

Bandung Urban Infrastructure PPP Scheme in Provision of Public street lighting Facilities

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The participation of private investors in the delivery of public infrastructure is known as public-private partnership (PPP) or collaborative governance, a procurement method that combines design, build, finance, operation and infrastructure maintenance. It is generally regarded as being an innovative and holistic delivery approach. There are two sets of infrastructures procured through PPP, social infrastructure (schools, hospital, prisons and court buildings) and economic infrastructure (airports, railways road transport and seaports), the latter of which uses toll charges for capital cost recovery. Public-private partnership is attractive to many governments because of the preconceived economic benefits it provides, the allocation and transfer of risks to the private investor, and non-upfront payment of infrastructure procurement costs. This is why it has become a preferred procurement option over the many other alternative options. The PPP concept is an important factor for consideration in public sector infrastructure procurement, relative to efficiency and effectiveness with the delivery of projects. Collaborative governance draws from diverse realms of practice and research in public administration. This article synthesises and extends a suite of conceptual frameworks, research findings and practice-based knowledge into an integrative framework for collaborative governance. The framework specifies a set of nested dimensions that encompass a larger system context, a collaborative governance regime and its internal collaborative dynamics and actions that can generate impacts and adaptations across the systems. The framework provides a broad conceptual map for situating and exploring components of cross-boundary governance systems that range from policy or program-based intergovernmental cooperation to place-based regional collaboration with nongovernmental stakeholders to public-private partnerships. The framework integrates knowledge about individual incentives and barriers to collection action, collaborative social learning and conflict resolution processes, and institutional arrangements for cross-

boundary collaboration. It is presented as a general framework that might be applied to analyses at different scales, in different policy arenas, and in varying levels of complexity.

Key words: *PPP, Collaborative Governance, Public street lighting.*

Introduction

Indonesia, known as a large country with the land area of 1,904,569 square kilometres, is the 14th largest country in the world. The rank increases to the 7th largest country when land and sea area combined. Indonesia consists of 34 provinces. Indonesia's population at 261 million makes it the world's fourth-most-populous country, and the most populous in Southeast Asia. According to the World Bank, Indonesia's GDP per capita has risen steadily, from \$857 in 2000 to \$13,120 in 2018. Indonesia is a member of the G-20, which is representative of developed countries that have economic impact in the world.

Due to Indonesia's sheer size and population, the government of Indonesia estimates the country will need USD 359.2 billion investment for infrastructure development. However, it is estimated that only 73.5 percent of the investment value will be delivered through state budget and state-owned enterprises or projects (KPSRB Bappenas, 2017).

When the state of infrastructure is weak it implies that the economy runs in a highly inefficient manner. Examples of this might present as high logistics costs, businesses lacking competitiveness (because the costs of doing business are high). Alongside, there exists a high degree of social injustice when, for example, it is difficult for part of the population to reach healthcare facilities, or, for children to reach a school.

In fact, infrastructure development and macroeconomic development go hand-in-hand (have a reciprocal relationship) because infrastructure development gives rise to economic expansion through the multiplier effect, while economic expansion gives rise to the need to enlarge existing infrastructure to absorb the larger flow of goods and people that travel across the economy. However, when existing infrastructure cannot absorb rising economic activity (and new infrastructure is not developed enough) then problems will occur, similar to blocked arteries in the human body cause life-threatening conditions.

Lack of adequate infrastructure also seriously undermines the performance and activity of Indonesia's investment climate. Potential (foreign) investors are hesitant to invest in manufacturing facilities in Indonesia when the supply of electricity is uncertain or transportation costs are high. Despite the abundance of energy resources, Indonesia is often plagued by blackouts - particularly outside the bigger cities on Java and Bali - because of shortages in the country's electricity supply. Meanwhile, according to data published by the Indonesian Chamber of Commerce and Industry (Kadin Indonesia), around 17 percent of a company's total expenditures in Indonesia are absorbed by logistics costs, while in peer economies this figure is below ten percent.

The government of Indonesia is fully aware of the importance of offering a more attractive investment and business climate by improving the nation's infrastructure. To resolve the need for infrastructure investment in Indonesia, the government of Indonesia is offering a Public-Private Partnership scheme in developing infrastructure projects.

At the moment the investment climate for PPP projects is quite good, as Indonesia is experiencing an increase of 19 points in the Ease of Doing Business (EoDB) Ranks by World Bank. Indonesia's EoDB rank rose from 91 in 2017 to 72 in 2018. At the moment, Indonesia is in the Top 3 Asian Best Investment Destination, according to the Economist, and also the Top 3 of Japan Investment destination (JBIC rating).

This paper tells about the future dreams of Bandung. It contains a list of highly needed infrastructure projects that would turn Bandung into a world class city. The contents elaborate the requirements and strategy needed to realise a Modern Bandung, which can only be accomplished by innovations in infrastructure development financing. Therefore, Public Private Partnership (PPP) becomes a great concept that can bring the dreams of Bandung into fruition sooner.

As one of the cities with the highest economic growth in Indonesia (7.79% in 2016), infrastructure development plays an important role in sustaining the economic growth and realising sustainable development in Bandung.

Considerable city-development indicators include high Gross Regional Domestic Product (Real), which reached USD 12 billion (Rp 161 trillion) in 2016. The total population of Bandung increased to 2.49 million people in 2016.

Table 1: GRDP and economic growth in Bandung City

| Year | Population Million People | GRDP Real IDR Million | GRDP Normal IDR Million | Economic Growth IDR Million |
|------|------------------------------|--------------------------|----------------------------|--------------------------------|
| 2012 | 2.44 | 120 | 135 | 8.53 |
| 2013 | 2.46 | 128 | 152 | 7.84 |
| 2014 | 2.47 | 145 | 180 | 7.72 |
| 2015 | 2.48 | 152 | 195 | 7.64 |
| 2016 | 2.49 | 168 | 210 | 7.79 |

In recent years, the progress of urban development in various sectors can be seen by the Human Development Index improvement of 80.13 (very high) in 2016 and the Happiness Index shows progress by 73.42 (high) in 2017. Furthermore, the Live-able City Index of Bandung continued to show growth at 7.33 out of a scale of 10 in 2017.

Table 2: HDI and Happiness Index

| Years | Human Development Index | Happiness Index |
|-------|-------------------------|-----------------|
| 2013 | 78.55 | NA |
| 2014 | 78.98 | 68.23 |
| 2015 | 79.67 | 70.60 |
| 2016 | 80.13 | 73.27 |
| 2017 | NA | 73.42 |

Nevertheless, Bandung still faces a considerable gap in urban infrastructure development financing. This is because potential funding from the city government budgets is limited, with only USD 533 million (Rp 7.2 trillion) in 2018. On the other hand, the need for financing for strategic infrastructure provision in various sectors in Bandung is estimated to exceed USD 2.2 billion (Rp 30 trillion).

Table 3: Local budget (IDR trillion)

| Years | USD Million | Rupiah Trillion |
|-------|-------------|-----------------|
| 2014 | 341 | 4.6 |
| 2015 | 422 | 5.7 |
| 2016 | 481 | 6.5 |
| 2017 | 504 | 6.8 |
| 2018 | 533 | 7.2 |

City Government recognises the importance of adequate lighting to improve the safety and security of citizens and reduce carbon dioxide (CO₂) emissions through an energy efficient public street lighting system. With regard to these conditions, Bandung's mayor has launched the Bandung Caang Baranang (Bandung Bright Program). This aims to increase and expand the scope of public street lighting.

Existing public street lighting networks have several deficiencies, including; a high volume of faulty lights, worn cables and poles, and non-optimal lighting output quality.

Currently there are 39,640 lamps, with various wattage sizes and types installed at 37,592 public street lighting points. The state electricity company (PT PLN Persero) supplies electrical power for public street lighting. PLN data metering shows that only about 40 percent of existing public street lighting have a meter system. PLN charges a flat rate system on the remaining 60 percent of public street lighting, which resulted in possibly overcharging for the actual public street lighting power consumption.

This project will be implemented in whole area of Bandung. Bandung is segmented into six sub areas: Bojonagara, Cibeunying, Gedebage, Karees, Tegalega and Ujungberung. Public

street lighting infrastructure will be provided on the roads, which are included in the administration of Bandung City:

- a) City Road, which is under authority of city government
- b) Provincial and National Roads, under permission from road owners

Public goals for street lighting infrastructure:

- Improvement of City public street lighting's reliability, this includes safety improvement for all road users (decreasing the accident rate). Emphasising safety improvements for vulnerable citizen groups such as pedestrians, cyclists, seniors or the disabled;
- Improvement of illumination performance to meet SNI standards;
- Expansion of public street lighting to cover all areas of the city;
- Implementation of efficient, optimum performance, safe and energy saving public street lighting technology and systems;
- Resource saving in operation and maintenance (O&M) of public street lighting systems by implementation of quality products and best practice of O&M;
- Implementation of successful project without incurring significant additional cost on the city budget, and
- Punctual project implementation through the expertise and experience of the Implementation Business Entity.

Hopefully this paper can be a reference for investors and stakeholders alike to engage in Bandung urban infrastructure financing innovation, and to initiate the dream of Indonesia the Champion, highly competitive on the world stage.

Theoretical Framework

PPP is one of the non-government budget financing schemes that can be utilised in infrastructure provision. Presidential Regulation Number 28 Year 2015 concerning PPP in Infrastructure Provision, defines PPP as a form of cooperation between the government and a business entity in infrastructure provision for public interest, in accordance with the specification previously determined by the Minister Head of Institution/Head of Region/State-Owned Enterprises/Regional Owned Enterprise, which partially or entirely uses the resources of the business entity with due regard to the distribution of risks among the parties. The type of infrastructure that can be delivered is divided into economic and social infrastructure. Regulatory framework related to PPP in Indonesia, are elaborated as follows:

Table 4: Regulatory PPP in Indonesia

| No | Regulation | Description |
|------------------------------------|---|---|
| 1. | Presidential Regulation Number 38 Year 2015 | PPP on Infrastructure Provision. Presidential Regulation Number 38 Year 2015, issued by the government as replacement of presidential regulation number 67, year 2005 and its revision, establishing the cross-sector regulation framework for implementing PPPs in the provision of infrastructure. The successive amendments have established clearer and more detailed stipulations about unsolicited proposals, cooperation agreements, return on investment with the payment by the user in the form of tariffs (user charge) or availability payment, government support and guarantee to project, among other points |
| 2. | Ministerial Regulation of National Development Planning Agency Number 4 Year 2015 | Operational Guideline for PPP. Ministry of National Development Planning/Head of National Development Planning Agency Regulation Number 4 Year 2015 regarding operational guideline for the PPP in infrastructure provision. |
| 3. | Head of Nasional Procurement Agency (LKPP) Regulation Number 19 Year 2015 | Operational Guideline for PPP Procurement. Head of National Procurement Agency (LKPP) Regulation Number 19 Year 2015 regarding guideline for procurement of business entity on PPP in infrastructure provision. |
| Availability Payment Scheme | | |
| 4. | Ministerial Regulation of Finance Number 260/PMK.08/2016 | PPP Availability Payment Scheme (national). Ministry of Finance Regulation Number 190 Year 2015 Regarding Availability Payment on PPP in Infrastructure Provision. |
| 5. | Ministerial Regulation of Home Affair Number 96 | PPP Availability Payment Scheme (regional). Ministry of Home Affair Regulation Number 96 Year 2016 Regarding Availability Payment using the local budget (APBD) on PPP in Infrastructure Provision. |
| Government Guarantee | | |
| 6. | Presidential Regulation Number 78/2010 | Government Guarantee. Presidential Regulation Number 78 year 2010 regarding government |

| | | |
|--------------------|--|--|
| | | guarantee on PPP infrastructure project. Ministry of Finance Regulation Number 260 Year 2010 as amended by Ministry of Finance Regulation Number 8, year 2016 regarding guidelines on the government guarantee, whereas Ministry of Finance Regulation number 30 Year 2012 is regarding contingency liability funding. It has applied to Palapa Ring Project, Umbulan Water Supply Project, Central Java Power Plan Project, Toll Road Projects and Bandar Lampung Water Supply Project. |
| 7. | Ministerial Regulation of Finance Number 260/PMK.011/2010 Jo PMK.8/PMK.08/2016 | Operational Guideline on Government Guarantee |
| Government Support | | |
| 8. | Ministerial Regulation of Finance Number 223/PMK.011/2012 | Support for Feasibility by Government. Ministry of Finance Regulation Number 223 Year 2012 Regarding Viability Gap Funding. |

Government contributes in the PPP scheme in these three ways:

1. Partial funding of project: Government may finance the particular portion of infrastructure provision. The provision will be implemented by the Implementing Business Entity.
2. Government support: Increased PPP financial feasibility and effectiveness
3. Government guarantee: Increased PPP Project bankability and credit feasibility

The PPP project by project initiator, is categorised as follows: Government Initiated (Solicited) and Business Entity Initiated (Unsolicited). The difference between Solicited and Unsolicited project can be viewed as follows:

Table 5: Solicited and Unsolicited Project

| No | Government Initiated (Solicited) | Business Entity Initiated (Unsolicited) |
|----|---|---|
| 1. | Government initiated | Business entity initiated |
| 2. | Project prepared by Government (Pre-feasibility study) | Project prepared by proponent business entity (feasibility study) |
| 3. | Eligible for Government Support (fiscal and non-fiscal) | Eligible for Government Guarantee |
| 4. | Eligible for Government Guarantee | - |

As for the solicited project, the project cycle is developed as follows: planning, preparation and transaction phase.

Table 6: Solicited project

| Phase I Project Planning | Phase II Project Preparation | Phase III Project Transaction |
|---|---|---|
| Identification, Selection and Prioritisation | Feasibility Assessment | Contract Signing and Financial Close |
| <ol style="list-style-type: none"> 1. Formulating PPP budget plan 2. Identifying and stipulating PPP 3. Budgeting for PPP Planning Phase 4. Deciding “go”/”no go” for PPP plan 5. Listing PPP Project Plan 6. Categorising PPP Project Plan | <ol style="list-style-type: none"> 1. Preparing PPP Study 2. Proposing Government Support 3. Proposing Government Guarantee 4. Proposing Project Location | <ol style="list-style-type: none"> 1. Market Sounding 2. Stipulating PPP Location 3. Procurement of implementing business entity 4. PPP Contract Signing 5. Financial Close |
| Output | Output | Output |
| <ul style="list-style-type: none"> • Preliminary Study • Project Priority List | <ul style="list-style-type: none"> • Pre-Feasibility Study | <ul style="list-style-type: none"> • PPP Contract • Bidding Document • Approval in Principal Document • Approval in Principal Document for Feasibility Support • Guarantee Agreement Document • Regression Agreement Document |
| | <ul style="list-style-type: none"> • Proposing the needs of Government support and/or Government guarantee • Proposing Initial | <ul style="list-style-type: none"> • Confirmation/Approval on Government Support and/or Government Guarantee • Stipulating of Location by the Governor • Process of allocating |



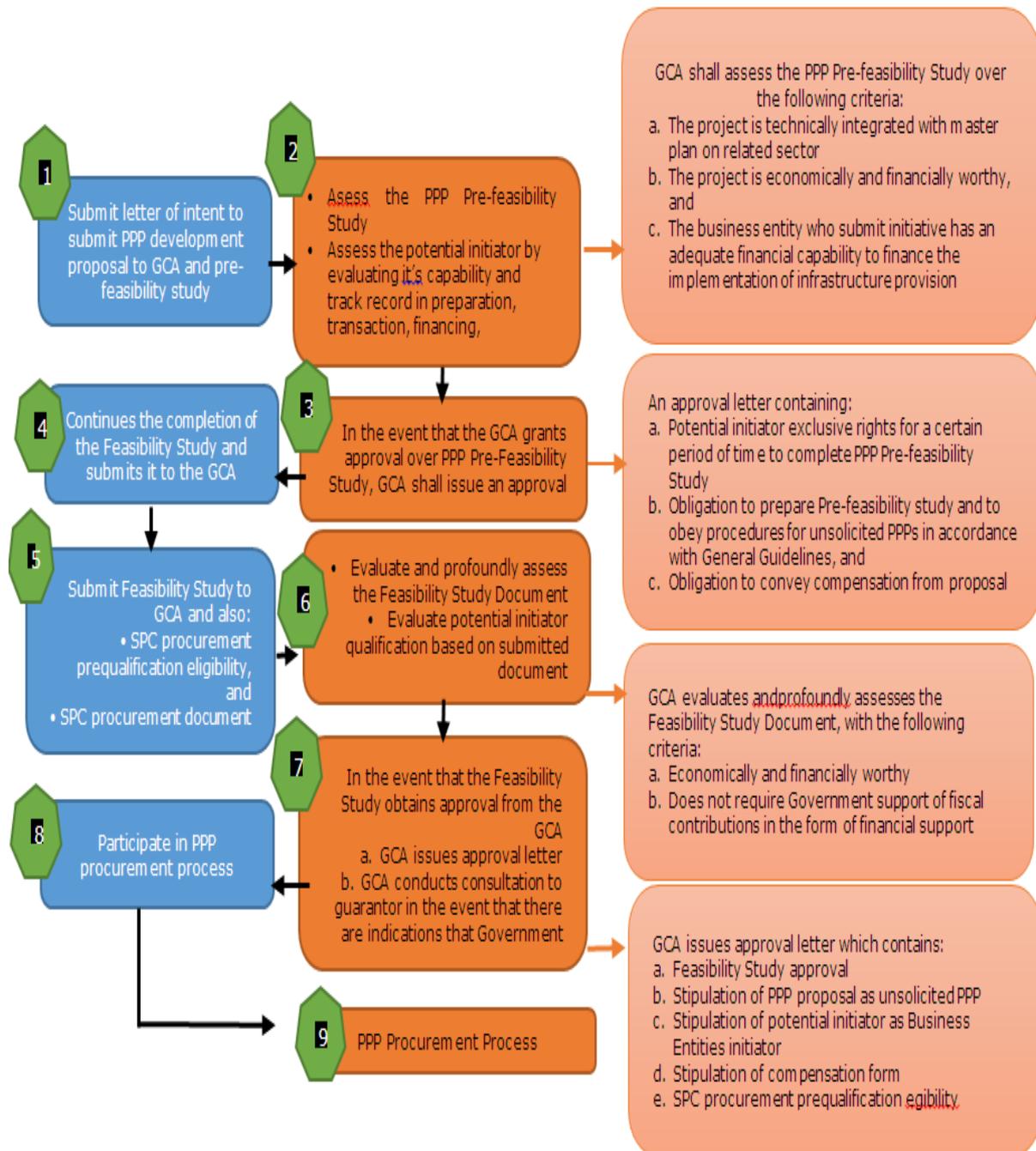
| | | |
|--|------------------------|--|
| | Location | cash, monitoring and surveillance of Government support and/or evaluation monitoring Government Guarantee and Regression Agreement |
| | Environmental Study | Environmental Permit |
| | Land Provision Process | |

In general, a project cycle for unsolicited proposals involves two stages, as follows:

1. Presenting project to the government by the proponent until all internal assessments and approvals are finished, and
2. Provision of Implementing Business Entity

The approval process from the Mayor as Government Contracting Agency (GCA) for proponent business entity, drawn in the following cycle:

Figure 1. Unsolicited project



The business entity that initiates a PPP may be given the following alternatives for compensation:

Table 7: Alternative compensation

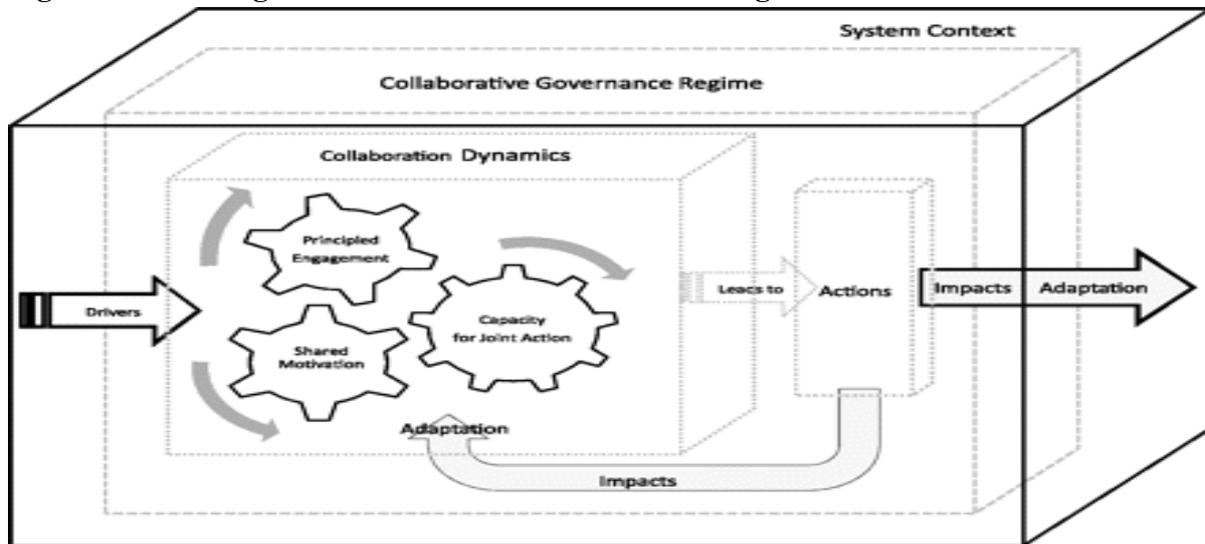
| No | Compensation | Condition |
|----|--|--|
| 1. | Additional value of 10% | <ul style="list-style-type: none"> Proponent business entity is obliged to undertake bidding process as stipulated in tender document |
| 2. | The right to bid by the initiating business entity in relation with the best bidder (right to match) | <ul style="list-style-type: none"> The entire feasibility study and supporting documents, including the corresponding intellectual property rights will become the property of Government Contracting Agency (GCA) without getting paid or compensated in any form |
| 3. | The purchase of the PPP initiative | <ul style="list-style-type: none"> Proponent business entity allowed to bid Purchasing comprises of an amount of direct funding related to preparation of PPP by the proponent business entity The amount is stipulated by GCA based on assessment result from GCA-appointed independent assessor |

Object and Research Method

This research uses an extensive and comprehensive literature review as a means of substantiating, or refuting, current PPP procurements practices, together with a completed case study and interviews with PPP practitioners from the public and private sectors. Figure 2 and Table 8 below show the stages of research methodology this paper adopted from the integrative framework for collaborative governance.

The integrative framework for collaborative governance is depicted in Figure 2 as three nested dimensions, shown as boxes, representing the general system context, the collaborative governance regime (CGR), and its collaborative dynamics and actions. The outermost box, depicted by solid lines, represents the surrounding system context or the host of political, legal, socioeconomic, environmental and other influences that affect and are affected by the CGR. This system context generates opportunities and constraints and influences the dynamics of the collaboration at the outset and over time. From this system context emerge drivers, including leadership, consequential incentives, interdependence and uncertainty, which help initiate and set the direction for a CGR.

Figure 2. The integrative framework for collaborative governance



The concept of CGR is a central feature in this framework. We use the term “regime” to encompass the particular mode of, or system for, public decision making in which cross-boundary collaboration represents the prevailing pattern of behaviour and activity. In this framework, the CGR is depicted by the middle box with the dashed lines and contains both the collaborative dynamics and collaborative actions. Together, collaborative dynamics and actions shape the overall quality and extent to which a CGR is developed and effective.

Collaborative dynamics, represented by the innermost box with dotted lines, consist of three interactive components: principled engagement, shared motivation and capacity for joint action. The three components of collaborative dynamics work together in an interactive and iterative way to produce collaborative actions or the steps taken in order to implement the shared purpose of the CGR. The actions of the CGR can lead to outcomes both within and external to the regime; thus, in the figure, arrows extend from the action box to demonstrate impacts (i.e., the results on the ground) and potential adaptation (the transformation of a complex situation or issue), both within the system context and the CGR itself.

In short, the structure of the integrative framework incorporates nested dimensions and their respective components. Specific elements within the components are listed in Table 8 and are described in more detail below. It is important to note that our framework incorporates many of the components identified in other frameworks but configures them in a way that posits causal relationships among the dimensions and their components and elements.

Table 8: A diagnostic or logic model approach to collaborative governance

| Dimension And Components | The Collaborative Governance Regime | | | | | Outputs Collaborative Actions | Collaborative Outcomes | |
|---------------------------|--|--|--|--|---|--|---|---|
| | System Context | Drivers | Collaborative Dynamics | | | | Impacts | Adaptation |
| | | | Principled Engagement | Shared Motivation | Capacity for Joint Action | | | |
| Elements Within component | <ul style="list-style-type: none"> ▪ Resource Conditions ▪ Policy legal frameworks ▪ Prior Failure to address issues ▪ Political dynamics/Power relations ▪ Network connectedness ▪ Level of conflict/Trust ▪ Socio-economic/Cultural, Health & Diversity | <ul style="list-style-type: none"> ▪ Leadership ▪ Consequential incentives ▪ Interdependence ▪ Uncertainty | <ul style="list-style-type: none"> ▪ Discavery ▪ Definition ▪ Deliberation ▪ Determination | <ul style="list-style-type: none"> ▪ Mutual trust ▪ Mutual understanding ▪ Internal legitimacy ▪ Shared commitment | <ul style="list-style-type: none"> ▪ Procedural/institutional arrangements ▪ Leadership ▪ Knowledge ▪ Resources | Will depend on context and charge, but might include: <ul style="list-style-type: none"> ▪ Securing endorsements ▪ Enacting policy, law, or rule ▪ Marshalling resources ▪ Deploying staff ▪ Siting/permitting ▪ Building/cleaning up ▪ Enacting new management practice ▪ Monitoring implementation ▪ Enforcing compliance | Will depend on context and charge, but aim is to alter pre-existing or projected conditions in system context | <ul style="list-style-type: none"> ▪ Change in system context ▪ Change in the CGR ▪ Change in collaboration dynamics |

Discussion

In general, the projected benefits of public street lighting are: to contribute to improving traffic movement, road safety, decreasing the crime rate, the achievement of cost and energy savings, overall economic development and improvement of citizens' quality of life.

The public street lighting project has complied with Local Regulation of Bandung City Number 18 Year 2011 regarding Bandung Spatial Plans 2011-2031. Within the section of the Urban Environmental Management Infrastructure Plan, it states the plan for the provision and utilisation of pedestrian infrastructure and facilities and its management plan. This includes the provision of public street lighting as pedestrian facilities on the arterial and collector streets. In addition, in the section of the Energy Network System Plan, it states that the development plan covers the development of open-air networks, such as the use of poles for public street lighting. Based on the Medium-Term Development Plan 2013-2019, the City Government of Bandung stated Bandung Caang Baranang. Its strategy is developing numerous public street lighting points on the road, which is under the authority of city government. The program has a policy direction related to the development and maintenance of public street lighting and its application into the public street lighting program in the Department of Public Works. Through this project, the provision and management of public street lighting will be implemented using energy-saving technologies that are accorded with the General Plan for National Energy (RUEN).

Based on existing conditions and project goals, the scope of implementing Business Entity is summarised as follows:

- Replacement of all existing lights (about 39,640 lamps) with energy-efficient light-emitting diode (LED) lamps to achieve better illumination quality and 50 percent minimum of energy savings;
- Replacement of existing public street lighting including poles, cables, clamps and others (if needed), to overcome faulty public street lighting infrastructure or those that fail to meet safety standards;
- Installation of smart feeders for easy transfer, monitoring and network management aimed at producing a reliable public street lighting network with a maximum of energy saving;
- Provision of a central command system (CCS), this includes software, hardware and operators to manage public street lighting networks at facilities provided by the city government;
- Installation of new public street lighting (complete units, includes: poles, cables, clamps and LED lights) to fill the shortcomings of existing networks and extend public street lighting coverage to new areas in Bandung. The number of new public street

lighting will depend on the BUP design, received bid price and the project budget limit;

- Installation of 75 smart public street lighting with certain volume, provided with additional features: wi-fi, closed circuit television (CCTV), traffic monitoring, mobile phone charging, electric car charging, environmental monitoring and other services, located at four to five selected locations to be specified in the request for proposal (RfP);
- Public street lighting O&M with 97 percent availability and compliance with other performance requirements: responses against system errors (to be defined in RfP) for expected contract duration after contract signing.
- Knowledge transfer to Government Contracting Agency (GCA); and
- Transfer of assets after the duration of the contract has expired (assets condition criteria are stipulated within the cooperation contract)

General System Context. Collaborative governance is initiated and evolves within a multilayered context of political, legal, socioeconomic, environmental and other influences (Borrini-Feyerabend 1996). This external system context creates opportunities and constraints and influences the general parameters within which a CGR unfolds. Not only does the system context shape the overall CGR but the regime itself can also affect the system context through the impact of its collaborative actions. The system context is represented in this framework, not as a set of starting conditions but as a surrounding three-dimensional space because external conditions (e.g., an election, economic downturn, extreme weather event or newly enacted regulation) may influence the dynamics and performance of collaboration not only at the outset but at any time during the life of the CGR, thus opening up new possibilities or posing unanticipated challenges.

Drivers. Although the literature broadly recognises that the “conditions present at the outset of collaboration can either facilitate or discourage cooperation among stakeholders and between agencies and stakeholders” (Ansell and Gash 2008, 550), many frameworks tend to conflate system context and conditions with the specific drivers of collaboration. In contrast, our framework separates the contextual variables from essential drivers, without which the impetus for collaboration would not successfully unfold. These drivers include leadership, consequential incentives, interdependence and uncertainty. Leadership, the first essential driver, refers to the presence of an identified leader who is in a position to initiate and help secure resources and support for a CGR. The leader may, by virtue of his or her own stature, be a member of one of the parties or the deciding official or may be located within a trusted boundary organisation. Consequential incentives refer to either internal (problems, resource needs, interests or opportunities) or external (situational or institutional crises, threats or opportunities) drivers for collaborative action. Such incentives are consequential in that the presenting issues are salient to participants, the timing or pressure for solutions is ripe, and the absence of attention to the incentives may have negative impacts. It should be noted, however, that not all consequential incentives are negative. Interdependence, or when



individuals and organisations are unable to accomplish something on their own, is a broadly recognised precondition for collaborative action. The final driver, uncertainty, is a primary challenge for managing “wicked” societal problems. Uncertainty that cannot be resolved internally can drive groups to collaborate in order to reduce, diffuse and share risk. Collective uncertainty about how to manage societal problems is also related to the driver of interdependence.

Collaborative Governance Regime. As previously described, the integrative framework introduces the term CGR, to denote a system in which cross-boundary collaboration represents the predominate mode for conduct, decision making and activity. The form and direction of the CGR is shaped initially by the drivers that emerge from the system context; however, the development of the CGR, as well as the degree to which it is effective, is influenced over time by its two components: collaborative dynamics and collaborative actions. Below, we describe these two components, as well as the various elements embedded within them.

Collaborative Dynamics. Essential drivers energise or induce the convening of participants by reducing the initial formative costs of collective action and setting the collaborative dynamics in motion. These dynamics and the actions they produce over time constitute a CGR. Several scholars portray collaborative processes as a linear sequence of cognitive steps or stages that occur over time from problem definition to direction setting and implementation. In contrast, and consistent with Ansell and Gash (2008) and Thomson and Perry (2006), we view the stages within collaborative dynamics as cyclical or iterative interactions. We focus on three interacting components of collaborative dynamics: principled engagement, shared motivation, and capacity for joint action.

Principled Engagement. Principled engagement occurs over time and may include different stakeholders at different points and take place in face-to-face or virtual formats, cross-organisational networks, or private and public meetings, among other settings. Through principled engagement, people with differing content, relational and identity goals work across their respective institutional, sectoral or jurisdictional boundaries to solve problems, resolve conflicts or create value. Although face-to-face dialogue is advantageous at the outset, it is not always essential, particularly when conflict may be low and shared values and objectives quickly surface. Before specifying the nested elements within principled engagement, it is important to discuss the participants. Who the participants are and who they represent is of signal importance to collaboration. Participants may also be called members, stakeholders, parties, partners or collaborators, depending on the context and objectives of the CGR. They may represent themselves, a client, a constituency, a decision maker, a public agency, an NGO, a business or corporation, a community or the public at large. Their selection may vary considerably, ranging from state-based participants (for example, expert

administrators and elected representatives), to mini-publics (e.g., professional or lay stakeholders or randomly selected, self-selected or recruited individuals) and diffuse members of the public. Principled engagement occurs over time through the iteration of four basic process elements: discovery, definition, deliberation and determination. Discovery refers to the revealing of individual and shared interests, concerns and values, as well as to the identification and analysis of relevant and significant information and its implications. At the outset, discovery may be focused on identifying shared interests; later, it might be observed in joint fact-finding and more analytic investigation. Deliberation, or candid and reasoned communication, is broadly celebrated as a hallmark and essential ingredient of successful engagement. The quality of deliberation, especially when participants have differing interests and perspectives, depends on both the skilful advocacy of individual and represented interests and the effectiveness of conflict resolution strategies and interventions. Finally, principled engagement incorporates the processes of making enumerable joint determinations, including procedural decisions (such as setting agendas, tabling a discussion, assigning a work group) and substantive determinations, like reaching agreements on action items or final recommendations). Substantive determinations are often considered one of the outputs or end products of collaboration or conflict resolution. In an ongoing CGR, however, many substantive determinations are made over time; these are integrated in the framework as a repeating element within principled engagement.

Shared Motivation. We define shared motivation as a self-reinforcing cycle consisting of four elements: mutual trust, understanding, internal legitimacy and commitment. All, except legitimacy, are included in the Ansell and Gash (2008) configuration of collaborative process. Shared motivation highlights the interpersonal and relational elements of the collaborative dynamics and is sometimes referred to as social capital. Shared motivation is, in part, initiated by principled engagement, and in that sense, it is an intermediate outcome; however, once initiated, shared motivation also reinforces or accelerates the principled engagement process. The first element of shared motivation (and the initial outgrowth of principled engagement) is the development of trust, which happens over time as parties work together, getting to know each other, and proving to each other that they are reasonable, predictable and dependable. Trust has long been a recognised sine qua non in the collaboration process. In networks, for example, trust has been found to be instrumental in reducing transaction costs, improving investments and stability in relations, and stimulating learning, knowledge exchange and innovation. This forms the basis of mutual understanding, the second element in shared motivation. At an interpersonal level, trust enables people to see and then appreciate differences in others. It enables people to reveal themselves to others and hence be seen and appreciated by them. Mutual understanding is not “shared understanding” as discussed by Ansell and Gash (2008) where participants agree on a shared set of values or goals; rather, mutual understanding specifically refers to the ability to understand and respect others’ positions and interests even when one might not agree.

Capacity for Joint Action. The purpose of collaboration is to generate desired outcomes together that could not be accomplished separately. As Himmelman (1994) describes it, collaboration is engaging in cooperative activities to enhance the capacity of both self and others to achieve a common purpose. Thus, the CGR must generate a new capacity for joint action that did not exist before and sustain or grow that capacity for the duration of the shared purpose. The necessary capacity building is specified during principled engagement, derived from the participants' explicit or tacit theory of action needed to accomplish their collaborative purpose, and likely to be influenced by the scope and scale of the group's objectives and activities. This new capacity is also the basis for group empowerment, which is frequently discussed as a democratic principle underlying collaboration. In our framework, capacity for joint action is conceptualised as the combination of four necessary elements: procedural and institutional arrangements, leadership, knowledge and resources. All the collaborative frameworks we studied recognise the importance of formal and informal rules and protocols, institutional design and other structural dimensions to on-going collaboration. Most also identify leadership as an important element. The levels of these elements must be sufficient enough to accomplish agreed upon goals. Moreover, capacity for joint action can be viewed as an intermediate outcome of the interacting cycles of principled engagement and shared motivation. However, as joint capacity develops, it can also strengthen or improve the engagement and shared motivation cycles, and in synergy, assure more effective actions and impacts. One or more of the elements of capacity for joint action may be offered upfront as an inducement to collaboration by the initiating leader and/or be developed over time through the interaction of principled engagement and shared motivation. Procedural and institutional arrangements encompass the range of process protocols and organisational structures necessary to manage repeated interactions over time. The conflict resolution literature identifies dimensions such as agreements to mediate ground rules, operating protocols, decision rules and so forth, but these are insufficient for longer term collaborations where informal norms must be supplemented with more formal institutional design factors such as charters, by-laws, rules and regulations. In other words, larger, more complex and long-lived collaborative networks require more explicit structures and protocols for the administration and management of work. The second element in the capacity for joint action is leadership. Leadership can be an external driver (as we posited earlier), an essential ingredient of collaborative governance itself and a significant outgrowth of collaboration. Moreover, collaborative governance demands and cultivates multiple opportunities and roles for leadership. These include the leadership roles of sponsor, convener, facilitator/mediator, the representative of an organisation or constituency, science translator, technologist and public advocate, among others. Certain leadership roles are essential at the outset, others more critical during moments of deliberation or conflict, and still others in championing the collaborative determinations through to implementation. Knowledge is the third element in the capacity for joint action. In many ways, it is the currency of collaboration. It is



knowledge, once guarded, that is shared with others; knowledge jointly needed that is generated together. It is contested knowledge that requires full consideration; and incomplete knowledge that must be balanced and enhanced with new knowledge. In essence, collaboration requires the aggregation, separation and reassembly of data and information, as well as the generation of new, shared knowledge. Ansell and Gash (2008, 544) note, “[a]s knowledge becomes increasingly specialised and distributed and as institutional infrastructures become more complex and interdependent, the demand for collaboration increases.” Resources are the final element of the capacity for joint action. One benefit of collaboration is its potential for sharing and leveraging scarce resources. Adequate budget support and other needed resources are also instrumental to successful collaboration. Useful resources may include funding, time and technical and logistical support; administrative and organisational assistance; requisite skills for analysis or implementation, and; needed expertise, among others. Power can also be viewed as a resource and, like other resources, is almost always distributed unevenly across participants. Resource disparities among participants are often highlighted in cross-cultural settings, where language, customs and culture can present barriers to engagement. Through collaborative dynamics, these resources can be leveraged and redistributed as shared resources to affect the common goals of the CGR. The perceived and real fairness, legitimacy and efficacy of CGRs can depend on how well these resource differences are managed.

Collaborative Actions. Collaborative governance is generally initiated with an “instrumental purpose in mind”, that is, to propel actions that “could not have been attained by any of the organisations acting alone. Collaborative actions should be at the heart of any collaborative governance framework, but they have received limited attention and are often left unspecified (Thomas and Koontz, 2011). When addressed, collaborative action is usually seen as the major outcome of a linear process and is sometimes conflated with impacts. However, “[p]rocesses and outcomes cannot be neatly separated in consensus building [and CGRs] because the process matters in and of itself and because the process and outcome are likely to be tied together” (Innes and Booher 1999, 415). Nevertheless, effective CGRs should provide new mechanisms for collective action (Donahue 2004) determined by collaboration partners in accordance with their expressed or implied theory of action for accomplishing their preferred outcomes. Depending on the context and charge of the CGR, such actions may include, for example, securing endorsements, educating constituents or the public, enacting policy measures (new laws or regulations), marshalling external resources, deploying staff, siting and permitting facilities, building or cleaning up, carrying out new management practices, monitoring implementation and enforcing compliance. Some CGRs have very broad aims (for example, taking actions related to strategic development or within a particular policy issue or area), whereas others have narrower goals (such as taking action on a particular project or gathering and analysing specific information) (Huxham et al. 2000). Collaborative actions may be conducted in concert by all the partners or their agents, by

individual partners carrying out tasks agreed on through the CGR or by external entities responding to recommendations or directions from the CGR.

Conclusion

We assert that collaborative governance unfolds within a system context that consists of a host of political, legal, socioeconomic, environmental and other influences. This system context creates opportunities and constraints, and influences the dynamics and performance of collaboration at the outset and over time. Emerging from this system context are drivers, including leadership, consequential incentives, interdependence and uncertainty. These drivers generate the energy for the initiation of a CGR and set its initial direction. We propose that one or more of these four drivers must be present to start a CGR and that the presence of more drivers increases the likelihood that such a regime will be initiated.

Once a CGR has been initiated, collaborative dynamics and its three components are set in motion. The first component, principled engagement, encompasses the interaction of four basic process elements: discovery, definition, deliberation and determination. We posit that the principled engagement is generated and sustained by these four elements and that quality and effectiveness of principled engagement will depend on the nature of the interaction among these four elements over time. The second component, shared motivation, also consists of four elements: trust, mutual understanding, internal legitimacy and shared commitment. We posit that principled engagement fosters these four elements, thus generating and sustaining shared motivation. Moreover, we argue that once generated, shared motivation will further enhance and sustain principled engagement and vice versa in a “virtuous cycle”. The third component of collaborative dynamics is the generation of capacity for joint action, which is also a function of four elements: procedural and institutional arrangements, leadership, knowledge and resources. We posit that principled engagement and shared motivation assist with the development of these elements, thus generating and sustaining capacity for joint action. Moreover, we suggest that the necessary levels of each element will vary based on the CGR's purpose, shared theory of action, and targeted outcomes. Finally, with regard to collaborative dynamics, our summative proposition asserts that the quality and extent of these dynamics depends on the nature of the self-reinforcing interactions among principled engagement, shared motivation, and the capacity for joint action.

The components of collaborative dynamics (principled engagement, shared motivation, and capacity for joint action) interact over time synergistically and propel collaborative action by the CGR. We posit that collaborative actions are more likely to be implemented if they are in line with an articulated shared theory of action and supported by the necessary capacity for joint action. We also propose that the resulting impacts from collaborative action are likely to

be closer to those intended and targeted by the regime with fewer unintended negative consequences if they have been specified in a shared theory of action developed through collaborative dynamics. Finally, the potential for adaptation exists both within the system context and the CGR itself. We suggest that CGRs will be more sustainable over time when they adapt to the nature and level of impacts resulting from their joint actions.

We recognise that this integrative framework covers a lot of ground. It incorporates concepts from a wide range of literature and broadens the scope of collaborative governance beyond previous constructs. The framework identifies several general sets of variables (i.e., dimensions, components and elements), as well as the relationships among those variables, that will be of interest to scholars and practitioners of collaborative governance. In addition, derived from the framework are several propositions that both integrate existing theory and seek to build new theory about how the variables of collaborative governance interact to shape events and outcomes. Although the breadth of the framework is a strength, it also makes it difficult to adequately describe within the bounds of this article. By developing a framework that encompasses the context, drivers, engagement processes, motivational attributes and joint capacities that enable shared decision making, management, implementation and other activities across organisations, jurisdictions and sectors, we have limited the space available to cover in depth the elements of each component and develop the full suite of causal pathways proposed.

Nevertheless, the framework itself improves upon existing frameworks for collaborative governance in several ways. First, it examines collaborative governance broadly and treats it as an emergent system, a new kind of regime for cross-boundary governance. In doing so, it encompasses a wider range of collaborative initiatives than other definitions and extends beyond the typical focus on the public sector and the public manager to include the myriad of collaboratives initiated in the public, private and civic sectors. Second, the framework specifies the components of the CGR in a way that integrates a range of factors identified in research into an operational system and suggests some general and very specific causal linkages. Although several frameworks acknowledge the iterative and dynamic nature of collaboration, this framework more explicitly builds that vibrant nature into its construction. Third, the framework also situates the CGR in the broader context with which it interacts. The regime is influenced by surrounding conditions and initiated by specific drivers, and the regime produces impacts affecting those surrounding conditions, as well as the regime itself and its collaborative dynamics. Finally, the framework goes beyond other frameworks in distinguishing actions from impacts and tracing the potential for adaptation of the system context and the CGR itself.

The framework also provides a wealth of opportunities for future empirical research. At the most basic level, the generic nature of the framework should enable comparative analyses of



CGRs across different system contexts and policy arenas. The depth of the framework, from the dimensions to individual elements, lends itself to in-depth description in individual or comparative case studies. The breadth of the framework enables efforts to gather more consistent data on a range of indicators from a large set of cases to test the propositions or specific hypotheses relating to the components, their elements and their interactions.

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