also be considered an imperfect private good (Trebilcock & Rosenstock, 2015, p. 337).

Infrastructure is key for our everyday lives: we use roads every day, our children go to public schools, we use water, gas and electricity. Even the Internet is the result of publicly funded research (Hodge & Greve, 2005, p. 1). As one can conclude, we would not be able to live our lives the way we do today if it wasn't for the infrastructure we had at our disposal.

From ancient times until today the people and their rulers have tried to invest into the development of infrastructure, as they saw a clear connection between good infrastructure and economic development (Calderon & Serven, 2014, pp. 3-5; Petković, Đedović-Negre & Lukić, 2015, p. 1). Even Adam Smith in his book "Wealth of Nations" mentions the importance which transport infrastructure has on fostering economic prosperity (Calderon & Serven, 2014, p. 2). Although the connection between developed infrastructure and a developed economy seems quite intuitive, first scientific proof to it was given by Aschauer in 1989, in his seminal *work "Is Public Expenditure Productive?"*. This was the first research analyzing the exact impact infrastructure has on a country's economic growth. The research showed that the ROI (return on investment) on infrastructure investment in the United States of America was between 50 and 60 percent (Trebilcock & Rosenstock, 2015, p. 336).

Since then, research on the impact which public infrastructure has on economic growth has been quite extensive. Straub in her research paper from 2008 analysed 64 studies focusing on the connection between the level of development of public infrastructure and economic growth. Her research shows that around two thirds of the analysed studies have found and proven a positive relationship between these two (Straub, 2008, pp. 18-19).

Today, one can state that academic and policy debates have clearly recognized a positive relationship between infrastructure development and economic growth (Hammami et al, 2006, p. 3). Investment in transportation, energy, water, telecommunication, etc. infrastructure improves the productivity of all production inputs and contributes to long-term growth (Demurger, 2001, pp. 103-104). Besides, infrastructure investment can help fight income inequality, for example, to delivering good quality public education and health services, as well as increasing asset value by investment into road and transport infrastructure. Also, widely accessible power, water and telecommunication service facilitate the integration of households and individuals into social life (Calderon & Serven, 2014, p. 2).

Furthermore, especially when we consider developing countries, where even basic infrastructure is scarce and often of low quality, investment in infrastructure can help to significantly raise living standards. For governments of developing countries, investment in public infrastructure is an urgent priority (Trebilcock & Rosenstock, 2015, p. 335). Ultimately, researchers have found proof that good infrastructure lowers fixed costs of conducting business, stimulating further economic growth, but also at the same time, further increasing the need for better infrastructure (Schwartz et al, 2008, p. 248).

If we consider all the positive impacts which infrastructure development and improvement has on a country's economic growth, then it is quite clear that government bodies around the world, no matter if we are talking about developed or developing economies, should be increasing public funding for infrastructure projects (Calderon & Serven, 2014, p. 2).

The necessity for improved infrastructure, together with the need for higher quality of public services represents one of the major challenges for all governments (Schwartz et al, 2008, p. 248). Infrastructure investment requires a huge amount of budgetary money to be dedicated towards it (Trebilcock & Rosenstock, 2015, p. 335). For example, the Maastricht Treaty is limiting the amount of public debt EU members and candidates can have as seen as a percentage of their GDP to 60 percent (PwC, 2005, p. 7). Developing countries also have to face lack of advanced technologies and institutional constraints, as some of the major

barriers towards bigger investment into infrastructure (Kumaraswamy & Zhang, 2001, p. 195).

The global infrastructure gap (the difference between the infrastructure the public actually needs and the one the government can provide for) is huge – some estimates state that $40 to $50 trillion will be necessary in order to close it by 2030 (Ernst & Young, 2015, p. 2). In Europe, this infrastructure gap is said to have a tremendously negative impact on economic growth, job creation, and social cohesion (PwC, 2005, p. 7).

Brinkerhoff and Brinkerhoff (2011, p. 2) state that in order to overcome problems connected to the lack of infrastructure, the public, private, and voluntary sectors need to work together. Evidence clearly shows that the government is unsuccessful in providing the necessary infrastructure by itself. On the other side, the private sector, having profit maximisation as their major goal, cannot be trusted with the provision of infrastructure and public goods and services on its own. This is why PPPs become a necessity (Hammami et al, 2006, p. 5). As mentioned, PPPs are becoming a more and more popular means of doing public procurement, but they are also becoming the major means of providing infrastructure to the public (Yuan, Wang, Skibniewski & Li, 2012, p. 252; The World Bank, 2016b, p. 11). This is representing a major change in the relationship between the government and the private sector (Ahadzi & Bowles, 2004, p. 967). An increased use of PPPs needs to be justified to the broader public. Such a change in the provision of public goods and services can affect how societies are organised. This may also mean that some of the governments' stakeholders might need to adapt their perceptions and beliefs of public services (Calabrese, 2008, pp. 2-3).

PPPs which are created with the aim of infrastructure development usually include private-sector contracting parties, in one way or another, in the design, construction, financing, and operation of the public infrastructure (Alfen et al, 2009, p. 11; Yuan et al, 2012, p. 252). PPPs can and have been used for a variety of infrastructure projects – bridges, airports, roads, waste disposal, railways, ICT, hospitals, prisons, schools, etc. It is actually hard to find any public good or service which cannot be delivered through a PPP (Zhang, 2005, p. 3).

There are various reasons why PPPs are becoming a popular solution for the growing need for improved infrastructure. Firstly, as public funding is not able to keep pace with the investments necessary for the improvement of infrastructure, PPPs became the best way for overcoming these issues and opening up new funding options for governments (Aziz, 2007; p. 918; Asian Development Bank, 2008, p. 3; van Herpen, 2002, p. 1; Petković et al, 2015, p. 1). Besides, PPPs increase project efficiency, and make better use of the resources available (Asian Development Bank, 2008, p. 3-4; Maskin & Tirole, 2008, p. 413). Also, PPPs should be able to deliver a better quality at a lower cost, thus increasing the value for money for the infrastructure project (Siemiatycki & Farooqi, 2012, p. 288). Finally, a huge factor contributing to the popularisation of PPPs worldwide is more trust in the private sector. The major rationale behind PPPs is, that while the government is responsible for the delivery of public infrastructure, it does not have to actually provide it. The provision can be done by a private-sector-party. PPPs assure that each contractual party is doing what it does best (van Herpen, 2002, pp. 3-4). In this way, public sector administrative costs are lowered, time is saved in the delivery of projects, and risk is effectively transferred among the partners (Yuan et al, 2012, p. 252).

Despite the fact that they are vital for closing the infrastructure gap, PPPs are very complex to procure and difficult to manage. The government needs adequate frameworks in place, as well as the necessary expertise to be able to assess which projects should be procured via PPPs and which not. Besides, contract management and transparency in all these processes are vital for the efficient procurement of PPPs (The World Bank, 2016b, p. 13).

1.3 Benefits and Risks of PPPs

As mentioned, PPPs are becoming a more and more popular means for doing public procurement. The reason for this lies in the very simple fact that both, the public and the private sector, have certain gains and benefits from these projects. The importance of PPPs is even more increased if we consider that OECD adopted a Recommendation under the title „OECD Principles for Private Sector Participation" in March 2007. The ultimate goal of this document is to act as a guide for governments around the world in the processes of designing and dealing with PPPs (Christiansen, 2008, p. 144).

The easiest way to look at PPPs is to see them as an opportunity for the government to better manage and use their monetary resources and bring more stability to the budget, while the private sector has new revenue and profit streams as their major motivators for participation (Aziz, 2007, p. 918; Hammami et al, 2006, p. 13; Parker & Hartley, 2003, p. 98).

However, an important prerequisite in order to be able to even consider PPPs as a means of public procurement is the existence of a certain level of trust between the contracting parties, ie. between the private and the public sector. The public sector needs a trusted, respected and reliable private partner with a good reputation in order to implement the project. On the other side, the government needs to create a regulatory and political environment which will strengthen the private sector's willingness to participate in such projects (Ernst & Young, 2015, p. 4; Pongsiri, 2002, p. 489). Thus, it is often mentioned that in the process of implementing PPPs one should follow the win-win principle in order to be able to enjoy all the benefits of such an arrangement (Kumaraswamy & Zhang, 2001, p. 198).

Despite the fact that PPPs might yield substantial benefits for all three sides involved (the public and private sector and the broader public), they also bear many different risks. These come mainly from the fact that PPPs will be implemented over a longer period of time (Akintoye & Kumaraswamy, 2016, p. 9; European Investment Bank, 2016, pp. 4-5; Iossa & Martimort, 2009, p. 3; van Herpen, 2002, p. 6). It is almost impossible to list all the possible risks involved in the planning and implementation of PPPs, as each of them is very unique and may carry its own types of risks (Alfen et al, 2009, p. 35; Kwak et al, 2009, p. 66).

This part of the chapter will focus on the exploration and description of major critical success factors, benefits and risks usually identified with the implementation of PPPs.

1.3.1 Critical Success Factors for PPPs

Aziz (2007, p. 920) emphasizes some of the major principles which need to be followed in order for a government to be able to successfully implement PPP projects: solid PPP institutional/legal framework, the existence and functioning of policy and implementation units, strictly defined finance objectives, fair risk allocation, cost-benefit or value-for-money assessment, process transparency and disclosure, and the standardisation of PPP procedures

and contracts. Pint and Hart (2000, p. 9) mention three key components for successful PPPs: designing contracts with outcomes in mind, defining Key Performance Indicators (hereinafter KPIs) and linking them to contract incentives, and benefits sharing between the public and the private sector. Chan, Lam, Chan, Cheung and Ke (2010, p. 485) identified 18 different critical success factors, mentioning, among others: a stable macroeconomic situation, the existence of multi-benefit objectives, government guarantees, technical feasibility of the project, and commitment and reliability of both sides. Pongsiri (2002, p. 490-491) additionally stresses the importance of a strong regulatory framework which represents a solid basis for the successful implementation of any PPP project, regardless of its scope and duration. Petković et al (2015, pp. 3-5) put significant importance on the interorganisational design of the PPP as a major success factor.

It is quite clear that both parties can have huge benefits from PPPs, if the minimal prerequisites are met. However, as infrastructure work is huge, demanding and very unpredictable, PPPs carry with themselves also huge risks. These are projects with very high costs, which might create major profit streams in the future, but it might take several years for the project to start generating its first revenues, and later profits (Hammami et al, 2006, p. 7). According to an analysis by the World Bank (2016a, p. 31), out of 4,901 projects between 1990 and 2014, 3.7 percent of them were cancelled. The cancelled projects amounted to around 6.1 percent of overall investment commitments. Mostly, projects in the water and transportation sectors are cancelled, while projects within the energy sector rarely get cancelled (World Bank, 2016a, pp. 32-33).

An analysis by Iossa and Martimort (2012, p. 444, pp. 463-464) showed that benefits from PPPs can be maximised when uncertainty connected to a product or service is limited and when the parties have previous experience in providing such a product and service and thus know the operational risks and how to allocate them. Government trust is a very important issue in developing countries, where governments out of personal interests could impose tax or regulatory policy changes which may lead to the government obtaining better terms post contract signing (Trebilcock & Rosenstock, 2015, p. 340). At the end, the entire success of a PPP can and will depend on the maturity of institutions and the stage of market economy development, as well as on legal frameworks, dispute resolution mechanisms, regulation of property rights, etc (Calabrese, 2008, pp. 1-2). On the other side, if the project fails, the government may face political pressure, as well as be blacklisted from potential foreign investors, not to mention further costs imposed by a another tendering and assessment procedure (Trebilcock & Rosenstock, 2015, p. 340)

1.3.2 Benefits of PPPs.

The major motivators for governments to even consider PPP arrangements as an alternative for public procurement are efficiency gains. It is estimated that potential savings from PPPs in the UK in the period of 1999-2008 have been between 17 and 25 percent (Alfen et al, 2009, p. 11). However, a common practice in Western countries is to conduct an efficiency analysis through a cost-benefit analysis (Yescombe, 2007, p. 53) or Public Sector Comparator (PSC). The PSC was initially developed in the UK (Siemiatycki & Farooqi, 2012, pp. 287-288) and looks at the net present value of all costs which will occur during the planned contract period in two scenarios: if the project was implemented through traditional procurement and if the project was implemented as a PPP (Alfen et al, 2009, p. 12).

McQuaid (2000, pp. 30-31), on the other hand, uses a basic mathematical assumption to explain how to evaluate a potential PPP: PPPs should be conducted only when the partners do not have zero or constant sum game. The cooperation between the private and public sectors should increase the total output by a given level of resources (McQuaid, 2000, p. 19).

Completely contrasting the western approach towards PPP assessment, Asian countries do not conduct such in-depth analyses, but rather always go by the notion that the private sector is more efficient than public one (Alfen et al, 2009, p. 12).
It is a generally accepted rule that PPPs are a more efficient way to deal with infrastructure development than the available alternatives. The reasoning is as follows: throughout history, PPPs have been able to produce the same output at a lower cost, or better outputs at the same costs (van Herpen, 2002, p. 3). The benefit which is considered to be the most important for the public sector is the fact that PPPs allow for the development of infrastructure without the occurrence of public debt (Alfen et al, 2009, p. 27; Christiansen, 2008, p. 143; Grimsey & Lewis; 2004, p. 57). This is especially important in developing countries, where governments are usually struggling with high public debt rates to assure the minimum available infrastructure (Schwartz et al, 2008, p. 106).

Very often in developing countries, infrastructure is provided by State-Owned Enterprises (SOEs), which are not able to cover their operating costs and are thus severely subsidised. On the other side, a lot of these inefficiencies come from the fact that the price charged by the SOEs is not formed according to market signals but rather is formed at a level affordable even for the poorest within the country. Furthermore, SOEs seem to be allocating funds inefficiently. One research in developing African economies showed that 5-12 percent of an average African GDP is spent on inefficiency costs. Another cost estimation showed that around $12 billion of SOE budget is spent on over employment, bill collection, system losses, and inefficient maintenance practices. All of these problems could gradually be solved through the employment of PPP models for public procurement (Trebilcock & Rosenstock, 2015, pp. 343-345).

Several authors, including Alfen et al (2009, p. 11), Grimsey and Lewis (2004, pp. 34-35), Kwak et al (2009, p. 55), van Herpen (2002, pp. 3-7) and Yescombe (2007, pp. 17-27) cite the following efficiency gains as the major benefits of PPPs: risk transfer and allocation, contract specifications based on outputs, long-term nature of the contracts, performance measurement and incentives, private sector management skills, innovation and competition.

Risk transfer and allocation increases the efficiency of PPPs compared to other procurement methods by following a simple notion: allocate the risk to that party which is best able to manage it, ie to the party which will occur the lowest costs connected to managing the different risks involved in the PPP (Alfen et al, 2009, pp. 34-35; van Herpen, 2002, p. 3).

When considering the delivery of infrastructure works through PPPs, the public sector will always define contract specifications in terms of output. This way, the private party of the contract will be focused on delivering the set output and finding different ways to do so (van Herpen, 2002, p. 4).

In traditional procurement models, the contract specifications were defined on inputs, making the bidders focus only on achieving a better price because that was the guarantee of being contracted for a certain project (van Herpen, 2002, p. 4). This was because separate contracts were drafted for the design, building, operation, and maintenance of different

infrastructure projects. Such arrangements regularly led to cost and time overruns during project implementation phases, because every contractor was focusing on delivering their part of the project according to specified inputs and the lowest cost, instead of based on the wished result (Trebilcock & Rosenstock, 2015, pp. 344-345).

As PPPs are long-term in their nature, the private party can focus on delivering innovative ways to achieve the wished outputs, rather than only on cost control. Also, the long-term involvement of the contracting private party creates an opportunity to develop a learning curve, leading to an even better cost and time assessments for future projects (van Herpen, 2002, p. 6). In terms of knowledge transfer from the private to the public sector, Brinkerhoff and Brinkerhoff (2011, p. 5) talk about instrumental and normative motivators. Instrumental motivators are related to the access to technical expertise which the public sector gains through PPPs, while the normative ones are related to access towards new managerial practices. Christiansen (2008, p. 143) considers this especially important in developing countries. The transfer and adoption of private-sector knowledge can then lead to the restructuring of existing public services in order to increase efficiency and productivity (Alfen et al, 2009, pp.14-15).

Although traditional procurement models promote competition, in the case of PPPs instead of having multiple competitors bidding for different parts of the contract, now multiple competitors are bidding for the entire contract. This means that the contracted private party can count on higher overall revenues, and has more freedom in the implementation of different phases of the projects. This, in return, can foster innovation, as the private sector party will be more motivated to look for solutions which will more efficiently deliver the wished outputs, and not only look for solutions based on cost reduction (Kwak et al, 2009, p. 55; van Herpen; 2002, pp. 5-6). Innovation development can be especially important if we talk about green and more ecological infrastructure solutions (Grimsey & Lewis, 2004, p. 1).

Besides being considered more cost efficient, the integration of the infrastructure project to one vertically integrated consortium will also deliver time-savings. This is due to the fact that the contracted private party wants to generate revenues from the PPP project as soon as possible, and thus has huge interest to deliver the project ahead of time, or at least on time (Grimsey & Lewis, 2004, p. 6; Kwak et al, 2009, pp.55-56; van Herpen, 2002, p. 6).

At the end, the inclusion of the private sector via PPPs can help foster local economic growth, especially if the project provided through a PPP will facilitate transfer of technology (Grimsey & Lewis, 2004, pp. 24-25; Kwak et al, 2009, p. 55).

While the private sector has the greatest benefits from huge revenue streams and a positive reputation if a PPP is finished successfully, it is important to emphasize that PPPs are not planned and implemented only because of the benefits for the contracting parties. The ultimate goal of every PPP is to achieve necessary benefits for the broader public. While it is highly debatable whether or not PPPs provide infrastructure at the lowest cost, it is for sure that citizens can benefit from a better service quality, improved technology, and more stable fares and rates over time (Brinkerhoff & Brinkerhoff, 2011, p. 5).

1.3.3 Risks of PPPs

The risks involved in PPPs usually vary because of different external factors such as a country's economic and social environment, but one must take into consideration that a particular risk may not be of the same importance for different projects (Kwak et al, 2009, p. 66). Although no two PPP projects are the same, their risks are very similar to those usually faced during the implementation of any other project (Grimsey & Lewis, 2002, p. 111).

One great controversy surrounding PPPs is connected to their ability to add value (Value-for-Money). It has been already discussed that PPPs go through a rigorous approval phase and that careful analyses are conducted to assess whether or not PPP is the right mode of public procurement for a certain project (such as the cost-benefit analysis or the PST). However, no matter how careful these calculations are done, the length and the scope of PPPs make it impossible to make any precise predictions. A huge discussion has been going on about whether or not PPPs really are the cheaper option in the end (Brinkerhoff & Brinkerhoff, 2011, p. 5; Kwak et al, 2009, p. 51). The reasons for doubt are multiple.

The first reason why PPPs have a huge risk of not providing the end value they were intended to provide is the fact that project financing is done through the private-party sector. This creates additional costs, as no private company, regardless of its credit ranking and reputation, will be able to borrow money on the financial market cheaper than a government (Hodge & Greve, 2005, pp. 57-59; Kwak et al, 2009, p. 55). Estimations are that the private sector usually has a 1-3 percent higher weighted cost of financing (both debt and equity) than the public sector, which may raise the overall end cost of the projects (PwC, 2005, p. 30).

Another very controversial aspect is that the PPP may not yield benefits to the end-users, in the sense that they may end up paying a higher price than if the project would have been tendered out through traditional public procurement arrangements (Kwak et al, 2009, p. 55). The major reason for such an outcome lies in the fact that the private sector needs to create viable revenue streams to be able to run the project. In order to do so, it may impose higher prices in the form of user fees and tolls to the end-users, in this way discriminating against those who do not have enough disposable income to be able to afford the usage of these public services (Brinkerhoff & Brinkerhoff, 2011, p. 8; Hodge & Greve, 2005, p. 162). This is an especially controversial issue in developing countries.

Also, the government may overprice risks and, as a consequence overcompensates the private sector for taking on such risks, leading to higher than necessary end costs (Hall, 2015, p. 31). Once again there is a need to emphasize that PPPs are implemented over a lengthy period and that both the public and private parties in such a situation usually have imperfect or asymmetric information. This prevents drafting an entirely contingent contract and may lead to opportunistic exploitations from the parties involved (Parker & Hartley, 2003, p. 99). On the other side, a too narrow contract may lead to micro-management from the public sector. This, on the other hand, may lead to the discouragement of innovation on the side of the private sector, hindering potential efficiency gains (Pint & Hart, 2000, p.14).

Another huge risk which comes with PPPs is connected to the inability of the public sector to attract reliable and reputable private companies for the bid. In some developing countries they may not exist a good enough regulatory and legal framework for the implementation of

PPPs, which means that PPPs may not provide for the desired level of competition or quality of bids in the tendering phase (European Investment Bank, 2016, p. 5). The stability of the regulatory and legal framework is one of the major factors included in country ratings of rating agencies worldwide, and countries with low ratings may find it difficult to find appropriate partners for the PPP projects (PwC, 2005, p. 59). If a government is not able to attract good enough partners for a PPP, this may result in efficiency losses or for a lower level of service quality (European Investment Bank, 2016; p. 5; PwC, 2005, pp. 59-60).

One must emphasize that for a lot of developing countries PPPs are a relatively new concepts, in which they do not have enough experience. This means that in the majority of cases, even if the governmental structures are willing to enter into PPPs, they might not have the necessary knowledge or skills to be able to implement such huge projects, making PPPs a risky business from the very start (European Investment Bank, 2016, p. 5; Kwak et al, 2009, p. 55, p. 75). An analysis by Iossa and Martimort (2012, p. 464) has shown that increased caution should be exerted when the public sector is trying to radically innovate a certain service or to provide something completely new to the broader public. The lack of knowledge and experience in such a situation highly increases the risk of the PPP project not delivering the intended benefits.

Besides the lack of knowledge, the procuring and implementation of PPPs may require restructuring in the government structures, as well as altering current legal frameworks and providing new ones (Verhoest et al, 2015, pp. 120-122). This all creates the necessity of change within the public sector, which may not be very well accepted by the people currently employed there (European Investment Bank, 2016, p. 4). The public sector is known for its relative sluggishness, and would rather like to delay such changes as much as possible (Pint & Hart, 2000, p. 13). This can create huge obstacles for the implementation of PPPs and poses another risk for its successful implementation.

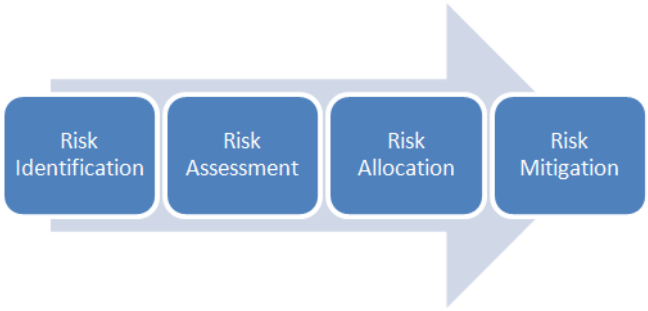
PPPs are a very complex public procurement option and they consist of several phases, which include planning/preparing, procuring, financing and managing contracts and implementation (European Investment Bank, 2016, p. 4). A larger number of authors (Ahadzi & Bowles, 2004, p. 967; European Investment Bank, 2016, p. 4; Iossa & Martimort, 2009, p. 20; PwC, 2005, p. 25; van Herpen, 2002, p. 6) have found substantial evidence that the preparation phase is the most lengthy and costly and the riskiest part of the contract. Only the tendering period can take, on average, 34 months to be completed (Iossa & Martimort, 2009, p. 20).

As mentioned, PPPs are not started before a thorough analysis has been done – and this takes time, as well as the very approval of a project (van Herpen, 2002, p. 6). To add further, the mere tendering process is also very complex, and may in itself create huge time delays, as well as cost overruns. These overruns mainly come from huge consultancy fees which pile up during this stage. Some reports show cost overruns of 600 percent (Ahadzi & Bowles, 2004, p. 967). Yescombe (2007, p. 26) reports that procurement costs can reach anywhere from 5 to 10 percent of overall capital costs of a PPP project. Looked at PPPs from this perspective, they can become a costly business even before an actual contract has been signed and any infrastructure work has even started.

Although the preparatory phase of PPPs can be very shaky, time and money consuming, it is this phase which can lay the necessary basis for the success or failure of a PPP (van Herpen, 2002, p. 6). With such a complex nature, risk management becomes a very important

part of any PPP, with a special emphasis on risk identification and assessment (Alfen et al, 2009, p. 35). Such a thorough approach towards risk is a necessity if we take into consideration the length, money and number of parties involved in the preparation and implementation of a typical PPP project. Such lengthy implementation time frames mean that different factors can change over time, so it is of huge importance not only to monitor risks, but to continuously communicate with different stakeholders in order to make sure that that they exposure to risk is also manageable (Akintoye & Kumaraswamy, 2016, p. 30).

Figure 5: Risk Management Process in PPPs



Source: Alfen et al. (2009).

The process of risk management begins with risk identification. As mentioned before, there are different types of risks involved in PPPs, and some PPP projects might even have risks specific only for them. Alfen et al (2009, pp. 35-36) propose to look at risks either as general (country-specific), ie. risks which are connected to the general environment in which the PPP is going to be implemented and which cannot be directly controlled, and project-specific risks, which can be controlled to a certain extent. The types of risks characteristic for PPPs can be classified differently, and Table 2 collates classifications proposed by different authors.

Table 2: PPP Risk Classifications According to Different Authors

Authors	**Classification**
Grimsey & Lewis (2002)	Technical • Construction • Operating • Revenue • Financial • Force Majeure • Regulatory/political • Environmental • Project default
Van Herpen (2002)	Political • Planning • Design • Construction • Maintenance • Operational • Legal • Regulatory • Financial • Usage
Corbacho & Schwartz (2008)	Construction • Financial • Demand • Availability • Political • Force Majeure • Residual Value
Hodge (2004)	Finance • Design/development • Construction • Operation • Ownership
Kwak et al (2009)	Political • Financial • Construction • Operation/maintenance • Market/revenue • Legal

Sources: van Herpen, G. (2002). Kwak, Y. H., Chih, Y., & Ibbs, W. (2009). Hodge, G. (2004). Grimsey, D., & Lewis, M. (2002). Corbacho, A., & Schwartz, G. (2008). G. Schwartz, A. Corbacho, & K. Funke. (2008).

While risk identification is oriented towards pinpointing all the different risks of a particular PPP, risk assessment is oriented towards determining the probability that a certain risk will occur. Risk assessment can be done using qualitative and quantitative methods. Deterministic and probabilistic analyses are most commonly used quantitative techniques, while risk registers and probability-impact tables are the most commonly used qualitative techniques (Alfen et al, 2009, pp. 37-38).

Risk-sharing and allocation represent the essence of PPPs, (Watson, 2003, p. 3; Hodge & Greve, 2005, p. 66-67; Tičar & Zajc, 2010, pp. 196-198) and are crucial for achieving the necessary efficiency levels (Corbacho & Schwartz, 2008, p. 85). An analysis of UK PPP projects found that risk transfer accounted for 60 percent of the total cost savings achieved by PPPs. In 35 percent of analysed PPPs, risk transfer was the sole generator of the entire value-for-money achieved by the PPP (Hodge, 2004, p. 39). The major characteristic of successful PPPs is the fact that both partners recognise the other party's capacity to manage certain risks (Corbacho & Schwartz, 2008, p. 122). The usual rule of thumb is to allocate a certain risk to the party which is best able to manage it (Aziz, 2007, p. 924). In practice, risk allocation is not that easy (Alfen et al, 2009, pp. 38-39) and will depend on the structure of the PPP project and the country-specific environment in which it will be implemented (Corbacho & Schwartz, 2008, p. 89). Usually it is considered that political and legal risks should be borne by the public sector, as the private sector has no control over it. On the other side, the majority of the design, construction, operation and maintenance risks should be borne by the private sector (Aziz, 2007, pp. 924-925; Corbacho & Schwartz, 2008, p. 89; Kwak et al, 2009, pp. 66-69). However, when it comes to demand risk, some authors like Kwak et al (2009, p. 70) consider that the best option is for this risk to be equally shared by the private and the public sector. On the other side, Aziz (2007, pp. 924-925) considers that it is impossible for some governments to manage part of this risk, mostly because governments (especially in the developing world) do not have the financial capacity to subsidise the private sector if the demand fails to meet the level necessary in order for the private sector to start to generating enough revenue streams. He argues that if the public sector did have this capacity, they wouldn't be pursuing PPPs as a means of procuring these services to the broader public. As a consequence of allocating the demand risk entirely to the private sector, a higher premium will be paid when obtaining financing from lenders to cover the demand risk (Aziz, 2007, pp. 924-925).

Risk management does not end with risk allocation. As mentioned before, one of the most important rules to follow when allocating risks is to allocate them to the party which can handle it most efficiently. This is why building a network of contractual relationships is often used as a risk mitigation technique. The private contracting party further allocates its risks to sub-contractors who have more experience and qualifications to manage them. Besides building a network of contractual relationships, a company will use different insurance policies in order to mitigate the risk (Alfen et al, 2009, p. 40).

1.4 Different Models of PPPs

Before the introduction and popularisation of PPPs, which happened majorly because of the great success these schemes had in the United Kingdom during the 80s, governments pursued public procurement through traditional tendering, or the so-called Design-Bid-Build procurement system. The growing need for infrastructure development left a lot of governments unable to find the necessary funding and financial resources to meet the

accelerating demand. PPPs were introduced as an alternative to the traditional model to release the already strained public budgets from further lending (Aziz, 2007, p. 918).

Until recently, it was pretty usual for the private sector to provide different kinds of public services. This was usually done by religious organisations or private charities which ran schools or hospitals. The 20th century actually transformed the role which the government had in the provision of public goods and services. In this environment PPPs can be seen as a way to facilitate the private involvement in the provision of public goods and services due to a huge demand for new infrastructure (Yescombe, 2007, p. 2).
Generally, there is a universal agreement that the public sector needs to have a role in providing basic infrastructure. Different types of infrastructure, especially healthcare and education cannot be left entirely to the private sector and its defining market forces. A complete dependence on the private sector could mean, for example, that the poor will not be able to finance their education. In cases where having a competitive market would mean inefficiencies, the public sector is necessary in order to regulate such a monopolist situation. Investment into infrastructure is so expensive, that if the public sector would not be procuring for those services, it would be quite questionable whether or not any private company would be providing it instead, and even more so, at which price point (Yescombe, 2007, p. 2).

While at the beginning PPPs were entirely finance-based (the public sector wanted to leverage private financing sources in order to release the pressure on public spending), today's PPPs take on a more comprehensive role. They become service-based, which means that besides financing sources, governments are trying to leverage management skills and knowledge from the private sector as well (Aziz, 2007, pp. 918-919). The core function of a PPP arranged in this new way is that the public sector is not only purchasing a certain asset, but rather an entire bundle or at least some of the services associated with operating and maintaining the asset which is the object of a PPP (Grimsey & Lewis; 2004, p. 129).

Table 3 shows all the different models which PPPs can take. The names of different types of PPPs often take the form of acronyms of the tasks being delegated to the private sector (Alfen et al, 2009, pp. 18-19).

Table 3: Descriptions of Different Types of PPP Arrangements

Type of PPP	Description
BOO (Build-Own-Operate)	An arrangement in which the private sector is in charge of the design, funding, construction, operation, and maintenance of infrastructure. There is no transfer of ownership to the public sector during the concession period, at the end of which the two sides may renegotiate the PPP contract or the government purchases the infrastructure.
BOOT (Build-Own-Operate-Transfer)	The private sector is in charge of the design, construction, operation, and maintenance of the infrastructure during the concession period. At the end of the concession period the ownership is transferred over to the government. The scope of the project, as well as legal frameworks determine whether the infrastructure is going to be transferred towards local or higher government levels. At the end of such a PPP arrangement, the government assumes ownership and operation rights. The rights are usually transferred without any charges.
BOT (Build-Operate-Transfer)	Under this type of PPP arrangement, the private sector partner is in charge of designing, financing, operating, and maintaining infrastructure during the set concession period. The public sector may or may not be in legal ownership of the built infrastructure.
Concession	Concessions are assumed to be the oldest form of PPPs. Concessions for land or already existing infrastructure are given for a fixed period, during which the private sector party takes on different roles in the design, construction, financing, renovating, operation, and maintenance of facilities. Ownership in these arrangements can be set differently: the public sector may have ownership rights from the very beginning, or the ownership can be transferred over to the public sector after the construction of the infrastructure is finished or when the concession period comes to an end.
DBF (Design-Build-Finance)	The private sector party is in charge of designing, financing, and building infrastructure, while the public sector overtakes the provision of associated services.
DBFO (Design-Build-Finance-Operate)	This is the most common type of PPP arrangements done under the PFI (Private Finance Initiative) in the UK and Australia during the 90s. Under this arrangement the private sector assumes responsibility for the design, financing, construction, and operation of infrastructure during the concession period, while the public sector assumes the ownership. The operation of infrastructure may include the provision of all or some services associated with the infrastructure.
DBO (Design-Build-Operate)	In this type of arrangement, the public sector is in charge of providing the necessary finance for a project, while the private sector designs, builds and operates the infrastructure. The operative side of the contract may refer to all or only some associated services.
Joint Venture	A specific legal form of PPPs where the private and public sector establish an SPV (Special Purpose Vehicle). An SPV is actually a separate legal entity, with equity stakes from both the public and private sector parties. This SPV takes on the responsibility of managing the entire PPP project and its risks.

(table continues)

(continued)

Type of PPP	Description
Leasing/ Lease contracts	The public sector leases a certain kind of infrastructure to the private sector party for a fixed period. All the operational risk is transferred over to the private sector party. As one can conclude, in this type of PPP arrangement, the private sector is only partially involved.
Management Contracts	This is another type of PPP where the involvement of the private party is only partial. In this arrangement the public sector contracts out the management of infrastructure to a private company. Investment decisions, together with the operational risks, stay with the public sector.

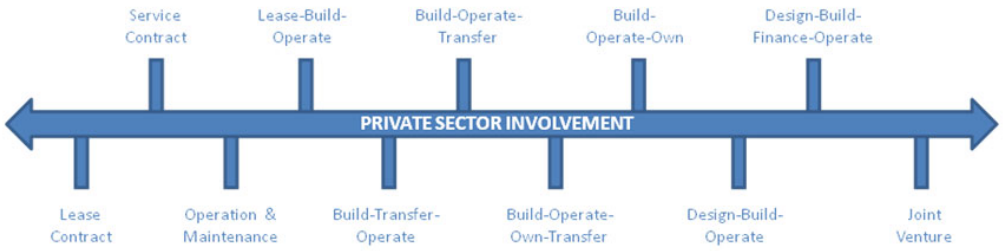
Sources : Akintoye, A. & Kumaraswamy, M. (2016). Alfen et al. (2009). Grimsey, D. & Lewis, M. (2004). Hodge, G. & Greve, C. (2005). Yescombe, E.R. (2007).

Besides the arrangements in Table 3, some authors also mention these PPP forms: BTO (Build-Transfer-Operate), BOOR (Build-Own-Operate-Remove), BLT (Build-Lease-Transfer), BLTM (Build-Lease-Transfer-Maintain), LROT (Lease-Renovate-Operate-Transfer), DCMF (Design-Construct-Manage-Finance), DBFOM (Design-Build-Finance-Operate-Manage), O&M (Operate and Maintain); OMM (Operate-Maintain-Manage), BROT (Build-Rehabilitate-Operate-Transfer), ROT (Rehabilitate-Operate-Transfer), D&C (Design and Construct), RLT (Rehabilitate-Lease-Transfer), policy-level partnerships, issue networks etc (Grimsey & Lewis, 2004, p. 54; Akintoye & Kumaraswamy, 2016, p. 3).

Each of these have their distinct characteristics and is used for different types of PPP projects. Also, different countries have preferences towards some of these PPP types. For example, the UK is known for its PFI (Private Finance Initiative) which usually utilises DBFO kinds of arrangements, while in France, historically, concession arrangements have been the most popular PPP types and are distinctly known as *Affermage* (Akintoye & Kumaraswamy, 2016, p. 8). Different legal and regulatory frameworks have seen completely new, hybrid types of PPPs appear all over the world (Wettenhall, 2003, p. 89). Kokkaew (in Akintoye, Beck & Kumaraswamy, 2016, p. 317) examines the emergence of so-called *Infrastructure Funds* in Thailand - a new form of a quasi-equity instrument which has been developed in order to close the financial gap for necessary infrastructure development.

Different authors use different bases for distinguishing the above-mentioned different PPP types. The most common way of classifying PPPs is according to the level of private-sector involvement in a particular project. Authors Kwak et al (2009, p. 54) and van Herpen (2002, p. 2) present a continuum of most commonly utilised PPP arrangement types, to show how private-sector involvement levels change with different PPP types.

Figure 6: Continuum of PPP Types



Source: Kwak et al (2009). van Herpen, G.W.E.B. (2002).

Grimsey and Lewis (2004, pp. 102-103), for example, distinguish PPPs based on different commercial scenarios, taking into consideration the demand and costs of service. Three groups of PPPs defined by these authors include:

- PPPs where the government sets the demand, but also pays fully or substantially for the cost of service;
- PPPs where the government has little influence on the demand, and where the cost of service is paid for by the users and the government; and
- PPPs where the government has absolutely no control over the demand, and where the costs of service are completely covered by user fees, tolls, tariffs and ticketing. In this, case the government often provides supporting infrastructure.

Projects in the transportation sector are usually paid for by user fees. The government gives substantial support for water and energy related projects, where the majority of service costs is recovered from direct (in the form of annuity payments) or indirect government support (in the form of payment and revenue guarantees) (World Bank, 2016a, p. 19).

Hodge and Greve (2005, p. 6) established a PPP typology based on organisational and financial relationships between PPP contracting parties. This typology is shown in Table 4.

Table 4: PPP Classification Based on Financial and Organisational Relationships of the Private and the Public Sector

Financial/ Organisational Relationship	**Tight Organisational Relationship**	**Loose Organisational Relationship**
Tight Financial Relationship	Joint Ventures	BOOT, BOT, BOO, DBFO
	Joint Stock Companies, Joint Development Companies	Sale-and-Leaseback, BLT, OM, LROT
Loose Financial Relationship	Policy Partnerships	Issue Networks

Source: Hodge, G. & Greve, C. (2005).

Akintoye and Kumaraswamy (2016, pp. 7-8) use the World Bank classification of PPPs. This classification identifies four groups of PPPs:

- Management and Lease Contracts;
- Concessions, including ROT, RLT, RRT and BROT PPP arrangements;
- Greenfield Projects, including BLO, BOT, BOOT and BOO PPP arrangements;
- Divestitures - the full or partial transfer of government equity to a private party.

Alfen et al. (2009, pp. 16-17) differentiate between horizontal and vertical PPPs. Horizontal partnerships refer to arrangements such as joint ventures, where the public and private sectors equally contribute to the implementation of a PPP project, through the establishment of a Special Purpose Vehicle (SPV). An SPV is a company formed through, usually, an equal capital investment of both, the private and the public party, made especially for the purpose of implementing or maintaining a PPP project (Alfen et al, 2009, p. 24). A vertical partnership refers to a PPP arrangement where the public sector contracts the private sector for some kind of infrastructure services (Alfen et al, 2009, p. 17).

One can conclude that governments have at their disposal different schemes through which they can implement PPPs. However, one cannot jump into PPP procurement unprepared, especially since the scope and the length of such projects span too far compared to a traditional small-scale projects. A major part of the preparation is setting the necessary legal and regulatory frameworks in order for a PPP to have the desired results in terms of efficiency and costs. There are many different models of how a government can approach infrastructure procurement. The key to making the right decision is a thorough analysis of the different options available, which should lead to the choice of the most suitable option taking into account set goals. As mentioned, each PPP project carries some very specific risks with itself, and it is more or less impossible to create a template for achieving successful implementation of PPP, but this rather depends on a great number of factors. It is up to the public sector to identify these factors and to steer them (if possible) into a direction which is going to facilitate the implementation of the project. Only this way - making sure that a thorough analysis has been performed before any decision is made - it is possible to reap all the PPP benefits listed.

2 PUBLIC PRIVATE PARTNERSHIPS IN BOSNIA AND HERZEGOVINA

In order to understand the legal and regulatory framework for public-private partnerships in Bosnia and Herzegovina (hereinafter B&H), first of all it is necessary to understand the state organisation of B&H. The administrative-territorial organisation of B&H has been set in accordance with the Dayton Peace Agreement dating back to 1995. Since then, there have been some attempts to start with administrative reforms, but these were never initiated (Ministry of Foreign Affairs Bosnia and Herzegovina, 2009).

Bosnia and Herzegovina is divided in three, more or less independent territorial units: Federation of Bosnia and Herzegovina (hereinafter FB&H), Republika Srpska (hereinafter RS) and Brčko District (hereinafter BD). FB&H is further divided into ten separated cantons. Each of these territorial units has its own legislative, executive and judicial bodies. In practice this means that each of the territories has its own laws, which very often are not harmonised with each other (Ministry of Foreign Affairs Bosnia and Herzegovina, 2009).

The complexity of the administrative-territorial organisation of B&H has a huge impact on different sectors, and PPPs are no exception. Building a comprehensive legal framework is of essence if B&H wishes to use PPP as a means of public procurement. The complexity of such projects is far too big for the current institutional capacities of B&H (Domljan, 2011, p. 70).

However, PPPs seem like a necessity for B&H, as the country is struggling to find funds for infrastructure development (Skramončin, 2017, p. 3). Compared to other countries in the region, B&H is lagging behind in terms of infrastructure development (Domljan, 2011, p. 71). Most of the infrastructure investment has been financed thanks to loans from the International Monetary Fund (hereinafter IMF) and the World Bank (Bosnia and Herzegovina Ministry of Finance and Treasury, 2018, p. 7), however public debt rates are rising, putting a pressure public spending (Skramončin, 2017, pp. 6-7).

The latest data from 2018 shows that the total public debt of Bosnia and Herzegovina is BAM 11.4 billion, out of which BAM 7.9 billion are external debt. Currently, public debt amounts to 35.62% of the GDP, which is not considered critical (Bosnia and Herzegovina Ministry of Finance and Treasury, 2018, p. 25), but the Ministerial Assembly (the highest governing body of B&H), together with the governments of FB&H and RS, have several times raised the levels of maximum indebtedness. These levels are regulated by three laws - Law on Borrowing, Debt and Guarantees of Bosnia and Herzegovina (Official Gazette of Bosnia and Herzegovina, 52/05, 103/09 and 19/16), Law on Borrowing, Debt and Guarantees of Federation of Bosnia and Herzegovina (Official Gazette of the Federation of Bosnia and Herzegovina, 86/07, 24/09 and 45/10) and Law on Borrowing, Debt and Guarantees of Republika Srpska (Official Gazette of Republika Srpska, 71/12) and its amendment from 2017 - Law on Changes of the Law on Borrowing, Debt and Guarantees of Republika Srpska (Official Gazette of Republika Srpska, 114/17).

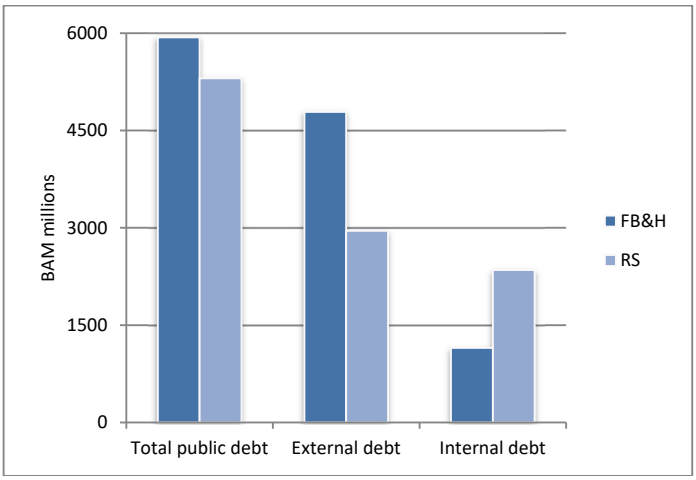
According to the mentioned legislation, B&H, at its state level, is allowed a compound indebtedness of 18 percent of the state revenues collected that year. This percentage is fixed for three years, after which it is going to be reviewed, however, the Ministerial Assembly holds the right to alter this percentage at any time during these three years if necessary, which happened several times in the past. FB&H is allowed the same percentage, with the amendment that this is the overall indebtedness together with the cantons, which cannot have any long-term debt in an amount higher than 10 percent of revenues collected in the previous fiscal year. The reason for such an arrangement is that taxes are collected at the state and entity level, while FB&H is then allocating its overall revenues to each of the cantons. RS's compound long-term debt cannot exceed 60 percent of its GDP.

BD is only allowed for internal debt, which is limited to 10 percent of its collected revenues and is regulated by the Law on Internal Debt of Brčko District (Official Gazette of Brčko District, 27/04 and its amendment Law on Changes of the Law on Internal of Brčko District (Official Gazette of Brčko District, 19/07).

It is clear that although governments remain with the freedom to increase the level of indebtedness, this is not a strategy which can be a viable long-term solution, otherwise B&H could be facing the Greek scenario or a state bankruptcy. Currently B&H has a credit rating of B – Stable Perspectives from S&P, and B3 – Prospective Stability by Moody's (Bosnia and Herzegovina Ministry of Finance and Treasury, 2018, p. 24). In order to prevent more pressure on public spending a higher commitment towards building the necessary legal and

regulatory framework for PPPs becomes of crucial importance. A more detailed overview of B&H's public debt structure is given in Figures 7, 8 and 9.

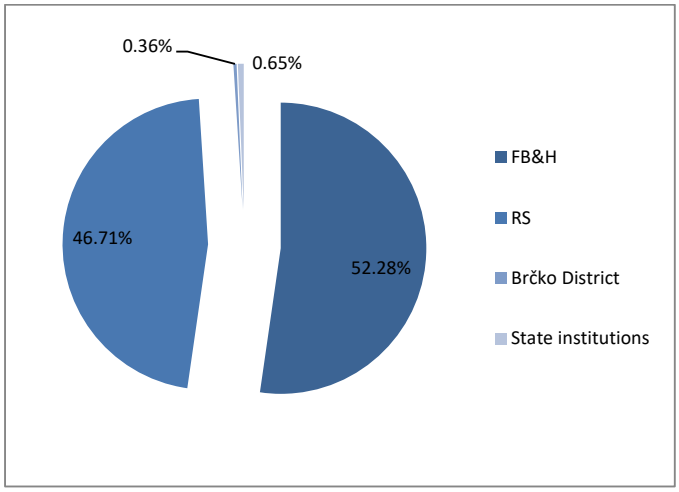
Figure 7: Value of Total, External and Internal Debt of FB&H and RS until 2017



Source: B&H Ministry of Finance and Treasury. (2018). Informacija o stanju javne zaduženosti BiH na dan 31.12.2017. godine. [Retrieved: June 23rd, 2018] from Ministarstvo Finansija i Trezora – Informacije i analize.

As is visible from Figures 7 and 8, FB&H and RS are the major contributors to the total public indebtedness of B&H. FB&H contributes almost BAM 6 billion, while RS contributes BAM 5.3 billion. BD and state institutions also contribute to public debt (BAM 40 million and BAM 74 million respectively). However, as the ministries on the state do not have a lot of executive powers and the territory of BD is not significant, their shares in the overall public debt are almost negligible.

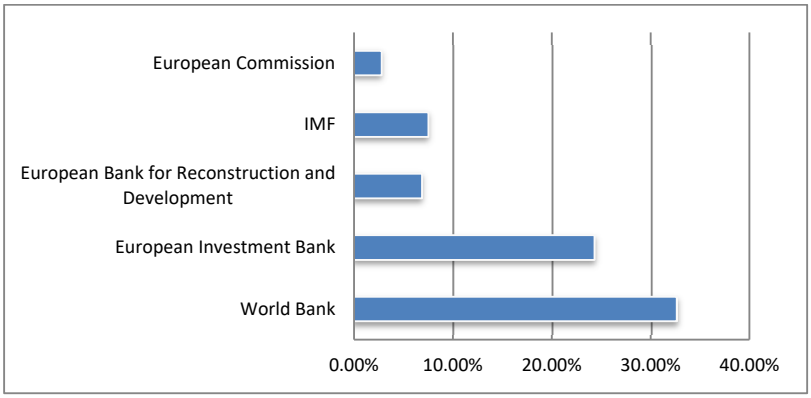
Figure 8: Share of Entity Debt in Overall Public Debt (%)



Source: B&H Ministry of Finance and Treasury. (2018). Informacija o stanju javne zaduženosti BiH na dan 31.12.2017. godine. [Retrieved: June 23rd, 2018] from Ministarstvo Finansija i Trezora – Informacije i analize.

Figure 9 gives an overview of the structure of B&H's external public debt. By far, loans from the World Bank represent the most important source of financing through debt in Bosnia and Herzegovina. These loans amount to almost BAM 1.5 billion (almost a third) of B&H's external public debt.

Figure 9: Creditors of B&H and Their Percentage Participation in the Overall Public Debt of B&H



Source: B&H Ministry of Finance and Treasury. (2018). Informacija o stanju javne zaduženosti BiH na dan 31.12.2017. godine. [Retrieved: June 23rd, 2018] from Ministarstvo Finansija i Trezora – Informacije i analize.

The following subchapter will analyse the current frameworks in place and elaborate the future of PPPs in B&H.

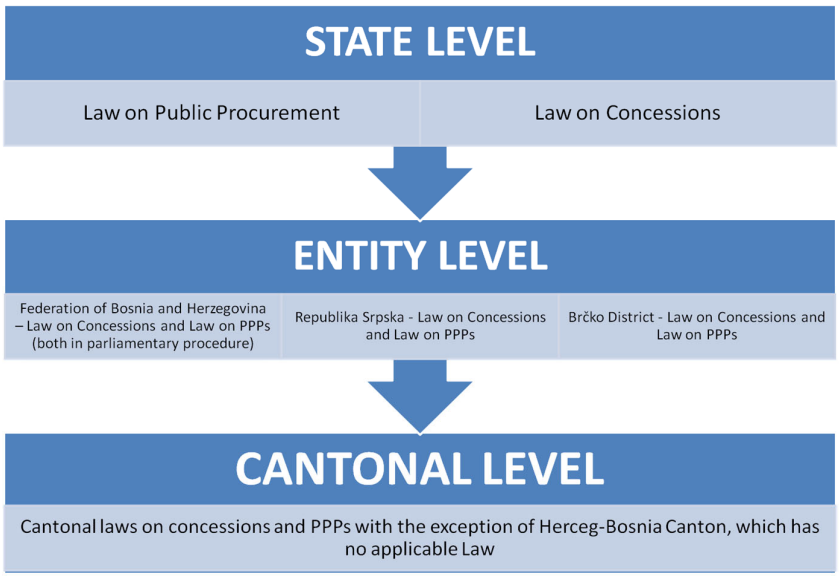
2.1. Legal and regulatory framework for PPPs in Bosnia and Herzegovina

The complexity of implementing PPPs in B&H become obvious once one takes a look at the applicable legal framework under which they function. As mentioned above, the administrative and territorial organisation of B&H created a complex framework, in which any activities connected to PPPs need to be regulated on three levels: the state level, the entity level, and, in the case of FB&H, the cantonal level (Kadrić, Masnić, Musić, Gluvić, Saletović-Alić, Huremović & Mulalić, 2014, p. 11).

Generally speaking, public procurement is regulated through the Law on Public Procurement of Bosnia and Herzegovina (Official Gazette of Bosnia and Herzegovina, 39/14), which sets out the basic framework for any kind of public procurement in Bosnia and Herzegovina, regulating the modalities and processes through which these are supposed to be conducted. However, this law does not provide any guidelines for PPPs, but, according to Article 10, Paragraph 3, delegates this duty to specific PPP laws.

Two major sets of laws are used as the regulatory and legal framework for PPPs in B&H (Kadrić, et al, 2014, p. 12; Skramončin, 2017, pp. 10-11):
- set of laws regulating concessions; and
- sets of laws regulating directly PPPs as a form of public procurement.

Figure 10: Overview of the Hierarchical Structure of B&H Legislation on PPPs



Source: Own work.

Figure 10 shows the hierarchical structure of laws relevant to PPPs in B&H. The problem with such a setting is that, at the time when the Law on Public Procurement was published, the legal and regulatory framework for PPPs did not exist for all of the government levels. Even if PPP activities were undertaken, they were regulated by the set of laws on concessions (Skramončin, 2017, p. 10).

The biggest issue came from FB&H, which had not developed such a legal framework. On the other side, some of the cantons in FB&H had applicable laws regulating both concessions and PPPs. As the law at the federal level is supposed to lay out the framework for the

cantonal level laws, the current situation created irregularities, as legally, no canton can apply a law without a previously established federal level framework. One canton, Canton 10 or Herzeg-Bosnia Canton still has no legal framework for PPPs. Until now, this Canton has not created any law proposal to go into parliamentary procedure. The Law is in the phase of drafting, with first public discussions on the law to be announced after the first draft has been finished. The proposals of the Law on Concessions and Law on PPPs at the level of the FB&H are still within the parliamentary procedure and have not come into force. A complete overview of the legal framework for PPPs in B&H is given in Appendix 1.

Although now most of the cantons have a legal framework for PPPs, some of them need to work more on harmonising existing laws with the one pending parliamentary approval on the federal level. Also, it is very indicative that there is no state law regulating PPPs, which suggests a lack of country strategic focus towards utilizing PPPs as a means of public procurement.

The legal framework presented in Appendix 1 mandates the following responsibilities to the following regulatory and administrative bodies:

- cantonal working committees are named by cantonal governments in order to assess and create PPP projects in line with the strategic development focus of the canton;
- federal working committees are formed by the federal government in order to assess and create PPP projects in line with the strategic development focus of FB&H;
- the final approval of the projects is done by cantonal and/or federal Concession Committees, depending on the scope and results of the project;
- in RS the law on PPPs is very vague, mostly calling upon the Law on Concessions of Republika Srpska to regulate any formalities;
- final approval of projects is done by the RS Concession Committee, mandated by the National Assembly of RS. Projects are approved according to Document on Strategic Concession Policies created and adopted by the National Assembly of RS;
- the legislation of BD sets out that the list of projects viable to be realised through PPPs is created by the Concession Committee, while the list is approved by the Assembly of BD. PPP projects that include the award of concession are regulated by the Law on Concessions of Brčko District and its Amendments.

Generally, cantons are the administrative units usually carrying out and implementing PPP projects. The Law on Concessions of Bosnia and Herzegovina is used as a last resort in case that a PPP project on the entity level is considered to be part of state development strategy. Further work needs to be done on unifying the concessions and PPP legal framework, as it has been done in the EU from 2014 going on, which has a unique legal framework on public procurement, including PPP and concession modalities (European Commission, 2018). If B&H strives to be part of the EU in the future substantial work will need to be done to achieve the necessary level of conformity with EU legislation.

2.2. Perspectives of PPPs in Bosnia and Herzegovina

During the last ten years, B&H realised only one PPP project, worth $662 million (The World Bank, 2017a). At the same time, in Europe alone, 781 PPP projects, worth more than €165.9 billion have been implemented, mostly in the education, transportation, and healthcare sectors (67.2 percent of projects realised) (European Investment Bank, 2017). B&H is also the worst performing country in the region when it comes to the number of implemented PPP projects. Table 6 gives a detailed overview of PPP activity in the region.

Table 5: Number and Value of Realised PPP Projects in the Region (2008-2018)

Country	Albania	Croatia	Montenegro	Serbia
Number of realised PPP projects	14	16	2	8
Value of realised PPP projects ($mil)	1,380	410	155	1,421

*Sources: Agency for Investments and Competitiveness. (2017). Projekti JPP-a. [Retrieved: July 12, 2018] from Javno-privatno partnerstvo.; The World Bank. (2017). Snapshots – Albania. [Retrieved: July 12, 2018]. from Private Participation in Infrastructure Database. *

As it was stressed several times before, a strong legal and regulatory framework represents a necessity for the successful implementation of PPPs. Private parties will not be engaging in PPP projects in countries where they perceive that the risk is excessively high, regardless of potential revenues. Besides a strong legal and regulatory framework, another very important issue which needs to be worked on in the future is increasing the transparency of concession and PPP project contract awards in order to prevent possible cases of high-level corruption which is plaguing institutions of B&H (Skramončin, 2017, p. 11). Tackling all of these issues, will see B&H gradually build more trust with the private sector resulting in a larger number of potential partners submitting their proposals in the bidding phase. A higher competition in the bidding phase will also mean that companies interested in the PPP participation will look to provide more efficient solutions for the goals set out in the PPP documentation, leading to a better quality service or lower prices for the end-users.
One of the major problems in B&H also lies in the fact that there is no body dedicated for the implementation of PPPs, but rather every canton has its own committee deciding on which projects to open up for tendering to the private sector. Also, it is evident that there is no state-level strategy towards the utilisation of PPPs for public procurement. A state-level strategy could help with strategically outlining the sectors which need the biggest investment and could help with the coordination of activities between FB&H, RS and BD, as well as with the coordination of activities between cantons, and cantons and FB&H.

A lot of work with regards to PPPs has been left under the jurisdiction of cantons, which increases the need to further harmonise the current legislation. As long as the legal framework in FB&H and its cantons is not aligned, this could potentially mean a lot of differences in the planning and implementation of PPPs. Some cantons might end up utilising the PPP model successfully and to its fullest, while some of the others may not have a focus on PPPs at all. The problem with a cantonal jurisdiction regarding PPPs is the fact that it could potentially close doors to inter-cantonal projects due to different legislative solutions between cantons.

As it was mentioned before, B&H's public debt is rising, so the country needs to start using PPPs as soon as possible in order to limit the increase of public debt. One step towards a better future of PPPs was the implementation of the project Public-Private Partnership - Cooperation for the Future realised through the financing of Public Administration Reform Coordinator's Office. The project was aimed at different government levels - FB&H, RS and BD - and consisted of a series of training sessions realised throughout B&H with the aim of educating public sector employees on the importance, modalities and benefits of PPPs. The project brought together consultants specialised in the field of PPPs to help with the necessary creation of legal frameworks in B&H (Javno-privatno partnerstvo, 2017). It

published several guides on how to correctly implement and plan PPPs and concluded an intensive media campaign to raise awareness about the importance of PPPs for B&H.

Bright examples of positive implementation of PPP legislation are the Zenica-Doboj and Middle-Bosnia Cantons which introduced its Law on PPPs in 2016 and 2018, respectively, and recently, for the first time, published a catalogue of available projects for PPPs financing for the period 2018-2020 (Middle-Bosnia Canton, 2018; Zenica-Doboj Canton, 2018). Both catalogues were a result of the USAID/SGIP project activities on strengthening governing institutions and processes in B&H.

With most of its infrastructure built during the Socialist era, B&H has an enormous infrastructure gap, which needs to be tackled as soon as possible in order to be able to sustain the desired economic growth goals. However, B&H has never conducted an analysis of current and necessary infrastructural developments and maintenance (Domljan, 2011, p. 71). Research by Domljan and Domljan (2014, p. 141) suggests that B&H has the largest deviation in infrastructure stock compared to other countries in Central and South East Europe. As suggested by the data in Table 6, B&H is already lagging behind the region in terms of PPP usage and implementation, while public spending needs to be controlled due to a rising share of debt in the country's balance sheet. Probably the best way to tackle this and provide essential infrastructure without further increasing debt numbers is to leverage the experience and knowledge of the private sector through a greater use of PPPs as a form of public procurement. However, in order to do this successfully, the future should be focused on further institutional strengthening, law harmonisation and the establishing of a national PPP centre of expertise, which is going to assist with the coordination and implementation of PPP projects in B&H. Establishing such a centre would help with creating a strategic focus on leveraging PPPs as a successful form of public procurement.

3 EXPLORING POSSIBILITIES FOR PPP INVESTMENTS IN ENERGY INFRASTRUCTURE IN BOSNIA AND HERZEGOVINA

The energy sector in B&H is quite a complex one. The major reason for this complexity lies in the fact that the jurisdiction of this sector has been delegated to the entities – FB&H, RS and BD (USAID, 2018), so there is little influence and regulation coming from the state level. Such an arrangement does not only complicate the regulatory and legal framework necessary for the correct functioning of this sector, but also slows down its development by fragmenting it into smaller pieces. The energy sector is one where a unified state perspective would be necessary in order to provide a strategic focus for its development. The fragmentation of the energy sector leads to each of the entities pushing their own agendas and priorities, without a consensus on common problems and development needs. The situation is very similar to the situation described in the previous chapter, where different regulations and laws on PPPs prevent inter-entity, as well as inter-cantonal cooperation on potential infrastructure projects. This problem becomes even more profound in the energy sector, as it is hard to imagine fragmenting the energy sector in smaller pieces, especially in the field of transportation.

The major focus of this chapter is, firstly, on explaining the institutional, legal and regulatory frameworks for the energy sector in B&H, and secondly, exploring the current state of the energy infrastructure in B&H. This exploration of B&H's energy infrastructure provides a good introduction into the assessment of investment possibilities and recommendations for the deployment of PPPs in the energy sector in B&H. The assessment and recommendations

will be complemented by the findings coming from the interviews conducted with representatives of the public, private and NGO sectors in B&H. This chapter also provides a short overview of several successful PPPs in the energy sector worldwide, which can serve as an example for how such projects ought to be implemented.

3.1. Energy infrastructure in Bosnia and Herzegovina

B&H's energy infrastructure has, for the most part, been built during the era of former Yugoslavia. Little or no work on modernising the infrastructure has been done since, resulting in huge energy losses throughout the system (Reform Assistance to Bosnia and Herzegovina, 2017, p. 54).

Table 7 shows a comparison against other countries in the region, as well as against the CEE and OECD averages in the Getting Electricity part of the Doing Business ranking. This part of the Doing Business comparison several aspects important for the procedure of obtaining an electricity meter and connection: the number of procedures and days necessary, the cost as a percentage of the income per capita, a compounded index show the reliability of the electricity supply, as well as how transparently the costs are broken down on the invoices. As it is visible from the data in Table 7, while the electricity supply in B&H is considered stable and reliable, the major problem is again the legal framework, the complexity of which results in 8 procedures, 125 days and cost of 357.7% of the per capita income to register a new supply point, much higher compared to B&H first neighbours Croatia and Serbia. (OECD, 2017). This complexity is further emphasized by the fact that all three countries have inherited almost the same infrastructure as well as procedures after the dissolution of Yugoslavia, yet Serbia and Croatia were able to make the procedure of registering and obtaining a new electricity supply much easier and cheaper than it is in B&H.

Table 6: OECD Doing Business Ranking for Selected Countries and Regions in the Category Getting Electricity

Country/ Indicator	Number of Procedures	Number of Days	Cost (% of income per capita)	Index of Reliability of Supply and Transparency of Tariff (0-8)	Overall Rank - Getting Electricity
B&H	8	125	357.7	6	122
Croatia	4	65	298.5	5	75
Serbia	5	125	223.5	5	96
CEE Average	5.4	113.7	344.3	5.3	-
OECD Average	4.7	79.1	63	7.4	-

Source: OECD. (2017). Doing Business – Getting Electricity. [Retrieved: July 26, 2018] from Doing Business – Country Profiles.

As one can conclude from the data in Table 7, B&H is by far the least competitive in this area, showing the major stepping stone - a very complex and fragmented institutional and regulatory framework, which is going to be covered in depth in the next section.

3.1.1. Institutional, Regulatory and Legal Framework of the Energy Sector in B&H

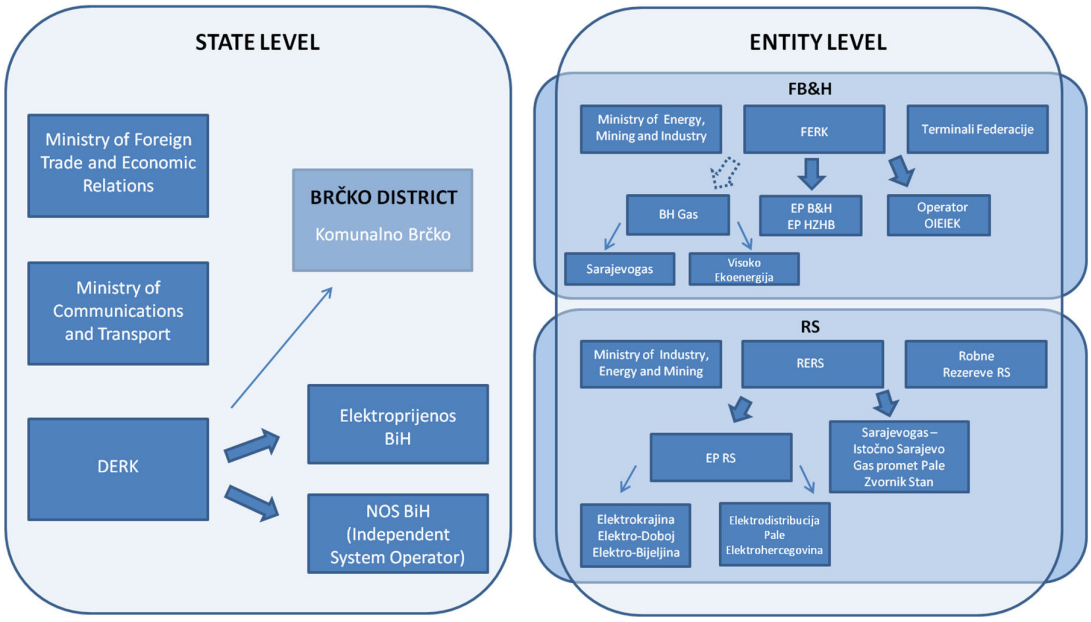
A lot of the development efforts of B&H in the energy sector come from the obligations it has taken on by the signing of the Energy Community Treaty (October 25th, 2005) ratified in 2006 (Official Gazette of Bosnia and Herzegovina, 9/06). This Treaty has been extended in 2013 for 10 more years, by a unanimous decision of the Ministerial Council of the Energy Community (Reform Assistance to Bosnia and Herzegovina, 2017, p. 37). The goal of the Energy Community is to establish a single regulatory framework for the energy markets within the Community, as well as to help foster the further development of the electricity and gas markets. Ultimately, the Community aims to work on increasing the competitiveness in these markets, as well as increasing energy efficiency in different sectors. Another major point is the support for the development of alternative gas supply networks which are essential in decreasing Europe's relatively high dependence on Russian gas (Energy Community, 2017a).

Besides being part of the Energy Community, B&H also takes part in the West Balkans 6 Initiative, which has been formed in 2014 through the Berlin Process and ratified in 2015 at the Vienna Summit. At this Summit, Albania, B&H, Kosovo, FYR Macedonia, Montenegro, and Serbia committed themselves to the implementation of soft measures as a prerequisite for the development of a regional energy market (Energy Community, 2017b). These measures include: the development of a spot market, cross-border system balancing, regional capacity allocation, and cross measures. In April 2016, a Memorandum of Understanding was signed by representatives of these six countries, laying out the steps necessary for the development of a regional energy market (Marković, 2016, p. 2). As a consequence, in June 2016, the European Commission, together with Energy Community Secretariat signed a contract allowing for the disposition of financial funds as a means of providing technical help for the establishment of a regional market (Energy Community, 2017b).

Unfortunately, B&H has still not benefited from any of these funds, as the process of introducing improved regulatory measures to the local electricity and gas markets has stalled since 2016. The consequences are not only limited to the withholding of funds necessary for further infrastructure development. B&H has been under sanctions of the Energy Community ever since 2016, not able to actively participate in any of the Summits - representatives of B&H have to pay for incurred travel costs, and have no right to vote anymore at the regional meetings. (Energy Community Secretariat, 2017, p. 7).

The sluggishness in the implementation of reforms necessary for the further development of B&H's energy sector comes as a consequence of its generally very complex institutional and regulatory frameworks, as explained in the section giving an overview of the PPP regulatory nad legal framework in B&H. This complexity is not only an issue in the energy sector, but is continuously present throughout other sectors. An overview of the energy sector in B&H is given in Figure 11.

Figure 11: B&H's Institutional and Regulatory Framework in the Energy Industry



Source: Own work.

At the state level, two ministries are in charge of different segments of the energy sector. The Ministry of Foreign Trade and Economic Relations of B&H is in charge of defining state energy policies, coordinating and harmonising activities and plans of entity government bodies, as well as in charge of honouring international energy obligation of Bosnia and Herzegovina, including environmental protection (Reform Assistance to Bosnia and Herzegovina, 2017, p. 5). It is also in charge of granting concessions for water resources at the borders of B&H, as well as granting concessional goods spreading over both entities in B&H. The Ministry has a dedicated Sector for Energy, with three Departments: Department for Primary Energy and Policy, Department for Secondary Energy and Projects and Department for Project Implementation. The Sector and its Departments are in charge of drafting laws and by-laws, conducting expert analyses, monitoring and implementation of international and domestic initiatives, coordination of energy resources usage, collection, monitoring and analysis of energy-related data, etc. (Ministry of Foreign Trade and Economic Relations, 2018).

On the other hand, the Ministry of Communications and Transport is in charge of international and inter-entity transport and infrastructure, as well as for the preparation of contracts, agreements and similar tools in the field of international and inter-entity communications and transport. All of the activities related to the energy sector are undertaken by the Transport Sector and its Air, Water and Pipeline Transport Department, as well as by the Transport Infrastructure, Project Preparation and Implementation Department and its Road, Railroad, Waterways, Ports and Pipelines Department and the Project Preparation and Implementation Unit. As generally speaking, the energy sector is under the jurisdiction of FB&H, RS and BD, a state body needs to regulate the transport of energy products across entity borders, as well as the transport through interstate pipelines

and distribution networks, mainly with Croatia and Serbia, in this case (Ministry of Transport and Communications, 2012).

As mentioned, the majority of responsibility around the regulation of the various aspects of the energy sector in B&H is regulated by the respective entities. In FB&H, the energy sector is the responsibility of the Ministry of Energy, Mining and Industry of FB&H, with its dedicated sectors for mining and energy. However, cantons also have their own mandates, which are mainly focused on developing legislation for regulating local production and heating plants (Ministry of Energy, Mining and Industry of FB&H, 2018). In RS, regulation of the energy sector is done by the Ministry of Industry, Energy and Mining of RS, and its dedicated sectors for power engineering, energy and mining and geology (Government of Republika Srpska, 2014). In BD, its Government is responsible for the regulation of the energy sector (Reform Assistance to Bosnia and Herzegovina, 2017, p. 5).

Institutionally, the most complex sector within the energy industry in B&H is the electricity sector. Again, as a rule, we have a division of jurisdiction between the state and entity levels. At the state level, the major regulatory body is the State Electricity Regulatory Commission (in Bosnian DERK - Državna regulatorna komisija za električnu energiju). Its jurisdiction covers the transmission of electricity, the operation of the transmission system and international electricity trade. Besides, it is also in charge of generation, distribution and supply of electricity in BD. It is regulating, approving and monitoring tariffs and tariff methodologies and is also the major body for customer protection. Furthermore, it issues licences for international trade of electricity[1] (State Electricity Regulatory Commission, 2018).

Under its direct supervision is the Independent System Operator (in Bosnian. NOSBIH - Nezavisni operator sistema u Bosni i Hercegovini), which is responsible for the management and operation of all high-voltage transmission facilities with a voltage of over 110kV. It is also responsible for the balancing of the energy market in B&H, as well as for the development and implementation of the Indicative Generation and Transmission System Development Plans (Independent System Operator in B&H, 2014).

The company Elektroprijenos BiH is responsible for managing electricity transmission, as well as for maintaining, constructing and upgrading the energy transmission network of B&H. It's ownership is split between FB&H (58.9%) and RS (41.1%). It's operating through four operating units, which are subsidiaries of Elektroprijenos: Operation Unit Banja Luka, with Area Units in Banja Luka and Bihać, Operation Unit Mostar, with Area Units in Mostar and Trebinje, Operational Unit Sarajevo, with Area Units in Sarajevo, Zenica and Višegrad, and Operational Unit Tuzla, with Area Units in Tuzla and Doboj (Elektroprijenos BH, 2015).

Most regulatory jurisdictions are placed on entity regulatory commissions which have a supervisory role for different aspects of the energy sector in its respective entities. The Regulatory Commission for Energy in Federation of Bosnia and Herzegovina (in Bosnian. FERK - Regulatorna komisija za energiju u Federaciji Bosne i Hercegovine) is overlooking the production, distribution, supply and traders of electricity, and issuing necessary permits for the production, distribution, supply and trade of electricity in FB&H. It is responsible for tariff management and setting for public electricity suppliers in FB&H, which are Elektroprivreda B&H (hereinafter EP B&H) and Elektroprivreda Hrvatske Zajednice Herceg Bosne (hereinafter EP HZHB). Also, it is responsible for regulating the oil and oil

[1] Currently 17 companies are licensed and three own a temporary license.

derivatives market, including its production, sales, transport and storage (Regulatory Commission for Energy in Federation of Bosnia and Herzegovina, 2018). Renewable generation is under the regulatory jurisdiction of a separate body – The Operator for Renewable Generation and Efficient Cogeneration (in Bosnian Operator za obnovljive izvore energije i efikasnu/učinkovitu kongeneraciju). It is under the direct jurisdiction of FERK and is in charge of the operative functioning of the subsidy system for renewable generation plants and the purchase system of electricity generated from renewable sources (Operator za obnovljive izvore energije i efikasnu/učinkovitu kogeneraciju, 2018).

The major problems in FB&H come from the fact that EP B&H and EP HZHB are vertically integrated systems which own most of the power plants and operate mines as well. Although the electricity supply market has been opened (deregulated) since 2015, the companies still remain the major electricity suppliers. Furthermore, another major institutional and regulatory problem comes from the fact that distribution is also done by these vertically integrated systems. EP B&H has five distribution companies in its organisational structure: DP Bihać, DP Mostar, DP Sarajevo, DP Tuzla and DP Zenica. EP HZHB has three distribution companies integrated in its structure: DP Jug, DP Centar and DP Sjever. As long as the energy market remains vertically integrated, it is very hard to achieve a complete deregulation of the market, and this represents one of the biggest challenges for the energy market in Bosnia and Herzegovina (Reform Assistance to Bosnia and Herzegovina, 2017, p. 43).

The energy market in RS is regulated by the Regulatory Commission for Electricity of Republika Srpska (in Bosnian RERS - Regulatorna komisija za energetiku Republike Srpske, hereinafter RERS). It has similar jurisdictions compared to the FERK, except for the fact that RERS also has jurisdiction over the gas sector in RS, where it is regulating the tariff system for end customers, but also determining the tariffs for the transport, distribution and storage of natural gas in RS (Regulatorna komisija za energetiku Republike Srpske, 2018).

When it comes to the electricity sector, the situation is also slightly different then in FB&H. There is only one public supplier in RS, which is Elektroprivreda Republike Srpske (hereinafter EP RS), which operates as a mixed holding company. This means that contrary to the situation in FB&H the generation and distribution companies within the Holding are independent legal entities (in which EP RS has an ownership stake), but not an integrated system like in FB&H, where the distribution companies have no independent legal status. There are five independent distribution system operators: Elektrokrajina, Elektro-Doboj, Elektro-Bijeljina, Elektrodistribucija Pale and Elektrohercegovina (Elektroprivreda RS, 2018). In RS, renewable generation is regulated through RERS, rather than through a separate regulatory body like in FB&H (Regulatorna komisija za energetiku Republike Srpske, 2018).

In BD, the operation of the distribution network, as well as electricity supply are both handled by the vertically integrated communal utility Komunalno Brčko (State Electricity Regulatory Commission, 2018).

The regulatory most lacking sector is the gas sector. There is no state regulator, and FB&H is has no regulatory body in this sector. FERK is supposed to take over the regulatory role, once the current laws have been revised. This regulatory deficiency is one of the reasons why B&H is under aforementioned sanctions imposed by the European Energy Community. B&H has three gas pipeline operators: BH Gas for FB&H and Sarajevogas - Istočno Sarajevo and Gas Promet Pale for RS. This is yet another anomaly, as usually a state has one,

eventually two pipeline operators. Besides, the gas sector is also plagued by the fact that it has vertically integrated systems. Besides being in charge of operating the transport system, BH Gas is also conducting the distribution of gas, as well as the supply to big industrial consumers in FB&H. Supply to end consumers in FB&H is undertaken by Sarajevogas and Visoko Ekoenergija. In RS Sarajevogas-Istočno Sarajevo, besides being one of the transport operators, also participates in the distribution and supply of gas in RS. Zvornik Stan is the second company involved in the distribution and supply of gas in RS. A part of the gas supply system is indirectly regulated on the cantonal level, which is the part related to district heating. District heating is available only in wider urban areas and is provided by cantonal district heating companies owned by respective cantonal governments in FB&H and local district heating companies owned by municipal governments in RS. These companies are purchasing gas from distribution companies and then supplying end customers (Reform Assistance to Bosnia and Herzegovina, 2017, pp. 122-124).

Finally, with regards to the oil industry in B&H, as there is not any oil production nor extraction, the only regulatory requirements are connected to the obligatory storage of oil and oil derivatives. Although B&H is required to hold oil reserves in accordance with the EU Directive 2009/119/EU within its storage facilities, this is not happening. This Directive requires a state to hold reserves which are equal to either its 90-days oil import quantities or an average 60-day consumption, with no more than 25 percent of the reserves coming from the state's own production operations (Reform Assistance to Bosnia and Herzegovina, 2017, p. 114). In FB&H, storage facilities are operated by the company Terminali Federacije, while in RS this is done by the company "Robne Rezerve", which is now in bankruptcy. Currently, no reserves are held by either of those companies, and Terminali Federacije is working exclusively on maintaining available storage facilities (Operator - Terminali Federacije, 2018). Such a regulatory arrangement is not in line with EU requirements, as they require a state body in charge of holding and managing oil reserves. The fight over whether or not this function should be kept on the entity level or forwarded towards the state level remains a pain point in inter-entity negotiations, which is also the major reason why no reserves have been created yet (Reform Assistance to Bosnia and Herzegovina, 2017, p. 115).

The complex institutional and regulatory framework of the energy sector is transferred over to the legal system. One of the major issues of such a complex legal framework is the fact that many of the laws in the two entities and BD are not harmonized with each other. The two entities have similar laws, but different in the most important points, creating problems on the state and international level. An example are the sanctions imposed to B&H over a disagreement between entities on the level of jurisdiction to be transferred to the state level. An overview of the entire energy sector legal framework in B&H is given in Appendix 2.

3.1.2. Current State of Energy Infrastructure in Bosnia and Herzegovina

Besides a complicated institutional, regulatory and legal framework posing challenges in the reforms of the energy sector, one can emphasize another common characteristic of the different sectors in the energy industry. Unfortunately, the war left B&H with a highly damaged infrastructure. Most of the efforts after the war were focused on the reconstruction of the damaged infrastructure, with little work done on its modernisation. (Domljan, 2011)

In the electricity sector, the structure of installed production facilities has not changed substantially after the war. There have been some additions of renewable – wind parks and solar panels mostly. The biggest project was the construction and deployment of the thermal

plant in Stanari, in RS in 2016, a project co-financed by the Dongfang Electric Corporation, a Chinese company.

FB&H has 109 registered generation facilities. Most of the generation plants are hydro power plants; a consequence of the abundant river system in B&H. FB&H has ten bigger and seven smaller hydro power plants, with two big thermal power plants in Tuzla and Kakanj (Reform Assistance to Bosnia and Herzegovina, 2017, p. 43). In RS there are two more thermal power plants (Gacko and Ugljevik), besides the above mentioned Stanari thermal plant. Furthermore, there are four bigger hydro power plants, and dozens of smaller ones (Government of Republika Srpska, 2012, p. 36). Most of these power plants would need to be decommissioned within the period 2020-2025, but systematic investment into the revitalisation of its machines and facilities could extend their life cycle for 10-15 more years. Currently, except for the Stanari plant, the level of emissions coming from thermal power plants in both entities remains critically high, with no work done on the implementation desulphurisation and dust reduction measures. Denitrification measures have been completed only in the Tuzla and Kakanj plant. Currently, there is only one CHP plant active in B&H, in the city of Maglaj, operated by the company Natron-Hayat (USAID, 2015, pp. 8-9),

Elektroprijenos, the national transmission company, is operating a total of 6372 km of transmission lines in four operative areas, with three voltage lines - 400 kV, 220kV and 110kV. The system is pretty solid, with enough capacity available to add further plants to the transmission system (Elektroprijenos BH, 2015). The focus is on its maintenance and upgrade, but also on the construction of new cross-border interconnector with B&H's neighbouring countries – Croatia, Serbia and Montenegro (Reform Assistance to Bosnia and Herzegovina, 2017, pp. 50-51).

However, distribution companies within both entities are facing big challenges, the most important one being huge network transmission losses. While the average in the EU is 6 percent, B&H has an average of 10 percent losses. The network needs heavy reconstruction work, as well as work on the modernisation of its transmission network. Besides, a digitalisation of the measuring and balancing system is also one of the most important challenges to be met. B&H has still not started rolling out AMRs and smart meters. Should this project be rolled out in the future, it would be one of the most important upgrades to the electricity systems in B&H (USAID, 2017, p. 46).

The importance and predominance of thermal power plants in B&H's energy systems comes from the simple fact that the country has always been rich in coal mines, which represents 90 percent of its energy potential. Most of these coal mines are part of the integrated systems of public electricity suppliers, who also own the majority of production. Such a system creates a highly monopolised market situation, which prevents proper deregulation of the industry, a problem which has been plaguing B&H for the last decade. Only 30 percent of coal mines are privately-owned, and most of them highly depend on demand coming from the thermal plants. Although some work has been done to modernise the mines and acquire new and more advanced technology, this still remains a huge problem and an area where little investment is done. This sector is also faced by over-employment, a consequence of inefficient management of the coal mines and weak restructuring efforts throughout the last two decades (USAID, 2016, p. 13).

The gas sector is very underdeveloped in B&H, not only with regards to the mentioned regulatory, but also infrastructure wise. B&H does not have or operate its own gas production, and is completely dependent on imports of Russian gas. There are only 248 km of gas pipelines built in B&H, the majority of which is in FB&H (189 km). While in FB&H the majority of gas consumption comes from households in urban areas, in RS it comes from the industrial sector. The gas pipeline system is very old and damages, and under high pressure during winter months when demand is the highest. For a faster development of the gas industry, heavy investments in the development of new gas pipelines are necessary. This will also allow for the diversification of gas supply, which in return will deliver a safer gas system, lowering the dependency on Russian gas (Reform Assistance to Bosnia and Herzegovina, 2017, pp. 123-124).

A huge percentage of the gas consumption in FB&H comes from households. The major reason for such huge gas demand from households is the fact the majority of gas consumption comes from district heating. As mentioned, it is limited to larger urban areas, and usually connected to the local thermal power plants (Reform Assistance to Bosnia and Herzegovina, 2017, pp. 135-136).

In the end, it's also important to put a focus on the oil and oil derivatives sector in B&H. As mentioned, B&H does not have its own oil exploration sites. However, preliminary analyses show that the Posavina and Eastern Herzegovina region are especially rich in oil. A major infrastructure challenge is the revitalisation and reconstruction of available oil storage facilities, which have been severely damaged during the war. Some of them have already been completely decommissioned, without any possibility for safely restarting their operations. Currently, Terminali Federacije is operating an overall storage capacity of 800,000 m^3. Generally speaking, FB&H has no oil industry at all, while in RS there are two companies operating in this within this particular sector - the Modriča and Brod Refineries. Both of them have been privatised and are now part of the Zarubezhneft Holding, which has invested heavily in the revitalisation of these two refineries after they stopped production in 2004.

Overall, it is estimated that under different implementation scenarios, the overall investment necessary for the revitalisation of the electricity and gas sector in B&H will cost around €6 billion until 2035. (Reform Assistance to Bosnia and Herzegovina, 2017, p. 71). This includes the building of new, renewable power plants, investments in the upgrading of the transmission network with the goal of decreasing transmission losses, investment in energy efficiency projects in the residential and public sector. Another estimated €42 million until 2024 are necessary for building the necessary infrastructure for oil transport and storage.

3.2. Examples of successful PPP projects in the energy sector worldwide

The International Energy Agency (hereinafter IEA), in a report from 2014 estimates that the developing world's energy demand is going to rapidly increase from 11,300 TWh to over 26,000 TWh in 2035. In order to meet these requirements, an investment amount of approximately $48 trillion is necessary (International Energy Agency, 2014, p. 11). Investing in infrastructure represents a huge challenge for developing economies, whose budgets would be under huge debt pressure, if all of the necessary infrastructure projects were to be realised through loans. Thus, the mobilisation of private sector investment is of crucial importance if the infrastructure gap is to be closed, but challenges regarding developing minimal regulatory and legal requirements, as well as risk mitigation policies as

a type of guarantee for the private sectors remain an open issue (International Energy Agency, 2014, p. 12).
With the public sector realising that energy infrastructure development cannot happen at a satisfactory pace without the involvement of the private sector, a global trend of the energy sector deregulation has been observed. Different types of PPPs have been largely recognised as one of the most efficient ways to involve the private sector. As a consequence, the energy sector in developing countries has been by far the largest beneficiary of private investment through PPPs to date (The World Bank, 2018a).

This part of the Chapter is dedicated to the presentation and analysis of PPPs in the energy sector which have been recognised as successful examples of how the private sector can get efficiently involved in the development of one country's energy sector.

3.2.1. Gujarat rooftop solar power project

Gujarat is one of the few states in India who systematically worked in the last decade to attract private capital to boost economic growth. Formerly known as a majorly agricultural state, today it bases its growth on industry development, being renowned for its brass production and home to industrial manufacturing sites of Tata and General Motors (International Finance Corporation, 2011, pp. 26-28).

However, one smart move has deemed the state the title of the solar power capital in India. On average, the state has around 300 sunny days per year, so the Government decided to use this fact and help tackle industrial pollution by focusing on renewable energy (The World Bank, 2014). With so many sunny days per year, the logical move was to focus on solar energy. However, solar power still remains a relatively expensive alternative, and the government had to seek private partners in order to realise the project (Vikram Solar, 2017).

The government has developed a Solar Power Policy in 2009, asking for help from the International Finance Corporation (IFC) in the implementation of the PPP project in 2010. So far, two successful PPP projects have been completed in cooperation with the IFC (The World Bank, 2014). The first project was realised in the capital city of Gandhinagar, providing more reliable electricity source alternative for more than 10,000 people. It is estimated that CO2 emissions have been reduced by 7,154 tons annually. The project has been finalised in 2014. It attracted more than $12 million in private financing, with 38 private companies submitting their interest in the bidding phase. Two companies – Azure Power and Sun Edison – have been chosen to carry out the project, which saw and overall 5MW of solar panels installed in two sub projects (each installing 2.5 MW). The winning companies have chosen by the criteria of the lowest prices. Each of the winning companies carried out one of the two sub-projects (International Finance Corporation, 2013a).

The project was realised in the form of a BOO (Build-Own-Operate) concession. Each of the winning companies has been provided with access to rooftops of 25 public buildings 250 households within the capital city. A green incentive was provided to each of the household owners – Rs 3 ($0.05) per kWh of solar energy produced (Gokhale Athawale, 2014). The private partners have been tasked with the production and installation of the solar panels, as well as with the identification of household rooftops ideal for the installation. The Government then negotiated the terms with the household owners. The energy produced is sold to the sole incumbent distributor licensee, Torrent Power, and includes a Feed-In-Tariff of Rs 11.21 ($0.18) per kWh sold (Gokhale Athawale, 2014).

On the basis of the success of this project, the Gujarat Government initiated a similar project in another city within the state – Vadodara in 2012. The 25-year BOO concession for the instalment of additional 5MW of solar panels has been granted to Madhav Solar in a competition of over 40 bidding companies. The focus in this project is mostly on privately-owned commercial, industrial and residential properties, rather than government-owned buildings. This project benefited more than 9,000 people who now have access to alternative electricity supplies. CO_2 emissions have been reduced by 6,000 tons annually. The project raised $8 million in private capital (International Finance Corporation, 2015). Home owners participating in the project and renting their rooftops, will receive a compensation of Rs 2 ($0.03) per kWh (The World Bank, 2014).

The success of these two projects has led the Government in Gujarat and the IFC to initiate the same concept in four more cities in Gujarat - Bhavnagar, Mehsana, Rajkot, and Surat. Cities in other Indian states have been interested in replicating the concept because of its huge benefits to the local economies (The World Bank, 2014). Today, the state of Gujarat is the fourth largest producer of solar power electricity in India, generating more than 1,100 MWh of solar power annually (Vikram Solar, 2017).

3.2.2. Liberia's Electricity Sector Revitalisation

Liberia has been known in the world's political scene as a country which has been plagued and destroyed by civil war which lasted for almost 14 years, from 1990. When it finally ended in 2003, the country was left with almost no infrastructure and no budget to finance its revitalisation. The electricity infrastructure was especially hit – completely destroyed, the country had no electricity supply available at all. After Mrs. Johnson-Sirleaf was elected president in 2006, one of her major programmes was the rebuilding of the electricity infrastructure (International Finance Corporation, 2013b).

The revitalisation programme first started with using donation funds to revitalise the country's public electricity provider Liberian Electricity Corporation (hereinafter LEC). The company was donated generator equipment of 2MW, starting off with connecting 450 customers and introducing street lighting. Through more donations, the capacities increased to 10MW, and a part of the distribution and transmission network has been expanded. However, progress was slow, mainly due to the fact that LEC lacked the institutional knowledge to run such a comprehensive and complex project (Kaplan, Kyle, Shugart, & Moody, 2012, p. 10).

The Government, not satisfied with the results and the pace of project implementation, decided to turn to the private sector in order to speed things up in 2007. One major difficulty to be overcome was building the regulatory and legal framework in order to be able to even deploy PPPs. Initially, the Liberian Government wanted to grant concessions to private parties, however, no private parties were interested in building and operating infrastructure in a country just out of war and with a high-risk profile (Kaplan et al, 2012, p. 11).

In cooperation with IFC, the Liberian Government decided to award a five-year performance-based management contract with a private sector partner in 2009. Three companies submitted their bids, and the management contract was eventually awarded to the Canadian Manitoba Hydro International (MHI) in 2010. The company had by far the most experienced management team, and also offered really aggressive performance goals in terms of new connections, loss reductions and collection improvements. The contract also

put a special emphasis on the training of LEC's staff, and increasing its operational efficiency (International Finance Corporation, 2013b).

The contract has foreseen the payment of a fixed fee of $8.2 million over a five-year period. This amount was provided by the donation partners, as well as a budget of $50 million for the development of the distribution system, with $10 million being an output-based aid for connecting new customers to the grid. Besides, the contract also involves an incredible high ($9 million) bonus for the five-year period if key performance indicators are successfully completed and surpassed (Kaplan et al, 2012, p. 11).

The PPP has faced several challenges during its implementation. The biggest challenge was the phase of recruiting and hiring. The country has been completely destroyed in the war, with a large number of people dying, being severely injured or fleeing the country. Besides, a huge amount of people did not even have the basic education, as education has stopped for several years during the war. An entire generation of children never learned how to read, write and do basic math. In order for LEC to be able to operate, it needed the human resources to do so. This was surpassed by providing numerous basic education and training session, with the help of USAID (USAID, 2013).

While the re-building and expansion of the distribution network are complex and costly, one of the biggest problems were network losses. A lot of people have had their homes illegally connected to the distribution network, creating huge unaccounted losses within the system, making the electricity supply unreliable. Field teams have been hired and trained to detect and dispose of such illegal connections (USAID, 2013).

Another challenge was the payment collection. Collections were really slow in the first few months of the operation, because psychologically people did not feel the obligation to pay for their electricity after they used this. This problem was overcome by deploying pre-paid meters (USAID, 2013).

The project can be seen as quite successful. The project has achieved 37,000 new connections, providing an electricity source for more than 165,000 citizens. Revenue collection has risen by 160 percent and losses on the network have been reduced by 21 percent. The successful output of the PPP also led to an amendment of the management contract. The contractor has eventually been also tasked with the rebuilding of the Mount Coffee plant, adding 78MW of capacity to the network system (International Finance Corporation, 2016).

3.2.3. Brazil's Belo Monte Transmission Line

Brazil has the third largest electricity system in the America's – right after the USA and Canada, making it the largest electricity system in Latin America. However, despite the mere size of it, the system has been facing some unique challenges. Most of the installed generation capacities in Brazil are hydro power plants, which are built in remote areas. Currently Brazil is the world's second largest hydropower producer after China with 87 GW of installed hydro power capacity. Consequently, Brazil faced the issue of building and maintaining a transmission system which bring the electricity from these remote areas to different parts of Brazil (Johnson, 2017).

The Belo Monte Transmission Line project is only the continuation of the Belo Monte Hydro Power Plant project implemented successfully before, also through a PPP finance model. The power plant added more 11,000 MW to Brazil's electricity system (The World Bank,

2017b). However, when the plant was built and operational in 2012, the next step was ensuring that the new capacity provided will be transmitted to different parts of Brazil.

The Belo Monte Transmission Line project has been finished in 2017, and became commercially operational in January 2018 (Tractebel - Engie, 2018). The transmission line is the first ultra-high voltage (±800 kV) transmission line in the America's and the fourth in the world. The line has more than 2,000 km in length, transmitting electricity from the distant north of Brazil to the Esterito sub-station in the south-east of the country across four regions (Tractebel - Engie, 2017), benefiting more than 22 million people who will get a more secure and stable energy supply (Tractebel - Engie, 2018).

The greenfield project worth $1.7 billion has been implemented through a BOT PPP project model, with private sector participation coming from the State Grid Corporation of China who now owns a 51 percent stake in the transmission line. Three companies/consortia submitted their bids, with the major selection criteria being the lowest costs of both construction and operation. The contract has been signed for a period of three years. The private-sector parties' revenues have been secured through the inclusion of a transmission fee contract. The construction work has been finished with several months' delay. The transmission line was supposed to be finished in June 2017, however, regulatory problems with the necessary permission have slowed down the work (The World Bank, 2017c).

Following this success, the project will continue in a second phase, again led by the Chinese state utility. This includes another extension of the ultra-high voltage network by more than 2,500 km. This project is set cost around $2.2 billion, and once finished will take over the title of the longest ultra-high transmission line. It is set to connect the Belo Monte Hydro Power Plant to the Rio de Janeiro region. The transmission line is set to be commercially operationally in 2020 (State Grid Corporation of China, 2015).

3.3. Assessing investment possibilities in the energy sector through PPPs

As mentioned, the infrastructure gap of B&H in the energy sector is huge, mainly due to the substantial damages the infrastructure has suffered during war. Huge investments would still be required for the upgrade, revitalisation and modernisation of the current energy infrastructure. The utilisation of PPPs could be of immense importance in overcoming this infrastructure gap. As elaborated, B&H's budget has been under immense pressure due to the huge institutional framework necessary for the operational functioning of B&H under the Dayton Peace Agreement. With budgetary funds being available in insufficient amounts, a strategic focus on creating PPPs for the energy industry could speed up the modernisation and revitalisation processes necessary for a more efficient functioning of the industry in the future. This part is going to focus on some of the segments of the energy industry where PPPs could prove to be the key for its sustainable development.

Strategically, little has been done to facilitate the process of modernisation. But, until now, the private sector did play an important part in this process. Unfortunately, this has primarily been done through privatisation of public companies which could not raise the necessary capital to sustain their operations. Examples of this include the selling of the Modriča and Brod Refineries to Russian investors (Nestro, 2018), as well as the sell-out of problematic coal mines within the portfolio held by the public electricity suppliers (Elektroprivreda BH, 2018).

PPP projects have been proven to be especially successful in the development of the generation sector, through the instruction of Independent Power Producers (IPP) into the generation mix. Building different types of power plants is very capital intensive, so for many developing countries, involvement of private-sector capital is the only way they can increase their generation capacity and diversify their generation mix (Delmon, 2009, pp. 28-30). The total amount of investment through PPP projects for the development and construction of IPPs in developing countries amounted to $350 billion, with 44 percent of this amount going into renewable generation projects (International Finance Corporation, 2014, p. 13). The most commonly used PPP model in this type of projects is the BOT model (The World Bank, 2018b).

More recently, there have been some projects in the energy sector of B&H aimed at the revitalisation of the supply generation mix. One such project is the Stanari thermal power plant in RS, which has been built through a PPP with a Chinese company, who was granted a concession by the Government of RS. This has been the biggest investment project so far in the energy sector. Several other smaller projects have been on the way - mostly micro hydro plants and solar and wind farms. Also, current plants are in need of modernisation, in order to expand their life cycle, but also to reduce emissions of greenhouse gases (Reform Assistance to Bosnia and Herzegovina, 2017, pp. 45-47). National Emission Reduction Plan has pointed out that the major work needs to be done in lowering emission levels of sulphur dioxide (SO_2), nitrogen oxides (NO_x), and dust from large combustion plants (hereinafter LCPs). B&H currently has 12 LCPs, with little or no work done on them in order to reduce their environmental impact (USAID, 2015, p. 7).

The National Renewable Action Plan of Bosnia and Herzegovina gives a vital role to renewable generation in the production mix of B&H. B&H already has an important base of renewable generation plants available, thanks to the network of hydro power plants built during the era of Yugoslavia. At the moment it is estimated that around 35 percent of the overall consumed electricity levels in B&H come from renewable sources. The Action Plan sets out a target of 40 percent consumption shares until 2020 (USAID, 2016, p. 13). The goal has been broken down into sector goals as outlined in Table 10:

Table 7: Sectoral Renewable Generation Share Targets in B&H

Sector	Target
Heating and Cooling	52.40%
Electricity	56.90%
Transport	10.00%

Source: USAID. (2016). National Renewable Energy Action Plan of Bosnia and Herzegovina. Sarajevo: USAID.

Incentivising the construction of solar, micro hydro, and wind power plants is not only beneficial from the aspect of diversifying the production, but such projects can also boost local economies and employment, contributing significantly to overall economic growth in the country (USAID, 2016, pp. 30-31). Especially important are micro hydro power plants, because of the simple fact that B&H has a rich experience and the necessary expertise in building them. Biomass is not utilised at all, and could represent an important investment

opportunity, especially in the residential heating sector (Reform Assistance to Bosnia and Herzegovina, 2017, p. 136).

The development of transmission and distribution sectors in developing countries has its own challenges. While these types of projects do have a long life span, they are very expensive, and require close coordination with national energy companies, who often do not have the operational capacity to implement these projects (The World Bank, 2018c). Furthermore, if the country is working to build a renewable energy generation mix, building a transmission network to support that generation means that the infrastructure will need to be built in often very remote areas (The World Bank, 2018d). Although concessions are the most suitable model of PPP arrangement in these kind of projects, often the risk factor in developing countries (like in the case of Liberia which has been analysed in Section 3.2.2) requires the utilisation of performance-based management contracts to give a certain level of security to the private-sector party (The World Bank, 2018c).

The transmission system in B&H is pretty solid and stable and has excess capacity available. However, huge losses which occur in the distribution system, the issue of high voltage appearing within the network, roll-out of AMRs, all represent multimillion projects with huge capital investment needs, for which the state would need to partner with private companies for an efficient and fast implementation (Reform Assistance to Bosnia and Herzegovina, 2017, pp. 52-54).

IEA estimates that worldwide, almost $9 billion of investment in gas supply (LNG, transmission and distribution and upstream) will be necessary to meet the demand (International Energy Agency, 2014, p. 13). But it was only recently that developing countries discovered that potential investment in the sector could be beneficial for the development of their economies. However, the investment into the development of the necessary infrastructure and markets in this sector remains a huge obstacle. As the exploration and extraction activities are immensely expensive to conduct, this is usually the segment where the private sector gets involved. The most utilised form of partnership is Production Sharing Contract (PSC), where the operational risk is transferred over to the private-sector party, while the country claims a portion of sales revenue. Although less costly than exploration and extraction activities, distribution and transmission also often have to be tackled through PPPs – either concessions or management contracts (The World Bank, 2004, pp. 3-5).

The hugely underdeveloped gas sector of B&H remains a pain point in its energy sector development. With such a modest pipeline system as B&H's, the most important focus should be on its upgrade and further development, to make gas available in more local communities outside of major urban areas. Besides, an upgrade of the current system also helps with diversifying supply, which now comes exclusively from Russia (Reform Assistance to Bosnia and Herzegovina, 2017, p. 122). Thanks to the lack of initiative within the state government regarding further regulating the gas sector, B&H has not been part of the biggest gas project in South East Europe, which is the building of the Ionian Adriatic Pipeline. The Pipeline is a European project aimed at lowering Europe's dependency on Russian gas, by providing an alternative supply route from Azerbaijan. Original plan involved B&H, but there dropped for reasons mentioned above. The pipeline is going to run through Albania, Montenegro and Croatia, where it is going to end. Bosnia however, although not being part of this pipeline, still has the opportunity to profit from this project, by building pipeline infrastructure interconnecting with the one in Croatia (Energy

Community, 2017c). Besides, plans for a huge floating LNG terminal on the island of Krk in Croatia, could also help with B&H supply diversification. Although it could be possible to use already existing railroad and road infrastructure, B&H could focus on investing more in the extension of its current pipeline infrastructure (Energy Community, 2018).

Adding to the list of potential segments in which PPPs could be utilised are projects of energy efficiency in the household, industrial, commercial and transport segments. The National Energy Efficiency Action Plan points out that the implementation of building energy management systems (BEMS) is of crucial importance not only for newly built residential and commercial housing, but also for old housing. Besides, older residential buildings have a characteristically poor insulation level, so further work on their warming could be done in order to decrease heat losses. In terms of transport, important gains in the sector can be achieved through the renewal of the public transportation fleet (USAID, 2017, p. 86).

In the end, one sector with huge potential for deployment of PPPs is the oil an oil derivatives sector. It has been mentioned that although B&H currently does not have any open exploration sites, initial research showed that are potentially very rich oil reserves in the Posavina and West Herzegovina regions (Reform Assistance to Bosnia and Herzegovina, 2017, p. 110). In order to be able to profit from those, a continuous stream of exploration and extraction activities needs to be pursued. Such activities are very unlikely to be pursued by the state alone, as such activities require huge capital investment, and are realised over a longer period of time. This longer-than-usual investment cycle represents a huge pressure on B&H's budget, so these exploration projects represent the ideal candidates for partnering up private sector companies (The World Bank, 2004, p. 4). This will also mean that the currently very damaged and non-usable transport and storage infrastructure needs to be upgraded in revitalised, which also represents a huge investment and potential for the deployment of PPP solutions.

In the past ten years, B&H has continuously had a budgetary deficit, although this deficit, according to the latest data from 2018 available from the Central Bank of Bosnia and Herzegovina (hereinafter CBB&H) has decreased by 7% year-on-year compared to 2017 (Central Bank of Bosnia and Herzegovina, 2019). Still, public debt is how B&H covers its budgetary deficit (Dedić, 2013).

This budgetary deficit has mostly been financed through loans with the IMF, World Bank, European Bank for Reconstruction and Development (hereinafter EBRD) and other multilateral financial institutions (Dedić, 2013, pp. 549-550). The necessary investments in the energy sector in the next ten years, according to the afore-mentioned projections, require a financing of several billion Euros. These amounts are very unlikely to be provided by B&H's governmental institutions, but rather through loans, grants and financial aid from different, multilateral, bilateral and unilateral institutions. Below is an overview of potential creditors for future energy-related PPP projects in B&H.

The European Investment Bank (hereinafter EIB) could be one of the finance partners in future energy projects. They offer lending, blending and technical assistance to countries in the Western Balkan region, however, energy project currently amount to 5% of their entire portfolio. In the EU, EIB's investment in the energy sector comprises 15% of their investment portfolio and 25% outside the EU. Their focus is on green energy and energy efficiency projects, and their analysis outlines that the lack of projects in this area is the major reason why investment in this sector has not been as high as in other regions within

their portfolio. One of the major projects which they are financing in the region is the Trans-Adriatic Gas Pipeline (EIB, 2019, p. 8).

The Western Balkans Investment Framework (hereinafter WBIF) is another organization which has and will continue investment in different energy projects. The Framework has been established by the European Commission, and has been backed by capital from the European Bank for Reconstruction and Development (hereinafter EBRD) and investments from twenty other countries, which include 18 EU member states[2], Norway and Canada. So far, currently planned projects in the energy sector are expected to add 120 MW of electricity generation capacity from renewable sources. This includes the Poklečani Wind Farm and Babino Selo Hydro Power Plan (in preparatory phase), as well as the Vlašić – Travnik 50MV Wind Farm, which is currently being implemented. They also fund the installation of AMRs (smart meters) across Bosnia and Herzegovina, a project which is also currently in the beginning stages of its implementation. Besides, they will support the B&H-Croatia Gas Interconnector as part of the Trans-Adriatic Gas Pipeline Project, the reconstruction of power interconnectors between Croatia and B&H, and the building of a 500kV Power Interconnector between B&H, Serbia and Montenegro, three projects which are in the preparatory phase (WBIF, 2019).

Together with the EBRD and the support of the Energy Community, they have set up The Regional Energy Efficiency Programme for the Western Balkans (hereinafter REEP), which offers support for projects of street lightning and energy efficiency in public buildings (WBIF, 2017).

The Interreg – IPA CBC fund was established by the European Union in order to finance and support cross-border projects and has especially focused on regional cooperation projects in Croatia, B&H and Montenegro and is also sponsoring projects aimed at increasing energy efficiency (IPA, 2017). The INTERA Technology Park from Mostar (B&H) has used this funding to develop, together with colleagues from Split and Zagreb (Croatia) a hybrid micro-generation system with integrated vertical wind generators and solar panels. However, support from the public sector is necessary for the installation of these systems on buildings (Bugarin, Kostić, Ćurković & Rogulj, 2019).

The World Bank has also committed itself to offering technical assistance and advisory services for energy efficiency and renewable generation projects (The World Bank Group, 2015). Thus, it could also act as a potential creditor for energy-related projects in B&H.

The Green for Growth Fund is a multilateral PPP which cooperates with financial institutions in countries to support issuing microloans for small energy efficiency projects to individuals and SMEs. They have placed a total of over €20 million in investment through microfinance and banking institutions in B&H (Sunrise and Mikrofin microcredit institutions; and UniCredit and NLB banks) (Green for Growth Fund, 2017). While the credit lines in this particular case have been managed by these financial institutions, similar projects could be realised with a more profound role and backing of the public sector in both the RS and FB&H.

In an analysis of PPPs in B&H, Skramočin (2017) mentions that corruption represents one of the biggest stepping stones of public procurement in any form in B&H, and that this

[2] one of the donors is the United Kingdom, which still remains within the EU at the moment this master thesis has been submitted

should be one particular area which needs to be tackled in order to increase the interest of the private sector in participating in PPPs in Bosnia and Herzegovina.

Although the backing of stable financial institutions such as the World Bank, EIB and EBRD can facilitate the process of finding reliable private-sector partners for potential PPPs, B&H needs to act more strategically in order to find the best possible private partners for its PPPs. This includes adding more transparency within public procurement processes, so that corruption is not perceived as a hurdle by potential private-sector.

But in a broader sense, B&H needs to act strategically in order to find the necessary private partners, which means very targeted marketing efforts towards building relationships with these potential investors. The Foreign Investment Promotion Agency of Bosnia and Herzegovina could be a good starting point, with its already established contact points. Non-governmental agencies and project like USAID's Restart (aimed at attracting investment of bh. diaspora) and more specifically for the energy sector, as well as USAID's Energy Investment Activity (EIA) could also help facilitate the process of finding partners and add to the transparency of the process. Besides, the Foreign Investors Council would also be a good organisation to collaborate with.

There are several companies which could potentially pose as private partners for energy-related PPP projects in B&H. For example, the EFT group has been on the forefront of managing the Stanari Thermal Power plant project and cooperated together with the Dongfang Electric Corporation to build the new electricity generation project. With their know-how and experience, they could be a valuable partner for building greenfield electricity generation projects. Other potential private investors include Eco Energy Ltd (Gračanica, B&H) and Comsar Energy Group who have experience in building big and micro hydro power plants on several locations in B&H. Additionally, Adria has been present in South-East Europe for several years now and could be a potential partner for solar and wind farm projects. A good potential private partner for any PPPs in the electricity transmission and distribution sector could be Elnos Group. Although they haven't so far participated in any projects in B&H, nor they have subsidiaries in B&H, companies like Siemens and Schneider Electric are on the forefront of innovation in the electricity sector and could be valuable partners especially in PPP projects related to sustainability and energy efficiency.

Gazprom and HOLDINA are both companies with internationally backed capital, which have been operating in B&H for more than a decade. Both of them could be potential partners for PPPs related to the development and building of gas infrastructure in B&H, one of the segments in the energy sector of B&H which is the least developed at the moment.

Furthermore, NSoft from Mostar (B&H) has already participated in an Interreg – IPA project and has developed prototypes for hybrid small solar/wind power panels which can be installed on buildings and private houses. This company could be a potential technology partner with which B&H could provide innovative energy solutions in parts of B&H which have less developed energy infrastructure available.

Energy projects related to generation, transmission and distribution are projects which need a bigger role of the public sector in order to be implemented. These projects are capital-intensive, as well as long-term, and thus the role of the public sector in B&H is not only in finding the necessary financial means to start such projects, but also create a reliable and

stable political and economic environment for potential investors. As mentioned, a lot of current generation facilities in B&H will have to be decommissioned, so a and action plan needs to be set in place to assess the possible way of replacing outdated facilities. Here, of course, an important factor is placed on renewable energy generation, but also on micro-generation facilities, including wind, solar and water.

Energy efficiency projects are also key for the future of reliable energy supply in B&H, however, the role of the public sector here can be more the role of a facilitator. The Green for Growth Fund has already been mentioned, and the public sector in B&H should focus more on finding similar finance schemes, promoting them to financial institutions in B&H, as well as to the public, in order to increase the number of energy efficiency projects within the SME, as well as within the residential sector in B&H.

3.4. Research findings on barriers and drivers of the PPPs implementation in the development of energy infrastructure in Bosnia and Herzegovina

Besides a few papers who researched possibilities of PPPs in B&H (Kadrić et al, 2014; Skramočin, 2017), secondary research has not resulted in finding any significant scientific papers researching this topic. This is particularly true for PPPs in the energy sector in B&H which doesn't seem to have been researched at all.

In order to be able to understand how PPPs could be leveraged within the energy sector in B&H, better and more profound findings were necessary to understand how PPPs would fit in B&H, and then to assess whether they would be a good fit for financing energy projects in B&H. Thus, a two-part research was conducted, with the first part aimed at gathering more insights into PPPs in B&H and the second part being more focused on gathering insights into how to leverage PPPs in the energy sector in B&H.

The research was done using two online questionnaires (Appendix 4 and 5) one of which was sent to 30 experts for PPPs in B&H, where 23 responded and the other one to 31 experts in the energy sector in B&H where 16 responded. The sample of experts was a combination of employees of the private, public and NGO sectors, all of which have been either involved in PPPs or PPP legislation before or who are actively engaged or work in the energy sector in B&H. A more detailed overview of who was chosen to participate in the survey, as well as which of the experts responded to the survey is given in Appendices 6 and 7. The questionnaire was bilingual, distributed to the potential respondents in both the English and Bosnian language versions via email.

As there was no similar research done in B&H, secondary research was focused on finding similar research in the region. Part of the questionnaire was adopted from Benković, Milanović, & Milosavljević (2017), a research article which created a framework for the evaluation of potential PPPs in Serbia. The questionnaire was further enhanced by including some of the risk factors mentioned in Hwang, Zhao, & Gay (2013), as well as some of the critical success factors mentioned in Zhang (2005).

The first part of the research which was focused solely on PPPs in B&H has shown that almost all respondents believe that PPPs can be used as a means to increase investment in B&H (see Figure 1, Appendix 8), mainly because they believe that PPPs can help overcome the financial constraints of the public sector in B&H. The majority of respondents think that PPPs could help foster economic growth, provide better infrastructure, open doors for

innovations and help increase the standard of living for people in B&H. (see Table 5, Appendix 8) However, 70 percent of the respondents think that the current legislation is not enough and that it needs to be further enhanced in order to attract more interest from private-sector parties (see Figure 2, Appendix 8). Generally speaking, a few respondents have even mentioned that the current legislation is slowing down investment (see Table 9, Appendix 8). Enhancement can be done through streamlining the legislation among the different government levels in B&H, but also by streamlining it with EU legislation (see Table 10, Appendix 8). It was as well mentioned that the current legislation needs to be more strict in terms of criteria for private-sector parties wishing to participate in PPP projects and more detailed in describing the exact processes of tendering and awarding projects in order to cope with potential corruption.

Most respondents don't believe that B&H's legal framework is adequate, but 70 percent of them believe that it has the necessary human resources for a more intensive use of PPPs (see Figure 3, Appendix 8). The respondents also believe that the best way to improve current knowledge and skills of existing human resources in the field of PPPs is sharing knowledge and experiences with colleagues in the region, as well as leadership and mentoring from internationally renowned experts (see Table 12, Appendix 8).

Table 8: Mean values of importance of identified barriers for PPPs

Barrier	**Mean value**
Corruption	4.56
Institutional weakness	4.08
Lack of necessary knowledge in the field of PPPs within relevant government bodies	3.95
Lack of trust between the public sector and potential private partners	3.65
Existing legal framework	3.65
Weak economic outlook	3.47
Lack of PPP projects with sufficient quality	3.26
Insufficient interest from private partners	3.13

Source: Own work.

Table 8 gives an overview on the biggest barriers for PPPs and the mean value assigned to it based on respondents' assessment of their importance (see Figures 4-11, Appendix 8). The highest mean value was calculated for corruption and weak institutions as the biggest barriers for PPPs in B&H. Also, the lack of necessary knowledge around PPPs within government institutions is considered to be an important barrier by the respondents, together with the lack of trust between the public sector and potential private partners. This seems logical and in line with the respondents' high assessment of corruption. The existing legal framework is considered a significant barrier as well. So it is no surprise that most of the respondents believe that public sector, legal and institutional reforms are necessary in order to overcome barriers for PPP implementation, along with thorough education of public sector employees in the field of PPPs. Research results also show that respondents consider that the interest from the private sector would be higher if the general political situation in B&H would be more stable, and if there were more institutional support for PPPs.

The research also focused on assessing the respondents' perceptions on the biggest risks involved in PPPs for the private sector, the government and the general public (see Figures

13-15, Appendix 8). While political and legal risks have been recognized as the biggest risks for the private-sector parties in B&H (see Figure 13, Appendix 8), operational risks are considered the most important risk group for the public sector (see Figure 14, Appendix 8). Ownership and reputational risks have also been given importance. However, the biggest perceived risk group for members of the general public is the group of usage risks. Besides, the research shows that more than half of the respondents consider environmental risks to be the most important risk group for the general public (see Figure 15, Appendix 8).

Respondents are pretty much aligned in their opinion that all government level in B&H should be equally involved in creating a favourable environment for PPP investment (see Figure 16, Appendix 8), but they also think that this would be easier if B&H was to work on strengthening its institutions and if there was a greater involvement of international institutions such as the World Bank (see Figures 17 and 18, Appendix 8).

Transportation and healthcare are considered to be priorities for PPP investment (see Figure 20, Appendix 8), most of the respondents defending such a view with the current bad state of that infrastructural part in B&H, but also because it is believed that investments in these two sectors will generate more profits in the future, especially when talking about the transportation sector (see Table 17. Appendix 8). Transportation and healthcare are also the sectors for which most respondents agree would also have the biggest benefits from PPPs (see Figure 21, Appendix 8), which would also translate into benefits for the general public (better healthcare), but also for the business community in terms of, for example, lower transportation costs (see Table 18, Appendix 8). Only one respondent considered that the energy sector should be prioritized for PPP investments (see Figure 20, Appendix 8).

In the second part of the research the focus was put more on examining the opportunities for PPP investment in the energy sector. In accordance with what is the factual state of affairs, the respondents agree the most underdeveloped energy sub-sectors are renewable generation and the gas sector (see Figure 42, Appendix 9). While the lack of a strong gas sector is considered to be a consequence of the less developed gas infrastructure inherited from the period of Yugoslavia, the lack of renewable generation in B&H is attributed to the lack of strategic focus on this particular sector by different government levels in B&H (see Table 31, Appendix 9).

The majority of respondents think that PPPs could be a good way to increase investment in the energy sector in B&H and most of them consider that the biggest benefit of such projects would be the liberalization of the market (see Figure 43 and Table 32, Appendix 9). Most of them consider that the best sectors for PPP investment are the electricity generation and renewable sector (see Figure 69, Appendix 9), based on their knowledge of our aging infrastructure and the need to replace it with new ones (see Table 35, Appendix 9). Also, the respondents mention that they consider investment into these sectors relatively low-risk with guaranteed revenue streams (see Table 35, Appendix 9). Half of the respondents believe that investment in these sectors will result in faster economic growth, but they also add stable electricity supply, cheaper electricity prices and transfer of technology as some of the major benefits of increased PPP activities in these sectors (see Figure 71, Appendix 9).

Table 9: The average ranking of a number of prerequisites for higher PPP investment in the energy sector

Necessary prerequisites for higher PPP investment in the energy sector	**Average ranking**
A more developed legal framework within the energy sector	2.43
Stable political outlook	3.31
A more developed legal framework for PPPs	3.75
Stable economic outlook	3.93
Better cooperation with different government levels	4
More involvement of international financial institutions (World Bank, IMF, EBRD, etc)	4.81
More educated public sector employees	5

Source: Own work.

Table 9 gives an overview of the average ranking for a number of preconditions B&H has to fulfil in order to attract more PPP-type investment in the energy sector. The most highly ranked prerequisite was a more developed legal framework within the energy sector. This group of respondents also recognises that the PPP legal framework also needs a reform, as this is the third highest ranked prerequisite. However, more important than the legal framework for PPPs is a more stable political outlook. (see Figures 44-50, Appendix 9)
Furthermore, respondents were also asked to rank a number of different critical success factors from the most to the least important ones. Table 10 gives an overview of the average ranking for each of the critical success factors. (see Figures 51-60, Appendix 9)

Table 10: The average ranking of a number of identified critical success factors for PPPs in the energy sector

Critical Success Factors	**Average ranking**
Solid legal framework	4.37
Political stability	4.87
Strong cooperation with public institutions	5.06
A carefully implemented planning phase	5.12
Competitive and transparent bidding procedures	5.25
Economic stability	5.43
Compliance with the contractual agreement	5.56
Fair risk allocation	6.12
Public sector capacity	6.18
Reputation and experience of the private-sector party	7

Source: Own work.

Again, a strong legal framework, together with political stability are considered the most important critical success factors for PPPs in the energy sector in B&H. Strong cooperation with public institutions, as well as a carefully planned preparation phase are also two factors which are considered to be of greater importance than other factors included in this question.

Besides assessing prerequisites and critical success factors of PPPs in the energy sector in B&H, respondents also assessed different implementation barriers. The summary of the responses is given in Table 11. (see Figures 62-67, Appendix 9)

Table 11 Mean values of importance of identified implementation barriers for PPPs in the energy sector

Implementation Barriers	**Mean Value**
Weak legal framework	3.93
Lack of projects available to bid on	3.68
Weak economic outlook	3.5
Stagnation of the energy sector deregulation process in B&H	3.43
Unstable political environment	3.43
No interest of private-sector parties	2.68

Source: Own work.

Here again, respondents confirm the general notion that the current legal framework represents the weakest link and biggest implementation barrier for PPP projects in the energy sector in B&H. Also respondents think that currently B&H does not offer any attractive project in the energy sector to bid on. This is true not only for the energy sector, but for all the other sectors as well, as the low overall number of implemented PPP projects in B&H compared to the region and countries in Western Europe was mentioned several times in previous chapters.

The respondents consider that the PPP phase with the biggest risk of encountering problems is the tendering phase (see Figure 61, Appendix 9). This could be explained by the fact that, essentially, corruption in public procurement is still considered a major issue in B&H and it is probable that this conviction is what has driven the majority of respondents to consider the tendering phase the most likely to be problematic. Respondents also consider that problems are possible mostly during the maintenance and operative phase (see Figure 61, Appendix 9). Political risks are considered to be the most important risk group for the private-sector parties interested in PPPs in the energy sector in B&H (see Figure 68, Appendix 9).

In the end, the research has also aimed to reveal which form of PPPs would be the most appropriate for PPPs in the energy sector (see Figure 70, Appendix 9). Most of the respondents were inclined towards concessions, which could be due to the fact that this is the most known form of PPPs in B&H. However, an equal number of respondents opted for BOOT PPP model, stating that it is important that the government maintains control in the long term of different energy projects. When asked why this particular model, respondents have often opted to mention the fear of rising electricity prices as the major reason why the government should keep part of the control or ownership over such PPP projects (see Table 36, Appendix 9).

The research had some limitations, mostly considering the number of responses collected. The pool of potential respondents could have been much higher; however, as the contact with them was limited to email exchange only, it was very hard to collect even this number of responses. A lack of experience in PPPs also limits the number of potential respondents, so any future research should be done after B&H has gathered more experience in this field.

That way, responses collected would be more based on actual experiences of the respondents, rather than their best guesses. Also, more in depth insights could have been gained by conducting structured interviews, rather than a survey, but limitations in time, as well as the lack of personal contacts, have not made it possible for this particular research to be conducted in this form.

CONCLUSION

Since the rise of the NPM concept in the United Kingdom, especially during the 60s and 70s, PPP have become a more and more utilized option for public procurement. Their popularity and importance became even more important as public debt started rising in countries all over the world and governments needed another way of providing public infrastructure and service than taking out loans from different vendors. Essentially, what we can conclude from Chapter 1 is that PPPs represent just another weapon in the arsenal of public procurement options a government has. Although throughout the years PPPs have been used in different sectors for projects of different scale and value, there is no definitive proof that this way of doing public procurement is generally any more or less efficient than other procurement models. What can rather be concluded is that it is necessary to meet certain preconditions in order for PPPs to deliver the benefits identified by several authors. A government, no matter if it is a state or local government, needs to assess whether a PPP would be the right form to implement a particular project. In this way, it must be underlined that one of the most important phases of a PPP is the preparatory phase, as it will give answers to many questions and clearly identify potential risks of such an undertaking. Identifying risks makes it easier to manage them when they eventually appear. A clear and transparent risk allocation process allows for the respective parties in the PPP to take onto themselves those risks they are best equipped to deal with should they appear during the life of the project. Such preparatory work lays the grounds of a successful PPP and makes its implementation and management much easier.

A further important prerequisite for PPPs is a strong institutional, regulatory and legal framework on which it can rely. The first chapter outlined that these are not only important for a successful implementation of a PPP, but also give an important security buffer for private-sector parties interested in participating in PPPs. An unstable political situation or lack of law enforcement in a country can prove to be the decisive factor to even being able to find a private partner willing to bid for a PPP. Taking this factor into account Chapter 2 takes a closer look at the institutional, regulatory and legal framework for PPPs in B&H.

Just a glimpse on the huge numbers of laws and institution which are supposed to govern PPPs from their preparatory to the implementation phase leaves a side observer very confused. What is currently present is a very vague and unclear picture of who is responsible for PPPs and how they are supposed to be treated. An even bigger problem is an uneven legislation. The core to this problem lies in the fact that every entity and canton is actually responsible for governing their PPP projects by themselves, however, concessions for land, buildings and similar are issued on the state level. The different laws are not harmonized, which is especially difficult should a PPP in B&H stretch across multiple cantons. This is especially important for building infrastructure such as roads, railroads and energy infrastructure. Which law should be used to govern a project and settle potential disputes afterwards remains to be dealt with on a case by case basis. Besides, with PPP promotion left to be done by cantons and without a state department assessing and actively looking for

adequate partners for potential PPPs, it might actually be very difficult to find interested private parties to submit bids for the PPPs.

The seriousness of the need to work on new and more specific and unified legislation has also been underlined by the results of the research conducted for this master thesis. The respondents agreed that the current legal and regulatory frameworks are some of the major barriers for PPPs and the major reason why there have been so little PPPs implemented in B&H so far. Corruption and weak institutions are outlined as potentially the biggest problems surrounding any future PPP projects in B&H. And although respondents think that we have a lot of potential and need, and could have immense benefits from implementing PPPs, they think that the current regulatory and legal framework will not allow for potential projects to thrive.

If Chapter 2 outlined the problems relating to the legal and institutional frameworks for PPPs, then Chapter 3 brought to the light further problems in the energy sector in B&H. The different sub-sectors are plagued with different problems. So, it is obvious that currently there are no problems in the electricity generation sector, however an ageing fleet might be difficult to replace if different government levels do not start building new power plants. Transmission and distribution systems are solid, but further work needs to be done on minimizing transmission losses within the network. Energy efficiency has been identified as a major issue in urban areas, were more sophisticated building management and isolation systems are necessary to cut energy losses. However, this proves to be a difficult task, as transmission companies remain in a 50:50 ownership of entity governments, each of them with a different agenda in mind. This inability to come to a conclusion regarding the jurisdiction of energy transport is one of the major reasons why the gas sector in B&H has been underdeveloped for a couple of decades. The gas infrastructure is very poor and B&H heavily relies on Russia for its gas imports. On the other hand, when offered a solution in the form of becoming part of the new Ionian Adriatic gas pipeline, the governments of RS and FB&H could not come to an agreement. Even now, B&H remains under sanction of the Energy Community for its inability to deregulate the gas sector and make gas transport a state rather than an entity jurisdiction.

Countries all over the world have been able to successfully utilize PPPs to enhance and build the energy infrastructure. Chapter 3 has outlined three successful projects, all coming for developing countries. While Brazil used a PPP to build a new transmission network, the province of Gujarat in India leveraged them to build new renewable capacities. A war-torn Liberia used a PPP to bring electricity into homes of millions Liberians. Especially in the case of Liberia shows that a lot of groundwork needs to be done in order to successfully implement a PPP project. Not being able to find a private party willing to participate in the re-electrification of Liberia, it turned to the World Bank and IMF for help. With guarantees from these two institutions, as well as with their help in promoting this project, Liberia was able to bring this project to an end and is now focused on the next phases.

Could B&H also overcome the barriers and difficulties of combined complexities in the PPP and energy sectors. It seems that it can. The Stanari power plant remains the only energy-related PPP project implemented in B&H so far. However, it still remains to see whether or not it can be graded successful in the long term, however, for now it seems that this way of cooperation between the private and public sector has reaped the anticipated benefits.

Renewable generation and more investment into the gas sector have identified as the major potentials for exploring PPPs by the respondents of the research. The reason is two-fold. First, currently there is a huge amount of different funds available for the implementation of

renewable generation projects and secondly, these are the areas in the energy sector of B&H which do need the biggest investment. With public debt rising, it might prove difficult to finance such big projects though traditional procurement, so PPPs backed by international financial institutions like the World Bank or EBRD might prove to be the ideal solutions for these projects.

However, even in the energy sector, having a more stable and solid legal framework is seen as a prerequisite for the successful implementation of any PPP projects. A weak legal framework is deemed to be the biggest barrier of implementing more PPP projects in B&H by the respondents of the research. So, clearly, this is something which needs to be addressed in the foreseeable future, if B&H wants to be able to reap the benefits of PPPs.

Taking into account everything mentioned so far, here are some recommendations for the future implementation of PPPs in the energy sector in B&H:

1. The complexity of legal framework for PPPs needs to be reduced. Results of the research have verified this as a major barrier for the successful implementations of PPPs. Also, it is perceived as a major risk for private parties otherwise interested in bidding for a PPP. Although streamlining legislations across cantons and entities seems like a good place to start, a better step forward would be completely taking away cantonal and entity jurisdiction in the field of concessions and PPPs and forming one unified system of institutions on the state level which will work on promoting, preparing and implementing PPPs within different sectors in B&H. Having one address to go to for every PPP project which is planned in B&H will make it easier to more strategically seek potential partner, rather than leaving the promotional efforts and implementation to the local level. Such a compartmentalization might lead to an uneven development of certain regions due to lower capacities of PPP implementation from canton to canton. Especially important is the reform of the gas sector, as the lack of consensus in this area has resulted a sanctions by the Energy Community. It is important to push the new legislation in order to assure the lifting of these sanctions, but also to ensure the future development of the gas sector in B&H.
2. B&H has little experience in managing PPPs. As it was underlined by the findings of the research, more education and workshops, together with mentorship from PPP experts from the region and world are crucial for building the necessary pool of human resources dedicated towards promoting, tendering out, implementing and managing future PPP projects. While a solid legal framework does provide a good basis, educated staff is the next step towards ensuring seamless, transparent and well planned and organized PPPs. More dedicated educational programmes in the field of PPPs need to be developed in order for B&H to have the necessary manpower to run a powerful PPP department within the government.
3. The example of NSoft, a private company from Mostar, being able to develop a hybrid solar/wind generation machine meant to be installed on public and private buildings throughout the country shows that renewable generation projects have a great potential in B&H, but the public sector has been slow to recognize it. Such innovative solutions can be the answer to B&H's ageing power plant fleet and with more PPPs in this field B&H will not only be replacing its current fleet, but it will do so with a more environmentally friendly option. Private companies with the necessary know-how and interest exist and they have already implemented energy-related projects of different scales in B&H. Having more PPP options available for the implementation of renewable projects would certainly help to drive the growth of this energy sector in the future.

4. As energy efficiency becomes a more and more important issue, especially when it comes to minimizing transmission losses and building management, a more strategic approach should be developed with IT companies from around B&H. With various energy projects from around the world under their belt, these companies can help B&H implement more sophisticated building management solutions, but also help with identifying and eliminating transmission losses. With a more strategic approach in this partnership, smart city energy efficiency solutions related to street lighting, public transportation and public parking could be implemented within the next 5-10 years.

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APPENDICES

Appendix 1: Povzetek (Summary in Slovene language)

Namen magistrskega dela je raziskati različne posebnosti javno-zasebnih partnerstev in podrobneje razložiti pomen javno-zasebnih partnerstev pri gospodarski rasti in razvoju držav v razvoju, kot je Bosna in Hercegovina. To magistrsko delo se osredotoča na novo liberaliziran trg električne energije, da bi ocenilo glavne ovire in priložnosti, ki bi jih lahko imela Bosna in Hercegovina pri nadaljnjem razvoju tega trga s projekti javno-zasebnega partnerstva na tem področju.

Prvo poglavje magistrske naloge določa potrebno teoretično ozadje za razumevanje, kako PPPs prispevajo k gospodarskemu razvoju in zakaj so PPPS še posebej pomembna za države v razvoju. Drugo poglavje je osredotočeno na predstavitev zapletenega regulativnega in pravnega okvira za izvajanje javno-zasebnih partnerstev v BiH. Tretje poglavje je osredotočeno na raziskovanje možnosti uporabe PPPs za razvoj energetskega sektorja v BiH.

V okviru te magistrske naloge je bila izvedena dvodelna raziskava, pri čemer je bil prvi del namenjen zbiranju več vpogledov v javno-zasebna partnerstva v BiH, drugi del pa bolj osredotočen na zbiranje vpogledov v to, kako spodbuditi javno-zasebna partnerstva v energetskem sektorju v BiH.

Prvi del raziskave, ki je bil osredotočen zgolj na javno-zasebna partnerstva v BiH, je pokazal, da skoraj vsi anketiranci verjamejo, da se lahko javno-zasebna partnerstva uporabljajo kot sredstvo za povečanje naložb v BiH, predvsem zato, ker menijo, da lahko javno-zasebna partnerstva pomagajo premagati finančne omejitve javnega sektorja v BiH. Večina vprašanih meni, da bi lahko javno-zasebna partnerstva prispevala k pospeševanju gospodarske rasti, zagotovila boljšo infrastrukturo, odprla vrata za inovacije in povečala življenjski standard ljudi v BiH.

V drugem delu raziskave je bolj poudarek na preučevanju možnosti za naložbe v javno-zasebna partnerstva v energetskem sektorju. Glede na dejansko stanje se anketiranci strinjajo, da sta najbolj nerazvita energetska podsektorja obnovljivi viri energije in sektor plina. Čeprav je pomanjkanje močnega plinskega sektorja posledica manj razvite plinske infrastrukture, podedovane iz obdobja Jugoslavije, pomanjkanje obnovljive proizvodnje energije v BiH pripisuje pomanjkanju strateške osredotočenosti na ta sektor na različnih vladnih ravneh v BiH.

Appendix 2: Legal Framework for PPPs in B&H

Table 1 : Legal Framework for PPPs in B&H

STATE LEVEL	
Law on Public Procurement	Official Gazette of Bosnia and Herzegovina, 39/14
Law on Concessions of Bosnia and Herzegovina	Official Gazette of Bosnia and Herzegovina, 32/02
Law on Changes on the Law on Concessions of Bosnia and Herzegovina	Official Gazette of Bosnia and Herzegovina, 56/04
ENTITY LEVEL **Federation of Bosnia and Herzegovina**	
***Law on Concessions of Federation of Bosnia and Herzegovina* – in Parliamentary procedure since April 2017**	Draft
***Law on PPPs of Federation of Bosnia and Herzegovina* – in Parliamentary procedure since April 2017**	Draft
Republika Srpska	
Law on Concessions of Republika Srpska	Official Gazette of Republika Srpska, 59/13
Law on PPPs of Republika Srpska	Official Gazette of Republika Srpska, 59/09
Law on Changes on the Law on Public Partnership in Republika Srpska	Official Gazette of Republika Srpska, 63/11
The Guidebook on PPPs in RS	Official Gazette of Republika Srpska, 104/09
Brčko District	
Law on Concessions of Brčko District	Official Gazette of Brčko District, 41/06
Law on Changes on the Law on Concessions of Brčko District	Official Gazette of Brčko District 19/07 and 2/08
Law on PPPs of Brčko District	Official Gazette of Brčko District, 7/10
CANTONAL LEVEL **Sarajevo Canton**	
Law on Concessions of Sarajevo Canton	Official Gazette of Canton Sarajevo, 27/11
Law on Changes on the Law on Concessions of Sarajevo Canton	Official Gazette of Canton Sarajevo, 15/13
Law on PPPs of Sarajevo Canton	Official Gazette of Sarajevo Canton, 27/11
Law on Changes on the Law of PPPs of Sarajevo Canton	Official Gazette of Sarajevo Canton, 16/17
Tuzla Canton	
Law on Concessions of Tuzla Canton	Official Gazette of Tuzla Canton, 5/04
Law on Changes on the Law on Concessions of Tuzla Canton	Official Gazette of Tuzla Canton, 7/05, 6/11, 1/13 and 11/14
Law on PPPs of Tuzla Canton	Official Gazette of Tuzla Canton, 14/12
Zenica-Doboj Canton	
Law on Concessions of Zenica-Doboj Canton	Official Gazette of Zenica-Doboj Canton, 5/03
Law on PPPs of Zenica-Doboj Canton	Official Gazette of Zenica-Doboj Canton, 6/16
Middle-Bosnia Canton	
Law on Concession of Middle-Bosnia Canton	Official Gazette of Middle-Bosnia Canton, 8/09
Law on Changes on the Law on Concessions of Middle-Bosnia Canton	Official Gazette of Middle-Bosnia Canton, 6/13 and 9/15
Law on PPPs of Middle-Bosnia Canton	Official Gazette of Middle-Bosnia Canton, 3/18
Una-Sana Canton	
Law on Concessions of Una-Sana Canton	Official Gazette of Una-Sana Canton, 10/03, 7/09, 19/13
Law on PPPs of Una-Sana Canton	Official Gazette of Una-Sana Canton, 19/12

(table continues)

(continued)

CANTONAL LEVEL	
Herzegovina-Neretva Canton	
Law on Concessions of Herzegovina-Neretva Canton	Official Gazette of Herzegovina-Neretva Canton, 1/13
Law on Changes on the Law on Concessions of Herzegovina-Neretva Canton	Official Gazette of Herzegovina-Neretva Canton, 7/16
Law on PPPs of Herzegovina-Neretva Canton	Official Gazette of Herzegovina-Neretva Canton, 2/13
Posavina Canton	
Law on Concessions of Posavina Canton	Official Gazette of Posavina Canton, 6/14
Law on PPPs of Posavina Canton	Official Gazette of Posavina Canton, 4/13
Western Herzegovina Canton	
Law on Concessions of Western Herzegovina Canton	Official Gazette of Western Herzegovina Canton, 7/01
Law on PPPs of Western Herzegovina Canton	Official Gazette of Western Herzegovina Canton, 14/13
Bosnia-Podrinje Canton	
Law on Concessions of Bosnia-Podrinje Canton	Official Gazette of Bosnia-Podrinje Canton, 4/13
Law on PPPs of Bosnia-Podrinje Canton	Official Gazette of Bosnia-Podrinje Canton, 5/13
Herzeg-Bosnia Canton	
Law on Concessions of Herzeg-Bosnia Canton	Official Gazette of Herzeg-Bosnia Canton, 14/03
Law on Changes on the Law on Concessions of Herzeg-Bosnia Canton	Official Gazette of Herzeg-Bosnia Canton, 8/08
Law on PPPs of Herzeg-Bosnia Canton **- Pre-drafted, awaiting consultations, first draft, public discussion and parliamentary procedure**	Pre-draft

Source: Own work.

Appendix 3: Overview of the B&H Legal Framework for the Energy Sector

Table 2 : Overview of the B&H Legal Framework for the Energy Sector

STATE LEVEL	
Law on the Transmission, Regulator and Operator of the Electricity System in Bosnia and Herzegovina	Official Gazette of Bosnia and Herzegovina, 7/02, 13/03, 76/09 and 1/11
Law on the Commencement of the Independent Transmission System Operator in Bosnia and Herzegovina	Official Gazette of Bosnia and Herzegovina, 35/04
Law on Establishing the Company for Electricity Transport in Bosnia and Herzegovina	Official Gazette of Bosnia and Herzegovina, 35/04, 76/09 and 20/14
Rulebook on Tariff Procedure	Official Gazette of Bosnia and Herzegovina, 44/05
Rulebook on Licences	Official Gazette of Bosnia and Herzegovina, 63/16
Rulebook on Connections	Official Gazette of Bosnia and Herzegovina, 95/08, 79/10, 60/12 and 83/17
Rulebook on the Protection of Confidential Information	Official Gazette of Bosnia and Herzegovina, 13/07
ENTITY LEVEL **Federation of Bosnia and Herzegovina**	
Law on Electricity of Federation of Bosnia and Herzegovina	Official Gazette of Federation of Bosnia and Herzegovina, 66/13 and 94/15
Law on the Organisation and Regulation of the Gas Sector	Official Gazette of Federation of Bosnia and Herzegovina, 83/07
Law on Oil Derivatives	Official Gazette of Federation of Bosnia and Herzegovina, 52/14
Law on the Research and Exploitation of Oil and Gas in Federation of Bosnia and Herzegovina	Official Gazette of Federation of Bosnia and Herzegovina, 77/13 and 19/17
Law on Mining of Federation of Bosnia and Herzegovina	Official Gazette of Federation of Bosnia and Herzegovina, 26/10
Law on Geological Research of Federation of Bosnia and Herzegovina	Official Gazette of Federation of Bosnia and Herzegovina, 9/10
Law on the Usage of Renewable Energy Sources and Efficient Cogeneration of Federation of Bosnia and Herzegovina	Official Gazette of Federation of Bosnia and Herzegovina. 70/13 and 05/14
Law on Energy Efficiency of Federation of Bosnia and Herzegovina	Official Gazette of Federation of Bosnia and Herzegovina, 22/17
Decision Establishing the Operator for Renewable Energy Sources and Efficient Cogeneration	Official Gazette of Federation of Bosnia and Herzegovina, 90/13 and 96/14
Regulation on Incentives for Generation of Electric Power from the Operator for Renewable Energy Sources and Efficient Cogeneration and Defining of Incentive Fees	Official Gazette of Federation of Bosnia and Herzegovina, 48/14
Rulebook on Methodology for Defining Reference Price for Electric Power	Official Gazette of Federation of Bosnia and Herzegovina, 50/14
Rulebook on Methodology for Defining Guaranteed Price for Electric Power from the Plants for Use of Renewable Energy Sources and Efficient Cogeneration	Official Gazette of Federation of Bosnia and Herzegovina, 50/14
Renewable Energy Action Plan for the Federation of Bosnia and Herzegovina	Official Gazette of Federation of Bosnia and Herzegovina, 48/14

(table continues)

(continued)

Republika Srpska	
Law on Energy	Official Gazette of Republika Srpska, 49/09
Law on Gas	Official Gazette of Republika Srpska, 22/18
Law on Electricity	Official Gazette of Republika Srpska, 8/08, 34/09, 92/09 and 1/11
Law on Energy Efficiency	Official Gazette of Republika Srpska, 59/13
Law on Oil and Oil Derivatives	Official Gazette of Republika Srpska, 36/09 and 102/12
Law on Renewable Energy Sources and Efficient Cogeneration	Official Gazette of Republika Srpska, 39/13, 108/13 and 79/15
Renewable Energy Action Plan of Republika Srpska	Official Gazette of Republika Srpska, 45/14 and 111/15
Law on Mining	Official Gazette of Republika Srpska, 62/18
Law on Geological Research	Official Gazette of Republika Srpska, 110/13 and 91/17
Rulebook on Incentives for Production of Power from Renewable Sources and in Efficient Cogeneration	Official Gazette of Republika Srpska, 114/13 and 88/14
Decision on the Amount of Purchase Price and Premiums for Electric Power Produced from Renewable Sources or in Efficient Cogeneration	Official Gazette of Republika Srpska, 9/17
Decision on the Amount of the Incentive for Production of Energy from Renewable Sources in Efficient Cogeneration	Official Gazette of Republika Srpska, 14/16
Rulebook on Issuing of Certificates for Production Plants Producing Electric Energy from Renewable Sources and in Efficient Cogeneration	Official Gazette of Republika Srpska, 112/13, 60/16 and 112/17
Rulebook on Issuing Warranties on the Origin of Electric Energy	Official Gazette of Republika Srpska, 1/14
Brčko District	
Law on Electricity of Brčko District	Official Gazette of Brčko district, 36/04, 28/07, 61/10and 4/13

Source: Own work.

Appendix 4: Questionnaire 1 - The role of Public-Private Partnerships for Infrastructure Development in B&H

1. Do you think that PPPs can be deployed in Bosnia and Herzegovina as a way of increasing investment into infrastructure?

    a. Yes. Briefly explain why _____
    b. No. Briefly explain why _____
    c. Do not know

2. Do you think that Bosnia and Herzegovina has the necessary institutional and legal infrastructure to be able to engage in PPP projects in an increased volume?

    a. Yes. Briefly explain why. _____
        a1) How can existing frameworks be improved?
    b. No. Briefly explain why. _____
        b1) How can this gap be overcome?

3. Do you think that Bosnia and Herzegovina has the necessary human resources, together with the necessary knowledge, to be able to more intensively utilise PPPs?

    a. Yes.
    Briefly explain why. _____
    a1) How can the existing knowledge base be improved?
    b. No.
    Briefly explain why. _____
    b1) Which human resource knowledge is needed at the state, cantonal and municipal level? _____
    b2) Which measures should be implemented in order to close the gap? _____
    b3) Who should adopt/implement these measures?
    _____

4. You will be provided with a list of most common objections/challenges for the successful deployment of PPPs. On a Likert scale of 1-5, with the following denominations:

    1 – Not an objection/challenge at all
    2 – A minor objection/challenge
    3 – A moderately important objection/challenge
    4 – An important objection/challenge
    5 – A very severe objection/challenge

    please assign one the values to the each of the listed objections/challenges according to your assumption of their importance in Bosnia and Herzegovina.

a) lack of trust between the government sector and potential private partners

1 2 3 4 5

b) insufficient interest from private partners

1 2 3 4 5

c) existing legal framework

1 2 3 4 5

d) lack of necessary knowledge in the field of PPPs within relevant government bodies

1 2 3 4 5

e) corruption

1 2 3 4 5

f) lack of high-quality PPP projects

1 2 3 4 5

g) institutional weakness

1 2 3 4 5

h) weak economic outlook

1 2 3 4 5

5. How do you think Bosnia and Herzegovina can overcome these challenges and obstacles? (tick two that are the most important in your opinion)

a) public institution reform
b) systematic education of employees within the public sector through workshops and conferences
c) centralisation of PPP project development and implementation at the state level
d) creating PPP units for the support of local project implementation
e) reform of existing legal and regulatory framework
f) promotional campaigns to raise public awareness about PPPs
g) Other. Please specify _____

6. What are potentially the biggest risks involved in implementing PPP projects in B&H for (please choose two of the biggest risks in your opinion for:

private sector parties

a) financial risks – such as risk of overdue or irregular payments by the contracting parties
b) political risks – such risks of political sentiment or turmoil slowing down or cancelling PPP projects mid-way
c) design risks – such as cost and time overruns
d) construction risks – such as inabilities to find reliable local partners
e) legal risks – such as an unfavourable legal framework, not providing for enough protection of the private party
e) regulatory risks – such as risk of micromanagement from the government sector

f) other. Please specify: _____

the public sector parties

a) financial risks – such as risk of project cost overruns and escalations
b) planning risks – such as risk of high procurement costs
c) operational risks- such as risk of increased costs due to insufficient knowledge about efficient project operation
d) reputational risks – such as risk of bas public perception due cost and time overruns for PPPs aimed at the broader public such as roads, water and sewage systems, etc.
e) ownership risks – such as risk of problems during the phase of transferring the ownership from the private to the public sector party
f) other. Please specify: _____

the general public

a) availability risks – such as risk of unavailability of a public service or facility to certain social groups
b) financing risks – such as risk of too high development/operational or maintenance cost for the public
c) environmental risks – such as risk of the PPP project endangering (directly or indirectly) the environment
d) usage risks – such as risks of the usage of public facilities or service being to expensive for certain social groups
e) other. Please specify: _____

7. Which government level, in your opinion, should be working most intensively in promoting PPPs?

a) state level
b) entity level (Federation of Bosnia & Herzegovina and Republika Srpska)
c) cantonal level
d) municipality level
e) all government levels together
f) no government levels, but rather NGOs, foreign associations and organisations should be promoting PPPs.

8. How can different levels of government in Bosnia and Herzegovina be motivated to take more part in PPP projects? (choose two which you consider to be the most important)

a) better legal framework
b) bigger involvement of institutions like the World Bank, EBRD, IMF, etc as a mediator between the private and the public sector
c) better and more intensive education of public sector employees in the field of PPPs
d) external support in the project preparation phase

e) strengthening the overall institutional framework for the implementation of PPPs
f) public pressure
g) other. Please specify: _____

9. What is necessary in order to ensure high-quality private-sector parties to be interested in pursuing PPP projects in Bosnia and Herzegovina? (choose three most important factors)

a) a stable economic outlook
b) better and more developed legal framework
c) more support coming from different government and institutional levels
d) a more stable political situation
e) more serious and interesting projects to bid on
f) better institutional organisation
g) better cooperation with financial institutions like the World Bank, IMF, EBRD
h) a specialised unit or institution for the development and deployment of PPP projects
i) other. Please specify: _____

10. What are the biggest benefits which Bosnia and Herzegovina could see from an increased PPP activity? (choose three most important benefits)

a) faster economic growth
b) increased standard of living
c) institutional strengthening
d) better control over public spending
e) higher-quality infrastructure
f) lower level of brain drain
g) opportunities for market innovation
h) Other. Please specify _____

11. Which sector should be prioritised when PPPs are in question?

a) agriculture
b) education
c) energy
d) health
e) road/transport sector
f) telecommunications
g) waste management
h) water/sewage
i) other. Please specify which. _____

Briefly elaborate why (up to 100 words):

12. Which sector could benefit the most from an increased PPP activity? Why?

a) agriculture
b) education
c) energy
d) health
e) road/transport sector
f) telecommunications
g) waste management
h) water/sewage
i) other. Please specify which: _____

Briefly elaborate why (up to 100 words):

Appendix 5: Questionnaire 2 - Potential of Public-Private Partnerships in B&H's Energy Sector

1. Which parts of the energy sector in Bosnia and Herzegovina do you perceive as the least developed?

   a) electricity generation
   b) electricity transmission
   c) electricity distribution
   d) electricity supply/sales
   e) gas industry
   f) mining industry
   g) petroleum/oil industry
   h) renewable generation
   i) other. Please specify which: _____

   Briefly elaborate why (up to 100 words):

2. Do you think that PPPs would be a viable solution for increasing investment in the energy sector in Bosnia and Herzegovina?

   a. Yes. Briefly explain why. _____
   b. No. Briefly explain why. _____

3. What would be the major requirements in order for Bosnia and Herzegovina to be able to successfully attract PPPs in the energy sector? (please choose two which in your opinion are the most important)

   a) a more developed legal framework within the energy sector
   b) a more developed legal framework for PPPs
   c) better cooperation with different government levels
   d) more involvement of international financial institutions like the World Bank, IMF, EBRD, etc.
   e) stable political outlook
   f) stable economic outlook
   g) more educated public sector employees
   h) Other. Please specify:_____

4. Which are the most important critical success factors for PPPs to be implemented in the energy sector in Bosnia and Herzegovina?

   a) public sector capacity
   b) a carefully implemented planning phase

c) competitive and transparent bidding procedures
d) compliance with the contractual agreement
e) solid legal framework
f) strong cooperation with public institutions
g) economic stability
h) political stability
i) fair risk allocation
j) reputation and experience of the private-sector party
k) other. Please specify:_____

5. In which stages of potential PPP projects in the energy sector do you see the highest likelihood of problems delaying and limiting successful project implementation?

a) project identification
b) project planning
c) tendering and bidding process
d) project construction phase
e) project operation phase
f) project maintenance phase
g) transfer of ownership

6. You will be provided with a list of objections/challenges for the successful deployment of PPPs. On a Likert scale of 1-5, with the following denominations:

1 – Not an objection/challenge at all
2 – A minor objection/challenge
3 – A moderately important objection/challenge
4 – An important objection/challenge
5 – A very severe objection/challenge

please assign one the values to the each of the listed objections/challenges according to your assumption of their relevance for the energy sector in Bosnia and Herzegovina.

a) stagnation of the energy deregulation process in B&H
1 2 3 4 5

b) no projects available to bid on
1 2 3 4 5

c) no interest of private parties
1 2 3 4 5

d) unstable political environment
1 2 3 4 5

e) weak economic outlook

1 2 3 4 5

f) weak legal framework

1 2 3 4 5

7. In your opinion, what are the biggest risks for private-sector parties looking to get involved in PPPs in the energy sector?

   a) financial risks – such as risk of overdue or irregular payments by the contracting parties
   b) political risks – such risks of political sentiment or turmoil slowing down or cancelling PPP projects mid-way
   c) design risks – such as cost and time overruns
   d) construction risks – such as inabilities to find reliable local partners
   e) legal risks – such as an unfavourable legal framework, not providing for enough protection of the private party
   e) regulatory risks – such as risk of micromanagement from the government sector
   f) other. Please specify: _____

8. In the light of sluggish progress in reforming the energy sector in Bosnia and Herzegovina and cancelled projects (like for example the Ionian Adriatic Gas Pipeline) how can private-sector parties be motivated to participate in PPPs?

   Maximum 500 words

9. What reforms will need to be undertaken in order to increase potential investment into the energy sector through PPPs?

   Maximum 500 words

10. Which parts of the energy sector could potentially benefit the most from PPPs in Bosnia and Herzegovina and why?

    a) electricity generation
    b) electricity transmission
    c) electricity distribution
    d) electricity supply/sales
    e) gas industry
    f) mining industry

g) petroleum/oil industry
h) renewable generation
i) other. Please specify which: _____

Briefly elaborate why (up to 100 words):

12. In your opinion, what models of PPPs would be the most suitable to use in B&H's energy sector?

a) **Build-Own-Operate (BOO)** - An arrangement in which the private sector party is in charge of the design, funding, construction, operation, and maintenance of infrastructure. There is no transfer of ownership to the public sector during the project period
b) **Build-Own-Operate-Transfer (BOOT)** - The private sector is in charge of the design, construction, operation, and maintenance of the infrastructure during the project period. At the end of the concession period the ownership is transferred over to the government
c) **Design-Build-Finance-Operate (DBFO)** - Under this arrangement the private sector assumes responsibility for the design, financing, construction, and operation of infrastructure during the concession period, while the public sector assumes the ownership
d) **Concessions** - Concessions for land or already existing infrastructure are given for a fixed period, during which the private sector party takes on different roles in the design, construction, financing, renovating, operation, and maintenance of facilities. Transfer of ownership to the public sector can be different – the public sector may have ownership from the beginning of the project, after the infrastructure has been built, or when the concession period ends.
e) **Joint Venture** – The private sector and public sector form a Special Purpose Vehicle (SPV) company, a separate legal entity with join ownerships, which takes on the responsibility of managing the entire PPP project and its risks.
f) **Management contracts** – The public sector contracts out the management of infrastructure to a private company. Investment decisions, together with the operational risks, stay with the public sector.
g) **Leasing contracts** - The public sector leases a certain kind of infrastructure to the private sector party for a fixed period. All the operational risk is transferred over to the private sector party

Briefly elaborate why (up to 100 words):

14. What would be the major benefits of an increased PPP activity in the energy sector in your opinion? (please choose two you consider to be the most important ones)

a) more stable and reliable energy supply (electricity, gas, oil)
b) cheaper energy prices for businesses and households
c) faster economic growth
d) higher employment rates and lower brain drain as a consequence
e) transfer of technology
f) transfer of know-how
g) other. Please specify:_____

Appendix 6: List of experts to whom Questionnaire 1 was sent

Table 3 : List of experts to whom Questionnaire 1 was sent

First and last name	Position	Institution	Responded
Veljko Trivun	Professor	School of Economics and Business Sarajevo	No
Vedad Silajdžić	Professor	School of Economics and Business Sarajevo	No
Azra Zaimović	Professor	School of Economics and Business Sarajevo	No
Tarik Zaimović	Professor	School of Economics and Business Sarajevo	No
Tea Mioković	Teaching Assistant	School of Economics and Business Sarajevo	No
Miroslav Zeković	Expert Adviser	Public Administration Reform Coordination Office	Yes
Olivera Sendić Damjanović	Secretary General	Commission for Concessions	Yes
Donald Prohaska	Senior Adviser	Deutsche Gesellschaft für Technische Zusammenarbeit (GIZ)	No
Snežana Mišić Mihajlović	Project manager	Center for Management, Development and Planning	Yes
Šemsa Alić	PPP Expert	USAID	Yes
Sara Savanović	PPP Expert	Association of Municipalities and Cities of the FB&H	Yes
Ajša Bešlagić-Adrović	PPP Expert, Programme Manager	Delegation of the European Union to Bosnia and Herzegovina	Yes
Osman Buza	Assistant to the Minister	Ministry of Economics, Zenica-Doboj Canton	Yes
Gordan Milinić	Director	Foreign Investment Promotion Agency of Bosnia and Herzegovina	Yes
Nina Pobrić	Department Head	Foreign Investment Promotion Agency of Bosnia and Herzegovina	Yes
Nevena Marilović	Department Head	Foreign Investment Promotion Agency of Bosnia and Herzegovina	Yes
Lejla Rešić	M inister	Ministry for Local Self-Government, Government of RS	No
Slavica Lukić	Assistant to the Minister	Ministry for Local Self-Government, Government of RS	Yes
Amir Zukić	Minister	Ministry of development, entrepreneurship and crafts, FB&H	Yes
Zdravko Čerović	Assistant to the Minister	Ministry of development, entrepreneurship and crafts, FB&H	Yes
Srđan Mandić	Minister	Ministry of communal economics and infrastructure, Sarajevo Canton	Yes
Suad Hasandedić	Minister	Ministry for construction and spatial planning, Herzegovina-Neretva Canton	Yes

(table continues)

(continued)

First and last name	Position	Institution	Responded
Fahrudin Brkić	Minister	Ministry for spatial planning, traffic and communication and environmental protection, Zenica-Doboj Canton	Yes
Adnan Alagić	Minister	Ministry for construction, spatial planning and environmental protection, Una-Sana Canton	Yes
Darko Kasap	Minister	Ministry for economics and spatial planning for Posavina Canton	Yes
Slobodan Janković	Minister	Ministry for urban development, spatial planning and environmental protection, Bosnia-Podrinje Canton	Yes
Miroslav Ramljak	Minister	Ministry for urban development, construction and environmental protection, Western Herzegovina Canton	Yes
Hikmet Hodžić	Minister	Ministry of construction, reconstruction, spatial planning and environmental protection of Herzeg-Bosnia Canton	Yes
Admir Huskanović	Minister	Ministry of spatial planning and environmental protection of Tuzla Canton	Yes
Amer Mrako	Minister	Ministry of spatial planning, construction, environmental protection and residential housing, Middle-Bosnia Canton	Yes

Source: Own work.

Appendix 7: List of experts to whom Questionnaire 2 was sent

Table 4: List of experts to whom Questionnaire 2 was sent

First and last name	Position	Institution	Responded
Ognjen Marković	Director	USAID EIA	No
Mak Kamenica	Project Manager	USAID EIA	Yes
Mirza Kušljugić	Professor	University of Tuzla	Yes
Sibylle Strahl	Director	Deutsche Gesellschaft für Technische Zusammenarbeit (GIZ)	No
Admir Softić	Assistant to the Minister	Ministry of foreign trade and economic relations of B&H	Yes
Dalibor Muratović	Head of Distribution Department	Elektroprivreda Republike Srpske	No
Marko Nišandžić	Programme Director, Energy efficiency expert	Center for Development and Assistance	Yes
Darko Tišma	Project Manager	Center for Development and Assistance	No
Hamid Mehinović	Renewable Generation Adviser	Deutsche Gesellschaft für Technische Zusammenarbeit (GIZ)	Yes
Sanja Kapetina	Senior Adviser	Ministry of foreign trade and economic relations	Yes
Milka Muminović	Electricity and statistics expert	The Energy Community	No
Mirsad Šabanović	Director	ASA Energy	No
Faris Kreso	General Manager	Alfa Energy Ltd	Yes
Damir Ahmović	Director	Alfa Energy Ltd	No
Miroslav Nikolić	Renewable Department Head	Elektroprivreda Hrvatske Zajednice Herceg Bosne	No
Mladen Kostić	CTO	INTERA Technology Park	Yes
Mirko Ćurković	Marketing and TEC Manager	INTERA Technology Park	Yes
Vedad Suljić	Business Development Officer	REIC	Yes
Ismar Jamaković	Energy Department Head, Project Lead	CETEOR	Yes
Fahrudin Kulić	Senior Engineer	USAID EIA	Yes
Edin Zametica	Secretary General	State Electricity Regulatory Commission (SERC)	No
Boriša Misirača	Director	Operator for renewable generation and efficient cogeneration	No
Vanja Ćurin	Senior Expert	Dvokut d.o.o	Yes
Goran Krstović	Project Lead	Deutsche Gesellschaft für Technische Zusammenarbeit (GIZ)	Yes

(table continues)

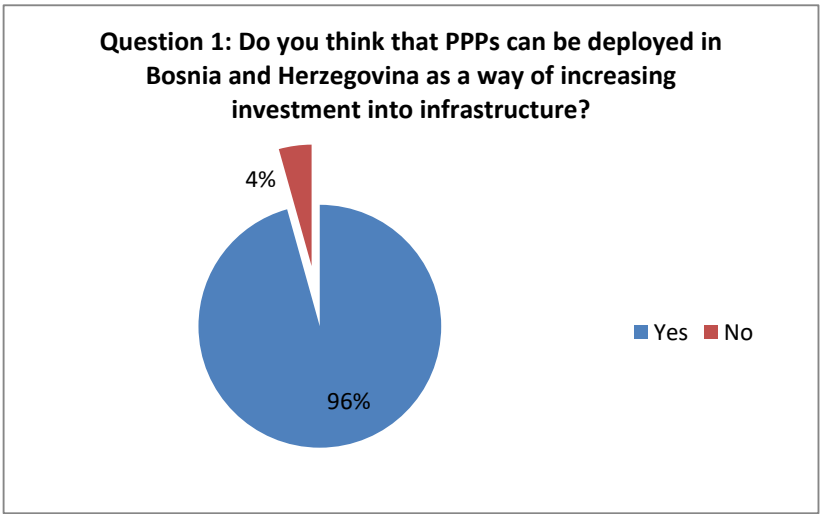
(continued)

First and last name	Position	Institution	Responded
Nihad Harbaš	Bioenergy Consultant	nLogic d.o.o.	Yes
Elvis Hadžikadić	Senior Technical Expert	UNDP	No
Nermin Džindić	Minister	Federal Ministry of Energy, Mining and Industry	No
Tarik Begić	Assistant to the Minister	Federal Ministry of Energy, Mining and Industry	Yes
Petar Đokić	Minister	Ministry of Industry, Mining and Energy or Republika Srpska	No
Milan Baštinac	Senior Adviser – Power Engineering	Ministry of Industry, Mining and Energy or Republika Srpska	No
Milenko Todorović	Senior Adviser – Energy Fuels	Ministry of Industry, Mining and Energy or Republika Srpska	No

Source: Own work.

Appendix 8: Detailed responses and results of Questionnaire 1

Figure 1: Summary of Answers on Question 1 from Questionnaire 1



Source: Own work.

Question 1a: Briefly explain why yes.

Table 5: Answers on Question 1a from Questionnaire 1

Brza gradnja javne infrastructure
Zbog mogucnosti brzeg i opsirnijeg razvoja infrastructure
PPP's can significantly expedite the process of planing, tendering, building, commissioning, maintaining as well as managing infrastructure projects by using the know-how and the capital of the private sector.
Jer je nacin da se nadomjeste nedostajuca budzetska sredstva za kapitalne investicije
Nemogucnost javnog sektora da samostalno zadovolji sve potrebe
Ogranicenje budzetskih sredstava je imperativ koji nameće ekonomska situacija i pritisak MMF-a. Javno privatno partnerstvo omogućuje finansiranje velikih javnih investicija i privatnim sredstvima. Također se vrši alokacija rizika, efikasnije upravljanje projektima korištenjem know how i metoda iz privatnog sektora te u konačnici rast ekonomije i pružanje boljih usluga građanima.
Svugdje drugo ima taj efekat, pa zasto ne i u BiH
Obostrana korist
Kao garancije za izvrsenje ugovora.
Good way to further support private sector investments
Infastructure projects are usually large and costly and outsorcing it to private companies can prevent time los and money loss, and increase efficieny. It is though conditioned on conducting a fair and transparent process of a private company election.
U ekonomski najrazvijenijim zemljama svijeta ovaj model se već pokazao uspješnim, a uvjetovan je različitim faktorima i od posebne je važnosti u sistemima u razvoju.

(table continues)

(continued)

Obostrana kontrola, zaštita interesa građana od strane države, strateški pristup.
zato sto se time eliminise fiskalno ogranicenje za nivo investiranja, a i investicijski projekti se mogu efikasnije realizovati ukoliko postoji jasna odgovornost i profesionalno upravljanje projektom.
Jer postoje odredjeni projekti koji su nedovoljno atraktivni i risktantni da bi ga preuzeo samo privatni sektor, a ujedno bi predstavljali preveliki teret za drzavu. Pored toga, postoji potreba za kontrolom i inovativnoscu koju pruza privatni sektor.
Zbog zajednickih interesa
Privatna ekspertiza ili kapital mogu unaprijediti akcije u javnom sektoru koje su od interesa siroj javnosti.
Investing in infrastructure solely by public sector companies, usually based on loans from international financial institutions, is burdened by limited absorption capacity of BIH public sector companies. PPP models might help overcome this limitation and speed up implementation of funds for infrastructure investments.
Jer javni sektor moze iskoristiti potencijal privatnog i obrnuto
Korištenje znanja i prakse privatnog sektora i resursa javnog sektora povećava konkurentnost i ubrzava ekonomske tokove.
Zbog toga sto postoje mnogi primeri gde javno privatna partnerstva uspevaju u ostvarivanju definisanih ciljeva.
Zato sto je cilj JPP-a ekonomičnija, djelotvornija i učinkovitija proizvodnja javnih proizvoda ili usluga u odnosu na tradicionalan način pružanja javnih usluga

Source: Own work.

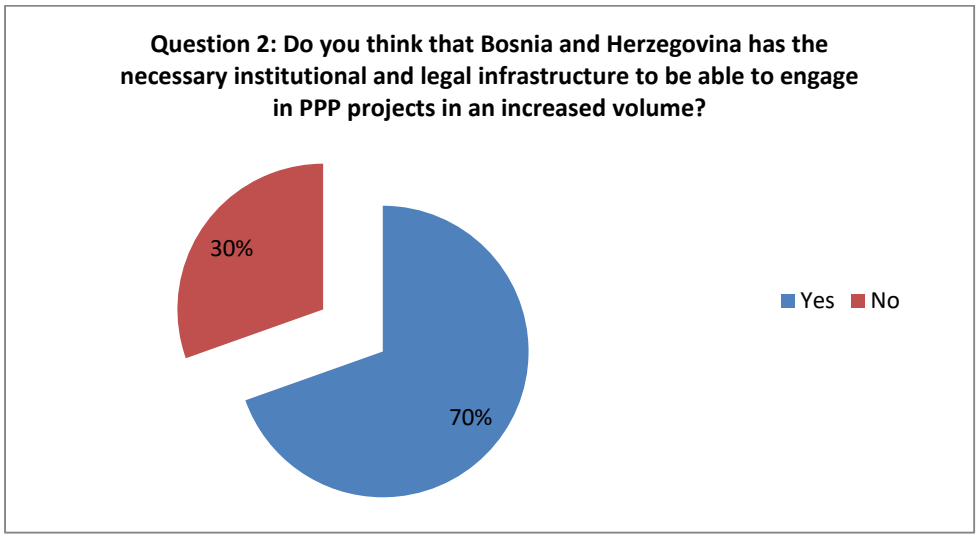
Question 1b: Briefly explain why no:

Table 6: Answers on Question 1b from Questionnaire 1

Jer ce javno dobro biti iskoristeno za bogacenje pojedinaca sa jakim politickim vezama, a na stetu gradjana i prirode.

Source: Own work.

Figure 2 : Summary of Answers on Question 2 from Questionnaire 1



Source: Own work.

Question 2a: Briefly explain why yes.

Table 7 : Answers on Question 2a from Questionnaire 1

tome se neko vrijeme pricalo u javnosti pa pretpostavljam da je nesto i preduzeto na uspostavljanju pravnog okvira.
Zakon RS, kantonalni zakoni narocito u ZDK, SBK, TK i uskoro USK
Postoji zakon na kantonalnim nivoima vlasti te Zakon o JPP Republike Srpske i Brčko Distrikt
officially institutional framework that can support these project exists but most probably needs to be developed further
Mislim da je zakonski okvir dostupan.
Zakoni postoje na relevantnim nivoima vlasti koji omogucavaju JPP
Logično radi definisanja prava i obaveza

Source: Own work.

Question 2a-1: How can existing frameworks be improved?

Table 8 : Answers on Question 2a-1 from Questionnaire 1

Ne znam.
Donijeti FBiH zakon o JPP za investicije u javnu infrastrukturu iz FBiH nadleznosti (npr. auto i brze ceste)
Donijeti zakon na nivou Federacije
having more rigourus procedures on how to assign project to private companies and stricter rules on conditions that the company has to fulfill in order to be able to apply for a project (e.g. experience with large-scale projects is very important, as well as lower bound for the company-size so that it is able to provide the support on a large enough scale)
Užom suradnjom i nadzorom države nada strateškim interesima iste.
provedbenim podzakonskim aktima koji detaljnije propisuju odredjene aspekte JPP
Ubrzati procese zakonske okvire i angaživati eksperte, izbjeći zloupotrebe i dogovore političara sa podobnim iz privatnog sektora.

Source: Own work.

Question 2b: Briefly explain why no.

Table 9 : Answers on Question 2b from Questionnaire 1

Nema adekvatnog i kvalitwtnog nacina upravljanja projektima
Sporost u rijesavanja zahtjeva i procesa na svim nivoima.
Not only does the current institutional framework not allow significant development in the field of PPP in regard to infrastructure development, but it also strangles any kind of initiative through lack of political consensus, complex legislation, administrative burdens, ineffective and inefficient public administration and corruption.
Ima u pojedinim kantonima
Zbog izostanka veceg obima investicija
U Federaciji postoji nacrt Zakona o JPP koji je napravilo Federalno Ministarstvo prometa i komunikacija, ali ga je Vlada Federacije vratila. Na nivou BiH ne postoji zakon o JPP, ali postoji potreba za njim.
Potrebna je veca transparentnost i definisanje nadleznosti.
The legal framework and legislations are not updated or modified
nedostatak odgovarajućih zakonskih regulativa i prostora za privatni sektor u ovom smislu.
Nedostaju odgovarajuci zakoni na svim nivoima u skladu sa najboljim svjetskim praksama, izmeju ostalog i da bi se izbjegli i neki od problema u regiji.
Zato sto nadlezne institucije nemaju dovoljno sluha za ovu problematiku
Odgovor je i da i ne - pravno mislim da sve osnove ima, ali sto se tice institucija nisam sigurna da li postoje kapaciteti ili volja
Bosnia and Herzegovina does not have a unified and consistent legal framework regulating PPP, and mainly due to the constitutional setup of the country. The institutions tasked to implement and monitor PPP projects, such as Commissions for Concessions are underdeveloped and not transparent.
Jer u BiH aktuelni zakoni za mnoga pitanja nisu dobro definisana

Source: Own work.

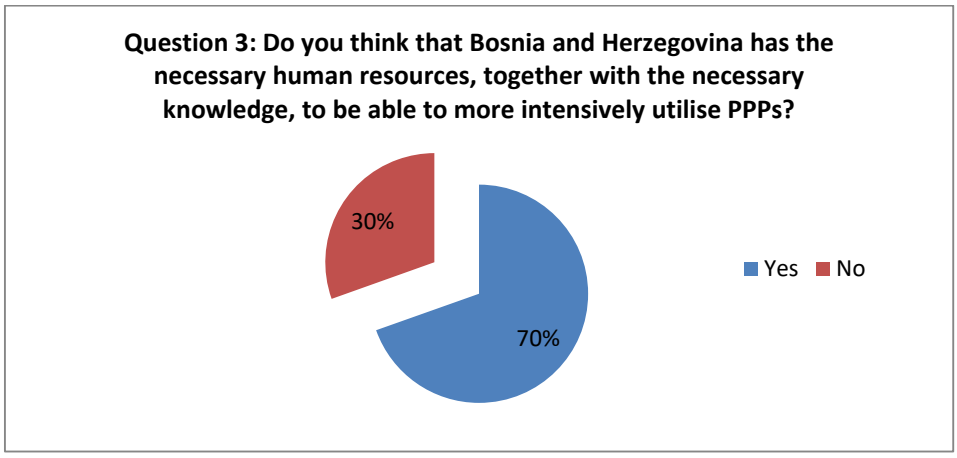
Question 2b-1: How can this gap be overcome?

Table 10 : Answers on Question 2b-1 from Questionnaire 1

Uspostavljanjem principa "value for money"
Pojednostavljenim procedurama na svim nivoima djelovanja.
Political consensus
Moguce da je potrebna regulativa na entitetskom nivou, preostalim kantonima, te podrska u implementaciji kantonima koji vec imaju potrebnu regulative
Izmjenama i input korisnika na osnovi praksi
-
Potrebna je veca transparentnost i definisanje nadleznosti
Update legal frameworks and legislation according to international standards and best practices with the support of relevant international organisations
unaprjeđenjem postojećeg sistema na institucionalnom nivou
Uz tehnicku pomoc koju pruzaju medjunarodne finansijske institucije.
Pojednostavljivanjem bepotrebne adiministracije i papirologije, te ukljucivanjem nadleznih institucija
Unapredjenjem kapaciteta institucija
Primarily by streamlining legal framework, i.e. having one law on the state level. Also by setting up specialized institution, or joint companies that would implement PPP projects.
Saradnjom oba sektora, na novom okviru koji ce zadovoljiti obje strane
Primeniti pozitivne prakse iz zemalja EU
Pravnom drzavom

Source: Own work.

Figure 3 : Summary of Answers on Question 3 from Questionnaire 1



Source: Own work.

Question 3a: Briefly explain why yes

Table 11 : Answers on Question 3a from Questionnaire 1

Imamo potrebne akademske institucije za razvoj kvalitetnog kadra.
Existing knowledge base that encompasses civil servants, legal framework as well as some small scale pilot projects is sufficient to start new projects.
.
Uvijek moguca dalja nadogradnja
-
Veliki broj administrativnih radnika u državnim službama.
/
They have the Human Resources
many highly educated people who can focus on this field
u privatnom sektou sigurno da.
Još uvijek imamo dovoljno kadrova u svim poljima, koja , ako adekvatno stimulisana, neće napustiti državu.
Zato sto ima mnogo maldih i obrazovanih ljudi u BIH, samo ih treba znati iskoristiti
Jer se nekoliko JPP vec uspjesno odvija
Znanje - privatni sektor. Resursi - javni sector
Postoji puno pametnih i obrazovanih mladih ljudi.
Kada bi se sansa dala mladim i pametnim ljudima, sve bi bilo drugacije

Source: Own work.

Question 3a-1: How can the existing knowledge base be improved?

Table 12 : Answers on Question 3a-1 from Questionnaire 1

Kroz reforme ,javne uprave i obrazovnih institucija
Only by practically working on actual projects.
Moguce je da nivoi vlasti nisu upoznati sa prednostima JPP
Edukacije, P2P
-
Neophodna kvalitetna edukacija.
Edukacijom
Further capacity building and development with the right direction
international cooperation with practical implications
primjenom već postojećih sistema, edukacijom i motivacijom domaćeg kadra angažiranog izvan BiH.
Preuzimanjem know-how-a drugih sličnih projekata izvan BiH.
Stalnim usavrsavanjem i ulaganjem u edukacije
Dodatnom edukacijom javnih službenika
Pokrenuti kampanju i transparentnost ovoj temi, organizacijom radionica, komunicirati putem medija kontinuirano da se podigne svijest o važnosti.
Privlacenje emigracije
Ulaganjem u obrazovanje i svaki drugi vid obucavanja i dopune znanja

Source: Own work.

Question 3b: Briefly explain why no.

Table 13 : Answers on Question 3b from Questionnaire 1

Nedostatno znanje i informisanist o jpp
Ljudski resursi kojima BiH raspolaze na odgovornim nivoima su veoma podlozni korupciji.
Ne ulaze se u sistemsko jacanje kapaciteta samo ad hoc seminari i sl.
Nedovoljno kadrova upoznatih sa konceptom PPP i sposobnih da ih realizuju.
Nedostaje tehnickog kapaciteta i znanja na svim nivoima.
Opet, resurse mozda ima u smislu broja ljudi, ali znanja vjerovatno nedostaje.
Understanding of PPP by public sector officials that are in position to decide on this issue is very limited. They show a lack of understanding of risks coming with PPP projects, presenting them in very simplistic terms to private investors - focusing on the financial and other benefits for potential partners.

Source: Own work.

Question 3b-1: Which human resource knowledge is needed at the state, cantonal and municipal level?

Table 12 Answers on Question 3b-1 from Questionnaire 1

Osobe sa svjetskim iskustvom i znanjima o upravljanju projektima
Svijest da javno dobro pripada svima i treba sluziti za opstu korist.
Sve vezano za PPP value chain i stratesko upravljanje u javnom sektoru
Upravljanje kompleksnim projektima (svi aspekti)
Tehnicki esperti sa prethodnim iskustvom koji u pravilu ne postoje kod nas.
Znanja iz oblasti razvoja infrastrukture, provodjenja procedura, upravljanja projektima, transfera vlasnistva isl.
Specialists on PPP need to be employed in relevant institutions. These individuals need to have proper training, particularly with standards of governance of PPPs issued by the OECD, World Bank and the EU standards.

Source: Own work.

Question 3b-2: Which measures should be implemented in order to close the gap?

Table 15 : Answers on Question 3b-2 from Questionnaire 1

Edukacija
Resetovati drzavne institucije.
Ozbiljan program edukacije
edukacije, ukljucivanje koncepta JPP u studijske programe, on-job edukacije, awareness raising itd
Zahtijevati pomoc medjunarodnih finansijskih institucija i konsultantskih kuca.
Edukacija zaposlenih, jasna opredjeljenja institucija za ppp...
Legal and institutional framework needs to be streamlined, and competent staff needs to be engaged in these institutions.

Source: Own work.

Question 3b-3: Who should adopt/implement these measures?

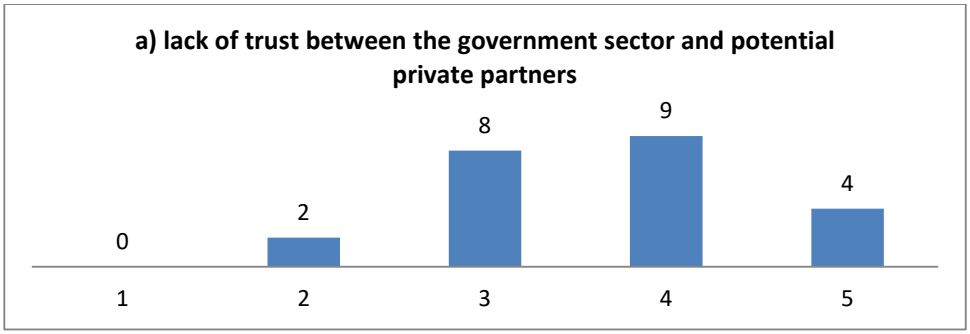
Table 16 : Answers on Question 3b-3 from Questionnaire 1

Vlada na svim nivoima
Ne znam.
Javni sektor uz eventualnu podrsku medjunarodnih partnera
vlasti zainteresovane za JPP sa ino-partnerima sa iskustvom u realizaciji JPP projekata, obrazovne institucije itd
Domaci ljudi uz stranu pomoc, na nacin da u srednjem roku postanu nezavisni.
Nadlezne institucije - idealno s vrha prema dnu.
Council of Ministers of Bosnia and Herzegovina, Parliamentary Assembly of Bosnia and Herzegovina, Government of the FBIH, Government of Republika Srpska, Parliament of FBIH, National Assembly of RS

Source: Own work.

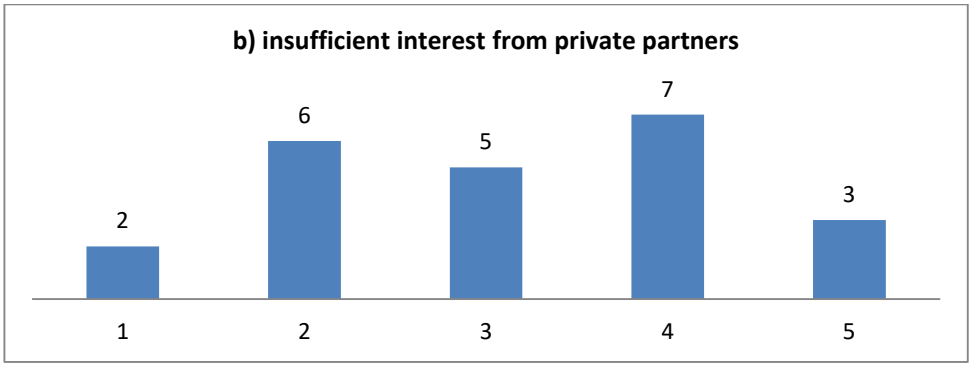
Question 4: You will be provided with a list of most common objections/challenges for the successful deployment of PPPs. Please assign one the values to the each of the listed objections/challenges according to your assumption of their importance in Bosnia and Herzegovina.

Figure 4 : Summary of Answers on Question 4a from Questionnaire 1



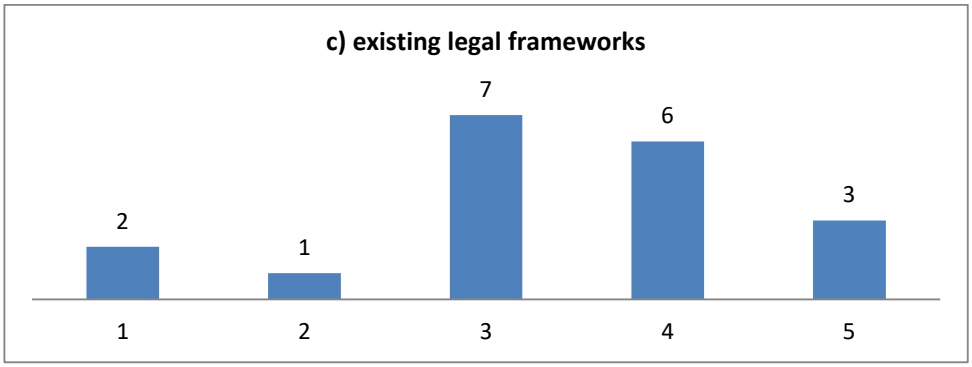
Source: Own work.

Figure 5 : Summary of Answers on Question 4b from Questionnaire 1



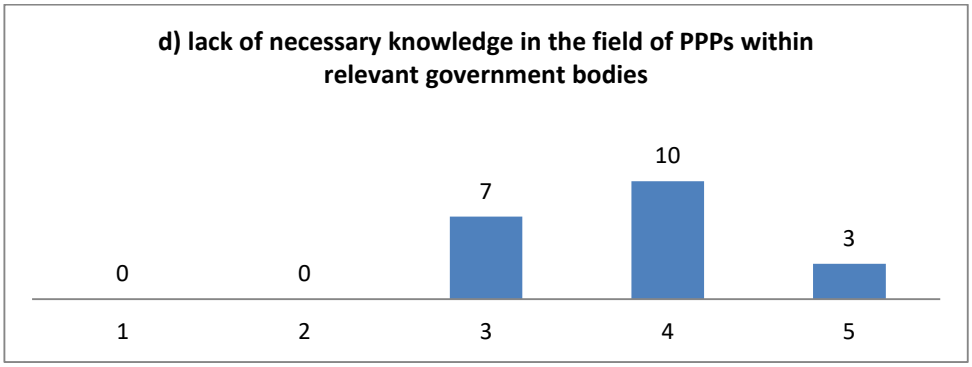
Source: Own work.

Figure 6 : Summary of Answers on Question 4c from Questionnaire 1



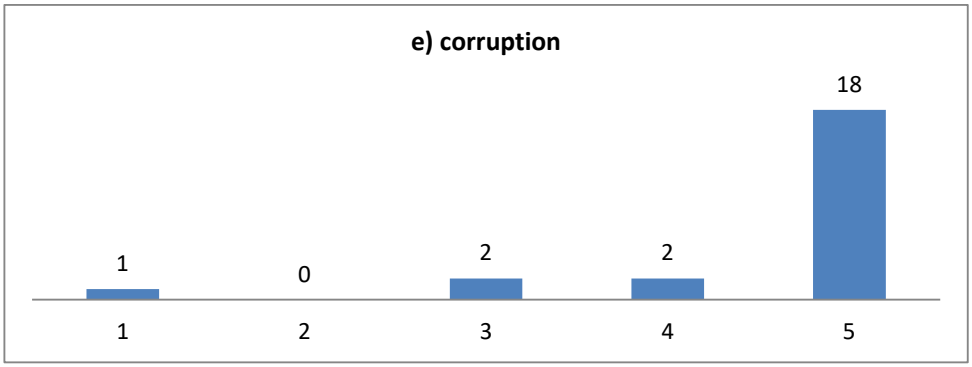
Source: Own work.

Figure 7 : Summary of Answers on Question 4d from Questionnaire 1



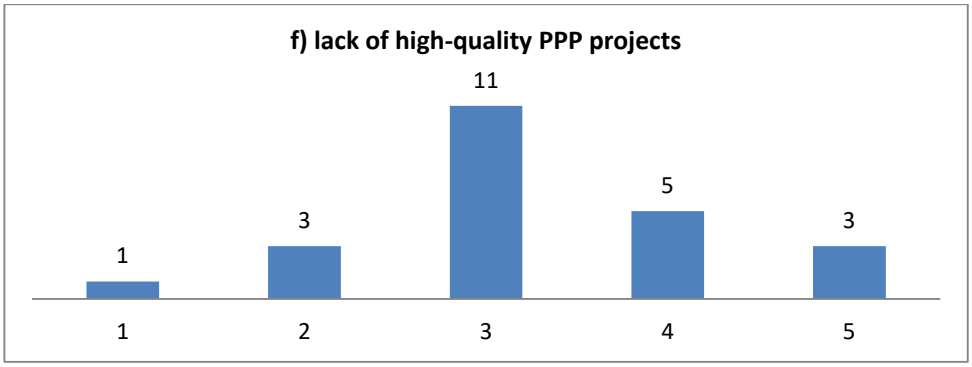
Source: Own work.

Figure 8 : Summary of Answers on Question 4e from Questionnaire 1



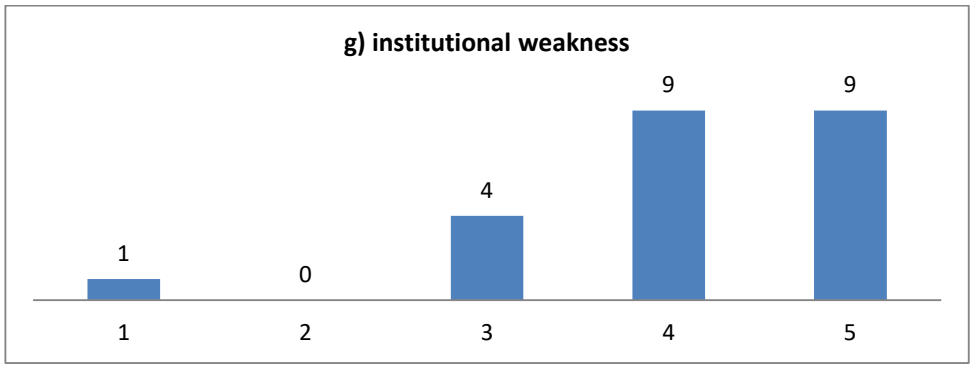
Source: Own work.

Figure 9 : Summary of Answers on Question 4f from Questionnaire 1



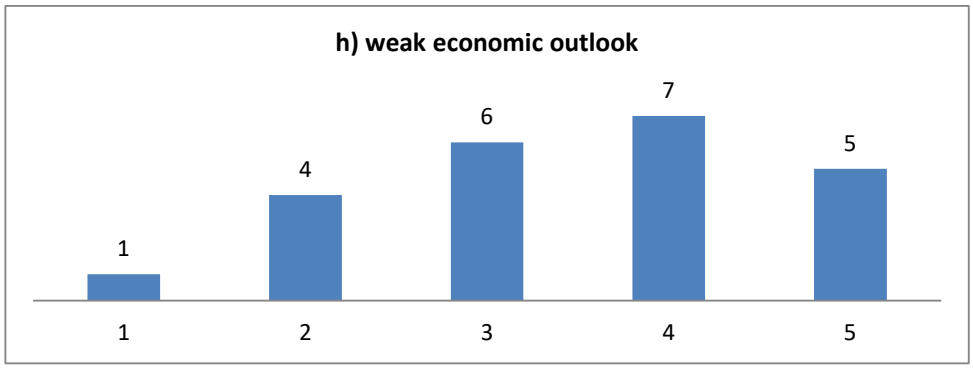
Source: Own work.

Figure 10 : Summary of Answers on Question 4g from Questionnaire 1



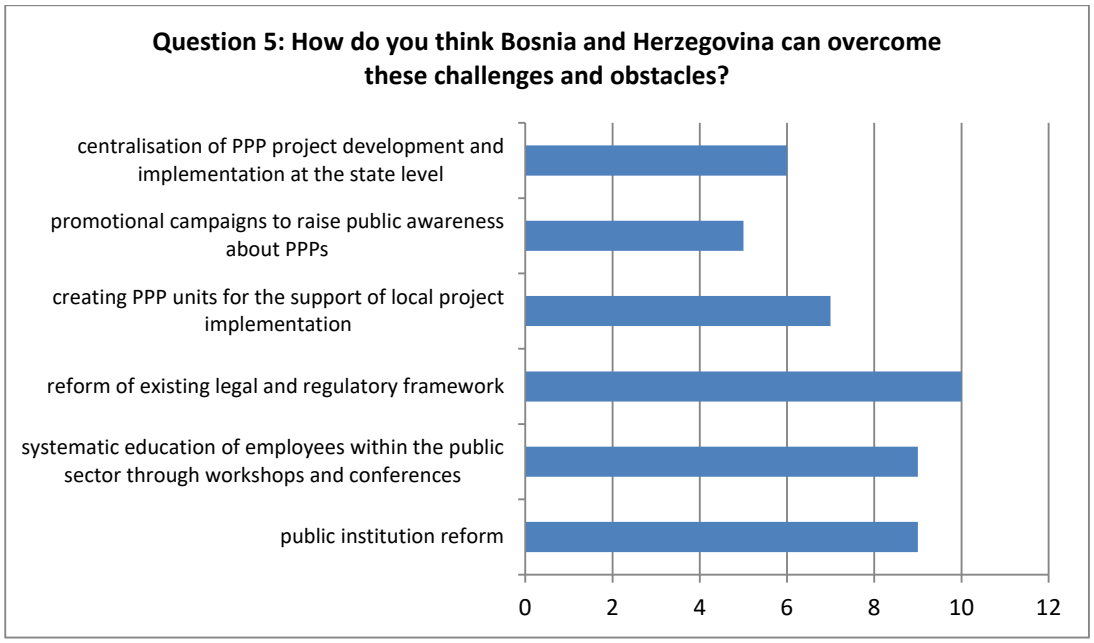
Source: Own work.

Figure 11 : Summary of Answers on Question 4h from Questionnaire 1



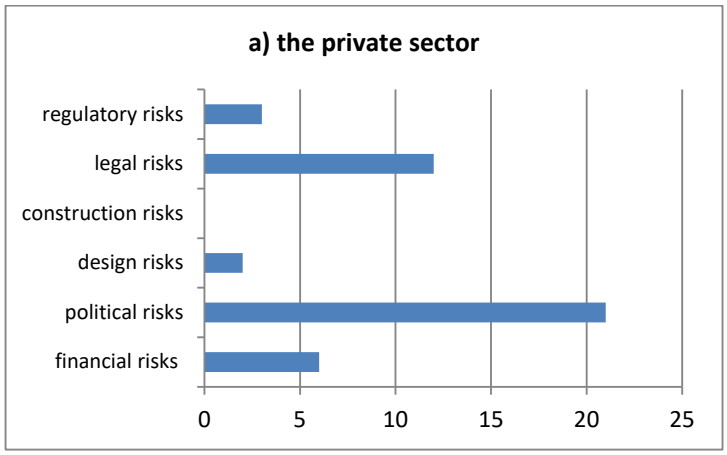
Source: Own work.

Figure 12 : Summary of Answers on Question 5 from Questionnaire 1



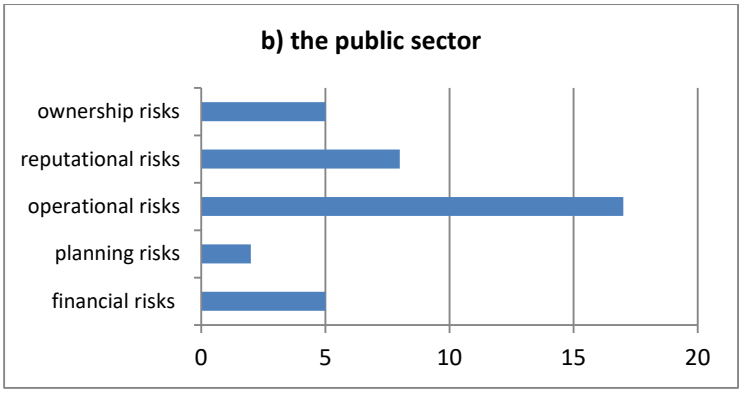
Question 6: What are potentially the biggest risks involved in implementing PPP projects in B&H for:

Figure 13 : Summary of Answers on Question 6a from Questionnaire 1



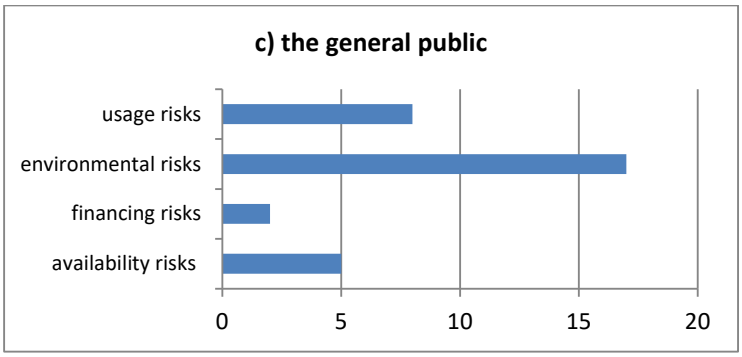
Source: Own work.

Figure 14 : Summary of Answers on Question 6b from Questionnaire 1



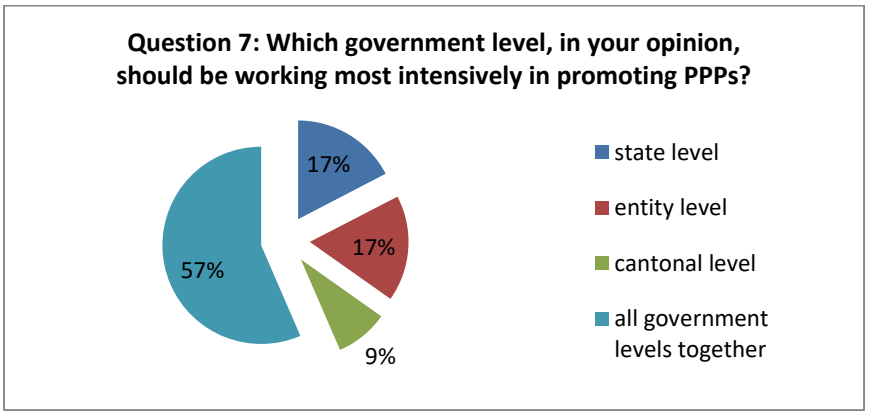
Source: Own work.

Figure 15 : Summary of Answers on Question 6c from Questionnaire 1



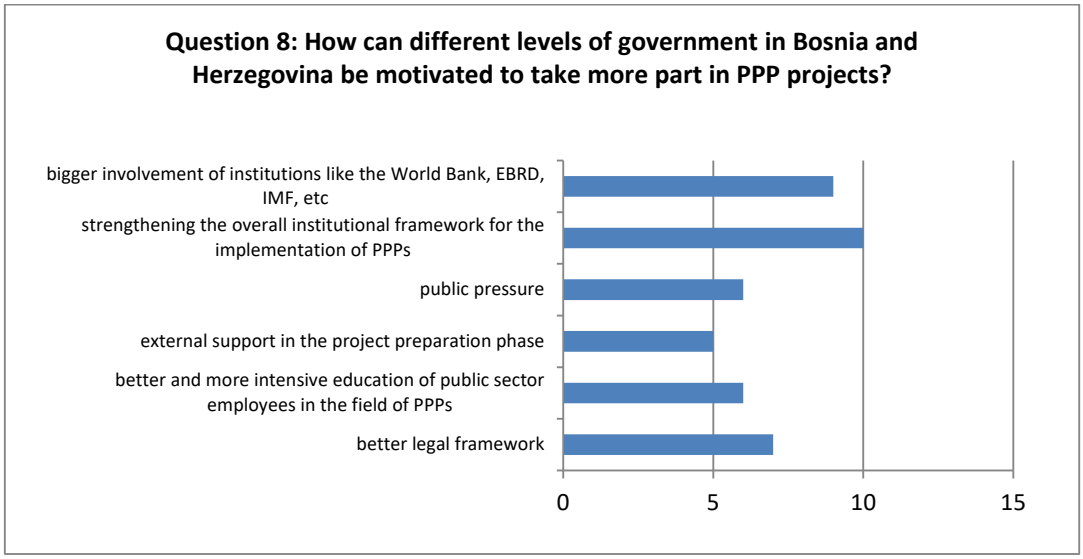
Source: Own work.

Figure 16 : Summary of Answers on Question 7 from Questionnaire 1



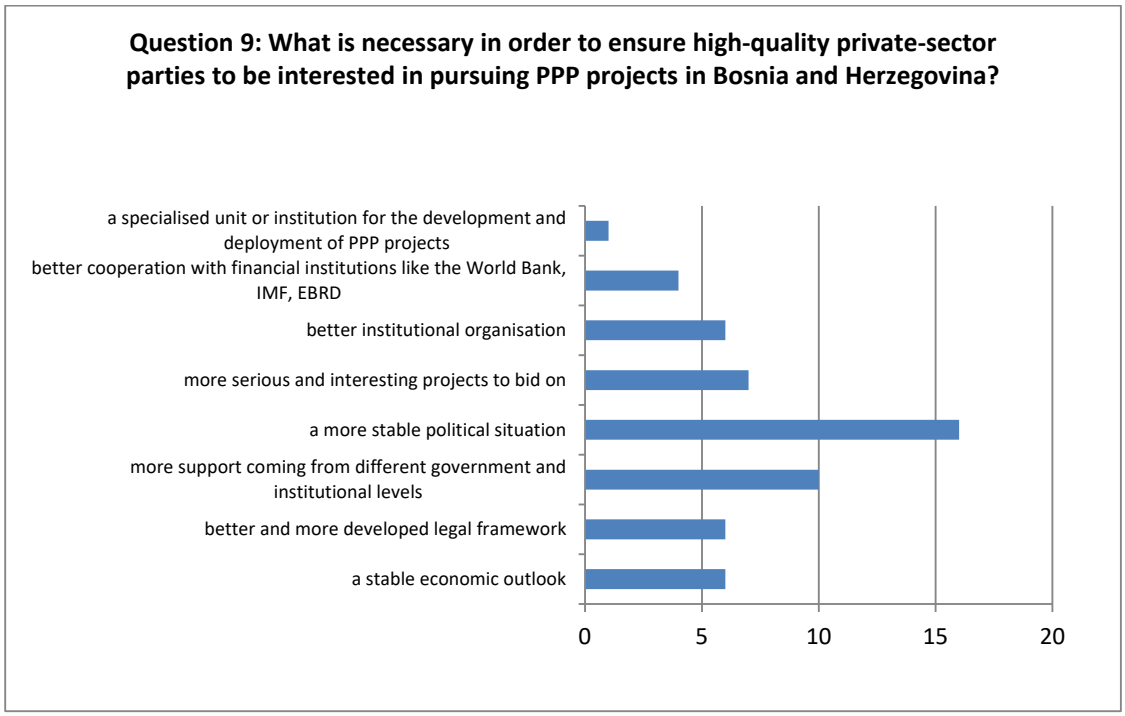
Source: Own work.

Figure 17 : Summary of Answers on Question 8 from Questionnaire 1



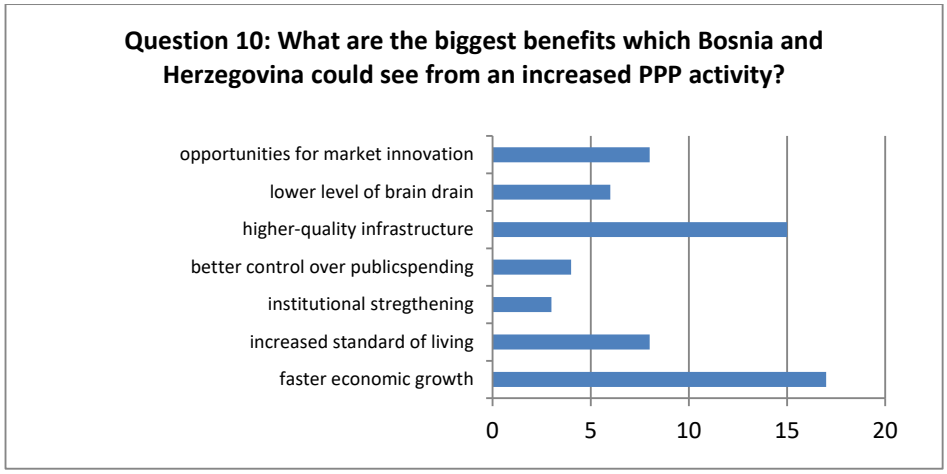
Source: Own work.

Figure 18 : Summary of Answers on Question 9 from Questionnaire 1



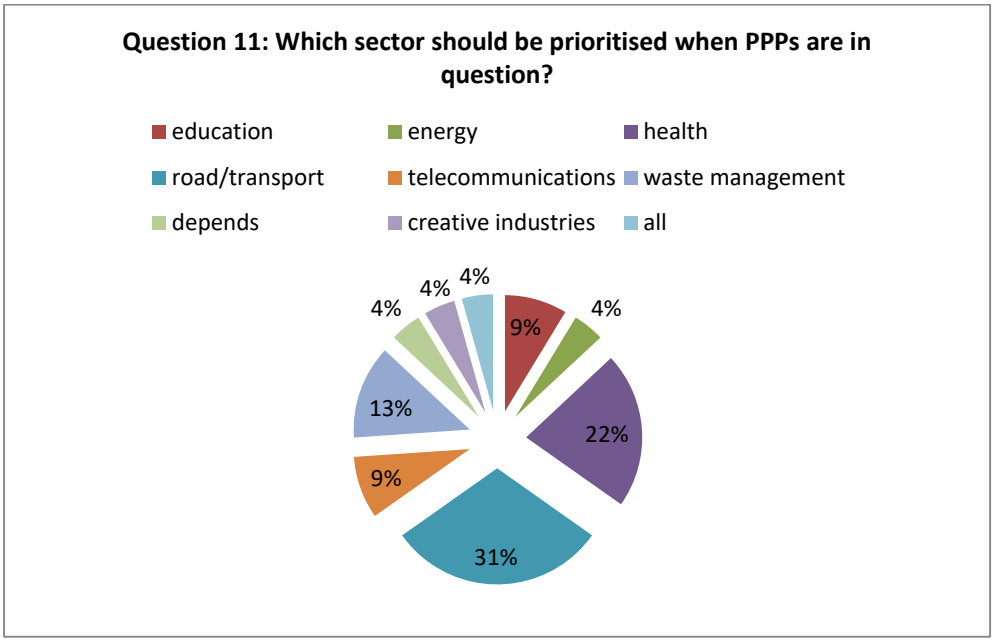
Source: Own work.

Figure 19 : Summary of Answers on Question 10 from Questionnaire 1



Source: Own work.

Figure 20 : Summary of Answers on Question 11 from Questionnaire 1



Source: Own work.

Question 11a: Briefly elaborate why

Table 17 : Answers on Question 11a from Questionnaire 1

-
Kao pokretac ekonomskog razvoja.
Trenutno ima velike probleme.
Apart from corridor Vc the rest of transport infrastructure is seriously neglected.
Prilika za inovacije i uskladjivanje sa EU standardima u pogledu recikliranja i koristenja recikliranog otpada za druge namjene
Velike potrebe
-
JPP je alat za unapredjenje javnih usluga (uklj. javnu infr vezanu za tu uslugu), a javne usluge su rasporedjene pod nadleznost razlicitih nivoa vlasti - od lokalnog do drzavnog. Svaki nivo planira i pokrece projekte uz svoje nadleznosti.
Previsoke cijene usluga
Iz razloga sto je trenutno zdravstveni sektor dosegao samo dno po pitanju strucnosti i mogucnosti lijecenja.
It is key to bring up a better, developed more aware generation
transport infrastrcture is currently curcial for the economic growth and development and indirectly affects most of the other sectors stated above
Najveći potencijal za razvoj i profit za oba sektora
Jer je na niskom nivou kvaliteta.
dovoljno profita za privatni sektor, pozitivne eksternalije ovakvih projekata za siru populaciju, aspekt okolisa i kvalitete zivota , cirkularna ekonomija.
Zato sto je zdravstvo "ticking bomb"

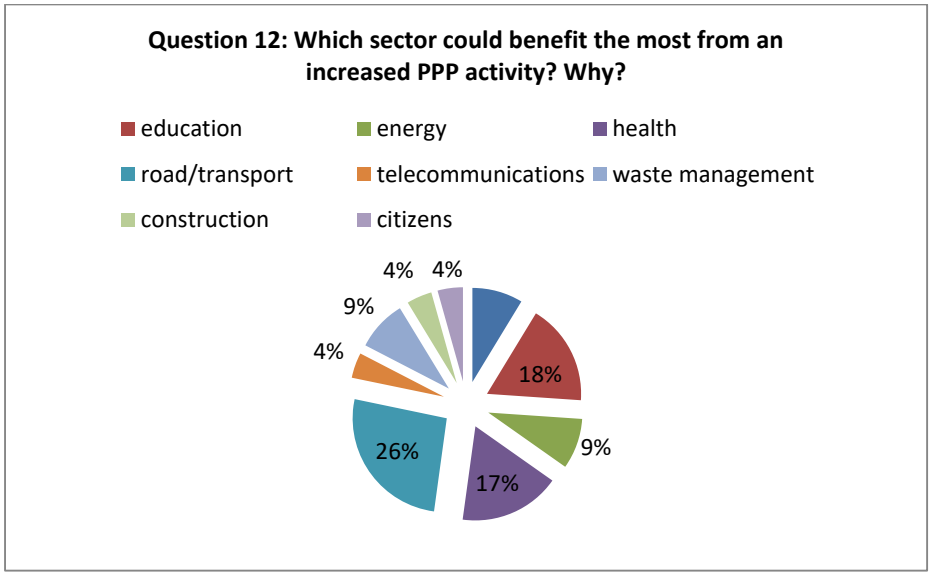
(table continues)

(continued)

Zato sto je sramotno los
Taj dio nam je definitivno najnerazvijeniji u drzavi...
PPP would accelerate infrastructure development, as it would help the authorities to overcome the limits on public debt, and avoid financing infrastructure projects from fiscal sources, since budgets of various levels of government are already burdened by public spending.
Jer je infrastruktura nedovoljno razvijena
Kreativne industrije brzo generiraju profit, mogu biti veliki izvozni potencijal.
On ce povuci razvoj svih ostalih sektora
Dugorocno, najbolja investicija

Source: Own work.

Figure 21 : Summary of Answers on Question 12 from Questionnaire 1



Source: Own work.

Question 12a: Briefly elaborate why.

Table 18 : Answers on Question 12a from Questionnaire 1

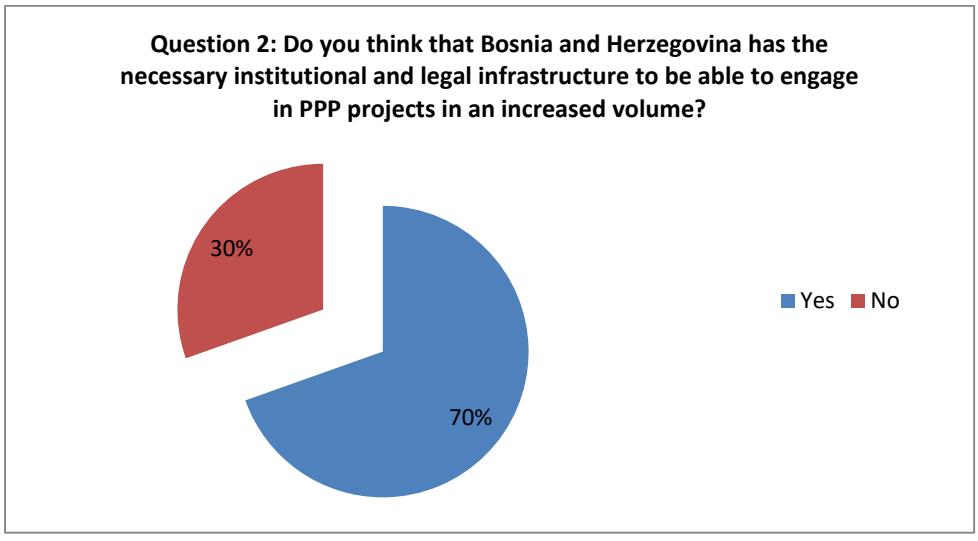
-
Gore navedeno
Investitori su zainteresovani za taj sektor.
/
-
Koristi su za građane kao korisnike usluga ne sektore
-
Svi JPP projekti imaju odredjenu komponentu gradjenja ili bar renoviranja
Jedan od načina da se odabere kvalitetniji kadar i unaprijedi sam program obrazovanja.
Veci izvoz dobara.

(table continues)

(continued)

Open public land waiting for initiatives for investments
due to complexity of this sector and difficulties they are dealing with currently
Najveći potencijal za razvoj i profit za oba sektora
-
objasnjeno u prethodnom pitanju
Zato sto se vrlo tesko moze sam reformisati.
Stvaranje i educiranje mladih intelektualava
Kao gore navedeno
The same reasons as above. Also, other sectors, particularly energy, water management and healthcare are sensitive, and PPP projects in these sectors can often result in major cost increase, which is suffered by the large sections of population.
Jer mu je potrebna reforma.
Zbog ne usklađenosti obrazvonog sisitema sa potrebam na tržištu i konkurentnositi kompanija.
Omogucice prosirenje znanja
Bez dobre transportne infrastrukture ne moze se ni ocekivati neki kvalitetni ekonomski razvoj

Figure 22 : Summary of Answers on Question 2 from Questionnaire 1



Source: Own work.

Question 2a: Briefly explain why yes.

Table 19 : Answers on Question 2a from Questionnaire 1

tome se neko vrijeme pricalo u javnosti pa pretpostavljam da je nesto i preduzeto na uspostavljanju pravnog okvira.
Zakon RS, kantonalni zakoni narocito u ZDK, SBK, TK i uskoro USK
Postoji zakon na kantonalnim nivoima vlasti te Zakon o JPP Republike Srpske i Brčko Distrikt
officially institutional framework that can support these project exists but most probably needs to be developed further
Mislim da je zakonski okvir dostupan.
Zakoni postoje na relevantnim nivoima vlasti koji omogucavaju JPP
Logično radi definisanja prava i obaveza

Source: Own work.

Question 2a-1: How can existing frameworks be improved?

Table 20 : Answers on Question 2a-1 from Questionnaire 1

Ne znam.
Donijeti FBiH zakon o JPP za investicije u javnu infrastrukturu iz FbiH nadleznosti (npr. auto i brze ceste)
Donijeti zakon na nivou Federacije
having more rigourus procedures on how to assign project to private companies and stricter rules on conditions that the company has to 37ulfil in order to be able to apply for a project (e.g. experience with large-scale projects is very important, as well as lower bound for the company-size so that it is able to provide the support on a large enough scale)
Užom suradnjom I nadzorom države nada strateškim interesima iste.
provedbenim podzakonskim aktima koji detaljnije propisuju odredjene aspekte JPP
Ubrzati procese zakonske okvire i angaživati eksperte, izbjeći zloupotrebe i dogovore političara sa podobnim iz privatnog sektora.

Source: Own work.

Question 2b: Briefly explain why no.

Table 21 : Answers on Question 2b from Questionnaire 1

Nema adekvatnog i kvalitwtnog nacina upravljanja projektima
Sporost u rijesavanja zahtjeva i procesa na svim nivoima.
Not only does the current institutional framework not allow significant development in the field of PPP in regard to infrastructure development, but it also strangles any kind of initiative through lack of political consensus, complex legislation, administrative burdens, ineffective and inefficient public administration and corruption.
Ima u pojedinim kantonima Zbog izostanka veceg obima investicija

(table continues)

(continued)

U Federaciji postoji nacrt Zakona o JPP koji je napravilo Federalno Ministarstvo prometa i komunikacija, ali ga je Vlada Federacije vratila. Na nivou BiH ne postoji zakon o JPP, ali postoji potreba za njim.
Potrebna je veca transparentnost i definisanje nadleznosti.
The legal framework and legislations are not updated or modified
nedostatak odgovarajućih zakonskih regulativa i prostora za privatni sektor u ovom smislu.
Nedostaju odgovarajuci zakoni na svim nivoima u skladu sa najboljim svjetskim praksama, izmeju ostalog i da bi se izbjegli i neki od problema u regiji.
Zato sto nadlezne institucije nemaju dovoljno sluha za ovu problematiku
Odgovor je i da i ne - pravno mislim da sve osnove ima, ali sto se tice institucija nisam sigurna da li postoje kapaciteti ili volja
Bosnia and Herzegovina does not have a unified and consistent legal framework regulating PPP, and mainly due to the constitutional setup of the country. The institutions tasked to implement and monitor PPP projects, such as Commissions for Concessions are underdeveloped and not transparent.
Jer u BiH aktuelni zakoni za mnoga pitanja nisu dobro definisana
Nije uskladjeno sa regulativom EU
Zbog korupcije

Source: Own work.

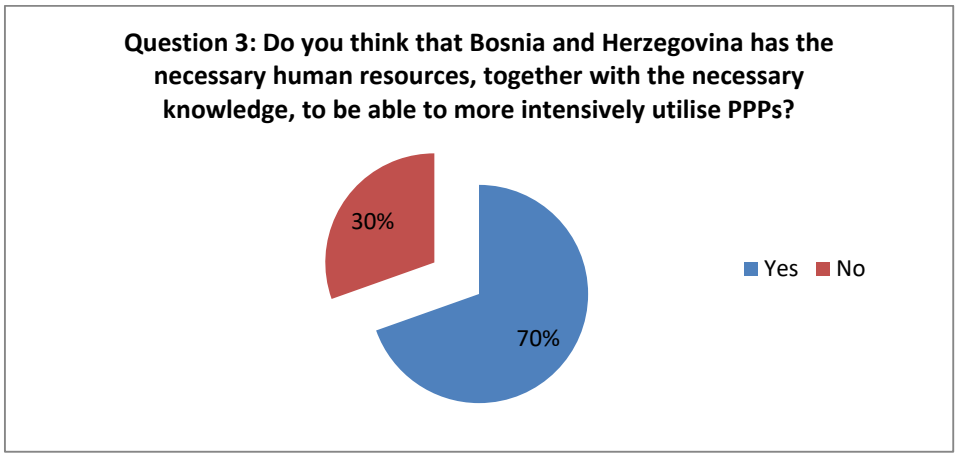
Question 2b-1: How can this gap be overcome?

Table 22 : Answers on Question 2b-1 from Questionnaire 1

Uspostavljanjem principa "value for money"
Pojednostavljenim procedurama na svim nivoima djelovanja.
Political consensus
Moguce da je potrebna regulativa na entitetskom nivou, preostalim kantonima, te podrska u implementaciji kantonima koji vec imaju potrebnu regulative
Izmjenama i input korisnika na osnovi praksi
-
Potrebna je veca transparentnost i definisanje nadleznosti
Update legal frameworks and legislation according to international standards and best practices with the support of relevant international organisations
unaprjeđenjem postojećeg sistema na institucionalnom nivou
Uz tehnicku pomoc koju pruzaju medjunarodne finansijske institucije.
Pojednostavljivanjem bepotrebne adiministracije i papirologije, te ukljucivanjem nadleznih institucija
Unapredjenjem kapaciteta institucija
Primarily by streamlining legal framework, i.e. having one law on the state level. Also by setting up specialized institution, or joint companies that would implement PPP projects.
Saradnjom oba sektora, na novom okviru koji ce zadovoljiti obje strane
Primeniti pozitivne prakse iz zemalja EU
Pravnom drzavom

Source: Own work.

Figure 23 : Summary of Answers on Question 3 from Questionnaire 1



Source: Own work.

Question 3a: Briefly explain why yes

Table 23 : Answers on Question 3a from Questionnaire 1

Imamo potrebne akademske institucije za razvoj kvalitetnog kadra.
Existing knowledge base that encompasses civil servants, legal framework as well as some small scale pilot projects is sufficient to start new projects.
.
Uvijek moguca dalja nadogradnja
-
Veliki broj administrativnih radnika u državnim službama.
/
They have the Human Resources
many highly educated people who can focus on this field
u privatnom sektou sigurno da.
Još uvijek imamo dovoljno kadrova u svim poljima, koja , ako adekvatno stimulisana, neće napustiti državu.
Zato sto ima mnogo maldih i obrazovanih ljudi u BIH, samo ih treba znati iskoristiti
Jer se nekoliko JPP vec uspjesno odvija
Znanje - privatni sektor. Resursi - javni sector
Postoji puno pametnih i obrazovanih mladih ljudi.
Kada bi se sansa dala mladim i pametnim ljudima, sve bi bilo drugacije

Source: Own work.

Question 3a-1: How can the existing knowledge base be improved?

Table 24 : Answers on Question 3a-1 from Questionnaire 1

Kroz reforme ,javne uprave i obrazovnih institucija
Only by practically working on actual projects.
Moguce je da nivoi vlasti nisu upoznati sa prednostima JPP
Edukacije, P2P
-
Neophodna kvalitetna edukacija.
Edukacijom
Further capacity building and development with the right direction
international cooperation with practical implications
primjenom već postojećih sistema, edukacijom i motivacijom domaćeg kadra angažiranog izvan BiH.
Preuzimanjem know-how-a drugih sličnih projekata izvan BiH.
Stalnim usavrsavanjem i ulaganjem u edukacije
Dodatnom edukacijom javnih službenika
Pokrenuti kampanju i transparentnost ovoj temi, organizacijom radionica, komunicirati putem medija kontinuirano da se podigne svijest o važnosti.
Privlacenje emigracije
Ulaganjem u obrazovanje i svaki drugi vid obucavanja i dopune znanja

Source: Own work.

Question 3b: Briefly explain why no.

Table 13 Answers on Question 3b from Questionnaire 1

Nedostatno znanje i informisanist o jpp
Ljudski resursi kojima BiH raspolaze na odgovornim nivoima su veoma podlozni korupciji.
Ne ulaze se u sistemsko jacanje kapaciteta samo ad hoc seminari i sl.
Nedovoljno kadrova upoznatih sa konceptom PPP i sposobnih da ih realizuju.
Nedostaje tehnickog kapaciteta i znanja na svim nivoima.
Opet, resurse mozda ima u smislu broja ljudi, ali znanja vjerovatno nedostaje.
Understanding of PPP by public sector officials that are in position to decide on this issue is very limited. They show a lack of understanding of risks coming with PPP projects, presenting them in very simplistic terms to private investors - focusing on the financial and other benefits for potential partners.

Source: Own work.

Question 3b-1: Which human resource knowledge is needed at the state, cantonal and municipal level?

Table 26 : Answers on Question 3b-1 from Questionnaire 1

Osobe sa svjetskim iskustvom i znanjima o upravljanju projektima
Svijest da javno dobro pripada svima i treba sluziti za opstu korist.
Sve vezano za PPP value chain i stratesko upravljanje u javnom sektoru
Upravljanje kompleksnim projektima (svi aspekti)
Tehnicki esperti sa prethodnim iskustvom koji u pravilu ne postoje kod nas.
Znanja iz oblasti razvoja infrastrukture, provodjenja procedura, upravljanja projektima, transfera vlasnistva isl.
Specialists on PPP need to be employed in relevant institutions. These individuals need to have proper training, particularly with standards of governance of PPPs issued by the OECD, World Bank and the EU standards.

Source: Own work.

Question 3b-2: Which measures should be implemented in order to close the gap?

Table 27 : Answers on Question 3b-2 from Questionnaire 1

Edukacija
Resetovati drzavne institucije.
Ozbiljan program edukacije
edukacije, ukljucivanje koncepta JPP u studijske programe, on-job edukacije, awareness raising itd
Zahtijevati pomoc medjunarodnih finansijskih institucija i konsultantskih kuca.
Edukacija zaposlenih, jasna opredjeljenja institucija za ppp...
Legal and institutional framework needs to be streamlined, and competent staff needs to be engaged in these institutions.

Source: Own work.

Question 3b-3: Who should adopt/implement these measures?

Table 28 : Answers on Question 3b-3 from Questionnaire 1

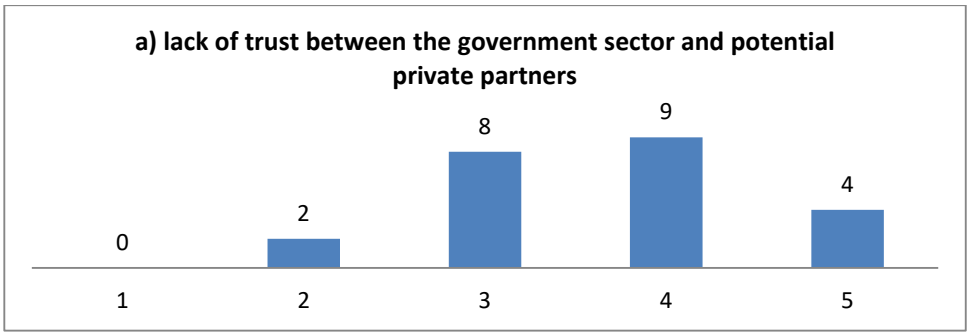
Vlada na svim nivoima
Ne znam.
Javni sektor uz eventualnu podrsku medjunarodnih partnera
vlasti zainteresovane za JPP sa ino-partnerima sa iskustvom u realizaciji JPP projekata, obrazovne institucije itd
Domaci ljudi uz stranu pomoc, na nacin da u srednjem roku postanu nezavisni.
Nadlezne institucije - idealno s vrha prema dnu.

Council of Ministers of Bosnia and Herzegovina, Parliamentary Assembly of Bosnia and Herzegovina, Government of the FBIH, Government of Republika Srpska, Parliament of FBIH, National Assembly of RS

Source: Own work.

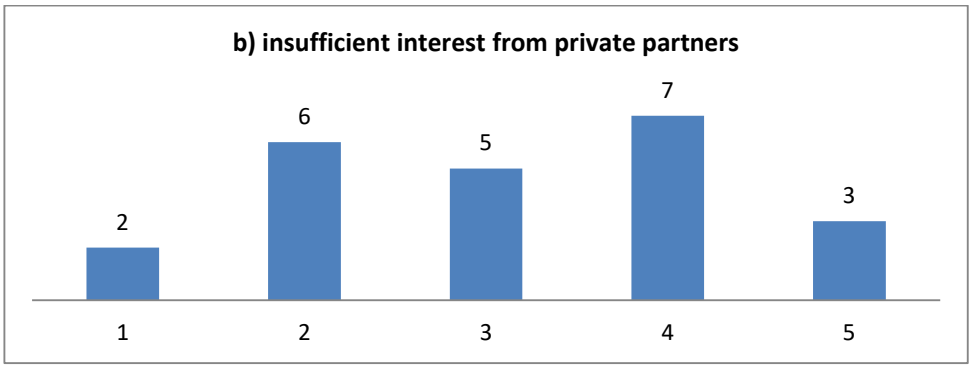
Question 4: You will be provided with a list of most common objections/challenges for the successful deployment of PPPs. Please assign one the values to the each of the listed objections/challenges according to your assumption of their importance in Bosnia and Herzegovina.

Figure 24 : Summary of Answers on Question 4a from Questionnaire 1



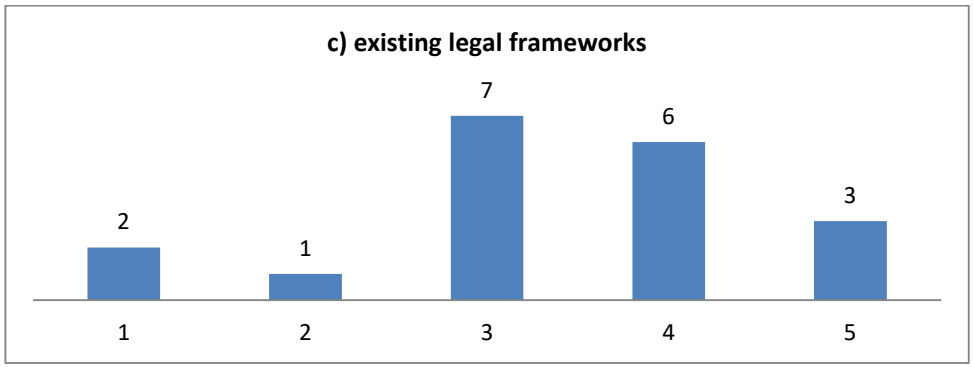
Source: Own work.

Figure 25 : Summary of Answers on Question 4b from Questionnaire 1



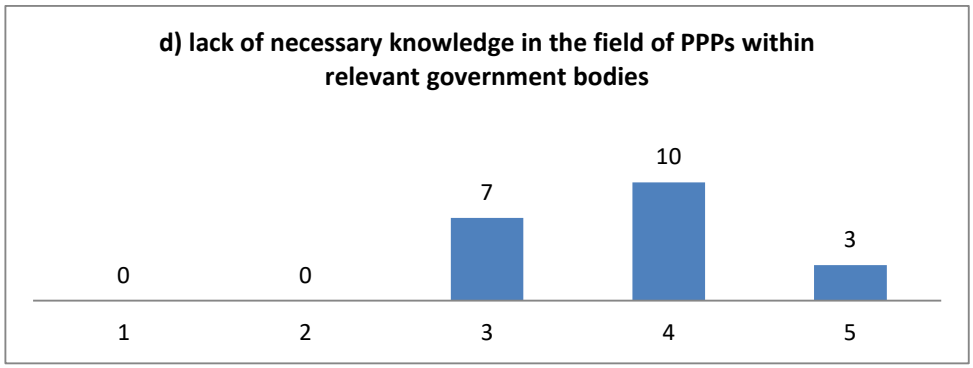
Source: Own work.

Figure 26 : Summary of Answers on Question 4c from Questionnaire 1



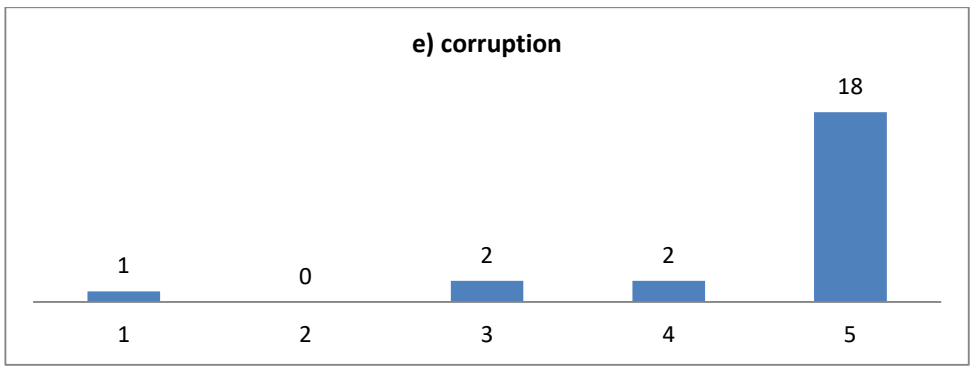
Source: Own work.

Figure 27 : Summary of Answers on Question 4d from Questionnaire 1



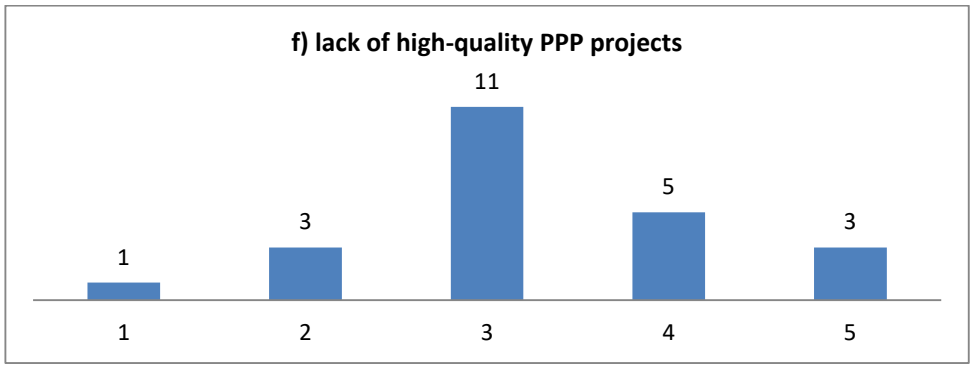
Source: Own work.

Figure 28 : Summary of Answers on Question 4e from Questionnaire 1



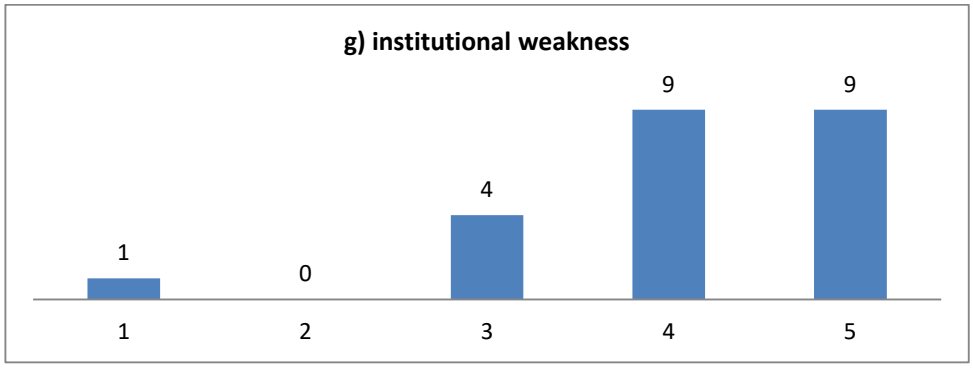
Source: Own work.

Figure 29 : Summary of Answers on Question 4f from Questionnaire 1



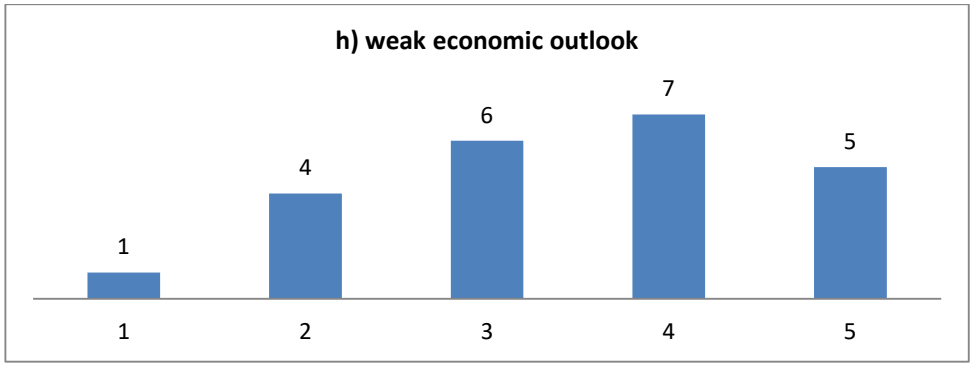
Source: Own work.

Figure 30 : Summary of Answers on Question 4g from Questionnaire 1



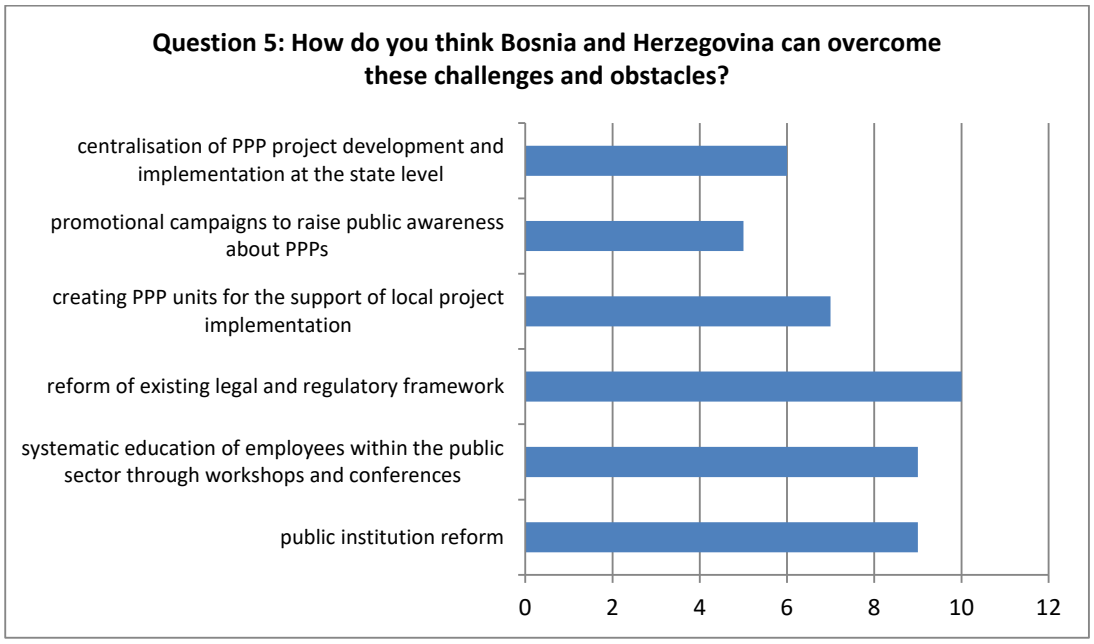
Source: Own work.

Figure 31 : Summary of Answers on Question 4h from Questionnaire 1



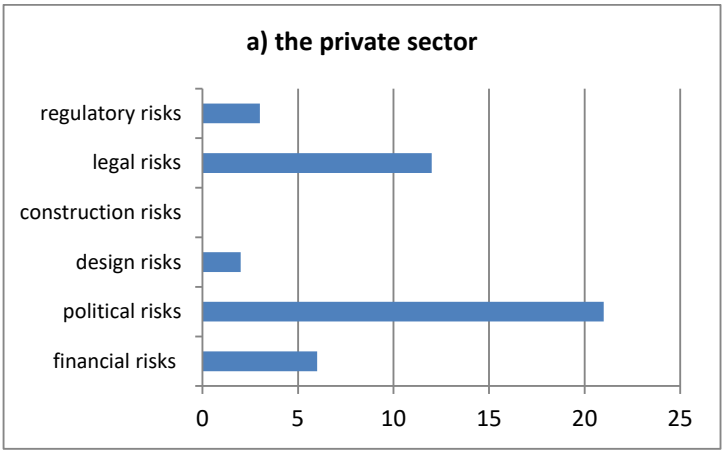
Source: Own work.

Figure 32 : Summary of Answers on Question 5 from Questionnaire 1



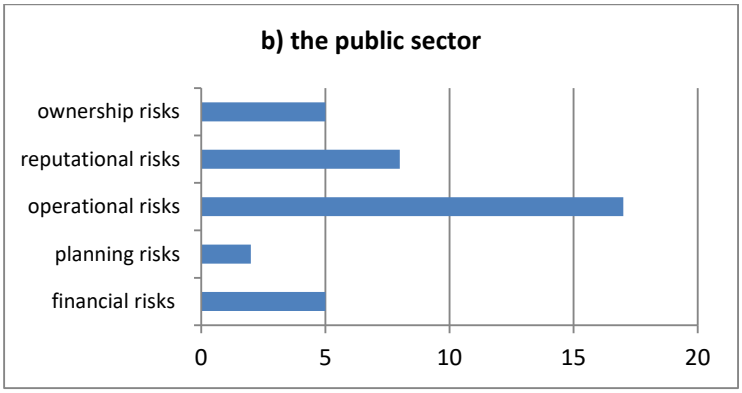
Question 6: What are potentially the biggest risks involved in implementing PPP projects in B&H for:

Figure 33 : Summary of Answers on Question 6a from Questionnaire 1



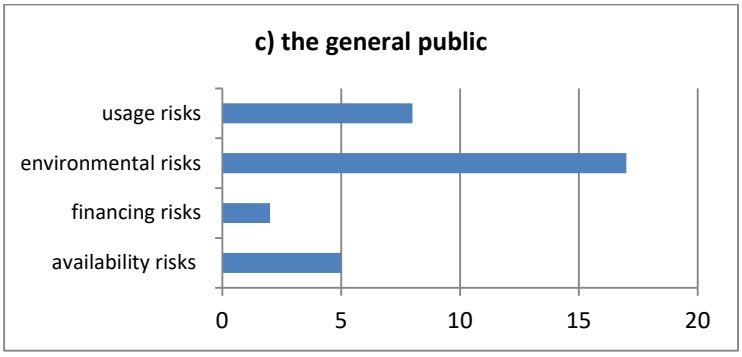
Source: Own work.

Figure 34 : Summary of Answers on Question 6b from Questionnaire 1



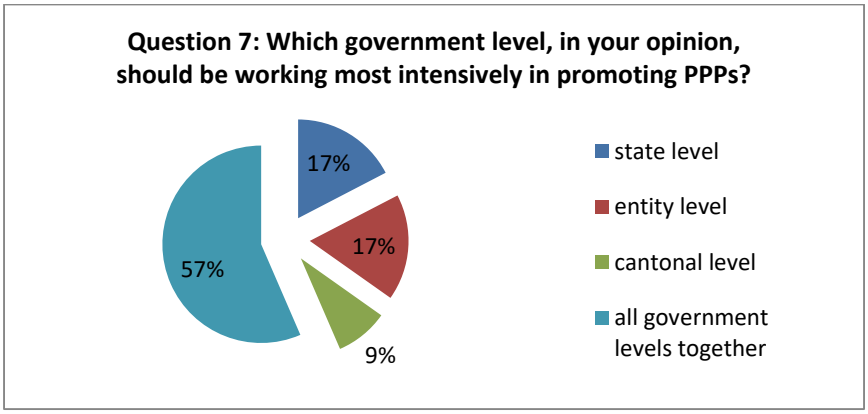
Source: Own work.

Figure 35 : Summary of Answers on Question 6c from Questionnaire 1



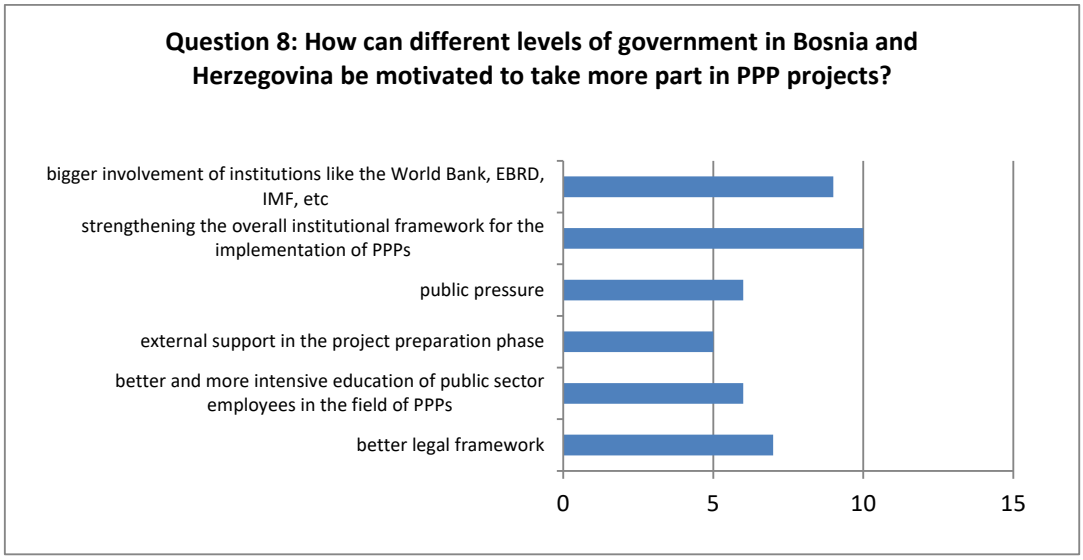
Source: Own work.

Figure 36 : Summary of Answers on Question 7 from Questionnaire 1



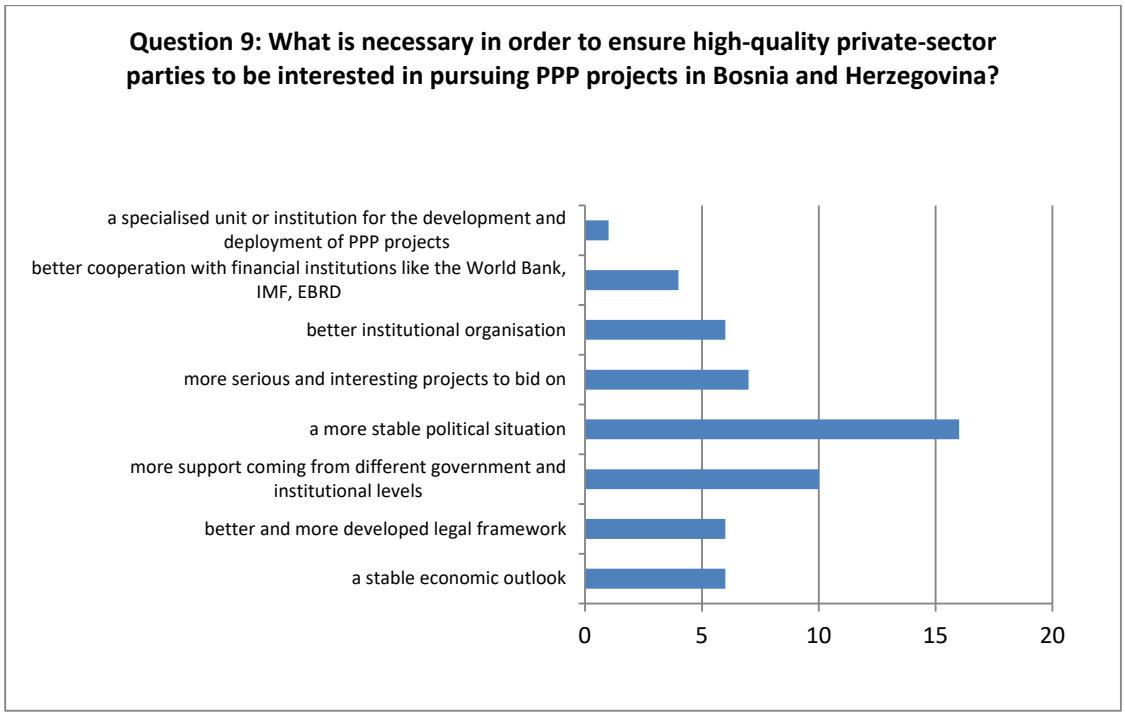
Source: Own work.

Figure 37 : Summary of Answers on Question 8 from Questionnaire 1



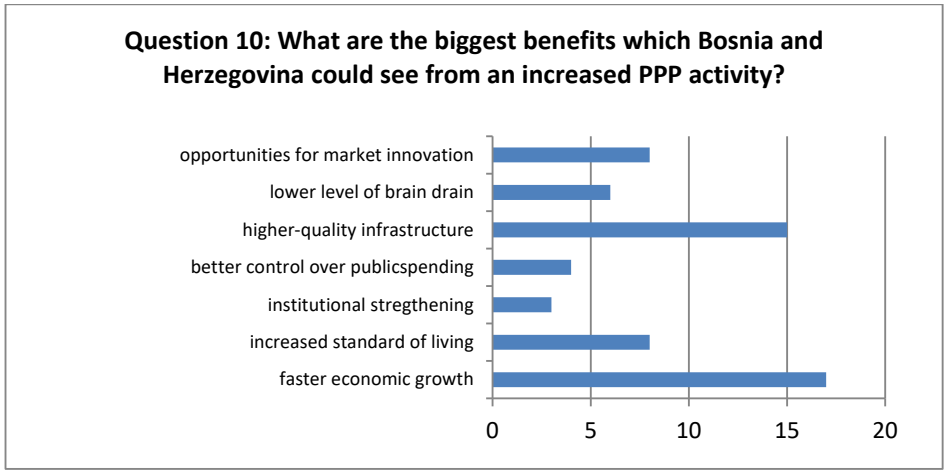
Source: Own work.

Figure 38 : Summary of Answers on Question 9 from Questionnaire 1



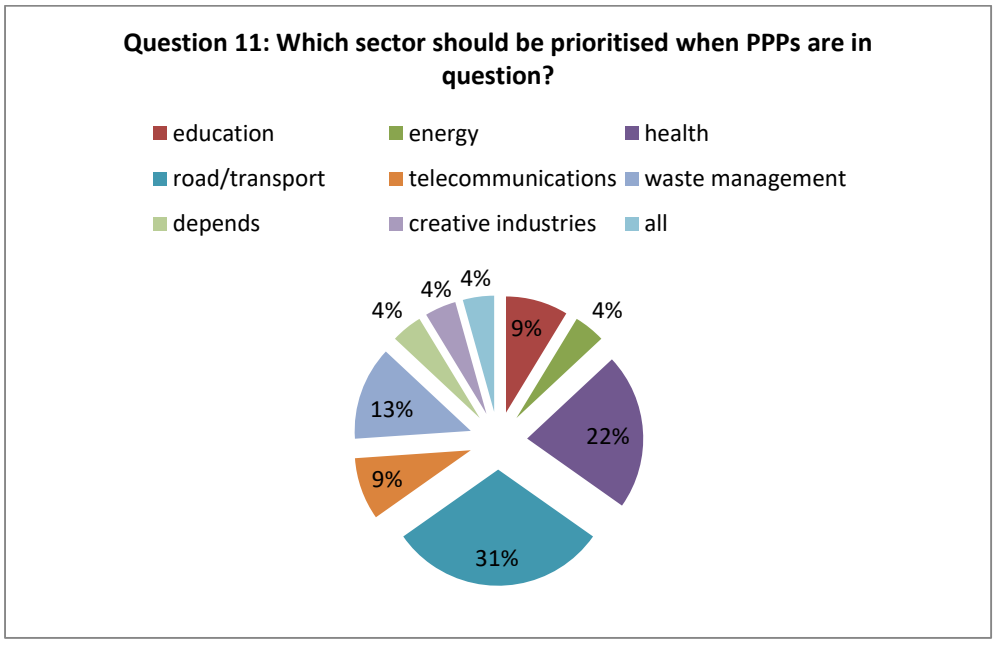
Source: Own work.

Figure 39 : Summary of Answers on Question 10 from Questionnaire 1



Source: Own work.

Figure 40 : Summary of Answers on Question 11 from Questionnaire 1



Source: Own work.

Question 11a: Briefly elaborate why

Table 29 : Answers on Question 11a from Questionnaire 1

-
Kao pokretac ekonomskog razvoja.
Trenutno ima velike probleme.
Apart from corridor Vc the rest of transport infrastructure is seriously neglected.
Prilika za inovacije i uskladjivanje sa EU standardima u pogledu recikliranja i koristenja recikliranog otpada za druge namjene
Velike potrebe
-
JPP je alat za unapredjenje javnih usluga (uklj. javnu infr vezanu za tu uslugu), a javne usluge su rasporedjene pod nadleznost razlicitih nivoa vlasti - od lokalnog do drzavnog. Svaki nivo planira i pokrece projekte uz svoje nadleznosti.
Previsoke cijene usluga
Iz razloga sto je trenutno zdravstveni sektor dosegao samo dno po pitanju strucnosti i mogucnosti lijecenja.
It is key to bring up a better, developed more aware generation
transport infrastrcture is currently curcial for the economic growth and development and indirectly affects most of the other sectors stated above
Najveći potencijal za razvoj i profit za oba sektora

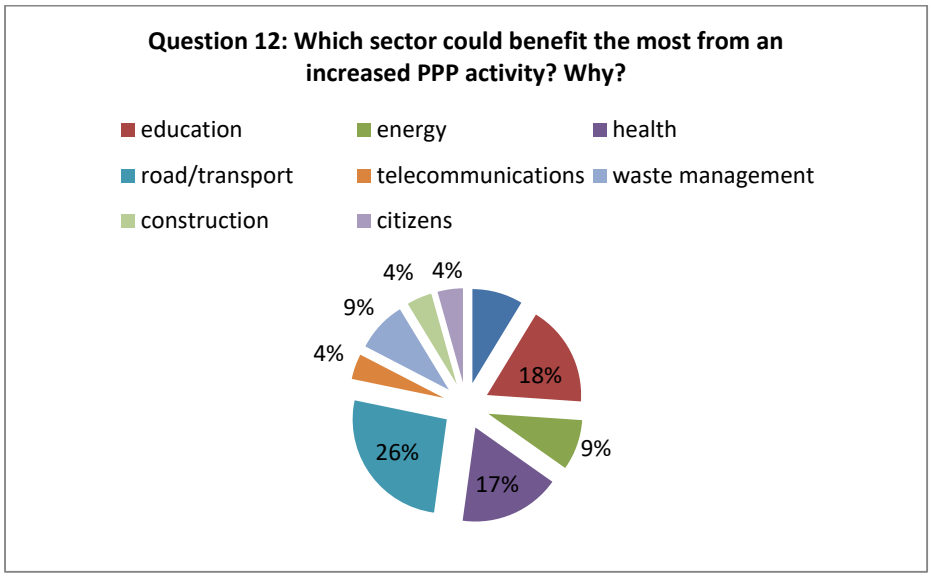
(table continues)

(continued)

Jer je na niskom nivou kvaliteta.
dovoljno profita za privatni sektor, pozitivne eksternalije ovakvih projekata za siru populaciju, aspekt okolisa i kvalitete zivota , cirkularna ekonomija.
Zato sto je zdravstvo "ticking bomb"
Zato sto je sramotno los
Taj dio nam je definitivno najnerazvijeniji u drzavi...
PPP would accelerate infrastructure development, as it would help the authorities to overcome the limits on public debt, and avoid financing infrastructure projects from fiscal sources, since budgets of various levels of government are already burdened by public spending.
Jer je infrastruktura nedovoljno razvijena
Kreativne industrije brzo generiraju profit, mogu biti veliki izvozni potencijal.
On ce povuci razvoj svih ostalih sektora
Dugorocno, najbolja investicija

Source: Own work.

Figure 41 : Summary of Answers on Question 12 from Questionnaire 1



Source: Own work.

Question 12a: Briefly elaborate why.

Table 30 : Answers on Question 12a from Questionnaire 1

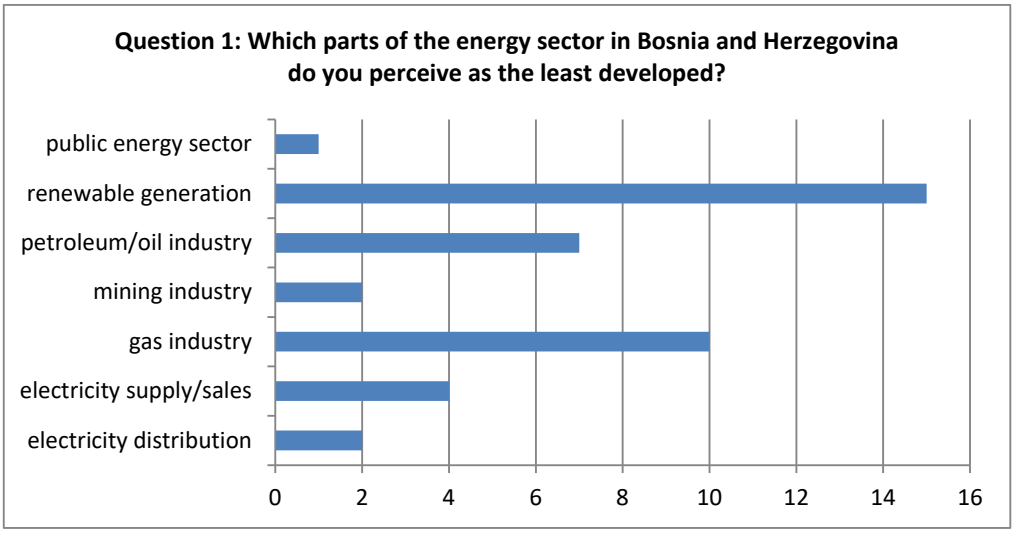
-
Gore navedeno
Investitori su zainteresovani za taj sektor.
/
-
Koristi su za građane kao korisnike usluga ne sektore
-
Svi JPP projekti imaju odredjenu komponentu gradjenja ili bar renoviranja
Jedan od načina da se odabere kvalitetniji kadar i unaprijedi sam program obrazovanja.
Veci izvoz dobara.
Open public land waiting for initiatives for investments
due to complexity of this sector and difficulties they are dealing with currently
Najveći potencijal za razvoj i profit za oba sektora
-
objasnjeno u prethodnom pitanju

Zato sto se vrlo tesko moze sam reformisati.
Stvaranje i educiranje mladih intelektualava
Kao gore navedeno
The same reasons as above. Also, other sectors, particularly energy, water management and healthcare are sensitive, and PPP projects in these sectors can often result in major cost increase, which is suffered by the large sections of population.
Jer mu je potrebna reforma.
Zbog ne usklađenosti obrazvonog sisitema sa potrebam na tržištu i konkurentnositi kompanija.
Omogucice prosirenje znanja
Bez dobre transportne infrastrukture ne moze se ni ocekivati neki kvalitetni ekonomski razvoj

Source: Own work.

Appendix 9: Detailed responses and results of Questionnaire 2

Figure 42 : Summary of Answers on Question 1 from Questionnaire 2



Source: Own work.

Question 1a: Briefly elaborate why:

Table 31 : Answers on Question 1a from Questionnaire 2

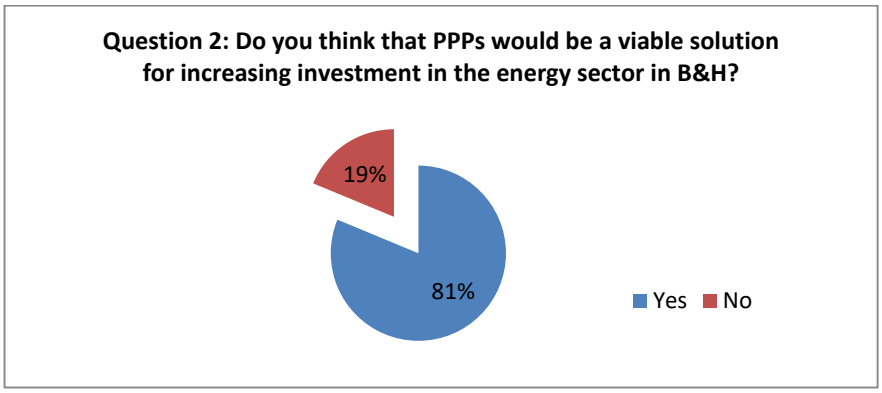
This relates to the former Yugoslav heritage, where the generation and distribution was centralised from Belgrade. While the Member States had their 'own' petroleum companies, the energy sector was not that liberal, hence the coal mined in Serbia may have been used in Kosovo. The individual states were not self contained. Distribution was as well centralised. Gas was less used in households and the relevant infrastructure is less developped than in neighbouring countries. Renewables are rather new to the market and requires a rather large initial investment which the states are reluctant or inable to provide.
based on publicly available developement papers
BiH gotovo uopste nema alternativne i obnovljive izvore energije.
According to my knowledge the infrastructure is not highly developed as per other EU countries.
Monopol na trzistu i manjak subvencija za obnovljive izvore energije.
OIE jer su godišnje kvote male i potrebna je "politička podobnost" da bi se učestvovalo u njima. Naftna industrija? Pa jer nemamo te sirovine :-)
ne postoji razvijena industrija nafte niti industrija gasa u BiH (ako zanemarimo distributere istog); obnovljivi izvori energije u zacetku nastajanja i uglavnom se baziraju na mHE
The transmission gas infrastrucutre in BIH is hardly developed and distribution system is mainly focused in Sarajevo while the rest of the country still needs to be gasified. RES are just starting to develop and significant improvments are required in order to strike a balance between generation of energy and enviromental concerns. As per the retail electiricty market, unfortunatly the regualtory and legislative framework prevents the development of the market.

(table continues)

(continued)

nedovoljne investicije (OIE), nepostojanje potrebnih zakona (gas), usporena modernizacija i reorganizacija rudnika
nema konkurencije, slaba osvijestenost stanovnistva, zastarjele instalacije
https://bankwatch.org/beyond-coal/the-energy-sector-in-bosnia-and-herzegovina - Bosnia and Herzegovina does not have its own natural gas extraction so it is dependent on the Beregovo – Horgos – Zvornik import route from Russia via Ukraine, Hungary and Serbia. Bosnia-Herzegovina could do a lot more to use energy efficiently. Electricity prices are kept artificially low and there is therefore limited incentive to make savings.
Previše se oslanjamo na velike prljave potrošače kao što su TE na ugalj.
Mali resursi
Treba iskosristavati i druge obnovljive izvore (biomasa i vjetar) ne samo hidroelektrane ako se one pikaju u obinovljive. Nisma sigurna, ali vidim da su dosta polenisali o razlozima zasto nas preskacu gasovodi.
Nema skoro nimalo vjetroelektrana
Poznato mi je iz iskustva.

Figure 43 : Summary of Answers on Question 2 from Questionnaire 2



Source: Own work.

Question 2a: Briefly explain your answer.

Table 32 : Answers on Question 2a from Questionnaire 2

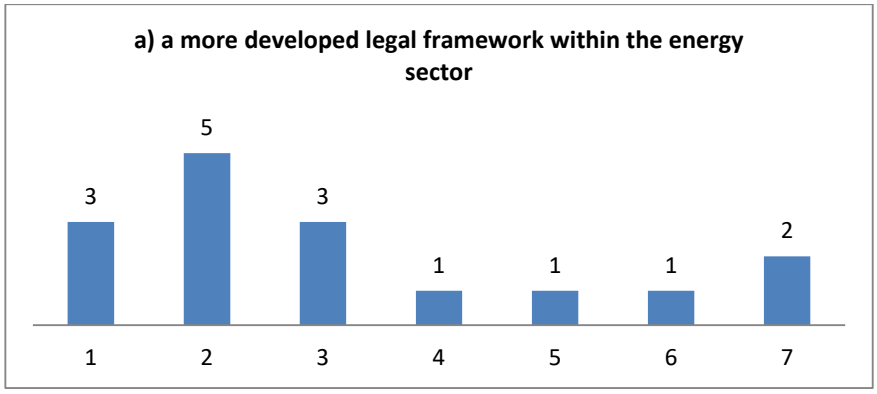
The energy market both generation and distribution shall be liberalised, however maintaining a hight dergree of regulatory control for the state. In case of renewables, where the infrastructure needs to be developped from scratch foreign private investment is to be encouraged. BiH has potential in generating wind solar and hydroelectric power.
These have been proven, in practice, to be poor use of public funds moving public money into commercial sector while not noticeably improving services. Theory good, praise bad.
Nazalost, da.
I believe that Governments could have great gains with the public-private partnership arrangements
Da
Jer je finansijski veoma zahtjevna, a država nije garant. ne može biti. A za OIE: dovelo bi do povećanja cijene el. energije, što je neprihvatljivo.
sklonija trecem odgovoru - mozda - jer nemam uvida u neka JPP koja trenutno koegzistiraju u svijetu; sklonija optimisticno vjerovati da bilo koje partnerstvo, ako se temelji na zdravim osnovama, moze doprinijeti boljitku

The legislative framework would need to significantly enhanced in order for PPP to be sucessful otherwise the country is running the risk to hand over its potential to private capital
da, ali isključivo za investiranje u obnovljive izvore
poticaj na profit
Public-private partnerships depend on law harmonization which at the moment seems not to be in place in B&H as a whole.
Uz pomoc JPP bi se mogla decentralizirati mreža uz veće učešće obnovljivaca
Povecanje stepena razvoja trzista u bih. Veca ekonomska stabilnost
Uz uslov da se ne ponasaju kao Mital, postovanje ekoloskih propisa.
Lakse doci do novca od sponzora
Uvijek kada je u pitanju lični interes, rezultati ne izostaju, pogotovo uz podršku javnih preduzeća.

Source: Own work.

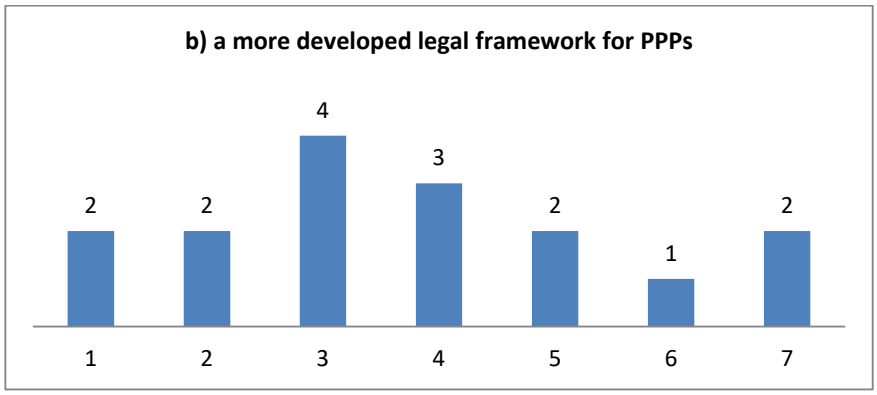
Question 3: What would be the major requirements in order for B&H to be able to successfully attract PPPs in the energy sector?

Figure 44 : Summary of Answers on Question 3a from Questionnaire 2



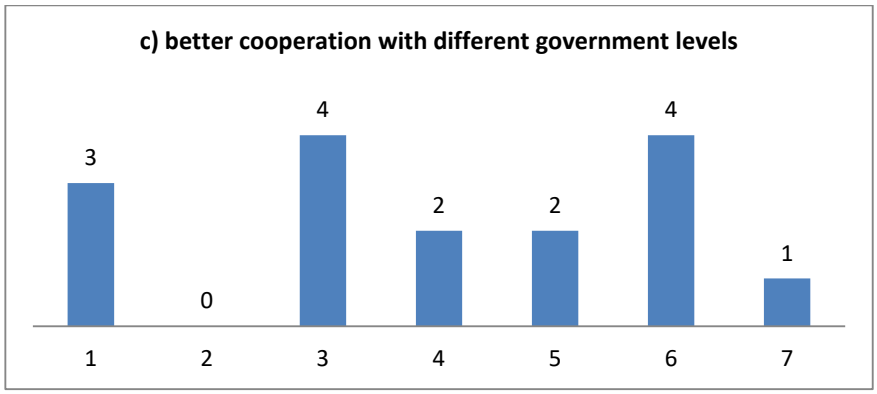
Source: Own work.

Figure 45 : Summary of Answers on Question 3b from Questionnaire 2



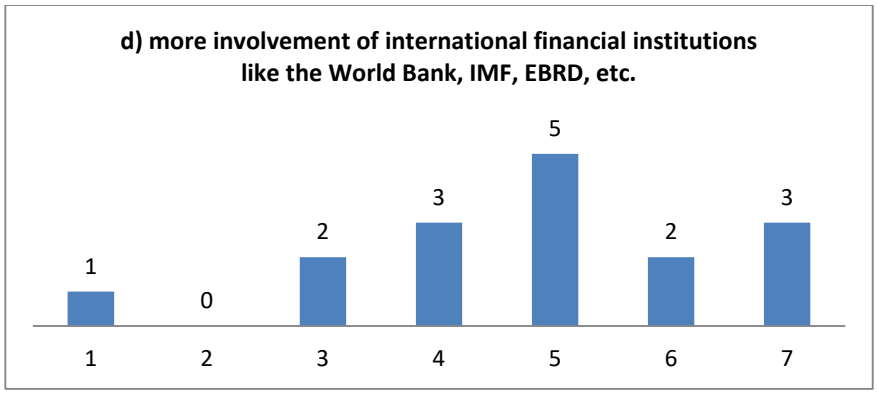
Source: Own work.

Figure 46 : Summary of Answers on Question 3c from Questionnaire 2



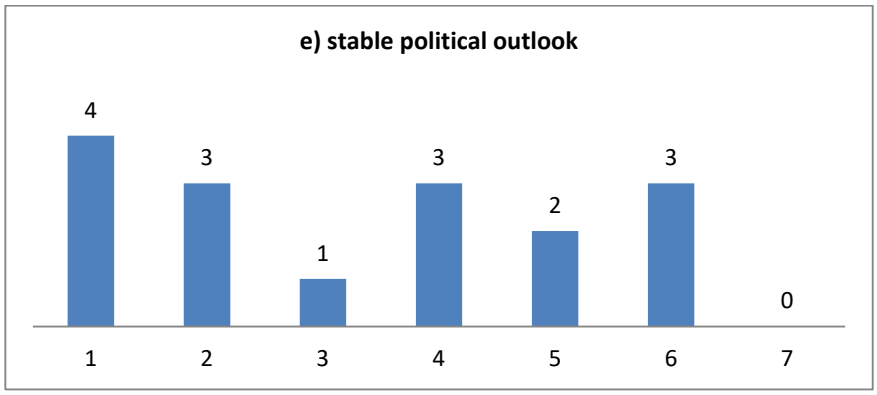
Source: Own work.

Figure 47 : Summary of Answers on Question 3d from Questionnaire 2



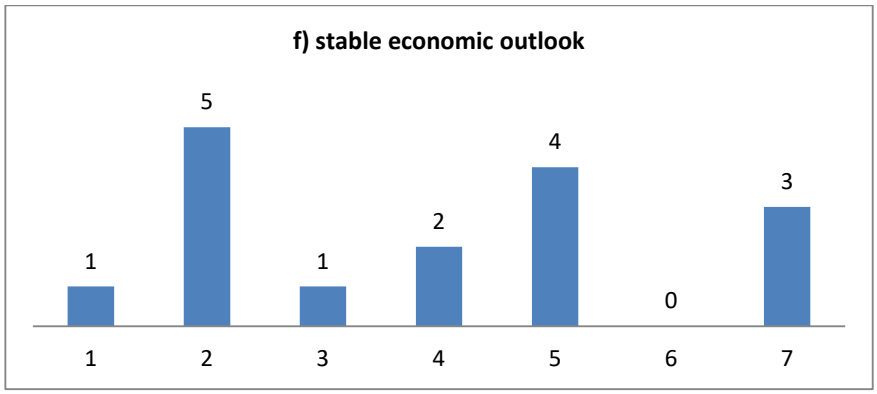
Source: Own work.

Figure 48 : Summary of Answers on Question 3e from Questionnaire 2



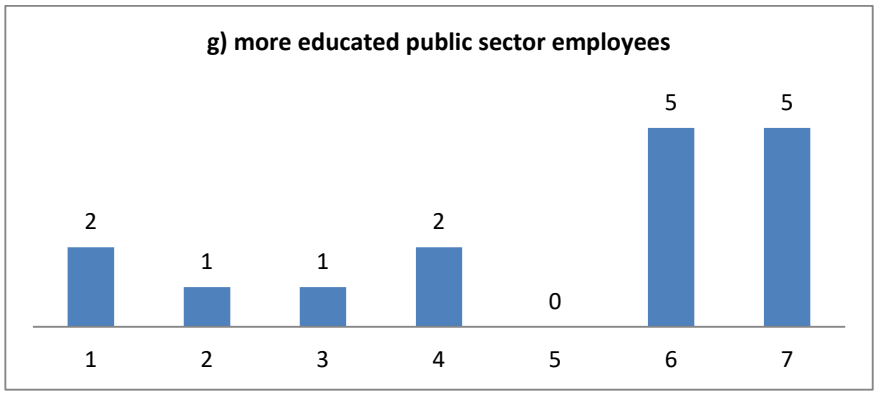
Source: Own work.

Figure 49 : Summary of Answers on Question 3f from Questionnaire 2



Source: Own work.

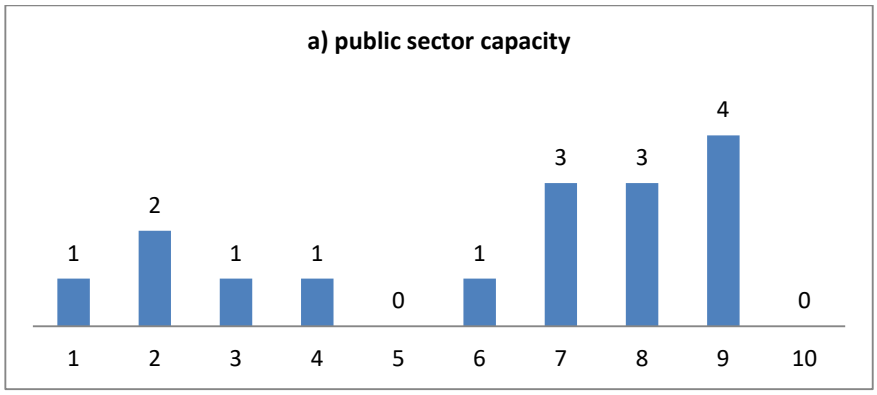
Figure 50 : Summary of Answers on Question 3g from Questionnaire 2



Source: Own work.

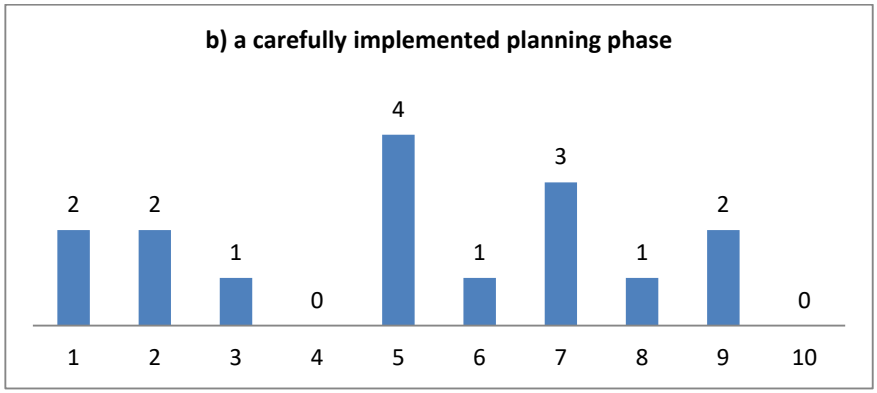
Question 4: Which are the most important critical success factors for PPPs to be implemented in the energy sector in B&H?

Figure 51 : Summary of Answers on Question 4a from Questionnaire 2



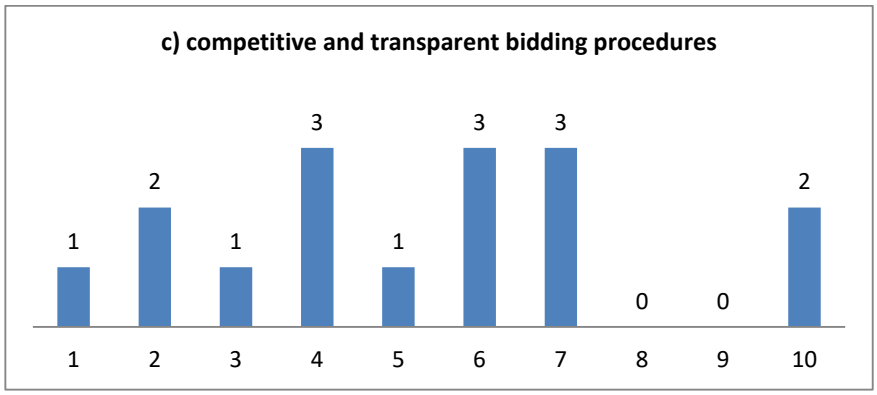
Source: Own work.

Figure 52 : Summary of Answers on Question 4b from Questionnaire 2



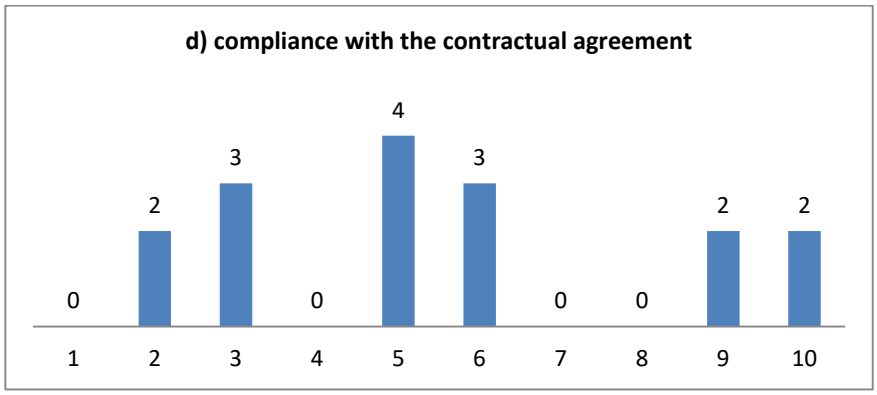
Source: Own work.

Figure 53 : Summary of Answers on Question 4c from Questionnaire 2



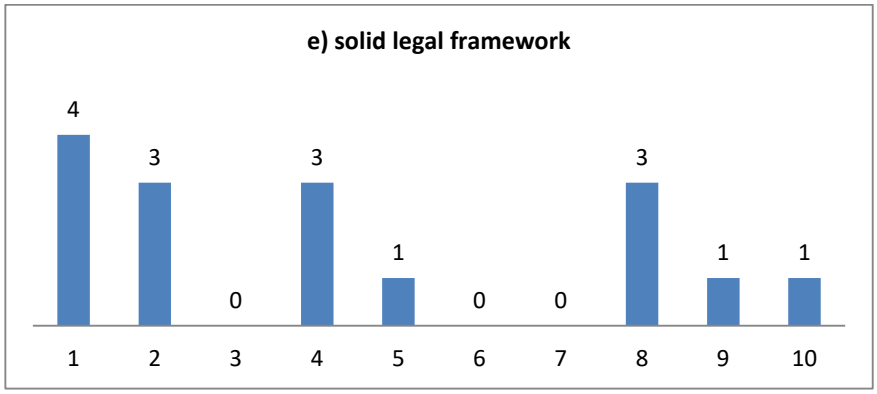
Source: Own work.

Figure 54 : Summary of Answers on Question 4d from Questionnaire 2



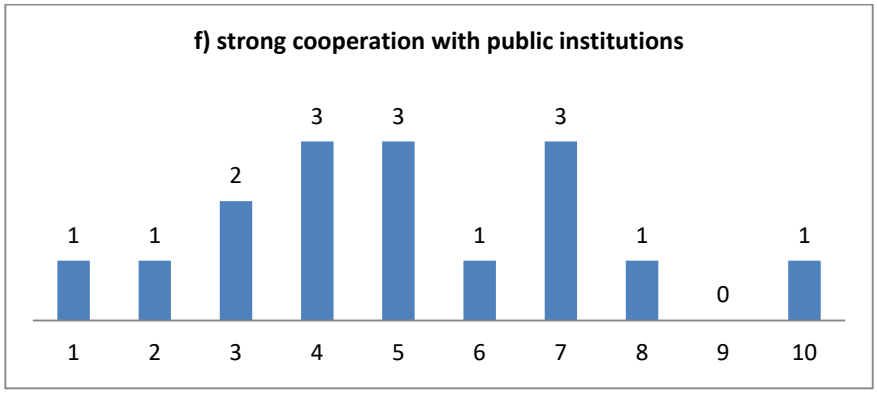
Source: Own work.

Figure 55 : Summary of Answers on Question 4e from Questionnaire 2



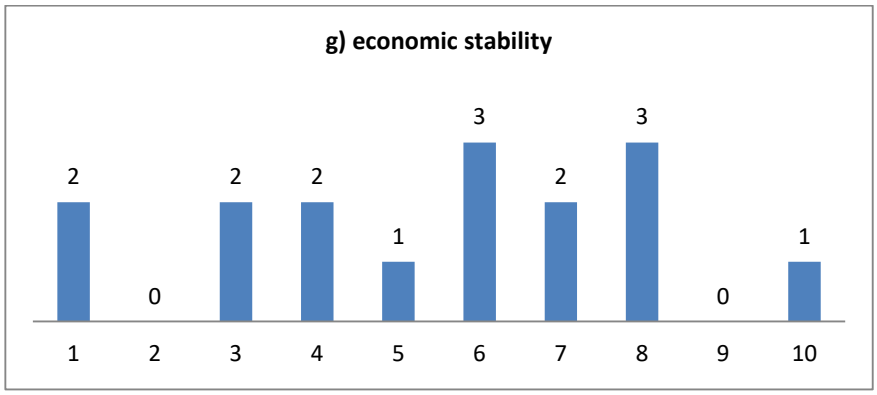
Source: Own work.

Figure 56 : Summary of Answers on Question 4f from Questionnaire 2



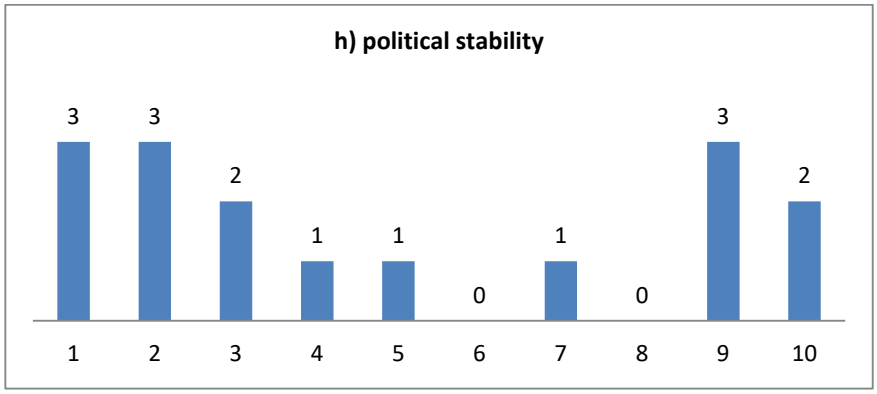
Source: Own work.

Figure 57 : Summary of Answers on Question 4g from Questionnaire 2



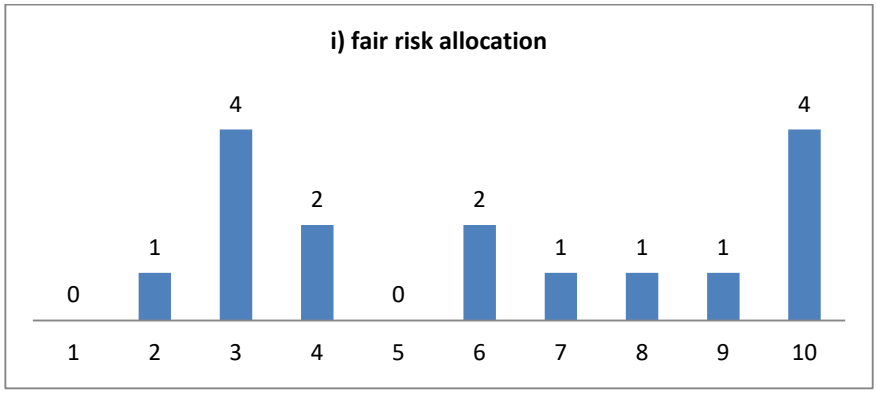
Source: Own work.

Figure 58 : Summary of Answers on Question 4h from Questionnaire 2



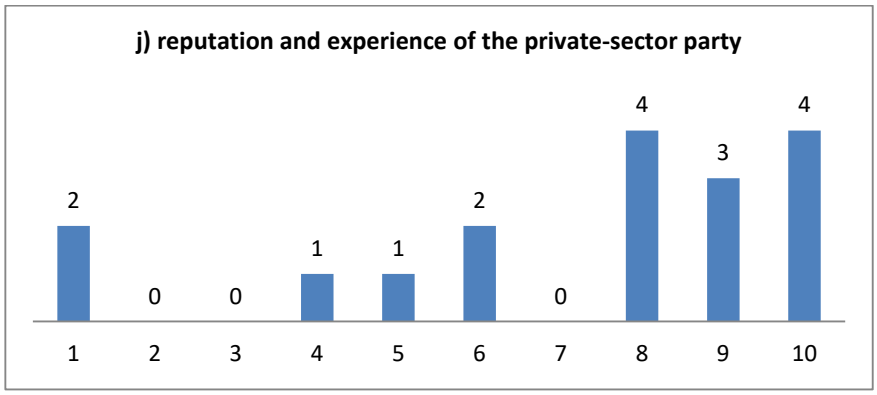
Source: Own work.

Figure 59 : Summary of Answers on Question 4i from Questionnaire 2



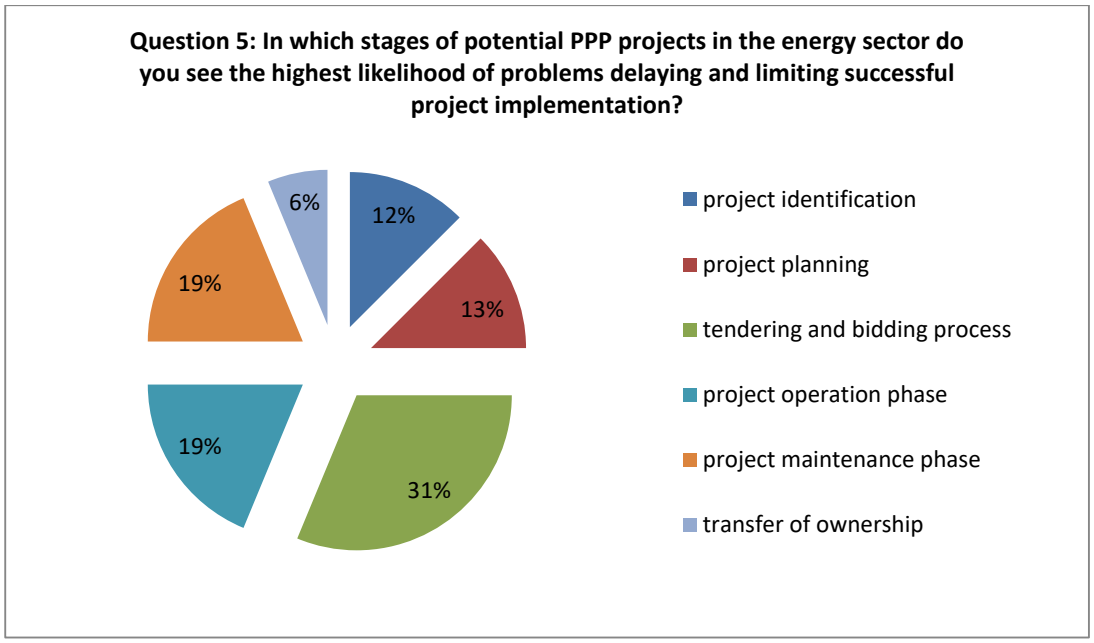
Source: Own work.

Figure 60 : Summary of Answers on Question 4j from Questionnaire 2



Source: Own work.

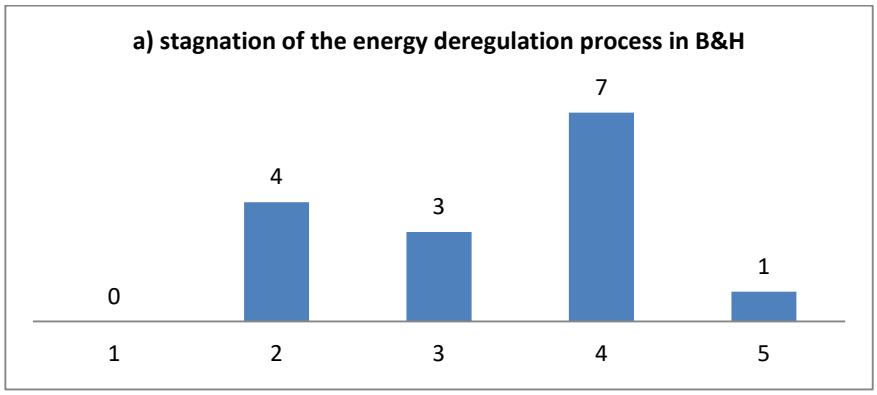
Figure 61 : Summary of Answers on Question 5 from Questionnaire 2



Source: Own work.

Question 6: You will be provided with a list of objections/challenges for the successful deployment of PPPs. Please assign a value to the each of the listed objections/challenges according to your assumption of their relevance for the energy sector in B&H.

Figure 62 : Summary of Answers on Question 6a from Questionnaire 2

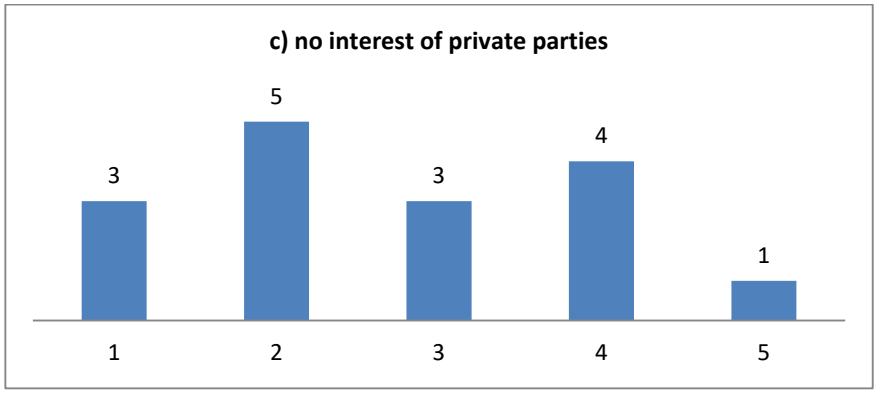


Source: Own work.

Figure 63 : Summary of Answers on Question 6b from Questionnaire 2

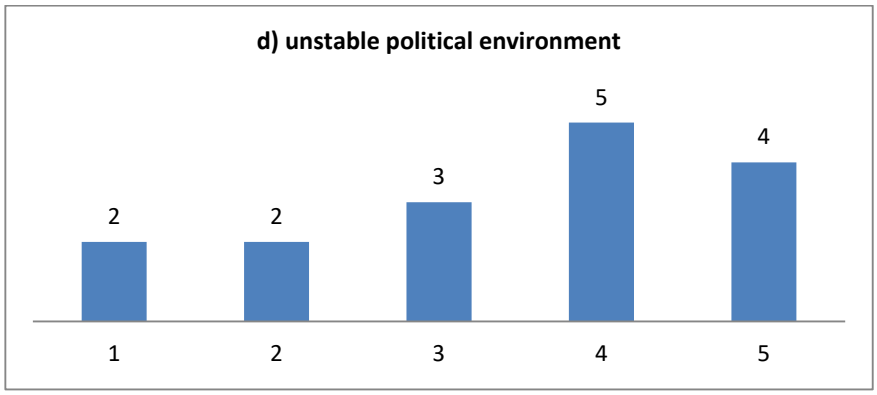
Source: Own work.

Figure 64 : Summary of Answers on Question 6c from Questionnaire 2



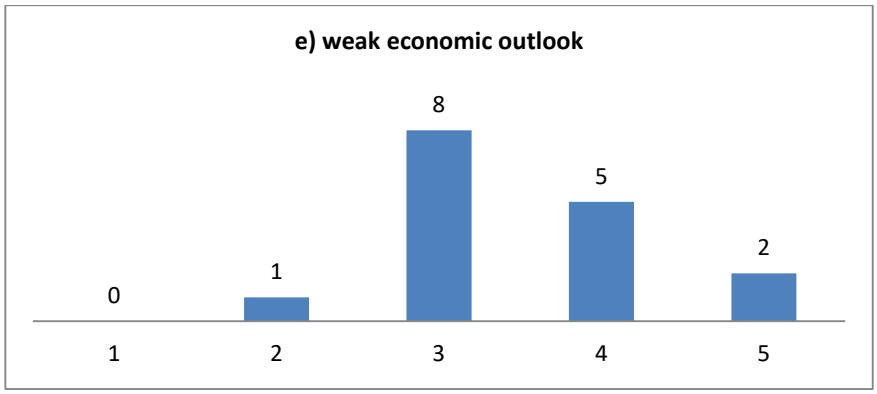
Source: Own work.

Figure 65 : Summary of Answers on Question 6d from Questionnaire 2



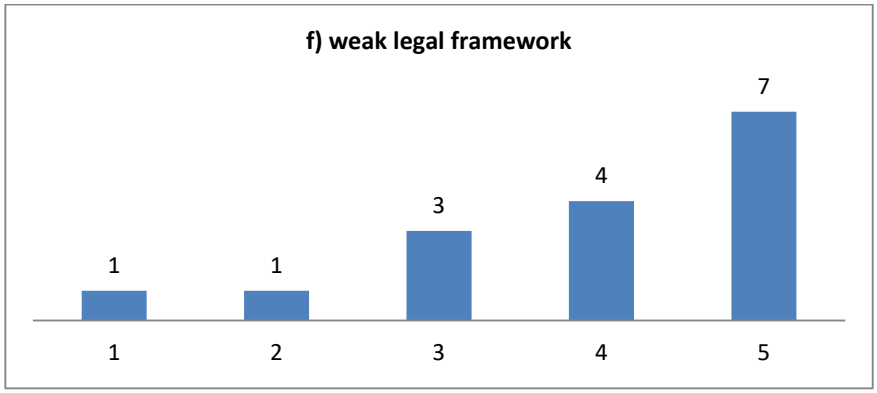
Source: Own work.

Figure 66 : Summary of Answers on Question 6e from Questionnaire 2



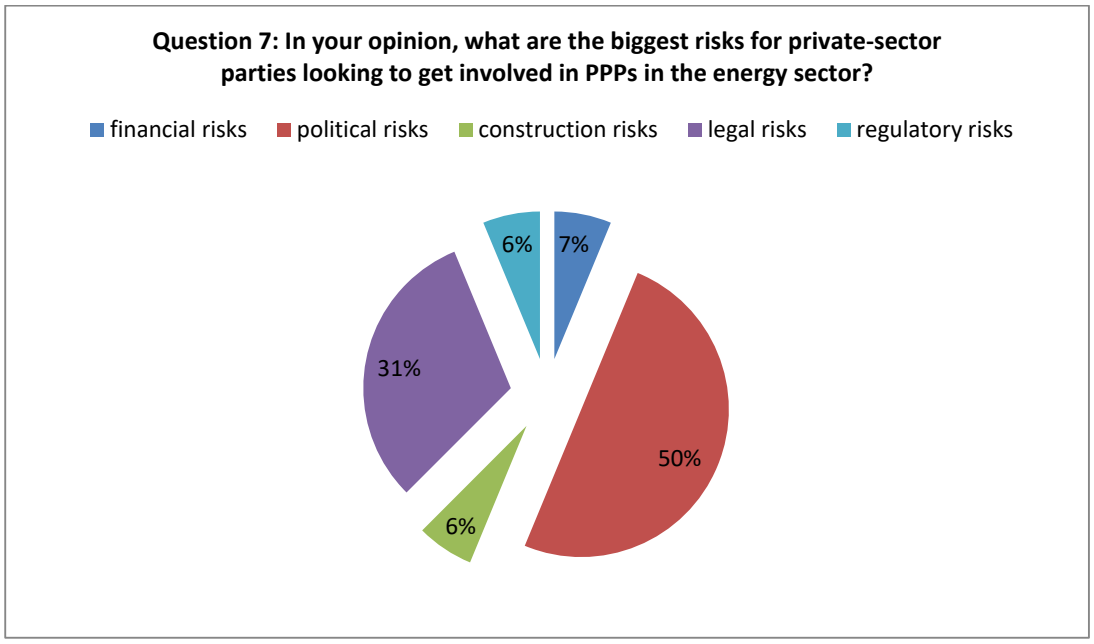
Source: Own work.

Figure 67 : Summary of Answers on Question 6f from Questionnaire 2



Source: Own work.

Figure 68 : Summary of Answers on Question 7 from Questionnaire 2



Source: Own work.

Question 8: In the light of sluggish progress in reforming the energy sector in B&H and cancelled projects how can private-sector parties be motivated to participate in PPPs?

Table 33 : Answers on Question 8 from Questionnaire 2

EU and foreign assistance in deregularising the state monopoly. Financial guarantees by the state.
Money
U principu veoma tesko, ali molgi bi se ukljuciti u proces reformi.
On the reward side, strong, compelling reasons exist for both public and private partners to take the necessary risks and soldier on to build the partnership and implement the project.
Gasifikacija drzave.
Politički ciklusi u B&H traju 4 godine. Energetski ciklusi su duži/mnogo duži. vlast nema interesa za bilo šta mimo populističke politike. Kratkotrajne.
ne postoji adekvatnija motivacija od ispunjenja prethodno navedenih uslova: oslobadjanje projekata od politickih ovisnosti, stvaranje stabilnih uslova za zazivljavanje bilo kakvih projekata, ukljucujuci i ovih, ozbiljno shvatanje obje strane o znacaju samog projekta i adekvatna priprema koja bi prethodila uspjesnoj realizaciji projekta
The country needs to demonstrate the will, put forward good project and ensure stability that investor seeks
nepostojanje zakona gasu za FBiH i BiH

(table continues)

(continued)

isplativoscu ulaganja
Favourable regulations.
Bb
Vise novca?
Ne znam
Profitom, naravno
Svi se moraju koncentrisati na jačanje cjelokupne stabilnosti zajednice.

Source: Own work.

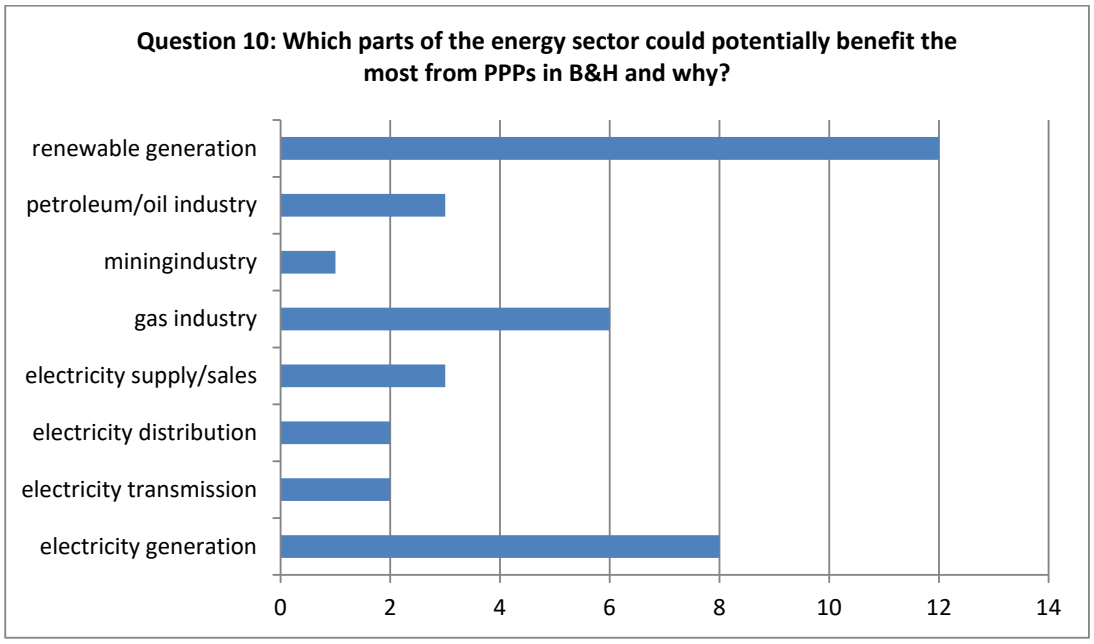
Question 9: What reforms will need to be undertaken in order to increase potential investment into the energy sector through PPPs?

Table 34 : Answers on Question 9 from Questionnaire 2

deregularisation and compliance with EU standards
Political will, (money)
Bolji zakonski okvir za JPP. Fer javne nabavke. Provedeni antikorupcijski zakoni.
no idea
Prilagoditi zakone zakonima evropske unije.
Strategija je jedva usvojena. politička stabilnost je nužna. Neko ko će GARANTOVATI političku stabilnost. Jedno tijelo koje bi bilo zaduženo za te obimne energetske projekte. (Ministarstvo energetike u VM?)
prevashodno politicka stabilnost, koja bi, nadati se, doprinijela ekonomskoj stabilnosti i iznjedravanju funkcionalnih i provodivih zakonskih okvira za razvoj
Enhance legal and regulatory framework and ensure the rule of law
političke i zakonske
sprovodjenje zakonske regulative
-
Zakonski okvir za JPP ibobnovljive izvore energije
Zakonski okviri, transparentnos u procesima, povecanje pravne sigurnosti
Ne znam
Zakonska regulative
Ponovo, jačanje političke i ekonomske stabilnosti.

Source: Own work.

Figure 69 : Summary of Answers on Question 10 from Questionnaire 2



Source: Own work.

Question 10a: Briefly elaborate why.

Table 35 : Answers on Question 10a from Questionnaire 2

As previously stated renewables have lot of potential, BiH may get access to newer technology than the ones currently used by more developped infrastructures
Large an vital plus renewable for future. Renewable amy be a hard sell but vital going forward
/
Best option for PPP
Zbog razvojnog potencijala pomenutog sektora.
Zato što nisu ekonomski prezahtjevni. Ekonomski rizik prihvatljiv, kad te politika iznevjeri.
najmanje razvijeni, rudarstvo je svakako upitno sa aspekta mogucnosti JPP projekata, a u prenosu i distribuciji struje ne vidim veliku mogucnost formiranja JPP obzirom na solidnu razvijenost infrastrukture; proizvodnja struje - djelimicno vezana za obnovljive izvore energije
BIH has a potential to develop facilities for generation of electricity and there PPP may be applied large scale. Mining can benefit from private capital to encrease efficiency and improve operation both in terms of technolgies and human capacities.
zato što je za te sektore potrebno uraditi najveće izmjene/dopune
vise ulaganja u proizvodnju
A more attractive investor-friendly legal framework will stimulate investments is the already well-established electricity sector and in particular will replace existing generation capacities (or construct new ones), which are at the end of their production life cycle.
Zato sto su najnerazvijeniji a postoji ogroman potencijal.
Iskoristivost

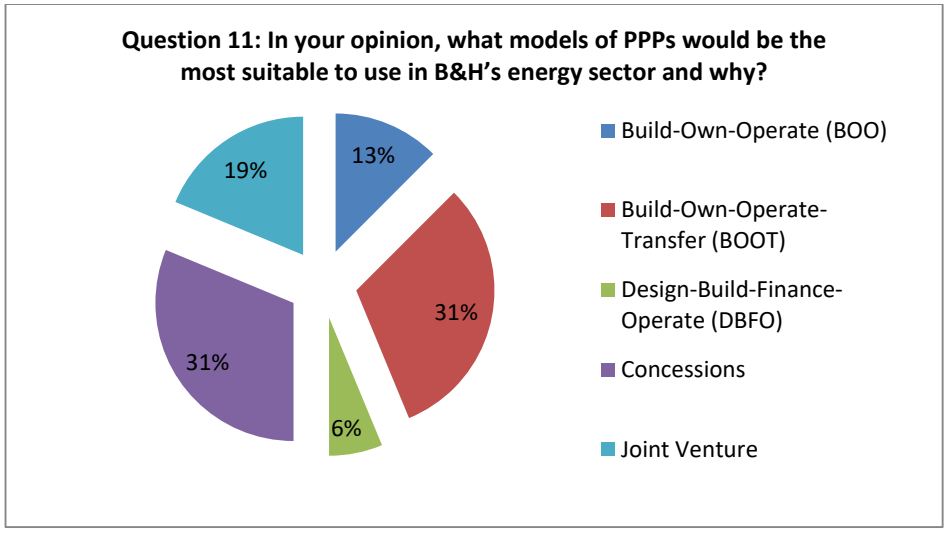
(table continues)

(continued)

Primjetila sam da Elektroprivreda BiH ugovorm zaposljava firme koje rade u energetskom sektoru za potrebe odrzavanja mreze i da djeluje da fukcionise.
Mogucnosti ulaganja
Ovo su sektori koje najviše trebamo jačati, stoga i uspjeh u njima može biti najveći.

Source: Own work.

Figure 70 : Summary of Answers on Question 11 from Questionnaire 2



Source: Own work.

Question 11a: Briefly explain why this model.

Table 36 : Answers on Question 11a from Questionnaire 2

On a long run, mainly in the context of the renewables there is no need for state 66nvolvement in the generation
To maintain real degree of public ownership
/
To have full ownership of infrastructure
Smanjena mogucnost korupcije.
Jer je apsolutno nepovjerenje investitora u rad našeg sistema.
Podjela rizika
This also depends on the sector but to preserve some form of public onewrship and control the country should not hand it over to private capital solely
zato što je on najpovoljniji za državu
zbog zastite od monopola

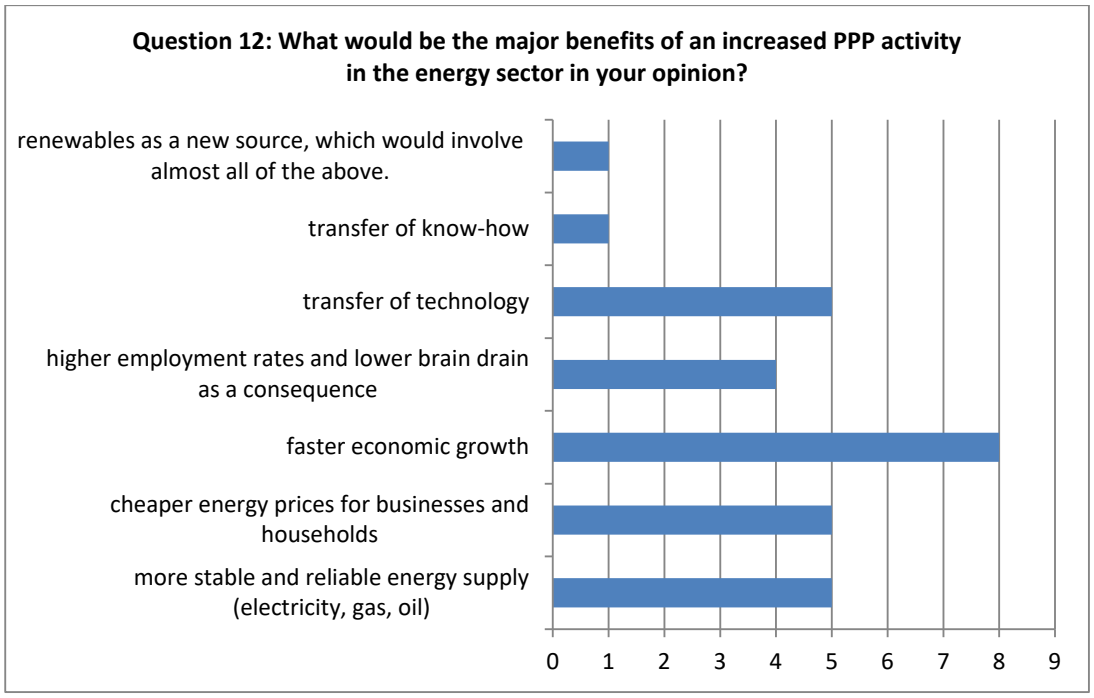
(table continues)

(continued)

-
-
-
Djeluje najrealnije
Najprakticniji oblik
Možda je ovo najjednostavnije i najpraktičnije

Source: Own work.

Figure 71 : Summary of Answers on Question 12 from Questionnaire 2



Source: Own work.