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A Governance Perspective on Electricity Industry Development: The Case of Papua New Guinea

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Abstract: Premised on our contention about the narrowness of the contemporary, industry-centric, focus to understanding the causes for the underdeveloped state of electricity industry in PNG, this paper develops a governance perspective for facilitating such an understanding. The analytical framework, informed by core tenets of the state-society relational theory, is employed for this purpose. The analysis undertaken in this paper suggests that the development of electricity industry in PNG has been *ad hoc* in nature, typified by the prevalence of piecemeal efforts for redressing electricity issues of the time. Further, this *ad hoc* development is essentially reflective of the underlying crisis of governability, as indicated by frequent changes of government; this crisis has primarily arisen from the ubiquity of conflicts, at the local level, between western-style, formal governance framework adopted after independence and the culturally-attuned, informal, traditional governance framework that has existed in the local communities for centuries. In such settings, the primary focus of the government is to redress the immediate threat of political survival. The question of long-term development of the country (including, electricity industry development) has therefore assumed a dormant role. Outcome: persistent underdevelopment of the electricity industry.

Keywords: Electricity access; Industry development; Governability; State-society relation; Papua New Guinea

1. Introduction

Electricity is a key enabler for socio-economic prosperity of a nation. It is even more critical for a developing country, where electricity produces a lifeline for a multitude of people whose basic human needs of health, education and poverty alleviation are a priority (UNDP, 2006). Notwithstanding this importance, the electricity industry in many developing countries has not attained a level of maturity to effectively contribute to their socio-economic prosperity. Quite the contrary, their electricity industries are significantly underdeveloped, typified by inadequate provision of reliable, good-quality and affordable electricity (Shi et al., 2016; Zhang et al., 2019). While many socio-economic factors (See for a Zheng et al, 2019 for a review) have been proposed to explain low electrification rate, there is a notable lack of investigation from governance perspective. Given the critical role of governments in promoting electrification in developing countries, studying the unattended issues can inform national and global policy makers to formulate policies that are needed to achieve universal access to affordable, reliable and modern energy by 2030, a key goal under the UN SDGs – is a testimony to the criticality of electricity (United Nations, 2019).

Papua New Guinea (PNG), where the level of electricity access is considered as one of the lowest in the world with more than 75 per cent of the population living without electricity (see Table 1), is a terrific case to study what roles might governance plays in leading to underdevelopment of the electricity sector. Even for those who have access, electricity services have been quite unreliable with frequent outages. In 2015, for example, power outages in PNG averaged 355 times per customer, which is the highest in the Pacific region (PPA, 2015). Apart from low level of electricity accessibility and reliability, the affordability of electricity in PNG is also very poor. Over the period 2010 to 2015, average residential electricity prices in PNG were approximately $390/MWh (Renagi and Babarinde, 2018). This is high as compared with about $55/MWh in OECD countries (IEA, 2019). High electricity prices for a low-income country such as PNG imply that the people, on average, need to spend relatively large proportions of their incomes for electricity, making electricity less affordability.

Table 1: Electricity access (% of total population): 2000 and 2016

	2000			2016		
	Total	**Urban**	**Rural**	**Total**	**Urban**	**Rural**
Low levels of access						

Papua New Guinea	12	63	4	23	73	15
Solomon Islands	7	59	2	48	70	42
Vanuatu	22	78	7	58	91	46
Medium levels of access						
Micronesia	46	70	10	75	92	71
Fiji	75	91	61	99	99	98
Kiribati	52	93	21	85	88	82
Marshall Islands	68	89	23	93	95	89
High levels of access						
Samoa	88	98	85	100	100	100
Tonga	85	97	82	97	99	97
Tuvalu	94	96	93	99	100	99
Other country groups						
Low income	18	46	10	39	68	28
Lower-middle income	62	89	50	83	96	76
Upper-middle income	95	99	92	99	100	99
High income	100	100	100	100	100	100

Source: World Bank (2019)

Considerable discussion has been undertaken over the years to identify the causes for the underdeveloped state of electricity industry in PNG. Some of the key factors are: a) high costs of electricity services extension due to small size of domestic electricity market, and geographical fragmentation of the market (World Bank, 1982, 1992, 2011); b) poor system management and maintenance due to lack of expertise and fund of the electric utility (PNG Power) (Asian Development Bank, 2012; World Bank, 1992); and c) poor industry regulation, caused by insufficient technical, financial and human resources of the industry regulator (*i.e.,* Department of Petroleum and Energy) to perform its regulatory functions, and limited autonomy (Borang et al., 2016; Keeley, 2017; UNDP, 2007; World Bank, 1984, 1992).

Clearly, existing policy debate tends to attribute the underdevelopment of electricity industry to industry-specific factors, that is, factors that are proximate to the electricity industry (*e.g.,* difficult topography, lack of funds, inadequate managerial and regulatory capacity) (Zhang et al, 2019). While there may be an element of plausibility about the influence of each of these factors, the potency of this industry-centric viewpoint begins to wither away when considered alongside the fact that most of these factors have long been recognised, and a wide range of programs and initiatives has already been undertaken over the past a few decades to redress them. Yet, the underdeveloped state of electricity industry in PNG continues. As argued by a World Bank energy expert on

PNG, 'there is nothing in PNG that has not already been tried' (Duncan, 2011). By implication, this suggests that there must be some deeper causes for the underdeveloped current state of electricity industry in PNG. While it is true that an array of such factors exists in the socio-political fabric of the nation, the *governability* of a country is widely recognised as a key factor (Standish, 2013).

The primary objective of this paper is to develop a governance perspective on electricity industry development in PNG, with particular emphasis on understanding the causes for poor industry development. According to Kohli (1990), governability refers to a state's capacity to govern, that is, the capacity of undertaking major policy initiatives to promote the development of an industry or national economy, and to maintain socio-political order without recourse to coercive force (Kohli, 1990). Based on this concept, a governance perspective can be developed to facilitate understanding of the influence of PNG's governability on shaping the contours of electricity industry development, the underlying dynamics (processes) of development and, hence, the outcomes of development. This perspective, in conjunction with the existing industry-centric thinking, can provide much richer insights into why a well-functioning electricity industry has failed to emerge in PNG – this paper argues.

Our main contribution to the literature is the development of a comprehensive analysis of the influence of PNG's governability on shaping the development of the country's electricity industry. This analysis represents a point of departure from the conventional, industry-centric, focus of most existing studies that ascribe poor industry development to the industry-specific factors, and hence seek remedial measures within the immediate confines of the industry. The general approach, adopted in this paper, we contend, would provide meaningful insights into the 'fundamental' causes behind the underdevelopment of the PNG electricity industry and contribute to the development of more practical policy solutions. While these insights are based on PNG's experience, they are also useful for other developing countries, which are beset with similar difficulties of developing their electricity industries.

This paper is organised as follows. The next section outlines the analytical framework adopted in this paper. Section 3 discusses the broad contours of electricity industry development in PNG. Section 4 develops a governance perspective on this development. Section 5 presents some broad conclusions of the paper. Some policy implications are also discussed in this section.

2. A brief overview of the analytical framework

There exist three broad types of approaches for analysing governability, namely, *state-centred* approach, *society-centred* approach, and *state-society relational* approach (Bell and Hindmoor, 2009; Jessop, 2016; Migdal, 2001).

The state-centred approach is built on Max Weber's view of the state as an major autonomous actor able to pursue its own goals in governing socio-economic activities of a country (Stepan, 1978). This autonomy primarily derives from the capacity of the state, not possessed by other social actors, to make policy decisions, due to its control of administrative, legal, bureaucratic, and coercive (*e.g.,* police and military) resources (Kjaer, 2004; Skocpol, 1985). The primary focus of the state-centred approach is accordingly on analysing governability as reflective of the autonomy and capacity of the state to formulate and implement policies to promote developmental priorities and agendas, such as, economic restructuring (Evans, 1995; Rueschemeyer and Evans, 1985), industrialisation (Amsden, 1989; Johnson, 1982), and welfare (Smyth and Wearing, 2002).

The society-centred approach originates from Marxism, structure-functionalism, and pluralism (Kjaer, 2004). The recent interests in this approach have primarily arisen from widespread recognition of the increased influence of non-governmental actors in socio-economic governance following the neoliberal reform of the 1990s (Torfing, 2012). This approach is founded on the view that the society is central to governance and the state is merely 'an arena' within which various social actors articulate their interests in the making of policy decisions (Dahl, 1961; Miliband, 1969; Truman, 1951), or an actor that has to share its authority with other social actors (*e.g.,* civil society associations, and interest-groups) (Bevir and Rhodes, 2003; Persons, 1951; Salamon, 2002). As a result, the society-centred approach tends to focus on analysing governability as shaped by factors, such as, social values and norms (Persons, 1951), social domination (Pratto and Stewart, 2012), and class conflict (Moore, 1969; Wolf, 1969).

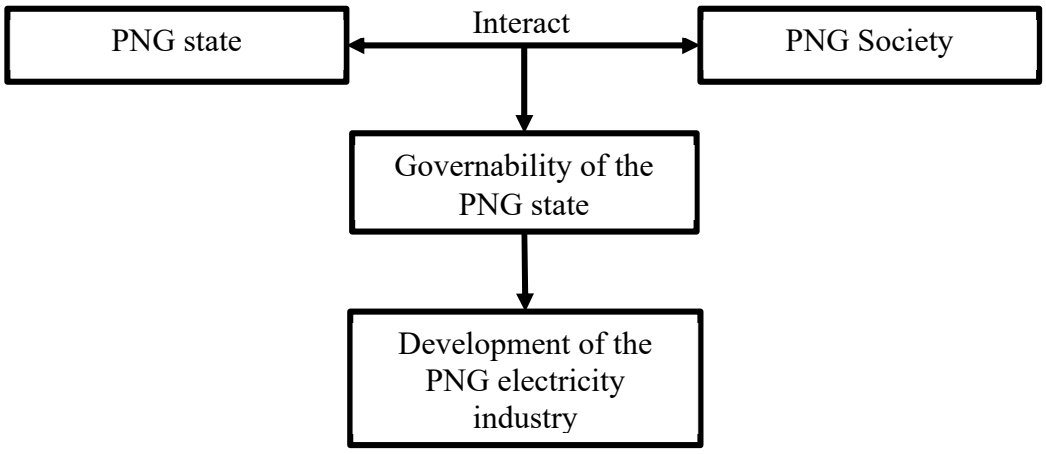
The state-society relational approach rejects one sided state- or society-centred approaches to governability on the grounds that state and society are not separate, polar opposites (Sellers, 2011). Quite the contrary, they 'are interdependent and interpenetrate in a multitude of different ways…arguments about which of these factors are more important tend to divert us from the more important issues of understanding

the complex and changing interaction between state and society' (Block, 1987). This approach therefore put emphasis on analysing the relationships between the state and society. In this analysis, the state is still considered as an important actor in governing socio-economic activities of a nation; but its capacity to govern is largely determined by the underlying 'social structure' that enables the society to resist political authority and prevent the development of a state with strong governability (Huntington, 1968; Kohli, 1990).

The state-society relational approach is useful in the context of this paper. Its usefulness has arisen from the fact that: a) the PNG state remains a critical actor in formulating and implementing policies for promoting the country's development, even though some efforts have been made to reduce its involvement in national economy since the mid-1990s, following the implementation of market-oriented reforms (Kavanamur, 1998); and b) the capacity of the PNG state to pursue its proposed policy programs and initiatives has however often been weakened by excessive social activism, as indicated by frequent changes of government, and clientelism (May, 2004c).

Accordingly, the analytical framework adopted in this paper is built on the state-society relational approach. An overview of the broad contours of this framework is provided in Figure 1. This framework comes in two parts. Part one analyses the historical development of electricity industry in PNG, focusing on the priorities for industry development and key policy measures for subserving these priorities. This review is expected to identify major patterns and trends in the development of electricity industry in PNG. Part two then seeks to explain these patterns and trends by assessing the relationship between the PNG state and society based on the argument that this relationship shapes the governability of the country, which in turn influences the way electricity industry is developed.

Figure 1: Analytical framework adopted in this paper



3. Historical development of the PNG electricity industry: patterns and trends

This section reviews the development of the PNG electricity industry, with the aim to identify key patterns and trends in this development. This review is carried out for four time periods, to coincide with major changes in the direction and pace of industry development.

3.1 The 1960s to mid-1970s

Electricity was not a subject matter of priority in PNG until the mid-1970s, as electricity demand of a largely rural, agrarian, and subsistence economy was modest (Godden and Crouch, 1984). The only noteworthy policy initiative during these years was the enactment of the PNG Electricity Act of 1961. Under this Act, PNG Electricity Commission (ELCOM) was established as a statutory authority, responsible for all aspects of public electricity supply system. ELCOM was initially under the administration of Australian government, and was, after independence in 1975, placed under the authority of the Minister of Public Utilities (World Bank, 1982). The primary focus of ELCOM in those years was to expand electricity systems to meet rising electricity demand. Such expansion was financed by the public sector, supplemented by funds provided by international donors (World Bank, 1982).

3.2 Late 1970s to 1989

The late 1970s witnessed higher priority being attached to the development of electricity industry in PNG, with specific emphasis on the promotion of indigenous resources, especially renewables in the rural areas, and the commercialisation of the operations of ELCOM (Godden and Crouch, 1984). This emphasis essentially reflected

the concerns arising from the economic impacts of increasing oil prices (and large import bill) in the aftermath of the two oil shocks of the 1970s, the desire to make the PNG economy self-reliant, and the needs to relieve the financial burdens of ELCOM (MacKillop, 1980; World Bank, 1982). This emphasis led to the introduction of various policy initiatives for reducing the use of oil in electricity generation. For example, the PNG Government released in 1979 a White paper prepared by the Energy Planning Unit (EPU) within the Department of Minerals and Energy. This paper put emphasis on reducing imported-oil-dependency of the country, primarily through the increased use of renewables. It also proposed several renewable projects, most of which did not have sufficient technical and economic appraisals, and were later abandoned (World Bank, 1982).

Efforts had also been made in the 1980s to commercialise the operations of ELCOM, mainly through tariff rationalisation (Goodman et al., 1987). ELCOM was also reorganised as a Commercial Statutory Authority (CSA) in 1983 and entrusted with the responsibility for efficiently managing power supply facilities, investment planning, electricity pricing, borrowing in domestic and international capital markets, and mobilizing domestic resources through payment of taxes and dividends (World Bank, 1992). Besides, ELCOM was also required to earn a 10 percent financial rate of return on all projects undertaken by it. This commercial orientation resulted in the abandonment by ELCOM of most rural electricity projects (as they did not meet the stipulated criterion of 10 percent return), except those directly subsidised by the national government. The abandoned projects were typically government-owned, small, diesel units, providing limited, yet critically essential, electricity supply to the generally disadvantaged rural centres (known as C-Centres) (World Bank, 1992).

3.3 1990 to 1998

Motivated by the concerns about the worsening economic situation in the rural PNG, the PNG Government began to prioritise rural electrification in the 1990s. For example, the PNG Government released in 1993 the policy guidelines for rural electrification, to address the issues of low level of electricity access in the rural areas, high costs and subsidies to C-Centres, and high costs of grid connections. Its main objective was to increase electricity access to the rural areas by, for example, promoting the use of decentralised diesel generators, and mini hydro and solar PV. No clear actions were however taken by the government in the 1990s to implement this policy initiative.

Consequently, energy access in the rural areas continued to deteriorate (World Bank, 2004a).

Another important policy development with implication for rural electrification was the introduction of Organic Law in 1995. This Law made provincial and local governments responsible for building, operating and managing electricity projects in their areas of jurisdiction (World Bank, 2004b). This policy initiative however failed to have any appreciable impact on extending electricity provisions in the rural areas, due mainly to lack of funds, and inadequate technical and managerial capacity of the provisional and local governments (World Bank, 2004b).

3.4 1999 to the present

In the later years of the 1990s, the spectre of dwindling petroleum reverses (and revenues) prompted the PNG Government to undertake a comprehensive economy-wide review of energy issues, and to introduce more coordinated policy measures for redressing these issues. These measures, in the context of electricity industry, included the promotion of private participation and industry restructuring as the means of improving electricity access (World Bank, 2004a). Additional stimulus for industry restructuring also came from growing unsustainability of direct public engagement in the supply of infrastructure, caused by the poor profitability of state-owned enterprises (SOEs), increasing demands for budgetary support to loss-making enterprises that were funded by debt, and high levels of public debt (Chand and Yala, 2009).

The PNG Government released in 1999 the National Energy Policy Statement and National Energy Policy Guidelines, which recommended various policy initiatives for the electricity industry (World Bank, 2004a). These initiatives included: a) the Energy Division of Department of Petroleum and Energy as the premier entity responsible for energy planning and coordination; b) industrial restructuring, including a restructure of ELCOM as a commercially responsible entity, private sector's participation in generation and demand-side management, and the establishment of a regulatory framework for overseeing ELCOM's policies and operation; and c) the creation of a National Electricity Authority, responsible for small-scale rural electricity system (World Bank, 2004a).

Two years later, the Department of Petroleum and Energy released the National Energy Policy Statement and National Energy Policy Guidelines 2001. This policy statement

recommended – much like the Statement and Guidelines of 1999 – the following policy initiatives for the electricity industry: a) to entrust the Energy Division of the Department of Petroleum and Energy with the task of energy sector planning and coordination; b) to ensure the maintenance of efficient, financially independent and commercially operated power supplies based on full cost recovery principles; and c) to encourage and facilitate the provision of electricity supplies to the rural population in accordance with the recommendations of the National Rural Electrification Policy (DPE, 2001a, b).

Following the release of the Statement and Guidelines, the PNG government has taken several initiatives to restructure the electricity industry. For example, ELCOM was corporatised in 2002 under Section 3 (1) of the Electricity Commission (Privatisation) Act 2002, when its assets, liabilities, rights, titles and personnel were transferred to PNG Power Limited (PPL) (DPE, 2015). At the time of corporatisation, the PNG government wrote off ELCOM's K200 million (US$XX) debt to 'ensure solvency of the newly created corporate entity that henceforth will be subject to the requirements of the Companies Act' (Chand, 2004). The government ownership of PPL was later transferred to the Independent Public Business Corporation (IPBC), under the Independent Public Business Corporation of Papua New Guinea Act, 2002 (World Bank, 2013). An independent entity – Independent Consumer and Competition Commission (ICCC) – was created under the ICCC Act 2002 – as a vehicle for 'ensuring effective economic regulation of SOEs and privatised enterprises' (ICCC, 2004). The ICCC has only performed the functions of economic regulation in the electricity industry, and has delegated the functions of technical regulation to PPL, due to the lack of human and financial resources for performing its regulatory functions (Ain, 2018).

In 2015, the PNG Government released the National Energy Policy 2016-2030, which suggested further restructuring of the electricity industry through, for example, unbundling of PPL, promotion of renewable generation, and creation of an Energy Regulatory Commission, responsible for all regulatory functions in the energy sector (DPE, 2015). This policy has been approved by Cabinet in 2018, and the PNG Government is currently preparing for its implementation (Ain, 2018). Besides, in 2016, the PNG Government introduced the Kumul Consolidation Agenda (to consolidate all SOEs), with the view to enhance financial position of the SOEs. This led to the transfer

of all assets of PPL to Kumul Consolidated Holdings, under the IPBC (Amendment) Act of 2015 (ADB, 2017).

Some efforts have also been made to promote rural electrification. Much of these efforts have however been rendered ineffective by significant delays in policy implementation. For example, in 2004, the Energy Division of the Department of Petroleum and Energy proposed to establish an independent Rural Electrification Authority, mainly responsible for a) developing, managing and operating electricity systems in rural areas; b) tariff administration on a full cost recovery basis; and c) mobilising public funds for rural electrification projects (World Bank, 2004a). No further action has however been taken to create this authority (IRENA, 2013). In 2006, the Rural Electrification Policy, which was initially developed in 1993, was redrafted. This revised draft however did not translate into revised policy. Instead, another policy – the Electricity Industry Policy (EIP) – was endorsed by the government in 2011. The EIP put specific emphasis on rural electrification. It mainly envisaged: a) a target of increasing electricity access to 70 per cent of households by 2030; b) development of a National Electrification Roll-Out Plan (NEROP) for achieving this target; and c) creation of an Electricity Management Committee, responsible for overseeing the implementation of the NEROP (ADB, 2012). After almost 8 years from the endorsement, however, the PNG Government is still working on the implementation plan for this policy, including the development of NEROP and the Town Electrification Investment Program (ADB, 2018). Consequently, electricity access in the rural areas continues to deteriorate with more than 70 per cent of the rural population still live without access to electricity (World Bank, 2017).

3.5 Key observations

The foregoing discussion suggests that the development of electricity industry in PNG has been somewhat *ad hoc*, typified by the prevalence of piecemeal efforts for redressing electricity issues and challenges of the time. For example, in the 1960s and early-to-mid 1970s, priority had been given to capacity expansion to meet rising demand of the country. The late 1970s and 1980s witnessed the entire policy machinery attuned to devising ways to redress issues arising from the two oil shocks of the 1970s, particularly in relation to increasing imported-oil-dependency and its adverse impacts on public budget. The 1990s saw growing public concerns about the worsening economic situation in the rural PNG. In response to these concerns, some efforts had

been made to promote rural electrification by, for example, promoting the use of decentralised small-scale generators (such as, diesel, mini hydro and solar PV), and empowering provincial and local governments in developing electricity systems in their own jurisdictions. The emerging debt crisis in the late years of 1990s prompted the PNG Government to take steps to restructure the electricity industry with particular emphasis on corporatisation and privatisation.

This *ad hoc* development is also reflected in significant delays, or in some cases, postponement, or even abandonment of the policy initiatives, caused by factors, such as, lack of budgetary support, and weak human and institutional capacity. By implication, this suggests that most of these policy initiatives were not introduced based on formal analysis and sound planning. Rather, they were merely *ad hoc* response meant to remedy an emerging issue of the time without serious consideration of various factors (for example, lack of funds, inadequate expertise) that may impede their effective implementation.

4. A governance perspective on electricity industry development

This section further extends this discussion, with the view to develop a governance perspective on electricity industry development in PNG. Specifically, it examines how the state-society relation has evolved in PNG (Section 4.1), and how this evolution has shaped PNG's governability, thus influencing the development of electricity industry (Section 4.2).

4.1 Evolution of society-state relation in PNG

The indigenous PNG society was structured based on a variety of small and insular communities, dominated by a small group of local 'big-men', whose authority had arisen from personal abilities (such as, skills in warfare, and ritual knowledge), and to a lesser extent, inheritance. After independence, the PNG state did not put in place a new structure of authority in the local communities; but rather built up its authority by accommodating the indigenous social structure, through close collaboration with local leaders, to control those below them in the social hierarchy. This has resulted in significant electoral localism, due to the lack of mass base for most political parties and independent candidates. The outcome has been considerable political instability, typified by frequent changes of government precipitated by votes of no-confidence as a result of party hopping and unstable coalitions.

The indigenous PNG society – like most of Melanesian societies – was structured based on a variety of small communities (for example, clans, and tribes). Most of these communities were insular with limited links between each other, due mainly to difficult topography, and endemic inter-community warfare (Dinnen, 1998). Political leadership in these communities was provided by local 'big-men', whose authority had arisen from personal abilities (such as, skills in warfare, and ritual knowledge), and to a lesser extent, inheritance. There was little overarching organisation or hierarchical leadership (May, 2004b). As a result, the indigenous PNG society has commonly been described as 'stateless' and 'acephalous' (Dinnen, 2001; May, 2004c).

This localised and non-hierarchical social structure was largely maintained in the early colonial period (late 19th century to the 1940s), because the colonial administration of the time was largely confined to the New Guinea islands and a thin coastal fringe, and hence did not pose an immediate threat to the underlying structure of the indigenous PNG society (May, 1998). After the World War II, the colonial administration was gradually re-established and extended into more remote areas, in an effort to lay the institutional foundations of the modern state, as part of the decolonisation process advocated by the United Nations Trusteeship Council (Hawksley, 2006). Some of the key institutional developments included: a) introducing a system of local councils, responsible for peacekeeping, tax collection, and local road building and maintenance in various local communities (May, 2004a); b) encouraging political participation of indigenous population by the establishment of a legislative system (House of Assembly of Papua and New Guinea) (Hughes, 1965); and c) training Papua New Guineas for bureaucratic positions (Dinnen, 1998).

Despite these developments, a modern state, able to penetrate various segments of the society, to regulate their behaviours and to mobilise scarce resources for promoting national policy priority and agenda, failed to emerge. Authority and leadership in significant proportion of the PNG society remained vested in the hand of local 'big men', as indicated by growing separatism in several major regions of the country on the eve of independence, especially in Papua, Bougainville and Highlands (Mortimer, 1979). In order to ensure a smooth transition to independence, the national leadership sought to accommodate (at least rhetorically and symbolically) diverse demands of these regions, principally by incorporating their leaders into the national politico-bureaucratic system (Mortimer, 1979).

This accommodative strategy contributed to a smooth transition to independence and Westminster-style parliamentary democracy in 1975; it also contributed to the preservation of the indigenous social structure in various localities. The outcome was the emergence of a syncretic political mode that exhibits elements of both Western and indigenous forms (Allen and Hasnain, 2010). This political mode manifested itself in significant localism and clan mobilisation as the defining characteristics of national elections in PNG. This could be attributed to the lack of mass base for most political parties and independent candidates, in the absence of any social groups that can effectively mobilise support from substantial segments of the population (May, 2004c).

The electrical localism contributed significantly to political instability, as indicated by frequent changes of government precipitated by votes of no-confidence as a result of party hopping and unstable coalitions (May, 1998). Between 1975 and 2002, for example, PNG had eleven governments, all of which were coalition governments, because no political party could win majority in the parliament. Besides, none of these governments could serve a full parliamentary term (May, 2003). Promoted by the need to redress growing political instability, several changes have been made in the electoral system since 2002. These changes include, for example, replacing the first-past-the-post voting system with a limited preferential voting system where a candidate has to have majority (at least half) of votes to be elected (Hawksley, 2006). Notwithstanding some improvements, the overall unstable state of PNG politics continues. The recent resignation announced by the Prime Minister may lend some credence to this observation (Fox, 2019).

4.2 Crisis of governability and *ad hoc* development of electricity industry

The persistent political instability, together with the widespread view of the state in PNG as a provider of goods and services, has promoted the development of a 'pork-barrelling' style of politics. This has contributed significantly to a crisis of governability, as the coalition governments have always been obsessed with defending themselves against threats from votes of no-confidence. This has primarily been achieved by building support through allocating and re-allocating public resources and privileges to meet diverse demand of various localities. As a result, the PNG state has become increasingly unable to commit itself to policies with a longer-term perspective (Kurer, 2007). Selected excerpts from May (1998) should substantiate this argument: '…those with direct access to the state tend to use their position to benefit themselves and their

primordial publics…(in) such a situation…policymaking tends to be short-term and often capricious…governments have difficulty in implementing decisions…' (May, 1998, p 70).

Therefore, the *ad hoc* development of electricity industry in PNG is perhaps just a reflection of the underlying crisis of governability, which tends to focus the attention of the government on redressing the immediate threat of political survival, and hence overlooking long-term developmental needs of the country. This viewpoint gets further substantiated by the fact that notwithstanding the importance of electricity as a prerequisite for promoting socio-economic prosperity is well recognised, electricity is still not explicitly considered as a national strategic priority at par with, for example, health, education, law and justice, and roads. This is reflected in low public budget allocation to the utilities sector as compared with other sectors (see Table 2). This can probably be explained by relatively low priority attached by local communities to electricity services. According to interviews with rural villagers, 'electricity is not high on their true list of what matters to them. Many of them do not want electricity or light at night, which can create pressure to work more' (Sovacool et al., 2011).

Table 2: Public budget allocation by sector (% of total budget)

	2015	2016	2017	2018	2019
Administration	15.7	17.3	20.5	20.7	25.2
Provinces	22.7	28.6	29.9	26.7	19.0
Debt services	7.0	10.0	10.4	12.7	12.3
Health	10.9	10.6	9.2	10.2	9.6
Education	11.8	8.9	8.7	8.8	8.5
Law & Justice	9.7	8.4	8.4	7.2	8.0
Transport	15.5	8.5	6.7	6.4	8.0
Economic	4.5	4.1	3.0	4.5	4.6
Utilities	1.4	2.6	1.6	2.2	3.8
Community	0.9	1.1	1.7	0.7	0.9
Total (10^6 Kina)	**16,199**	**14,763**	**13,350**	**14,718**	**16,134**

Note: 1 Kina ≈ 0.3 US dollar.

Sources: PNG Department of Treasury (2015, 2016, 2017, 2018, 2019)

5. Conclusions

The analysis undertaken in this paper suggests that the development of electricity industry in PNG has been *ad hoc* in nature, typified by the prevalence of piecemeal

efforts for redressing electricity issues and challenges of the time. Further, this *ad hoc* development is essentially reflective of the underlying crisis of governability, as indicated by frequent changes of government; this crisis has primarily arisen from the ubiquity of conflicts, at the local level, between western-style, formal governance framework adopted after independence and the culturally-attuned, informal, traditional governance framework that has existed in the local communities for centuries. In such environments, the government tends to focus on redressing the immediate threat of political survival. Issues of long-term development of the country (including the development of a well-functioning electricity industry) have therefore assumed a dormant role. Outcome is persistent underdevelopment of the electricity industry.

Some key policy implications, based on insights gained from this analysis, are as follows. One, development of electricity and providing access to electricity needs to consider factors beyond the electricity industrial itself and consider broad institutional environment. The development of the electricity industry is a complex phenomenon, influenced by a myriad of factors. These factors are not necessarily confined to the industry itself but could also reside in the wider socio-political and economic domains. Policy debate, that tends to ascribe the underdevelopment of electricity industry to industry-specific factors, cannot therefore provide a sufficient understanding of the causes of poor industry development, and to facilitate such an understanding requires a much broader policy debate. Two, promotion of electricity access and electricity sector in developing counties needs to improve the governability of the state. The governability of a state is a key factor for ensuring the development of a well-functioning electricity industry, because it influences the capacity of the government to identify issues facing the development of electricity industry and to design and implement effective policy measure for redressing these issues. Three, building consensus among its citizen on electricity sector development plans is often challenging, but necessary to sustain the long term projects such as electrification. A state's capacity to govern could be limited by excessive and undisciplined political participation (as indicated by, for example, large numbers of candidates contesting elections) in a highly fragmented society like PNG, which may make for the pork-barrelling style of politics, as the government seeks to maintain political order by, for example, channelling public resources to meet the demands of various local communities. This may however make it difficult for the government to commit itself to policies for socio-economic

development with a long-term perspective. Lesson could be learned from other countries that have successful electrified in the past few decades, under different governance such as China and India.

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