KNOWLEDGE SYSTEM DEVELOPMENT:

Insights from Indonesia and International Applications

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The views, findings, and conclusions expressed in this book are those of the editors and authors alone and do not necessarily reflect the views of the organizations supporting this work.

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CHAPTER 1

Knowledge Systems Theory, Development, and Application

Jana C. Hertz, Derick W. Brinkerhoff, Yanuar Nugroho

Introduction

This book explores the relationships and actor dynamics within the knowledge system in Indonesia and application of the knowledge system model internationally. It is written by actors within the knowledge system who represent government, think tanks, and media as well as development practitioners working on knowledge system reforms and initiatives in the Indonesian context and international case studies. It builds on experience from the Knowledge Sector Initiative (KSI),[1] a partnership between the Australian Government and the Government of Indonesia that promotes evidence-based policymaking in Indonesia and the concepts and analysis presented in *Knowledge, Politics, and Policymaking in Indonesia* (Pellini et al., 2018) based on Phase 1 of the KSI. For the international cases it builds on examples from the Strengthening the Use of Evidence for Development Impact (SEDI) program.[2] Before we turn our focus to the Indonesian context, this introduction will first describe the analytical framework through which each of the chapters in this book considers the development and operation of a "knowledge system."

[1] The KSI supports Indonesian policymakers to develop more effective policies through better use of evidence. It works with researchers and the government to strengthen the quality of policy research, how it is used, and the regulations and systems that support this. More effective policies help Indonesia achieve its development targets. KSI Phase 1 was implemented from 2013 to 2017 and Phase 2 from 2017 to 2022.

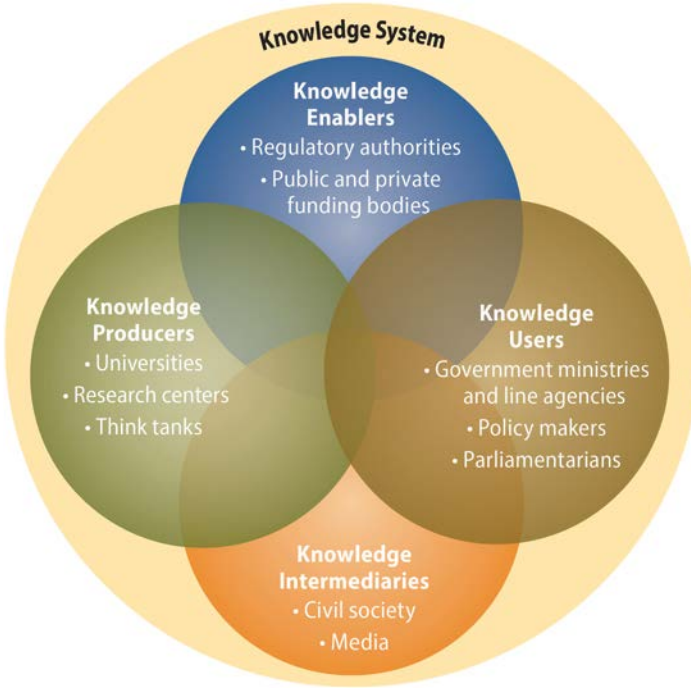
[2] The SEDI program worked to increase the use of evidence by policymakers and promote innovation in increasing evidence-informed policymaking (EIPM) in Uganda, Ghana, and Pakistan. The program was funded by the UK's Foreign, Commonwealth and Development Office (FCDO) and implemented from 2019 to 2021.

Knowledge Systems Theory and Development

In this book, we use *knowledge system* to mean the actors and practices that organize the production, dissemination, transfer, and application of knowledge. These actors are connected through networks of social, political, and economic relationships—both formal and informal—that combine knowing, doing, and learning to achieve particular purposes (Van Kerkhoff & Szlezak, 2010). These system relationships influence the flows of knowledge and power among the actors in these networks, and shape who listens to whom and which forms of knowledge are accepted as "evidence" and enter the scientific and policy arenas where decisions are taken.

Hertz et al. (2020) developed a knowledge systems model grounded in our work in Indonesia that specifies four components and the relationships among them, illustrated in Figure 1 (Hertz et al., 2020). The primary components of the model concern the supply of, and demand for, knowledge

Figure 1. Knowledge system model



Source: Hertz, J. C., Brinkerhoff, D. W., Bush, R., & Karetji, P. (2020). Knowledge systems: Evidence to policy concepts in practice. RTI Press. RTI Press Policy Brief No. PB-0024–2006. https://doi.org/10.3768/rtipress.2020.pb.0024.2006. This work is licensed under a CC BY-NC-ND 4.0 license.

and evidence. The supply component consists of the universities, think tanks, and local knowledge producers that generate knowledge in that context; the demand component includes the users who consume knowledge. In Indonesia, these users are government ministries and agencies, policymakers at various levels, and members of parliament.

The other two components of the model relate to those actors that affect the links between knowledge producers and users. These we termed *knowledge intermediaries* and *knowledge enablers*. The intermediary component consists of a diverse group of actors—civil society organizations, the private sector, media, and in some cases individual opinion leaders—who interpret, translate, disseminate, lobby, or debate knowledge, science, and policy issues. These public exchanges and discourses often shape the topics, content, and form of knowledge production that researchers pursue and users consume. Knowledge enablers are the regulatory authorities and funding bodies, public and private, that facilitate (or constrain) knowledge production. While often treated as background features of producing and using knowledge, these enablers are critical to functioning knowledge systems that can contribute to policymaking, learning, and outcomes.

Local knowledge influences all components of the knowledge system model, but it is primarily identified in knowledge production. Knowledge producers include universities, research institutes, think tanks, and local knowledge producers. This local knowledge is then used to influence and change policies incorporating the perspectives of those directly affected by the policies.

In the course of applying the model in Figure 1 to inform KSI activities, we found that we needed to emphasize several features of the model that were not highlighted in the original framing, such as dynamic interactions between actors and institutions and the role of local knowledge producers. This led us to adapt the model to Knowledge System Model 2.0 (shown in Figure 2), which more explicitly identifies the features that reflect our experience in working to strengthen Indonesia's knowledge system.

Context

Before elaborating on the Knowledge System Model 2.0 model of the knowledge system that informed our work, it is worth reflecting briefly on the political history of research and innovation policy in Indonesia, because this has shaped the range of producers, users, intermediaries, and enablers that characterize its knowledge system today.

Evolution of the Knowledge System in Indonesia

Since gaining its independence in 1945, Indonesia has continued to advance as a nation where knowledge is the foundation for achieving prosperity. This is explicitly stated in the preamble to the 1945 Constitution as a goal, if not the existential reason, for the state: *mencerdaskan kehidupan bangsa* ("to educate the nation"). Implied in this visionary statement is both a desire and a realization that for Indonesia to prosper and earn its place among other respectable nations of the world, knowledge is key. This is akin to the much-quoted proclamation by Nehru (1946) that scientific temper is the essence of a nation's identity.

Sukarno (1945–1965)

As part of his nation-building project, President Sukarno laid the foundations for scientific advancement by establishing the Indonesian Society of Sciences (known as *Masyarakat Ilmu Pengetahuan Indonesia*, or MIPI). He then fostered industrialization by setting up several agencies and industries, such as the National Atomic Agency and Krakatau Steel, with the help of sympathetic countries from the Eastern Bloc.

New Order (1966–1998)

This focus on industry-led knowledge creation continued during the New Order era under President Suharto, whose long political tenure had a marked focus on economic development and stability. This period saw the establishment of flagship projects such as the Nurtanio Aircraft Industry, the Ministry of Research and Technology[3], and the Agency for the Assessment and Application of Technology (known as *Badan Pengkajian dan Penerapan Teknologi*, or BPPT). These progressed under the stewardship of Vice President B. J. Habibie, who was brought back from Germany to establish these institutions. The New Order ended under pressure from the Asian financial crisis, which significantly affected Indonesia, in combination with widespread democratic protests against decades of authoritarian rule and corruption.

[3] Throughout this book we use different terminology for the Ministry of Research and Technology depending on the period of time which is referenced in the chapter. The ministry has gone through several changes throughout its history including several mergers. It is referenced using the following names: Ministry of Research and Technology; Ministry of Research, Technology, and Higher Education; Ministry of Education, Culture, Research and Technology. The Indonesian acronyms for the various iterations of the ministry are included in the references for some of the chapters along with an English translation. More information regarding the context for these changes appears in this chapter and in Chapter 6.

Reformasi (Reform) Era (1999–2013)

Suharto's resignation in the face of democratic protest in 1998 ushered in a period of constitutional and wide-ranging legal institutional reform. The *reformasi* era was marked by institutional reforms of the government, with the focus on anti-corruption, democratic institution building, and decentralization. This period saw a resource boom that pushed economic growth beyond 7 percent annually at its peak. With the retirement of B. J. Habibie from the national political stage, the research and innovation agenda took a back seat somewhat. Much of the policy reform in the knowledge sector during this period pertained to reforms of higher education institutions. However, as economic growth was showing signs of slowing, and the resource boom was subsiding, there was an increasing concern that Indonesia would be stuck in the middle-income trap, continuing to rely on its natural resources and labor-intensive economic sectors to produce growth.

A critical legacy of the *reformasi* era was the freedom of association that enabled the rapid growth of civil society organizations (CSOs), many of them supported by international donors in partnership with the Indonesian government. Many of the CSOs in Indonesia that operate as think tanks are KSI partners and feature in the following chapters of this book.

Jokowi Era (2014–2024)

The Jokowi era is named for two-term President Joko "Jokowi" Widodo. The focus of national development in the first term of his presidency was on infrastructure. In his second term, President Joko Widodo shifted the focus to human capital development through the mastery of science and technology. The 2020–2024 Medium-Term National Development Plan stipulates four pillars of national development to achieve the Vision of Indonesia 2045. The first pillar, human development and mastery of science and technology, is positioned as one that will support the other three: sustainable economy, equitable development, and national security and good governance.

The policy development and contestation that have flowed from this are still in motion. Although not covered specifically in this book, over 30 Government of Indonesia ministries and agencies as well as nongovernment institutions worked on a set of recommendations for future investments in the knowledge system to address complex national and global challenges (Kemenristek/BRIN, Kementerian PPN/Bappenas, & KemenPAN-RB, 2021). These recommendations addressed key issues such as funding for research and development, incentives, and human resources. They were based on a set of guiding principles and

addressed Indonesia's "grand challenges" from a cross-sectoral/multidisciplinary approach built on evidence-based policymaking. These recommendations and the mechanism for implementing them serve as a guide for the future and will assist in ensuring Indonesia continues to progress toward its goal of achieving an inclusive knowledge economy.

At the same time, Joko Widodo's two terms in office have so far been marked by experimentation with higher education and research and technology institutions. During his first term, responsibility for higher education was moved from the Ministry of Education to the Ministry of Research and Technology. In his second term, responsibility was moved back again to the Ministry of Education, and the research and technology portfolio was absorbed into the Ministry of Education outright, by disbanding the Ministry of Research and Technology. This marked the end of more than four decades of "research and technology" having its own dedicated government department.

In mid-2019 Parliament passed *Law 11/2019 on the National System for Science and Technology* (discussed further in Chapter 7). Although "science and technology" is a subset of a knowledge and innovation ecosystem, this law was key to providing a legal basis for national policy, as well as institutions responsible for building such an ecosystem. The law mandated the establishment of the National Research and Innovation Agency (known as *Badan Riset dan Inovasi Nasional*, or BRIN) to oversee and coordinate the nation's research and innovation efforts. We discuss that development further in Chapter 7.

The KSI's work in Indonesia has been enabled by the policy environment of the Jokowi era. As a partner in the KSI the Government of Indonesia designated the National Development Planning Agency (Bappenas) as the KSI's main counterpart. Throughout this period, Bappenas has played a pivotal role in providing thought leadership for the development of the knowledge system in Indonesia from a systems perspective. Bappenas has also facilitated interaction between multiple government ministries and agencies as well as nongovernment actors. In a large, complex economy such as Indonesia's, where policymaking authority is diffuse, Bappenas's role in promoting the importance of evidenced-based policymaking has been significant. Creating and sustaining a national discourse around knowledge and innovation is a precondition for realizing an inclusive knowledge economy in the future.

Why Does the Knowledge Sector Matter for Indonesia?

These policy changes are directed toward the vision of Indonesia becoming one of the world's biggest and economic powers by 2045 (*Indonesia Maju*

2045; Bappenas, 2019). This shift in national development focus is not accidental. In 2030–2040, Indonesia is predicted to receive a "demographic bonus," when the number of people within the productive age bracket of 15–64 years exceeds the number of those younger than 15 or older than 64. This productive age group is predicted to reach 64 percent of the projected population of 297 million (Bappenas, 2019). For Indonesia to reap the maximum benefit from this, however, the increase in human capital must be matched by increases in its quality and innovation capacity.

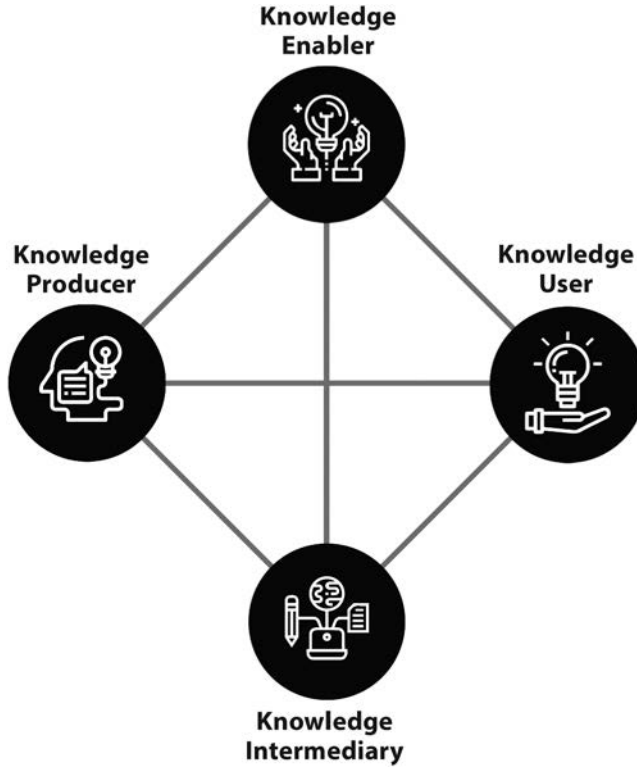
Indonesia has a unique set of circumstances that make system-wide coordination and cooperation in research and development challenging (e.g., Aminullah, 2020; Siregar, 2020; Ekatjahjana et al., 2019; Hertz et al., 2020; Pellini et al., 2018; Rakhmani et al., 2020). Those factors include but are not limited to funding incentives for universities that make research less valuable than teaching, and state university and government research institutions staffed by public servants (with all the inflexibility and incentive problems that this implies); and an "intermediary" group of think tanks and nongovernment entities with precarious funding (e.g., Pellini et al., 2018).

Behind these formal institutional arrangements are historical legacies and political economy factors that affect the style of Indonesian policymaking more generally (e.g., Ekatjahjana et al., 2019; Datta et al., 2011). Among those factors are a political legacy from the Soeharto era of highly centralized regulation in a command-and-control style, and tension between the political desire of the national government to advance Indonesian research and development in a coordinated way and views at the subnational level that "decentralization" makes this a policy arena for subnational initiatives (Rakhmani et al., 2020). These "operating conditions" for research and development in Indonesia—and the health of the broader knowledge system—are well understood by domestic actors (e.g., Rakhmani, 2020; CCPHI, 2019). The challenge is whether interventions of different kinds and at different levels can begin to reset some of Indonesia's political and institutional pathways in ways that will orient it toward becoming a knowledge economy.

Knowledge System Model 2.0

Our adaptation of the knowledge system model presented in the earlier section on knowledge systems theory and development was informed by the practical interactions with Indonesian actors that are discussed throughout this book. Figure 2 illustrates that development: it moves beyond the Venn

Figure 2. Knowledge system model 2.0



diagrams and their intersections to concentrate attention on the relationships among the four constitutive actor groups. In practice each actor group (or component) contains multiple and diverse actors and institutions with links to each other and to actors and institutions in other components. This graphic representation is a simple network map that greatly reduces the complexity of the actual networks; in reality they exhibit a "messy" degree of complexity.

Especially critical in our Knowledge System Model 2.0 is the nature of the links among actors located in each of the four components. In addition to the importance of the relationships and interactions between the four constitutive actor groups or components, the constitutive actor groups can move from component to component (mobility of actors). For example, an academic (knowledge producer) can become a government official (knowledge user). In addition, some constitutive actor groups can play

multiple roles. For example, research and development units within ministries play both knowledge generation roles and knowledge user roles. Moreover, some civil society organizations (knowledge intermediaries) also conduct research (knowledge producers). Thus, the model itself, although emphasizing relationships and interactions, is porous and allows for high mobility as well as overlap between roles. We draw on concepts from both systems thinking and network theory to explore the nature of the relationships among these actors.

From systems thinking we apply the concepts of interconnectedness among system elements; feedback loops that enable interactions and adaptations; and dynamic behaviors that contribute to nonlinear, iterative, and emergent outcomes (Arnold & Wade, 2015). Figure 2 demonstrates graphically the interconnections and interrelations among knowledge system actors. We focus on several types of system relationships: communication and information sharing; two-way mutual dialogue that enables feedback, engagement, and alignment; iterative problem-solving where solutions emerge from interactions among knowledge system actors; and boundary spanning, where actors in the various components of the knowledge system fulfill translation and intermediation roles to facilitate the uptake of knowledge by a variety of users.

From social network theory we highlight two key and closely related concepts: where actors are positioned in a network, and how that positioning influences the strength or weakness of their connections to other actors in the network (Borgatti & Halgin, 2011). Actors' positions in a particular network—at the center with numerous links to others or at the edges with fewer connections, for example—strongly affect their power and influence within the knowledge system (see Johnson & Chew, 2021). Centrality both contributes to more and stronger connections to other actors and enhances the power and influence of the centrally positioned actors vis-à-vis others in the network. Edge actors, while having fewer and weaker connections to other actors, can often serve as bridges to other networks, which can introduce diversity and lead to the creation of new networks.

In this book we acknowledge the importance of social networks as an empirical reality, but we do not attempt social network analysis of the many different actors in the Indonesian knowledge system.

By recasting the graphic representation of the knowledge system as shown in Figure 2 and applying the concepts from systems thinking and social network theory summarized earlier, we can more clearly highlight some of

the features of the actors and institutions and their relationships that emerged from our work in Indonesia. In the chapters that follow, for example, we find that

- power distributions among actors—as well as national and local politics—shape how knowledge becomes evidence that informs policy and practice;
- diverse types of knowledge can constitute evidence and can inform policy dialogue and debate;
- senior-level government officials are only one among several categories of knowledge users, and consumers exist at multiple levels of the state,[4] especially in a decentralized context like Indonesia; and
- multiple interactions take place among the actors and institutions in each of the four components (producers, users, intermediaries, enablers), and there is overlap across the actors and institutions within one or more of the components—for example, a given actor may be both a knowledge producer and an intermediary.

The diverse types of knowledge include "local knowledge," which is defined as the knowledge that people in given communities or organizations have accumulated over time through direct experience and interaction with society and the environment (Nugroho et al., 2018). Nugroho et al. elaborate on this definition by explaining that "local knowledge often deals with the same subject matter as scholarly research. However, local knowledge embodies different perspectives, meanings, and understandings that are informed by local contexts and shaped by human interaction with the physical environment."

Local knowledge also refers to facts and information acquired by a person that are relevant to a specific locale or have been elicited from a place-based context. It can also include specific skills or experiences made in a particular location. In this regard, local knowledge can be tacitly held, that is, knowledge we draw upon to perform and act but may not be able to easily and explicitly articulate: "We can know things, and important things, that we cannot tell" (Polanyi, 1966:22).

[4] We can also find knowledge users outside the state apparatus: private sector actors and citizens' groups are not simply intermediaries but are also knowledge consumers in their own right.

Knowledge System Model 2.0 in Action

Knowledge production that generates credible, legitimate, and salient knowledge requires that actors develop their relationships effectively (see Cash et al., 2003). What constitutes credibility, legitimacy, and salience is dynamic, context-specific, and can change over time. Although scientific knowledge may be privileged, it is not the only voice that matters in producing, sharing, and using knowledge, as the following discussion will make clear. Debates about science, expertise, and evidence have revealed the extent to which the interactions among knowledge system actors are political (Cairney, 2016; Horton & Brown, 2018). This recognition places a premium on understanding the political economy of knowledge, something that many of the chapters in this book explore.

In Chapter 2, for example, we note that in reforms to the procurement regulation for access to public grant funding for research, there was interaction between a group of think tanks (knowledge producers), the National Public Procurement Agency (a knowledge enabler), selected ministries and government agencies (knowledge users), and civil society organizations (knowledge intermediaries). A group of think tanks conducted a study providing data regarding university-based research centers' lack of access to public grant funding. This in turn resulted in a lack of funding for these research centers as well as a limitation on government policymakers' access to quality policy research and analysis.

The national procurement agency was open to receiving and processing the results of this study, thus demonstrating willingness to engage in *communication and information sharing* as well as *two-way mutual dialogue* leading to engagement and alignment. Based on this initial interaction, the national procurement agency, in cooperation with a coalition of research institutes, drafted a new regulation allowing civil society organizations (including research institutes) that meet specific qualifications to participate in procurement processes related to service provision, including research.

As a result of this new regulation, civil society organizations (including think tanks) began to test the possibility of new relationships by engaging selected ministries and line agencies in discussions of their policy research agenda and sharing relevant expertise. This led in some cases to new partnerships between actors and institutions in the knowledge system—referred to in systems theory as *boundary spanning*—which yielded a positive interaction and results for evidence-based policymaking.

These kinds of dynamic interactions reflect another key feature of systems thinking, the concept of "emergence." This means that the outcomes a system produces are a function of the interactions among system components and can be neither completely specified nor predicted in advance (Arnold & Wade, 2015). As our Knowledge System Model 2.0 concept underscores, the characteristics and quality of the relationships among actors in the four system components strongly condition what knowledge is produced and applied to policymaking. As the chapters in this book reveal, the KSI's experience demonstrates that knowledge actors have learned iteratively how to interact to make their relationships more effective, adapting their approaches and the range of their relationships over time.

Highlighting the Politics of Evidence

Knowledge-to-policy processes have become more multidimensional as their conceptualization has moved beyond simple dyads linking an individual researcher to a policymaker, to one of knowledge systems composed of networks of many actors connecting in various ways. Within multidimensional knowledge systems, the many ways in which policy-relevant evidence is generated, disseminated, and acted upon becomes more apparent. Prior studies identify the factors influencing the production and uptake of evidence as including the political context where knowledge-to-policy processes take place; the interests, beliefs, and values of the actors involved; the different types of knowledge that are introduced into policy debates; and the institutional structures that configure how evidence is produced and consumed (Hertz et al., 2020). These factors have a strong impact on who participates in which networks and on what evidence is communicated and listened to (Carden, 2009). For example, the perspectives and preferences of dominant political actors often frame the terms of policy debates, the kinds of evidence that are deemed acceptable and relevant, and whose voices are heard (Scharpf 1997; van Kerkhoff & Szlezak, 2010). The existence of various constellations of political actors with differing perspectives and agendas, connected in multiple ways and located both inside and outside of government, contributes to the complexity and messiness of evidence-based policymaking, where selective citation of scientific evidence can serve to hide bias, prejudgment, and ideology (Horton & Brown, 2018).

What Constitutes "Evidence"?

Proponents of evidence-based policymaking argue for the increased use of rigorous scientific evidence to ensure public policies serve the public good. However, policy researchers tend to overestimate the influence of scientific evidence in policy debates. In reality, the policies that emerge from this process are informed by various types of evidence, not just scientific findings. Evidence of whatever type is rarely definitive in making policy choices, which has led some to argue that it is more accurate to qualify evidence-based policymaking as "evidence-informed" policymaking. This designation opens the door to acknowledging the range of information that policymakers can consider, including, for example, opinion polling, public consultations, crowdsourcing, and media reporting. Even within the category of scientific or technical evidence, policymakers, researchers, and members of the public can debate its acceptability, quality, and relevance for a given policy decision.

All these forms of evidence are subject to political dynamics that affect what role they play in policy deliberations and choices (Cairney, 2016). Policymakers' decision calculus is often more strongly motivated by maintaining key stakeholder support, winning political or ideological arguments, or managing risks than by incorporating the best available science (Head, 2016). Critics of overreliance on the ideal of evidence-based policymaking counter that treating public policymaking as technical decision-making misses the reality that policy choices derive from compromises and bargaining among political elites about societal value propositions (Parkhurst, 2017). Science, then, is often not the primary source of justification for policy choice, falling behind these other politically driven criteria.

The multi-actor political viewpoint highlights that rather than universally agreed-upon technical definitions of scientific evidence, knowledge systems bring together various and competing perspectives on what constitutes "evidence" and how policymakers should incorporate that evidence in decision-making. Nugroho (2020) reinforces this understanding that policymaking is fundamentally a political process but argues that scientific evidence can still shape and influence the debates in the effort to reach policy solutions that contribute to the public good.

The politics of evidence-based policymaking mean that knowledge producers, users, and intermediaries need to recognize that developing evidence goes beyond presenting technically sound analyses and solutions.

Evidence must be crafted that responds to existing policy preferences, either supporting or challenging them using language that resonates with the terms of current political debates (Carden, 2009; Horton & Brown, 2018). Further, such debates take place in multiple arenas and institutional structures, which influence which sorts of evidence are likely to shape policy decisions and which actors may have incentives to pay attention (Parkhurst, 2017).

The arenas and structures in which evidence informs policy vary in the extent to which they are public and transparent. This contributes to the messiness of evidence-based policymaking we noted earlier. For a given policy issue, the appropriate knowledge consumers are rarely uniformly visible or accessible, may be members of differing actor networks, and may operate in more than one arena or structure (Johnson & Chew, 2021). One of the roles of this book is to help make the arenas, the actors, and their relationship more visible, from the standpoint of intermediaries within the knowledge system. Mapping actors and their interactions and spanning the boundaries across policy arenas and institutional structures is key to helping knowledge producers successfully navigate the politics of evidence.

Organization of the Book

The book is organized around the four different components of the knowledge system with an emphasis on the *interactions* between the components and among the actors involved. Chapter authors apply our Knowledge System Model 2.0 model to the specific issue addressed in each chapter by mapping the primary interactions between the actors in the system, analyzing their dynamics, and identifying challenges and key issues. Authors shine a light on the political aspects briefly summarized earlier to investigate how they play a role in the incorporation of scientific evidence into policy debates and policymaking in Indonesia.

Each chapter addresses the following questions.

1. Which key actors/institutions were identified to address the reform in the knowledge system? How were they identified? Did they change over time?
2. What were the dynamics of the interactions? This could include the nature of the relationships (formal/informal), political factors, incentives/disincentives, and so forth.

3. What attributes led to successful outcomes (or less successful outcomes)? What needs to be further developed or maintained to promote successful interactions in the future? What are some risks that should be considered?

The following overviews of each chapter highlight the interconnectedness of the actors and institutions and the political negotiations that occur as evidence is contested and political and social factors are taken into account.

Part I: Knowledge Users

Chapter 2: Enhancing the Use of Evidence by Policymakers in Indonesia

Since 1998, with the beginning of the reform (*reformasi*) era in Indonesia, interaction has grown between policy and knowledge actors in the use of evidence in the policymaking process. The policy process model applied should be able to capture the dynamic of different types of relationships between knowledge actors. This chapter investigates government policymaker efforts in enhancing the use of evidence in the policymaking process within and outside the bureaucracy. It also explores the role of policy and knowledge actors in the policy cycle, including knowledge enablers, producers, intermediaries, and policymakers who shape particular policy change and innovation processes.

Part II: Knowledge Intermediaries

Chapter 3: Supporting Public Policymaking: Working and Thinking Politically for Policy Analysts

This chapter examines the role of intermediaries in transforming knowledge into policy in Indonesia's multilevel governance system. The chapter focuses on knowledge intermediaries within the government bureaucracy and early experiences in rolling out the newly created "policy analyst" position within government. Policy analysts are expected to act as a bridge between researchers and policymakers and build demand for evidence-based policymaking within government. This chapter exemplifies the challenges in the utilization of government policy analysts and their competence, and highlights efforts to meet these challenges.

Chapter 4: Soft Institutionalization of Indonesia's Knowledge and Innovation Ecosystem: Harnessing Media as a Knowledge Intermediary

To create an inclusive and evidence-based policymaking process, the KSI has paid close attention to public discourse and communicated the importance of

dynamic interactions between actors in the knowledge ecosystem. This chapter investigates the key forces driving the soft institutionalization of the concept of a "knowledge and innovation ecosystem" in Indonesia, and considers the processes of identifying the policy window, setting the agenda, and building interaction between actors and their use of the concept. It suggests that these interactions occur in five stages: innovation, diffusion, legitimation, deinstitutionalization, and re-creation/reorientation, emphasizing the importance of re-creation/reorientation as an addition to the cycle of institutionalization in the existing theory.

Part III: Knowledge Producers

Chapter 5: Bringing Think Tanks Closer to Policymakers for Evidence-Informed Policymaking

This chapter discusses the role of knowledge producers in the process of bringing knowledge to policy in Indonesia, with a specific focus on think tanks and their experience wielding policy research to develop and influence policy pathways. Drawing from case examples, the chapter highlights different ways of bridging gaps between research and policymaking through strategic efforts to design and communicate policy research and build relationships with policymakers or policy networks. These include understanding the needs of policymakers regarding evidence, allowing sufficient time and resources for early policy engagement, being flexible in approaching policymakers, engaging with other actors in the knowledge sector, and fostering a long-term institutional relationship with government institutions.

Part IV: The Enabling Environment

Chapter 6: Can a Vision Change the Game? Learning From Indonesia's National Science and Technology Law Reforms

Indonesia's most recent attempt to revitalize its science, technology, and innovation (STI) sector through the 2019 Law on National System for Science and Technology hints at a vision to strengthen the role of the state as knowledge enabler. The deliberation process, as well as the initial stage of implementation of the 2019 law, however, was state led, with an interesting dynamic in the interplay between technocratic and political ideas. This chapter argues that Indonesia is at a stage where the state is inward-looking: prioritizing consolidation and increasing the efficiency of its science and technology (S&T) resources. As in many other countries, governance of the

S&T sector in Indonesia is also swinging toward a more state-led approach. It remains to be seen whether the government's role as an enabler for other actors to play greater roles will materialize; at present, non–state-actor participation in S&T policy discussion is still limited.

Chapter 7: Reforming Incentive Mechanisms for Accessing Knowledge for Policy

This chapter presents two stories of changes in incentive mechanisms as part of policy reforms introduced in the Indonesian knowledge sector in 2018. The first is about reforms providing access for nongovernmental think tanks and civil society organizations that meet certain qualifications to engage in the government procurement process. The second story is about the inclusion of procurement of research under a special umbrella that allows output-based, rather than input-based, research involving multiple actors, taking place over multiple years, and funded from multiple sources. The chapter utilizes the development entrepreneurship approach to investigate the policy implementation process, focusing on goals, processes, and people.

Part V: International Applications

Chapter 8: Knowledge Systems in International Perspective: Experiences From the SEDI Program

This chapter explores the applicability of the Knowledge System Model 2.0 framework in contexts outside Indonesia by drawing on experiences in the SEDI program. Initially designed as a five-year program (2019–2024) funded by the UK's FCDO, SEDI worked to increase the use of evidence by policymakers and promote innovation in increasing evidence-informed policymaking (EIPM) in Uganda, Ghana, and Pakistan. The SEDI program used the knowledge system approach to analyze concepts and help make sense of the complex web of relationships and interactions that influence the use of evidence in different policymaking contexts. Although the political and cultural dimensions of the three country contexts of Ghana, Uganda, and Pakistan differ significantly, the aspects of the systems approach that apply include the political dimensions of policy and evidence, the importance of connections between components of the ecosystem, and overlap between system components. This chapter draws out SEDI's focus on "subsystems" that exist within the broader knowledge system, focuses on how this approach has been operationalized in SEDI's country work, and synthesizes insight SEDI's approach may offer for the Knowledge System Model 2.0 framework and future work on EIPM.

Emerging Themes

The concluding chapter (Chapter 9) synthesizes three emerging themes among the different chapters highlighting the different actors and institutions within the knowledge ecosystem and the interactions between them. These include (1) navigating tension between the technical and the political in policymaking, (2) the importance of dynamic relationships and collaborations between actors in the knowledge ecosystem, and (3) that building a knowledge system requires not only strong actors (producers, intermediaries, users, and enablers) and interconnections, but also mutual understanding of shared vision. We observe that when the actors and institutions in the knowledge system interact and challenge each other to articulate and commit to a shared vision, it is easier to navigate the inherent tensions between technical solutions and political objectives to advance the reform agenda. Intermediaries in the knowledge system can play an important role in facilitating the interactions between these actors and institutions, to advance the reform agenda.

Chapter 9 suggests that, in applying the knowledge system model in a new country context, knowledge system analysis of potential champions of reform (and those who are not), as well the power dynamics between them, inform the identification of potential areas that may trigger positive change.

By documenting and analyzing the case studies in the subsequent chapters of this book, we aim to contribute to a better understanding of Indonesia's knowledge system, particularly how it has developed during the Jokowi era. We place that analysis alongside selected examples drawn from development partnerships outside Indonesia (detailed in Chapter 8) as the first stage in stimulating comparisons that can contribute to knowledge system policy and practice in in other local contexts. In particular, we draw attention to the role of intermediaries within knowledge systems where knowledge and its use are contested, aiming to contribute to the literature related to evidence-based policymaking and to debate at the national and international levels.

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CHAPTER 2

Enhancing the Use of Evidence by Policymakers in Indonesia

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Introduction

Leading scholars of policymaking have depicted the policy process as constituting a variety of stages (Hogwood & Gunn, 1984; Jenkins, 1978; Lasswell, 1956; Rose, 1973; Simon, 1997). The policy process is also depicted as a rational problem-solving mechanism (Althaus et al., 2013; Howlett & Ramesh, 1995). A recent study on policymaking in Indonesia has highlighted that the steps of a rational policy cycle—from agenda setting to policy evaluation—do not align with its actual practice of policymaking (Blomkamp et al., 2017). The study suggests that Indonesian policymaking may be better depicted through the "garbage can" model, or through the advocacy coalition framework (Blomkamp et al., 2017), which brings together multiple "streams" of factors such as problems, policies, and politics, depicting the complexity and interrelatedness of each factor (Kingdon, 1984; Tiernan & Burke, 2002).

This chapter argues that understanding policymaking in practice, and the use of evidence by policymakers in Indonesia, requires situating present dynamics in their historical context. Policymaking can be seen as a process of problem-solving that is honed over time, in which the policies of today tend to be the successors of earlier policies, entailing a degree of path dependence. Moreover, the way policy problems are defined and are prioritized (or not) within government agendas and over time, depends on the extent to which government politics and the interests of influential external groups shape those policy priorities (Rochefort & Cobb, 1994).

In investigating the use of evidence in Indonesia's policymaking process, this chapter first discusses the policymaking context in Indonesia and then highlights the key issues in the use of evidence by policymakers, with particular focus on situations in which policy is inherently

political—something that is particularly true of the knowledge sector. We examine patterns and trends in Indonesian governance in the uptake of evidence, and in how Indonesian policymakers have sought evidence and resources both within and outside their bureaucracy. The conclusion provides some key takeaways on the importance of fostering relationships and the dynamic interactions between actors in the knowledge system that are needed to create the demand for, and ensure the use of, data and knowledge for evidence-based policymaking.

The Policymaking Context in Indonesia

Historically, Indonesia has experienced several styles of government structure, ranging from colonialism to authoritarian and democratization. President Sukarno (1945–1967) and President Suharto (1967–1998) ruled the country with centralized governance and tightly controlled public policy, and their policymakers used evidence as part of each regime's political and economic strategy (Hadiz & Dhakidae, 2005). However, the authoritarian President Suharto, in particular, received strong advice from his policy advisors and analysts—known colloquially as "the Berkeley Mafia"—to justify, rather than inform, his policies (Hadiz & Dhakidae, 2005; Irwan, 2005; Ransom, 1970).

Suharto's resignation in 1998 marked the downfall of authoritarianism and rendered Indonesia's political landscape and public policy process more open and democratic. Indonesian policymakers became more open to the use of evidence to inform their decisions, drawing from sources including governmental and nongovernmental policy research institutes, think tanks, technical advisors, businesses, civil society organizations (CSOs), international development agencies, and universities.

At present, there are two main types of policymaking process in Indonesia. First is the development of legislation, which requires parliamentary approval, and the ancillary regulations to the legislation in the form of regulations, decrees, and instructions, which do not. Legal instruments of this type are highly prescriptive and constitute the primary policymaking tool in Indonesia. Legislation, laws, or bills are usually drafted by "task forces" set up in the particular sectoral ministry, "which can include key decision makers from the executive as well as technical experts from universities and CSOs" (Datta et al., 2011, p. 11). Each bill is required to be accompanied by a *naskah akademis* (academic paper) containing "a detailed explanation of the matters to be dealt with, including a breakdown of all clauses" (Datta et al., 2011, p. 11). This paper

is usually drafted from research or legal studies to improve accountability for addressing policy concerns, and it follows a specified format that outlines the legal need to address the problem, the theoretical and empirical background, and an analysis of existing regulations (Pellini et al., 2018). However, previous research has found that formal processes for developing plans and policies in the Indonesian government are not always followed in practice, and the studies accompanying bills are sometimes lacking in substance (Datta et al., 2011, p. 13).

Second are regular long-term, mid-term, and annual planning and budgeting processes at the national and subnational levels, each of which involves priority setting and determines how policies are implemented on the ground. As in some other Southeast Asian democracies, the planning and policy process moves from technicians who draft the long- and medium-term development plan to political actors. The Ministry of National Development Planning (Bappenas) subsequently submits to the Indonesian president the findings from the draft of the development plan prepared by the ministry through consultative development planning forums (Musrenbang). Alongside the presidential team, which consists of politicians, the ministry aligns the content with the president's priorities and finalizes the draft medium-term development plan.

Key Issues

Internationally there is increased emphasis on the use of evidence to inform policy to tackle the "wicked problems" (Davies et al., 2000). Evidence in policymaking is presented as an essential part of the policy process because it is "embedded in the political and policy rhetoric" (Davies et al., 2000, p. 11). Althaus et al. (2013, p. 38) developed a conceptual model of the policy cycle consisting of eight stages, namely, issue identification, policy analysis, identification of policy instrument, consultation, coordination, decision, implementation, and evaluation. The identification of problems often uses symbols, numbers, and stories about the causes of problems (Stone, 1989), but as this chapter suggests, this can also be achieved by examining the evidence shaping the political argument about how the problem is being identified.

While models such as Althaus et al.'s offer a heuristic tool, the policy process in practice is not as cyclical or linear as described; it comprises a "disorderly set of inter-connections and back-and-forthness that defies neat diagrams" (Weiss, 1986, p. 35). In the policy process, decisions are taken through interactions, negotiations, and deliberations, in which—as Caldwell

(2002, p. 1) argues—agenda setting and controlling the dialogue are important for "success" in determining which policy agenda is prioritized. This decision is led by influential actors known as "policymaking elites." Despite their relative power, these policymaking elites are still influenced by their context—for example, whether they are acting in response to a crisis situation or to politics as usual. Variation in the policymaking on reform arises from these actors applying different criteria in different situations. (Grindle & Thomas, 1991, pp. 184–185).

Solesbury (2001) highlights that "emphasizing the role of power and authority at the expense of knowledge and expertise in public affairs seems cynical, emphasizing the latter at the expense of the former seems naïve" (p. 9). As such, the demand for and use of knowledge to produce information, data, and analysis to develop evidence-based policymaking tends to be undermined by two sets of mechanisms: political and organizational (Head, 2015). Often, political values, persuasion, and negotiation dominate the policy process rather than evidence (Majone, 1989), and the political dynamics are shaped by preferences and agenda setting from the political leaders, legislators, lobbyists, and stakeholders involved. Head (2015) adds that political leaders often do not support evidence-based policymaking because they are more interested in "political argumentation, maintaining stakeholder support, engaging with media-framed debates and managing risks" (p. 474). Moynihan and Roberts (2010) make a similar argument; political leaders are deeply affected by partisan ideology, pressure group politics, and issue-based media campaigns. Shulock (1999) discusses the paradox of policy analysis where much evidence is produced but often used not to drive outcomes, but simply to inform and enrich political debate. This may explain why our assumption that policy evaluation will inform future evidence-based policymaking practice is often undermined (Sullivan, 2011).

We acknowledge that the manner in which government policymakers use evidence shows that different motives drive the use of evidence in different ways. This is perhaps why Nutley et al. (2002, p. 2) prefer the terms *evidence influenced or evidence aware*, Duncan (2005) prefers *evidence-inspired*, and Head (2015, p. 473) uses *evidence informed* to describe more realistically what can be achieved through the use of evidence. As Weiss et al. observe, "most studies seem to be used in selective bits, reinterpreted to fit existing preferences or ignored" in the policy process (Weiss et al., 2008, p. 30).

What Factors Influence Policymaking and Decision-Making?

While a persuasive evidence base is helpful for the adoption of evidence-informed policy, programs, and interventions, it is insufficient to bring about the change policy actors expect, which would require an understanding of "the rules of the game that govern the policymaking" (North, 1994). Institutionalizing the importance of evidence will require both *supply-side capacity*—the skills for producing good evidence and analysis inside and outside government—*and demand-side facilitation*—the formal system established for evidence use, which is an inherently political process (Mayne et al., 1992).

In their research on the use of evidence, Nutley et al. (2010) and Satterfield et al. (2009) developed similar frameworks that identified (1) the importance of research supply (from knowledge creation or producers), (2) demand for research in policymaking and demand for knowledge application or from users, and (3) the linkages between supply and demand (knowledge mediation or intermediaries). Thus, the underlying rules and incentives in policymaking may help to explain what kind of intermediaries and strategies are required to translate this evidence into usable forms, and who might provide support for those who are in a position to implement it.

What is considered "evidence" for policy decision-making is slightly different from data or information. Evidence is the information that is filtered from the available stock of data and information and introduced at a specific point in the argument to persuade policymakers of the truth or falsity of a statement. Selecting inappropriate data or models, or placing them at the wrong point in the argument, can destroy the effectiveness of information used as evidence, regardless of its core rational value (Majone, 1989). Shaxson (2005) has argued that robust evidence embodies the following five principles: (1) credibility, which relates to the processes of analyzing and synthesizing information; (2) generalizability, which refers to the way the recommendation is made; (3) reliability, denoting the replicability of the study; (4) objectivity, an extensive literature on the various methods for reducing bias in the evidence base; and (5) rootedness, wherein the evidence is about more than context, process, bias, and the quality of information.

The following sections illustrate the challenges faced by knowledge users in developing and using evidence for policy in the knowledge and innovation ecosystem in Indonesia. We see considerable progress, but also a considerable gap between the theoretical models and the actual practice. This chapter seeks

to explain the relationship between evidence and politics in Indonesia, and the implications of this relationship for how government agencies implement policies related to the knowledge sector.

Sources of Evidence in Indonesian Policy Cycles

Chapter 1 identified four knowledge and policy actors involved in the use of evidence in policymaking processes: knowledge enablers, knowledge producers, knowledge intermediaries, and knowledge users. This section uses policy change case studies to explore the interaction and communication between those actors. This interaction can take several forms, such as knowledge exchange, policy coalition and alliance, a two-way mutual dialogue that enables feedback, engagement and alignment, and personalized and informal networks.

Using Evidence at the National and Subnational Levels of Government: Seeking Knowledge From Within and Outside the Bureaucracy

The end of authoritarianism and subsequent democratization of Indonesia meant that the national government and its ministries, government agencies, and the civil service have increasingly drawn on evidence for their decision-making. One important example is the way that Indonesian policymakers seek evidence from non-state actors, including policy research institutes and think tanks (discussed further in Chapter 5). The consultative national development planning process (the Musrenbang) is another important example of how decisions in Indonesia are made drawing on external evidence.

In the Musrenbang, every level of government, from villages to districts, provinces, and national ministries, undertakes policy consultation processes with the public at each level to determine their priorities for development, whether infrastructure, services of different kinds, or locality-specific initiatives. In 2004, Bappenas launched a Musrenbang mega-consultation processes for the long-term and medium-term (five-year) development planning and budgeting cycles. Aside from the public conferences held from local to national levels, nongovernmental organization (NGO) think tanks co-hosted workshops and received exposure through media participation in these events. This consultation process is one of the methods of seeking input from the community to be used as evidence. Bappenas then uses the five-year plan documents to prepare annual plans for government agencies that

describe national development objectives, sector priorities, and performance indicators and goals.

Using Evidence Within the Bureaucracy

Policy decision makers also seek evidence from within the civil service—the bureaucratic arm of government—to help make decisions. Many ministries have had their own research units (known as *Badan Penelitian dan Pengembangan*, or *Balitbang*) for many years, which have been responsible for the development of research plans and programs in the sectors for which they are responsible. The work of those units is then sometimes used as evidence that informs both internal policy decisions and advance knowledge in a specific sector. At the subnational level, the internal research units of government (known as the Subnational Development and Research Agency, *Badan Penelitian dan Pengembangan Daerah*, or *Balitbangda*) undertake a similar research function as do national research units, assisting the district head and line agencies with research and analysis to inform local policy decisions. However, studies of these national and subnational research units within government have found that they do not perform well (see Pellini et al., 2018). The research units have been criticized for focusing mainly on long-term research, rather than time-sensitive policy issues that require both rapid studies and the presentation of policy options to decision makers. The funding base for the research units is also insufficient to produce quality research, enhance staff capacity, and provide the resources to adequately inform policy (Pellini et al., 2018). Furthermore, budget rigidities prevent ministries from commissioning multiyear research projects, and government officials cannot easily mobilize resources if demands to undertake research arise during the fiscal year (Suryadarma et al., 2011; Datta et al., 2011).

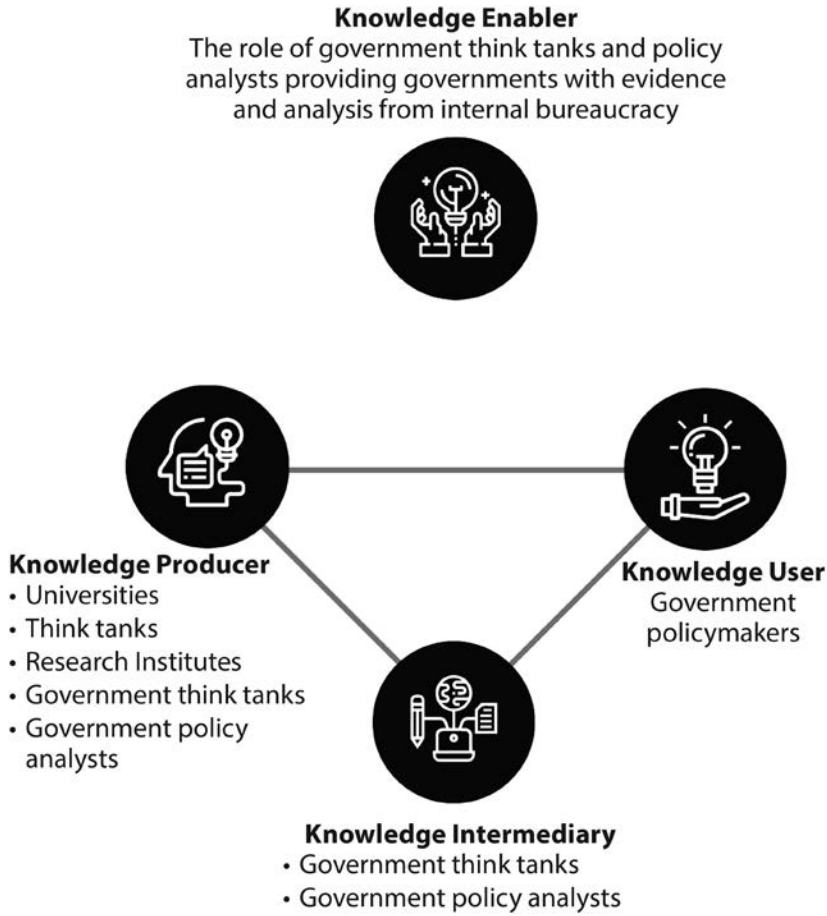
The Indonesian government and its nongovernment partners have taken action to address these issues. First, a new policy analyst position was introduced into the civil service to help undertake short-term investigations and analysis and to develop policy options for policymakers. This is discussed in detail in Chapter 3 of this book. The Decree from Minister of Administrative and Bureaucratic Reform (*No. 45/2013*) on the Policy Analyst Profession in the Bureaucracy, which introduced this position, marked a significant step in modernizing the Indonesian civil service and bureaucracy with the goal of encouraging evidence-based policymaking. The regulation also includes provisions for a stronger policy analysis function within the bureaucracy, assigned to the National Institute of Public Administration (NIPA).

Second, given the structural problems faced by the research units mentioned previously, some Indonesian ministries have been looking into the option of government think tanks as an alternative model for providing government with evidence and analysis that can address time-sensitive policy issues. Being embedded in the government structure brings several benefits, such as a strong understanding of government programs and priorities, which helps to tailor advice to actual policy needs and coordinate across government departments (Mackenzie et al., 2015). For instance, the Ministry of Finance has established the Fiscal Policy Agency as a Policy Analysis Unit to support the minister and directorates in the policymaking process. The Fiscal Policy Agency's personnel are policy analysts who have competencies in translating robust evidence into policy recommendations (see Chapter 3). Other examples include the Policy Analysis and Development Agency within the Ministry of Foreign Affairs and the Policy Analysis Unit within the Ministry of National Development Planning, which established the policy analysis units as knowledge centers to support the ministers and directorates in public policymaking. The Ministry of Marine Affairs and Fisheries has incorporated its research unit into its policy research agency. The ministry has fully engaged with universities that have excellent research centers focusing on marine and fisheries, such as the University of Hasanuddin in Makassar, South Sulawesi.

Policy and knowledge actors play an important role in achieving better public policy. Moves to encourage interaction between government think tanks, policy analysts (as both knowledge producers and intermediaries), and government policymakers (knowledge users) are crucial in efforts to encourage the use of evidence in the policymaking process within the bureaucracy. Figure 3 represents the emerging connection between government think tanks and policy analysts in providing governments with evidence and analysis from within the bureaucracy.

Third, the National Research and Innovation Agency (BRIN), established in 2021, aims to change the outlook of ministerial research units. Existing research units are to be integrated into this new agency, which reports directly to the president. The main objective in the establishment of BRIN is to improve efficiency and coordination—the government wanted to create a "home base" for research and innovation. This agency is intended to replace the research units scattered across government institutions, as well as some other government research centers, such as the Agency for the Assessment and Application of Technology (*Badan Pengkajian dan Penerapan Teknologi*, or BPPT), the Indonesian Institute of Sciences (*Lembaga Ilmu Pengetahuan Indonesia*, or LIPI),

Figure 3. The role of government think tanks and policy analysts in providing governments with evidence and analysis from within the bureaucracy



the National Institute of Aeronautics and Space (*Lembaga Penerbangan dan Antariksa Nasional*, or LAPAN), and the National Nuclear Energy Agency (*Badan Tenaga Nuklir Nasional*, or BATAN). This is an important restructuring of government capacity, but it is too early to assess its impact.

Using Evidence From Outside the Bureaucracy

Research suggests the limitations of the research units meant that Indonesian policymakers to date have used their informal and personal networks to access information during the policymaking process. Policymakers,

including lawmakers and government officials, prefer links with individuals over organizations, thus reinforcing the informal nature of Indonesia's knowledge-to-policy processes. Informal networks become the main platform for information flows from experts and interest groups to decision makers, helping them to identify what evidence they need (Datta et al., 2011; Lassa et al., 2017). The role of informal relations can provide essential services for decision makers by spreading "new" ideas and information through their networks, domestically through "insider strategies" into the political parties and bureaucracy, or via "outsider strategies" into media and civil society, and internationally with other NGOs. Ironically, policymakers rarely use evidence obtained from formal institutions within the bureaucracy itself, such as research units (Pellini et al., 2018).

The policymakers' willingness to act on evidence in Indonesia is shaped by both personal factors and political context (Jackson et al., 2017). For example, when policymakers are newly appointed as directors of a portfolio or department, their desire to perform well in their new role acts as a strong incentive to address the issues of concern for the sector in question. Such personal factors often coincide with the changing political context. For example, President Joko Widodo's first administration (2014–2019) appointed an increasing number of reform-minded actors to senior roles, many of whom had backgrounds in civil society organizations or academia. Further, over the last decade, some government agencies have become more open to seeking input from civil society organizations, which has enhanced the credibility of nongovernmental think tanks (Jackson et al., 2017).

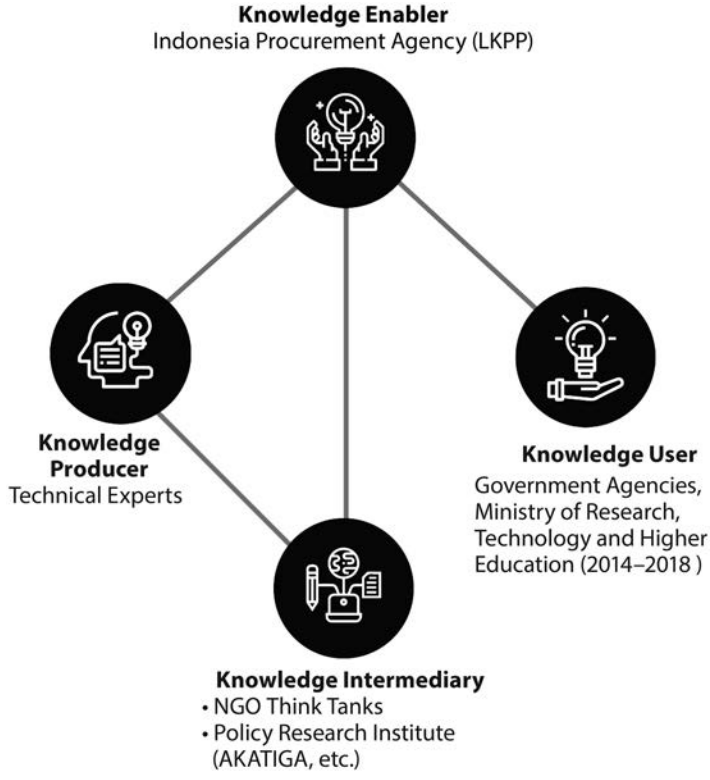
Other important regulatory changes in Indonesia have enabled an environment where policymakers can seek policy-salient information more widely. Revisions to procurement laws have improved the options available for government policymakers to source evidence from actors outside government. These regulatory changes in and of themselves also constitute an evidence-informed policy change. In this case, a network of governmental and nongovernmental knowledge actors collaborated to identify a policy problem (the procurement barrier to sourcing external evidence), examined possible solutions, and proposed the policy change (Jackson et al., 2017). The key policy problem here was that the government had limited flexibility in procuring research from Indonesian research centers, many of which are in the non-profit sector. The use of evidence played an important role in building awareness and support for the policy reform and helped influence the content of the changes to the procurement regulations. Policymakers became key informants, which

opened the conversation and the use of study findings to inform the policymaking processes of the procurement reform (Jackson et al., 2017). The external experts and non-governmental think tanks translated the data into policy briefs that provided concrete recommendations for policymakers. These were then used to inform the revisions to the procurement regulations.

This collaboration between governmental and nongovernmental actors resulted in a policy change, which was enacted in *Presidential Regulation No. 16/2018 on procurement regulation*. The passage of this procurement regulation means government can now contract external nongovernmental research centers or think tanks, which previously was not possible (Jackson et al., 2017, pp. 509–510).

Figure 4 illustrates how these actors came together as a coalition to influence government agencies, including the Ministry of Research,

Figure 4. Key policy actors in influencing policy change: Revised procurement regulations



Technology and Higher Education (2014–2018) to change the procurement regulations. The implementation of the revised procurement regulations is further analyzed in Chapter 7.

Insights From the Subnational Level: Local Knowledge Matters

After the resignation of President Suharto in 1998, subnational governments were granted greater autonomy over government affairs in each region, including policy decisions in a wide array of sectors. Political change in this era included amendments to the 1945 constitution and new legislation to support democratic processes such as decentralized governance, direct presidential elections, and combating corruption, among others (Antlov et al., 2010; Pane et al., 2018). Alongside this, the central and local governments became more open to engagement and support from NGO think tanks in processes for promoting policy change. Several local NGO think tanks provided their local knowledge and evidence to enrich the policymaking process and add local context. Local knowledge channels new types of knowledge to local policymakers. It can also revitalize traditional cultures and their expressions.

One example of this increased openness was the NGO think tank Eastern Indonesia Knowledge Exchange (*Bursa Pengetahuan Kawasan Timur Indonesia, BaKTI*). In late 2019, BaKTI started a local initiative in South Sulawesi Province (eastern Indonesia) with support from an international development partner, or donor program. The initiative sought to demonstrate a cycle of knowledge-to-policy (K2P) by supporting local government in identifying policy priorities, building relationships with and engaging external research providers to conduct policy research in line with this agenda, and then using the findings to inform local government policy.

BaKTI, having credibility and the trust of the local government, was able to mobilize support from key stakeholders, ranging from local government to NGOs and universities, to encourage agreement on a priority policy issue and identify evidence-informed solutions. Stakeholders agreed that the K2P pilot would focus on silk, one of the province's leading commodities. Silk has a long value chain covering many economic players, meaning that the economic benefits are spread more widely, and efforts to revitalize the commodity could be expected to contribute to economic recovery from the COVID-19 pandemic.

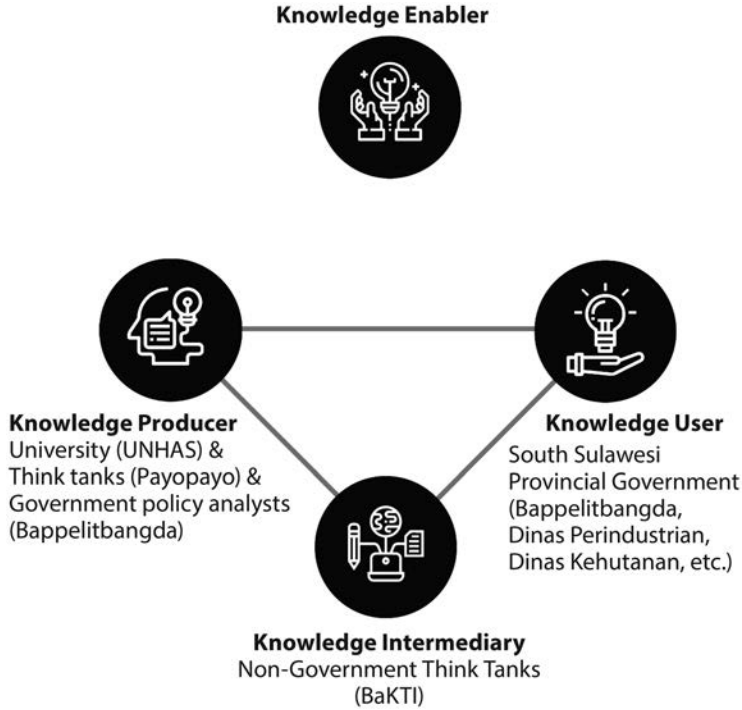
Place-based knowledge is illustrated in South Sulawesi's value-chain study on the silk commodity. Silk weaving is the tradition of the indigenous people

of South Sulawesi, known as the Bugis community, who teach their daughters to weave. Women in the community are expected to master weaving. It is a tradition passed down from generation to generation with specific patterns maintained.

This K2P initiative built a local network of knowledge actors—government policy analysts, NGO think tanks, and academia—who collaborated in producing policy research, evidence, and policy recommendations to inform a local policy on silk. We suggest that the network of local knowledge actors in this initiative is an example that is ripe for wider replication as part of efforts to encourage K2P at the subnational level. Figure 5 illustrates the relationships between policy and knowledge actors in producing and using evidence for policy change in this subnational setting.

Another example of the involvement of NGO think tanks and other organizations in providing local knowledge for policymakers at the

Figure 5. The role of knowledge actors in the use of evidence at the subnational level



subnational level is related to issues of gender, equality, disability, and social inclusion (GEDSI). Inclusive public policies are essential for Indonesia to achieve its poverty reduction targets and develop a sustainable economy. As elaborated in "GEDSI in Practice" (KSI, 2022), inclusive public policies recount the experience of the Indonesian People with Disabilities Association (*Perkumpulan Penyandang Disabilitas Indonesia*, or PPDI) Padang research collaboration between disabled and nondisabled researchers in an advocacy of disability-friendly policies in the city of Padang.

Policy Networks as Sources of Evidence

The *reformasi* (reform) era in Indonesia created a window of opportunity for think tanks to advocate for their own policy ideas and innovations, rather than acting only as providers of evidence.

The number of new think tanks in Indonesia has increased dramatically, particularly under decentralization. Although there is no accurate data on the exact number of nongovernmental think tanks in Indonesia, Central Bureau of Statistics data show that the number of NGOs has increased significantly, from 10,000 in.1996 to 70,000 in.2000 (Hadiwinata, 2003). Some NGOs have transformed their profile to become think tanks and play a role as advocates for policy change. Many have also shifted their focus from basic service delivery to advocacy on issues of good governance, regional autonomy, the justice sector, and poverty alleviation (Antlov et al., 2006; Pane et al., 2018).

The Role of Think Tanks in the Use of Evidence

There are several possible explanations for the proliferation of NGO think tanks during Indonesia's transition to democracy. Scholars have suggested that these might include enabling legislation on democratization and decentralized governance, such as that dealing with national and subnational elections, freedom of speech and the press, intellectual freedom for individuals and civil society organizations (CSOs), and think tanks (Antlov et al., 2010; Ganie-Rochman & Achwan, 2005; Hadiwinata, 2003; Pane et al., 2018). Another is the support of international development partners or donor agencies, which provide crucial funding for some think tanks and help them disseminate new ideas for policy change. An additional factor may be the signaling effect of the changes to procurement described earlier and related perceptions of policymakers' increased need for evidence to support the policymaking processes.

Over the last two decades, NGO think tanks have played a key role in Indonesia's policy cycle at national and subnational levels. They have acted as independent oversight bodies and policy monitors, formal facilitators during public participation meetings for planning and budgeting (known as *Musyawarah Rencana Pembangunan*, or *Musrenbang*), strategic partners for government and legislatures to draft new legislation, and independent advocacy campaigners on public issues (Antlov et al., 2010).

Think tanks can thus play a role in any stage of the policymaking process. Ordonez et al.'s (2012) work illustrates that a think tank can play a major role in the agenda-setting stage, given its ability to frame policy issues and highlight problems to society in a compelling way. Participating in the agenda-setting stage may also lead to opportunities for think tanks to participate in the later policy design and decision-making processes. Fewer think tanks participate in the implementation of a policy, because involvement at that stage requires a working relationship with government (Ordonez et al., 2012).

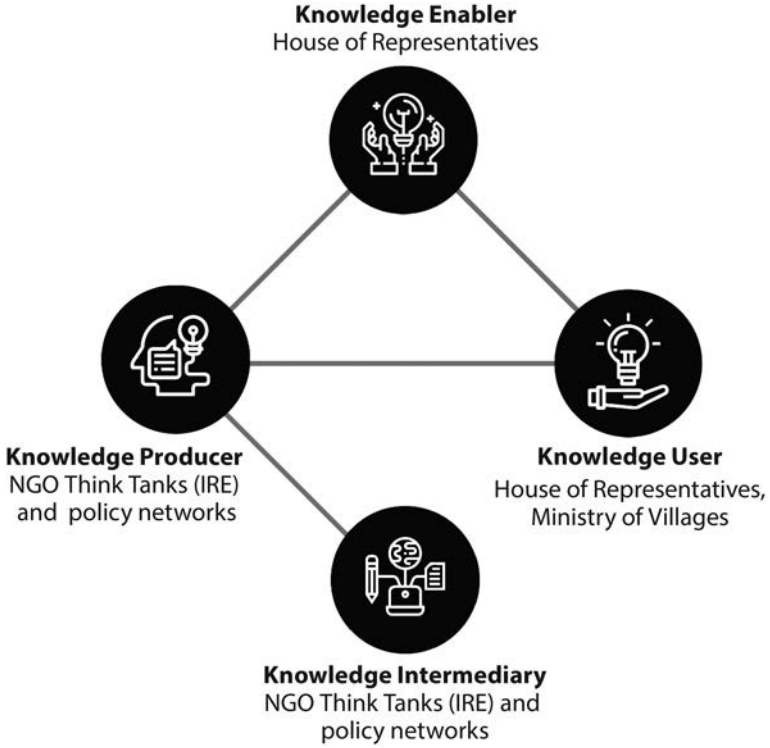
The Institute for Research and Empowerment (IRE) in Indonesia is distinctive because it has been involved not only at both the policy stages of agenda setting and in policy design and formulation of the policy cycle, but also at the implementation stage—in this case, for legislation on village development in Indonesia (Fatonie, 2020). IRE and its networks have fruitful working relationships with the new Ministry of Villages, which is tasked with implementing the new legislation on villages. After the Village Law (*No. 6/2014*) was enacted, the Ministry of Villages invited IRE to contribute to policy implementation and monitoring. IRE produced other knowledge, such as policy briefs and policy papers on village governance, including village elections, economic development, and poverty reduction to support the Ministry of Villages in formulating numerous ancillary regulations (Fatonie, 2020).

This example also demonstrates that political changes can offer opportunities for new ideas to gain attention and to secure a place for new issues on the political agenda (Meijerink & Huitema, 2010). Figure 6 illustrates the relationships between knowledge actors in the production and use of evidence in policy development for the Village legislation.

The Role of Media in the Use of Evidence

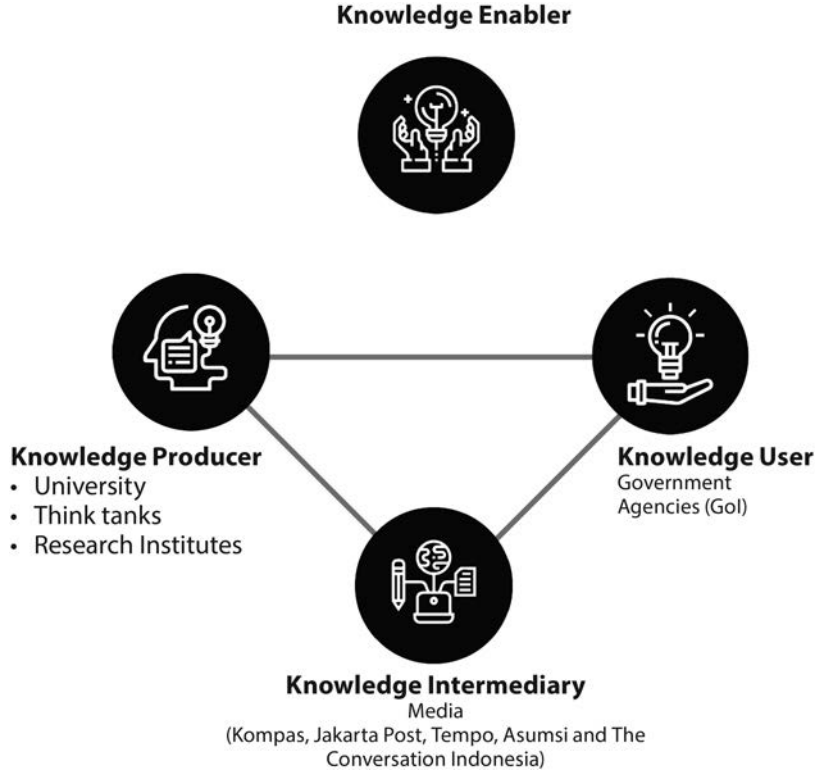
Media coverage of the knowledge sector in Indonesia has drawn public and political attention to the need for better policy development to improve the generation and use of knowledge. The KSI worked with outlets like *Kompas*

Figure 6. Key policy actors in the production and use of evidence in Village legislation



and *Tempo, Katadata*, and *The Conversation Indonesia* to develop content and present webinars highlighting issues in the knowledge sector related to research funding and governance, and to the importance of multi-actor knowledge collaboration in fostering the knowledge ecosystem. Some of those webinars involved prominent political figures and showcased their active involvement in the public discourse. This engaged them in the issue being debated and tended to show that politicians pay more attention to information when it comes to them via the media than when it comes through other channels, for example by personal email. This is consistent with research showing that politicians tend to react to media coverage not because of the content but because certain information is in the media (the media channel effect), because media coverage is considered to be a reflection of public opinion (Sevenans, 2017).

Figure 7. The role of media in the use of evidence for policymaking



It has been important for think tanks to partner with media organizations such as *Kompas, The Jakarta Post, Tempo, Asumsi*, and *The Conversation Indonesia* to showcase their work and make it more accessible both in Indonesia and abroad. Public and political attention to an issue offers opportunities for policy entrepreneurs or brokers of knowledge to gain support for new ideas, policy innovations, and policy directions (Meijerink & Huitema, 2010). Figure 7 illustrates the role of media as a knowledge intermediary between researchers and policymakers in the use of evidence for policy change and innovation to policymakers.

Conclusion

Better communication and interaction among Indonesian knowledge and policy actors is essential for encouraging the use of evidence for policy

change. This chapter outlined some examples of how the evidence is entering the policymaking process in Indonesia, from both inside and outside the bureaucracy. It then discussed the role of policy and knowledge actors such as knowledge enablers, producers, intermediaries, and users within the policy cycle, illustrated through the cases of Village legislation and reform to procurement regulations.

This chapter tells the story of how policymakers in Indonesia are making efforts to seek evidence and resources from inside and outside the bureaucracy. The establishment of the role of the policy analyst within governmental organizations—particularly those that are perceived as knowledge hubs—is intended to influence policymakers within their technical directorates. NGO think tanks and other policy networks have used the windows of opportunity created by enabling legislation, leveraging their informal and personalized networks through consultation and dialogue and the formation of policy coalitions to develop strategies to position themselves as sources of policy ideas and evidence. Building coalitions and alliances among various groups at national and subnational levels and enrolling the media as a partner constitutes an essential strategy to gain support for policy change. The case studies described in this chapter stand as examples of effective strategic interactions among policy and knowledge actors to ensure understanding and uptake of evidence in the policymaking process.

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CHAPTER 3

Supporting Public Policymaking: Working and Thinking Politically for Policy Analysts

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Elly Fatimah, Sugiyanto

Introduction

A knowledge system is a holistic conceptualization that specifies a set of knowledge institutions and actors and delineates the interconnections among them (Hertz et al., 2020). From a knowledge system perspective, the knowledge users that demand evidence for informing state policymaking are predominantly actors in the government ministries, line agencies, regional governments, and parliamentarians. Given Indonesia's large, multilevel, and decentralized governance structure,[5] the many knowledge users in government agencies are diverse, at both national and subnational levels. To inform their decisions, each relies on different types of information and pressures from different sets of actors in the wider political system. This diversity creates a space between knowledge producers and policymakers—a space that can be filled by a specialist mediator or intermediary. Guston (2001) describes intermediaries within knowledge systems as individuals or organizations that facilitate communication, synthesis, and collaboration between knowledge producers and policymakers. One such knowledge intermediary is the position of policy analyst within the government bureaucracy.

Some government agencies in Indonesia have long used data in either a structured or an ad hoc manner to inform policy decisions, but the systematic collection, analysis, and use of data across government agencies through specified staffing arrangements involving policy analysts is relatively new in Indonesia. This chapter discusses the role of intermediaries in the process of

[5] See, for example, Utomo (2011) on building good governance through decentralization in Indonesia.

transforming knowledge into policy in Indonesia, with a specific focus on the policy analyst position, which was created in 2013.

Policy analysts in Indonesia work with policymakers (knowledge users) in government ministries, agencies, and legislatures nationally and subnationally, providing evidence and analysis to inform policymaking processes (Hertz et al., 2020). The following discussion situates policy analysts within policymaking processes and describes key challenges—such as the weak enabling environment for this role, and the limits of policy analyst competence and utilization—and initiatives taken to meet them.

Context

The practice of policymaking in Indonesia was briefly explained in Chapter 2. Blomkamp et al. (2017) have found that policymaking in Indonesia cannot be represented as a cycle of rational problem-solving, from agenda setting to policy evaluation. Some stages in the policy cycle, such as consultation and evaluation by the state, are not prominent in practice. Meanwhile, activities such as policy analysis, decision-making, and coordination are not conducted sequentially. Policy analysis is more likely to be performed by the legislative branch or by nongovernmental actors than by the executive branch. This is likely due to political and institutional reforms in Indonesia, including the move to decentralization from 2001 onward.

For example, before the 2013 reforms to the civil service and bureaucratic procedures, which we discuss later, Kumorotomo et al. (2013) identified 4,000 local regulations produced between 2002 and 2011 that were revoked by the central government after judicial review found they contravened the provisions of *Law No. 10/2004*, which emphasizes that policies should serve the public interest and be in line with national priorities and regulations. Further issues identified in policy formulation included excessive procedures in regulations of policy implementation, often with unexpected results; policies overlapping different units of government; and a lack of clarity on the urgency of a policy (Putra & Sanusi, 2019). The Indonesian political system continues to develop and change rapidly, thus lacking the stability that rational models assume is inherent in bureaucracies charged with formulating analysis.

Datta et al. (2011) noted that the Indonesian government has weak analytical capacity, largely due to weaknesses in the civil service, which has suffered systemic problems in recruitment, training, promotion, and

compensation. Moreover, a strong feature of Indonesian political culture is that informal or personal networks between policymakers and knowledge producers such as academics, civil society organization (CSO) activists, and nongovernmental organization (NGO) practitioners are determining the way policymakers look for information.

This chapter focuses on government-appointed policy analysts. The following sections explain the policy analyst role, why policy analyst positions were created in Indonesia, and how they function.

Public Policymaking, Policy Analysis, and Policy Analysts

Policymakers make policy decisions and take action to address public problems, but the public bears the consequences of these decisions (Kay, 2006). Policy analysis aims to synthesize available information and determine options for policymakers to inform their choices and decision-making. To undertake a good policy analysis, one should understand the policy's distinctive characteristics (Hogwood & Gunn, 1984). First, policy analysis, rather than constituting "pure science," takes a problem-oriented applied form of knowledge generation, in which problems are described and analyzed. Potential options for responses to these problems are then developed, based on the available evidence. Second, the analysis of many real-world multidimensional problems requires interdisciplinary and multidisciplinary analysis to account for their complexity. Third, while many policy analysts have argued for more "rational" approaches to policymaking (Althaus et al., 2015; Howlett & Ramesh, 1995), in which a step-by-step analysis is employed to arrive at rational decisions, the political nature of the policy process requires politically sensitive planning and for these considerations to be made explicit in policy options. The complexities and constraints of the political system must be considered if policy recommendations are to have any impact and uptake from policymakers. Fourth, policy analysts must be client-oriented, addressing themselves to a client who is a public policymaker, often while operating as an agent of social change with a commitment to improve society.

We adopt a broad definition of *policy analyst* as an individual involved in policy analysis and developing policy options (Parsons, 1995). Policy analysists can be situated within government organizations in policy units at all levels, or alternatively situated external to, and often independent of, government organizations—such as in the case of researchers at institutes

and think tanks, academics, freelance consultants, or partisan political or corporate advisers (Fischer et al., 2007; Parsons, 1995; Putra & Sanusi, 2019).

Role of Policy Analysts as Knowledge Intermediaries

Policy Analyst Roles in the Indonesian Bureaucracy

In Indonesia, the reluctance of policymakers to use the results of research has long been a core challenge in achieving evidence-informed policy. Putra and Sanusi (2019) observed that academics and public policy researchers have been reluctant to communicate with government policymakers. Policymakers have been critical of university-produced or academic research, seeing it as insufficiently policy focused and lacking awareness of the policy problems in a particular locality and the actions government had taken to address them (Datta et al., 2016). Instead, the process of governing public affairs has tended to be shaped by political interests and administrative procedures (Putra & Sanusi, 2019). The widening gap between research and the reality of public policymaking is often blamed on two constraints: lack of time and poor understanding of real-world conditions.

This challenge undercuts the ideal conditions in which policymakers have access to the best available evidence when they need it in the pursuit of evidence-informed policymaking. Various kinds of evidence might be produced by researchers, but policymakers need support for analysis of policy options, synthesis of existing evidence, summary of research, outreach to knowledge producers, and assembly of stakeholders to discuss and debate the existing evidence. These types of activities are typically undertaken by knowledge intermediaries (Pellini et al., 2018). Pellini et al. (2018) further state that:

> Policy analysis creates an opportunity to develop the knowledge-brokering function within government entities described by Fisher (2010) and Shaxson and Bielak (2012). This can help to strengthen the demand for and use of evidence in the policy cycle in Indonesia and ensure the development of spaces where government organisations actively demand analysis and evidence (Karetji 2010, p. 62).

Policy analysts can take on the role of knowledge intermediaries to close the gap between policymakers and researchers and to develop the knowledge-brokering function within government entities.

Policy Analysts as Intermediaries

Policy analysts undertake an intermediary role through their involvement in different stages of the policy process, from agenda setting to policy formulation, implementation, and evaluation. Given policy analysts' potential to influence these stages of policymaking, it is important for them to understand the processes and the different values and perspectives brought to bear generally at each stage of the policy process (Heineman, 1997). The policy process is sometimes messy, and the policy analyst can add an element of rationality to it, increasing the likelihood that a policy or a program can operate successfully.

Agenda setting is a crucial first step of the policy process (Heineman, 1997), including getting policymakers to believe that there is a problem at the outset. It is also important for policy analysts to be responsive to problems the policymakers know they have. In setting agendas, policy analysts can have significant influence through providing data and framing the dimensions of the problem. In policy formulation, policy analysts play important roles, often in coordination with other actors, to develop alternatives that can be considered once a policy problem is defined and placed in the policy agenda. At the implementation stage, policy analysts make a major contribution by building in considerations about how implementation might unfold and potential challenges that could be mitigated with risk management strategies.

In Indonesia, the introduction of policy analyst as a functional position in the civil service was aimed at improving evidence-based policymaking and the quality of policy outcomes, by ensuring that those roles incorporated merit-based recruitment, appointment, and promotion (Diprose et al., 2020).

Strengthening Policy Analysis in the Indonesian Civil Service

Creation of the Policy Analyst in Civil Service

In response to criticisms of the quality of government policy design and delivery mentioned earlier, Indonesia introduced reforms to its bureaucracy. Incremental reforms to the civil service took place in the first decade of Indonesia's democratic transition, beginning with revisions to the Civil Service Law in 1999. The Grand Design of Bureaucratic Reform 2010–2025 strategy was launched in 2010 under President Susilo Bambang Yudhoyono and seeks to reduce the number of civil servants employed in administrative or managerial positions in favor of expertise-based and skills-based

recruitment—replacing structural appointments with functional ones (Diprose et al., 2020).

By 2013, the issue of ineffective policy formulation and implementation was getting increased attention in policy circles in Indonesia (Kumorotomo et al., 2013). The Indonesian government, in particular the Ministry of State Administration and Bureaucratic Reform, intended to resolve this policy issue by introducing the "Functional Position of Policy Analysts" ("policy analysts") to the civil service through the enactment of *Ministry of State Administration and Bureaucratic Reform Regulation No. 45/2013*. The objective of establishing the policy analyst position in the civil service was to improve evidence-based policymaking and the quality of existing public policies in Indonesia (Putra & Sanusi, 2019).

Introducing this regulation was a significant achievement for those concerned with political and institutional reform in Indonesia, given that at the time there was no overarching legislation to encourage reforms and merit-based appointments of this type in the bureaucracy, and creating new policies within ministries and government agencies requires leadership support to introduce the required technical regulations to support the changes made.

The policy analyst position then strengthened within the Indonesian civil service through *Law No. 5/2014 on the Indonesian Civil Service*, which aimed to modernize the Indonesian bureaucracy, applying principles of meritocracy. *Meritocracy* is defined as a social system in which "merit or talent is the basis for sorting people into positions and distributing rewards" (Scully, 1997, p. 413). This law includes provisions for a stronger policy analysis function within the bureaucracy (Pellini et al., 2018), which is assigned by Article 44 to the Indonesian National Institute of Public Administration (NIPA) to foster and provide education and training for public policy analysts. That reform process and the rollout of the Grand Design strategy has continued under President Joko "Jokowi" Widodo's administration. The scaling up of appointments under this provision has largely occurred since 2019.

Catalysts for Bureaucratic Reform

Before 2013, Datta et al. (2011) found that analytical capacity in the executive and in the legislative arms of government appeared limited, particularly in the latter, due to systemic problems in the civil service, including problems with recruitment, training, promotion, and compensation. These problems

were compounded by rigidities in the policymaking processes, especially in the budget allocations for research and policy analysis in the civil service, which resulted in few incentives for civil servants to perform anything beyond routine work. Civil servant training tended to be very general in nature, rather than focused on developing core technical or managerial competencies.

The hierarchical nature of the Indonesian bureaucracy meant that requests for information and analysis were often channeled downward. When policymakers, particularly senior officials, required analysis, they relied on staff within the directorates—mid-level bureaucrats (in Indonesian terms probably those at Echelon III level)—to undertake the work in-house. Civil servants often had limited technical capacity to generate and interpret information and data (Datta et al., 2011); there were no formal requirements for those informing or formulating policies to hold qualifications or have proven competencies in public policy analysis (Diprose et al., 2020). Policy analysis in this context was not a designated function of civil service staff, and determining evidence-informed policy options was not a process necessarily nor uniformly performed in the civil service. Many appointments and promotions in the civil service were based on managerial hierarchy or seniority, rather than on the background, training, and skills needed to collect and analyze information to produce policy options (see Blomkamp et al., 2017; Datta et al., 2011; Diprose et al., 2020).

As a result, according to observers from within the civil service, many policies were often designed and implemented but did not necessarily achieve the desired policy goals and objectives, partly because of weak problem identification and analysis in formulating policy options (Diprose et al., 2020).

However, there were notable exceptions to this general pattern. A few ministries, such as finance, trade, the central bank, and public works, have typically used more meritocratic appointments, contributing to a continuing technocratic (knowledge-informed) culture within the ministry. They have also followed a more rational decision-making process, have systems for storing and reusing information more effectively (Datta et al., 2011), and have made considerable investments in their internal capacity to do in-house analysis. These conditions have also stemmed from the personal characteristics of high-ranking individuals, including their concern for the quality of policy (Datta et al., 2011).

Both before and since the introduction of the new legislation, NIPA has played an active role in championing the creation and implementation of new policy analyst roles in the civil service, as a part of the strategy to strengthen more systematic or rational, evidence-informed policy formulation. The Ministry of Manpower, in its *Decree No. 106/2018 on Indonesian Job Competency Standards for Public Policy Analysts*, stated that the policy analyst profession underscores the importance of collaborative governance in the steps outlined earlier: agenda-setting process, policy formulation, policy implementation, and policy performance evaluation. The decree defines the policy analyst profession as one that:

> has duties, responsibilities, and authority to carry out studies on policy problems faced by Indonesia and policy analysis on relevant policy alternatives that need to be taken to overcome policy problems; to carry out policy advocacy in order to make necessary policy adjustments, encourage increased effectiveness and productivity of their implementation; as well as to increase accountability for performance achievements. (Ministry of Manpower, 2018, p. 3)

Appointing Policy Analysts

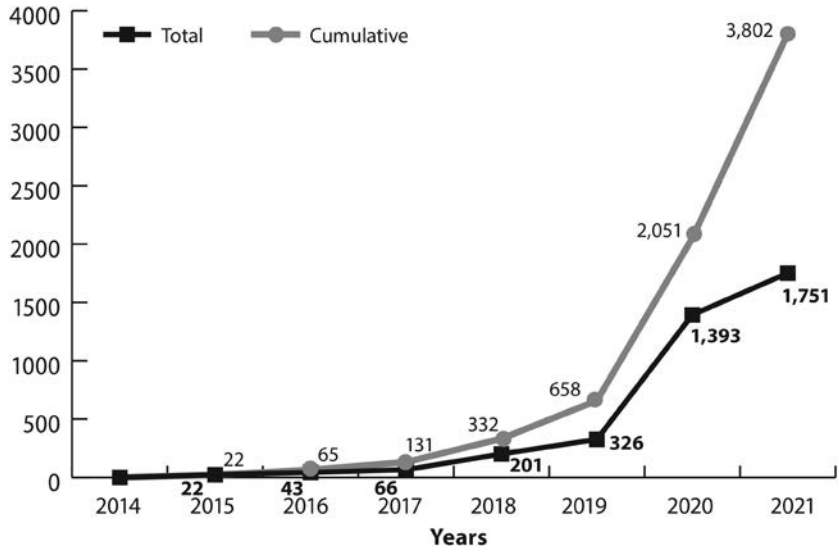
We saw earlier in this chapter that the policy analyst role within the civil service was created through the *Ministry of State Administration and Bureaucratic Reform Regulation No. 45/2013*. This regulation stipulates that the recruitment and appointment for the policy analyst position should take place through two modalities—the first involving a competency test for junior civil servants, and the second involving the conversion ("inpassing") of existing mid- to senior-level civil servants employed in other managerial and functional positions. (Managerial positions are known as "structural positions" in Indonesia; functional positions are civil service appointments to carry out specific technical roles.) Both modalities require civil servants to pass competency tests managed by NIPA before they can be appointed to the new role.

Although an aspiring policy analyst in the civil service might pass the competency tests required for the position, there has to be a job for them. A position must exist—or be created—within a given ministry or government agency at the national or subnational level, approved by the Ministry of State Administration and Bureaucratic Reform in the organizational structure of each government ministry or agency (Diprose et al., 2020). This merit-based appointment process requires a cross-agency collaboration to make the

legislative and technical arrangements to introduce the position. Creating or allocating positions to this role proved to be a challenge in the early years of the rollout. In the first four years following the position's introduction (2014–2018), with limited resources, NIPA promoted ministry, agency, and regional government interest in the new policy position, and supported ministries and agencies in applying to the Ministry of State Administration and Bureaucratic Reform for job allocations for policy analysts in their respective ministry or agency. Against the background of these challenges, by 2018, the number of policy analysts appointed across Indonesia stood at only 332 (see Figure 8), compared with a total number of approximately 4 million civil servants.

This situation changed markedly in 2019 when the Ministry of State Administration and Bureaucratic Reform released its new regulation (*No. 13/2019*) that aimed to reduce the number of civil servants employed in administrative or managerial positions in favor of expertise-based and skills-based recruitment into functional positions. The new regulation

Figure 8. Number of policy analysts in bureaucracy



Source: Adapted from NIPA (2021c). Reprinted with permission.

adjusted the procedures for recruiting and appointing any functional positions in the government bureaucracy, including policy analysts.

Based on this regulation, the recruitment and appointment of functional positions are regulated through four modalities. The first two modalities are similar to prior regulatory arrangements—a competency test for junior civil servants and a job transfer after and passing a competency test for mid- to senior-level civil servants. The third modality was new—a process of conversion (known as *inpassing*) of existing civil servants employed in other structural and functional positions that does not require people in these roles to pass a competency test in situations of urgent need that are deemed national strategic priorities. This modality was important for Indonesia's later efforts to streamline the civil service and reduce the number of people in managerial positions (discussed later in this chapter). The fourth modality was designated for promotions: candidates must pass competency tests and have sufficient experience as identified through a "credit system." The credit system for policy analysts is a performance-based system through which policy analysts accrue "credit points" based on tasks performed and deliverables (Diprose et al., 2020).

The data presented in Figure 8 show the result of the efforts to roll out the selection, training, and appointment of policy analysts in Indonesia, with a growing number of appointments made in the civil service between 2014 and 2021. As of December 2021, there were 3,802 active policy analysts across 26 national ministries, 24 national government agencies, and 47 subnational governments. Of these, 1,120 policy analysts were appointed through competency tests, job transfers, and promotions, and 2,682 were appointed under the third modality described earlier to streamline the civil service by reducing the number of managerial positions. There was a marked increase in the number of appointments from 2019, as the regulatory environment and support for uptake of the role improved.

An Indonesian Policy Analysts Association (*Asosiasi Analis Kebijakan Indonesia*, or AAKI) was founded in September 2016 with the support of NIPA. Its membership is open to policy analysts working in government (ministries, agencies, and subnational governments) as well as in NGOs, other civil society organizations, universities, the private sector, and media. According to *Ministry of State Administration and Bureaucratic Reform Regulation No. 45/2013*, government policy analysts are required to become members of a professional organization for policy analysts. The AAKI helps

policy analysts in Indonesia develop their capacities and roles, while also constituting a hub for policy analysts from various scientific disciplines to share experience, skills, and expertise (http://aaki.or.id/aaki). The association has grown from an initial 20 members in 2016 to 382 members in 2021 (AAKI, 2021).

On October 20, 2019, in his inauguration speech for his second term (2019–2024), President Joko "Jokowi" Widodo announced his policy priority of "bureaucratic simplification" (or downsizing of the bureaucracy). The new policy was intended to create a dynamic, agile, and professional bureaucracy to support the government's public performance and policy effectiveness and efficiency. The policy involved reducing government work units and staffing structures spread across five hierarchical levels (echelons I–V) to be reduced and simplified into two levels (echelons I and II). These changes were introduced in November 2019 through three instruction letters, known as Circulars (nos. 384, 390, and 391 of 2019), sent by the Minister of State Administration and Bureaucratic Reform to ministers, governors, mayors, and district heads on Strategic and Concrete Steps for Simplifying the Bureaucracy.

The Circulars stipulated nine steps to simplify the bureaucracy, including job mapping and transformation of structural (or managerial) posts to functional (specified technical task) posts. The Circulars were further strengthened by *Ministerial Regulation No. 28 of 2019 on the Equalization of Administrative Positions*, which transformed managerial/administrative positions in echelons III and IV to functional equivalents. Essentially, a large swathe of civil servants was to be transferred under the third modality discussed earlier from managerial administrative positions into positions with assigned tasks and functions, for which future promotion could be attained only by meeting job performance criteria and undertaking training and competency tests.

This policy resulted in a drastic increase of the number of policy analysts (see Figure 8), which is likely to have several implications. First, government organizations may now have adequate human resources able to focus on improving the quality of the policy formulation process. Second, and conversely, the increase in the number of policy analysts may create complexity if it is not accompanied by attention to developing their competencies to undertake policy analysis. Failure to do this is likely to add to the existing challenges facing policy analysts, such as recognition of their roles and the utilization of their work outputs by the policymakers in

government institutions where they are appointed. We discuss these challenges in the next section.

Key Issues for Policy Analysts in Supporting Public Policymaking

The policy analyst position as a functional position in the civil service was introduced to improve evidence-based policymaking and the quality of policy outcomes. Policy analysts are expected to become knowledge intermediaries to close the gap between policymakers and policy researchers. However, as a relatively new position in the Indonesian bureaucracy, policy analysts faced the challenge of having sufficient professional competence to carry out their role, the issue of whether the role itself is recognized and understood within the bureaucracy, and whether their work outputs will be taken up by policymakers in the government institutions where they are appointed.

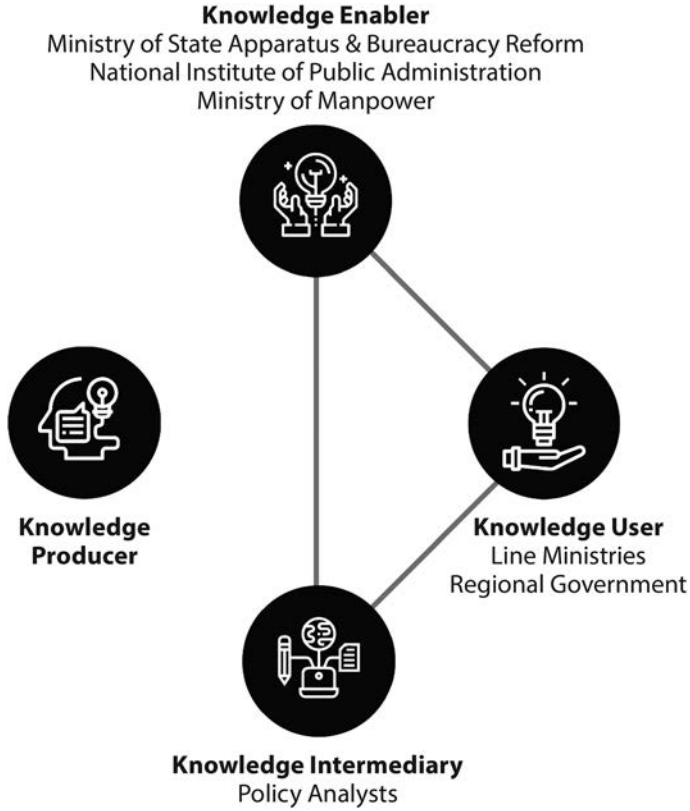
Pellini et al. (2018) assert that the effectiveness of the role played by knowledge intermediaries and brokers, such as policy analysts, depends on two crucial factors. The first is the enabling environment, defined as a set of rules and regulations that provide legitimacy toward policy analysts' roles within the bureaucracy and provide the policy analysts with the resources and support required to perform their responsibilities. The second factor is the mix of hard and soft skills in policy analysis that policy analysts must possess. Hard skills cover data gathering and interpretation of trends, while soft skills involve interaction with a variety of stakeholders and good understanding of stakeholders' needs and concerns, the social or economic situation they face, and how they have tried to solve problems in the past.

These two factors, discussed in the following sections, remain challenges for policy analysts in Indonesia in three ways. The enabling environment is yet to fully support policy analysts due to political will and cross-agency collaboration. This is reflected in the low utilization of policy analysts by ministry, agency, or regional government policymakers. Further, the competencies of policy analysts are yet to reach optimum levels and still require investment in training and assessment.

Locating Policy Analysts in the Knowledge System

We locate policy analysts within the "Knowledge System Model 2.0" concept (introduced in Chapter 1) in Figure 9, which describes the primary interactions between the actors in the policy analyst ecosystem. The primary relationships are between enablers, intermediaries, and users. Hertz et al.

Figure 9. Interactions between actors in the policy analyst ecosystem



(2020) define the knowledge enabler as the parts of the government that draft rules and regulations. In this case, the enablers include the Ministry of State Administration and Bureaucratic Reform, which enacts policy on the roles of government policy analysts and on the credit system for merit-based promotions; NIPA, which functions as the supervisory agency of the policy analyst position within government, issues policy analyst competency standards, and assesses cumulative credit for policy analysts; and the Ministry of Manpower, which authorizes the national qualifications framework for public policy analysts, developed together with NIPA.

The policy analyst is a fundamentally a knowledge intermediary, whose work consists of identifying policy problems, forecasting, developing policy recommendations, and monitoring and evaluating policy implementation (*Ministerial Regulation of State Administration and Bureaucracy Reform No.*

45/2013). The users are the direct supervisor and the policymakers in the ministry, agency, or regional government unit where the policy analysts are positioned and working. The role of users is important in supporting the ways policy analysts can function and is regarded as the agency-level enabler, which includes the role of the personnel bureau of where the policy analyst works.

Enabling Environment for Policy Analysts

A supportive enabling environment helps legitimize policy analysts' roles and functions within the bureaucracy. The enactment of the two ministerial regulations from the Ministry of State Administration and Bureaucracy Reform (i.e., *No. 45/2013* and *No. 13/2019*) has provided a set of rules for recruiting and appointing policy analysts and any functional positions in government bureaucracy. However, regulations alone are insufficient to legitimize this new type of work. To undertake their role effectively, policy analysts require support from the leadership in different agencies (itself a function of political will) to move the new position forward and shift the culture from hierarchical decision-making to evidence-based policymaking.

The use of evidence in policymaking can potentially be overridden by other political and personal considerations when policy decisions are based on popular views, intuition, ideology, or conventional wisdom. Such patterns have tended to characterize the culture of decision-making in the civil service in Indonesia, which is hierarchical (or what is called "instruction from above") and where instructions are implemented without question. Changing the culture of bureaucratic decision-making to one that uses evidence may take some time and will require commitment from leadership across agencies (Diprose et al., 2020).

In late 2018, at the request of NIPA, Diprose et al. (2020) investigated the rollout of the policy analyst position. The authors consulted 51 people, including policy analysts and supervisors across 20 government ministries and agencies, along with observers. The findings show that newly appointed policy analysts' experiences varied depending on several factors, including (1) their agencies' awareness of the new position and its function, (2) their offices' preparedness to incorporate policy analysis into workplace business processes, and (3) unit heads' openness in their workplaces toward policy or other suggestions. These factors all depend on a culture of evidence-based policymaking across institutions (Diprose et al., 2020). In sum, political will

and cross-agency collaboration are needed to make the legislative and technical arrangements for the policy analyst position operate well in practice.

Good Practice in Integrating the Policy Analyst Role Within an Agency

Good practice in agency preparedness for the new position and function is demonstrated by the Fiscal Policy Agency in the Ministry of Finance. The agency undertook an organizational transformation and strengthened its enabling environment so that it could establish a coordinated working relationship between policy analysts and their supervisors. The agency undertook steps for planning for, and managing change before, appointing policy analysts, and prepared relevant technical guidance for policy analyst career development. This included defining the relationship between structural (or managerial) and functional officials, designing the organizational structure, and preparing transition planning (Diprose et al., 2020). The agency ensures that policy analysts are involved in the main activities of policy review and analysis in their respective working units (NIPA, 2021a). In this way it is optimizing the role of policy analysts.

Established in 2006, the Fiscal Policy Agency formulates recommendations in fiscal policy and the financial sector, with tasks covering macroeconomics, state revenues, state expenditures, financing, the financial sector, and international cooperation based on research and evidence. Throughout the years, the agency has faced institutional challenges to its role in policy sharing support with the rest of the directorate generals in the Ministry of Finance. Its transformation is a success story as it has positioned itself within the ministry. To become an ideal policy unit, the agency needed (1) a clear mandate from the Minister of Finance and national leadership authorities for the agency as a policymaking agency; (2) clear definition of roles for the agency with other units in the Ministry of Finance; (3) recruitment and management of policy analysts having competency in fiscal policy formulation; and (4) adequate physical facilities and infrastructure (i.e., office, information technology) and nonphysical facilities (i.e., as incentives, organizational and human resources management). Other supporting factors that helped the success of Fiscal Policy Agency include a commitment from the leadership of the Ministry of Finance to provide clear authority, assignments, and responsibilities, including having privileges in data and information access (Romadhoni, 2020).

Policy Analyst Competence and Training

A second challenge faced by policy analysts is building the competence to carry out their duties. Putra and Sanusi (2019) assert that policy analysts must keep their knowledge and competence up to date. According to Indonesian regulations,[6] government policy analysts have two main roles: to formulate and analyze policy research and to carry out policy advocacy. NIPA (2021a) states that a policy analyst should possess several competencies: analytical competence, political competence, and a specialized competence. Analytical competence is the competence to produce quality policy information, while political competence or political skill is the competence to advocate policy information. Specialized competence is competence in a specific technical field or a field of expertise.

These capabilities must be continuously developed, and this is a shared responsibility between the nationwide enabler—NIPA in this case—and the user (NIPA, 2021a). The user is also any enabler in the personnel bureau, or in any ministry, agency, or regional government unit where a policy analyst is positioned and working. NIPA provides functional competence training, while the personnel bureau in the policy analysts' home institution and the policy analysts themselves play a role in developing technical competencies through independent nonfunctional training. However, most agencies in which policy analysts work do not have a mechanism or an annual professional development plan for policy analysts (NIPA, 2019). A lack of ongoing training from their home institution is a challenge for policy analysts (NIPA, 2019), which contributes to low rates of utilization, which we discuss later in this chapter.

Lessons From Training Initiatives

Functional competence training for policy analysts is organized by NIPA, which had played an active role in championing the creation of the new role in the civil service. With limited resources, NIPA developed and refined a training curriculum for policy analysts and organized training sessions. In 2015, the Knowledge Sector Initiative (KSI) program, funded by the Australian Government through the Department of Foreign Affairs and Trade (DFAT), collaborated with NIPA on training modules for policy analysts to build

[6] The Indonesian policy analyst is regulated by the *Ministry of Administrative and Bureaucratic Reform Regulation No. 45/2013* and the Ministry of *Manpower Decree No. 106/2018*.

demand for data and research among policymakers. The KSI supported the development of training modules and case studies for the policy analyst training curriculum, as well as some pilot activities. NIPA incorporated these training modules into its own training curriculum for policy analysts. This support was crucial for developing the role of policy analysts and their competency as knowledge intermediaries and brokers, which are key for evidence-informed policymaking processes (Diprose et al., 2020).

The perceptions of policy analysts who participated in these trainings were studied by Diprose et al. in late 2018. The study provides an overview of the experiences of different policy analyst cohorts since the role's creation in 2015, including their perspectives on NIPA's training (Diprose et al., 2020). Policy analysts found NIPA's training valuable, specifically in setting out a clear picture of the responsibilities and scope of work expected: to understand the policy process, research methods, and issues around data quality, and to emphasize the capacity to translate research findings into policy recommendations. However, they viewed the initial three-week training as insufficient for the scope of work analysts were expected to carry out: it did not address many of the challenges faced at a regional level, and it required more attention to subnational needs. This gap showed a need for ongoing training and skill-building through refresher courses and new teaching modules over the longer term, not just during the initial phase.

Good Practices in Professional Development

A few agencies where policy analysts are situated have a professional development plan for policy analysts. These tend to be agencies with a technocratic (knowledge-informed) culture that have made investments in their internal capacity to do in-house analysis (Datta et al., 2011). Here, as in the earlier discussion, the Fiscal Policy Agency, which employs 111 government policy analysts, provides an example of good practice. The agency uses peer-learning among different levels of policy analyst, where senior policy analysts mentor less experienced analysts. This model improves communication skills and builds the individual's confidence in analyzing policies and promoting their analysis to users, so that it can be taken up by agency policymakers to inform their decision-making process (NIPA, 2021a).

In response to early challenges, systemic efforts were increasingly undertaken by NIPA and the Ministry of Manpower to improve the competence and build the capacity and credibility of the policy analyst profession, through the introduction of a professional certification. At a

national convention in March 2018, the Ministry of Manpower approved a national job competency standard for the Indonesian public policy analyst profession.[7] This competency standard then became a reference point in the preparation of national qualification levels, the implementation of professional education and training, competency testing, and professional certification. A national qualifications framework for public policy analysts was then developed by NIPA and the Ministry of Manpower, involving various actors including academics from Gadjah Mada University, the University of Indonesia, and think tanks from civil society organizations, namely, the Centre for Strategic and International Studies (CSIS) and the Regional Autonomy Watch (KPPOD). In late 2020, NIPA received a license as a professional certification agency for public policy analysts in Indonesia. This work is still ongoing and in 2021 had yet to be rolled out in full; the delay is partly due to the effect of the dramatic increase in the number of government policy analysts driven by the simplification of bureaucracy policy, discussed previously.

Impending Challenges and Potential Solutions

We mentioned earlier that a large number of civil servants were transferred from managerial administrative positions to policy analyst positions as a result of the simplification of bureaucracy policy. Because this type of conversion, which commenced in 2019, requires no competency test, it has partially undermined government efforts to incorporate merit-based appointment within the civil service as a way of promoting competence. This is ironic, given that the new policy of bureaucratic simplification was intended to create a dynamic, agile, and professional bureaucracy to support government performance and policy effectiveness and efficiency. Realizing this unintended consequence, the Ministry of State Administration and Bureaucratic Reform released another policy in 2021, *Ministerial Regulation No. 17/2021*, which obligates civil servants who are converted to policy analyst roles through the bureaucratic simplification process to attend training, pass a competency test, and obtain a certificate of competence no later than two years after being appointed to their functional position. This means that NIPA, which is the supporting agency for the competency-based training and assessment of policy analysts, has increased responsibilities. While NIPA

[7] Appendix to the *Ministry of Manpower Decree No. 106/2018* on Indonesian job competency standards for public policy analysts.

supported 22 analysts in 2015, it was expected to support 3,802 active policy analysts across Indonesia in 2021, with numbers anticipated to grow in tandem with a bureaucratic simplification process that was to continue for subnational governments until early 2022.

NIPA has undertaken innovative efforts to meet this challenge. Since mid-2021, it has organized a series of online public lectures for public policy analysts, each running for three hours and covering various aspects of policy analysis.[8] Another effort being considered is to establish a consortium of training agencies with accreditation to organize training for public policy analysts, which would be possible within the existing national qualifications framework for public policy analysts established by NIPA and the Ministry of Manpower. With this mechanism, universities and professional associations should be able to organize policy analyst competency trainings, as well as competency assessment and certification.

Utilization of Policy Analysts

The large number of appointments of policy analysts under the bureaucratic simplification process do not necessarily equate to their actual utilization, or to a growth in evidence-informed policymaking. The way that policy analysts have been appointed and used has changed over time. The early rollout was met with low levels of interest in and uptake of the role, but those levels gradually increased when people were appointed by government agencies between 2014 and 2019 (NIPA, 2019). Diprose et al. (2020) found that this was due to issues related to government agencies' awareness and understanding of the role, limited preparedness to incorporate policy analysis into the workplace's business processes, and policy analysts' mixed effectiveness and experience in carrying out their roles and functions (Diprose et al., 2020). In the early years of the rollout, the competence, capacity, and experience of policy analysts varied, as agencies and analysts alike adjusted to the new role and the variable needs of each sector. Some analysts were better incorporated into their organizations, while others are yet to be fully integrated and have never provided policy recommendations to their organizations. This can be attributed to several factors, including the level of seniority of policy analysts—with more senior and experienced analysts enjoying greater levels

[8] These lectures are publicly available through NIPA's YouTube channel: YouTube Lembaga Administrasi Negara RI, https://www.youtube.com/channel/UCw8daGbSlbUspE2Au-6iyWQ.

of trust and influence. Younger policy analysts have tended to be unsure about how to push forward a policy recommendation, particularly to supervisors who do not yet see support from analysts as important (Diprose et al., 2020). At the individual level, policy analysts need a strong understanding of institutional structures, the processes of governmental decisions, and mechanisms within which they are working and transmitting knowledge and policy advice (Carden, 2009).

Agencies varied in their willingness to embed the role of policy analyst within their institutions. The institutions that had a culture of evidence-based policymaking had stronger leadership support for the policy analyst role (Diprose et al., 2020). Agencies that did not understand the policy analyst role did not assign relevant tasks to them and were slow in recognizing their role in the policy formulation process. When this occurred, the policy analysts themselves needed to be proactive in positioning and defining their roles in the existing business processes of their institutions. They needed to clarify their duties and responsibilities to others on their team and to their superiors, and eventually gained sufficient authority to do their job.

There was also significant confusion about the role that policy analysts might play in government agencies and how the position should function and be incorporated into the human resource and business processes of each agency, which vary across ministries and at the national and subnational levels. Confusion about how the role should be incorporated and situated among the other existing functional positions in agencies has tended to occur when the functions of different positions overlap—particularly when civil servants such as researchers, statisticians, planners, and legal drafters play similar roles in providing policy analysis and advice to their superiors (Diprose et al., 2020). In sum, the challenge was due to a lack of clarity on who does what and how they could collaborate.

Since those early years, the changing pressures to downsize the civil service (especially in administrative managerial positions) have seen an increased uptake in the role, but this has not necessarily led to the effective use of the role within agencies, nor guaranteed appropriate competencies to undertake core functions. NIPA undertook a policy analyst utilization survey in 2019 in.fourteen government units, across four ministries, four agencies, and six regional governments. The assessment showed an average utilization rate of 69 percent (moderate category) for policy analysts. Those policy analysts surveyed by NIPA (2019) were involved in the policymaking process, but their involvement was not yet optimized. Some agencies' leadership or

supervisors did not understand the role and function of policy analyst and hence tended not to use them for suitable tasks (NIPA, 2019). This may relate to underlying competence. For example, a brief survey conducted by the Master Program in Leadership and Policy Innovation of Gadjah Mada University in 2021 indicated only a slight gap in competency between policy analysts recruited based on competency tests and those who were recruited without any competency test.

Good Practices in Utilization

Good practice in using policy analysts was demonstrated when the Ministry of Health encouraged the formation of a policy analyst Community of Practice within the ministry, based on fields of expertise or specialization. These communities of practice assist supervisors and users in setting policy analysis assignments on issues that require an immediate response (NIPA, 2021a). The formation of a Community of Practice is encouraged by NIPA in the guide to optimize the role of policy analysts for ministries, agencies, and regional governments, especially in agencies with 10 or more analysts. The community functions as a communication forum among policy analysts, and between analysts and the head of agency, as well as between analysts, NIPA, and the Policy Analyst Association. It also encourages policy analysts to respond to problems as a team across units and to strengthen their identity within the agency.

We also see individual initiatives leading to stronger uptake of the analyst role. A policy analyst who worked in the Regional Secretariat of West Bangka District received an Indonesian Policy Analyst Award in 2018 from NIPA. His success story began when he introduced a regional economic policy issue to the policy agenda, which was later enacted as policy. The process began with advocating the urgency of the policy issue, followed by consultations with different regional agencies and the production of a policy brief. The policy analyst's entry-level rank did not hinder his understanding of the strategic value of his position, and he was able to mobilize political skills to work with other regional agencies and influence policymakers (unpublished KSI internal monitoring, January 18, 2019).

Improving Utilization

What leads to successful outcomes in utilization of the policy analyst role is a collaborative engagement between a nationwide enabler, organization level enabler, user, and the policy analysts themselves. Diprose et al. (2020) suggest

that improving communication and coordination between the supervisor, the personnel bureau, the planning unit, and NIPA is important, as is clarifying the role of the policy analyst vis-à-vis other functional roles, and within the business processes of each agency.

NIPA has responded with several efforts to address the issue of insufficient understanding of the policy analyst position (Diprose et al., 2020). These include coordinating more frequently with personnel bureaus and supervisors to promote the importance, benefits, job descriptions, and functions of policy analysts to ministries, agencies, and regional governments. To reach policy analysts across Indonesia, NIPA also conducts coaching clinics through social media and has created a space where people can discuss these matters online via Facebook and Instagram. This virtual interaction has been more effective since the outbreak of the COVID-19 pandemic in early 2020, when the practice of conducting government operations online began to become more widespread.

With support from the KSI and academics from Gadjah Mada University, NIPA also developed a guide to optimize the role of policy analysts for ministries, agencies, and regional governments (NIPA, 2021a). The guide has been helpful in explaining important aspects of the policy analyst position, including the role itself, business process, competence, and performance evaluation. It explains that the policy analyst has a role at every stage of the policy cycle, from agenda setting to policy formulation, policy implementation, and policy evaluation.

The guide was an effort to respond to a concern raised in the policy analyst utilization survey (NIPA, 2019) about the ineffectiveness of annual performance goals when imposed top-down by a supervisor, giving the policy analyst little chance to demand specific roles and contributions. The guide explains that policy analysis work can flow from a goal in an agency or unit's work plan, ad hoc assignments, or initiative-based or independent work. For the latter, the policy analyst must obtain approval from the supervisor to ensure that they are contributing to the agency or unit's policy targets (NIPA, 2021a). Each type of activity should be included in the individual's annual performance goals and evaluated by a direct supervisor and an assessment team, which will determine credit scores for career ranks and promotions (NIPA, 2021a). The guide further explains that in carrying out their duties, policy analysts should collaborate with other positions, including their supervisor and organization leaders who make policy decisions, and with other functional positions such as researchers, statisticians, planners, and legal drafters (NIPA, 2021a).

Overall, the guide has been helpful in both clarifying the role of analysts and supporting the uptake of the position by agencies (NIPA, 2021a). It is nonbinding but intended to provide guidance for agencies in optimizing the role of the policy analyst in their unique working environment.

Policy Quality: Measurements Through the Quality Policy Index

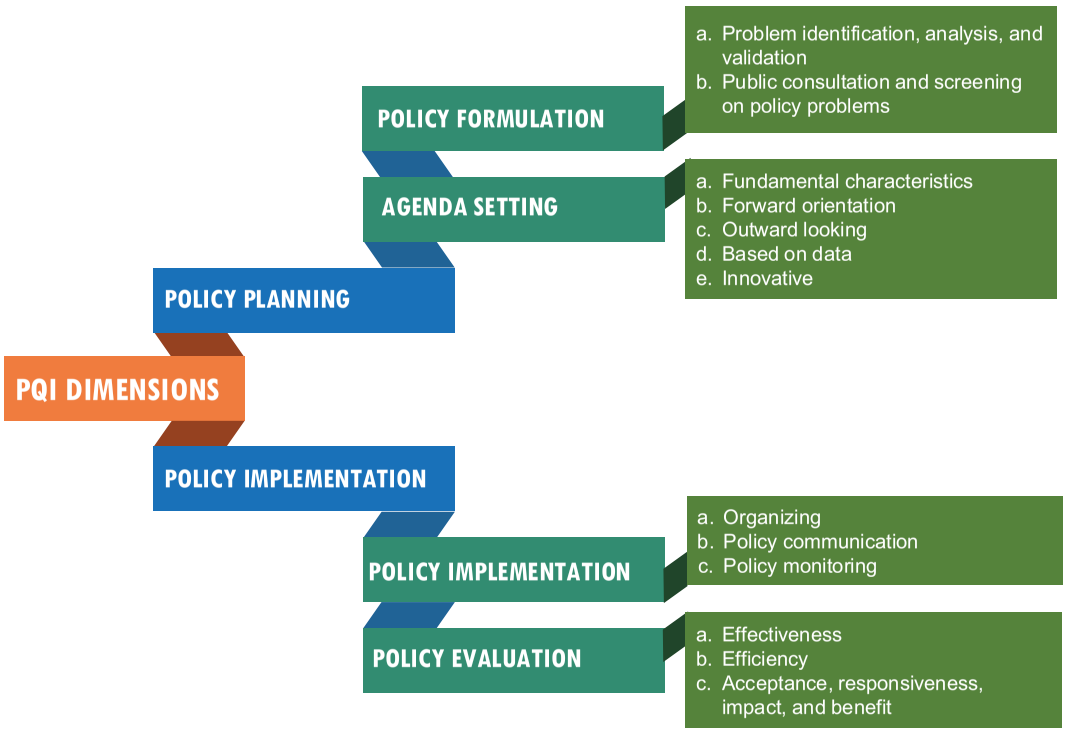
An ongoing challenge across the Indonesian civil service is how to monitor and measure the quality of policy implementation. An instrument that can create a snapshot of how policies are tracking would be helpful for analysts, to narrow their focus for further evidence collection and analysis and to improve policy quality.

NIPA wanted to promote a more systematic use of evidence by policy analysts. It realized that there was no common platform to assess the policy quality, its underlying agenda, or elements that need improvement, or to identify who or what might contribute to the quality of a policy. Nor was there a common way to measure what constitutes a good—or an ineffective—policy. Responding to this challenge, in 2016 NIPA established the Policy Quality Index (the PQI) for government agencies.

The PQI is intended to be a common instrument to assess the quality of policy across the country. The measurement is based on the policymaking process from agenda setting, policy formulation, and implementation, to evaluation. The purpose of the PQI is to encourage evidence-based policymaking and to strengthen participation and good governance principles in the public policy management process (NIPA, 2021b). The PQI measures different dimensions from policy problem identification to policy impact (see Figure 10). Each dimension has a set of qualitative questions that require evidence-based answers. The instrument also accommodates gender equality and social inclusion elements, covering questions of whether the policy problem relates to vulnerable groups or whether the policy has an effect on vulnerable groups.

Each agency, ministry, and regional government uses the instrument to undertake a self-assessment through an online submission. The results of the PQI assessment are intended to be used by government agencies in developing strategies to improve policy quality in their organizations and to establish strategies for policy analyst development, to contribute to policy quality improvement. The PQI has also been used by NIPA as an instrument to build awareness of the ways that evidence-based policy monitoring can inform better

Figure 10. Policy Quality Index framework



Source: Translated from original Indonesian original texts from NIPA (2021b). Reprinted with permission.

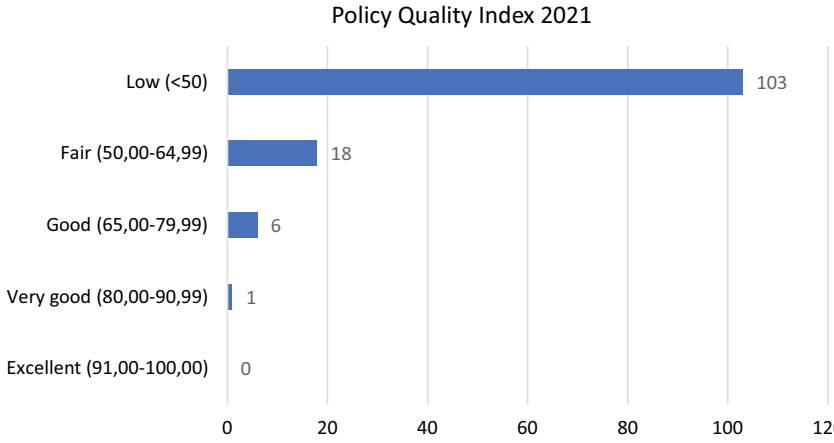
policymaking over time, to encourage the strengthening and application of the principles of good governance in the process of formulating public policies, and to promote the policy analyst position. When NIPA presented the PQI to government agencies, it provided an opportunity to explain the newly established government policy analyst position (NIPA, 2018).

Figure 10 shows the PQI framework, which has four dimensions: agenda setting, policy formulation, policy implementation, and policy evaluation. Each of these dimensions is measured through qualitative questions relating to the themes listed in Figure 10. Since 2020, the Ministry of State Administration and Bureaucratic Reform has required the use of the PQI instrument nationwide in government agencies to measure policy planning and execution quality. The PQI is also integrated into the Bureaucratic Reform Index based on the Road Map for Bureaucratic Reform 2020–2024 with a target of 100 percent of government agencies with a good PQI in 2024 (*Ministerial Regulation of State Apparatus and Bureaucratic Reform No. 25/2020 on Road Map for Bureaucratic Reform 2020–2024*). The Bureaucratic Reform Index describes performance management and accountability and defines performance allowance for civil service in the specific government agency.

The PQI assessment pilot in 2017 focused on the use of the index by government institutions with policy analysts; in 2018, a second round was opened up for national and regional government institutions regardless of the presence of policy analysts in their institutions. The instruments were improved in 2020–2021 and then used for PQI assessment in 2021. Participating national and regional government agencies undertook an online self-assessment, which was then validated by a national board composed of representatives from government, academia, and civil society. In 2021, a total of 128 government agencies, comprising 21 ministries, 21 agencies, and 86 regional governments, participated in the assessment. From these 128 government agencies, a total of 478 policies were validated by a national board. The results of the 2021 assessment produced PQI scores ranging from a low of 14.93 to a high of 84.84 out of a maximum score of 100 (Figure 11).

Of the 128 government agencies that undertook PQI assessment in 2021, NIPA presented awards to 10 government agencies with strong PQIs. The awards were given based on the principles being promoted—innovative, based on evidence, inclusive, responsive, and communicative—to show appreciation for their achievements and to inspire other government agencies. Some government agencies set the PQI as their key performance indicator in

Figure 11. Policy Quality Index distribution from across 412 government agencies



Source: Adapted from data in NIPA (2021b).

their medium-term strategic plans for 2020–2024 to push for improvement in policymaking.

A dynamic interaction among the nationwide enabler, the agency-level enabler, and policy analysts is important in determining a PQI result. Each government agency requires a team of collaborators composed of legal department staff, administrative staff, and policy analysts. They are involved in all stages of PQI measurement, starting from socialization, measuring the index, and advocating for the improvement of policy quality in their respective agencies based on the result of the PQI assessment. The PQI is measured every two years rather than annually, to provide time for government institutions to improve their policymaking process based on the previous assessment.

Conclusion and Recommendations

To achieve the Vision of Indonesia 2045 as explained in Chapter 1, Indonesia is on track to have a large cohort of policy analysts (as intermediaries between knowledge producers and policymakers) situated in agencies across national and regional government institutions. The total number of government policy analysts is predicted to reach 10,000 in.2022, particularly due to civil servants

shifting from managerial roles in the bureaucratic simplification process taking place across Indonesia's 34 provinces, 416 districts, and 98 municipalities. Being a government policy analyst is a relatively new profession in Indonesia; the profession has grown rapidly, and a significant majority of people in the profession did not choose it but were reallocated to it. The potential contribution of analysts to better policymaking in Indonesia, however, will be unrealized if the challenges of policy analyst competence, training, utilization within agencies, and commitment to policy quality are not addressed.

The Bureaucratic Reform Index has now integrated the PQI, which applied nationwide starting in 2021. Consequently, all government institutions at the national and regional level were required to assess their policy quality. The PQI provides a snapshot of the policy quality situation in a given institution, providing an important indicator of where improvements can be made. The measure will be useful only if it is employed by institutional leaders (as enablers and users) to improve performance, and by policy analysts themselves to identify where improvements and more evidence are needed to inform policy options or performance. The PQI is a trigger to carry out a policy reform, starting with a change in collective awareness in policy planning and policy execution. For example, policies must address the fulfillment of the rights of community groups in a balanced way (principle of inclusiveness).

All the actors studied by Diprose et al. (2020) hoped that introducing the role of policy analyst would have an impact on Indonesia, creating policies that accommodate a wide range of stakeholder interests and that improve welfare. Policy analysts were seen as key to improving the quality of policy instruments, decision-making, and overall policy outcomes when these are based on evidence and robust analysis. Improvements in the capabilities and utilization of policy analysts are expected to reduce overlapping or contradictory policies, reflected in Indonesia's government effectiveness index, as well as contribute to positive social change.

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CHAPTER 4

Soft Institutionalization of Indonesia's Knowledge and Innovation Ecosystem: Harnessing Media as a Knowledge Intermediary

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Wisnu Harto Adiwijoyo, Benedicta Rahmawati
Kirana Kusuma Wardhani

Introduction

This chapter investigates the effectiveness of Indonesia's Knowledge Sector Initiative (KSI) collective efforts with partners to promote and entrench the idea of a "knowledge and innovation ecosystem." In particular, we ask whether the idea of an ecosystem has become institutionalized—a way of thinking about knowledge and innovation that knowledge and policy actors widely follow, which has come to feel natural and not subject to change (Tolbert & Zucker 1983, pp. 5–25). An idea can achieve the status of an institution when it is included in a formal set of rules, such as in law, regulations, standard operating procedures, or formal agreements. This is "hard institutionalization" (Wiener, 2006). By contrast, in soft institutionalization, an idea gains acceptance as its advocates campaign to build awareness in public discourse, place it on the policy agenda, and earn the idea favorable media coverage. This chapter describes the KSI's collective efforts with partners in achieving soft institutionalization of the knowledge and innovation ecosystem and the phases of that process. We identify the key actors and dynamic interactions between them, and then map the stages in the process and highlight the drivers at each stage. We conclude by examining the effectiveness of the KSI's partnership approach and provide recommendations that might aid in the creation of communication strategies to promote and entrench new concepts and ideas.

The KSI is a 10-year partnership between the governments of Indonesia and Australia to promote evidence-based policymaking. The KSI works with

research providers and government agencies to strengthen the quality and policy-relevance of research and how it used for policymaking. The KSI also works to improve regulations and practices that support quality research and make using evidence in policymaking easier. For almost a decade, the KSI has supported partners to promote the concept of a knowledge and innovation ecosystem. A key aim of the project has been to build a shared vision of that concept in partnership with the media as the knowledge intermediary.

As discussed in Chapter 1 of this book the knowledge and innovation ecosystem is "a holistic conceptualization that specifies a set of knowledge institutions and actors and delineates the interconnections among them" (Hertz et al., 2020, p. 2). In public discourse, the KSI has emphasized the importance of both the ecosystem approach and the dynamic interactions between actors in the knowledge ecosystem. The normative goals are an inclusive and evidence-based policymaking process. Studies have increasingly recognized the ecosystem approach as a promising means of achieving that inclusivity and evidence base (Hertz et al., 2020; Haines-Young & Potschin, 2014), both of which are essential for tackling new and pressing problems (or "grand challenges"), such as the COVID-19 pandemic.

Thoughtful political leaders in Indonesia and their nongovernmental and international development partners have understood for decades that the country's future prosperity depends on building effective systems of knowledge production, research, and innovation (Datta et al., 2011). The KSI was designed as a platform that would build understanding and capability to realize a stronger knowledge and innovation ecosystem for Indonesia. The question then became how to announce, popularize, and entrench this new concept among both policymakers and the public in ways that would lead to productive policy action. Part of the challenge was the architectural legacy of previous periods, both in regulation and institutions; these are analyzed in the other chapters in this book. This chapter narrates the process of working toward the "soft institutionalization" of the knowledge and innovation ecosystem as a concept and as a policy reality.

Issues in Soft Institutionalization Processes

Institutions are defined as the rules of the game; people and organizations are the players (North, 1990). In the knowledge and innovation ecosystem in Indonesia, these rules can be crucial to research uptake, for example: the formal rules surrounding *Law No. 11/2019* concerning the National System of

Science and Technology; government regulations on research funding and governance; and informal rules such as actors' values, beliefs, and interests or any processes that shape knowledge-to-policy interactions.

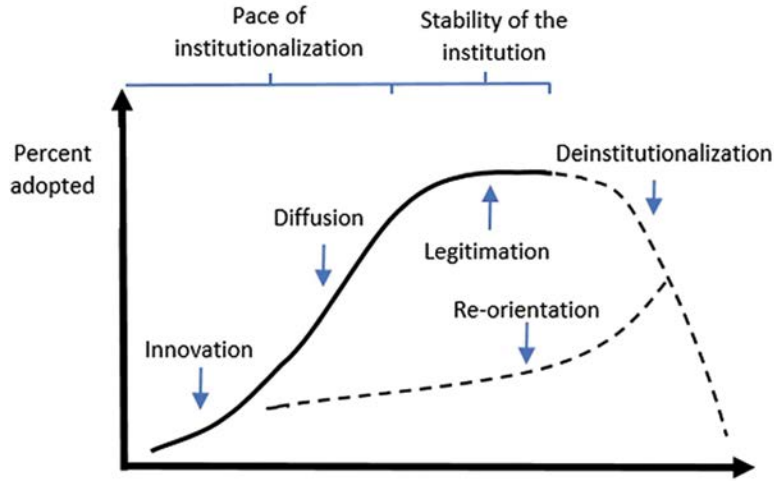
An institution becomes stable and durable over time as actors repeat actions and give them shared meanings (Berger & Luckmann, 1966; Scott, 2014). Once new ways of thinking and acting become taken-for-granted habits, the process of institutionalization is complete and can be maintained (Berger & Luckmann, 1966, p. 71). Existing models of soft institutionalization—where an idea becomes an institution through public discourse and policy advocacy—map the process as a curve extending out over time. Lawrence et al. (2001) provides a leading example of a curve model of soft institutionalization, showing a typical pattern of events and relations in institutionalization processes. Figure 12 shows the initial phase of innovation involving few actors, the phase of rapid diffusion, the phase of saturation and complete legitimation, and the phase of deinstitutionalization.

In this model, the first phase in the process is innovation. For public discourse, innovation focuses on agenda setting, which includes the identification of "policy windows" to democratize the policy process by providing citizens with a tool to place issues on the public agenda (Bua, 2012). A policy window is the moment of opportunity for advocates to push their policy solutions (Kingdon, 1984). The agency of policy advocates and the media is important to help certain policy problems gain more attention than others within formal politics (Kingdon, 1984), a process McCombs and Shaw (1972) call "agenda setting."

The second phase of soft institutionalization in Lawrence et al.'s model is the diffusion process. Scholars suggest that diffusion processes are related to learning and emulation (Braun & Gilardi, 2006; Simmons et al., 2006; Shipan & Volden, 2008). Political actors tend to adopt ideas and concepts to support their policy agenda, which can be interpreted as learning (Gilardi, 2010; Volden, 2006). Positive perception of a new idea or concept can shape frames, causing these frames to either increase or decrease in importance.

The third phase is legitimation. Finnemore and Sikkink (1998) advanced the argument that when an idea or frame becomes common and widely accepted, it becomes internalized by political actors. When that happens, this idea becomes progressively taken for granted, until it is "no longer a matter of broad public debate" (Finnemore & Sikkink, 1998, p. 895). As more media and prominent public figures adopt ideas, the frame should fade from view and be invoked less frequently.

Figure 12. Traditional institutionalization curve



Source: Adapted from Lawrence et al. (2001).

The fourth phase is deinstitutionalization: the process by which institutions weaken and disappear (Scott, 2008, p. 1, 982). Oliver (1992) notes that institutional practices can cease to have value or utility for either their custodians or practitioners as a result of political, functional, or social pressures. Deinstitutionalization helps us analyze whether certain ideas survive and persist over time through re-creation and reorientation; it alerts us to the need to continuously re-create narrative and reinvent communication strategies to maintain the relevance of ideas through changing contexts.

This chapter proposes that soft institutionalization is better imagined as a cycle than as a linear journey through these four stages. A novel concept such as the knowledge and innovation ecosystem will not immediately become a stable institution: it will pass through the same stages of soft institutionalization several times as its acceptance ebbs and flows. We explore that conceptualization through the case study in the sections that follow.

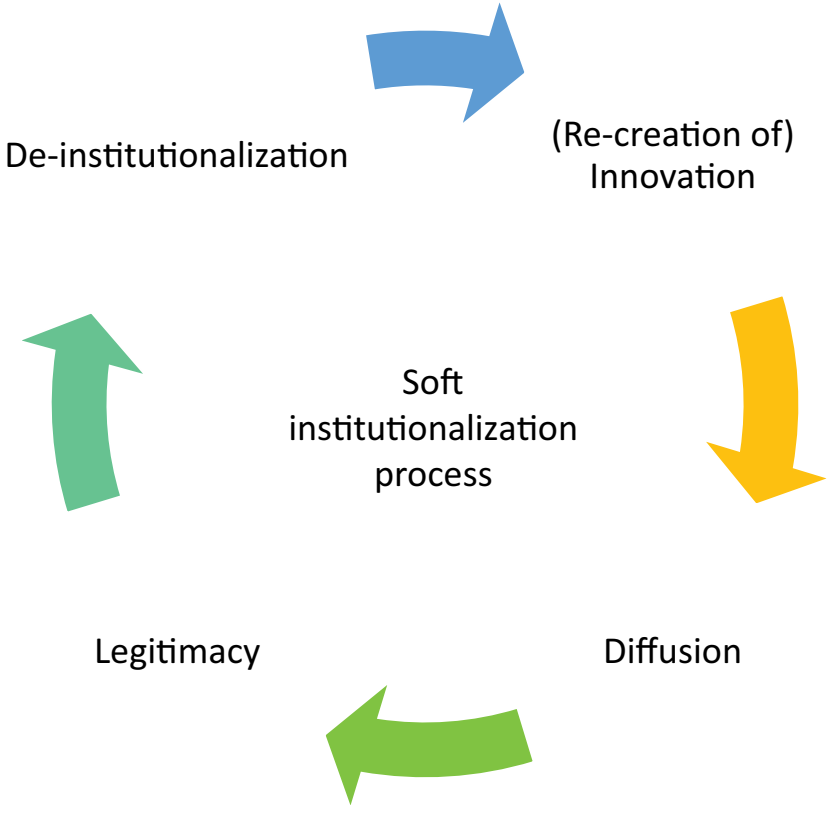
We argue that to prevent a new idea from dissipating entirely as it loses currency, soft institutionalization could be better thought of as involving a fifth phase—of *re-creating* the idea. The re-creation of ideas then becomes part of the innovation phase, creating a cyclical process of institutionalization that is repeatable, stable, and enduring—until the ideas either fully dissipate

or are replaced with other ideas. As the ideas evolve over time and imply continuity, the institutionalization process helps to maintain the stability of the ideas themselves. The KSI's efforts to support partners in promoting the institutionalization of the idea of a knowledge and innovation ecosystem in Indonesia are examined through the proposed five-stage cycle (Figure 13), which builds on Lawrence et al.'s (2001) model shown in Figure 12.

Case Study Methodology

To apply and test our enhanced model, we collected social media and mainstream media content dating from the first quarter of 2019—when the KSI in partnership with knowledge intermediaries began implementing the communications strategy. For social media content, we mapped interactions

Figure 13. The cycle of soft institutionalization



between different social media users discussing a knowledge and innovation ecosystem. Social media data from Twitter during the period of Q1 2020 to Q2 2021 were gathered using a social listening method based on Python, and with data support from Meltwater. We successfully captured 5,312 unique postings from Twitter conversations related to the topic "knowledge and innovation ecosystem" in Indonesia, which gave us an opportunity to look beyond the numbers to consider how the concept is used by the public.

For mainstream media content, we focused only on formal news coverage from influential and reliable news agencies—whether at the national, regional, or municipal level—as a representation of public discourse in the media. In both of these categories, we traced the presence and prevalence of certain keywords, themes, or concepts that align with the idea of a knowledge and innovation ecosystem. We excluded informal news, such as news blogging, as noise.

As shown in Table 1, we used social network analysis (SNA) to assess the growth of public discourse regarding the knowledge and innovation ecosystem among the Indonesian public. Quiedeville et al.'s (2017) approach to SNA was the basis of our actor-to-actor SNA. The network structures in the data set were clustered and characterized using nodes (actors, people,

Table 1. Screening and identification method of social network analysis (SNA)

SNA stages	Description
Data mining	Using social media data from Twitter, the data mining process will gather social conversation data related to the KSI's "knowledge" and "innovation" keywords. The data itself will consist of panel data conversation from Q1 2020 to Q2 2021.
Data cleaning	Data cleaning is an integral part of minimizing the noise from raw social conversation data that have been previously mined. This part will involve three main processes: De-noise data from irrelevant conversations using both text analysis and regular expression method. De-duplicate data to ensure that each of the conversations is unique and straightforward for analytical process. Generate conversation context data for networks analysis, such as tagging label for reply, retweet, or quotation.
Generalization of SNA sample to population	As the data are not a representative sample. Population data were analyzed from Twitter.
SNA calculation	Calculation of SNA integral components • Nodes Centrality and Betweenness • Nodes Clustering Parameters • Nodes Degrees

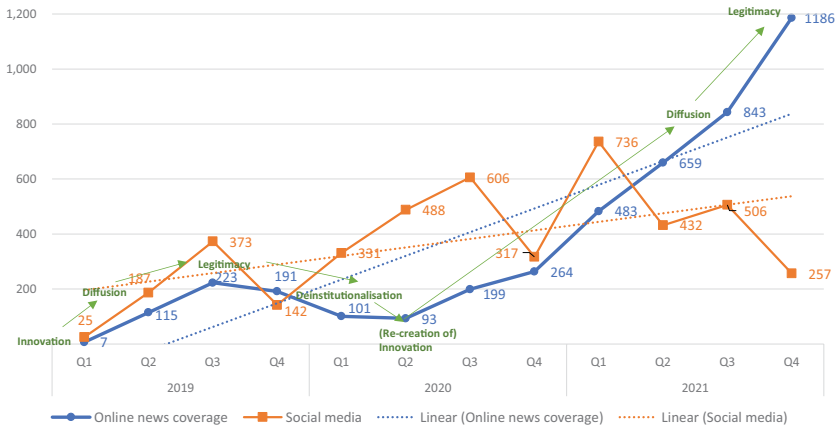
etc.), and connected with one another by means of edges or links (relationship or interaction).

Summary of Findings

The institutionalization process observed in our case study followed the typical pattern of stages of institutionalization. Across the period analyzed (January 2019 (Q1 2019)–March 2021 (Q1 2021)), the pattern was repeatedly evident—innovation (initiation of ideas), diffusion, legitimation, and deinstitutionalization. Lawrence et al. (2001) admit that deinstitutionalization can occur in short periods, in a process of dominant stability interrupted by occasional volatility.

Public discourse activity initially showed use of the concept of the knowledge and innovation ecosystem (Q1 2019), beginning in the first cycle. News coverage of the topic declined in Q4 2019, but there was a further series of public discourse activity—and thus a further cycle—in 2020. There was another decline in interest in Q4 2020, before a third cycle of the institutionalization process began in early 2021. We attribute the declines to changes in the political landscape, which affected media attention. Cycles of institutionalization began when communication strategies were adapted, providing narratives that were appealing to policymakers and agenda setters within the media. That institutionalization process is depicted in Figure 14.

Figure 14. The institutionalization of knowledge and innovation ecosystem discourse between 2019 and 2021



The cycle of soft institutionalization (as seen in public discourse) shown in Figure 14 involves five stages, in which re-creation is part of the innovation phase of the soft institutionalization process. The phase labels are assigned here based on the number of mentions resulting from the news coverage generated from KSI partner supported media advocacy. It seems that a higher degree of institutionalization—in other words, an increase in keyword mentions—occurred when a re-creation or reorientation of communication strategy took place, to ensure that the narrative surrounding the knowledge and innovation ecosystem stayed relevant amid the changing political landscape and media agenda. We analyze each of the stages and interventions in more detail in the following sections.

Phase 1: Innovation

Innovation is the initial stage of the institutionalization process. It provides the "imprint" that establishes the parameters that will shape further stages of the process (Stinchcombe, 1965). The KSI supported partners to implement five strategies—setting the agenda, articulating aggregate interests, influencing the discourse in the media, developing a shared definition, and influencing policy direction—in program communication and media engagement regarding the knowledge and innovation ecosystem.

Setting the Agenda and Determining the Issue

The KSI began partnerships with knowledge intermediaries as part of a broader communication strategy in 2019, aiming to raise awareness of the key challenges in Indonesia's knowledge sector and to build support for addressing them. It promoted more evidence-informed public debate on policy issues. The strategy focused on three pillars of public interest: research governance, the research agenda, and research funding. This communication strategy corresponded with the political "stream," connecting to large-scale political trends in research funding. In 2018, President Joko Widodo drew attention to the problem of funding being scattered across all ministries and agencies. He argued that such scattered funds might not have tangible, impactful results, even though the total budget of US$1.74 million was impressive (Kusuma, 2018).

In response to the president's statement, Kompas published an op-ed, "Building the Research and Innovation Ecosystem in Indonesia" (Toisuta, 2019). This piece was the first to use the idea of an "ecosystem" to discuss the knowledge and innovation sector; it represented an effort to set the media agenda.

The issue of research funding gained further currency in February 2019, after the former chief executive officer (CEO) of online marketplace Bukalapak (Achmad Zaky) issued a statement that went viral, decrying the lack of R&D funding in Indonesia. He tweeted that the "new president" must pay attention to research funding, since Indonesia ranked only 43rd in the world. As 2019 was a presidential election year, his use of "new president" sparked controversy, indicating that Zaky leaned toward the contending candidate. Thus, research funding became a salient political issue.

Seizing the opportunity, a key opinion leader in the knowledge system produced an editorial piece in the print media, followed by a Twitter thread. The issue then snowballed, and terms such as *research, R&D, and knowledge ecosystem* have since become prominent in the public sphere.

Articulating the Aggregate Interests

As raising awareness of the importance of high-quality knowledge and innovation requires collective action, the KSI encouraged a broad array of knowledge sector champions to participate in public discourse. The KSI engaged key opinion leaders, strategic partners such as ALMI (*Akademi Ilmuwan Muda Indonesia*, or The Indonesian Academy of Young Scientists), AIPI (*Akademi Ilmu Pengetahuan Indonesia*, or The Indonesian Academy of Sciences), DIPI (*Dana Ilmu Pengetahuan Indonesia*, or The Indonesian Science Fund), and prominent policymakers to participate in three channels: print media, knowledge exchange, and digital media. The KSI encouraged key opinion leaders and policymakers to be proactive in writing op-eds in print and digital media and convey messages in knowledge exchange settings (e.g., online seminars) on issues that spoke directly to their interests. This process resulted in diverse narratives on the importance of the knowledge ecosystem. Although the individuals' interests were heterogeneous, the contents of their narratives often interlinked with and cross-referenced each other.

> The most urgent need at this time is for a series of reforms both on the creation and demand side of knowledge, as explained by Yanuar Nugroho. (Abdini, 2019).

Such links helped to generate interest and public awareness of the issues.

The KSI also encouraged influential actors in the knowledge system to share their views and opinions on the knowledge and innovation system reform agenda. The KSI convened a diverse group of important voices in the knowledge system through forums such as KSIxChange (Knowledge Exchange series of events managed by the KSI) and webinars held by KSI

media partners involving prominent policymakers. This process helped to aggregate the expression of views by these actors and to advance the proof of concept on the importance of a knowledge and innovation ecosystem at the innovation phase.

Convening and Influencing the Discourse in the Media

Since March 2019, *Katadata* and Tempo Institute continued to roll out concepts such as the knowledge-based economy and research ecosystem. To keep these relevant for the national media, think tanks conducted virtual media visits and knowledge-sharing sessions with *Tempo Magazine* and *Harian Kompas* in June and July 2020. These discussions generated coverage from both media outlets. *Kompas* published an article summarizing the virtual media visit, and several opinion articles written by key opinion leaders on the importance of the knowledge and innovation ecosystem. These key opinion leaders already had many social media followers, and these articles helped to build discourse online as well.

Tempo Magazine published an 18-page special report on August 10, 2020, on innovation and technology as an essential part of the knowledge and innovation ecosystem. The report covered rich story angles including agriculture, the COVID-19 vaccine discovery journey, the research ecosystem and its challenges, and future innovation in Indonesia. In addition, key opinion leaders wrote an article for the report, "The Urgency of Knowledge and Innovation Ecosystem," focusing on the importance of the ecosystem approach to the Indonesian knowledge system (Nugroho, 2020).

Tempo quoted some parts of a concept note provided by knowledge system partners and highlighted the regulation that will be the basis for Indonesia's knowledge ecosystem development, known as Science and Technology Law (discussed further in Chapter 6). *Tempo* also stressed the importance of organizational structure and governance in the National Research and Innovation Agency (*Badan Riset dan Inovasi Nasional*, or BRIN), so that integration of research bodies could be done swiftly. Tempo interviewed key spokespeople from relevant organizations involved and the Ministry of Research and Technology (Tempo, 2020).

The KSI cooperated with the Indonesian Independent Journalists' Alliance/*Aliansi Jurnalis Independen* (AJI) on an online joint workshop involving 22 journalists held in July 2020 with the goal of creating a better understanding of the knowledge and research ecosystem. With the combination of engaging knowledge intermediaries through the media on

public discourse and covering emerging issues alongside solutions proposed by knowledge producers, interactions between actors in the knowledge system began to coalesce.

Developing Shared Definitions

The COVID-19 pandemic has been a wake-up call, showing that Indonesia needs knowledge and innovation to enrich policy and to serve as the basis for public policymaking. The KSI supported partners in developing shared definitions for improving the knowledge and innovation ecosystem, addressing various sectoral issues that have been negatively affected by COVID-19: poverty, GEDSI (gender equality, disability, and social inclusion), research and development funding, research governance, international cooperation, and state capacity. From January 2020 to June 2021, there have been 34 public discussions in the form of media events and KSIxChange events, held by the KSI in collaboration with the media and think tanks.

In June 2020, the KSI and *Katadata* held a policy discussion on "COVID-19 Prevention Based on Knowledge and Innovation." Speaking at the event, former Minister of Research and Technology/Head of BRIN Bambang Brodjonegoro stated, "We have tried to apply the triple helix in the Research and Innovation Consortium on COVID-19 to connect the research world with industry and government" (Fajardin, 2020). The triple helix concept acknowledges the dynamic interactions between academia (the university), industry, and government, which is in line with the multi-actor engagements advocated by the KSI to foster the Indonesian knowledge and innovation ecosystem. The Minister of State Apparatus and Bureaucracy Reform, Tjahjo Kumolo, has also emphasized the critical importance of knowledge and innovation in bureaucracy.

In March 2021, the KSI collaborated with *Kompas Talks* on an event addressing the broader issue of "Improving the Knowledge and Innovation Ecosystem for a Better Indonesia." The Minister of National Development Planning/Head of Bappenas, Suharso Monoarfa, explained the "Indonesia 2045" vision, which sets out how Indonesia might become a developed, high-income country, emphasizing that knowledge is no longer just a sector but a foundation on which to build toward the Vision of Indonesia 2045.

At the same event, Minister Tjahjo Kumolo explained that in the knowledge and innovation ecosystem, there are four essential elements: knowledge users, intermediaries, producers, and enablers. "Currently, ASNs [Aparatur Sipil Negara, or state civil servants] are playing their roles within

all of these elements. ASNs use knowledge, particularly as a basis to develop policies and make decisions" (Prasetia, 2021). The minister added that improving the governance of science in Indonesia is expected to contribute to supporting government administration, especially in bureaucratic reform, since public policy should become the means to achieve good governance.

In March 2021, the KSI was involved in the Katadata Forum Virtual Series on "Urgency of Digital Transformation within the Government to Respond to the Pandemic and National Development." At this event, the KSI provided a platform for the regional government to advance the knowledge and innovation ecosystem, considering how the government's business process could be improved through digital transformation. The Governor of Jakarta, Anies Baswedan, elaborated on how data could form the basis of pandemic-handling health and social policies, including social aid distribution and support for small businesses. Meanwhile, the Central Java Provincial Government, led by Ganjar Pranowo, has ushered in a digital transformation with the goal of making the bureaucracy more accessible to the public.

Governments are rapidly being forced into a digital future, so there are major opportunities to advance the knowledge and innovation ecosystem with technology, collaboration, and co-creation. Each of the stakeholders at the Katadata Forum, including notably the COVID-19 Taskforce Spokesperson, Wiku Adisasmito, and the Deputy Minister for Institutional Affairs and Governance of the Ministry of Administrative and Bureaucratic Reform, Rini Widyanti, agreed that digital transformation of government must be accelerated.

Over time, several key stakeholders and newly engaged stakeholders have become better able to grasp the core ideas of the knowledge and innovation ecosystem. This indicates that shared definitions have developed and that there is a shared recognition of the importance of knowledge as a basis for decision-making and of the need for multi-actor governance within the ecosystem.

Influencing Policy Directions

In the third round of the presidential election debates on March 17, 2019, the media included questions on the knowledge and innovation sector. Responding to one such question, vice presidential candidate Ma'ruf Amin said that he would form a National Research Agency to develop research and to coordinate research funds that were scattered across ministries and institutions. The statement showcased the candidate's public commitments

regarding the issue of the research ecosystem. After winning the election, Joko Widodo and Ma'ruf Amin established BRIN in October 2019.

To promote discursive commitment with policymakers, the KSI supported public discussions in collaboration with the media and other partners. During the policy discussion on "Mitigation of COVID-19 through Knowledge and Innovation" in June 2020, former minister Bambang Brodjonegoro laid out his commitment to continue encouraging the private sector to be directly involved in research and innovation:

> We hope that the research and innovation ecosystem can continue to run well after the pandemic is over. The Indonesian government will continue to encourage the private sector to be directly involved in research and development (R&D) to produce more innovations suited to the needs of the society. The way to do this is by providing tax incentives to companies that conduct research and development to produce innovation. (Winahyu, 2020)

On the same occasion, Minister Tjahjo Kumolo highlighted that government agencies may play a crucial role providing leadership in the knowledge and innovation ecosystem. This leadership can be seen, for instance, in the policy of including indicators of innovation as part of work assessment, both organizationally and individually. The minister insisted that every work unit in a government agency, no matter how small, must be able to innovate.

> Innovations pursued by the State Civil Apparatus (ASN) are aimed to create a responsive, adaptive, and IT-based bureaucracy. This is done by producing evidence and data-based public service policies. For this reason, synergy and coordination between government agencies and between R&D institutions of the central and regional governments are needed, in order to transfer data and avoid overlapping data. (Katadata, 2020)

In March 2021, following the preparation of a knowledge and innovation ecosystem blueprint, the KSI and *Kompas* held a policy talk on "Improving the Knowledge and Innovation Ecosystem for a Better Indonesia." During the event, Minister Tjahjo Kumolo highlighted the role of his ministry in ensuring the implementation of the blueprint, stating that "the Ministry of Administrative and Bureaucratic Reform plays a role in ensuring the implementation of the knowledge and innovation blueprint by promoting supportive policies." In addition, Minister Suharso Monoarfa described a strategy for improving the knowledge and innovation ecosystem.

> To improve the knowledge and innovation ecosystem, there are three things that must be done. First, ensuring that priority strategies in the knowledge and innovation ecosystem blueprint are accommodated in the government's work plan. This will be carried out by all relevant government levels and Bappenas as a clearing house will try to guard it. Second, ensuring that the blueprint is integrated into the Medium-Term National Development Program (RPJMN) as well as in the long-term national development plan for 2025–2045. Third, ensuring that the multilateral discussion process runs smoothly and effectively. (Gatra, 2021)

Thus, through several engagements and public events with other key stakeholders, policymakers were able to improve their understanding of the importance of knowledge as a basis for policymaking. Their public statements on their commitment to implementing the core ideas of the knowledge ecosystem demonstrate the importance of public discourse in shaping policy direction.

Phase 2: Diffusion

During the diffusion phase, the public discourse regarding the knowledge and innovation stabilizes. We observed that communication structures were robust, so while the media presented diverse narratives, the core ideas were discussed in coherent terms (e.g., regarding the triple-, penta-, or n-helix[9] relationship of the actors in the knowledge and innovation ecosystem).

The diffusion phase of soft institutionalization is characterized by high media coverage of the new concepts. Here the KSI focused on facilitating and nurturing the role of the media as knowledge intermediary; framing policy problems and proposing recommended solutions, to open the policy window; and encouraging new media partners to share the values and principles associated with the knowledge and innovation ecosystem. Media partners contributed to building the narrative on the importance of the knowledge and innovation ecosystem and in doing so advanced the sustainability of public discourse.

Diffusion requires multiple actors. We used SNA to assess the spread of public discourse on the knowledge and innovation ecosystem, and to examine

[9] The triple-helix model refers to a set of interactions between academia (the university), industry, and government to foster the knowledge and innovation ecosystem, while the penta-helix is based on five stakeholder types: government, business, academia, media, and civil society. N-helix serves as an acknowledgment of broader engagement that may need to be engaged to push key reforms in the knowledge sector (Leydesdorff, 2010).

the agency of the actors involved. Using social media data from Twitter, the data mining process gathered social conversation data related to the keywords *knowledge* and *innovation*. The data itself consists of panel data conversation from Q1 2020 to Q4 2021. The analysis attempts to determine the main actors and the ripples generated by those actors. Figure 15 provides a visualization; by varying the visual representation of actors (referred to as *nodes*, or the dots on the graph) and their relationships (referred to as *edges*, or the lines on the graph), it is possible to perform a qualitative assessment of networks.

The time frame of the first SNA map in Figure 15 is Q1 2020—the period immediately following the implementation of the KSI's communication strategy in 2019, when the knowledge and innovation ecosystem concept was first mentioned. The networks appear to be scattered widely across three groups and show a low degree of collaboration and information sharing.

The group located at the top of the SNA map includes yanuarnugroho[10] and IDDevForum,[11] key knowledge system actors and events, and SMERU Institute,[12] icipg,[13] and CSIS Indonesia,[14] which are notable research institutions. Most of the actors in this group are connected, indicating shared interests. The second group consists of Afutami[15] and her YouTube account FrameSentences. While there is only a low degree of centrality, this group is connected with the first group. However, all the actors in these two groups are collaborators with the KSI which would indicate that at the time, outside the "KSI bubble," the narrative was still relatively unfamiliar.

The third group is more interesting, as it indicates ripples coming from BPPT RI. This high-level institution sparked conversations regarding the knowledge and innovation ecosystem in Q1 2020, with a low betweenness centrality[16] with the other groups of networks. The context explains this

[10] yanuarnugroho is a Twitter account belonging to Yanuar Nugroho. He is one of the KSI's Key Opinion Leaders, is the founder of the CIPG (Center for Innovation Policy and Governance) and has more than 31,000 followers on his Twitter account.

[11] IDDevForum is a Twitter account belonging to the Indonesia Development Forum, an international conference initiated by the KSI which is fully hosted by Bappenas.

[12] SMERUInstitute is a Twitter account belonging to SMERU Institute, a think tank supported by the KSI.

[13] icipg is a Twitter account belonging to the CIPG, one of the KSI's strategic partners.

[14] CSISIndonesia is a Twitter account belonging to Indonesia's Centre for Strategic and International Studies (CSIS), one of the think tanks supported by the KSI.

[15] Afutami is a Twitter account belonging to Andhyta F. Utami. She is one of the KSI's Key Opinion Leaders, is the founder of Think Policy (TP) and has more than 57,600 followers on her Twitter account.

[16] "Betweenness centrality" is a way of detecting the amount of influence a node has over the flow of information in a graph.

Figure 15. Comparison between SNA in Q1 2020 and Q4 2021

activity. In March 2020, the Deputy for Social Sciences and Humanities (IPSK) of the Indonesian Institute of Sciences (LIPI) developed a position paper on Technological Application Readiness (TKT) for social innovations through the use of research in the field of humanities. In preparing this position paper, the KSI facilitated a series of discussions with relevant key stakeholders, including BPPT RI. Although the narrative and discourse generated by BPPT RI may have differed from that of other knowledge system collaborators, BPPT RI may nevertheless have played a role in the soft institutionalization of the knowledge and innovation ecosystem through participation in the construction of a shared vision.

The SNA map for Q4 2021 shows an agglomeration of conversations from Q1 2020 to Q4 2021. Knowledge system main actors were still active, providing snowballing conversational ripples. While in Q1 2020 the narratives were largely limited to KSI networks, in Q2 2021 the conversational ripples resulted in a growing discourse outside those networks. New important actors included TirtoID,[17] 1trenggalek,[18] budimandjatmiko,[19] and pekerjalab.[20] Especially noteworthy are Secretariat Cabinet (setkabgoid, a high-level institution) and President Joko Widodo's account with BPPT RI.

Again, the context explains the activity. In March 2021, President Widodo held the 2021 Agency for the Assessment and Application of Technology (*Badan Pengkajian dan Penerapan Teknologi*, or BPPT) National Work Meeting on strengthening technology innovation ecosystems. The president urged the agency to become a pioneer for national economic recovery through innovation and the use of technology and went on to issue directives intended to support BPPT RI and to strengthen the ecosystem of technology innovation in Indonesia. This activity contributed to a cacophony of discourse, as setkabgoid is responsible for reporting the president's agenda and conveying his messages to the public. The increased momentum in the

[17] TirtoID is a Twitter account belonging to tirto.id, the first Indonesian news outlet that has been accepted as one of 44 verified members of the International Fact-Checking Network (IFCN) Code of Principles. The KSI has no official partnership with tirto.id.

[18] 1trenggalek is a Twitter account belonging to Trenggalek police station. This account has more than 15,000 followers, and the KSI has no relationship with the owner of this account.

[19] budimandjatmiko is a Twitter account belonging to Budiman Sudjatmiko, an Indonesian activist and politician from the Indonesian Democratic Party of Struggle. He has more than 889,000 followers on his Twitter account, and the KSI has no relationship with him.

[20] pekerjalab is a Twitter account belonging to "Lala Surlayala" as written on her Twitter bio and followed by more than 5,000 followers and the KSI has no relationship with the owner of this account.

discourse in Q1 2021 was a demonstration of the agency of key actors in agenda setting. Many new actors, including online media actors and policymakers, created ripples of interest, and the narratives regarding the knowledge and innovation ecosystem grew increasingly diverse.

Phase 3: Legitimation

Institutionalization can be a gradual process. Knowledge may or may not be linked to action and the values and perspectives of the various actors, and the relevance of information to decision-making may or may not be important (Cash et al., 2003). Since 2019, the language associated with knowledge and innovation ecosystems adapted to match the emerging policy problem, to attract the attention of policymakers (the political stream), and to open the policy window. These adjustments helped to preserve the concepts' relevance, evidenced by the persistent increase in news coverage, efficiencies gained in network processes with the media, and increased social media reach.

As legitimacy is built over time through the accumulation of knowledge, it is possible to build legitimacy by intervening in the public discourse to "broaden the policy horizon." In this case, this meant introducing the ecosystem approach to the policy agenda. Development partners working on public discourse therefore make efforts to foster dialogue between actors, including horizontal dialogue among policymakers (Carden, 2009). Encouraging the adoption of ecosystem concepts involved engaging influential figures in the ministries, who could then act through the media to establish the ecosystem approach as a salient issue. As awareness of the approach increased, stakeholders adapted their strategies, aiming to establish the knowledge and innovation ecosystem itself.

> Good governance requires an ecosystem where its components can collaborate. Establishment of the ecosystem is necessary. As one of the components, Bappenas will encourage other ministries to play [their] role in the ecosystem. We need to develop a system and business model for its implementation. (Respondent, 2020 perception audit)

Shared interests and conceptions of the knowledge and innovation ecosystem facilitated conversations on change. Most stakeholders in the KSI's 2020 perception audit[21] stated that the KSI had increased their

[21] The KSI conducted a perception audit as an independent evaluation into stakeholders' impressions of the KSI program that is useful to benchmark the progress on the understanding of stakeholders about the program over time, identify ways to improve relationships through program communication, and pinpoint any misperceptions in stakeholders' views.

awareness of the potential of the knowledge and innovation ecosystem, and the KSI facilitated collaboration between these stakeholders (e.g., user-to-producer and vice versa).

The Ministry of Administrative and Bureaucratic Reform (Ministry of Administrative and Bureaucratic Reform, or KemenPANRB) stated that evidence-based policymaking was important in good governance, and Minister Tjahjo Kumolo was seen as amplifying the importance of knowledge in various forums and in his media engagements:

> Previously, the Minister has had a very limited interest in the knowledge sector. After his involvement in KSI's webinar as one of the speakers, everywhere he goes, he always says that the knowledge sector is a very important aspect of governance reform. (Respondent, 2020 perception audit)

Media partners also adopted the ecosystem approach when discussing research, innovation, and issues in the knowledge sector, and over time the term came to be routinely used. By this point, the concepts had a well-established niche within the broader institutional system. The language was increasingly used in discussing multi-actor, multidisciplinary, and inclusiveness issues in the knowledge sector, with an emphasis on ensuring the ecosystem approach could become acceptable as a public norm.

Common patterns emerged in the data obtained through social listening via social media (Twitter). As Figure 16 shows, the keywords associated with "knowledge and innovation ecosystem" were usually found together with

Figure 16. Keywords associated with "knowledge and innovation ecosystem" on Twitter (left) and translation (right)

terms concerning technology, research, development planning, governance, and human resources in science.

This progress also indicated how the approach might be further institutionalized—that is, how it might be fully accepted and used by most of the relevant networks. In soft institutionalization, the increasing legitimacy of a concept changes the attitudes of actors (government, academia, business, civil society/informed public, and media) involved in the knowledge system. The salience and relevance of a concept are linked to its legitimacy, as the actors involved—including the media, key opinion leaders, and social media influencers—come to see the idea of the "knowledge and innovation ecosystem" being in their own interests and so help increase its salience via media and social media. Those actors also see multi-actor engagement to foster a knowledge and innovation ecosystem as legitimate and believe it should be promoted and advocated as a shared reform agenda.

Phase 4: Stability, Deinstitutionalization, Decline

KSI support to partner public discourse activities and communication strategies achieved a degree of stability for the ecosystem approach during the legitimation phase. However, during some periods the ecosystem approach attracted less interest. The discourse was at a minimum in October 2019, due to the second-term inauguration of President Widodo dominating the conversation. The data also indicate decreased discourse in Q4 2019, probably due to the media's focus on the president's newly established cabinet, although discussion of the ecosystem approach did persist to a degree. Interest in the approach also declined when the COVID-19 pandemic hit Indonesia in Q1 2020.

The data from Q2–Q3 2020 show that during this period the media took a sustained interest in the knowledge and innovation ecosystem approach. The idea of knowledge users, intermediaries, and producers (and their relationships) became part of the media agenda. It was in August 2020 that *Tempo* magazine issued its special report on the research ecosystem, discussed earlier.

The deinstitutionalization phase shows that the institutionalization process may go through periods of erosion; there may be discontinuities of institutionalized organizational activities or practices (Oliver, 1992). Institutionalization is susceptible to dissipation as concepts are replaced or

rejected, and it may be necessary to develop strategies to reorient and re-create the original concepts to prevent this.

Phase 5: Reorientation and Re-creation as Part of the Innovation Loop

Reorientation involves knowledge system actors—especially media partners—making rapid, strategic, and sporadic changes to sustain the use of the concept. These changes affect key opinion leaders, communication patterns, decision processes, and shared definitions: for example, the sectoral focus of the relevant concept or words may change, and the scope of issues or problems may increase. Re-creation entails changing the narrative to fit with a changing context. Reorientations or re-creations may mean that the narrative is reconfigured to become more newsworthy, and thus receive greater public attention.

Although reorientations can occur at any point, this case study focuses on their occurrence in the final phase of the soft institutionalization cycle. Reorientations at that stage emphasize the convergence process, where periods of stability are punctuated by rapid reorientations or re-creations (Tushman & Romanelli, 1985). Without these, support for the concept—in this case for the knowledge and innovation ecosystem—may decline, alongside a drop in news coverage. Reorientation and re-creation thus provide valuable opportunities to innovate, adapt, and sustain a cycle of soft institutionalization by deploying resources in more productive ways.

Rose et al. (2020) describe four ways actors can respond to policy windows, especially to increase the likelihood of knowledge uptake: (1) to foresee (and create) emergent windows, (2) to respond quickly to emerging windows, (3) to frame research in line with appropriate windows, and (4) to persevere in the face of closed windows. This section identifies lessons learned from the Indonesian case study regarding how ideas can be instilled and how a shared vision can be constructed.

In the planning and implementation of public discourse activities, the KSI and its partners performed horizon scanning to identify issues that might help to set the agenda for the media as well as for policymakers. This foresight provided the opportunity to build on the momentum of Indonesia's 2019 presidential election debate: discursive commitments to the research ecosystem, especially on the funding issue, were made by the winning candidates. Subsequently, various prominent actors (such as the Minister of Finance) engaged with the discourse on research funding, and it became a

salient issue. The government was therefore pushed to improve research governance and funding.

Through engaging with governmental and other external organizations, KSI partners were better able to foresee upcoming policy windows for bridging science and policy. The KSI supported partners' efforts to contribute to the policy stream by preparing policy briefs developed by relevant experts. This policy preparedness enabled KSI partners to engage high-level officials, who then made political statements regarding the issues in question. These political statements have contributed to the shifting of the political stream—policymakers have accepted the "gravity of the problem" (Kingdon, 1984) and thus helped to open the policy window.

However, there are times when policy windows open unpredictably. Through its capacity to respond to emerging issues quickly, KSI partners have been able to help the knowledge and innovation discourse stay relevant. KSI partners used the momentum of the former CEO of Bukalapak's viral statement to jump-start the research funding discourse, thus making the remark an important milestone on the knowledge and innovation ecosystem's discourse journey.

One of the major windows opened when the COVID-19 pandemic occurred—the pandemic highlighted the importance of research and innovation. The KSI showcased its responsiveness by encouraging partners to develop shared definitions for improving the knowledge and innovation ecosystem, addressing various sectoral issues affected by COVID-19. Maximizing the online platform, the KSI provided structures for knowledge exchange between think-tanks s, the government, and relevant stakeholders to lower barriers to the uptake of scientific knowledge. The events contributed to the building of the knowledge and innovation public discourse amid the pandemic.

Conclusions

This chapter has investigated the effectiveness of the KSI's support to partner efforts to promote and entrench the idea of a knowledge and innovation ecosystem as an institution—a way of thinking about knowledge and innovation that knowledge and policy actors widely follow. The findings suggest that the concept's proponents facilitated its institutionalization in a five-stage cycle of (1) innovation, (2) diffusion, (3) legitimation, (4) deinstitutionalization and (5) re-creation of ideas/innovation.

By thinking about soft institutionalization of the knowledge and innovation ecosystem as a cycle, we can see how innovation and its re-creation helps increase the importance of ideas or concepts through a repeatable, stable, and enduring cycle by (1) setting the media agenda, and determining which issues are relevant in promoting the importance of the knowledge and innovation ecosystem; (2) articulating the aggregate interests of key opinion leaders and prominent policymakers; (3) framing the emerging issues and matching them with proposed solutions (policy recommendations); (4) developing shared definitions regarding the knowledge and innovation ecosystem; and (5) influencing the policy directions of prominent policymakers, and encouraging them to showcase their public commitment to the knowledge and innovation ecosystem.

Findings from our network analysis suggest that to prevent a new idea from dissipating entirely as it loses currency, a soft institutionalization approach should consider strategies for re-creating the idea so that it is continuously relevant to changing contexts. In the KSI case study here, soft institutionalization provided a forum for negotiation and learning, in which actors could slowly adopt knowledge and innovation ecosystem thinking. When that thinking reached the mainstream of public discourse through the media, it was possible to build a shared vision for change.

The process of instilling ideas and of building a shared vision of the knowledge and innovation ecosystem in Indonesia requires perseverance. KSI partners persevered in a closed-window situation to work incrementally to influence relatively small changes to the policy process. Hence, the knowledge and innovation ecosystem has remained under discussion, despite the many other issues competing for attention. Over time, through the soft institutionalization process, the agenda has been subtly influenced. This chapter suggests that one sign of this influence is the growing amount of independent coverage of the knowledge sector featuring research and innovation ecosystem thinking.

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CHAPTER 5

Bringing Think Tanks Closer to Policymakers for Evidence-Informed Policymaking

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Introduction

As global natural resources become increasingly scarce, populations age, and socioeconomic inequality grows, governments need to develop public policies that are effective, efficient, and inclusive to meet the social and economic needs of communities. To inform these policies, governments require timely access to empirical data and analysis from a variety of sources that can inform and justify their policy decisions (Pautz, 2011; Traub-Merz, 2011). Think tanks can play a significant role in producing evidence, which contributes to the knowledge available for decision makers to inform policy design and implementation. Through research and analysis, think tanks can identify core policy problems and provide evidence-based policy ideas, or policy options, and assist with problem framing and the promotion of policy solutions (Pautz, 2011).

Think tanks in this chapter are conceptualized based on McGann's definition of think tanks as "public policy research, analysis, and engagement institutions that generate policy-oriented research, analysis, and advice on domestic and international issues that enable policymakers and the public to make informed decisions about public policy issues" (McGann, 2016, p. 10). The scale and number of think tanks have increased internationally with the spread of democratization and globalization (McGann, 2011; Taub-Merz, 2011), which has given them space to participate in public policy processes. Nevertheless, challenges remain in connecting the research produced by think tanks with the evidence needs of policymakers (Hertz et al., 2020).

A body of research has examined the challenges and opportunities for think tanks in influencing public policies. Innvaer et al. (2002), for example, analyzed the use of evidence in policy decisions from the perspective of policymakers and found that barriers to their use of evidence include an absence of personal contact between researchers and policymakers, lack of timeliness or relevance of research, mutual mistrust between policymakers and think tanks, and power and budget struggles among policymakers. More recent studies of other policy sectors found that timely access to good quality and relevant research evidence, collaborations between think tanks and policymakers (including relationship building), and skills improvement of policymakers in understanding research methods were the most important factors in increasing the use of evidence (Oliver et al., 2014). These dynamics require further investigation in Indonesia, where research on the use of evidence by policymakers is still developing (e.g., Datta et al., 2018; Pellini et al., 2018; Think Tank Initiative 2018 Policy Community Survey on Indonesia, 2019), and where policymakers need to know where to turn for rigorous, reliable, and accessible information and analysis (McGann, 2011) that aligns with the policymaking process and links think tanks with other actors who can strengthen and draw on evidence to influence policymakers (Abelson, 2019; Oliver et al., 2014).

This chapter explores the approaches used by think tanks in Indonesia to produce research that can influence policy decisions. It focuses on the dynamics of interaction between think tanks and other policy actors in ensuring the uptake and use of this research. It will look at the nature of relationships between the actors and the institutional and political factors that might constrain or enhance evidence-based policymaking. It shows the importance of strengthening think tanks' networks with stakeholders involved in policymaking processes and the need to take a flexible approach and use the momentum of policy opportunities. It also discusses the types of research products created by think tanks in ways that fill data gaps and fit with policymakers' needs.

The discussion in this chapter draws from the experience of Indonesian think tanks and the eight years of the Australia-Indonesia Partnership for Pro-Poor Policy: The Knowledge Sector Initiative (KSI) program. The KSI supports Indonesian policymakers in developing more effective development policies through better use of research, data, and analysis. The KSI works with research providers and government agencies to strengthen the quality and policy relevance of research and how it is used for policymaking. The KSI

also works to improve regulations and practices that support quality research and make using evidence in policymaking easier. The KSI supported think tanks to develop pathways for the findings from their research and analysis to reach policymakers and influence their decisions.[22] The four case studies presented in this chapter trace Indonesian think tanks' journeys in influencing targeted policies and highlight the ways think tanks design policy research strategically and use this for policy advocacy, as well as how they build policy networks and relationships with policymakers.

Context

The Indonesian Knowledge Sector and Its Reformers

Indonesia is the world's fourth most populous nation, with the 10th largest economy, so well-informed government policy is critical for addressing its complex development challenges. While there is increasing recognition of the need for integrated policy solutions in Indonesia, this is hampered by a lack of power to convene and build collaboration with multiple actors, the prospect of disadvantages that might flow to actors from reforms, and lack of time as well as capacity (Campbell & Pedersen, 2015; Datta et al., 2011). This has bolstered interest in maintaining the policy status quo, in the form of dominance by central-level civil servants in formal policymaking processes, continuity of institutional norms, and a concentration of power in the hands of individuals over teams or systems (Datta et al., 2018; discussed also in Chapter 2 of this book).

There are therefore barriers for think tanks that seek to optimize their interactions with other knowledge sector actors to conduct research and share it with policymakers. They are constrained by ineffective systems such as complex and unpredictable policymaking processes (Datta et al., 2018), a lack

[22] In its first phase, the KSI's support for think tanks focused on different areas of organizational capacity—strategic planning, research management, human resources, research skills, and data management. As a result of the KSI's support, all 16 institutes have made improvements to their organizational management and their capacity to communicate research and engage with policymakers.
In its second phase, the KSI's support was targeted to assist the think tanks in utilizing their core functions to address or influence specific policy issues. These core functions included improving their quality of research, building networks, and engaging in and influencing policy at the national and subnational level. Technical assistance and flexible but targeted grants were provided to fund and conduct high-quality and inclusive policy research, effectively engage their stakeholders and networks, and strategically advocate their analysis to influence policies.

of data available as a basis for research, and the fact that research is overregulated (Karetji, 2010). Think tanks are also challenged by limited public awareness of and demand for evidence-informed policymaking, and by limited funds for producing quality research and incorporating its findings into policymaking processes. Policy research and analysis continue to be considered low quality, with insufficient attention paid to issues of gender and social inclusion (KSI Phase 2, 2017). Meanwhile, the issues identified by Karetji (2010)—lack of incentives for greater use of research in policy decision-making, including limited budget for policymakers to collaborate with knowledge producers, and frustration that relevant knowledge and research products are not communicated to policymakers in ways that facilitate uptake into policy—continue to be challenges (see Chapter 3 of this book).

As discussed in Chapter 1, a knowledge sector is a "holistic conceptualization that specifies, for a given country, a set of knowledge institutions and actors and delineates the interconnections among them" (Hertz et al., 2020, p. 2). Drawing on the KSI's model of the knowledge system in the policymaking process in Figure 1 in Chapter 1, Indonesia's knowledge sector consists of many policy actors grouped into four types of roles. They are: (1) knowledge users or policymakers who demand and use the evidence; (2) knowledge intermediaries, such as policy analysts, civil society, the private sector, and the media, who generate debates about evidence around policy issues; (3) knowledge enablers, including regulatory authorities and public and private entities that fund and regulate the generation of evidence; and (4) knowledge producers, who supply the evidence (Hertz et al., 2020).

Think tanks that supply evidence for policy need to interact with others in the knowledge sector to ensure that their research, analysis, and engagement are progressing toward influencing policy. They need to interact with the knowledge enablers to obtain funding and comply with the regulations to conduct their research. Collaboration among research producers (a kind of "epistemic community") (Miller & Fox, 2001; Streltzov et al., 2017) provides peer review value, helps fill knowledge gaps, and provides enrichment through actors across disciplines, relevant to addressing complex policy issues. Interactions with knowledge intermediaries help align the think tank's findings with social and economic as well as political public issues while expanding the discourse potential for their recommendations. Throughout the research process, engagement with policymakers is necessary to ensure uptake and use of their research.

Think tanks have been key players in providing knowledge to inform the policymaking process in Indonesia. As policy actors, think tanks contribute to and influence policy in their respective sectors of interest. They do this when they are able to connect to policy actors and have knowledge that can be used for the policy issue at hand. Several think tanks have also engaged in addressing underlying issues that hamper Indonesia's knowledge sector. Those think tanks have contributed evidence toward policies that (1) encourage Indonesian universities to incorporate gender and social inclusion perspectives in their applications for government research grants;[23] (2) allow nongovernment think tanks to access government procurement processes; (3) introduce output-based models of procurement of research (see also Chapter 2 of this book; *Presidential Regulation No. 18/2018 on Government Procurement*); and (4) bring a diversity of perspectives, specifically from nongovernment actors, to the deliberation on, and implementation of, the Law on National System for Science and Technology (see also Chapter 6 of this book).[24]

The Nature of Relationships that Constrain or Enable Evidence-Based Policymaking

The KSI program has worked with 16 think tanks in Indonesia. They were selected for being reputable, strong, and credible nongovernment or university-based institutions experienced in providing high-quality and locally contextualized knowledge aimed at improving public policies.[25]

[23] The Ministry of Research, Technology and Higher Education's grant guidelines for Research and Community Engagement (12th ed.) include priority research topics related to gender and social inclusion for 8 of the 10 research fields and launched on March 20, 2018.

[24] The 2019 Law on National System for Science and Technology aims to address the absence of coordination and alignment between research and national development planning, the absence of an effective mechanism to develop research and innovation organizations and human resources, and the unclear contribution of research and innovation activities for the public. See Chapter 7.

[25] The 16 think tanks are AKATIGA Pusat Analisis Sosial; Article 33 Indonesia; Cakra Wikara Indonesia (CWI); Centre for Strategic and International Studies (CSIS); *Lembaga Studi dan Advokasi Masyarakat* (ELSAM); Institute for Research and Empowerment (IRE); *Komite Pemantau Pelaksanaan Otonomi Daerah* (KPPOD); *Pusat Kebijakan dan Manajemen Kesehatan* (PKMK) UGM; *Pusat Studi Hukum dan Kebijakan* (PSHK); *Pusat Unggulan IPTEKS Perguruan Tinggi–Pusat Unggulan Kebijakan Kesehatan dan Inovasi Sosial, Universitas Katolik Indonesia Atma Jaya* (PUI-PT PPH PUK2IS UAJ); *Pusat Pengkajian Islam dan Masyarakat UIN Syarif Hidayatullah* (PPIM UIN); *Pusat Studi Agama dan Demokrasi Paramadina* (PUSAD Paramadina); Sajogyo Institute; *Sekretariat Nasional Forum Indonesia untuk Transparansi Anggaran* (Seknas FITRA); the SMERU Research Institute (SMERU); and SurveyMETER.

Local knowledge is defined by Nugroho et al. (2018 p. 2) as the knowledge that people in given communities or organizations have accumulated over time through direct experience and interaction with society and the environment. Local knowledge often deals with the same subject matter as scholarly research. However, local knowledge embodies different perspectives, meanings, and understandings that are informed by local contexts and shaped by human interaction with the physical environment.

The influence of any given think tank is affected by demand. We saw in Chapters 2 and 3 that policymakers generally prefer to source evidence and advice from trusted individuals, often based on long-established relationships (Datta et al., 2011). So, while think tanks have experienced some success in influencing policies at the national and regional levels, the role and influence of each institution varies, depending on the strength of relationships between think tanks and policymakers and the drive of individuals within each think tank, including through their individual relationships and patronage networks. Such connections continue to be important, but reliance on individual relationships and users' low capacity to demand and use evidence have limited the opportunities for interaction between think tank knowledge producers and policymakers in the policymaking process.

The Shape of Research Products that Fill the Gaps of Policy Needs

A survey of the policy community in Indonesia conducted by the Think Tank Initiative Insight (2019) showed that while national think tanks in Indonesia are generally well regarded by members of the policy community, there is still scope for these national institutions to better inform national policymaking. Suggestions for doing so from the survey included (1) making information more accessible for most-desired topic areas, including information on gender issues, which is relatively more difficult to access; (2) communicating research that can cater more effectively to the needs of policy communities; and (3) continually improving the quality of research.

Think tanks have invested in improving the quality and robustness of their research process and findings, such as conducting thorough literature reviews, developing clear research designs, and piloting their research tools, as well as engaging external experts to peer review their research products. Many of their research products are of sufficient quality to be presented in public forums and published in academic journals, both locally and internationally. However, gaps remain in research findings reaching and being used in policymaking processes (Think Tank Initiative Insight, 2019).

Beyond the simple robustness of the data analysis, policymakers need the research to be relevant to, and inclusive of, their policy and social contexts, as well as timed to complex policy cycle processes and shared in ways that can inform decision-making (Innvaer et al., 2002; Ofir et al., 2016; Oliver et al., 2014; Think Tank Initiative Insight, 2019).

Partner think tanks of the KSI program have made use of technical assistance of various kinds to produce business process tools that focus on building connections with policymakers and research translation. This included the use of Program Logic, a strategic planning mechanism to design and support implementation and monitor the journey of research findings to influence policies. They also map and analyze key stakeholders, including targeted policymakers, other policy actors or networks, and the media, all of which are important in opening and expanding the path to influencing policy. In this way, think tanks can monitor and evaluate the quality of their research process and their progress in influencing policies.

In conducting their research, the KSI's think tank partners were required to follow strict criteria on research quality, ensuring the robustness of the research method and its execution; the quality and influence of literature review; the presence of peer review in the design and reporting phrase; the assurance of key users that the results are relevant, timely, and useful; and evidence of uptake among targeted stakeholders. Many of the think tanks produced research that is sensitive to gender, equality, disability, and social inclusion (GEDSI), which was judged by evidence that the research seeks to provide recommendations to influence government policy toward improving the status of GEDSI groups (including women, people with a disability, and other socially disadvantaged groups); that GEDSI issues relevant to the research have been identified and clearly addressed in the research design, process, and analysis; and that a peer review was conducted of the research design and report to query whether GEDSI concerns were present and adequately addressed at every stage of the research.

Think tanks engaged closely with policymakers throughout the process, from identifying the development/policy problem, to developing outcomes and scope of research, undertaking the research itself, discussing preliminary findings, and developing recommendations for policy and practice. They then produced research reports, policy briefs, policy papers, infographics, or videos to communicate their research. They engaged other stakeholders, including peer institutions, international organizations, and the media, and these intermediaries are encouraged to engage critically with research

material to be able to assess, analyze, and seek different perspectives on research results so they can be communicated effectively.

Case Studies of Interactions Between Think Tanks and Policymakers

In this section we consider four case studies of how Indonesian think tanks supported by the KSI have used their research and analysis to influence policy. The examples illustrate the dynamics of the interactions between the four selected think tanks and policymakers, including the nature of the relationships between other actors that might constrain or enable evidence-based policymaking, as well as incentives and disincentives for policymakers to use evidence. The case studies demonstrate how early engagement with policymakers in research design and other processes is helpful for building trust and increasing the uptake of evidence for policy decision-making.

Building and Strengthening Networks With Policymakers and Other Policy-Oriented Organizations

The SMERU Research Institute. The SMERU Research Institute (SMERU) is a nongovernment institute established in 2001 that focuses its research on socioeconomic and poverty issues in Indonesia. It was formed by several staff members of the Social Monitoring and Early Response Unit—a project funded by the then Australian Agency for International Development (AusAID), Asia–Europe Meeting (ASEM), and US Agency for International Development (USAID) and managed by The World Bank in response to the Asian financial crisis and political turmoil in Indonesia in 1998 and 1999. The project, which ran from October 1998 to December 2000, was established with a mandate to carry out independent and reliable real-time monitoring of the social impact of the financial and political crises unfolding in Indonesia at the time.

SMERU's primary goal is to encourage pro-poor policies at national and regional levels through evidence-based research. To date, it has remained a leader in poverty analysis, public policy research, and in the monitoring and evaluation of programs designed to reduce poverty. SMERU is currently ranked in the Top 25% Institutions and Economists in Indonesia, as of June 2021 (Research Papers in Economics, 2021).

The COVID-19 pandemic exacerbated the existing problem of access to education in Indonesia. SMERU conducted research on accessing quality education—what might be called "learning inequality"—and produced several recommendations for government agencies to improve education access, especially for disadvantaged groups. During the pandemic, SMERU's

research found that home-based learning further widened existing inequalities. Students without internet access and facilities for online learning, adaptive teachers, access to devices with adequate functionality, or mentoring by parents, lost learning opportunities they might otherwise have had pre-pandemic, or in face-to-face learning. Meanwhile, students in quality schools with access to such facilities and support, who tended to be better off economically and whose parents were concerned about their learning, were still able learn adequately through home-based learning.

To avoid widening learning inequality among students, especially as the pandemic worsened, SMERU recommended more systematic efforts by the government to improve the quality of home learning and instruct teachers to take into account the variations in student learning abilities and access to facilities in their teaching modules. SMERU also used the research findings to inform its advocacy directed toward the Research on Improving Systems of Education (RISE)[26] program team on how to help students recover from learning loss when schools reopened.

SMERU worked with the Research and Development Unit of the Ministry of Education, Culture, Research and Technology as the responsible ministry in the study design process. SMERU then initiated a report, "Learning From Home: A Portrait of Learning Inequality During the COVID-19 Pandemic," which detailed the ways the assessments were carried out in various schools and regions. In its efforts to institutionalize relationships with policymakers, SMERU took a flexible approach and involved other relevant stakeholders, including teachers and parents of students in the field, to identify policy needs to bolster the audience for the research findings. SMERU took this approach because, when communicating with policymakers, support from the scientific community and firsthand experiences from the public community are both indispensable (Nugroho et al., 2018). SMERU created a series of workshops by regularly involving the Ministry, including the Special Staff to the Minister and other think tanks focused on basic education. The workshops aimed to collect and exchange analysis of data on the role of school closures on learning loss for students.

[26] The RISE program is a large-scale, multicountry research project supporting the improvement of student learning throughout the world. The project is funded by the United Kingdom's Foreign, Commonwealth and Development Office (FCDO), the Australian Government's Department of Foreign Affairs and Trade (DFAT), and the Bill & Melinda Gates Foundation. This global initiative began in 2015 as a response to the crisis in global education. SMERU is managing the RISE program in Indonesia.

Throughout the study, SMERU managed to maintain good communication and sustain relationships with the Ministry, which had implications for SMERU's research findings informing government policy outlined in *Ministerial Decree No. 719/P/2020* on *Guidelines for Implementing Curriculum in Educational Units under Special Conditions*. As discussed in Chapters 2 and 3, ministerial decrees are an important policy instrument in Indonesia for instituting new government actions. This decree adopted SMERU's recommendations regarding diagnostic assessment and curriculum simplification.

The relationship between SMERU and the Ministry of Education, Culture, Research and Technology was built and institutionalized in both organizations over the course of a decade. Both parties have seen the benefit of working collaboratively and value the process of mainstreaming evidence-informed policymaking. Besides generating new ideas for policymakers, SMERU also provides a steady stream of experts devoted to addressing emerging issues and delivering their research and advocacy. This policy network builds formal and informal linkages between governmental and other actors that share a common interest in public policymaking and implementation (Rhodes, 2008).

Cakra Wikara Indonesia. Established in 2017, Cakra Wikara Indonesia (CWI) is a think tank focusing on sociopolitical studies that aim to collectively produce knowledge through gender perspectives. Its legal standing is an association. CWI conducts research with the objective of enhancing the quality of public policy and empowering people's political participation. To achieve its objective, CWI has formulated the following purposes embedded in the organizational mission: a stronger and more inclusive political participation in election processes and development planning; strengthening women's political leadership within various strategic spheres, focusing on the bureaucracy of national ministries, national legislative bodies, political parties' central boards, and local government leadership; promoting a just and equal party system; and lastly, developing CWI's geospatial database that will be used as a reference for policymaking and advocacy works. Hence, CWI conducts various studies to underpin advocacy on strengthening women's participation as candidates in elections, in both legislative and local governments. It also focuses on public participation in the revision of the General Elections Law, particularly on affirmative policy. Most recently, CWI has concluded research on increasing women's leadership within the ministerial bureaucracy.

CWI's research has found that efforts to increase women's representation face three main obstacles: work culture, regulatory barriers, and women's position in patriarchal structures of power in Indonesia (Margret et al, 2018). Based on these findings, CWI has identified several directions for policy improvement. In the domain of legislative institutions, political parties, and local government leadership, CWI recommended that political parties improve their recruitment system by designing internal policies that encourage more women to enter strategic positions in political party boards and in nomination mechanisms (Ikasarana & Novitasari, 2019). In the electoral management bodies, CWI argued for an institutional strategy to help reduce barriers to women accessing public office (Ardiansa & Samosir, 2020). CWI is also concerned about the issue of women's representation in the bureaucratic structures of government (Ompusunggu, 2018), which is evident from its research and work in the sector. The organization has encouraged the development of technical policies and programs that help eliminate obstacles to the promotion of women in the civil service.

CWI has continued its research on gender and bureaucracy to formulate recommendations based on research findings related to efforts to promote gender-responsive policies in the ministerial bureaucracy. CWI held a series of discussions on the dynamics of gender inequality in the civil service and since 2020 has brought together various stakeholders related to the issue of bureaucratic reform in Indonesia. To encourage the uptake of its research findings and other work, CWI has expanded its network with policymakers and other stakeholders. These networks help, among other things, to achieve common goals by providing reciprocal support and knowledge exchange to help raise CWI's profile within targeted circles, and to gain greater access for their advocacy work. The networks take different forms, such as influencing policy, supporting government agencies in women's empowerment issues, and building alliances with civil society organizations (CSOs) so multiple intermediaries in the knowledge sector can use CWI's evidence for advocacy purposes.

CWI has undertaken efforts to build networks with policymakers to influence policy through collective action. For example, in its work on gender dynamics in the civil service, CWI maintains a strong and positive relationship with the Indonesian National Civil Service Agency (*Badan Kepegawaian Negara*, or BKN) by helping it to design data collation processes to fill gaps in data systems to disaggregate data by gender. Building networks in this way is necessary to help CWI achieve its desired outcomes through

coordinated action among constituent groups for specific activities, which is a more effective approach than seeing various actors engaging in single transactions and limiting their social interactions in policy networks (Lowe & Feldman, 2018).

CWI has also established important new institutional relationships with the General Elections Commission (*Komisi Pemilihan Umum*, or KPU) and its commissioners. In the process of drafting the targeted policy summary, CWI consulted closely with the General Elections Commission to ensure its credibility and the accountability of the data collection. As a result of growing collaboration, the commission invited CWI to its premises on several occasions to present its findings and discuss the commission regulation revisions, including in public. On one occasion, the commissioner cited CWI's research as providing significant recommendations for improving the General Elections Commission regulations and stated that the commission would discuss the matter internally for future direction. CWI also disseminated policy briefs to the Ministry of National Development Planning (Bappenas) and the Ministry of Home Affairs, which responded positively and agreed to discuss the issues raised by CWI in further meetings.

To improve policy advocacy work in the electoral system improving democratic representation, CWI built alliances with other Indonesian CSOs focused on democratization, among them the Association for Elections and Democracy (*Perkumpulan untuk Pemilu dan Demokrasi*, or Perludem), the Center for Constitutional Studies (*Pusat Studi Konstitusi*, or PUSaKO), Initiative Constitution and Democracy (*Konstitusi dan Demokrasi Inisiatif*, or KODE Inisiatif), Indonesian Voters Committee (*Komite Pemilih Indonesia*, or TePI), and Indonesia Corruption Watch. CWI collaborated with these CSOs to prepare policy summaries that advocate for a more participatory approach so the public can also provide more input to the vision and mission of electoral candidates. CWI and its allies worked together to recommend changes to the provisions of the *General Election Commission Regulation No. 3/2017 on Nominations for the Election of Governors, Regents and Mayors and the General Election Commission Regulation Number 4/2017 on Campaigns*, so that these regulations would encourage more women to participate in politics. CWI is also developing new networks with alternative media partners—Indoprogress and Geotimes—to help strengthen CWI's findings and recommendations. It is a strategic movement toward optimizing the role of media for agenda setting to influence public opinion and nudge the policymaking process (Dearing & Rogers, 1988).

In 2020, CWI's research and advocacy for the proposed revision of the Election Bill focused on six areas, including concurrent election, electoral thresholds for parliamentary and presidential election, and women's representation in politics. CWI formed a new network that would focus on the Election Bill issue, with CSOs including Kaylanamitra, Maju Perempuan Indonesia, Fatayat NU, and Aisyiyah.[27] This network actively participated in the design of the new bill and provided input on CWI's recommendations regarding the clause on women's representation in politics. CWI has made several recommendations on how to support affirmative action for political parties to ensure that 30 percent of slated candidates in elections are women.

CWI has built important institutional relationships with the Women's Parliamentary Caucus of the Republic of Indonesia (*Kaukus Perempuan Parlemen Republik Indonesia*, or KPPRI) to support the caucus's work in increasing women's political representation. The caucus is an assembly for women parliamentarians in both the House of Representatives and Provincial/Regional Representative Councils, to strengthen gender mainstreaming in national development and to realize gender equality and justice in democratization. Ahead of the official announcement of the 2019 legislative election results by the KPU, in August 2019, CWI welcomed the caucus's invitation to work together in a public discussion, "Prospects for Women's Representation in Leadership Positions of Legislative Organizations: Reading the 2019 Election Results."

Formulating Research Products that Fill Gaps and Meet Policy Needs

Centre for Strategic and International Studies. The Centre for Strategic and International Studies (CSIS) is an independent, nonprofit organization established in Indonesia in 1971. CSIS focuses its research and studies on issues surrounding both international relations and political and social change, focused on domestic and international economic policy. The Go To Think Tank Global Index of 2020 ranked CSIS the second best think tank in Southeast Asia, South Asia, and the Pacific regions.

In 2018, after an earthquake struck Palu city and Donggala district in Central Sulawesi province, CSIS found a lack of knowledge sharing in

[27] Kaylanamitra is a resource center that conducts various research on women's issues and releases the findings to the public; Maju Perempuan Indonesia is a movement to fulfill, advance, and protect the rights of women in politics; Fatayat NU is a women's youth organization, directly linked to Nahdlatul Utama, an Islamic organization in Indonesia; Aisyiyah is an Islamic nongovernmental organization in Indonesia dedicated to female empowerment and charitable work.

Indonesia had weakened disaster management. CSIS developed a research unit that became a convening platform to gather relevant insights from multidisciplinary actors, provide policy recommendations, and maintain critical thinking on disaster management.

Responding to the COVID-19 pandemic in early 2020, CSIS produced policy research analysis on this issue from multiple perspectives, including disaster management, the economy, and social politics. The knowledge is shared in the form of articles such as research, analysis, and opinion papers in CSIS Commentaries, a platform for scholars and researchers to write briefs on strategic issues. Between March 2020 and June 2021, more than 90,000 papers have been downloaded from CSIS Commentaries, showing the rapid pace of dissemination, wide public reach, and high relevancy of policy research carried out by CSIS during the COVID-19 pandemic.

Working with various stakeholders, CSIS has produced policy research and analysis covering COVID-19's effects on disaster management, the economy, and social politics (https://covid19.csis.or.id/). This flexible approach is important for influencing policy to address multidimensional problems caused by the pandemic. The collection of policy briefs is instrumental in improving the responsiveness of users (policymakers), as they can then access resources providing evidence on the needs of communities (Elliot & Popay, 2000). For example, in April 2020, CSIS established a new partnership with Facebook to utilize Facebook's Disease Prevention Map. This data helped CSIS develop analysis and insight on people's movements and inform its policy recommendations during the COVID-19 pandemic. Through this collaboration, the Indonesian Government, especially at the provincial level, became able to monitor and trace their citizens' mobility before and during the pandemic.

CSIS officially launched a COVID-19 dashboard on July 28, 2020. This web portal for COVID-19 research findings contains various indexes, economic and health condition matrices, a map of COVID-19 spread in Indonesia, and CSIS Commentaries and webinars (https://covid19.csis.or.id/). The map of COVID-19 spread in Indonesia contains the data spread of active cases, accumulated mortality, and COVID-19 Movement and Intensity Indexes at the provincial and national level. The Movement Index was obtained from the Facebook Range Map data. CSIS purposely made the dashboard open and free to cater more effectively to the needs of policy communities, especially the policymakers.

CSIS then published "*Indonesia dan COVID-19: Pandangan Multi Aspek dan Sektoral* [Indonesia and COVID-19: Multi Aspect and Sectoral Perspectives]" (Hirawan, 2020), discussing in detail the development of efforts to handle COVID-19 in Indonesia. The book analyzes 11 factors related to Indonesia and COVID-19, comprising international relations and political comparison, digital sector and data collection policy, defense and security governance, disaster and environmental management, the economy and workforce, politics, public policy and governance, law and history, religious and cultural affairs, urban management, and social inclusion for the vulnerable groups most affected by the pandemic. The Head of the National Disaster Management Agency (*Badan Nasional Penanggulangan Bencana*, or BNPB), who is a key stakeholder in using the research findings, attended the book's launch as a keynote speaker. During the launch, the agency head also formally signed the Memorandum of Understanding (MoU) between the National Disaster Management Agency and CSIS to institutionalize their collaboration in knowledge production and knowledge management in the field of disaster management.

This MoU formalized the cooperation of both institutions and served as an umbrella for the cooperation agreement between CSIS and various directorates within the agency. After this MoU was signed, the first cooperation agreement was signed between CSIS and the agency's Data and Information Center. CSIS and the center agreed to share data more deeply; to together develop studies and policy recommendations related to disaster handling and management, processing the knowledge and institutional memory owned by the agency; and to together deepen and expand international cooperation. With this MoU and the cooperation agreement, CSIS is expected to further its efforts in disaster mitigation, both natural and nonnatural, in Indonesia.

CSIS was also invited to the Hearing Meeting held by the Working Group of Commission VIII of the Indonesian House of Representatives to discuss revisions to *Law No. 24/2007 on Disaster Management* and was therefore able to engage directly with policymakers in their own institutional forums to share findings. According to the Commission VIII's Working Group, this law needs to be revised to take into account the increasing number of types of disasters, their more frequent occurrence, and rising material and human losses, to become the basis for strengthening disaster management institutions, aligned with CSIS recommendations. Several public hearings

need to be held to revise *Law No. 24/2007*, which will fall under the House of Representatives' jurisdiction. CSIS's participation in this process is expected to help produce a better law based on sound evidence. CSIS continues to advocate for moving disaster mitigation away from short-term politics and instead look at mutual interests to strengthen disaster preparedness in Indonesia.

Center for Excellence in Health Policy and Social Innovation, Atma Jaya Catholic University of Indonesia. In 2007, Atma Jaya Catholic University and the University of Illinois Chicago established a collaborative project with the support of the Global Partnership for Social Science and Behavioral Research on HIV/AIDS—US National Institutes of Health. The project, originally intended to build research capacity in the field of HIV/AIDS, was the forerunner to the formation of the Center for Excellence in Health Policy and Social Innovation of Atma Jaya Catholic University in Indonesia. The institution was established as a contribution of concerned academics, keen to address the problems of HIV/AIDS, as well as drug addiction and abuse in Indonesia through research, capacity building, and community service. In its work program, much of the Atma Jaya center's focus has been on policy research and social behavior related to HIV/AIDS and sexual and reproductive health, as well as civil society participation in the development of the health sector and HIV programs.

To broaden the reach of research in health issues, the policy and social innovation center expanded in 2019 to the field of mental health. Since that time, the center has been conducting research on the accessibility of mental health services, with a goal of producing technical guidelines, both general and pandemic-specific, to be used by public health centers. This research aims to propose strategies and technical steps that need to be taken by mental health services to improve their accessibility in a pandemic situation.

Indonesia already has a policy umbrella for the implementation of comprehensive, integrated, and sustainable mental health efforts as reflected in *Law No. 18/2014 on Mental Health*. To implement this law, derivative regulations[28] mandate public health centers to serve as the primary health service facility in providing mental health services. However, policy gaps remain in the delivery of mental health services at the public health centers. The main obstacle in service delivery lies in the governance component of the

[28] *Minister of Finance Regulation (MoF) No. 4/2019 on Technical Standards for Fulfilling Basic Service Quality in the Minimum Service Standards in the Health Sector, and MoF Regulation No. 39/2016 on Guidelines for Implementing a Healthy Indonesia Program with a Family Approach.*

lack of policy support, namely, the lack of service delivery guidelines, policies that form the basis of funding, policies that regulate cooperation with stakeholders, policies on community participation, and standard operating procedures for mental health service management.

For this reason, the research conducted by Atma Jaya's policy and social innovation center on the accessibility of mental health services at public health centers is relevant to health sector policymakers, and even more so during the COVID-19 pandemic, which increased demand and disrupted existing mental health services. In 2019, the center formed a Technical Working Group represented by academics, the Ministry of Health, mental health advocates, and civil society organizations. The group supported Atma Jaya in conducting field research. To gain locally contextualized knowledge, the policy and social innovation center engaged directly with those living with mental ill-health to hear their needs and experiences, which enabled the organization to fill information gaps to assist decision makers, while ensuring a representation of authentic diverse voices.

In 2020, Atma Jaya's policy and social innovation center succeeded in obtaining support from the Ministry of Health (Directorate of Prevention and Control of Mental Health and Drug Problems), which then issued a recommendation letter approving the continuation of this research. Immediately afterward, representatives from the Ministry, the Jakarta Government Health Office, the Local Health Sub-Services, and five public health centers were selected as members of a technical team to support Atma Jaya in developing technical guidelines for mental health services in general and pandemic situations.

The participation of these stakeholders and the collaborative approach taken by Atma Jaya's policy and social innovation center has been relevant, timely, and useful for policymaking process. In June 2021, the Jakarta Provincial Government signed an MoU with Atma Jaya to officiate the process of developing the technical guidelines. After being piloted in five public health centers, the guidelines were finalized in November 2021 and began to be used by 44 public health centers in Jakarta in 2022.

Conclusion and Recommendations

Good policymaking requires the support of evidence if it is to produce effective policy. However, bringing this evidence from research to policymakers has been a long-standing challenge in Indonesia, which has

tended to hamper the effective use of research on one side and availability of relevant evidence as input for policy on the other. There are many known reasons for this challenge, but one of the most important is that researchers and policymakers live in different worlds, each with different needs and different ways of working. Bringing research institutes and policymakers closer to each other is a crucial first step for cultivating evidence-informed policymaking culture.

This chapter provided case studies of how think tanks have approached and made themselves visible to policymakers. As these examples illustrate, there are many channels through which think tanks can approach policymakers. The approach used by a think tank depends on specific context and circumstances of the research and the policymaking process, so there is no fixed formula that think tanks can use to approach policymakers and form networks, institutionalize relationships, and shape research product to fill the gaps of policy needs. Rather, there are several guidelines that can be used by think tanks in their efforts to approach policymakers effectively.

First, think tanks need to be aware of the needs of policymakers with regard to evidence. Sometimes these needs can be anticipated from regular policy agenda and planning documents that are available, but sometimes they arise from an unexpected change in circumstances. The onset of the COVID-19 pandemic is an example of one such situation that has required the government to adjust many of its policies to appropriately respond to the pandemic.

Second, think tanks need to provide sufficient time and resources for policy engagement beyond the usual dissemination of their research. Unfortunately, most research projects do not provide a budget for policy engagement, meaning think tanks will need to use alternative funding sources. The availability of flexible funding such as that provided by the KSI to the think tank it supports has been instrumental for think tanks to achieve their policy-influencing objectives.

Third, think tanks must be flexible in their efforts to approach policymakers. Sometimes policymakers will convey their demand for evidence directly to a think tank. In such cases, the think tank must act swiftly to respond to the request and develop relevant and rigorous evidence in time. However, most of the time it is the PRIs that need to "market" the evidence from their research through strong engagement with policymakers and other actors in the knowledge sector with interests in similar issues.

Finally, think tanks need to foster long-term and institutional relationships with government institutions. Successful policy influencing by think tanks is often the product of good personal relationships between the think tank's staff and the policymaker. While effective, relying on personal relationships for policy engagement is an impermanent solution, as turnover among government officials is relatively high. Hence, think tanks must develop a strategic and institutional partnership with their government department partners in addition to encouraging personal relationships at all levels, not only at the leadership level.

Bringing think tanks closer to government and policymakers in most cases requires proactive efforts from the think tanks. They need to allocate adequate staff time and resources for these efforts, which cannot be exercised on an occasional or part-time basis; the efforts should form an integral part of the think tanks' policy-influencing objective.

Strategic business process is important for think tanks to achieve their policy research goals. Flexible but targeted funding will make it possible for think tanks to implement their strategic approach and make themselves visible to policymakers. Having seen the benefits of these efforts, it is expected that in the long run think tanks will need to devise their own strategies to obtain and allocate adequate resources to achieve their knowledge to policy-influencing objective.

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Can a Vision Change the Game? Learning From Indonesia's National Science and Technology Law Reforms

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Introduction

In 2019, the House of Representatives passed the *Law on National System for Science & Technology* (or the S&T Law; *Undang-Undang Sistem Nasional Ilmu Pengetahuan dan Teknologi* or *UU Sisnas Iptek*), essentially replacing *Law 18/2002 on the National System of Research, Development, and Application of Science and Technology*. The S&T Law, proposed and strongly driven by the then Ministry for Research, Technology and Higher Education, promises a stronger role for science and research in Indonesia's development.

This chapter reflects on the experience of the Knowledge Sector Initiative (KSI) program—a partnership between the governments of Indonesia and Australia supporting Indonesian policymakers to better use research, data, and analysis—and its partners in trying to ensure that a diversity of perspectives—specifically from nongovernment actors—were taken into account during both the deliberation and implementation of the S&T Law. During these processes, the KSI positioned itself to amplify the voice of nongovernment actors in advancing the discussion of the S&T Law.

The KSI's role as a catalyst in science, technology, and innovation policy was initially aimed at policies that affect how knowledge is produced upstream—specifically on how it is enabled by the right kinds of incentives, financial or otherwise. The KSI's attempt to understand, engage, and enrich the discourse surrounding the S&T Law is one such case.

This chapter also examines the experiences of key actors in the formation of the S&T Law and its subsequent implementation. By *key actors*, we mean actors who were directly involved in the deliberation process until the law was passed

in 2019. For analytical as well as practical purposes, we define and classify these actors as *the ministry*, *the house of representatives*, *the science and technology community* (*academics*, *higher education institutions*), and *civil society* in general.

This chapter asks whether and how the S&T Law has accommodated the different visions and perspectives of these key actors. We look into the dynamics between these actors and assess the central role of the state, represented by both the executive and the legislative branches during the deliberation and implementation stages of the S&T Law.

Context

The S&T Law aims to reposition a sector that has largely been sidelined as a policy focus since the 1998 *reformasi* (reform) era. (For more detail on the reforms ushered in by democratization after 1998 in.Indonesia, see Chapters 2 and 3.) This chapter describes an Indonesia that is a post-authoritarian and aspiring emerging economy, but in which a developmentalist outlook persists (Sato, 2019; Warburton, 2016). This plays a part in the continued drive to utilize S&T as a catalyst for national growth and development.

The centralized approach is perhaps the DNA of the Indonesian science and technology ecosystem, as Andrew Goss pointed out in his research on colonial-era science in the country.

> For most of the last two hundred years, Indonesian elites have judged the value of natural history and biology based on how well its knowledge could be applied in the agricultural economy. Moreover, the professionalisation of Indonesian natural history happened inside state institutions, and this context determined the intellectual pursuits of Indonesian biology. The definition of amateur was anyone outside of the state scientific system. This led to the complete marginalisation of privately funded research as well as native expertise inside Indonesian professional science. (Goss, 2011, pp. 6–7)

This "path dependent" way of thinking continued with President Sukarno's "technocratic populism" vision and peaked with President Suharto's endorsement of Vice President Habibie's vision of technology-driven development: a continued, perhaps flawed belief that the state "knows everything."

After Suharto's resignation in 1998 and the period of *reformasi* (reform) that followed, a centralistic approach toward regulating science and technology continued, even though on many levels the nation was moving toward further decentralization. There were persistent changes in institutional roles and responsibilities, resulting in a series of trials and errors (e.g., establishing and

then disbanding the National Innovation Committee (*Komite Inovasi Nasional*, or KIN) and the National Research Council (*Dewan Riset Nasional*, or DRN)). The changing roles of a variety of government agencies contributed to the disjointed manner in which science and technology was managed.

This continuing role of the state in devising science and technology policies is not unique to Indonesia. Prior scholarship also casts the state as a central actor in the utilization of technology for developmental purposes (Amir, 2004; Amir & Nugroho, 2013; Cozzens & Woodhouse, 1995).

During the New Order, it was President Suharto himself who asserted his vision of a high technology driven industry in the form of constructing airplanes (Amir, 2004). After the New Order's demise, the role of state-driven technocracy remained, albeit in a less authoritative form. Despite having a former minister of Research and Technology as president, policies on science and technology were less urgent as the democratization process was more focused on turning around the economy and stabilizing politics. Within the government, however, the belief that the state should play an important role in advancing and using science and technology remained, as it spread different roles to existing agencies and started to create new ones. In line with the democratization process, decision-making on matters pertaining to science and technology was no longer exclusive to one single actor but was dispersed over several, with more acknowledgment given to local institutions.

In Indonesia, the discussion of and preparation for the S&T Law began in 2011 and, due to various political timing constraints,[29] continued until it was eventually passed in 2019. Initially, it was prepared as a revision to the *2002 Law on the National System of Research, Development, and Application of Science and Technology*, but it was agreed in an inter-ministerial meeting in 2016 that it should be a completely new law (presentation from then Ministry of Research, Technology and Higher Education, known as Ristekdikti, on S&T Law on National Technology Day, August 2019).

The then Ministry of Research, Technology, and Higher Education[30] proposed the law on behalf of the government and led the deliberation

[29] It is assumed that the delays were caused by the fact that the 2011 initiative to revise the old law occurred too close to the end of the 2009–2014 deliberation cycle at the Parliament. This means that deliberations had to await the next five-year cycle of 2015–2019.

[30] Throughout this book we use different terminology for the Ministry of Research and Technology depending on the period of time which is referenced in the chapter. The ministry has gone through several changes throughout its history including several mergers. It is referenced using the following names: Ministry of Research and Technology; Ministry of Research, Technology, and Higher Education; Ministry of Education, Culture, Research and Technology. This chapter and Chapter 1 contain more information regarding the context for these changes.

process. The ministry had a significant stake in the outcome because the *2002 Law* (the first and only Indonesian law related to science and technology) had been deemed obsolete and ineffective for governing the research and innovation sector. There was also interest in using the new law to strengthen the legal foundations of two large government research entities—the Indonesian Institute of Sciences (*Lembaga Ilmu Pengetahuan*, or LIPI) and the Agency for the Assessment and Application of Technology (*Badan Pengkajian dan Penerapan Teknologi*, or BPPT).

When it was formally passed on August 13, 2019, the S&T Law marked the first explicit use of science and technology as a basis for national development; it established a new endowment fund for research, and it provided a framework for improving the management of research and innovation. It also mandated the reorganization of government research and innovation institutions, something that became the most contested element of its implementation and possibly overshadowed all the other reforms the law was intended to deliver.

Key Issues

This chapter proposes that the S&T Law can be analyzed in two ways. First, it can be seen as a renewed effort in redefining science and technology (S&T) policy and reshaping the research and innovation landscape. Second, it can be viewed as a case of policy process of a sector that has long been neglected and had rarely been a subject of political tugs-of-war in Indonesia.

It remains an open question as to whether the S&T policy is part of the public policy realm in Indonesia. It is public policy, but it has a rather arm's-length impact on the public. As such, its audience and advocates are limited to those who are working in the sector, such as researchers, who are mostly based at public universities (which dominate research output in the university sector in Indonesia) or government research organizations. It is perhaps exactly because of this limited audience—a majority of which is directly under the government's purview—that the scope of the new law feels heavily directed toward state-led science and technology.

In this chapter we ask three questions about the impact of the S&T Law reforms on the role of government as an enabler for Indonesia's research and innovation ecosystem.

1. What were the proposed reforms in the S&T Law, and do they better enable the science and technology ecosystem?

2. Who were the key actors or institutions driving the reforms?
3. How does the S&T Law position the state in its relationship with society during the implementation phase of the law?

Building on those questions, we then dissect how actor dynamics during the law's deliberation influenced the content of the S&T Law, and how the S&T Law is, in turn, expected to influence the dynamics of ecosystem actors—and by extension the knowledge ecosystem—as it is being implemented.

With regard to method, this chapter builds on the direct observations made by the authors during the deliberation process of the S&T Law. Most of these observations took place during the open-hearing process, which representatives from the Centre for Innovation Policy and Governance (CIPG) attended to provide feedback and comments. (CIPG is a think tank, one of the KSI's strategic partners. See Chapter 5 for a more detailed discussion of think tanks.) A close reading of the law as well as other related regulations has served as another source of insight in the writing of this chapter. Other relevant documents and key texts were also sourced to compose a holistic insight into the matter.

Despite the centrality of the state in driving the S&T Law and its ensuing agendas, there has been more than enough deliberative space to involve other actors from the S&T sector. Whether this has affected the substance of the regulation will be discussed in the sections that follow.

Analysis of the Shaping of S&T Law

Insights From the Evidence Basis for S&T Law

The substance and scope of the S&T Law was discussed and deliberated within the executive arm of government in 2011 (Kemenristekdikti, 2019; presentation on S&T Law deliberation process from representative of the then Ministry of Research, Technology and Higher Education dated August 26, 2019), and then underwent several notable changes as observed in the 2012 and 2017 academic texts produced by the Ministry of Research and Technology and the Ministry for Research, Technology and Higher Education, which are basically an evidence base for policy and regulatory deliberation. Further changes to the content of the law itself made during deliberation with the parliament are discussed later in this chapter.

The main difference between the 2012 and 2017 academic texts was the angle of their primary concerns (Kemenristek, 2012; Kemenristekdikti, 2017)

Table 2. Comparison of 2012 and 2017 academic texts for the S&T Law

Aspect	2012 text	2017 text
Narrative	Improved innovation system	Knowledge-based economy as an end with improved research and innovation ecosystem as means
Level of detail on proposed reforms	Not elaborated	Quite detailed, especially on improvements to the research ecosystem and clarity of actors on innovation
Linkage to national development	Not elaborated	Spelled out as the need to align science and technology policies with national development plans and other relevant regulations

as outlined in Table 2.[31] The former puts a strong emphasis on improvements to the innovation ecosystem and devotes more space to the theoretical framework, while the latter frames innovation as means to an end (a knowledge-based economy) and elaborates the specific practical aspects of research ecosystem improvement.

The 2012 text highlights the need for a better innovation ecosystem by improving the network of knowledge actors (i.e., academics, business, and government and their intermediaries—the "triple-helix" approach). The proposed improvement was to define roles more clearly for those actors and encourage sustainable coordination among them as the key to national economic advancement. This is reflected in the name originally proposed for the new law: the National Innovation System.

Subsequently, the 2017 version evolved to focus on the specifics of the proposed reforms. This was meant to strengthen the building blocks of the research and innovation ecosystem for a knowledge-based economy and is reflected in the choice of proposed title: the National System for Science and Technology. It is also worth mentioning that in these reforms there is a higher degree of detail related to the research ecosystem in comparison with the 2012 version, which had more of an emphasis on innovation.

While the narrative shifts described earlier are interesting, they took place before the KSI was involved in dialogue with the key actors in these reforms, so analysis of actor dynamics before 2017 is beyond the scope of this chapter.

[31] *Naskah Akademik—Perubahan UU No. 18 Tahun 2002* [Academic Text—Revision of Law No. 18/2002], Kemenristek, 2012; *Naskah Akademik—Rancangan Undang-Undang tentang Sistem Nasional Ilmu Pengetahuan dan Teknologi* [Academic Text—Draft Law on the Nasional System for Science and Technology], Kemenristekdikti, 2017.

Table 3. Evolution of key aspects of the S&T law through the deliberation process

Aspect	Draft law	S&T Law
Positioning of S&T (articles 1 and 6)	No mention of the use of S&T as a basis for national development policy S&T as national development capital	Specific mention of S&T as a basis for national development policy S&T as capital and investment, a basis for policymaking, and a solution to development challenges
Responsible Organization (Article 1)	Minister for S&T	Changed to national and subnational governments
Government Obligation (articles 36 and 37)	National and subnational government play the role of increasing application of research and development	National and subnational governments are mandated to utilize national invention and innovation National government is mandated to guarantee the utilization of national invention and innovation for national development
National Coordinating Body (Article 48)	No proposed institution	Stipulated the need for a coordinating body in the form of a national research and innovation agency
Research Endowment Fund (Article 59)	No proposal for research endowment fund	Stipulated a research endowment fund as one of the sources of R&D funding
Criminal sanction (Article 92)	Criminal sanction applied on the first offense of foreign researchers who conducted research in Indonesia without a permit	Administrative sanction and blacklist applied as first resort, with criminal sanction applied for repeated offense

When it officially went to the parliament at the end of 2017, the substance of the 2017 text became the basis of debate and evolved further thereafter. It was also from that point the KSI started documenting the role and influence of nongovernment actors in the deliberation process. The further changes are outlined in Table 3.

Can the Reforms Enable an Improved Research and Innovation Ecosystem?

The text, drafts, and background evidence that informed the S&T Law reveal multiple policy objectives, which include

- positioning science as a basis for policymaking;
- increasing the efficiency of state-led research and innovation;

- increasing the quantity of state funding for research and innovation;
- increasing the knowledge management of research outputs, including support for open science; and
- quality control over research and innovation institutions via administrative and bureaucratic means.

In accommodating these key reforms, the S&T Law has been dubbed a game changer in Indonesia's science, technology, and innovation (STI) policy (https://www.brin.go.id/uu-sisnas-iptek-dorong-riset-lebih-terintegrasi/). In a nutshell, it sought to address (1) the absence of coordination and alignment between research and national development planning, (2) the absence of an effective mechanism to develop research and innovation organizations and human resources, and (3) the unclear contribution of research and innovation activities to the public benefit.

At the most fundamental level, this law has underscored the need for improved governance of science and technology in Indonesia. From its inception, the law defined what it termed a National System of Science and Technology as "a set of relations that form a planned, directed and measured interconnectedness" (*S&T Law, 2019*; Article 1, UU Sisnas Iptek, 2019); a notion that hints at the intention to regulate what was felt to be unplanned, uncoordinated, and under regulated.

The law also flipped the hierarchy, positioning science and technology—and by extension the national plan for the sector—as the basis for national development plans (*S&T Law, 2009*, articles 5 and 8), a stark contrast to the decades of neglect science and technology had faced.[32] These key reforms support the argument that the S&T Law could pave the way for a better research and innovation ecosystem, provided that its vision is implemented well.

Analysis of Actors' Interactions

Since it was first mooted in 2011, S&T Law has been very much driven by the relevant sectoral ministry—the then Ministry of Research, Technology and Higher Education. Not much has been documented and reported on the consultative process before the draft law's formal deliberation at the end of

[32] The intention to use science and technology as the basis of national development policy is not new as it was also hinted at in the 2005–2009 National Strategic Policy on Science and Technology. The novelty is in the spelling out of the S&T Advancement Plan to serve as reference to the Long-Term National Development Plan and as the basis for the Medium-Term National Development Plan.

Table 4. List of actors involved in S&T Law deliberation and their main interests

Issue	Main actor	Main interest or concern
Positioning science as basis of policymaking	Parliament and civil society	The role of science and technology as the basis of development planning; the importance of evidence-based policymaking
Increasing the efficiency of state-led research and innovation	Parliament	The establishment of the National Research and Innovation Agency
Increasing the quantity of state funding for research and innovation	Ministry of Research, Technology and Higher Education; the scientific community	Increased budget for research; multiyear research funding mechanism
Increasing the knowledge management of research output, including support for open science	Civil society; Indonesian Institute of Sciences; Ministry of Research, Technology and Higher Education	Publication of research output, knowledge management repository
Quality control over research and innovation institutions via administrative and bureaucratic means	Ministry of Research, Technology and Higher Education; Indonesian Institute of Sciences	Registration of research institutions, including nongovernment institutions

2017. However, as it entered discussion with the parliament, there were several hearings[33] that involved research institutions and nongovernment actors. Key interests of these different actors are captured in Table 4.

Those hearings involved at least nine nongovernmental organizations (NGOs) working in the STI sector, the Indonesian Academy of Sciences (*Akademi Ilmu Pengetahuan Indonesia*, or AIPI) and the Indonesian Young Academy of Sciences (*Akademi Ilmuwan Muda Indonesia*, or ALMI), and around 10 public universities and three state-owned enterprises (presentation on S&T Law deliberation process from representative of the then Ministry of Research, Technology and Higher Education, 2019).

[33] When a draft law is initiated by the executive branch of the government, the parliament then arranges a compulsory consultative process with different types of actors via a series of hearings, to ensure that the parliament obtains various insights and ensures evidence-based policymaking. During the hearing sessions, nongovernment actors may present some documents regarding the recommendations on principles or provide suggestions on narrative on some articles. As a follow-up, these documents are distributed across all parliament members in the relevant special committee (known as Pansus RUU). The same set of written input will also be used by party representatives to list their specific input to the executive's drafts. This list of input or DIM (Daftar Inventarisasi Masalah) is the foundation for the revision from parliament that will be discussed with representatives from the executive arm.

Those hearings also exposed some important issues that were not stated in the draft law, such as the establishment of a National Research and Innovation Agency (*Badan Riset dan Inovasi Nasional*, or BRIN), extending the retirement age for research professors, legal protection of researchers, and an endowment fund for research. Issues such as the extension of the retirement age, for example, surfaced after a generic regulation on civil servants' retirement age (*Government Regulation No. 11/2017 on Civil Servant Management*) affected many senior researchers to the extent that some had to return paid salaries because they were deemed to have passed the retirement age. There was strong lobbying from research professors on this, which Ministry of Research, Technology, and Higher Education then took up as one of the additional reforms it proposed for the law. Meanwhile, as observed in the hearings and the relevant documentation, Parliament had put a focus on including reforms in the National Research and Innovation Agency, a new source of research funding via an endowment fund, and legal protection of researchers.[34]

Science and Technology Community

The Indonesian Academy of Sciences—including its young academy—and the National Research Professor Forum (*Forum Nasional Profesor Riset*, or FNPR) are two key actors in Indonesia's scientific community. From the start of their advocacy, the Indonesian Academy of Sciences and the Indonesian Young Academy of Sciences consistently focused on three aspects of the draft Law—research funding, clarity of roles among S&T actors, and criminalization of researchers over foreign research permit violations (AIPI, 2019). The academy pushed for the establishment of an endowment fund for research as part of an effort to decouple research funding from the limiting state budget cycle; it recommended against setting up a new institution instead of strengthening the then Ministry of Research, Technology and Higher Education; and it argued for removal of the provisions creating criminal penalties under the law (AIPI, 2019).

Meanwhile, in its written input[35] submitted for the public hearing with the Parliament, the National Research Professor Forum highlighted the issue of

[34] The issue of legal protection of researchers arose from a 2015 case in which a researcher was convicted of corruption over failure to deliver the expected research outputs. This prompted representatives from key research institutes to push the government to treat research activity as different from the state procurement regime and ensure that researchers cannot be criminalized, as long as their research activity has complied with research ethics.

[35] *Timbangan Ilmiah Solusi Strategis terhadap Masalah RUU Sisnas Iptek*, 2018 [Scientific Measurement of Strategic Solutions to the Problem of the National Science and Technology Bill, 2018].

siloed STI endeavors (and resources) and the need for a cross-sectoral STI policy council, as well as a coordinating body reporting directly to the president.

Civil Society

The Centre for Innovation Policy and Governance (CIPG) was among the NGOs that were involved in the hearing sessions. CIPG achieved a major success in influencing a change in framing S&T as a cost center to S&T as an investment. This view was translated into Article 6 of the law.

Together with the Indonesian Academy of Sciences and the Indonesian Young Academy of Sciences, CIPG also highlighted the importance of science-based policy. This input seemed to have been taken into consideration by the political party leading the deliberation process when it initially proposed adding the phrase "for National Development" to the title of the law. CIPG also proposed elevating the mention of science and technology as the basis of national development policy to the first line of the law. Neither of these proposals was accepted, but this view ended up legislated in Article 5 and Article 21. These articles strengthened the positioning of S&T as the basis for evidence-based policymaking.

Efforts to advocate for the issues identified previously were made both via the formal channel of participation in hearings and through additional lobbying. CIPG realized that success in advising certain reforms was more likely if the contributions were provided in detail. In the previous examples, CIPG provided written input, not only in the form of evidence or studies, but also as model draft articles.

While input from these nongovernment entities was successful in relation to fundamental articles as described earlier, its influence waned when it came to practical stipulations such as criminal sanctions within the law, which apply to offenses committed by foreign researchers and high-risk research permits, as well as to material transfer agreements.

The scientific community was naturally opposed to criminalization and united in mainstreaming the discussion, successfully moving the discourse into the media. This effort was only partially successful. The criminal sanctions remain—although their application was staggered—with an administrative sanction being inserted as an initial response to an offense under specific provisions of the law.

In the meantime, some important issues had been included in the law that were not in contemplation when the 2017 academic text was produced. These issues—including the need for a national coordinating body for research and

the establishment of a research endowment fund—were pushed by the government and accepted in the final version of the law.

In reading the final, official version of the law, CIPG observed that the S&T Law puts more focus on the production of S&T, rather than its utilization. Quantitatively, about 61 percent of the articles in the law deal with upstream research; only 23 percent reference the downstream phase of research and commercialization, while other provisions are general. A further issue is that the S&T Law mandated too many derivative regulations.[36]

As the law passed, it was met with mixed reactions. The Ministry of Research, Technology and Higher Education had highlighted the key reforms that it was able to make, such as creating an endowment fund and achieving a retirement age extension,[37] while the Parliament—specifically the Indonesian Democratic Party of Struggle (PDI-P)[38]—underscored the strengthened position of science as a basis for development planning. Some academics, however, highlighted aspects of the law that were potentially concerning. The latter included the view that the article stipulating that high-risk research would require a special permit could stifle academic freedom[39] because the definition of *high-risk* would include research deemed a threat to national security.

There was not much discussion, however, on better facilitating the role of non-state actors. A proper analysis of the S&T Law demands situating the policy in a wider context, namely, the role of the state in using science and technology for its development agendas. The key reforms outlined earlier reflect a continued centralized approach toward regulating and managing science and technology, as noted in the "Context" section.

Analysis of Implementation

The implementation phase of the S&T Law started when the law was officially passed on August 13, 2019. The initial reception documented in media reports on the passage of the Law was mostly positive, highlighting the major reforms

[36] The S&T Law mandated further detailed arrangement in three presidential regulations and 22 government regulations—the latter being clustered into the three governmental regulations discussed in the Conclusion section.

[37] Disahkan, Poin Penting dalam UU Sisnas Iptek [Passed, Important Notes on of the National Science and Technology Bill], Hukumonline.com.

[38] Rieke Diah Pitaloka: Indonesia Butuh Haluan Ideologi Pancasila [Rieke Diah Pitaloka: Indonesia Needs Pancasila as Its Ideology], beritasatu.com.

[39] S&T Law mengingatkan kembali tentang pembatasan kebebasan akademik di era Orde Baru, kata akademisi [The Science and Technology National System Law reminds us of the restrictions on academic freedom in the New Order era, academics says], theconversation.com.

that had been discussed since 2018—the research endowment fund, stronger coordination through a National Research and Innovation Agency (BRIN), extending the retirement age of research professors, and utilization of science in policymaking.

In the two years after the law's passage, implementation has been slow; rather, the focus has been solely on institutional rearrangements mandated by the creation of the BRIN, which was established by presidential regulation in April 2021. Only when the organizational structure of the agency is completed (BRIN, 2021) could the implementing regulations of UU Sisnas Iptek be discussed. A new presidential regulation issued in late August 2021[40] reflects the more definitive institutional rearrangements required to bring the agency into being. Thus, before August 2021, the National Research and Innovation Agency could not proceed with the formal discussions through intergovernmental bodies (*Panitia Antar Kementerian*, or PAK) on any of the government regulations or presidential regulations needed to implement the law. The key aspect of the implementation is the institution; the agency needed regulations for its legal standing.

The establishment of the National Research and Innovation Agency took two years, because the idea of institutional reorganization in Indonesia—as elsewhere—is highly contested.[41] Proponents of integration saw that a complete overhaul of government R&D institutions through structural integration into the agency would be needed to consolidate state resources for R&D, as well as improve research management and business processes. Opponents of structural integration argued that such a merger would be costly and that it would take a long time for the dust to settle before actual improvements could be felt. These actors proposed an approach whereby the agency would manage separate R&D institutions via a holding mechanism.

In April 2021, the National Research and Innovation Agency was finally formed as an autonomous body reporting to the president.[42] This final form

[40] The most recent presidential regulation on BRIN consists of two significant reforms. The first is the de-bureaucratization of government research organizations, and the second is the rearrangement of directorates based on a research and innovation business process. A deeper analysis on the reforms within this regulation would be of interest, but it is beyond the scope of this chapter.

[41] In late August 2021, two individual researchers filed judicial review of the S&T Law, specifically on the article concerning integration of R&D institutions; see Saputra (2021).

[42] As BRIN is established as a separate entity, the Ministry of Research and Technology was "merged" into the Ministry of Education and Culture, Research and Technology. Despite the official name, this merger is a *de facto* dissolution of Ministry of Research and Technology as its role is now folded into the Directorate General for Higher Education at the Ministry of Education, Culture, Research and Technology.

shows that the law was open to multiple interpretations among actors who were either only partially or not at all involved in the deliberations on the draft law at the parliamentary scrutiny stage. Thus, the implementation phase of this law and its associated regulations show the importance of three aspects: policy, polity, and politics.

In spite of this institutional reorganization issue, we can evaluate some aspects of the law positively. The S&T Law was adopted by the *Omnibus Law UU 11/2020*, which stipulated "science and technology as the foundation of all regulations in Indonesia." It is possible that some actors who were part of the establishment of the S&T Law were also involved in the establishment of the Omnibus Law 2020. It would be better in the future if the work performed in the preparation of the S&T Law could be recorded and used automatically during the policymaking process for subsequent legislation. The lesson learned is that a regulation can be a reference for other regulations of the same level when knowledge is shared among actors or institutionalized in the policymakers' institutions.

Clearly the game-changing characteristic of the S&T Law is its positioning of science and technology. Article 5 affirms science and technology as the foundation of the national development plan, and Article 1 mandates that the Science and Technology Advancement Master Plan (*Rencana Induk Pemajuan Ilmu Pengetahuan dan Teknologi*, or RIPIPTEK) be used as the reference for the National Long-Term Development Plan (*Rencana Pembangunan Jangka Panjang Nasional*, or RPJPN) and as the foundation of the National Medium-Term Development Plan (*Rencana Pembangunan Jangka Menengah Nasional*, or RPJMN). However, achieving this policy coherence will need to wait for a revision of the National Development Planning System Law (*Law No. 25/2004*) or a deliberation on the law of the next National Long-Term Development Plan 2025–2045.

Furthermore, although derivative regulations relating to this law have not yet been developed, some mandates from the S&T Law were implemented in 2020. For instance, Article 38 guarantees the inclusion of innovation products in the government procurement e-catalog.[43] The Ministry of Research and Technology and the National Public Procurement Agency (*Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah*, or LKPP) have been examining this pre-commercial procurement mechanism since 2014, and the

[43] Currently there are around 22 innovation products registered on the e-catalog that can be purchased directly by government institutions without any tender process.

recommendation was to propose a presidential regulation to create formal legal standing for it. However, legal standing of pre-commercial procurement was raised to a higher level of regulation (legislation) as a result of the S&T Law. This demonstrates that formal regulation is required to provide legal standing for a program to be implemented and the level of that regulation also affects the ease of coordination, particularly by state officials.

Conclusions and Recommendations

Two years after the S&T Law was passed, the Indonesian government has managed to introduce one derivative regulation—the Presidential Regulation on the National Research and Innovation Agency. As with the drafting of the law itself, the central government has played a leading role in the regulatory development and deliberation and continues to lead in formulating other policies that will form the legal basis for coordinating science and technology implementation for economic and national development.

This brings us back to the question of whether and how the S&T Law has accommodated the different visions and perspectives of key knowledge actors. The ministry, the House of Representatives, the ministry's advisory team, civil society, and the science and technology community at large all have a role to play in the making of this law and its implementing regulations. The first three mentioned had the biggest share of influence in shaping the content of the law.

Observations from both the deliberation and implementation process confirm the leading role the state plays in science policy, both directive and envisioning. Even though the idea of a knowledge and innovation ecosystem has become more widely accepted,[44] the central government still sees itself as the key actor that enables the system to function. This has some disadvantages, especially in civil society and the science and technology community.

As pointed out in this chapter, a main focus of the S&T Law has been the state consolidating resources for better management of science and technology for development purposes. To answer one of our own questions of this chapter, on paper this should be the most significant reform that is a consequence of the law.

[44] Since late 2019, various government representatives have started adopting the term "ecosystem" to refer to interconnectedness of actors in specific thematic areas. This includes the adoption of the term for the STI sector, including by the then Minister of Research and Technology.

However, there remain concerns that discussion on the social impact of science and technology is lacking, and that state actors do not really grasp how industry—the actual beneficiary of science and technology policy—works or functions, let alone how the private sector wants science to develop.

The deliberation process shows how the state still struggles to embrace its role in becoming a better enabler. CIPG's observations were that during both parliamentary deliberations and the implementation phases of the law to date, the involvement and participation of non-state actors in this policy domain has not been consistent. Non-state actors were invited in formal public hearings during the deliberation, but not so much during the implementation.

To conclude, the state has shown its central role in coordinating and consolidating science and technology, especially now that it has established the National Research and Innovation Agency as the leading coordinating institution. Yet upon closer examination, the state is not a unified actor and the final form of both the law and the agency itself reveals that each actor had different interpretations of, and visions about, how to utilize and coordinate science and technology. An alignment of those visions is not possible when the state is unable to consolidate those different interests. This is the most important lesson to be drawn from the passage of the S&T Law: the Indonesian state still struggles to comprehend the visions of both state and non-state actors.

One of the motivations behind the S&T Law was to establish a comprehensive policy that ensures a functioning ecosystem in Indonesia, in which science and technology actors can fulfil their potential.

The test that lies ahead for the state is defining the role it can play to enable and improve that ecosystem. To date, silos or "sectoral egos" have often been cited as the reason for institutional disarray. Breaking down these silos and developing a more dynamic vision of science and technology for Indonesia is the major task that lies ahead through implementation of the S&T Law.

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Reforming Incentive Mechanisms for Accessing Knowledge for Policy

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Introduction

On March 15, 2018, President Joko Widodo signed *Presidential Regulation No. 16/2018 on Procurement of Goods and Services*[45]—including significant reform to enhance the enabling environment of the Indonesian knowledge sector. This new reform followed advocacy from nongovernmental think tanks and key government actors such as the Ministry of National Development Planning (*Kementerian Perencanaan Pembangunan Nasional/ Bappenas*), the National Public Procurement Agency, and the Ministry of Research, Technology and Higher Education,[46] supported by the Australia-Indonesia Partnership for Pro-Poor Policy: The Knowledge Sector Initiative (KSI). This chapter presents two stories to highlight the opportunities this new regulation has created both for civil society organizations to access government research funding, and for the government to more flexibly commission high-quality policy research.

The first story concerns provision for civil society organizations (CSOs), including nongovernment think tanks, to access government procurement processes under a mechanism called Self-Managed Procurement Type III (*Swakelola Tipe III is the term introduced in Presidential Regulation*

[45] In early 2021, *Presidential Regulation No. 12/2021 was introduced as a revision to Presidential Regulation No. 16/2018*.

[46] Throughout this book we use different terminology for the Ministry of Research and Technology depending on the period of time which is referenced in the chapter. The ministry has gone through several changes throughout its history including several mergers. It is referenced using the following names: Ministry of Research and Technology; Ministry of Research, Technology, and Higher Education; Ministry of Education, Culture, Research and Technology. For more information regarding the context for these changes refer to Chapter 1 and Chapter 6.

No. 16/2018). This new mechanism allows government bodies to directly contract noncommercial entities to provide a range of services that are not limited to research. Under the previous procurement regulations, the government was not free to contract nonprofit, nongovernmental organizations, or other non-state actors. Public procurement was reserved for for-profit entities only, while public universities or individual experts could be engaged as part of self-managed arrangements. The regulations limited the diversity of knowledge and perspectives the government could consider in the public policymaking process. At the same time, sources of domestic funding for research organizations were limited, threatening their financial sustainability amid diminishing support from foreign donors.[47] The situation was a barrier to the procurement of research since many potential providers of research services are either not-for-profit entities or private educational institutions that did not have affiliated for-profit entities (see Nugroho, Y., Prasetiamartati, B., & Ruhanawati, S., 2016).

This chapter utilizes the development entrepreneurship approach introduced by Faustino and Booth (2014), an iterative and politically informed way of working with development assistance that takes its intellectual inspiration from a wide range of sources, and the Knowledge System Model introduced by Hertz et al. (2020) (discussed in Chapter 1 of this book). We use these to explore the implementation of two policy reforms: self-managed procurement and research incentive reform. In doing so we focus on three development entrepreneur components: goals, processes, and people.

Context

CSOs and nongovernmental organization (NGO) think tanks are essential to many activities relevant to development internationally. These include advocacy and community mobilization, particularly among marginalized people, monitoring and accountability of government institutions and other non-state actors, and service delivery to meet basic needs. NGO think tanks have been influential as elements of policy networks in US society throughout

[47] Every year, the Indonesian government provides grants for lecturers at public and private universities, but the governance of the funds has paid greater attention to the accountability process than to the output of the research itself. Researchers at the universities who received these grants were overwhelmed by the requirements for accessing the money, and found they were more concerned about keeping track of research expenses than with the study itself. On the other hand, the Ministry of Research, Technology and Higher Education, which managed the grants, was also overwhelmed by their accounting requirements and accountability process.

the 20th century (Radin, 2013). These organizations have sought to link knowledge and power, and reflect the US system of separation of powers, non-ideological politics, and a civil service directed by political appointees.

NGO think tanks are shaped by philanthropic individuals and foundations, intellectual developments in the social sciences, modifications in graduate and professional education, and energetic intellectual entrepreneurs (Radin, 2013). NGO think tanks also often act as a bridge between academia and policy actors and between states and civil society, serving in the public interest as an independent voice that translates applied and basic research into a language that is understandable, reliable, and accessible for policymakers and the public (McGann, 2019).

In Indonesia's case, after the resignation of President Suharto in 1998, CSOs and NGO think tanks became highly effective at analyzing government budgets and promoting the use of evidence in the policymaking process (Aspinall & Mietzner, 2010). Policymakers tend to have strong connections with universities, CSOs, and NGO think tanks.[48] However, evidence and knowledge seeking are dominated by informal relationships between policymakers and CSOs or NGO think tanks in Indonesia. Personal networks and patron–client relationships were central to the organization of power with the political and bureaucratic elite at both the national and subnational levels from Suharto's rule until the reform (reformasi) era from 1998 onward, and to some extent remain so today. The importance of personal networks is reflected in evidence-seeking behavior among policymakers in government institutions (Datta et al., 2011). Informal networks help build social capital because they are based on a relationship of trust: policymakers regard the evidence obtained as highly credible.

Professional links with current and past colleagues may be based on shared educational experiences (university), family and kin relationships, membership in a religious organization or congregation, ethnicity and cultural background, political affiliation, membership in professional associations, or engagement in nonprofit organizations and business connections. In short, professional networks tend to rely on connections to

[48] For instance, the Institute for Research and Empowerment (IRE) influenced policymakers, including government officials and legislators, on policy change and innovation in the formulation of village regulation (Fatonie, 2020; Pellini et al., 2018) (discussed in Chapter 2 of this book). The National Team for the Acceleration of Poverty Reduction (TNP2K), a government think tank, invited the SMERU Research Institute to discuss issues related to the Household Conditional Cash Transfer (Program Keluarga Harapan). The National Program for Community Empowerment (PNPM) steering committee, also composed mainly of government ministries, was said to have drawn on SMERU's studies (Datta et al., 2011).

individuals rather than to organizations (Datta et al., 2011; Pellini et al., 2018). A contributing factor to this pattern may have been the fact that under Presidential Regulation No. 54/2010, it was easier to contract an individual via direct appointment than to appoint NGO think tanks or universities via open tender (Datta et al., 2011).

Key Issues

The creation and transmission of knowledge for informing policy in Indonesia is entangled by myriad rules and regulations, as observed by Karetji (2010), Sherlock (2010), AusAID (2012), Sherlock and Djani (2015), and Pellini et al. (2018). Cumbersome procurement and inflexible budgeting procedures led to inefficient research spending by the government (Suryadarma et al., 2011). Nugroho et al. (2016) highlighted the regulatory constraints that existed for NGO think tanks and universities as knowledge producers. Several studies (Datta et al., 2011; Nugroho et al., 2016; World Bank, 2019) demonstrated inconsistencies in the application of procurement regulations and processes in Indonesia—procedures that are complex, ambiguous, and implemented in different ways across government. Until the 1998 reforms, the procurement process, through open tender, limited the participation of universities and NGOs in government-sponsored research, essentially removing them from the knowledge market.

This led to limited interaction between decision makers and the research community, and a lack of collaboration across agencies within government around research needs. As noted previously, the government contracted with individuals instead of engaging with research institutions and universities (Nugroho et al., 2016) to source research or advice. Prasetiamartati et al. (2018) also note that that Indonesia had no state budget allocation for research grants to nongovernmental research institutions. Current Indonesian fiscal law and regulation discourages multiyear research programs. Although annual renewals are permitted, the inherent uncertainty discourages researchers from planning multiyear initiatives. Research funding from state budgets follows rigid reporting and budgeting guidelines and creates difficulties in some bureaucratic procedures.

The provision of goods and services to the government, including research, is ruled by procurement regulations. Procurement regulations are open to multiple interpretations, and high-level officials continue to insist that nothing in the regulations prevents the government from engaging with

universities and nongovernment think tanks (Prasetiamartati et al., 2018). For a university to engage with the government, however, it needs to create a commercial entity; it cannot engage directly as a university. This added layer of bureaucracy discourages wide access to institutional research, leaving research procurement opportunities in the domain of universities that qualify for self-managed contracts (Prasetiamartati et al., 2018).

In practice, government generally uses "self-managed" contracts to engage directly with individual experts from universities and nongovernment think tanks, which is easier than contracting with the universities' private sector entities. This more casual approach to commissioning research consultancies limits the potential for providing government with high-quality research and policy analysis, as it does not draw on the broader resources of the university. Typically, the time constraints that attach to these contracts do not permit depth in the research.

From the perspective of universities and nongovernmental think tanks, this practice is designed to promote networking, rather than sustainable universities and research centers. When ministries and agencies want to commission serious research, these domestic financial and regulatory impediments often lead them to seek assistance from the international donor community. This outsourcing of policy research negatively affects the government's ability to manage its own research agenda, because any research commissioned through donor funding must also align with the donor's agenda. Further, the research is likely to be conducted largely by the international partner or agency's staff or its own national researchers, and to draw on the Indonesian research community only for secondary support. This further undermines the development of strong Indonesian research capacity (Prasetiamartati et al., 2018). To create a more effective research environment, the Government of Indonesia needs to make some radical policy changes.

Development Entrepreneurship

This chapter uses three components of Faustino and Booth's (2014) "development entrepreneurship" to influence policy innovation and change: goal refers to the selection of reform objectives that are technically sound, politically feasible, and can be sustained over the long-term by local institutions; process explains how the program works flexibly and politically, demonstrating responsiveness to opportunities, adaptation to changing

conditions and the power to adjust resources to address these opportunities and conditions; and people refers to partners in reform, with the capacity to undertake the work, relationships to support the changes sought, knowledge of the sociopolitical systems at play, and a willingness to take risks (Faustino & Booth, 2014). Those elements and the tools necessary to achieve them are summarized in Table 5.

Chapter 1 of this book investigated the role of four knowledge and policy actors in the use of evidence in the policymaking process: knowledge enabler, knowledge producer, knowledge intermediary, and knowledge user (Figure 2). We saw in Chapter 1 that a knowledge system is a holistic conceptualization that specifies a set of knowledge institutions and actors for a given country and delineates the interconnections among them (Hertz et al., 2020). Hertz and colleagues identified the main components of a national knowledge system as including:

- the supply of evidence or researchers (knowledge producers), comprising universities, research centers, and think tanks;
- the demand for evidence by policymakers (knowledge users), comprising government ministries, line agencies, and parliamentarians;
- the debate about evidence through public discourse around policy issues, involving civil society organizations, the private sector, and the media (knowledge intermediaries);
- the funding and regulations around generation of evidence, comprising regulatory authorities and public and private funding bodies (knowledge enablers) (Hertz et al., 2020).

In the following sections, we explore the interaction and communication between those actors through two cases of policy change and innovation.

Table 5. Three components of "development entrepreneurship"

Project elements	Management tools
Goal	Technically sound, politically possible reform
Process	Theory of change "Measures that matter" Timeline
People	Team of development entrepreneurs Coalition analysis and action map

Source: Faustino & Booth (2014).

Bringing Society Closer to the State: Insights From "Self-Managed" Procurement and Research Incentive Reform

Goal

Faustino and Booth further elaborate on their model by defining technical soundness in terms of sustainable impact on development processes, using three criteria: impact, scale, and sustainability (Faustino & Booth, 2014). Impact describes how likely the reform is to change the incentives and behavior of people and organizations sufficiently. It improves outcomes. Scale refers to whether the change will spread beyond the initial project site. Sustainability asks whether the reform is likely to continue without additional international development support and be institutionalized as part of the everyday practice of the bureaucracy or locked in through market dynamics.

Self-Managed Procurement Type III (Swakelola Tipe III)

The passage of a new Presidential Regulation No. 16/2018 on Procurement of Goods and Services has significant implications for the Indonesian knowledge sector because it enables the government to contract noncommercial entities, including private universities, research organizations, NGO think tanks, and civil society organizations, to conduct research. This provides policymakers with more options for sourcing evidence to inform policy and provides potential new sources of domestic funding for research organizations. The KSI Phase 1 played a central role in the passage of this regulation by advocating findings from the diagnostic studies of the Indonesian knowledge sector, in collaboration with some think tanks. In mid-2015, the Ministry of National Development Planning informed the KSI team that the National Public Procurement Agency was in the process of drafting revisions to the procurement regulations. The KSI acted on this opportunity and together with its think tank partners discussed an advocacy strategy (policy networks, public consultation and engagement, technical assistance) to engage with the agency. For a detailed account on this advocacy process, see Prasetiamartati et al. (2018).

There was good momentum behind the 2018 reform within the government, with key agencies already implementing regulations. While some civil society organizations are interested in using the new regulation, others find international donor funding more attractive, or are worried about a loss of independence if they access government funding. The KSI is capitalizing on

existing momentum through initial support for promoting the regulation while exploring longer-term forms of support for knowledge producers.

This 2018 regulation can further be divided into (1) procurement using a competitive bidding process for products and services the government needs and are widely available in the market (i.e., NGO think tanks act as vendors/contractors via a tender mechanism); or (2) the self-managed process for goods and services the government needs, but which cannot be provided by the private sector. In self-managed projects, the government budget holder may design and plan activities, but they can be executed by the budget holder's own employees, employees from other government offices, community groups, or civil society organizations. When they are engaged, they will act as implementing partners via direct appointment—or by contest if more than one NGO think tank is eligible (World Bank, 2019). The self-managed mechanism empowers the government institutions responsible for the budget by giving them more flexibility in implementing government programs.

Research Incentives Reform

In the process of drafting *Presidential Regulation No. 16/2018*, the KSI played a convening role to bring stakeholders together and identify the issue of research procurement using the state budget. The existing mechanism of state-funded research followed the general rules of procurement for the private sector. Research activity was considered the same as any other good or service procured by the government. For accountability purposes, the reporting system was based on the expenditure for each item, also known as an *input-based system*. The researchers were required to collect receipts, ranging from the costs of organizing focus group discussions to transportation fees, for the purposes of financial reporting. Researchers worked without the support of extra staff, and this process was an administrative burden and a drain on their focus and productivity. To address this issue, the stakeholders involved in the revision of *Presidential Regulation No. 16/2018* proposed Article 62 to provide special provision for research.

Article 62 of *Presidential Regulation No. 16/2018* exempts state-funded research from the input-based system. The major shift is to an "output-based" funding system, where detailed receipts are no longer required in financial reporting; the final report of the research is considered sufficient proof of accountability. Additionally, under Article 62 researchers are now eligible to

apply for multiyear funding and conduct research with multiple actors drawn from universities, civil society, or the private sector.

The change to the output-based system attempted to remove the administrative burden of performing state-funded research and accommodate the process of knowledge production that is not equivalent to the goods and services provided by private entities. Following the issuance of *Presidential Regulation No. 16/2018*, the Ministry of Research, Technology and Higher Education prepared the ministerial regulation regarding the implementation of the output-based system, namely the *Ministerial Regulation of Research, Technology and Higher Education No. 20/2018 on Research Management*.

A second dimension of research incentives addressed by government was the management of competitive research funds in Indonesia. There are multiple challenges in managing research in Indonesia, particularly at the estimated 3,250 universities under the supervision of the now Ministry of Education, Culture Research and Technology. Approximately 1,500 other universities are managed by other government institutions. The main challenges include research budget, quality of human resources, and the management of research. To obtain a broader estimation on the quality of research management of Indonesian universities, the then Ministry of Research, Technology and Higher Education instituted a scheme that clustered Indonesian universities every three years into four groups—Platinum (*Mandiri*), Gold (*Utama*), Silver (*Madya*), and Bronze (*Binaan*)—as a basis for assessing their eligibility for research funding, among other things. However, in 2019 only 2,000 out of 3,250 universities participated in the clustering scheme and only 47 universities made it into the Platinum cluster, with the majority sitting in the Bronze cluster.

Indonesian university lecturers were eligible to receive competitive grants from the then Ministry of Research, Technology and Higher Education (and remain so today), but the grant schemes relied on an input-based mechanism under which lecturers had to prepare a complicated financial report. Lecturers were spending most of their time dealing with financial reports but were also subject to strict auditing by the Audit Board of Indonesia (*Badan Pemeriksa Keuangan*, or BPK). The situation led to a drop in grant applications and a drop in Indonesian research represented in international publications. On top of this, research grants were categorized as a standard form of government procurement, which was subject to rigid regulations that were not appropriate for managing research grants.

As an institution responsible for managing the research funding for public universities, the Directorate of Research and Community Service (*Direktorat Riset dan Pengabdian Masyarakat*, or DRPM) of the then Ministry of Research, Technology and Higher Education released 2018 Research Grant Guidelines Edition XII (*Buku Panduan Pelaksanaan Penelitian dan Pengabdian Masyarakat di Perguruan Tinggi Edisi XII 2018*), which used an output-based mechanism. The Directorate of Research and Community Service is the first institution to implement an output-based mechanism in response to regulatory change.

In these guidelines, the maximum amount of funding given to the researchers is linked to the Regulation of the Ministry of Finance on "output-based standards" (*Standar Biaya Keluaran*, or SBK). It regulates the budgeting of research activities by taking into account the research types, the fields, and the sub-outputs. Applicants are required to make a research budget plan with reference to the SBK for research. The justification for the budget plan is based on research needs according to the characteristics, categories, schemes, and area of research focus. Details of the plan contain components of material expenditure, data collection, data analysis, equipment rental, reporting, outputs, and additional outputs.

In short, these two policy innovations and reforms—Self-Managed Procurement Type III and research incentive mechanisms—are in line with the three criteria for identifying technically sound, politically feasible reforms, where impact, scale, and sustainability should be considered simultaneously and not sequentially. With the support of the KSI and its networks, through these policy changes the government took an important step toward improving the quality of research at public and private universities, which could result in improving the research environment (opening more space for increasing research incentives and reducing administrative burdens). These reforms also have been implemented without additional KSI support, becoming part of the everyday practice of government bureaucracy and research communities.

Processes

To pursue policy innovations, the KSI used formal and informal approaches through its networks to advocate for, and influence, these regulatory reforms to Self-Managed Procurement Type III and research incentive mechanisms.

Self-Managed Procurement Type III (Swakelola Tipe III)

As discussed earlier, before 2018, NGO think tanks, usually instituted as a foundation or association of individuals within a not-for-profit operation, were excluded from government procurement of research; the government could only engage an individual consultant from a nonprofit organization as a resource person in events such as seminars or workshops. It was only in 2018 that a special clause for Self Managed Procurement Type III (*Swakelola Tipe III*) was introduced in *Presidential Regulation No. 16/2018 on Procurement of Goods and Services* in relation to foundations or associations (CSOs).

The regulation permits government entities to enter into contracts with CSOs, including NGO think tanks. This mechanism allows policymakers to commission services from a wider range of organizations, including nonprofit and mission-driven organizations, to fill needs that cannot be met by profit-driven companies. CSOs are often in a better position to deliver certain services, such as community empowerment programs; assistance to small and medium enterprises; policy research; or raising community awareness related to health, education, economic development. The existence of Self-Managed Procurement Type III potentially increases the sources of information and the range of viewpoints that might inform the public policy process.

From the perspective of CSOs and NGO think tanks, Self-Managed Procurement Type III allows the benefits of the work (financial, reputational) to accrue to the organization rather than to individuals. The regulation also potentially increases sustainability for NGO think tanks because it provides an additional potential source of domestic funding for noncommercial entities (including research organizations and private universities). Even before the passage of the reform, some NGO think tanks had become, in effect, extensions of government agencies because these agencies now depend on them to do their essential work (Radin, 2013). They are an organizational expression of the blending of ideas, politics, and policy outside formal political areas (Radin, 2013).

To engage in a Self-Managed Procurement Type III contract, CSOs and NGO think tanks must meet several requirements, including relevant technical competencies and experience, compliance with NGO think tank registration requirements with the Ministry of Legal and Human Rights, and tax and financial audit requirements.[49] The financial and administrative

[49] The financial audit requirement was dropped in early 2021 through the National Public Procurement Agency Regulation 3/2021 on Self-Managed Procurement (Swakelola) Guidelines.

requirements were put in place to ensure only CSOs and NGO think tanks with solid technical expertise and in full compliance with prevailing regulations can enter into a contract with the government. The requirement for technical expertise can be met through complementary engagement with other organizations, as long as this is documented to the government in an advance agreement.

Research Incentive Reform

The KSI took the initiative to advocate for these policy changes in late December of 2015 (Prasetiamartati et al., 2018). In this policy advocate role, the KSI facilitated the intergovernmental meetings hosted by the then the Ministry of Research, Technology and Higher Education, which were attended by high-level representatives from the National Public Procurement Agency; Ministry of Research, Technology and Higher Education; Bappenas; the University Rectors' Forum; the Ministry of Finance; and the Audit Board of Indonesia. The meetings concluded that there was a need for policy reform to accommodate the procurement of multiyear research, achievable by adding a new section to the regulations.

As a follow-up, in January 2016 the Ministry of Research, Technology and Higher Education held several consultative meetings with the National Public Procurement Agency and the Ministry of Finance. It was agreed that there was a need for the new ministerial decree to stipulate that the Ministry of Finance regulate financial reporting requirements for research projects. The National Public Procurement Agency would be responsible for implementing regulations, and the Ministry of Research, Technology and Higher Education would enact the guidelines on quality assurance.

Subsequently, the KSI engaged a public administration expert from Diponegoro University and a legal drafter from the Indonesian Center for Law and Policy Studies (*Pusat Studi Hukum dan Kebijakan*, or PSHK). The *Ministry of Finance Decree on Output-Based Research* was issued in June 2016 and followed by implementing guidelines on quality assurance processes for research outputs issued by the Ministry of Research, Technology and Higher Education. AKATIGA—a CSO and think tank—and the Indonesian Center for Law and Policy Studies as part of the KSI's policy network worked closely with the National Public Procurement Agency and Ministry of Research, Technology and Higher Education officials to draft the new section of the procurement regulation covering research and two implementing regulations on procurement of research services and on self-managed contracts, to be

issued by the Ministry of Research, Technology and Higher Education and the National Public Procurement Agency. The KSI continued its support through engaging these government institutions to refine the draft and confirmed that the draft included articles on procurement of multiyear contracts and provisions allowing non-state actors to bid on a wide range of government contracts.

The final bill of the procurement regulation was discussed at a cabinet meeting in late December 2016, chaired by President Joko Widodo. After numerous intensive inter-ministerial meetings led by the Coordinating Ministry for Economic Affairs, the revised procurement regulations were signed by the president on March 15, 2018.

Presidential Regulation No. 16/2018 on Procurement of Goods and Services now provides the legal basis for the government to procure the services of noncommercial entities such as universities and NGO think tanks/CSOs. This decree has been further operationalized by ministries, for instance by Ministry of Research, Technology and Higher Education; the National Public Procurement Agency; and the Ministry of National Development Planning through *Minister of National Development Planning Regulation No. 4/2018*.

Meanwhile, the actual implementation of the procurement regulation provisions is expected to be incremental, with mixed prospects for it being applied. The government, NGO think tanks, and CSOs are still not familiar with the regulation and fear it may lead to corruption, the potential for Audit Board of Indonesia audits, and a loss of independence (for NGO think tanks and CSOs). Prospects for using the procurement regulation are better where the government and non-state actors have a preexisting relationship. Only the Ministry of Research, Technology and Higher Education applies the special research provision, Article 62 of the procurement regulation, which allows for multiyear, competitive and output-based research. Ministerial research units tend to conduct more substantive research in-house or for other agencies, rather than this being contracted out to external providers. The KSI conducted a scoping exercise to better understand this issue and identify potential openings for applying Article 62 to other agencies.

People

The last approach of development entrepreneurship concerns the people and organizations that are involved in the implementation of this innovative policy. As Faustino and Booth (2014) pointed out, a critical contribution is

made by formal and informal coalitions of people inside and outside the bureaucracy who are willing to invest their limited political capital to introduce a specific reform. Groups like this are the main provider of iterative learning, coordination of effort, brokering of relationships, and the sense of direction within the wider coalition.

Self-Managed Procurement Type III (Swakelola Tipe III)

Since 2018, in collaboration with the National Public Procurement Agency and AKATIGA, the KSI has supported development of socialization materials and organized socialization sessions for NGO think tanks and CSOs and their government partners. Some sessions were also organized with NGO think tanks and CSOs that work with other DFAT-funded programs and networks of CSOs. Through surveys, the KSI identified CSOs that had fulfilled all requirements to implement Self-Managed Procurement Type III and organized consultation sessions with these CSOs and their usual government partner to explore potential collaborations. The KSI also supports promotion of this mechanism in South Sulawesi province, where the KSI conducted a knowledge-to-policy pilot.

Solidaritas (a consultant firm), in collaboration with National Public Procurement Agency and supported by the KSI, conducted two evaluation studies on the utilization of Self-Managed Procurement Type III (Solidaritas, 2020, 2021). The 2020 study found an increasing number of the *Swakelola Tipe III* contracts, shown in Table 6. This reveals a promising trend of a significant increase in the number of *Swakelola Tipe III* contracts in 2019, which indicates that the government is gradually starting to use the mechanism. Some KSI partners have used *Swakelola Tipe III* in their work with the government since 2018, and there are more think tanks, including AKATIGA, using the mechanism in 2020. A separate round of the study found a decreasing number of such contracts in 2020, partly due to a reallocation of government budget to handle the COVID-19 pandemic, but the total known contract values in the same period soared because the pandemic response included three Cash for Work contracts.

As the National Public Procurement Agency does not have yet a method to record or trace the utilization of *Swakelola Tipe III*, the 2018 and 2019 data in Table 6 were traced through cases known to the National Public Procurement Agency, the KSI and information distilled from the Information System for Procurement Plan (*Sistem Informasi Rencana Umum Pengadaan*, or SiRUP), which maintains records of all government procurement plans. In 2020, the

Table 6. Number of known Swakelola Tipe III contracts

Year	Number of known contracts	Total known value
2018	5	IDR 4.3 billion/US$ 307,000
2019	41	IDR 9.9 billion/US$ 707,000
2020	18	IDR 109 billion/US$ 7,785,000

Source: Solidaritas (2020 and 2021).
USD 1.00 = IDR 14,000

study included a survey of participants in the KSI's organized socialization sessions to identify examples of *Swakelola Tipe III*.

In parallel to the KSI's efforts through its think thank partners, the Centre for Innovation Policy and Governance (CIPG)—an NGO think tank and one of the KSI's strategic partners—has also been promoting the implementation of *Swakelola Tipe III* as a working mechanism for all its projects with the government since the passage of *Presidential Regulation No. 16/2018*. From 2018 to 2020, CIPG has been awarded six projects using the *Swakelola Tipe III* mechanism, carried out with several national-level government partners, such as the Creative Economy Agency; the Ministry of Research, Technology and Higher Education; and the Ministry of Industry.

CIPG has encountered several challenges in promoting the implementation of *Swakelola Tipe III*. First, there were uneven levels of awareness among government officials regarding Self-Managed Procurement Type III and its operationalization. In initial discussions, government officials were usually not aware of this mechanism, and CIPG was left to propose the idea and explain it. The pocketbook compiled by the AKATIGA Institute was very helpful for CIPG in meeting this challenge. Second, several officials showed reluctance in using *Swakelola Tipe III*. Implementation stories were still limited, and they considered this mechanism new territory. Therefore, they opted to use a more familiar mechanism and wait for success stories from other government agencies or units. Lastly, there were challenges on the technical level, such as different reference points for the proposed personnel rates, management fee inclusion, and differences in financial management systems and perspectives between NGO think tanks and commercial entities such as corporations.

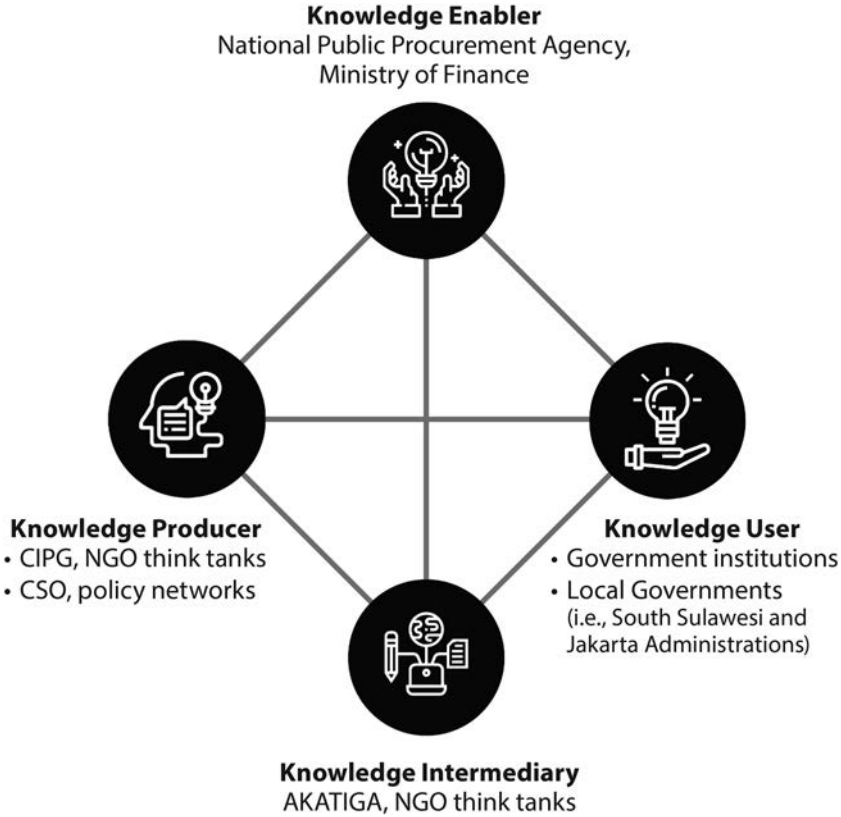
The case of *Swakelola Tipe III* shows the importance of the role of knowledge enabler, in this case the National Public Procurement Agency, to change the research incentive mechanism by creating this new government regulation, which allows the government as knowledge user to contract CSOs

as knowledge producers. In promotion and facilitation of this process, certain CSOs (including some think tanks) also play a role as knowledge intermediaries in promoting the mechanism to government and CSOs. On the other hand, some CSO government watchdog organizations have opted out of using *Swakelola Tipe III*. In the case of the National Secretariat for the Indonesian Forum on Budget Transparency (*Sekretariat Nasional Forum Indonesia untuk Transparansi Anggaran*, or Seknas FITRA), this is in line with their mission to promote good accountability practices.

Figure 17 illustrates the channels of communication between four knowledge actors that were involved in this policy reform.

In promotion and facilitation of this mechanism, certain CSOs (including AKATIGA, Seknas FITRA, and YASMIB Sulawesi) also play a role as

Figure 17. People involved in the implementation of Self-Managed Procurement Type III



knowledge intermediaries in promoting the mechanism to government and CSOs. When the National Public Procurement Agency (a knowledge enabler) uses *Swakelola Tipe III* to procure a study, then it also becomes a knowledge user. These examples show that the division between these four knowledge actors in the model is not clear-cut, but rather porous.

Research Incentives Reform

As we noted earlier, the KSI pursued the opportunity to strengthen research funding mechanisms for policy research and analysis. The most significant results were that Article 62 of the procurement regulation is now specifically designed to allow multiyear funding, and financial accountability is based on research outputs (rather than inputs). The KSI also sought to improve research governance by encouraging government agencies to develop research agendas and use competitive peer review processes to select research providers (Knowledge Sector Initiative, 2020).

In 2020, the KSI conducted a scoping exercise to understand how widely the special research provision is being used and what lessons can be learned from these experiences to encourage its use.

The results from that work showed that, while the Ministry of Research, Technology and Higher Education has been implementing the output-based mechanism for university-targeted competitive research grants, this mechanism is not yet implemented in other ministries and governmental institutions. However, through their internal research units, the Ministry of Health and the Ministry of Religious Affairs have implemented this approach to respond to policy priorities. As part of the scoping exercise, the KSI managed to learn from a research unit known as the Center for Research and Development of Religious Literature and Heritage (*Pusat Penelitian Lektur dan Khazanah*) of the Ministry of Religious Affairs that has used the output-based mechanism. At the preparation stage, the center invited representatives from the planning and budgeting inspectorate, the Audit Board of Indonesia, and the Ministry of Research, Technology and Higher Education to obtain expert opinion on reporting and accountability schemes for output-based mechanisms. With a clearer view, the head of the Research Unit issued *Decree No. 42/2018* concerning *Implementation Guidelines for Output-Based Research*.

The Ministry of Religious Affairs' research unit experience shows that apparently the Ministry of Research, Technology and Higher Education was not mandated to increase the frequency of implementation of output-based

mechanisms in other ministries. There is no legal pressure or obligation for ministries and governmental institutions to actually follow *Ministry of Research, Technology and Higher Education Regulation No. 20/2018* on Research Management. Indeed, they can create their own regulation, as the Ministry of Religious Affairs did. However, if the ministry and government institutions are interested in implementing the output-based mechanism, by request, the Ministry of Research, Technology and Higher Education and its successor ministry can provide guidance based on its implementation of output-based mechanisms in disbursing competitive research grants to public universities. In other words, the decision to use this mechanism is up to each ministry's internal deliberations, including establishment of a peer-review committee who will judge a competitive grant scheme and manage its monitoring and evaluation.

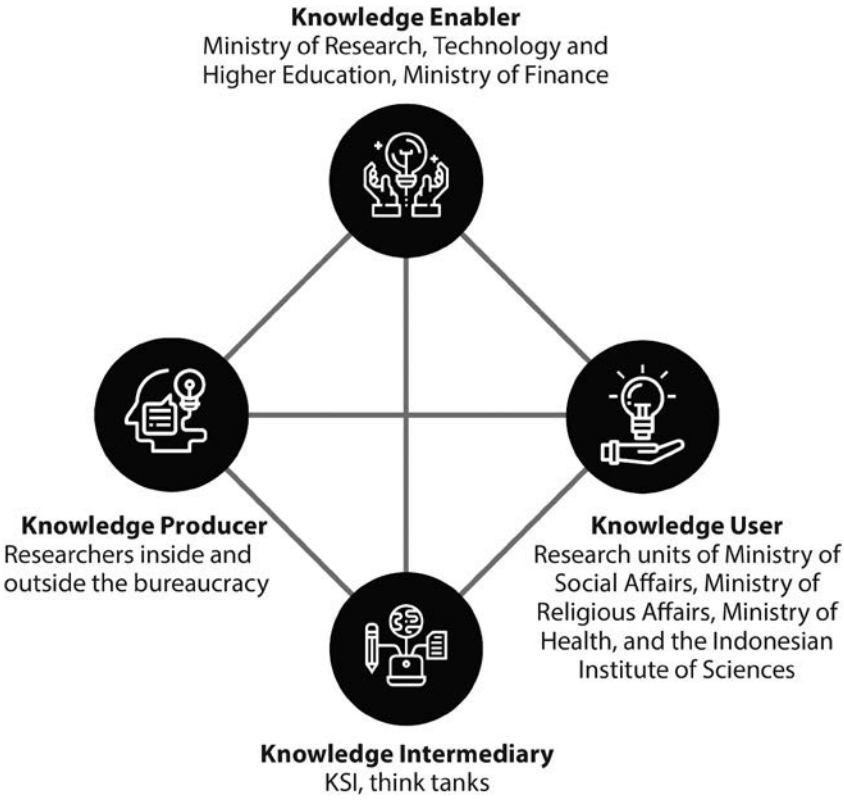
To support the implementation of output-based mechanisms in wider institutions, the KSI worked with the Indonesian Institute of Sciences and the Ministry of Social Affairs to facilitate their engagement with *Ministry of Research, Technology and Higher Education Regulation No. 20/2018 on Research Management*. It was expected that through a better understanding of the output-based mechanism, the Indonesian Institute of Sciences and the Research Agency of Social Welfare at the Ministry of Social Affairs could convince its internal inspectorate, planning, and budgeting bureaus of the merits of shifting from input-based to output-based mechanisms for procuring research. The process was also to confirm whether the Indonesian Institute of Sciences and the Research Agency of Social Welfare within the Ministry of Social Affairs can start to conduct research in collaboration with nongovernmental research institutions.

From the perspective of the knowledge system model, the second case also shows reforms initiated by the knowledge enabler, that is, the Ministry of Research, Technology and Higher Education, to change the rules of the game between knowledge producers (researchers inside and outside the state bureaucracy) and knowledge users (various ministries). Figure 18 shows the channels of interaction between four knowledge actors that engaged in the research incentive mechanism reform.

Conclusion

This chapter investigated the reform in research incentive mechanisms using three components of development entrepreneurship introduced by Faustino

Figure 18. Actors involved in the implementation of research incentive reform



and Booth (2014): goals, processes, and people. These policy innovations—Self-Managed Procurement Type III and research incentive mechanisms—are proving sustainable thus far and are likely to continue in the long run without additional support from the KSI. Improved communication and interaction between people involved in the implementation of these policy reforms has also been an essential factor in the successful uptake of these mechanisms. Collectively, these reforms have brought state institutions closer to civil society through policy research and analysis that is likely to result in better public policy.

The two policy regulations reviewed in this chapter significantly reformed research incentive arrangements both at the upstream level in the knowledge ecosystem (scientific research funding and university-based research

incentives) and at the downstream level (on-demand policy research accessible via self-managed regulation). The upstream reforms help to bring research funding mechanisms closer to the real conditions of research activities and incentivize more research for society. We suggested that Article 62 on *Presidential Regulation No. 16/2018* was intended to be an intermediate goal in the process, lifting the administrative burdens of the previous input-based system. This matters because research conducted scientifically is not equivalent to the type of service usually procured from private entities: knowledge production is an evolving process in which each field produces unique findings that cannot be standardized like goods and services can. Regulations such as this one that help clarify this distinction are likely to improve the flow of funding and in doing so improve the quality of policy research.

The downstream reforms analyzed in this chapter open up policy collaborations to nongovernment partners more systematically, and as institutions rather than as individuals. The ultimate goal is to broaden and enrich the sources of information and analysis available to government in the formulation of policy in Indonesia. In analyzing these we also highlighted the importance of trust building in the implementation of these new engagement mechanisms.

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Knowledge Systems in International Perspective: Experiences From the SEDI Program

Daniel Harris, Claire Hutchings, Vaqar Ahmed, Richmond Commodore

Introduction

This chapter explores the applicability of the Knowledge System Model 2.0 framework (introduced in Chapter 1 of this book) in contexts outside Indonesia by drawing on experiences in the Strengthening the Use of Evidence for Development Impact (SEDI) program. Initially designed as a five-year program (2019–2024) funded by the UK's Foreign, Commonwealth and Development Office (FCDO), SEDI worked to increase the use of evidence by policymakers and promote innovation in increasing evidence-informed policymaking (EIPM) in Uganda, Ghana, and Pakistan.[50] The SEDI program did not set out to explicitly test or apply the framework explained in Chapter 1, but the conceptual framing and findings of its analytical phase and experiences to date in the early stages of implementation have used analogous concepts to help make sense of the complex web of interactions that shape the use of evidence in different policymaking contexts.

The next sections explore aspects of this alignment, including the political dimensions of policy and evidence, the importance of connections between components of the ecosystem, and overlap between system components. The chapter draws out SEDI's focus on "subsystems" that exist within the broader knowledge system. The following section then focuses on how this approach has been operationalized in SEDI's country work before the final section synthesizes insights SEDI's approach may offer for the Knowledge System Model 2.0 framework and future work on EIPM.

[50] In light of the seismic impact of the COVID-19 pandemic on the UK economy, the UK moved to a target of spending 0.5 percent of GNI as ODA in 2021. Following the move to 0.5 percent, SEDI was closed earlier than planned. SEDI was funded by UK Aid from the UK government; however, the views expressed here do not necessarily reflect the UK government's official policies.

Reflections on the Applicability of the Knowledge System Model 2.0 Framework

To better understand policy and evidence narratives in the countries in which they work, SEDI developed an analytical approach that embraced the political nature of EIPM (Parkhurst 2016). This methodology brought together the emphasis political economy analysis (PEA) places on institutions, incentives, and power with a specific focus on evidence and its role in policymaking (Shaxson et al., 2021). This included analysis of structural factors and the formal and informal rules of the game; an exploration of stakeholders (including evidence providers, users, and intermediaries) to understand how relationships and power dynamics influence policy decision-making; and a consideration of the relative interest and commitment of organizations with a remit to use evidence to strengthen or develop their evidence systems.

This approach has a strong consonance with the Knowledge System Model 2.0 framework, with particular alignment around two core principles: (1) to place knowledge systems in a political economy context; and (2) to better understand how system components relate to each other, formally and informally, where those relationships are strong and where they are weak. Both approaches are concerned with what each of these then implies for how different pieces of evidence are regarded in terms of their quality, credibility, and legitimacy, and what they mean for whose voices are strong in the policymaking process and whose are weak. Snapshot examples from each of the SEDI country cases exemplify this alignment.

Knowledge Systems Are Deeply Embedded in Political Economy Contexts

Pakistan, Uganda, and Ghana are very different places with diverse political and economic histories. Understanding those contexts is a precondition for influencing and strengthening knowledge systems and understanding how and why evidence is used (or not) for policymaking, whose evidence is considered, and how it is considered. In Pakistan, the policymaking process is subject to several forms of elite capture that reinforce the power of certain actors over others and over key decisions relating to Pakistan's economy, society, and politics (Ahmed, Ahmed et al., 2021). While there are signs that the hold of elites may be loosening in some areas, the influence of elite factions—including the nexus of politicians, the military, the judiciary, and the bureaucracy—permeates all stages of a policy cycle, with significant implications for the role of evidence within each stage.

The political setup at the federal level often includes representatives of large business concerns with roots in agriculture and manufacturing

businesses. There are vast incentives for large firms to have representation in Cabinet and other government committees. For example, governments routinely allow several owners of large-scale businesses to become part of the Cabinet without taking the route of competing in general elections. With space shrinking for civil society to engage in dialogue and policy debate in Pakistan, the space for knowledge producers external to government structures is becoming more constrained (Khan et al., 2020). Some civil society actors are able to navigate this through careful management of relationships but, broadly speaking, openness and contestation of evidence are limited. The situation has been further complicated by the creation of quasi-state-sponsored research and advocacy institutions that compete with independent civil society actors and universities for human and financial resources in the space of knowledge production.

Uganda has had a tumultuous history marked by various forms and degrees of political violence and instability, which have had a profound influence on state-society relations. State and political elites dominate society (Rubongoya, 2007) in a "weak dominant party-political settlement," with strong clientelist networks centered on the president and his immediate circle (Bukenya & Muhumuza, 2017). Institutional arrangements are, however, in a state of flux as a result of a transition to a programmatic approach under the National Development Plan III (Republic of Uganda, 2020). This shift, reconstituting sectors into 18 programs, implies several changes to government planning, program design, implementation, budgeting, and reporting, and offers important opportunities for deeper systemic changes that promote and strengthen evidence use.

As responsibilities shift from individual ministries to leading bodies (the ministry designated to coordinate implementation of a program), new relationships are being explored and established, and agencies are looking to renegotiate control over resources and increase power, influence, and prestige. Institutional reform of this magnitude will take years to embed, but already these negotiations have been heavily influenced by the prevailing political settlement.[51] This means it is not at all clear whether these reforms will generate incentives for the emerging constellation of policy actors to embrace EIPM, diversify sources of evidence, or otherwise change the relationship between knowledge and politics.

[51] For more background on the concept of political settlements, see Khan (1995) and di John and Putzel (2009).

In Ghana, the realities of policymaking are heavily influenced by a "duopolistic competitive clientelist political settlement." Electoral competition between the two leading parties is intense, with a high-stakes, winner-take-all system contributing to an alternation of power that shortens time horizons and contributes to disrupted and fragmented policies. Power is exercised and maintained through the executive's extensive and increasing use of political appointments to positions in the bureaucracy, which furthers the polarization of society on partisan grounds (Gatune et al., 2021). The extractive nature of the political ruling elite consistently undermines the prospects for building a broad political consensus on a national development agenda. As a result, "the national interest has become fragmented along party lines, with the result that each new administration has followed its own short-to-medium-term development agenda" (Abdul-Gafaru, 2017).

Though on paper Ghana has a clear approach to policymaking, in reality the process, including the use of evidence, is shaped by these political dynamics, especially the interests of the ruling elite, party financiers, and well-organized groups. Pervasive partisanship constrains the role of nongovernmental evidence producers in policy formulation and hampers uptake of their research, with knowledge producers often perceived (or cast) as partisan "friends" of the opposition and "enemies" to the sitting government (Menon et al., 2021).

The Complexity of Knowledge System Components, and Relationships Between Them

Chapter 1 of this book provides a broader review of the evolving understanding of knowledge systems. We do not repeat that here, but SEDI's experience in the three countries considered in this chapter points to three aspects that emerge as particularly salient: (1) the centrality of relationships, (2) managing heterogeneity, and (3) understanding multiple roles. We consider each of these in the following sections.

The Centrality of Relationships. SEDI's analysis identified a variety of familiar issues related to technical capacity, staffing, and funding that affect the way knowledge system components function. However, it also pointed to issues arising from relationships between those components. In some cases, common challenges could be identified, such as a "lack of trust and limited institutional platforms affect[ing] government engagement with external agencies producing evidence in the three countries" (Menon et al., 2021). These findings resonate with EIPM work on knowledge transfer and gaps between the "two communities" of knowledge producers and users (Parkhurst, 2016). But within

individual cases, it becomes clear just how complex these relationships can be. As an illustration, Figure 19 provides an overview of SEDI's analysis of relationships among different actors involved in family planning policy in Uganda. The reader need not be concerned with the detail of this mapping but rather observe the complex web of relationships (a feature noted for its contributions to the resilience of a knowledge system; Stewart, Dayal et al., 2019), and also how those relationships vary in quality, direction, and intensity.

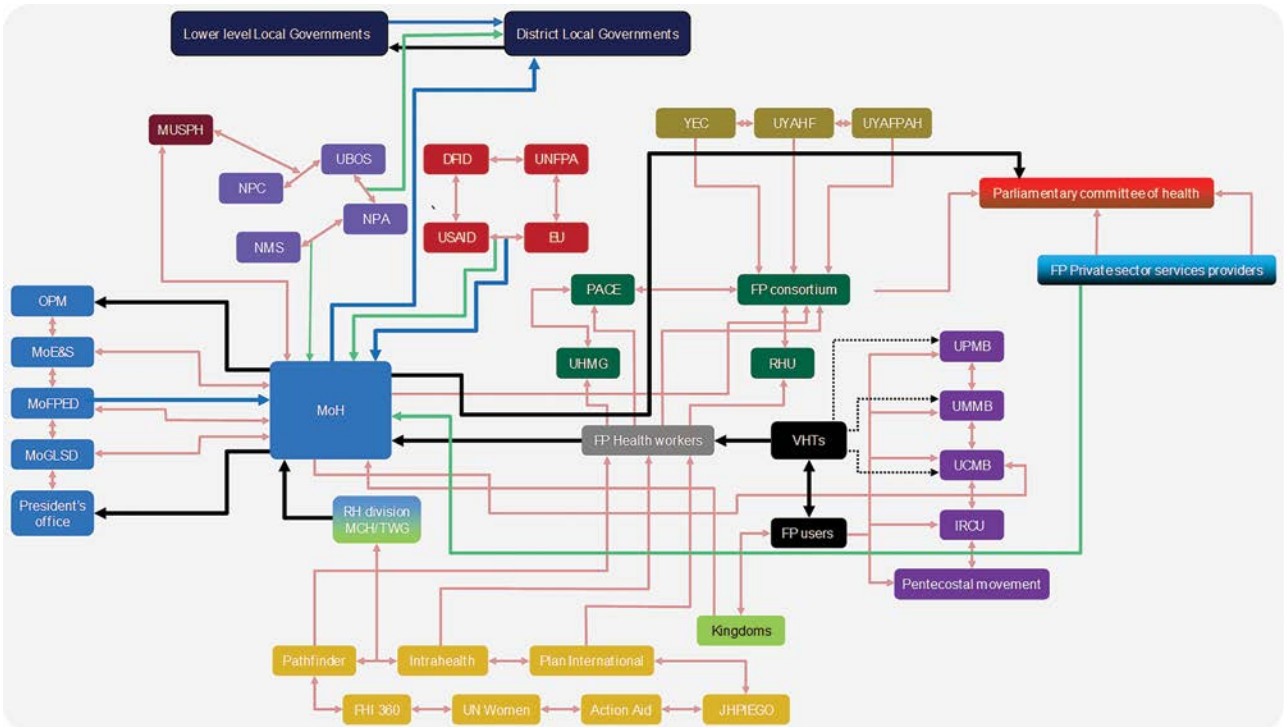
Managing Heterogeneity. While the original knowledge systems framework did not set out to suggest that all actors in a given component were the same, the extent to which SEDI encountered heterogeneity echoes findings that encourage exploration of this additional layer of complexity (Stewart, Dayal et al., 2019). For example, SEDI's experience in both Pakistan and Ghana pointed to divergence between the priorities of elected political leaders and those of the permanent civil service—with implications for their collective and independent roles as evidence users. Even within the civil service, the demands of senior versus mid-career officials varied. In practice, this manifested in key differences including individual mandates, the extent to which specific political ideologies shaped thinking and behavior, the degree of openness to receiving evidence, and the view of whose evidence matters. Such findings may be unsurprising once knowledge systems are seen in a political context, but they nevertheless imply an understanding of the challenges of improving EIPM that is grounded in often personalized incentives.

Understanding Multiple Roles. Mapping exercises in all three SEDI countries highlighted the multiple roles many stakeholders play in the knowledge system. Figure 20 shows a summary of the stakeholders identified in the analytical phase as playing key roles in the knowledge system supporting economic development policy in Ghana, with those highlighted in green straddling more than one function in the evidence ecosystem. This multiplicity of roles affects not only capacity needs, but also the way stakeholders are seen by others.

In these observations, SEDI's experience echoes key features of the Knowledge System Model 2.0 framework and its embrace of the complexity and messiness of reality. However, the SEDI approach also differed in some important respects. In contrast to the KSI's largely sector-agnostic[52] approach

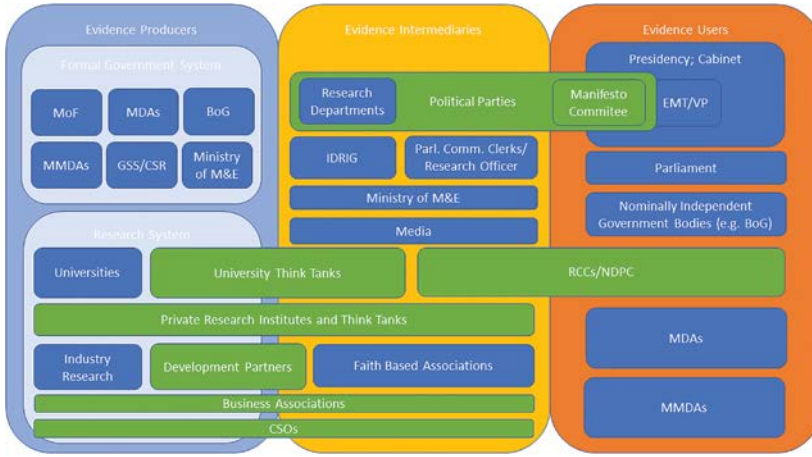
[52] By "largely sector-agnostic" we refer to the fact that most of the reforms pursued in Phase 2 aimed to influence knowledge-to-policy processes across a wide variety of sectors. For example, reforms targeting research financing did not specifically aim to influence education financing, health financing, or other specific sectors, but rather sought to influence underlying institutions that shape research financing across sectors.

Figure 19. Social network analysis of family planning in Uganda



Source: From Ahaibwe et al. (2021). Reprinted with permission.

Figure 20. Evidence system for economic development in Ghana



Source: Adapted from Gatune et al. (2021). Copyright 2021 by SEDI. Adapted with permission.

during its second five-year phase, SEDI aimed to use an initial analytical phase to support a process of sector selection that would identify subnational spaces where SEDI could influence sustainable changes in incentives and capacities for EIPM. As a result of the emergence and impact of COVID-19, sector selection was delayed and then eventually dropped as a formal process in favor of letting SEDI be responsive to government requests related to evidence use. What remained unchanged from the initial thinking is the recognition that focusing on the national level can mask important variations in the way evidence is used (or not) in support of policymaking and, perhaps more importantly, the factors that contribute to such variations and shape the potential for catalyzing change. This is reviewed in the next section.

Why Subsystems? The Roots of SEDI's Approach

From its initial design, SEDI's approach was informed by the experience of the UK Department for International Development-funded Building Capacity to Use Research Evidence (BCURE) program, with which some SEDI partners had been involved. Among the lessons from that experience was the conclusion that "BCURE had greater success in catalyzing the key mechanisms where partners located an entry point in a sector or government institution where there was existing interest in evidence, clear incentives for reform, and a mandate for promoting evidence use" (ITAD, 2018).

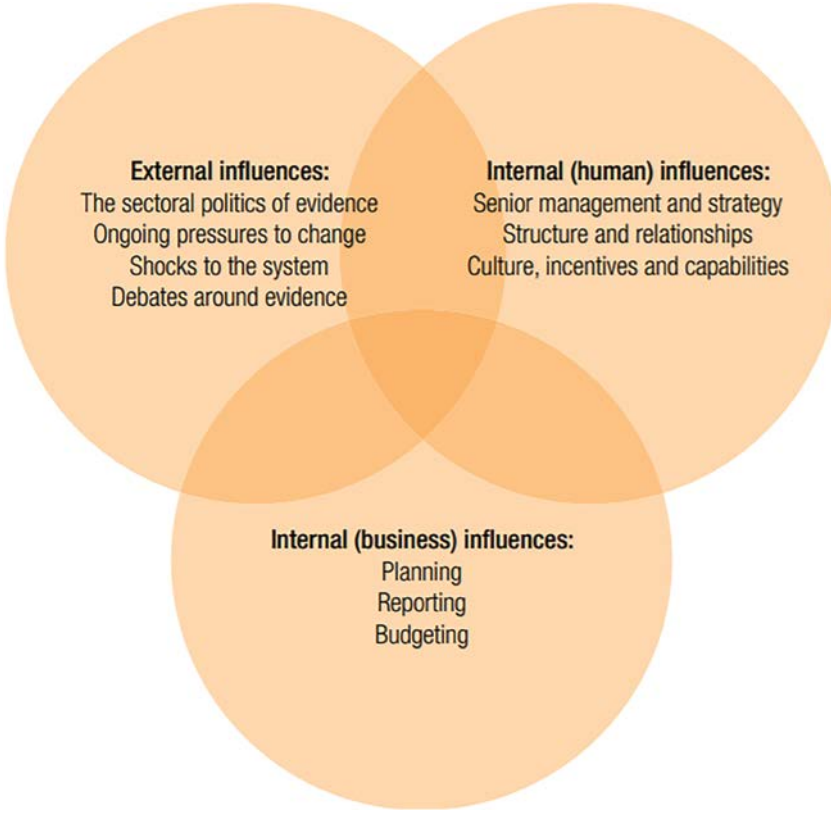
This conclusion speaks to an issue that has been of interest in public sector reform work for several decades: understanding how and why pockets of relatively good performance emerge, and in some cases persist, in contexts that are often otherwise subject to significant governance challenges and often disappointing performance. Such pockets have since been referred to by various terms, including "pockets of productivity," "positive deviants," "islands of efficiency," and "islands of effectiveness" (Daland, 1981; Andrews, 2013; Evans, 1998; Crook, 2010, respectively). However, there is a relatively simple shared recognition that even within the same macro context, there often exists significant variation in policy processes or the performance of public organizations.

Shaxson et al. (2016) extend this thinking to EIPM, taking the level of the organization as a middle ground. Rather than considering the generalized concepts of "productivity," "efficiency," or "effectiveness," the authors encourage us to see how individuals (often the focal point of evidence-based policy training interventions in the past) operate within a broader organizational context. By exploring the numerous components that make up that context (Figure 21), the authors are able to clarify the way in which these shape the form and extent of evidence use. There is substantial common ground shared with factors identified as influencing the emergence of pockets of productivity in the public sector reform literature (e.g., Leonard, 2008). In both, there is a combination of forces that encompass internal managerial and administrative variables, while also clearly identifying an external political dimension. There is a recognition of the importance not just of formal structures, but also of informal norms, culture, and personalities—and crucially, potential for these components to vary across organizations or parts of government.

In summary, at least three propositions are clear:

1. While policymaking takes place within a broader context, it does not take place in a single monolithic system; rather, specific decisions are made, and actions taken in formal and informal subsystems that can be identified across multiple dimensions and linked to one another in sometimes unpredictable ways.
2. Those subsystems can and do display differences in practices and performance, even within an organization.
3. There are internal and external factors that appear to influence that practice and performance.

Figure 21. The components of the wider institutional context for evidence-informed policymaking



Source: From Shaxon et al. (2016). Copyright 2016 by Overseas Development Institute. Reprinted with permission.

The following section explores whether and how these three propositions have played out in SEDI's experience.

Engaging With Multidimensional Systems in Practice: SEDI Experience

Policymaking, Including the Role of Evidence Therein, Does Not Take Place in a Single Monolithic System, but in Subsystems that Can Be Identified Across Multiple Dimensions

As demonstrated in the examples given earlier and in other chapters in this book, it is clear that national factors can and do shape the space for EIPM. However, these are not necessarily deterministic because they do not account for

variations *within* that national system. We identify at least three dimensions[53] in which variation in knowledge system components can be observed:

1. Vertically defined subsystems in which spaces at subnational levels (often created through decentralization processes) have their own stakeholders, institutions, and incentives that are distinct from those at the center. For example, in Pakistan the 18th Amendment of the Constitution in 2010 has resulted in a de-concentration of policymaking authority in some domains to (mainly) the provincial level. Accordingly, provincial governments have had to develop new systems and processes to monitor policy implementation, evaluate impact, gather statistical data, and otherwise develop a knowledge system, often with different producers and intermediaries involved. However, in Pakistan and elsewhere, the *de jure* rules shaping decentralization and the *de facto* space in which local knowledge systems emerge and function are contested. Thus, while vertically defined subsystems can be identified in all contexts, their form depends on the form and extent of *de facto* decentralization. Where the center seeks to retain control, subsystems can end up more limited than envisioned by the formal legislative framework creating them. We observe such limits to varying degrees in all three SEDI countries, though the mechanisms of contestation vary (e.g., debate over specific powers, use of appointments, postponement of local elections).[54]
2. Geographically defined subsystems in which variation exists across different jurisdictions at the same level (e.g., where sufficient autonomy and discretion at subnational levels allows different practices to emerge in different parts of the country). In Ghana, for example, decentralization reforms enacted since the 1990s have delegated significant roles in planning, budgeting, and delivery of some services to 261 metropolitan, municipal, and district assemblies (MMDAs). There are *de facto* limitations to this autonomy, but differences in the knowledge systems supporting

[53] "Horizontal" and "vertical" are borrowed from the decentralization literature (Rondinelli et al., 1989), but the third dimension is proposed here to account for cases in which subnational entities differ from each other.

[54] While most of KSI Phase 2 took a sector-agnostic approach, the program did include a small knowledge-to-policy pilot project exploring the dynamics of subnational knowledge systems in South Sulawesi. Lesson learning from that pilot is ongoing and will provide a useful complement to the findings in this book.

these policy functions can be observed across the country, including between north and south, and between rural and urban, as well as in some highly individualized cases.

3. Horizontally defined subsystems emerge across different parts of the bureaucracy (e.g., different ministries, agencies, or departments). Uganda, Ghana, and Pakistan have 32, 28, and 34 ministries respectively, each of which leads part of the bureaucracy and exercises control over specific areas of policy. As noted earlier, the institutional arrangements in Uganda are in a state of flux, but some form of horizontal distinctions (e.g., between leading bodies, or between program areas) will no doubt emerge. While SEDI identified vertical and geographic subsystems in some cases, its initial sector orientation and subsequent experience have resulted in a particular focus on these horizontally defined subsystems, although specific issues can cut across departmental mandates.

Subsystems Can and Do Display Differences in Practices and Performance

SEDI set out to interrogate differences in EIPM practices that might exist in the countries in which it operated, with the analytical phase and the early stages of implementation uncovering just how stark these differences are.

1. In Ghana, SEDI worked to develop partnerships with two key ministries—the Ministry of Health (MoH) and the Ministry of Employment and Labour Relations (MELR). Both ministries operate within shared national dynamics. Nevertheless, the way in which knowledge is produced, communicated, and used within these two different subsystems varies. SEDI's health sector analysis pointed to core actors' prioritization of evidence use throughout the policy cycle: utilization including knowledge-driven, problem-solving, and interactive models (see Weiss, 1979, in Parkhurst, 2016, for this typology of models). The District Health Information Management System (DHIMS) database, used to collect, collate, and report on all routine health services from the public sector, provides a credible source of data for decision-making in the sector (Gatune et al., 2021). Within MELR, while government flagship projects, like One District One Factory (1D1F), Planting for Food and Jobs, and the Nation Builders Corps (NABCO) program, create demand for monitoring

and tracking the job creation outcomes, evidence use is often more political or tactical (Weiss, 1979, in Parkhurst, 2016). Funding and logistical challenges have made it difficult for district and regional authorities to adequately feed the Labor Market Information System (LMIS) being piloted, thus affecting the quality of evidence (Gatune et al., 2021).

2. In Pakistan, while most national ministries have units mandated to generate evidence to inform policy decisions, actual practice varies significantly. For example, while child labor affects the lives of millions in Pakistan and the Government of Pakistan is a signatory of multiple international treaties that address the issue, challenges persist in defining what exactly constitutes child labor, the availability of data on the extent of the problem, and the implementation of the policies and legislation that have been passed to address it. Limited incentives among influential elites (e.g., the politicians, military, and bureaucracy, as well as powerful business families and religious clan heads) exist to remedy this. In contrast, the knowledge subsystem for trade and economic development includes much stronger links to think tanks and advocacy organizations, including those representing traditional elites and, in recent years, an emerging cohort of small and medium enterprises that has coalesced in chambers of commerce and business associations. This has helped to diversify voices and create opportunities to work with the grain, partnering with government agencies on their own agenda to strengthen the capabilities to demand and use evidence.
3. In Uganda, power and influence mapping identified key differences between the knowledge systems for the humanitarian sector and for family planning. These maps not only identified different constellations of actors, as might be expected in different policy areas, but also different balances of international, national, and subnational actors, and different levels of influence or evidence orientation of the same actor when they appeared in different sectors. The Uganda Bureau of Statistics (UBOS), for example, is an important evidence actor in both the humanitarian and family planning sectors but enjoys higher levels of influence in family planning (Ahaibwe et al., 2021).

Factors that Appear to Influence Practice and Performance

What underlies these observed differences between knowledge subsystems? Serious efforts to review the factors that influence the emergence and persistence of islands of effectiveness point to a diverse set of hypotheses that include features endogenous to the organization (e.g., managerial strategies and organizational attributes), and those that concern the wider political context (Leonard, 2008). The relative contributions of each of these is hardly a settled matter, and SEDI was not in a position to draw a conclusion; however, we can observe several factors that appear significant in shaping knowledge subsystems in the SEDI country cases and helping to understand differences between them.

Endogenous Organizational Features

SEDI experience suggests that formal institutions can and sometimes do contribute to EIPM. Perhaps the clearest example of this is the use of the Common Management Arrangement (CMA) in Ghana's health sector. The CMA defines roles and responsibilities of key stakeholders and sets out modalities for collaboration and coordination to achieve the Medium-Term Health Development Plan. While an institutional framework to promote collaboration and coordination between evidence producers and users in the country is generally absent, the CMA is a notable exception in supporting evidence-informed discussions throughout the policy process and differentiating EIPM dynamics and opportunities for reform in the health sector from those of other sectors (Gatune et al., 2021). Such institutions are certainly not guaranteed to function effectively. Other examples evidence the lackluster impact of some formal institutional mechanisms intended to support EIPM (such as Ghana's commissions of inquiry), many of which appear tokenistic or have been circumvented.

At the same time, the factors that drive performance (or not) in an organization are a factor not only of incentives and sanctions enforced by the official authority structure or formal management arrangements, but also informal pressures:

> from people's relationships with their colleagues or their work group, their professional peers, from a staff association or trade union; and . . . from the atmosphere and expectations set up by their immediate bosses or line managers—in short, from the organizational culture (Crook, 2010, p. 495).

This issue of culture, and indeed *multiple cultures* of evidence that coincide and collide with one another, has been observed as a key feature of

organizations in other contexts including South Africa and the UK (Shaxson et al., 2016) and appears to be so in the SEDI context as well.

In Uganda, the Office of the Prime Minister (OfPM), while a national body with cross-government responsibilities, nevertheless has its own norms and incentives that demonstrate the salience of organizational culture. The Monitoring and Evaluation (M&E) Directorate, housed in the OfPM

> has itself acted as a champion, spearheading the institutionalization of evidence use within the government over the past several years. The team benefited from strong high-level support from the M&E Directorate's Commissioner, who has been a champion of evidence-informed decision-making for a number of years, having collaborated . . . on several international capacity development initiatives related to evidence. (Ahmed, Birabwa et al., 2021, p. 21).

However, while individuals can play important roles as facilitators (or blockers) of subsystems based on combinations of personal mandate, competence with evidence, relationships, and political alignment, culture is not simply a matter of champions or individual capacities, but of the establishment of broader norms and expectations (e.g., regarding standardized reporting, utilization of participatory approaches, etc.). In Ghana, that is evident in the health sector, where strong expectations regarding evidence use among health sector professionals, many of whom have professional training and association memberships, reinforce positive norms. Although those individuals are scattered across different organizations, they share an identity as part of a cadre of specialized and relatively evidence-minded professionals.

"External" Political Factors

There is also evidence that nominally "external" or shared processes, institutions, and underlying political economy factors impact differently on different parts of the system. SEDI's experience in Pakistan demonstrates the way in which these factors can shape the EIPM space.

SEDI's work in Pakistan coincided with the arrival of a new political party in power (*Pakistan Tehreek-e-Insaaf* (PTI)) that presented itself as prepared to rethink economic policy and management. As a new administration, PTI needed to define its agenda and develop a new trade policy within weeks of taking office after the 2018 elections. During the election and in the early days of taking office, the PTI political leadership was open to new ideas and testing out-of-the-box solutions, including immediate improvements in the use of

existing knowledge. SEDI analysis identified several political factors that help to explain why this window emerged:

- Government interest was driven not just by the constitutional mandate provided to them once in office, but also by its commitment to export competitiveness as set out in PTI's manifesto. In other words, trade was not just another area of government operations, but one on which PTI had campaigned and needed to deliver quick wins.
- PTI's political imperative aligned with the interests of other influential policy actors, including government stakeholders such as the Central Bank of Pakistan, which was pushing for higher export receipts; as well as nongovernment actors, including a strong private sector constituency willing to engage with the government on various aspects of trade reform.
- Finally, the new administration arrived amid difficult economic conditions, including balance of payments challenges. In this moment of macroeconomic crisis, a bailout of US$6 billion was agreed with the International Monetary Fund (IMF) in 2019, under which the government committed to quarterly, monthly, and weekly reporting on select indicators. The objective of the reporting exercise is to keep the IMF informed and provide evidence that the program remains on track. This mechanism may strengthen the demand for macroeconomic data and analysis within policy institutions but has also placed the administration in a reactive posture and may limit space for investments in EIPM.[55]

To be clear, this does not mean progress on EIPM is now guaranteed. Pakistan has negotiated 22 bailout programs with the IMF since 1958, and macroeconomic imbalances have been a frequent characteristic of Pakistan's economic growth since the 1970s. Similar openness was also observed in the other two parties that had come to power since 2008 before closing down as the next election approached and constituency issues took primacy. The political economy dynamics that have contributed to these persistent

[55] International influence of knowledge subsystems can take a variety of forms. The role of the IMF in Pakistan sketched earlier is one example, but so too is the long-term presence of development partners in the health sector in Ghana. That presence influenced not only technical aspects of knowledge production and use, but also politics: with a multi-actor participatory process helping safeguard against direct or overt influence from political parties. Even without an intentional presence in a country or sector, international conventions and development goals can shape expectations and practices for knowledge generation and use—for better or worse—but Pakistan's experience with conventions on child labor demonstrates these effects should not be assumed to be automatic.

challenges have not disappeared. However, in the view of the SEDI team, these features provided a window of opportunity, at least in the short term, that did not exist in all domains of knowledge and policy.

Implications for Efforts to Improve EIPM

These highlights from SEDI's experiences paint a picture in which important differences, rooted in endogenous and exogenous factors, effectively create multiple knowledge subsystems. Each subsystem has identifiable knowledge system components in their own unique configuration, and is embedded within its own political dynamics, even within a shared macro context. Thus, we find the Knowledge System Model 2.0 framework usefully progresses our understanding of EIPM, particularly when applied in a multidimensional way. Its attention to the political economy of knowledge and policy, indispensable at the macro level, is equally important for understanding the challenges and opportunities offered by subsystems. Similarly, the implications for understanding cultures of evidence, and the emphasis on a more nuanced understanding of the diversity within—and relationships between—the various components, are useful steps forward for understanding both macro knowledge systems and subsystems. How then should reformers approach this multidimensional reality?

Systems or Subsystems: A False Choice

The recognition that knowledge systems operate at more than one level raises interesting questions about how to support EIPM. One option might be to look at the pros and cons of macro and subsystem approaches and attempt to choose between them. Cross-country evidence such as that from BCURE suggests that there are several plausible impact pathways, including support to a single ministry and work at a government-wide scale. However, prioritizing one or the other would be speculative at this point as we lack conclusive evidence about which level of intervention is more likely to be consequential, and because, as noted earlier, national context and political history determine the shape of the layered and interlocking systems (ITAD, 2018).

A better alternative is to see systems and subsystems as complementary. It is clear that national-level institutions matter. These are characterized by diverse political settlements that clearly shape not only the actors, institutions, and incentives that comprise the knowledge system for each country, but also opportunities and constraints for reform. Where subsystems

exist, they tend not to have total control of policy, even in areas where they have some formal or legislative power and discretion. At the same time, the public sector reform literature warns against "overambitious, best-practice-based general PSR [public sector reform] programmes" (Crook, 2010). The disappointing history of large-scale, top-down, comprehensive public sector reform programs should give some pause to reformers considering similar efforts to transform an entire national knowledge system.

There is a practical middle ground in which reformers can work with certain parts of the broader knowledge system, without that being (mis) understood to mean aiming to "fix" the whole system. *Systemic* does not necessarily mean *system wide*. In SEDI, the program made reference to "dancing with the system" or even with a particular subsystem, to progress and strengthen EIPM, but not aiming for an idealized end state. Such an approach, with a combination of interventions across multiple levels of engagement (Stewart, Langer et al., 2019), can still work toward transformational changes that acknowledge important differences across agencies, ministries, and subnational governments, while avoiding more transactional one-off or substitution roles.

In practice, such an approach would have at least two benefits, whether reformers are local individuals and organizations, international development programs, or combinations of these. First, emphasizing the complementarity of system-wide institutional reform and subsystem approaches helps us to deal intelligently with questions about reform ambitions and attempts to effect change "at scale."[56] Typical programming assumptions when we work on the national level include the belief that impacts will be felt evenly and consistently across the system, including subsystems. When we work within subsystems, the operating assumption is often that pilot learning or the demonstration or spillover effects through formal or informal channels will result in impact at scale. Yet in practice, systemic reforms often do not demonstrate consistent impact due to subsystem attributes, as was the case with the adoption of policy analysts in Indonesia, discussed in Chapter 3.

Similarly, reforms targeting subsystems may not scale to other subsystems if differences in practice and space for reform within those

[56] Subsystems such as a powerful ministry or a large province can have tremendous reach such that "going to scale" may not be a principal consideration. There is risk that without necessary changes in the wider ecosystem, changes at the level of individual ministries or agencies may fail to be routinized or sustained (ITAD, 2018). However, the islands of effectiveness literature demonstrates that reformed (and unreformed) practices in subsystems can be surprisingly durable in some cases.

subsystems are the product of underlying factors untouched by reform. Complementarity encourages those working at either level to be clear about the intended scale of outcomes and impact, and about different potential routes to achieve those objectives, including any assumptions built into the theory of change.

A second benefit of engaging at multiple levels is that it offers significant scope for iterative learning and problem-solving. Where experiences in subsystems can reveal binding constraints in the knowledge system, this provides an attractive alternative to design that follows generic best practice. The key, however, is the relationship between these components. International development modalities and design present some challenges for effective learning. Development partners (and their contracted implementing partners) who tend to work in program structures may need to intentionally explore how sector-based programs can feed information about constraints observed in their work to colleagues working on national systems. For reformers not bound by program modalities, it will still be crucial for those working in particular subsystems to keep one eye on the bigger picture to better understand where the challenges they face might be best addressed by broader institutional reform. Those working at the macro level need to be attentive to how to build networks within specific subsystems to ground their work, develop their strategies, and understand their impact.

Grappling With Variation

Beyond the suggestion that systems and subsystems are most usefully viewed as complementary parts of an integrated whole, what guidance can we give to reformers engaging with subsystems? SEDI's experience is shorter in comparison to that of a long-running program like the KSI, but insights emerging from this work speak to several practical concerns, which we consider in the following discussion.

Operational Choices Face Trade-Offs

Given the multiple factors identified as shaping knowledge subsystems and the space for reform, reformers choosing to target changes to a subsystem will inevitably face trade-offs. To work with the ministry with a history of EIPM reforms or the one that is lagging? To work with the department headed by an EIPM champion or the one in which mid-level civil servants appear to be the driving force for change? Even with subsystem analysis, the implications may not be clear immediately.

While SEDI's analysis identified Ghana's health sector as having a more established culture of evidence, in implementation it proved more difficult to identify champions for EIPM than was the case in MELR, where the team identified a mid-level partner with previous EIPM experience who was able to build support from the Chief Director and Minister. This interesting and perhaps counterintuitive insight suggests opportunities for reform may be significant where existing cultures of evidence use may not be as strong. Indeed, identifying motivated parties wanting to work on improved practices can depend on them recognizing a weakness or a problem that matters to them (for more on this question, see Andrews et al., 2015). In contrast, the team in Pakistan has been able to build on the momentum and interest identified in its analysis of trade issues with the Ministry of Commerce, while choosing not to proceed in the area of child labor based on the pervasive challenges identified. Practically then, analysis of subsystems may be as useful for informing *how* to engage as for making decisions about whether to do so.

If Variation Arises From Technical and Political Factors, So Too Should Reforms

If the differential impact of politics is one of the exogenous factors accounting for variation in practice and performance across different knowledge subsystems, we must accept from the outset that a toolbox comprising only technical fixes is unlikely to be sufficient (Leonard, 2008). However, if reformers are able to understand the technical and political dimensions of EIPM, and are equipped with the skills and space to pursue strategies that incorporate both, they are better equipped to develop approaches and theories of change that will be appropriately tailored to the constraints and opportunities of a given subsystem. Viewing knowledge reforms through such a lens will leave reformers far less likely to be disappointed when apolitical technocratic interventions fail to generate the desired changes.

Dynamism Matters, so Reformers Must Be Dynamic Too

While in some respects the attributes that shape knowledge subsystems and the space for reform are durable (e.g., it is rare for organizational culture to shift overnight), in other ways the structure of subsystems and their characteristics can be dynamic, interconnected (likely contributing further dynamism), deeply political, and ultimately unpredictable, with the situation evolving even as reformers intervene. The devolution process in Pakistan and the shift to a programmatic approach in Uganda are both generating renegotiations of control and influence, with the potential for important

changes in relationships and in the needs of the knowledge ecosystem. This adds an additional layer of complexity for EIPM reformers who already face choices with significant operational trade-offs. However, if reformers have the flexibility to react to changes in their environment, such uncertainty can create room for maneuver in the face of an unsupportive status quo.

Leverage Relationships and Invest in Them Too

Multidimensional systems with links between the levels offer interesting opportunities to leverage relationships at the subsystem level. Where SEDI's national partners had strong preexisting relationships from prior work, those formed the foundation for early implementation. Where relationships had to be built, it has taken some time to build that foundation in an often crowded and fragmented space. Leveraging those relationships has not been without its challenges. Existing relationships arguably came with greater pressure to deliver, and initial desires to work on quick wins to build new relationships risked putting important objectives on the back burner. These are challenging dynamics when program budgets and interactions with funders can be unpredictable, but such relationships are increasingly identified as crucial to effective EIPM support (Stewart, 2018; Stewart, Langer et al., 2019).

Conclusion

Increasing practical experience with support to EIPM in programs like SEDI and the KSI, and emerging understanding of knowledge systems continue to reveal a complex reality in which the political is as important as the technical, the informal as important as the formal, and relationships as important as capacity. While this can feel messy and overwhelming at times, the conceptual thinking, frameworks, strategies, and tactics outlined in this book better equip reformers, development practitioners, and researchers to engage with this challenge. Extending this understanding through a multidimensional approach to knowledge systems encourages us not only to acknowledge the fact that rarely are the challenges reformers face simply of generic technical capacity, but also to see the potential for pockets of opportunity in otherwise challenging contexts, and to allow for and explore differential impacts of high-level reforms.

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CHAPTER 9

Conclusion: Applying Insights From Knowledge System Dynamics

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Introduction

As discussed in Chapter 1 of this book, knowledge for policymaking is inherently political. Policymaking is rarely a technical decision-making process; it involves compromise and negotiation of social value propositions (Parkhurst, 2017). Scholars have examined the politics of the policy process and how issues such as timing and dominant beliefs can affect the uptake of ideas and knowledge (Jenkins-Smith et al., 2014; Kingdon, 1984). Policymakers are not perfectly rational actors; they bring biases such as the "certainty effect" (Leach et al., 2014), which causes them to privilege what they believe, rather than accept information that might challenge those beliefs. Such biases also influence the ways in which policymakers seek evidence—they tend to use evidence from researchers with whom they have trusted personal connections (Datta et al., 2011).

Chapter 1 also argued that although the policymaking process is inherently political, effective use of knowledge can help shape and influence more inclusive policy outcomes. The multi-actor political viewpoint that forms the basis of the Knowledge System Model 2.0 introduced in this book underscores the importance of contestation of knowledge and competing perspectives for better and more inclusive policies. This model developed from our earlier work and its recommendations to "promote debate among a diversity of voices within the knowledge systems" for more rigorous policy and to recognize power differentials as part of this dynamic (Hertz et al., 2020).

Applying Insights From the Knowledge System Model 2.0

The Knowledge System Model 2.0 that we presented in Chapter 1 (shown in Figure 2) was developed on the basis of the practical interactions we observed

among Indonesian knowledge actors over the course of Phase 2 of the Knowledge Sector Initiative's (KSI's) engagement in Indonesia.[57] This book presented particular instances of those actor relationships in Chapters 2 through 7, with Chapter 8 providing some international comparisons from the Strengthening the Use of Evidence for Development Impact (SEDI) program.[58]

In this chapter, we highlight some of the themes that emerge from the preceding chapters and synthesize the examples in ways that illuminate the Indonesian knowledge ecosystem but may also have relevance in other settings where intermediaries are seeking to strengthen, or catalyze change within, a local knowledge system. The overarching themes emerging from the preceding chapters coalesced in

1. the need to effectively navigate tension between the technical and political in policymaking;
2. the importance of dynamic relationships and collaborations between actors in the knowledge system; and
3. realization that building a knowledge system requires not only strong actors (producers, intermediaries, users, and enablers) and interconnections but also mutual understanding of shared vision.

When the actors and institutions in the knowledge system interact and challenge each other to articulate and commit to a shared vision, it is easier to navigate the inherent tensions between technical solutions and political objectives to advance the reform agenda. Intermediaries in the knowledge system can play an important role in facilitating the interactions between these actors and institutions. The next section explains these insights in more detail.

Navigating the Tension Between the Technical and the Political Dimensions of Policymaking

At first glance, knowledge-related policy seems apolitical, particularly when it is couched in technocratic terms such as *science, technology, and innovation*

[57] The KSI supports Indonesian policymakers to develop more effective policies through better use of evidence. It works with researchers and the government to strengthen the quality of policy research, how it is used, and the regulations and systems that support this. More effective policies help Indonesia achieve its development targets. KSI Phase 1 was implemented from 2013 to 2017 and Phase 2 from 2017 to 2022.

[58] The SEDI program worked to increase the use of evidence by policymakers and promote innovation in increasing evidence-informed policymaking (EIPM) in Uganda, Ghana, and Pakistan. The program was funded by the UK's Foreign, Commonwealth and Development Office (FCDO) and implemented from 2019 to 2021.

or generic terms such as *research and higher education*. In reality, in Indonesia—as elsewhere—knowledge-related policy is inherently political as highlighted in the review of the politics of evidence literature in Chapter 1. The analysis of the process for drafting the *National Science and Technology Law (Law No. 11 of 2019)* presented in Chapter 6 shows clearly the contested and differing visions of what constitutes "science, technology, and innovation"; conceptions of the role that knowledge should play in informing policymaking; and choices about which institutions and actors will lead in this policy space. All of those preferences are political because they have the potential to reallocate power and resources. We saw this in the reorganization of ministries in Indonesia and the creation of the National Research and Innovation Agency (BRIN) launched in 2021, discussed in Chapter 6.

The high-level realignment of knowledge policy in Indonesia examined in Chapter 2 reminds us that changes in policy rarely result from a linear process of generating research, laying out policy options, choosing between alternatives, and evaluating the implementation of the selected option. As also discussed in Chapter 3, the challenges faced by policy analysts show the complexities of Indonesia's multilevel governance system where to successfully act as a bridge between researchers and policymakers and build demand for evidence-based policymaking within government, one must understand the nonlinearity of the knowledge-to-policy process for policy change. Policy change comes about through a process of iterative interactions among three "streams" of activity: defining the problem, suggesting solutions, and obtaining political consensus (Kingdon, 1984). Changes occur when these streams converge, presenting a "window of opportunity" that can be grasped by the vigilant proponent of reform (Kingdon, 1984). Chapter 2 further elaborates on the importance of policy networks to facilitate strategic interactions among policy and knowledge actors to ensure understanding and uptake of evidence in the policymaking process.

Chapter 3 reiterates the importance of policy entrepreneurship, where actors seeking reform need to be equipped not only with technical expertise, but also the ability to see the potential for windows of opportunity to allow them to exert policy influence. The case study on self-managed procurement presented in Chapter 7 also suggests that civil society organizations that act as think tanks or advocates need policy entrepreneurship capacity. This enables them to work as co-creators of policy—in this case actively participating in improving the quality of public services and government programs.

The importance of policy entrepreneurship is an implicit theme in Chapter 5, which discusses the roles of government policy analysts as they formulate and analyze policy research and then carry out policy advocacy. This role relies on creating and institutionalizing the dual competencies required of policy analysts: the analytical competence to produce quality policy input and the political competence to advocate effectively for policy uptake.

The Importance of Dynamic Relationships and Collaborations Between Actors in the Knowledge System

Many of the chapters in this book proceed from the position that Indonesian policymaking is inherently relational—that when government actors, in particular, look outside the legislature or the bureaucracy for information to inform policy, they look to knowledge providers they know and trust. One of the underlying themes of this book is the way in which those preexisting or deeply embedded relationships can be diversified, or opened up, in ways that will benefit the quality of policy and policy decisions.

Trust is an important aspect of these relationships, as we saw from the Indonesian subnational experience in Chapter 2. An NGO think tank having credibility and winning the trust of local government was able to mobilize support from key stakeholders, ranging from local government to nongovernmental organizations and universities, to encourage agreement on a priority policy issue and a shared purpose to contribute to economic recovery following the COVID-19 pandemic.

Chapter 7 examines the importance of trust building in the implementation of a new engagement mechanism—self-managed procurement—between government and nongovernment partners more systematically, and as institutions rather than as individuals. The ultimate goal of this engagement is to broaden and enrich the sources of information and analysis available to government in the formulation of policy in Indonesia.

Chapter 3 illustrates this with an account of how a new role—the policy analyst—has come to play an important role as a knowledge intermediary in Indonesia. The newness and unfamiliarity of the role requires policy analysts to be nimble and to take a more dynamic approach to the presentation of policy recommendations, in part because they need to prove their relevance and value.

Relational Dynamism

The dynamism of the relationships between actors in the Knowledge System Model 2.0 is highlighted throughout this book. Chapter 4 illustrates how policy "champions" or opinion leaders can create space for new relationships to be perceived as necessary, and then to take root. We saw in Chapter 4 that advocacy through public discourse within different forms of media is often needed to put a problem on the agenda, bring a solution to the attention of decision makers, and galvanize political consensus. Knowledge intermediaries are the actors that connect those knowledge-to-policy stages, producers, and ultimate users.

This constant change requires policy actors to create more open and collaborative practices for cumulative knowledge generation and the integration of knowledge in policy process. This is generated from an understanding that the policy process is fluid, and often messy, but still largely understandable as actors are interconnected in the system.

As policy actors engage more dynamically, we also see attempts to create more open and collaborative practices. For example, Chapter 2 points to the way in which policy entrepreneurs collaborate with other policy actors to move a subject up the policy agenda. Chapter 3 also elaborates on how policy analysts in Indonesia have attempted to make new connections to explain their policy recommendations to policymakers in ways that are intelligible and simplified.

Chapter 4 further highlights the dynamism of these relationships through the ways in which media platforms can help bring together research or analytic work and policy advocacy. We saw that in Indonesia, the media has been important in strengthening the knowledge ecosystem by increasing broad-based awareness of the importance of collaboration between its actors and by broadcasting new concepts such as the "knowledge and innovation ecosystem." The policy communication case also highlights that policymakers have different ways of responding to policy issues that shift over time. Chapter 4 argues that cyclical refreshing of attention, through seeding ideas in public discourse, mobilizing multiple interests, and setting agendas, helps to hold the system and its actors together.

The temporal dimension of relationships also featured in several of the cases analyzed in this book. Chapter 5 draws our attention to the way think tanks and their members commit to long-term relationships with government institutions and policymakers, to ensure that their information and

recommendations flow effectively to users and ultimately influence policy. By contrast, the discussion in Chapter 7 of the scheme of self-managed procurement also suggests that resistance to partnering with external knowledge providers may diminish as the processes become more familiar, more successful examples proliferate, and working relationships develop over time.

Building a Knowledge System Requires Not Only Strong Actors (Knowledge Producers, Users, Intermediaries, and Enablers) and Interconnections but Also Mutual Understanding of Shared Vision

The chapters throughout this book articulate the relationships between actors in the knowledge system and the dynamics of the interactions between them. This means navigating a complex and fluid operating context as well as focusing on shared vision to maintain commitments to reform despite changes or setback.

Working in Complex Environments

The chapters in this book highlight how policy actors are connected in a web of interacting forces, involving multiple sources of information, complex power relations, and changing institutional arrangements. Thus, knowledge collaboration is both complex and a necessary precondition for building shared agendas for evidence-based policymaking.

In the previous sections we noted that a knowledge ecosystem is a political space and that the interconnections between actors are constantly changing, as the political economy of the settings enables or forecloses knowledge-to-policy interventions. Chapter 8, which analyzes international examples of navigating knowledge systems, draws our attention to the multilevel nature of those systems. Subnational and sector-specific knowledge systems are distinct and complex environments that have their own political economy, actors, and dynamics, as the international case studies presented in Chapter 8 make clear.

Mutual Understanding

The chapters in this book also speak to the need for actors to understand how their counterparts are situated within that system. Chapter 5 highlights different ways that actors in Indonesia have attempted to bridge "knowledge gaps" between research and policymaking by building relationships with policymakers and policy networks. They do this discursively (as we saw in Chapter 4) as well as through strategic efforts to design and communicate

research to inform policy. Those policy recommendations need to be disseminated to targeted policymakers, but effective advocacy also requires understanding of policymakers' needs regarding evidence. Knowledge providers must understand that some forms of evidence are more acceptable to users than others. They also need to understand that the most useful advocacy often comes when it is generated through early engagement and when the design process is fitted to the policymaker's needs, as discussed in Chapters 3 and 5.

Good practices emerge from collaborative engagement among different actors as intermediaries, users, and enablers within any given government agency. We saw this in the utilization of the policy analyst role, discussed in Chapter 3. Diprose et al. (2020) suggest that improving communication and coordination among these actors is important, as is clarifying the policy analyst's role within the business processes of each agency.

Chapter 7 also suggests that an understanding of shared vision needs to be defined collaboratively by the actors (i.e., producers, intermediaries, users, and enablers), if it is to build a willingness to take risks in support of change. This matters where there is a multiplicity of actors, as we saw in the policy reforms discussed in Chapter 7, which involved a procurement policy agency, think tanks, civil society organizations, private universities, and the Ministry of Finance. Here, communication and interaction were an essential factor in the successful uptake of the self-managed procurement and research incentive mechanisms. Collectively, these reforms have brought state institutions closer to civil society through policy research and analysis. In this case the KSI served as a catalyst by facilitating relationships and evidence-based policymaking process around a shared vision, but these relationships and interactions are ongoing and can be leveraged in the long term to address future reforms.

Implications of Applying the Knowledge System Model: Interactions Between Actors and Institutions

Knowledge System Analysis and Developing an Alliance of Champions for Reform

Before initiating reform in a knowledge system, it is important for a country to engage in consultations and diagnostic exercises to provide an initial picture of the issues constraining its knowledge sector and the opportunities for leveraging key champions and existing reform efforts. The initial

diagnostics might be incomplete, but they can be continuously filled in as the reform develops. For example, the Australian Agency for International Development (AusAID)/Department of Foreign Affairs and Trade (DFAT) invested in the conceptualization of the KSI through a series of 11 diagnostics on the knowledge sector in Indonesia covering various aspects of the knowledge sector, including economic incentives, political economy, social science capacity building, role of government research units, gender, and others (AusAID, 2012). DFAT also invested in a KSI pilot engaging a range of Indonesian think tanks focused on evidence-based policy. Based on the diagnostics and an evaluation of this pilot, the design for a long-term investment in Indonesia's knowledge sector took shape focused on different aspects of the knowledge system in an innovative and adaptive approach (AusAID, 2012). The program has evolved over time and taken into consideration changes in the Government of Australia as well as the Government of Indonesia's priorities covered in this book.

These constraints and opportunities can be analyzed according to the framework of the knowledge system model in Chapter 1. Opportunities to trigger change will become evident from mapping the actors and institutions characterized as knowledge enablers, knowledge producers, knowledge intermediaries, and knowledge users and—more importantly—from assessing their relationships to one another and the power dynamics between them, as demonstrated by the political economy analyses conducted by the SEDI program discussed in Chapter 8.

Using the results of the political economy analysis and the constraints and opportunities diagnosed, national governments or knowledge system development programs can identify potential entry points for reform and select those interventions with a higher prospect of change using available resources (i.e., time, financial, technical, and political). National governments, international development programs supporting knowledge system reforms, civil society, private sector, or media actors can serve as a catalyst for change. This can be accomplished by identifying champions and fostering interconnections between the knowledge system actors and institutions in joint efforts to promote change.

As noted earlier in this chapter, building or reforming a country's knowledge system is highly political since it involves sensitive policy reform and system changes. Opportunities may arise from interest shown by newly appointed high-level government officials or from changes derived from political pressures. Actors and institutions in the knowledge system as well as

knowledge systems programs should seize opportunities as they arise. Likewise, obstacles may arise, creating resistance to change and roadblocks for reform efforts in the knowledge system. In these cases, there may be a need to adjust strategies to focus on different parts of the knowledge system, approach an obstacle through a different viewpoint, or engage a different actor.

Interactions Between Actors and Multiple Roles in the Knowledge System Model

The Knowledge System Model 2.0 highlights that in their interactions, different actors in the knowledge ecosystem can take either one or multiple roles between knowledge producer, knowledge intermediary, knowledge user, and knowledge enabler. Consider, for example, think tanks and universities, which do not necessarily play the role of knowledge producer exclusively but can also act as knowledge intermediaries. Think tanks stand out due to their independence from other actors, production of policy-relevant knowledge through research, and their policy entrepreneurship in influencing policymaking (Kelstrup, 2016; Rich, 2005; Stone, 1996). In other cases, we can also see the potential for media taking a role not only as a knowledge intermediary, but also as a knowledge user. In its role, the media uses the knowledge available to shape content and frame policy debates, and sometimes to help amplify policy interests from certain actors. In addition, policymakers or government need not act only as knowledge user, but also knowledge enabler by promoting evidence-based policymaking through support of regulations, procedures, and other formal enabling practices.

In many cases, the formation of collaborative relationships between actors within a knowledge system is not spontaneous; indeed, structural arrangements and cultural values tend to reinforce the status quo. Nor is it an easy thing to suggest that policymakers start using—or using better-quality—knowledge to inform policy. Even when political leadership has a genuine evidence-based policy intention, the political and bureaucratic implications of opening up policymaking to new actors and influences can be complicated.

A theme running through this book is the importance of having one or more catalysts within the knowledge ecosystem to "reset" the status quo: actors whose job it is to support, facilitate, and promote collaboration in the knowledge-to-policy process. Governments may recognize that they need such actors but may not be in a position to create them initially, particularly when the government's own people and processes are one of the targets for change.

Role of Knowledge Intermediaries

The KSI acted as a neutral broker and catalyst within the Indonesian knowledge system, as described in Chapters 2 through 7, in three important ways: (1) discursively, through initiating public discourse about the knowledge and innovation system; (2) formally, through supporting or accelerating structural and legal change; and (3) informally, by widening and multiplying relationships among knowledge actors. We describe these roles briefly in the following sections. The knowledge system in Indonesia and the reforms undertaken to date represent the collective effort of government, think tanks, media, civil society organizations, private sector, local knowledge producers, and other key stakeholders. The KSI as an intermediary was effective in serving as a catalyst for reform given the close working relationship and direction from DFAT and Bappenas as well as the long-term partnership with Indonesian stakeholders and actors in the knowledge ecosystem. The trust, resources, and collective action among these different entities made it possible to advance reforms together.

The KSI played a catalytic role by initiating public discourse through its partners as described in Chapter 4, by offering media outlets fresh, topical content and by seeding concepts within social media networks. It did this by also funding studies that generated debate and discussion, as we saw in Chapter 5. At other times, the KSI and its partners amplified the message, working with media to broadcast information generated by other actors to raise awareness and build support and momentum for policy improvements.

In its formal navigation of the system, the KSI supported counterparts in the development of new mechanisms and strengthened the role of actors in several knowledge system reforms, such as the proto-profession of policy analyst and new government procurement mechanism for commissioning policy research from nongovernment research institutes. These were among several new ideas tested through pilots, discussed in Chapters 2, 3, and 7. In these formal spaces within the system, the KSI also used its convening power to bring together interested stakeholders around key issues, encouraging or helping them to debate and develop a shared agenda, and then to collaborate to pursue it.

The KSI also supported informal relationships among knowledge actors in Indonesia. It did this through its support of the think tanks identified in this book to expand and strengthen their informal links with government, with each other, and with other knowledge actors. Informal networks become the

main platform for information flows from experts and interest groups to decision makers, helping them to identify what evidence they need (Datta et al., 2011; Carden, 2009; Lassa et al., 2017). However, we also note Carden's caution (2009) that personal relationships can lead to "rule by insiderism" that limits researchers' ability to "compete in a policy contest of ideas, but not when the game is rigged by string pullers and special favours" (Carden, 2009, p. 5).

Chapter 8's consideration of the SEDI program operation outside Indonesia and its support for intermediaries also remind us that networks and openings for contestation exist at the subnational as well as national level, and that they are configured differently by the policy sector.

As articulated in the preceding chapters, both formal and informal approaches have been useful ways of delineating different incentives, pressures, and motivations for policy change. On the one hand, efforts for policy change can be targeted for legislation and regulatory monitoring, following the mechanism for providing policy input, or they can come in the form of building coalitions and strong advocacy to change certain practices (e.g., values and principles on research governance in Indonesia), which contribute to incremental change that will potentially lead to policy change.

Sustainability of Knowledge System Interactions

Although externally supported knowledge intermediaries can be impactful, this function could be filled by existing knowledge system actors and institutions (i.e., research institutes, government agencies, media, private sector, funding bodies) with the focus of providing a platform for collaborative relationships.

We know from the innovation ecosystem investments internationally that in order for innovation ecosystems to be sustainable, there must be a clear vision and mutual accountability for bringing them into being (Lawrence et al., 2020). Indonesia developed the Vision of Indonesia 2045 for becoming a knowledge economy by 2045 with a clear road map for achieving this goal (Bappenas, 2020). In support of that vision, knowledge system champions from over 30 Government of Indonesia ministries and agencies as well as nongovernment institutions worked on a set of recommendations for future investments in the knowledge and innovation ecosystem, with short- and long-term recommendations in a range of areas such as incentives, human resources, and funding (Kemenristek/BRIN, Kementerian PPN/Bappenas, & KemenPAN-RB, 2021).

Conclusion

This book has explored the evolution of the concept of the knowledge system in Indonesia as well as some analogous international applications of that concept. It has examined the complex web of relationships and political dynamics between actors and institutions in the knowledge system in Indonesia, as well as internationally. We used a subset of initiatives and reforms as applied examples of how the relationships among knowledge actors are structured and how new actors and constellations of relationships can open up potential for greater contestation of ideas, production of knowledge, and more inclusive policy outcomes. We examined those processes through a multi-actor perspective.

This book does not provide a comprehensive review of knowledge systems reform. It does not, for example, discuss knowledge management, which is a core element of the knowledge-to-policy cycle because it allows for the accumulation of knowledge to be available and updated for policymaking purposes. Beyond the production of knowledge, knowledge management includes activities like translation, structuring, interpretation, and creating a culture for knowledge use. Importantly, it requires platforms necessary to collect, collate and disseminate information. Indonesia has embarked on key initiatives in this area, notably the building of the KRISNA planning and budgeting application,[59] Bappenas integrated knowledge management (known as Knowledge Management for Development Planning, *Manajemen Pengetahuan Perencanaan Pembangunan*, or MP3), and we note that without discussing it in detail in this book.

What we have offered in this book is a "bottom-up" narrative account written by stakeholders themselves, in cooperation with development practitioners, looking into the actors and interactions that produced specific reforms in Indonesia and in select examples from outside Indonesia. We analyzed the dynamics both of successful reforms and of areas in which policy remains stagnant. For Indonesia, those successes are consequential,

[59] The KRISNA planning and budgeting application was developed by the DFAT-funded KSI and the Directorate of System and Procedures for Development Funding of the Ministry of National Development Planning (Bappenas). Based on *Government Regulation No. 17/2017 (PP No. 17/2017)*, the application has been used since 2017 by line ministries to prepare their planning documents (Line Ministries Annual Work Plan called Rencana Kerja—Renja K/L). KRISNA has been also used to consolidate Renja K/L data and the Government Work Plan (*Rencana Kerja Pemerintah, or RKP*). The application also has Dana Alokasi Khusus (Special Allocation Fund) functionalities that are used by local governments.

even as the challenges and opportunities for Indonesia's knowledge economy remain significant.

Taking into account research and development challenges in Indonesia including limited funding incentives and highly centralized regulations in the knowledge system (Chapter 1), a more systematic application of the knowledge system approach could address these issues and contribute to Indonesia's goal of becoming a knowledge economy. The knowledge system actors and initiatives covered in this book highlight the ways in which Indonesia is applying the knowledge system model and addressing these challenges in a more systematic way. As mentioned in Chapter 8 as well as the beginning of this chapter, these challenges are not unique to Indonesia. Each country will have its own set of research and development challenges. The knowledge system approach helps to identify areas for reform and investment in knowledge production, use, public discourse (intermediary), and funding and regulations (enabling), but most importantly it encourages interaction, interdependence, and mobility of actors and institutions in the knowledge system to achieve knowledge system goals.

The case study examples in this book provide insight into how differently situated actors within the knowledge system navigated these complex relationships more effectively to promote change. They also underscore the mutual accountability between actors and institutions that knowledge systems need to progress and some of the policy frameworks and incentives that can help to foster knowledge system sustainability. By framing these processes through the Knowledge System Model 2.0, we offer a heuristic device with worked illustrations that can both stimulate and inform knowledge actors in systems beyond Indonesia's to think about how these processes work locally and what adaptations might be helpful for knowledge actors seeking to grow their own capabilities under different local conditions.

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