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THE NATURE OF PUBLIC PRIVATE PARTNERSHIPS IN POWER SECTOR GOVERNANCE: SELECTED CASES FROM ASEAN

Master`s Thesis

Technology Governance and Digital Transformation

Supervisor: Ms. Olga Mikheeva

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I hereby declare that I have compiled the paper independently and all works, important standpoints and data by other authors has been properly referenced and the same paper has not been previously presented for grading. The document length is 10,465 words from the introduction to the end of conclusion.

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TABLE OF CONTENTS

Abstract

One of governance mechanisms that has been increasingly gaining attention in the energy sector is the use of public-private partnerships (PPPs). Since energy is a broad sector and it holds two important yet very different industries: the oil and gas sector, and the power sector. The aim of the thesis is (i) to explore the nature of public-private partnerships (PPPs) that take place in the power sector i.e. electricity, the second component of energy and (ii) to bring together various perspectives on PPPs that currently exist in scholarly and policy discourses, including from a critical perspective. Empirical part of the thesis represents case studies of selected Association of South East Asia Nation (ASEAN) states: Thailand, Malaysia, Philippines and Laos. The thesis shows whether and how PPP arrangements could bring a solution for electricity security along with affordable and accessible electricity. More precisely, the thesis has an objective to illustrate the various aspects of PPPs and to explain whether PPPs have been successful in delivering expected outcomes for the provision of electricity security in selected ASEAN countries. The underlying support of country selection is based on ongoing rapid industrialization process and economic growth in Thailand, Malaysia, Philippines and Laos, which is again coupled with the electricity demand not only for commercial but also domestic needs in terms of accessibility and affordability.

Keywords: ASEAN, Public-Private Partnerships, Power Sector, Governance, Electricity Security, Accessibility and Affordability.

1. Introduction

Over the past few decades, energy governance has been an important field of study in policy studies. Scholars of governance and public policy try to understand how the energy sector is governed at the national, regional and global levels, by whom and what possible consequences are (Tõnurist 2016, 15). Traditionally, social scientists have approached the topic of energy governance from two major entry points. The first entry point was mostly supported by energy security experts. They aimed to examine the inadequacy of geopolitical dimension of energy security. It claims that the energy politics is a zero sum game in which one country`s energy security is another country's exploitation. The second entry point is chiefly dominated by global governance experts. They try to explain why and how the energy policy field is related to other policy fields such as trade, investment, market, governance, infrastructure, development, environment and climate (Goldthau and Witte 2009, 375).

One of governance mechanisms that has been increasingly gaining attention in the energy sector is the use of public-private partnerships (PPPs). Since energy is a broad sector and it holds two important yet very different industries: the oil and gas sector, and the power sector. The aim of the thesis is (i) to explore the nature of public-private partnerships (PPPs) that take place in the power sector i.e. electricity, the second component of energy and (ii) to bring together various perspectives on PPPs that currently exist in scholarly and policy discourses, including from a critical perspective. Empirical part of the thesis represents case studies of selected Association of South East Asia Nation (ASEAN) states: Thailand, Malaysia, Philippines and Laos. The thesis shows whether and how PPP arrangements could bring a solution for electricity security along with affordable and accessible electricity. More precisely, the thesis has an objective to illustrate the various aspects of PPPs and to explain whether PPPs have been successful in delivering expected outcomes for the provision of electricity security in selected ASEAN countries. The underlying support of country selection is based on ongoing rapid industrialization process and economic growth in Thailand, Malaysia, Philippines and Laos, which is again

coupled with the electricity demand not only for commercial but also domestic needs in terms of accessibility and affordability.

One prominent reason of selecting energy governance issue in the ASEAN region is because of this region`s ever-increasing need of electricity for socio-economic development in the region, ongoing transition in the ASEAN regional electrical energy sector, and to explore the context of a regional energy market. ASEAN member countries are at various stages of economic development and ASEAN consists of different energy resource endowments and consuming patterns. The 10 countries of ASEAN collectively form one of the most dynamic collaboration of the regional electrical system. Moreover, South East Asia is the third fastest growing region in the world, based on real gross domestic product (GDP) growth. Although ASEAN countries are rich in energy resources, meeting their electricity demand is getting challenging day by day and as a region they are facing a common challenge i.e. to fulfill the increasing demand in a secure, affordable and sustainable manner. For example, access to modern energy in ASEAN is still incomplete and in a total population of nearly 640 million, approximately 55 million people are still living without electricity and 250 million people are dependent on solid biomass such as cooking fuel as a primary source. According to the Energy Outlook Report 2017 published by International Energy Agency (IEA), energy demand in ASEAN has already increased by 60% since 2003 and according to the International Renewable Energy Agency (IRENA) Report, altogether power requirement is expected to reach 93% by 2025.

Another reason for selecting cases from ASEAN region is the fact that PPPs have been playing an increasing role concerning development in the region. In some ASEAN countries, where public funds are abundant or public institutions are strong - for example, Brunei, Singapore etc. here PPPs plays a lesser role in the development process but PPPs have been promoted promptly for public sector infrastructure development in Indonesia, Malaysia, Thailand, the Philippines and Laos. However, it is also evident and critically analysed by scholars that public sector commitment to PPPs development and realization of such conglomeration are not always in the same alignment or focused on the sole development rather private companies' utilize public sector to gain some elicit profit. (Bayliss and Waeyenverg 2017, 585).

However, PPPs are being handled very progressively in South East Asia, Malaysia, Thailand, Philippines and Laos. They have defined the terms and set up dedicated units to deal with its implementation either as a part of large investment unit or as a part of public institution. For example, Malaysia has set up a unit, Kerjasama Awam Swasta (UKAS) as a part of privatization-led transformation programme, the Philippines have established the PPP center that acts as a one-stop service to handle PPP processes, Thailand has also established the PPP unit under the Ministry of Planning and Investment as a one-stop division in charge of national coordination of PPP projects.

According to Asian Development Bank Report (ADB, 2018), the Philippines PPP center has been more progressive as compared to other ASEAN states. It has awarded 16 PPP contracts approximately worth US $ 6.4 Billion since 2010. Similarly, in Thailand there are 44 PPP projects commissioned by 16 different agencies, according to State Enterprise Policy Report. Altogether, they cover areas ranging from energy to infrastructure, utilities to telecommunication and property development projects.

In short, PPP development policies in ASEAN are at different stages, considering the rate of implementation and their role. Private partners could be businesses or investors with technical or financial expertise needed to implement the project or the private partner may contribute investment capital, depending on the arrangement thus bearing much of the project risk with the public sector taking over at the end of the contract. It is hard to make a straightforward analysis of its nature because of the difference in terms and definitions, expenditure classifications, and country government systems. However, this thesis is an attempt to examine the nature of PPPs in the electrical power sector.

Before research goes in detail to explore the nature and performance of PPPs in the ASEAN region, in the next section, the thesis will build a theoretical framework, which is based on the principles of New Public Management regarding the PPPs, concepts of PPPs and its constraints that determine the formation of such partnerships. After this, the thesis will explore the profile cum situation of the electricity sector in the selected ASEAN countries from the point of economic development and ongoing PPPs initiatives and progress: in Malaysia, Thailand, Philippines and Laos. As a primary source, research would rely on the website of international and regional organizations, information collected from

government departments, organizational records, and policy papers of respective state ministries of power and environment. As a secondary source of information, the thesis will gather information from scholarly articles focused on the topic of energy governance, power sector development, regional arrangement of governance, and the role of public-private partnerships. Later in the consequent section, the created framework will be assessed on the selected cases of ASEAN member States. Based on that research will deduce, if PPPs can bring solution to attain electricity security along with affordable and accessible electricity in the ASEAN or not.

2. Theoretical Framework

The role of public-private partnerships has evolved rapidly since early 1980s in South East Asian countries. Though, such type of collaborations in ASEAN appeared to be a major factor in attracting investment and in infrastructure transformation of the energy sector, but also PPPs in this region are quite controversial because a shift of power has been observed from the hands of state owned enterprises to the private entities and more criticism is voiced about their effectiveness in market governance (David and Venkatachalam 2018, 22).

From the governance perspective, PPPs have the potential to put away larger strain on public fiscal resources than it was believed (Bayliss and Waeyenberge 2017, 586). International agencies such as the Organization for Economic Co-operation and Development (OECD), the World Bank (WB), International Monetary Fund (IMF), Asian Development Bank (ADB) and others in general International discourse do favor and promote PPPs. However, specifically, the thesis is meant to bring together existing discourse towards the critical approach of PPPs, which is emerging and to answer some questions which has been unanswered so far; for example; Why are public private-partnerships increasing widespread as opposed to fully public institutions? Why certain types of public private partnership are found in the specific sector but not in others? What determines the extent of private sector collaboration in energy ventures with the public

organizations? This part of the thesis will start an investigation from what is a PPP and then will focus on which factors determine the success or failure of PPP.

In its simplistic manner, OECD defines PPPs as, 'An agreement between government and one or more private partners, according to which the private partner delivers the services in such a manner that the service delivery objective is aligned with the profit objective of the private partners and where the effectiveness of the alignment depends on a sufficient transfer of risk to a private partner' (OECD 2008, 17).

IMF and The World Bank emphasize on the financial aspects of PPP and the commitments that PPPs promise: (a) to reduce the burden of government budget by utilizing private finance for product development or service delivery. Campbell defines PPPs based on contractual relationship, i.e. a PPP project often gets involve in the design, construction, finance and maintenance and in some case operation of public infrastructure development, or a public facility by the private sector under a long-term contract (Khanom 2009, 155). ADB examined several public-private collaborative programmes in Asia and the Pacific, sighting PPPs as a tool of the development process (Paoletto 2000, 154). It defines the PPP as, 'A collaborative activity among interested groups and actors, based on the mutual recognition of respective strengths and weaknesses, working towards commonly agreed objectives developed through effective and timely communication.' (ADB, 2000)

According to the European Commission` Green Book, PPPs represent a form of collaboration between public and private sector, aimed at ensuring reconstruction, operation and maintenance of particular infrastructure, financing and provision of public service delivery (Commission of European Communities, 2004). On the other hand, social scientists also argue about another aspect of such partnerships: PPPs as a language game, i.e. the language of PPPs is a game strategy to cover other motives and purposes. Namely, that intention of such partnerships is privatization in the presence of a fractured governance structure, which encourages private providers to supply public services at the cost of public organizations. (Khanom 2010, 158).

To eradicate language game shortcomings, developed economies have been utilizing diverse forms of PPPs with the aim of attaining more effective and efficient management in public sector delivery (Rakić and Rađenović 2011, 2015). It has been

observed that the idea of a public-private partnership has received much attention in public sector reforms and performance management (Wettehall 2007, 388). PPPs have become widely adopted and popular in public sector management largely because the 1990s saw the establishment of PPPs as the key tool of public policy across the world as an outcome of New Public Management (NPM) reforms. It proposed to merge public administration and the functionality principle of private companies together (Hammami et al 2006, 30-35).

NPM has shifted the focus of management from public service to service delivery. NPM supports, among other goals, the integration of private sector management concepts and market mechanisms into the public sector (Caperchione et al. 2017, 4). It aimed at the fortification of institutional structure, modernization of state, improvement of public enterprise management in collaboration with a private organization. Such reforms have established PPPs arrangement to be very popular. Over the few years, public authorities have also started looking at PPPs as an alternative way to overcome financial problems and manage complex projects (Hammami et al 2006, 11).

At the center of NPM, there is a cut-back of public sector expenditure, a delegation of responsibilities to the private sector and fostering of voluntary engagement of private sector which aims at providing public goods (Weaver and Clyde 1991, 15). The principles of NPM encourages the establishment of PPPs as a new management tool to leverage more benefits to the public sector by utilizing private resources as an intermediary (Kopp 1997, 353). It also allows public organizations to divide less public financial resources on less commercially viable projects (Alesina et.al 1999, 1250).

Moreover, PPPs include all business ventures which interest both public and private sector, where they combine their resources and knowledge base in order to fulfill clearly defined public needs in the best possible way, with shared responsibilities, risks and financial gains (Marcus and Bowles 2004, 970). PPP can enable the public sector to shift costs and liabilities off their balance sheet in the short term (Guven 2018, 2). In other words PPPs are believed to be an efficient medium to allocate financial risks between private and public sector where costs are subject to the market discipline (Trebilcock and Rosenstock, 2013, 5).

Though, PPPs represents the relationships of shared risks and gains between public and private sector based on mutual consent for the achievement of expected result in public policy (Flinders 2005, 215). However it also consists of varying degrees of challenges: such partnerships may also impose long-term risks and contingent liabilities if they are not adequately governed publically, measured, and tracked. It can produce significant implications for governments in the longer term (Bayliss and Waeyenberge 2017, 570). So the prime question on which public administration should focus is whether and under what circumstances a PPP should be considered and further on how to structure the deal.

For those who encourage, PPPs brings efficiency, innovation, investment and finance. At the same time, PPP also gives return to investors and arguably appears as a win-win solution to fill the gap in between country's infrastructure need and the private funds available to sponsor these projects (Bayliss and Waeyenberge 2017, 575). Yet, PPPs remain a highly controversial vehicle for infrastructure financing and delivery because there is always a risk involved in the form of a loss of control over the private sector by the public sector, an increased loading of service provision, unreliable services and finally a lack of competition and blurriness in the partner selection procedures (Kanakoudis et al 2007, 43). Those who oppose PPP, especially when one expects government to play a legitimate and indispensable role in leading the provision of public infrastructure and services, point out PPP's high costs, the tenure and rigid nature of contracts, and varying assessment of their performance in terms of efficiency, risk transfer and social impact (Bayliss and Waeyenberge 2017, 580).

Again, in power sector infrastructure development, PPPs represent a very popular tool for state agencies because of perceived private sector's ability to manage project's uncertainty, to deal with complexity and asset specificity, bidding competiveness, and the proficiency of government contract management skill (Vining, et al 2005, 199). By their nature, indeed, power sector projects are extremely difficult to execute for public sector. These projects are highly priced, complex, and largely depend on the politically stable environment. Power projects are characterized by contracts, public vs. private distribution issues and societal as well as environmental issues. Specifically, such contracts demanded performances as the final output satisfaction (Rakic and Radenovic 2011, 217). However,

public service delivery attract opposition very quickly because of its connotation or fears of complete privatization (Savas 2000, 120).

In addition, power sector projects are among the largest financial commitment that state makes. They poses high barriers to entry and attract private investors. A combination of limited competition and weak government management makes these projects lodestone for corruption in jurisdiction where the effectiveness and transparency of governance are weak or failing (Vining et al. 2012, 201). These conditions give rise to PPP failure and create a threat to projects with the implications on contract and transaction cost (Spiller 2011, 14).

Concerning the success or failure of PPPs - market condition, structure of the market, micro- and macro-economic policy of the state and the scope of profitability are crucial (Hammami et al 2006, 30-35). For example, electricity generation projects often have high capital costs and demand time to generate revenues. This implies that the commercial risk of such projects are is high. One would thus suppose that market environment could affect the motivation in terms of profit of private partners by involving PPP in power projects. Additionally, in the big market purchasing power of potential customer is also a decisive factor because in the costly project profit of private partners is directly proportional to consumer`s ability to pay market prices for the available services (Adighibe and Nnason 2015, 15).

As far as the approach is concerned, predominantly it is financial, legal and governance approach that emphasizes the notions of PPPs, where cooperation, collaboration and processes are the central focus (Weihe 2006, 3). However, the main criticism of PPPs stems from the controversial nature of privatization because it rarely delivers on what it promises, especially in efficiency term. It is a belief among social scientists that the government and public governance under the notion of PPP are effectively mortgaging the future of the country because most of the time these long-term projects cost public sector more than it would cost them, if they build it by themselves (Bayliss and Waeyenberge, 2017, 582).

The fundamental constraint for the development of PPPs is institutional quality of a country, which directly influences the risk of investment (Hammami et al 2006, 33) in the

project. Robust institution and effective rules of law are very important factors in the sustainability of PPPs (Pistor et al 2000, 327). In its nature, PPP collaborations are of a contractual agreement. Hence, their sustainability depends on the regulatory environment of the country, which is shaped by the institutional quality and legal system of the country (Word Bank, 2018). Weak institutional quality and legal system produces uncertainty about the eminence of regulations and therefore, increases the proneness of the financial risk which further demotivate private partners to join PPP.

A standard constraint for the development of PPPs is a stable macroeconomic condition followed by satisfactory tariff regime and effective economic policies. Governments that are able to keep up the right balance among these are more successful in attracting private partners (Mansoor and Klein 1998, 15). The government authority takes the responsibility for tariff collection or accept the condition to buy the services from a private enterprise at a predetermined price (to reduce the risk). While, this limits the risks for private players, it also takes long negotiations, specifically in times of crisis when the government can no more bear contingent liabilities or private players cannot meet the terms of the partnership. Thus, this is why the real success and efficiency of PPP's can be questioned (Ehrhardt and Irwin, 2004, 35).

3. Empirical Research:

This chapter explores the research design and data collection method of PPP. It will justify the research approach and chosen research strategy. Since the thesis seeks to explore the nature of public-private partnerships in selected ASEAN countries, thesis intended to conduct qualitative research design. As the current thesis will conduct a multiple case study, two stages of data analysis will be followed: the within case analysis and the cross-case analysis. For example: in order to present an in-depth analysis of the nature of PPPs in power sector of Laos, Thailand, Philippines, and Malaysia, first of all, the thesis will look at their regional initiatives to strengthen electricity infrastructure, followed by economic development process and status of PPPs in the country. In the very next section, the thesis will conduct a comparative analysis and answer the main research question i.e. whether and

how PPP arrangements could bring a solution for electricity security along with affordable and accessible electricity.

3.1. ASEAN Existing Regional Initiatives To Strengthen Electricity

Infrastructure Rapid economic growth and social development result in increased electricity demand among ASEAN nations. The gaps in-between supply and demand for energy resources and the member states' extensive willingness to cooperate have given opportunities. At present, a few member states, especially Thailand, Malaysia, Philippines, and Laos, have signed mutual cooperation agreements by setting up several transnational power transmission lines, including the electric interconnection project programs between Malaysia and Indonesia, Malaysia and Singapore, Thailand and Laos, Philippines and Thailand among others.

In addition, there are many other positive signs: for example The ASEAN Plan of Action on Energy Cooperation (APAEC), ASEAN Economic Committee (ACE), and ASEAN Energy Cooperation forced member countries across the region to expedite their efforts in recent years to upgrade policy frameworks, reform fossil fuel consumptions subsidy policies, strengthen regional market and cooperation, and encourage greater investment in the region's renewable energy potential.

But in the light of economic development and an increase in population, much more remains to be done. Still in the rural parts of the region access to electricity is incomplete. According to the South East Asia Energy Outlook 2017, out of the total population of nearly 640 million, 65 million people are still living without any electricity source and 250 million people are reliant on solid biomass as a cooking fuel. At the same time, energy-related air pollution, both outdoor and indoor, also creates risks to public health.

In the framework of South East Asia Energy Outlook 2040 scenario, energy demand in ASEAN is expected to grow by two thirds of current energy demand. According to them, existing electricity demand that corresponds to about 60-65%, ~~as~~ of the region's economy will triple in size by that time, and the population will grow by one fifth reaching 150 million. It is obvious that electricity would then account for the largest share of the increase

in the final fuel consumption, as rising incomes in the region translate into higher usage of electrical appliances and ever-increasing demand for domestic cooling. It should be taken into consideration that two-thirds of the increase in ASEAN electricity demand comes from residential and service sectors, largely due to rising urban middle class. Industrial electricity demand is more than double and gets further pushed by lighter industrial branches that are the mainstay of the region`s economic activity. (ASEAN Energy Outlook, IMF 2017)

To deal with the growing energy demand and to keep up the pace of economic growth, the signing of the ASEAN Energy Cooperation Agreement in 1986 marked the start of efforts to develop a more comprehensive approach to energy cooperation and policy coordination on a regional level. The ASEAN Plan of Action on Energy Cooperation (APAEC) 1995-1999 established coordinating bodies for electricity, gas, and coal, new and renewable sources of energy, and energy efficiency and conservation. The "ASEAN Vision 2020", published in 1997, placed emphasis on the need to construct transboundary energy networks, and this priority was embodied in the ASEAN Plans of Action for Energy Cooperation for 1999-2004 and 2004-2009 and reiterated in the Plan of Action for 2010-2015. At any one time, the prevailing APAEC is the key point of reference and handbook for ASEAN energy cooperation (ACE, 2013).

The strategy for transboundary energy networks had two main components: the Trans-ASEAN Gas Pipeline (TAGP) and the ASEAN Power Grid (APG). The TAGP aims to provide gas supplies across the region, to raise the share of natural gas in the fuel mix as it is cleaner than coal, and to encourage investment in gas exploration. While, the Trans-ASEAN Power Grid aims to link the member states in a single network in order to provide access to modern energy to populations throughout the region, and to maximize the efficiency and flexibility of electricity supply.

As a mandatory step in the planning process, a number of important technical and regulatory challenges have to be addressed to realize a truly regional grid. These can include rules concerning access to the grids by suppliers and buyers; rules governing transit through third states; systems for trading energy; technical standards; and procedures for maintaining system stability in the case of electricity to expedite the harmonization of regulatory practices and technical standards. (ASEAN Energy Outlook).

3.2. Collective challenges

In the past few years ASEAN has demonstrated a profound commitment to the establishment of the ASEAN Plan of Action for Energy Cooperation (APAEC 2016-25) and governance to enhance the energy security in the region. This action addresses major programme areas, which consist of the development of ASEAN Power Grid (APG) and the promotion of energy efficiency programme. ASEAN Power Grid Programme for Electricity, as of May 2017, has recorded the grid interconnection of 5,212 MW from only 3,489 MW in 2015 in the complete ASEAN region. Considering the increasing demand for electricity in the region, an additional APG was reported approximately 1,723 megawatts (MW) from only 3,489 MW in 2015. Nevertheless, Laos PDR-Thailand-Malaysia (LTM) and after that Philippines have signed successfully the Cross-Border Power And Transmission Agreement at the 35th meeting of ASEAN ministers of energy, September 2017 for the multilateral electricity trading. With respect to ASEAN Plan of Action on Energy Cooperation, ASEAN is devising mechanisms to initiate multilateral electricity trade by 2018 through APG. ASEAN also aims to create more networks for the purpose of electricity security and accessibility through the grid connection. To fulfill these goals and for realizing the programme success, there exists a lot of challenges faced by ASEAN that can be summarized as follows:

Challenge No. 1: ASEAN is supposed to overcome the regulation and commercialization of electricity issues with respect to regional and national power cooperation. The regulatory bottleneck on regional power purchasing scenario primarily consists of different licensing regimes, the absence of free flow of funds, and the absence of double taxation agreement etc.

Challenge No. 2: Moreover, confidentiality is also a major concern, in which access to national-level information involves, then stakeholder management and internal market conflict also exist specifically in the commercialization of electricity.

Challenge No. 3: Technical difficulties in market monitoring might limit the irregularity on the sale and purchase of electricity and regulations on the standards of cross-border power trading also persists. For the commercialization of electricity, some ASEAN member states may show anti-competitive behavior or unfair market structures. Moreover, the absence of interest from investors, cost recovery and guarantee framework for regional energy cooperation can also become the main bottleneck of the ASEAN power grid development.

3.3. Selected Country Profile

3.3.1. Laos PDR

Laos PDR is a landlocked country located in the center of ASEAN. Laos shares its border with Thailand, Vietnam, Cambodia, Myanmar, and China. The land area is approximately 236,800 km^2 and is mostly mountainous, in addition to 68% of forest cover. Laos has an estimated population of 6.2 million, where 73% population lives in the rural areas and is ~~a~~ least populated with the population density – 26 people/km^2. Laos is the poorest country in the whole ASEAN region and is ranked 133 out of 182 countries in the Human Development Index. The primary economic activities of Laos people is agriculture, which contributes more than half of the country`s GDP, estimated at US $16.85 billion (World Bank, 2012).

The power sector is one of the country's strategic growth sectors. It has grown at an exceptional rate over the past several decades. Its significant role in enabling the country's economic growth and socio-economic development over the decade is evident in the ASEAN region (Jusi, 2011). Opportunistic and visionary deployment of hydropower plants in between 1970-80 was driven by exchange agreement and electricity export to neighboring market Thailand. These already established power projects not only financed Laos for early hydro project but also contributed excess revenue for national power grid expansion and connection programmes over the years. Power grid expansion initiative has already covered 69% of the nation since 2009, and the target is set to achieve 90% by the end of 2020 (Electricite du Laos, 2018). The requirement of power importation is expected

to increase as a consequence of the rapidly increasing demand and constraints on power generation (Messerli et al., 2008). Currently, domestic energy consumption has an average growth rate of 13% a year on the peak load demand of 1,486 MW (Electricite du Laos, 2018).

According to Laotian Times (LT, 2017), government electricity reforms initiated in the late 1980s also enabled the participation of private enterprises in the power sector. In 1975, there was only 40 MW installed capacity in the country, mainly from Nam Ngum (30 MW) hydropower and today it is approximately 6000 MW of total installed capacity, out of which 97% is in operation from hydropower plant under a PPP arrangement. Further, the revised electricity law by the National Assembly in 2008 has provided the commitment to promote private sector-led hydropower development for cross-border trade. These collaborations have been instrumental in advancing the PPPs and private financial investment in the power sector, underlying the rapid expansion of installed power capacity to date (Phongsavath 2007).

According to the World Bank`s PPP Infrastructure Database, since the 1980s and as of January 2018, PPPs have gained total investment worth US$ 17, 896 million in which 30 PPPs are still active either under construction or for operation in Laos. For example, Nam Theun 1 power project of 650 MW generation capacity (2017). It is with the collaboration of Phonesack Group having 60 % (private) ownership and 40% stake of Electricity Generating Company (EGCO). In Don Sahong Hydropower project (2017) of 260 MW capacity, Mega First Corp. has 80% of private ownership. Similarly, Sinohydro Nam Ou 1-7 power project (2012) of 1,156 MW, where Sinohydro comprises of 75% stake in the project. Consistent with the early drivers of power system development in Laos, at present time there are 4 regional grids operating the country's Northern Grid, Central Grid 1, Central grid 2, and Southern grid. Though, these 4 grids are not interconnected, each one of them is separately interconnected with Thailand power grid to ease the trading of electricity in the region.

In addition, the Electricity Board of Laos (Electricite du Laos, EDL) has several other collaborations with private power producing firms, in areas such as electricity generation, transmission, and distribution. The Laos government heavily depends on the

private energy operators, especially those which generate and supply decentralized electricity to 6,000 rural households (World Bank 2017). As per the estimate, 64% of the country's electricity is produced by the private company, while EDL generates remaining 36% of electricity both from centralized and decentralized systems of generation (Phongsavath 2007, 15). Further, private enterprises mostly control and operate the demand for electricity from the grid in all the cities of Laos where there is a dearth of electricity and lack of effectiveness (ASEAN-German Mini Hydro Project 2014). The private sector plays a determinant role in Laos's energy sector. Their huge stakes in hydro dam projects are currently under construction in Laos which will transmit the electricity to Thailand and Vietnam in future. In another instance, the Nam Theun 2 hydroelectric project (NT2) is running under PPP to generate and transmit electricity to Laos and Thailand.

The government of Laos PDR perceives PPPs in the power sector as a new way of procuring public infrastructure and services to speed up the investment programme and improve the performance of public infrastructure. As such they are primarily considered as a tool to reach more general policy objective especially in upgrading energy production, transmission, and distribution facilities. Meanwhile, as it was mentioned earlier in the thesis, most of the investment comes from private companies in the electricity generation projects. It occurs simply because Laos`s domestic financial market is not yet sophisticated enough to offer other forms of public financing (Kyophilavong 2014, 135).

Thus, there are several issues with PPP-funded projects. First, despite having a regulatory board, Laos has fractured implementation and supporting regulations. Next, the Laos government has limited knowledge and capacity in contract negotiations, which result in such collaborations, mostly in favor of private companies. Third, the huge private investment in (hydro) power production resulted in appreciated real exchange rate, which lowers down the investment competitiveness in other sectors such as agri-business and manufacturing, similar to a phenomenon known as the 'Dutch disease' (Kyophilavong and Lamphayphan, 2014, 150).

3.3.2. **Thailand**

Thailand is a country at the center of the Southeast Asian Indo-Chinese peninsula composed of 76 provinces. With an area of 513,120 km^2 and over 68 million people, Thailand is the world's 50th largest country by total area and the 21st-most-populous country and 19th largest export economy in the world. The capital and largest city is Bangkok, a special administrative area. Thailand is considered a regional power in Southeast Asia and a middle power in global affairs. It has the second largest economy in Southeast Asia with high level of human development. The Gross Domestic Product per capita in Thailand was last recorded at 16277.67 US dollars in 2017. Thailand is classified as a newly industrialized economy with manufacturing, agriculture, and tourism as the leading sectors of the economy (Thailand Economic Outlook 2018).

Electricity demand in Thailand has increased at a compounded annual growth rate of 3.5% in the past 10 years, which is also in parallel with the economic growth which was +3.2% in the same time period. The installed power capacity as of April 2017 stood at 44,579 MW. Further, according to the latest Thai power development plan (PDP, 2015), electricity demand is speculated to increase at 3.3% over the next 5 years (Thanawattano 2018, 14).

The Thai power sector is mostly a government-controlled industry throughout the whole value chain, from generation to transmission and to distribution. The Electricity Generating Authority of Thailand (EGAT) is the largest SOE in the Thai power generation sector, while Provincial Electricity Authority (PEA) and Metropolitan Electricity Authority (MEA) are responsible for the distribution in provincial and metropolitan areas respectively.

The Thai government liberalized the power sector in the early 90s by introducing an open bidding system under the Independent Power Producer scheme (IPP). Thai government had two motivations: (i) to reduce EGAT’s investment burden to meet the growing energy demand in the domestic market and (ii) to secure the electricity demand by purchasing electricity from private operators under long-term power purchase agreements, from small power producers (SPP) and from some very small independent power producers (VSPP). As of March 2017, electricity generation capacity of EGAT is around 16, 067 MW, accounting 30% of the country’s total capacity and rest of the demand is met by

around 156 SPP of installed capacity 13, 983 MW and 981 VSPP power projects of installed capacity 5,240 MW (Thanawattano 2018, 18).

In addition to meet further electricity demand, Thailand`s electricity trading plan is embedded in the regional development agreement. In September 2017, the prime minister of Laos, Thailand, and Malaysia met at the ASEAN ministers of energy meeting and agreed on electricity trading agreement to direct electricity from Laos to Malaysia via Thailand. Indeed, this agreement represents the first step to turn the ASEAN power grid into reality with a humongous amount of infrastructure development and need of heavy investment under the vision to enhance electricity connectivity, market integration and achieve energy security. In this win-win project, Laos will get paid from selling electricity, Thailand will get paid for the use of its transmission lines and Malaysia will ultimately get the electricity.

Amidst the ongoing power project development plans in Thailand, transboundary transmission schemes, and regional development agreements, critics have raised some questions focusing on market governance instruments. The fundamental reasons behind concern ~~is~~ are the electricity trading amendments and contracts signed before the project initiated. The projected cost pitched by the individual private power providers overestimate to cover the risk is also a subject of apprehension (Wattana and Sharma 2011, 497).

There is a common practice among individual power providers in Thailand, which informally establish a group to increase the contracted electricity prices between themselves and the EGAT. Their illicit collaboration sometimes result in an increased electricity price to consumers (Wattana and Sharma, 2011, 500). This in return, benefited private investors with the opportunity to earn elicit profit. For example, there were a few cases registered in 2009, in which Thai crony corporations have acquired control in politics in order to gain some concessions, economic restrictions and to build collusion in several infrastructure projects (Tantikulananta, 2009, 491).

One existing study on Thai power sector exposed EGAT and imposed the charge of collusion with only specific IPP, where EGAT had an intention to control the supply market. The study further invoked that since EGAT is the main electricity trader in Thailand, it also has controlling power over the market. EGAT use the loopholes of liberalization policy in the Thai energy sector and hold the market dominance within some

wealthy and specific IPPs of Thailand, private companies such as Ratchaburi Electricity Generating Holding Company Limited (RATCH) and Electricity Generating Company Public Company Limited (EGCO) (Nikomborirak, 2011, 26). They involved themselves in a political party, which enabled a crony corporation for building collusion and patronage relationship with political parties. By this particular behavior, crony corporations were able to burglarize government that obstructs governance in the power sector (Tejapira, 2002; Pye and Schaffar, 2008).

Moreover, It is evident that an anti-competitive environment exists in the Thai power sector and various public projects under privatization has been conditioned by facilitating high favor to private investment under associated conglomerates since the last few years. It may attributed to the fact that when there is even a partial patronal relationship between the EGAT and the private companies, it contributes to the collusion of privatization (Tjiptoherijanto 2012, 3-10).

Finally, According to Bloomberg, Thailand economy witnessed a tremendous growth in 2017 with GDP raised to 3.7%. Altogether, it is also speculated that this growth may not be consistent in coming years because of inadequate energy infrastructure, less development in the renewable energy sector, inefficient regulatory mechanism, and absence of smooth regional cooperation. According to Earth Rights International (2018), another factor of this speculation is a social opposition to power projects which has been raised due to interminably increased share of private company's intervention in public project (Wora 2018, 2).

3.3.3. **Malaysia**

Malaysia has a population of 31.2 million and is divided into two distinct regions divided by the South China Sea. Kuala Lumpur is the capital city, has 11 states and two federal territories. Malaysia has been one the rapidly growing economy in the developing world since the 1970's when it began the transition from an agriculture-based economy to the industrial hub. Malaysia has a per capita income equal to US$ 10,500 and is now an upper-middle-income country (according to the World Bank report). So far, Malaysia has maintained an annual GDP growth rate of 5.2% during past 20 years (Gütersloh 2018, 12).

The demand for electricity in Malaysia has been growing in tandem with its GDP. Country electricity consumption got doubled in between 2000 and 2018 as a consequence of rapid industrialization and economic growth. It was 1095 KWh/capita in 1990 and in 2017 it has become 4238 KWh/capita (Index Mundi, CIA world fact-book). The demand for electricity in Malaysia has been growing in tandem with its GDP. Country electricity consumption got doubled in between 2000 and 2018 as a consequence of rapid industrialization and economic growth. It was 1095 KWh/capita in 1990 and in 2017 it has become 4238 KWh/capita (Index Mundi, CIA world fact-book). Most of Malaysia's installed power capacity is based on fossil fuels with natural gas used for electricity generation. The electrification within urban Malaysia is as high as 99% but in rural areas, there is less access to electricity (Hinchliffe, 2015, 8).

Further, supply in Malaysia is vertically integrated with a generally monopolistic nature, where utility companies manage all the generation, transmission and distribution of electricity in a region. The main utility companies are Tenaga Nasional Berhad (TNB), Sarawak Electricity Supply Company (SESCO) and Sabah Electricity Limited (SESB) along with some independent power producers. All the three main electricity utility companies in Malaysia are public companies and government regulates them as the main shareholder. They are also heavily regulated by the Economic Planning Unit (EPU), Ministry of Energy, Green Technology and Water, and the Energy Commission (EC). Hence, the electricity sector is very much influenced by government policies (Jalal and Bodger 2010, 440).

Nevertheless, the Malaysian electricity infrastructure has been developing heavily through PPPs since the 1980s. It was a result of the adverse impact of the global economic recession that forced the government to seek help from the private sector for the development and economic growth of the country.

As of January 2018, power projects have gained total investment worth US$ 46, 404 million in which 75 PPPs are active (either under construction or in operation) worth US$ 33,454 million (PPP knowledge bank). For example, the biggest Tanjung Bin Power Plant having a power generation capacity of 5,200 MW have 90% private company ownership of Malkoff Bhd. 3B Jimah East Coal-Fired Power project of 2000 MW plant capacity initiated

in 2015 has 30% ownership of investment worth the US $2,675.00 of Mitsui group, is a Japanese company. Similarly, Negri Sembilan Royal Family have their 100% stake in the Jimah Electric power plant, an investment worth US $1,600.00 (World Bank`s PPP infrastructure database). Additionally, in the past 10 years, some other private power companies have also signed a Memorandum of Understanding with Tenaga to generate and distribute electricity in Malaysia. Independent generators like Malakoff and SKS Power are some private firms that have already collaborated with Tenaga to build generation plants to fulfill the demand by 2025.

According to the 9th and 10th Malaysia Plans (2006, 2010), the main objective of PPPs in Malaysia is, to revise and improve implementation of the existing privatization policy. According to the plan, PPPs should be employed for infrastructure development and service development. PPPs should meet two conditions: first, the implementation of the PPP must be able to make government projects more efficient where the risk and rewards are equally shared between the public and private parties; and second, PPP is to be used where government support and strengthens the private sector projects in promoted areas (9th Malaysia Plan 2006).

According to the group of social activists, the government seeks to reduce its financial and administrative burden through PPP project exercise (Alfan 2012, 70) and some scholars claim that the Malaysian government has moved away from its role and responsibility of public infrastructure development in the past 20 years and has started accepting an unregulated private stake in the public funded power project (Hashim et al, 2017, 2). At one hand, these partnerships have replaced the state monopoly in Malaysia electricity and on the other hand, PPPs scheme has evolved with many issues pertaining to the service quality. There are also no clear guidelines for performance auditing, tendering mechanism, project financing, and project implementation for the PPP project in the Malaysian power sector. In the future, it may cause conformity issue pertaining to the government’s objective (Hashim, et al, 2017, 4).

3.3.4. **Philippines**

The Philippines is one of the most rapidly growing economies of East Asia. It is an archipelagic country, consisting of about 7,641 islands. Its location on the Pacific ring of fire and close to the equator makes the Philippines prone to earthquakes and typhoons. The country has an area of 300, 000 km^2 and population of 100 million. The capital city of the Philippines is Manila. The Philippines economy is the 34^{th} largest in the world with an estimated GDP of US $ 371.8. Its' GDP grew by an annual 6.3% during 2010-16 and the further economic department is expecting the growth rate in the range of 6-8% per year for 2016-22. (The World Bank Data, 2018).

Despite rapid economic growth, above 13 million Filipinos have no access to electricity. At 706 KWh per year, the Philippines has one of the lowest per-capita electric power consumption in the whole ASEAN region. Unlike other ASEAN member state, Philippines is experiencing the different situation of electricity access and its affordability. It is very severe: for instance, its per capita consumption is only 15% of that of Malaysia, 28% of Thailand, and 49% of Vietnam (Verzola et. al, 2017, 4). One of the prominent reasons for this limited access to electricity is that the Philippines suffer from very high electricity price, in comparison to other ASEAN countries. The residential electricity tariff in the capital Manila is around $ 0.16 / KWh (as of June 2017). Industrial/commercial electricity tariff is slightly lower, while tariff outside Manila and its nearby provinces are higher, in comparison. Another reason for this limited access to electricity is the country's geography. Philippines comprises of more than 7,500 islands, second to Indonesia. Providing electricity to so many islands creates a significant amount of challenges, which has bestowed opportunities to the private electricity companies, both in terms of the development of country and emergence of new PPP.

Moreover, the Philippines are situated in the typhoon belt. Approximately, 12-15 typhoons hit the country every year. In addition, frequent earthquakes, volcanic eruptions; tsunamis and other human-nature made disasters strike the country. Altogether, they pose constant damage to the nation's electricity infrastructure, produce challenges to public electricity department relating to the maintenance and resilience of power plants, transmission, and distribution. The state's distributed archipelagic nature and consistent

natural disaster are strong arguments in favor of public-private partnerships, where maintenance of power infrastructure is the sole responsibility of private utility companies.

The Philippines occupied a unique electric power environment among ASEAN countries. The Philippines consists of 2 national grids, the Luzon-Visayas grid, and the Mindanao grid. Smaller islands have their own mini-grids or microgrids as per the load requirement. The electricity rate is regulated, but not subsidized by the public authority. 30th Report of Electric Power Industry Reform Act (EPIRA) ensures that power generation should be entirely under private firms. As of 2018, power generation in remote areas is eventually taken over by private companies (EPIRA, 2016).

Before EPIRA, the National Power Corporation (NPC) was responsible to conduct long-term generation capacity expansion planning which was published as the Philippines Development Power Plan, where the NPC had the control over investment and finance either from its own income or national budget. While it practiced least cost expansion planning, factors other than cost were also considered, especially energy independence and environmental concern. At a time, therefore, the state could plan a capacity and generation mix. Now, with a PPP-led decentralized and market-oriented power system, the Philippines capacity and generation mix emerged out from the procurement decision of the distribution companies in addressing current and future loads. In addition, these decisions rely on private financing and profit margins (Verzola et al. 2017, 6).

Now, despite the fact that major PPP power projects still need approval by various government agencies, private players dominantly collaborate with the state-owned enterprises to exercise dominance with respect to market power in the electrical utility and service sector. Although, there is rapid private investment in the Philippines power infrastructure, it is also evident that there is a rise in an anticompetitive environment where the government and private players in the name of PPP project coordinate and control the market (Bocchi 2014, 15). For example, investigations were conducted on 35 independent private power (IPP) producers. The findings of the investigation emphasized that IPP projects which were running successfully at that time were performed through a close relationship between the government and private conglomerates (Wu and Sulistiyanto 2015, 36).

In addition to the investigation report, a profound case of corruption also came to light, which revealed the transformation of Caliraya-Botocan-Kalayaan hydroelectric power plant from PPP into IPP. In this project, private company bribed around $2 million to the government in order to procure the contract for the hydel project (Kenny and Soreide, 2008). Moreover, it also came to light that the politically closed private firms leveraged government favors because of the less stringent rule and regulations that maintain flexible barriers for them in the utility sectors. It was to assure that these firms can reap the benefits from the sector development (Bocchi 2014, 25). The weakened market barriers in the power sector can further lead to reaping benefits for government-connected enterprises. This environment discourages market competition and cost efficiency in a broad range of investment too in the Philippines power sector (Bocchi 2014, 30).

Consequently, this non-competitive environment made by flexible rules and regulations results in low entry of new private investment. Such, prospective investors are moving away from the Philippines power sector because of already present politically connected domestic collaboration which influences regulations and policies of the power sector. The only option left for new private players to invest in the Philippine power sector is by joining hands with the already present politically connected private actors (through merger and acquisitions) which control the market of the Philippines power sector. This makes the Philippines the case of a high political capture and private companies are seizing this opportunity; where the market is open but market governance is absent; to create crony alliances with the public enterprises.

3.4. Comparative Analysis of Case Studies:

In the previous section, thesis profiled the country selection, produced cases of Laos PDR, Thailand, Malaysia, and the Philippines. The case was elaborated on the economic conditions of these countries, the situation of electricity including security, accessibility, and affordability. The cases also highlighted the inclusion of PPP in the country-specific policy programme and their nature in the region. Further, in the next section, thesis will explore the nature of PPPs in the selected country based on cross-case analysis method and will produce some common attribute of PPPs.

(a) **Public-Private Partnerships in the context of electricity security, accessibility, and affordability**:

PPPs have been the essential element of power sector policy-making process in Thailand, Malaysia, Laos, and the Philippines since the 1980s. Taking the base year 1990, when PPPs were widespread, accessibility of electricity in Laos reached to 87.1% from 15.3%, the Philippines touched 91% access rate, Thailand and Malaysia achieved 100% goal in 2016 (World Bank Data, 2016). However, still, electricity security issue and affordability concerns are under debate. In Thailand, ever increasing cases of power sector corruption, illicit collaboration in between EGAT and IPPs, their collusive nature and private company's intention to control the supply market, altogether results in high electricity price and consequential consumer exploitation. Similarly, In Malaysia, thesis emphasized on the issues of bad service quality and in Philippines, high electricity price compared to other ASEAN countries were reported. Additionally, in Laos, fractured governance structure, bad implementation mechanism, supporting regulations in relation to PPP project, public sector`s limited knowledge and restricted capacity in contract negotiations mostly goes in favor of private companies. Thus, they emerge out very far from safeguarding local communities from electricity deprivation. In addition, these projects often exacerbate existing social tensions and conflict, hastening environmental degradation and intensifying various manifestations of electricity insecurity (Simpson, A, 2007). In all, the thesis observed the absence of strict governance regime to be common in all selected countries. It helped private companies in seizing an opportunity to create crony alliances with the public enterprises and posing threat to not only electricity security and affordability but also a threat to accessibility in near future.

(b) **Public-Private Partnerships could build the foundation of infrastructure development:**

PPPs can be significant in boosting the infrastructure development. For example, hydropower plants established in between 80s-90s enabled Laos not only to finance the

other early hydropower project, but also excess revenue contributed to the financing of the national power grid expansion and connection programmes over the years. Similarly, in Thailand IPPs and VSPPs are determinant in securing countries' electricity demand. Power purchase agreements are supplying almost 70% of electricity need. In addition, power generation in remote areas of the Philippines has been taken over by private companies to ensure security and accessibility which is further coupled with the development process. However, the issues still persist regarding the affordability of electricity which also highlights the monopolistic nature of PPPs. So far, PPPs in Thailand, Malaysia, Laos and the Philippines are the effective means of bridging the gaps in between power demand and supply, filling up the public administration shortcomings, and in risk and benefit. Further, the expertise to share risk with the private sector, tap external investment, an opportunity to gain profit can give public sector policymakers great flexibility for infrastructure development. An emerging and rapidly growing economy, especially of Thailand, Malaysia, Laos and the Philippines, can seek exponential benefit from PPP project for the infrastructure development. In short, PPPs could positively influence the infrastructure development of the country. However, they are not the only medium. PPP can be comprehended as a system, where the public sector is shifting their responsibilities in the hand of the private sector. Further, PPPs influence the infrastructure development, which is solely dependent on the number and value of PPPs in the country and on the policy, regulation, and institutional environment.

(c**) Public-Private Partnerships enhance the market dominance of the private sector and reduce state-owned enterprise`s monopoly in the power sector**

In the light of above-discussed cases and provided evidence in the thesis, we can state that the PPPs have an important role in the electricity generation, operation, and distribution and in infrastructure development. From the cases, the government of Laos PDR perceives PPPs in the power sector as a new way of procuring public infrastructure and services to speed up the investment programme and improve the performance of public infrastructure. Similarly, Malaysian Development Plan has the emphasis on PPPs for infrastructure and services development. 30th Report of Electric Power Industry Reform Act (EPIRA) in the

Philippines also ensures that power generation should be entirely under private firms to ensure uninterrupted power supply and easy accessibility. Again, complete privatization of power generation in the Philippines, 64% of the country`s electricity production under PPPs in Laos and near to 70% private power production in Thailand, made it clear that the increased share of PPPs, on one hand, has reduced the monopolistic role of SOEs but, on the other hand, such partnerships have also translated the development agenda in the form of market dominance of the private sector in the power division in the absence of clear regulation and market governance guidelines. Though, by promoting wide use of PPPs governments shows their intention to ensure electricity in more secure, accessible and affordable manner to its citizen, but due to the absence of strict regulatory governance structure, increase cases of corruptions, ~~and~~ delay in project delivery, and collusive attitude make these strategic goals even more unrealistic and uncertain.

(d) **Public-Private Partnerships create an anticompetitive environment**:

The case from Laos PDR and Malaysia explains that the increasing share of PPPs can create an anticompetitive autocratic environment, where the PPPs are service providers capturing the whole market instead of SOE. Consequently, this situation would then raise the concern for market governance in relation to the competition in the Malaysian and Laos energy sector. On one hand, PPPs replaced the state monopoly and, on the other hand, evolved with many issues pertaining to improve service quality. The reason is clear: no distinct guidelines for performance auditing is available in the rulebook, absence of a clear tendering mechanism, and blur project implementation methods of the PPP project in the Malaysian power sector. Consequently, such projects produce conformity issues pertaining to the government's objective of electricity security, accessibility, and affordability. Similarly, in Philippines, the politically closed private firms have leverage government favors in the absence of strict regulation and in the presence of flexible barriers. Eventually, these politically closed associations discouraged new players to enter in a broad range of investment and hence, favors the anti-competitive environment for new entrants, established by existing private power sector providers, which further hinders fair development process.

Conclusion and Recommendations

Economic growth and increase in energy demand are mutually dependent everywhere. Economic development actions demand more energy and an increase in energy usage brings more economic prosperity. Energy is a broad sector that holds two important yet very different industries: the oil and gas sector, and the power sector. The focus of the thesis was on the nature of public-private partnerships (PPPs) that take place in the power sector i.e. electricity, the second component of energy. The thesis has also explored the fact: whether the PPPs are helpful in making electricity more secure, accessible and affordable or not. For this purpose, first of all, a literature review was conducted to provide a detailed overview of the question: Why are public-private-partnerships increasing widespread as opposed to fully public institutions? In general, the study found out that in the complex power sector project, public sector often seeks private sector expertise to reduce the lack of clarity about decision-making, risk allocation and for the project governance. Also, such projects demand heavy investment, so PPPs provide provision of private investments in a social welfare project which allow public organizations to save public financial resources for other projects. However, the study also established that PPPs bring varying degrees of challenges. For instance, in the power sector infrastructure development, PPPs remain a highly controversial vehicle because there is always a risk involved in the form of a loss of control over the private sector by the public sector, an increased loading of service provision, unreliable services and finally a lack of competition and blurriness in the partner selection procedures. Further, such partnerships may impose long-term risks and contingent liabilities if they are not adequately governed publically, measured, and tracked. Moreover, the thesis also look at the conditions which give rise to PPP failure and create a threat to projects i.e. week government management, ineffectiveness and opacity of governance.

As the main question, the thesis has looked at whether PPPs have been successful in delivering expected outcomes for the provision of electricity security, affordability and accessibility in selected ASEAN countries or not. Thesis found out, that the demand for

electricity in Laos is mostly fulfilled by the private actors. Thai power sector also operates in a close relationship of IPP and VSPP under independent power producer scheme (IPP) to meet the future demand. Similarly, Malaysian electricity infrastructure has been developing and operating heavily under PPP reform since the 1980s. In the complex geography like the Philippines, PPP -led decentralized and market-oriented power system is boosting the economic growth and illuminating the Filipino household. In the context of electricity security of these countries', PPPs project is going on at its own pace, but the dimension of affordability is still arguable. For example, uneven and high electricity price in the Philippines compared to other ASEAN countries have made this argument more profound. Similarly, in Thailand, the collusive nature of PPPs result in high electricity tariff. In all, the thesis can deduce that PPPs are helpful in gaining the electricity security and could promise accessibility at some extent however, affordability of electricity is totally dependent on the fair market regulations, transparent procurement method and strong institutional instrument.

The aim of the thesis was to examine the nature of PPPs in the governance of the electrical power sector. While conducting the comparative analysis, the thesis argued that PPP arrangements have been driven by limitations in public funds and the need to leverage expertise from the private sector to improve the quality and efficiency of public services. In this context, thesis put forward Laos as a classic example where, Laos`s government comprehend PPPs in the power sector as a new way of procuring public infrastructure and as services to speed up the investment programme and improve the performance of public infrastructure. But in contradiction, the same driver of PPP arrangement in Thailand and Philippines led to conformity issues and collusive behavior in the absence of stringent regulation, legal enforcement, and market governance measures. The thesis also found that PPPs enhance the market dominance of the private sector and reduce state-owned enterprise's monopoly in the power sector. Such a situation in the selected case country has shown the potential to translate power sector reforms in high electricity price, fragmentation of regulations and energy security concerns.

To the policymakers, the thesis recommends that regulatory governance structure for the ASEAN electricity security (both at the regional and national level) should be

developed and implemented in order to cope up with the issues and effects that appear from the rise of public-private partnerships. From the case of Thailand, and Philippines in relation to “collusive binding” in between state authority and private players in granting PPP projects in the ASEAN region, it is an alarming fact and is a matter of great concern with regard to the ASEAN energy security. It is recommended that the ASEAN countries need to work on energy regulatory governance that would ensure in preventing collusive binding behavior as far as there is an increase in public-private partnership projects for electricity security.

Public sector leadership is vital to guide the whole process of PPPs especially in those cases where PPPs create an anti-competitive environment and obstruct market governance for electricity security, affordability, and accessibility. Institutional aspects include legal enforcement, efficient procedures, and effective implementation. All of these require regulatory excellence and expertise from involved public entities.

Further, Public sector capacity is another vital requirement that should be in place considering that PPP is more complex and demands specific knowledge. Public sector capacity is among the top challenges of doing business in many emerging countries. The components of PPP needs to be understood comprehensively by the public sector before it can apply some innovations and introduce some adjustments and flexibilities without jeopardizing the economy.

This thesis is a detailed exploration of the nature of the public-private partnership in the power sector governance. It could provide comprehensive insight into the public administrator and to a social scientist who is willing to research on the related topic, and for students curious to know about the nature of PPPs. However, thesis leaves further scope to conduct research on this topic. Potential questions could be about the factors influencing the PPP performance: It can be macroeconomic stability, political stability, development of local capital markets, regulatory environment or legal environment. Or, what are the major issues in PPP development: is it risk sharing and management or unsolicited projects or it varies according to certain sector (energy/power, communications, and water sectors) specifics.

PPP is a broad term and can be involved in a wide range of social and economic development, researches and projects. This thesis is limited only to the document analysis of the published reports, and scholarly articles on PPPs and energy governance. Future studies can benefit from field visits and live interviews with the private sector and with public administrators involved in the PPP policy-making process.

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