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ORIGINAL ARTICLE

Analysis of national and local governance systems to achieve the sustainable development goals: case studies of Japan and Indonesia

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Abstract
To achieve the sustainable development goals (SDGs), all countries' efforts are essential, and each country needs to recognize their level of achievement in terms of the SDGs, identify the goals and targets that require more effort, and build more effective and well-performed governance systems to accelerate their efforts toward achieving the SDGs. This study identifies different governance system structures for achieving the SDGs and the challenges they face in improving their performance using a new matrix tool to evaluate governance systems for the SDGs. We use Japan and Indonesia as case studies to provide perspectives from countries at different levels of economic development. The results show that the governance systems for the SDGs are structurally and functionally different in the two countries, which face different challenges. Japan has relatively well-structured "vision and objective setting", "research and assessment", and "strategy development", but faces challenges in relation to "implementation" and "monitoring, evaluation, and review", while Indonesia has relatively well-structured "research and assessment", "strategy development", and "monitoring, evaluation, and review." However, Indonesia faces challenges in relation to "vision and objective setting" and "implementation." We found that the differences in the governance systems for the SDGs have arisen in relation to three key elements: differences in the development of governance systems for the SDGs, differences in the lead ministries, and the existence or otherwise of a supportive legal framework. We argue that the proposed matrix tool is useful in identifying the structure of governance systems for the SDGs and the challenges that must be overcome to improve the performance of these systems. However, some analytical limitations must be overcome before the tool can be applied to other countries.

Keywords Sustainable development goals · Governance · National · Local · Japan · Indonesia

Introduction

Importance of effective and well-performed governance systems for the SDGs

The Millennium Development Goals (MDGs) that were agreed in 2000 largely concentrated on social outcomes (e.g., poverty and hunger eradication, health, and education) in developing countries. Conversely, the 17 Sustainable Development Goals (SDGs) that were adopted under the 2030 Agenda for Sustainable Development at the United Nations (UN) Sustainable Development Summit in 2015 set out a wide range of environmental, social, and economic objectives, and apply to both developed and developing countries.

To achieve the SDGs, all countries' efforts are essential. Each country needs to recognize their level of achievement in terms of the SDGs, identify the goals and targets that require more effort, and build more effective and well-performed governance systems to accelerate their efforts toward achieving the SDGs. The 2030 Agenda for Sustainable Development encourages member states to "conduct regular and inclusive reviews of progress at the national and local levels, which are country-led and country-driven"

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(United Nations General Assembly 2015). One of the core elements of the follow-up and review framework of the 2030 Agenda is Voluntary National Reviews (VNRs) submitted to the High-level Political Forum, which is the main UN platform for sustainable development (United Nations General Assembly 2016). Many countries have submitted VNRs, with 22 countries submitting them in 2016, 43 countries in 2017, and 46 countries in 2018 (UN Sustainable Development Knowledge Platform 2019). So far in 2019, 47 countries have submitted VNRs, of which 41 countries are submitting for the first time. Establishing the structure of a governance system for the SDGs was one of the first actions taken at the national level, and promising trends toward building new or improving existing coordinating platforms for the SDGs are emerging across countries (Okitasari et al. 2019). The level of engagement of local governments in the national consultation process has been improving, but their formal inclusion in the national governance system structure is lacking, implying the slow progress toward establishing integrated and mutually reinforcing national and local vertical institutional mechanisms (Okitasari et al. 2019). The United Nations and other international organizations have encouraged countries to build more effective and well-performed governance systems. The key factors in these governance systems include the elements described in the 2030 Agenda and its SDGs: achieving sustainable development in its three dimensions—environmental, social, and economic—in a balanced and integrated manner (Paragraph 2), developing effective rule of law and good governance at all levels and transparent, effective, accountable institutions (Paragraph 35) (United Nations General Assembly 2015), and enhancing policy and institutional coherence (goals 17.13, 17.14, and 17.15), which includes both horizontal and vertical policy coherence (OECD 2016a), and multi-stakeholder partnerships (goals 17.16 and 17.17), and setting up effective institutional arrangements for the SDGs by assessing the governmental, institutional, and political contexts that exist in the country through identifying and understanding the factors affecting implementation of the SDGs such as current processes, institutions, and actors (United Nations Development Programme 2017).

Literature review and research gaps

Practical and theoretical studies on national and local governance systems for the SDGs

Although various studies have examined governance systems in relation to the implementation of the SDGs at the international, national, and local levels, few studies have analyzed the structure and performance of national and local governance systems for the SDGs in various countries. In this paper, we define governance systems for the SDGs, as complex systems that contain institutions' and actors' interaction aimed to address wide-ranging, cross-cutting and cross-agency global goals, the SDGs into national and local policy processes. Since the SDGs include an integrated approach incorporating environmental, social, and economic aspects, the governance systems for the SDGs are expected to be able to operate effectively in relation to wide-ranging, cross-cutting strategies and cross-agency issues (Okitasari et al. 2019). Recent studies in various fields have attempted to understand the complexity of the existing national and local governance systems for the SDGs, which include different institutions and actors. Here, we review both practical and theoretical studies that have contributed to identifying the characteristics of national and local governance systems for the SDGs and the challenges they face in improving their performance and effectiveness. We also examine current global efforts to strengthen and improve the governance systems for the SDGs.

In practical terms, international organizations and networks such as the Organization for Economic Co-operation and Development (OECD), Sustainable Development Solutions Network (SDSN), United Nations Development Group (UNDG), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), and United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS) have published guidelines to support national SDG implementation, especially in the initial stages of the implementation (Sustainable Development Solutions Network 2015; United Nations Development Group 2017; OECD 2016a; Dahiya and Okitasari 2018). For example, the SDSN (2015) proposes guiding principles to help countries navigate the SDG Agenda and helps stakeholders, including governments at the national, regional, and local levels, to understand the SDG Agenda, to start an inclusive dialogue on SDG implementation, and to prepare SDG-based national development strategies. The UNDG (2017) provides guidelines that help to pinpoint the greatest needs for partnership among stakeholders, identify country data and capacity gaps, and provide guidance on integrated, systematic, and phased approaches to addressing data needs for review processes. Further, the OECD (2016a) has introduced a new Policy Coherence for Sustainable Development framework, including general guidance and a screening tool (checklist) for developing national strategies to enhance policy coherence and achieve the SDGs. The UNESCAP and UNU-IAS have jointly proposed guidelines for policy makers in the Asia–Pacific region to develop and strengthen partnerships from which the private sector, civil society organizations, academia, and other stakeholders can benefit (Dahiya and Okitasari 2018). Although existing guidelines provide key elements for the implementation of the SDGs at the national level in the initial stage, they do not offer a tailored approach based on national realities and circumstances, nor do they

provide systematic methods and tools to identify governance strengths and weaknesses that are directly applicable to understanding the different structures and levels of performance of national governance systems for the SDGs in various countries.

Various studies have attempted to fill the gaps in our understanding of the governance systems required for the SDGs and the challenges countries face in improving their governance performance and effectiveness. These studies have mainly focused on defining governance challenges (Allen et al. 2018; Bowen et al. 2017; Stafford-Smith et al. 2017) and the institutional conditions necessary for the implementation of the SDGs at the national and local levels (Biermann et al. 2017; Chimhowu et al. 2019; Fenton and Gustafsson 2017; Gustafsson and Ivner 2018; Biermann et al. 2017) set out several broad institutional conditions for the implementation of the SDGs from the global level to the local level that include adapting global ambitions to national circumstances and priorities. Allen et al. (2018) identified the key gaps in implementing the SDGs, which include assessment of interlinkages, trade-offs, and synergies between targets, and policy evaluation and design, by analyzing 26 countries' efforts. Other studies have attempted to identify the governance challenges associated with the seven categories relating to the implementation of SDG 17, namely, finance, technology, capacity building, trade, policy and institutional coherence, multi-stakeholder partnerships, and data monitoring and accountability, and have provided recommendations to help address these challenges at both the global and national levels (Bowen et al. 2017; Stafford-Smith et al. 2017). However, little has been done to develop a systemic approach to rigorously analyzing governance systems and improve their performance and effectiveness in achieving the SDGs.

While the literature on developing a systematic approach to governance system analysis for the SDGs is sparse, there have been attempts to understand the governance systems that can contribute to achieving the SDGs by systematically evaluating the planning system (Cumming et al. 2017; Chimhowu et al. 2019). Chimhowu et al. (2019) analyzed 107 new national development plans based on their type and content, categorized them into various functional classifications, and identified their implications for the implementation of the sustainable development agenda.

Studies targeting local governance for the SDGs and its challenges have received less attention (Fenton and Gustafsson 2017; Gustafsson and Ivner 2017). Fenton and Gustafsson (2017) identified the potential challenges and opportunities influencing local actions focusing on municipalities by reviewing a range of recent studies on local actions, drawing on experiences from past initiatives such as Local Agenda 21 and climate agreements. Gustafsson and Ivner (2018) examined the Östergötland region in Sweden, identifying the roles of municipalities in the SDG implementation process, and provided recommendations to organizations about to adopt the SDGs. Both studies reiterated the importance of strengthening the governance systems and clarifying the roles and responsibilities of actors participating in governance for the SDGs.

Evaluation of governance systems for the SDGs

Despite the appeal and importance of practical guidance to support the implementation of the SDGs at the national level and the findings of studies on governance for the SDGs, analysis of governance systems barely exists. There has been limited focus on developing analytical frameworks that can be used to identify different mechanisms and structures in governance systems for the SDGs in different countries and the multiple challenges they face in improving their performance. Instead, there is an ongoing trend toward analyzing the technical efforts in relation to the implementation of the SDGs rather than the governance efforts required for the SDGs. The majority of the literature on the implementation of the SDGs has focused on approaches to policy development, implementation, and practice, including evidence-based approaches (Schmidt-Traub et al. 2017) and science-based approaches (Allen et al. 2016), with little focus on approaches to governance. Of the few existing studies on national governance for the SDGs, most are based on reviews of previous studies and national experiences in implementing past initiatives (Allen et al. 2018; Chimhowu et al. 2019; Fenton and Gustafsson 2017; Gustafsson and Ivner 2017), scenario forecasting using existing governance indicators (Joshi et al. 2015), and/or examinations of global research programs such as Future Earth and a series of international workshops (Bowen et al. 2017; Biermann et al. 2017; Stafford-Smith et al. 2017).

An increasing number of projects and global research alliances (e.g., SDSN, Earth System Governance (ESG)), as well as studies (Monkelbaan 2019), are exploring promising theories related to governance for the SDGs. Some of the existing or new potential governance theories that are relevant to the SDGs include metagovernance (Meuleman and Niestroy 2015), network governance (Fenton and Gustafsson 2017), and adaptive governance (Xue et al. 2018). ESG explores novel and effective governance mechanisms that can cope with the current transitions in the planet's biogeochemical systems (Burch et al. 2019). Through careful empirical observation, ESG offers a framework composed of contextual conditions (transformations, inequality, the Anthropocene, and diversity) and five sets of research lenses (architecture and agency, democracy and power, justice and allocation, anticipation and imagination, and adaptiveness and reflexivity) (Burch et al. 2019).

Systematic governance analysis is not only an issue in relation to governance systems for the SDGs, but is also largely missing from governance studies and often only a normative afterthought while maintaining a focus on the modes, behaviors, and interactions of the actors (see Meadowcroft 2007). Similarly, looking at the governance literature that has emerged from policy analysis, environmental science, and corporate governance studies, studies on systematic frameworks for governance analysis are scarce (Dale et al. 2013). Among them, recent studies have used complexity theory (Loorbach 2010), rational choice (Feiock 2007), governance networks (Sørensen and Torfing 2007), policy processes (Hill and Hupe 2006), and a structural–functional approach (Potts et al. 2014) in an attempt to understand governance systems. However, none of these approaches has been applied to analyzing governance systems that aim to implement an agenda as complex, overarching, and cross-cutting as the SDGs. Further, the shift in theory from evaluating governance based on linear models to more systemic concepts has been slowly progressing. Fragments of understanding about governance activity within isolated domains, organizations, and functions are a common approach in the literature (Rauschmayer et al. 2009; Dale et al. 2013). One means of addressing this governance evaluation gap has been proposed by Dale et al. (2013) through their governance system analysis (GSA) framework for the systematic evaluation of complex governance systems. GSA is presented as a framework that is applicable across or within any particular governance theme, domain, or sub-domain. Although the original framework was not aimed at analyzing governance for the SDGs, we consider it to be potentially applicable across a wide range of environmental, social, and economic contexts as a result of its broad key methodological steps and evaluative criteria.

Study purpose

The purpose of this study is to identify different governance system structures for achieving the SDGs at the national level, and various challenges to improving their performance, using a new matrix tool to evaluate governance systems for the SDGs. We used the cases of Japan and Indonesia, which are actively developing governance systems for the SDGs in the Asia–Pacific region, to provide perspectives from countries at different levels of economic development. The strength of this approach is that this study contributes to identifying the conditions necessary to build effective governance systems for the SDGs in different countries and thus adds to the literature on the evaluation of national and local governance systems for the SDGs.

Methods and materials

Analytical framework

Given the background outlined above, this study aims to contribute to developing and improving existing analytical frameworks that are useful in identifying differences in governance systems for the SDGs in various countries and the challenges they face in improving their performance and effectiveness.

To identify the different structures and functions, and the challenges to improving the performance of governance systems for the SDGs, we propose a framework to analyze governance systems for the SDGs based on the GSA framework of Dale et al. (2013). Our aim is to address governance systems holistically in response to the call for effective governance systems for the SDGs. Taking advantage of the strengths of the GSA framework, which are applicable to analyzing the structures and functions of governance systems at different levels, we argue that the framework is, to some degree, able to identify the challenges to improving the performance of the governance systems. Focusing on the policy-making processes, the GSA framework has the potential to be applicable to governance systems for various environmental, social, and economic themes, and also governance systems that are in the early stages of development such as governance systems for the SDGs. Because the GSA framework was not originally created to analyze governance systems as complex as those for the SDGs, we have modified the matrix tools used in the GSA framework to create a matrix tool that is able to evaluate the structures and functions of various national and local governance systems for the SDGs. While the GSA framework is useful for identifying the capacity for governance within the policy-making process, it has some limitations. The framework is only able to evaluate the existing characteristics of governance systems and the challenges to improving performance to some degree, and is unable to evaluate the effectiveness of the governance systems. It is challenging to evaluate the effectiveness of complex governance systems because the correlations between governance systems and their outcomes and impacts are not clear (see Newig and Fritsch 2009). Evaluation of the effectiveness of the governance systems is often ex post, and we are generally only able to understand the effects of governance systems several years after they have been established.

The matrix tools of the GSA framework proposed by Dale et al. (2013) are based on five key structural components: (1) vision and objective setting (setting higher level visions/objectives), (2) research and assessment (analysis to underpin decision making), (3) strategy development

(determining the best strategies for securing visions and strategic objectives, including an appropriate solutions mix), (4) implementation (implementation and delivery of broader strategies), and (5) monitoring, evaluation, and review (monitoring, evaluating, and reviewing the implementation against the original vision and objectives). Furthermore, it includes three key functions in all five structural components: (1) decision-making capacity, (2) connectivity, and (3) knowledge use. As Dale et al. (2013) show that improved decision-making capacity can improve the system's vitality, and decision-making capacity includes building participants' understanding of and access to information concerning issues of relevance, and motivating them to fully engage in the governance system. Regarding connectivity, the degree of connectivity influences system outcomes based on functionality, which includes collaboration and negotiation within and between key structural elements of the system, and relationships between institutions involved in various structural components of the system. As for knowledge use, improving the functionality of any governance system requires integrated use of knowledge, which includes the use of strategic analysis across all structural components of the system and the spread of knowledge among key system participants. Dale et al. (2013) proposed a series of analytical questions aimed at measuring performance in terms of the three key functions in each of the five key structural components.

Table 1 shows the proposed matrix tool for analyzing national and local governance for the SDGs. Based on the original analytical questions regarding the five structural components and three functions suggested by Dale et al. (2013), we modified the questions to evaluate the structural and functional characteristics of existing governance systems for the SDGs. Four possible answers are available in response to each question: "yes", "partially", "no", or "unknown", at both the national and local levels. Because the documents and information that are available in each country differ, we use this four-point rating scale to enable the matrix tool to be applied to all countries.

The major data sources used in this study were the VNRs, policy reports, and documents from various 2030 Agenda-related committees and initiatives, and interviews with policy makers and other stakeholders that were conducted from May 2018 to March 2019.

The cases of Japan and Indonesia

We selected Japan and Indonesia because these two countries are actively developing governance systems for the SDGs in the Asia–Pacific region, and provide perspectives from countries at different levels of economic development. To understand the different characteristics of governance systems for the SDGs among countries and the challenges they face in improving their performance, it is better to analyze as many countries as possible that differ in terms of their economic level, geographical characteristics, and economic structure. However, because this is the first time the new matrix tool has been used to evaluate the governance systems for the SDGs in specific countries, and because of the data that are required for the application of the matrix tool, we chose these two countries. Japan and Indonesia, both of which are located in the Asia–Pacific region, have similar geographical characteristics in that they are both island countries, but they are at different economic levels, that is, Japan is a developed country, while Indonesia is a developing country based on the traditional classification categories.

In terms of data availability, both countries have submitted VNRs (Government of Japan 2017; Government of Indonesia 2017a), and discussion regarding the development of governance for the SDGs has been a cornerstone of both countries' efforts in relation to the SDGs.

The annual SDGs Index and Dashboards Report ranks Japan higher than Indonesia in terms of the level of achievement of the SDGs, although Japan still faces challenges in terms of the environment-related SDGs, while Indonesia continues to face challenges in terms of the development-related SDGs (Stiftung and SDSN 2018). In relation to governance, the two countries are pursuing different mechanisms to introduce the SDGs into their national governance, including different policy frameworks and actors involved in the implementation of SDG actions (Government of Japan 2017; Government of Indonesia 2017a).

In Japan, there is currently no legal framework to support the implementation of the SDGs. An SDGs Promotion Headquarters led by the prime minister and other cabinet ministers was established in May 2016. Under this new institution, SDGs Promotion Roundtable Meetings are coordinated by the Cabinet Office and Ministry of Foreign Affairs (Deputy Director General of SDGs Promotion Headquarters) and involve a wide range of actors, including representatives from the private sector, academia, and non-governmental organizations (NGOs). Based on the discussions at those meetings, the SDGs Promotion Headquarters agreed on the SDGs Implementation Guiding Principles in December 2016 (Ministry of Foreign Affairs Japan 2017), and subsequently published three other documents; the SDGs Action Plan 2018 in December 2017, the Expanded SDGs Action Plan 2018 in June 2018, and the SDGs Action Plan 2019 in December 2018 (Prime Minister of Japan and His Cabinet 2019a). At the local level, some local governments have started mainstreaming the SDGs in their plans and strategies, coinciding with the launch of the SDGs Future Cities Projects in 2018. Following this launch, 29 designated local governments published their own SDGs Future Cities Plans (Prime Minister of Japan and His Cabinet 2019b).

Table 1 Matrix tool for analyzing national and local governance systems in relation to the SDGs

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
1. Vision and objective setting	1-A-1. Do capacities exist to set higher aspirational or conditional targets to achieve the SDGs? 1-A-2. Do the relevant stakeholders have the knowledge, financial, human, and infrastructure resources required for vision and objective setting to achieve the SDGs? 1-A-3. Do key organizations involved have continuous improvement systems to achieve the SDGs?	1-B-1. Are relevant stakeholders actively connected to decision making on the SDGs? 1-B-2. Are visions and objectives aligned to the visions and objectives of the SDGs? 1-B-3. Are collaborative frameworks for setting visions and objectives in relation to the SDGs well-designed? 1-B-4. Are there frameworks for bargaining and negotiation over setting visions and objectives to achieve the SDGs?	1-C-1. Are relevant forms of information available for vision and objective setting in relation to the SDGs? 1-C-2. Are traditional and historical knowledge sets being applied to vision and objective setting in relation to the SDGs? 1-C-3. Are appropriate decision-support tools in place to support scenario analysis to achieve the SDGs?
2. Research and assessment	2-A-1. Are there sufficient research and analysis capacities in relation to the SDGs in place to inform other structural components of the system? 2-A-2. Are there sustainable development research and analysis capacities in the system?	2-B-1. Are there collaborative linkages between research organizations to achieve the SDGs? 2-B-2. Are there research brokerage and communication arrangements between research providers and end-user stakeholders to achieve the SDGs? 2-B-3. Are collaborative arrangements in place to integrate environmental, economic, and social science fields of sustainable development research?	2-C-1. Are there systems in place for long-term research synthesis and knowledge retention in relation to the SDGs and/or sustainable development? 2-C-2. Are there broad research priority-setting exercises in relation to the SDGs that need to be refined? 2-C-3. Are relevant forms of information available for systematic decision making to achieve the SDGs?
3. Strategy development	3-A-1. Do capacities exist in the system to set clear strategic targets to achieve the SDGs? 3-A-2. Do relevant stakeholders have the knowledge, financial, human, and infrastructure resources available to make the decisions required for the SDGs-related strategy development? 3-A-3. Do the key organizations involved have the improvement systems to achieve the SDGs?	3-B-1. Are relevant stakeholders connected to strategy decision making for the SDGs? 3-B-2. Are strategies aligned to the visions and objectives of the SDGs? 3-B-3. Are strategies aligned to higher-/lower-scale strategy development to achieve the SDGs? 3-B-4. Are collaborative frameworks for setting strategies for achieving the SDGs well designed? 3-B-5. Do strategies integrate an appropriate mix of solutions to achieve the SDGs?	3-C-1. Is there knowledge of sustainable development relating to the assessment of the efficacy of key strategies to achieve the SDGs? 3-C-2. Are decision-support tools available to scenario test alternative strategies for achieving the SDGs?
4. Implementation	4-A-1. Are there capacities to implement a broad mix of strategic solutions to implement the SDGs? 4-A-2. Do the implementation players have the financial, human and infrastructure resources to implement the SDGs? 4-A-3. Do the key organizations involved have improvement systems in place to implement the SDGs?	4-B-1. Are there partnership and integration arrangements between policy and delivery systems to implement the SDGs? 4-B-2. Do different components of the solution mix collaborate to implement the SDGs? 4-B-3. Are there research brokerage arrangements to support the implementation of the SDGs?	4-C-1. Are there research efforts to inform continuous improvement in implementation of the SDGs? 4-C-2. Are local and traditional knowledge sets informing implementation of the SDGs? 4-C-3. Are relevant datasets concerning the implementation of the SDGs being managed and retained?

Table 1 (continued)

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
5. Monitoring, evaluation, and review	5-A-1. Are there follow-up and review capacities for the SDGs in the system? 5-A-2. Are there collective monitoring alliances for the SDGs in place? 5-A-3. Are there defined and independent evaluation capacities for follow-up and review of the SDGs in the system? 5-A-4. Are there reporting capacities to enable high levels of accountability in relation to achieving the SDGs?	5-B-1. Are there integration arrangements between objective setting and monitoring systems to achieve the SDGs? 5-B-2. Are follow-up and review mechanisms for the SDGs linked to long-term monitoring? 5-B-3. Are follow-up and review systems for the SDGs able to influence strategic processes and the allocation of resources for the implementation of the SDGs?	5-C-1. Are sustainable development outcomes from the system being monitored? 5-C-2. Are monitoring and evaluation data in relation to the SDGs being retained in the long term?

As for Indonesia, an institutional structure for the SDGs was established through Presidential Decree 59/2017 on the implementation of the SDGs (Government of Indonesia 2017b). The structure consists of an SDG Steering Committee chaired by the president and coordinated by the Ministry of National Development Planning (Bappenas) involving seven line ministries, supported by the SDGs implementation team chaired by the head of Bappenas and four working groups (Government of Indonesia 2017b, article 9). The members of the implementation team and four working groups include representatives from the government, the philanthropic and business communities, civil society organizations, and academia (United Nations Development Programme 2017). Following the issuance of Presidential Decree 59/2017 on the implementation of the SDGs in July 2017, Indonesia has since prepared the SDGs roadmap 2018–2030 (Government of Indonesia 2017b, article 15) and the National SDGs Action Plan 2017–2019. At the local level, Governor or Mayor Regulations for the SDGs have been enacted, for example in Riau (Government of Riau Province 2018). Local action plans are currently required to localize the SDGs.

A summary of basic information in relation to the two countries is presented in Table 2.

Results and discussion

Comparative analysis of the governance systems for the SDGs in Japan and Indonesia

In this study, we applied a matrix tool to case studies involving Japan and Indonesia. Answers were provided to all the questions listed in Table 1 that analyzed the functions and structures of the national and local governance systems in relation to the SDGs in the two countries. The results of the analyses of Japan and Indonesia are shown in Tables 3 and 4, respectively.

To enable easy comparison of the differences in the structures and functions of the national and local governance systems in the two countries, we summarized the results presented in Tables 3 and 4 in Figs. 1, 2, 3, and 4. The answers to the questions were allocated scores as follows: “yes”, 2; “partially”, 1; “no”, 0; and “unknown”, no score, at both the national and local levels. Because the number of questions varied, to allow the aggregate value of each structural component to plot at a uniform distance of one unit, the total score is divided by the maximum possible score.

Our analysis of national and local governance systems in relation to the SDGs in Japan and Indonesia shows that in both countries, the national government has made an effort to develop effective governance systems for the SDGs by promoting policy and institutional coherence in relation to

Table 2 Basic information for Japan and Indonesia

	Japan	Indonesia
	General information	
Gross domestic product (million current US$) in 2018 and GDP per capita (current US$), UN Data	4,936,212 38,640	932,259 3,570
Population (000, 2018), UN Data	127,185	263,795
Land area (1000 ha, 2016), FAO STAT	36,456	181,157
National and local governance structure	Unitary dominant party Parliamentary constitutional monarchy Decentralized country in which local expenditure is higher than the OECD average for most large categories of spending (OECD 2016b)	Unitary presidential constitutional republic Decentralized programs (started in 1999) have been implemented by aid agencies such as ADB, although the programs were ill-prepared and not carried out in a logical order (Nasution 2016)
	Information related to the SDGs	
SDG Index and Stiftung and SDSN (2018)	Index score 78.5 SDG global ranking 15 (of 156) Severe challenges in SDG 5, 12, 13, 14, and 17 (the goals are shown in red, and the main challenges are environment-related goals)	Index score 62.8 SDG global ranking 99 (of 156) Severe challenges in 2, 3, 9, 10, 14, 15, 16, and 17 (the goals are shown in red, and the main challenges are development-related goals)
SDGs update	VNR submitted in 2017	VNR submitted in 2017 (a second VNR will be submitted in 2019)
National governance	Policy framework No legal framework SDGs implementation guiding principles (2016) SDGs Action Plan 2018 (2017) Expanded SDGs Action Plan 2018 (2018) SDGs Action Plan 2019 (2018) Actors SDGs Promotion Headquarters is led by the prime minister and all cabinet ministers (2016–) SDGs Promotion Roundtable Meeting consists of various actors including academia, the private sector, and NGOs (2016–)	Policy framework Presidential Decree 59/2017 (2017) SDG roadmap 2018–2030 (expected 2019) National Action Plan 2017–2019 (2017) Metadata SDG Indicator (2017) Actors SDG Steering Committee is led by the president coordinated by the Ministry of Development Planning involving seven ministries (Presidential Decree 59/2017) SDG Implementation Team and Working Group consist of representatives of government, business, philanthropy, CSOs, the media, and academia (Presidential Decree 59/2017)
Local governance	Policy framework Some local governments started mainstreaming SDGs in their comprehensive plans (comprehensive plans are adopted by the local assembly and are recognized as the basis for all other plans in the local government, providing guidance for their administrative activities) SDGs future cities project (2018): 29 designated local governments published SDGs implementation plans Actors 29 local governments designated for SDGs future cities project in 2018 public private partnership platform	Policy framework Governor/Mayor Decree Local action plans are required SDGs mainstreaming in provincial/local mid-term development plan is required Actors SDG Pilots: 7 (2017), 30 (2018) provinces/local areas

Sources: United Nations Statistics Division (2019), Food and Agriculture Organization of the United Nations (2019), OECD (2016b), Nasution (2016), Government of Japan (2017), Government of Indonesia (2017a) and Stiftung and SDSN (2018)

Table 3 Results of the analysis of Japan

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
1. Vision and objective setting	1-A-1. National level: yes (e.g., the SDGs Promotion Headquarters, a new Cabinet body, adopted SDGs Implementation Guiding Principles) Local level: partially (e.g., some local municipalities have already incorporated aspects of the SDGs into their policies, such as Shiga Prefecture and Shimokawa Town) 1-A-2. National level: yes (e.g., the SDGs Promotion Headquarters are headed by the Prime Minister and all cabinet ministers) Local level: partially (e.g., a limited number of local authorities such as SDGs Future Cities are active in implementing the SDGs) 1-A-3. National level: yes (e.g., in the SDGs Implementation Guiding Principles, the Japanese government announced its consideration of follow-up and review of the SDGs, taking into account the 4-year cycle of the HLPF) Local level: partially (e.g., SDGs Future Cities are required by the Cabinet Office to follow-up and review. A limited number of other local authorities, which had already internalized the SDGs in their Development Plans (the highest-level municipality plans), will be periodically reviewed based on their plan-do-check-action cycle)	1-B-1. National level: yes (e.g., the SDGs Promotion Headquarters formulated the SDGs Implementation Guiding Principles after a process of roundtable meetings and public comments, and also approved the SDGs Action Plans) Local level: partially (e.g., all 29 SDGs Future Cities have established or are planning to establish coordinating bodies with multi-stakeholders for the SDGs, but this only represents a limited number of local authorities) 1-B-2. National level: partially (e.g., the Fifth Basic Environment Plan incorporated the SDGs, but other government plans have not yet reflected the SDGs) Local level: partially (e.g., some local authorities have already internalized the SDGs in their Development Plans, the highest-level plans, such as Nagano Prefecture and Ube city) 1-B-3. National level: yes (e.g., the SDGs Promotion Headquarters formulated the SDGs Implementation Guiding Principles, hold roundtable meetings involving a wide range of stakeholders including NGOs, academia, and the private sector) Local level: partially (same as 1-B-1) 1-B-4. National level: yes (e.g., the SDGs Promotion Headquarters, which includes all ministers, at roundtable meetings including multiple stakeholders, formulated the SDGs Implementation Guiding Principles following a public comment process that attracted more than 190 comments) Local level: partially (same as 1-B-1)	1-C-1. National level: yes (e.g., the SDGs Promotion Headquarters are able to access information from all ministries and its roundtable meetings invite various stakeholders) Local level: partially (e.g., the SDGs Future Cities need to include this information in their 3-year plans) 1-C-2. National level: yes (e.g., the SDGs Implementation Guiding Principles were developed based on historical background and existing policies) Local level: partially (e.g., many SDGs Future Cities included historical backgrounds in their plans) 1-C-3. National level: partially (e.g., the Japanese government has not implemented scenario analysis but has mapped out the main policy measures to achieve the SDGs) Local level: partially (e.g., the SDGs Future Cities have not implemented scenario analysis but have mapped out the main policy measures to achieve the SDGs in their plans)

Table 3 (continued)

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
2. Research and assessment	2-A-1. National level: yes (e.g., roundtable meetings under the SDGs Promotion Headquarters invited experts from academia and the Advisory Board for the Promotion of Science and Technology Diplomacy has compiled a recommendation on how to contribute to the SDGs through science, technology, and innovation (STI)) Local level: partially (e.g., ESD has long been promoted in some local areas, which has also contributed to capacity-building in sustainable development-related research areas and human resources development in related higher education areas) 2-A-2. National level: yes (e.g., same reason as 2-A-1) Local level: partially (same reason as 2-A-2)	2-B-1. National level: yes (e.g., the Advisory Board for the Promotion of Science and Technology Diplomacy has compiled a recommendation on the SDGs and STI) Local level: partially (e.g., some local authorities including the SDGs Future Cities have arranged collaborative activities between research organizations to achieve the SDGs) 2-B-2. National level: yes (e.g., the Advisory Board for the Promotion of Science and Technology Diplomacy served as the Science and Technology Advisor to MOFA, and its recommendation was also reflected in Japan's VNR. Other than governmental sectors, research institutions have started to communicate information on the SDGs for end-user stakeholders through symposiums and events) Local level: partially (e.g., many SDGs Future Cities have established coordination mechanisms with multiple stakeholders including academia) 2-B-3. National level: yes (e.g., the Science Council of Japan has established a Subcommittee on the SDGs within the Committee on Science and Society to coordinate environmental, economic, and social research under the SDGs) Local level: partially (e.g., some collaborative arrangements to integrate the environmental, economic, and social fields have just started in SDGs-related platforms, but these are limited in number)	2-C-1. National level: partially Local level: partially (e.g., Recommendation for the Future: STI as a Bridging Force to Provide Solutions for Global Issues produced by the Advisory Board for Promotion of Science and Technology Diplomacy partially contributes to long-term research synthesis and knowledge retention) 2-C-2. National level: yes Local level: yes (e.g., research communities are working on developing a Roadmap on STI for SDGs in 2019) 2-C-3. National level: partially (e.g., the SDGs Promotion Headquarters have access to information from experts, but information on the SDGs and related datasets remains unstructured) Local level: partially (e.g., there are gaps between global SDGs indicators and local data, and some research supports the localization of SDGs-related indicators)

Table 3 (continued)

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
3. Strategy development	3-A-1. National level: yes (e.g., in the Annex to the SDGs Implementation Guiding Principles, 140 specific measures are to be implemented in Japan) Local level: partially (e.g., in the SDGs Future Cities' Project, 29 local authorities have submitted their original SDGs-related plans to include future visions and policy measures) 3-A-2. National level: yes (e.g., the SDGs Promotion Headquarters, with support from member ministries and the multiple stakeholders' round-table meetings, leads development of the SDGs Action Plans) Local level: partially (a limited number of local authorities such as the SDGs Future Cities have the resources to make decisions in relation to SDGs strategy development) 3-A-3. National level: yes (e.g., in the SDGs Implementation Guiding Principles, the Japanese government announced its consideration of the follow-up and review of the SDGs, taking into account the 4-year cycle of the HLPF) Local level: partially (e.g., the SDGs Future Cities are required to submit 3-year plans and their activities are to be followed up and reviewed by the Cabinet Office on an annual basis)	3-B-1. National level: yes (e.g., public comments were received in the process of developing the SDGs Implementation Guiding Principles) Local level: partially (e.g., all 29 SDGs Future Cities have established or are planning to establish coordinating bodies including representatives from multiple stakeholders for the SDGs, but this is only a limited number of all local authorities) 3-B-2. National level: yes (e.g., the SDGs Implementation Guiding Principles include both visions and objectives as well as strategies, which are reflected in Action Plans) Local level: partially (all 29 SDGs Future Cities submitted plans including both visions and objectives, as well as strategies) 3-B-3. National level: partially (e.g., at the national level, the Fifth Environmental Plan incorporated the SDGs. However, other plans or strategies have not yet reflected the SDGs, while Japan lacks the legal framework to align the strategies to visions and objectives for the SDGs) Local level: partially (e.g., some SDGs Future Cities have started mainstreaming the SDGs into their Development Plans or sectoral plans, but the numbers are limited) 3-B-4. National level: yes (e.g., all strategy development needs to go through a public involvement process, regardless of the SDGs) Local level: partially (e.g., all 29 SDGs Future Cities have established or are planning to establish coordinating bodies with representatives of multiple stakeholders for the SDGs) 3-B-5. National level: Unknown Local level: Unknown	3-C-1. National level: yes (e.g., the SDGs Implementation Guiding Principles has internalized assessment of the current status of sustainable development in Japan, including economic, social, and environmental aspects) Local level: partially (e.g., the SDGs Future Cities Plans include goals, targets, and indicators, which are to be followed up and reviewed by the Cabinet Office) 3-C-2. National level: partially (e.g., the Japanese government has not implemented scenario testing, but has mapped out strategies and review mechanism in the SDGs Implementation Guiding Principles) Local level: partially (e.g., the SDGs Future Cities have not implemented scenario testing, but have mapped out strategies in their plans)

Table 3 (continued)

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
4. Implementation	4-A-1. National level: yes (e.g., the SDGs Promotion Headquarters has strong political, financial, human, and infrastructure support. The SDGs Implementation Guiding Principles shows 140 specific measures to be implemented and these are reflected in annual SDGs Action Plans, consisting of policies and projects ensured by member ministries) Local level: partially (e.g., the SDGs Future Cities prepared the action plans to achieve the SDGs) 4-A-2. National level: partially: (e.g., the SDGs Promotion Headquarters has strong political, financial, human, and infrastructure support. However, implementation is only based on SDGs Action Plans which consist of policies and projects supported by the budget already planned by each ministry. However, the SDGs have not been mainstreamed in the central government's decision-making process regarding the allocation of the overall national budget) Local level: partially (e.g., although a limited number of local authorities are active in implementing the SDGs, strong local support is visible) 4-A-3. National level: partially: (e.g., the SDGs Promotion Headquarters is aiming to strengthen the delivery system for the SDGs with an announcement on follow-up and review of the SDGs, taking into account the 4-year cycle in the SDGs Implementation Guiding Principles. However, these are not supported by legal frameworks, which means a relatively weak institutional arrangement in the long term) Local level: partially (e.g., some local authorities, such as SDGs Future Cities, are active, but capacity to improve the system varies across local authorities)	4-B-1. National level: partially (e.g., although partnership and integration arrangements are being developed, the main government documents on the SDGs, which are the SDGs Implementation Guiding Principles and SDGs Action Plans, are not legally binding) Local level: partially (e.g., some SDGs Future Cities have started to mainstream the SDGs into their Development Plans, which include partnerships and integration arrangements to implement the SDGs) 4-B-2. Unknown Unknown 4-B-3. National level: partially (e.g., STI for SDGs is located in one of the three main pillars of the government's SDGs Action Plans) Local level: partially (e.g., many SDGs Future Cities have established coordination mechanisms with multiple stakeholders including academia)	4-C-1. National level: yes Local level: yes (e.g., the Science Council of Japan promotes research that contributes to the implementation of the SDGs) 4-C-2. National level: partially Local level: partially (e.g., the SDGs Implementation Guiding Principles show the need to collaborate with multiple stakeholders (including scientific communities) for follow-up and review, and some, such as ESD stakeholders, have reached out to local and traditional knowledge sets. However, the local knowledge sets related to the SDGs remain unstructured) 4-C-3. National level: partially (e.g., the SDGs Implementation Guiding Principles include an appendix with lists of policy measures and indicators for the SDGs implementation. Since the SDGs Implementation Guiding Principles mention follow-up and review mechanisms, these indicators are expected to be followed up with relevant datasets. However, the datasets are currently not available from a single source, which makes it difficult to conclude that the datasets are "being managed and maintained" in a proper manner.) Local level: partially (e.g., the SDGs Future Cities are required to set goals, targets, and indicators for follow-up of their SDGs plans)

Table 3 (continued)

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
5. Monitoring, evaluation, and review	5-A-1. National level: partially (e.g., the government will consider completing the first round of follow-ups and reviews by 2019 in accordance with the SDGs Implementation Guiding Principles. However, these are not supported by legal frameworks, which means a relatively weak institutional arrangement in the long term) Local level: partially (e.g., the SDGs Future Cities are required to set goals, targets, and indicators for follow-up of their SDGs plans) 5-A-2 National level: partially (e.g., the SDGs Implementation Guiding Principles mentioned follow-up and review mechanisms to monitor progress using indicators and statistical data, ensuring the participation of a broad range of stakeholders, but to date detailed outcomes are not available) Local level: partially (e.g., the SDGs Future Cities are required by the Cabinet Office to set goals, targets, and indicators when submitting their applications and follow-up processes for their SDGs plans. SDGs plans are required to mention stakeholder engagement) 5-A-3. National level: partially (e.g., indicators are listed in the SDGs Implementation Guiding Principles' appendix, and it is stated that follow-up and review will be conducted with the involvement of a wide range of stakeholders, but there is no clear mention of independent evaluation by a third party) Local level: partially (same as 5-A-1) 5-A-4. National level: yes (e.g., the government has announced that they will report on the implementation of the SDGs based on either global indicators or the original Japanese as part of the follow-up and review process in the SDGs Implementation Guiding Principles) Local level: partially (e.g., same as 5-A-1)	5-B-1. National level: yes (e.g., the SDGs Implementation Guiding Principles include both the objective setting and monitoring systems of the Government of Japan) Local level: partially (e.g., some local authorities have internalized the SDGs in their own Development Plans, such as Nagano Prefecture) 5-B-2. National level: No (e.g., although the SDGs Implementation Guiding Principles established follow-up and review mechanisms, there is no legal framework no clear statement on long-term monitoring) Local level: partially (e.g., some local authorities that internalized the SDGs in their own Development Plans will be monitored and reviewed in the long term) 5-B-3. National level: partially (e.g., although the government of Japan has announced follow-up and review of SDGs implementation, there is currently no clear announcement on how to reflect the findings in future strategic processes and allocation of resources and there is no clear framework to link all processes) Local level: partially (e.g., only local authorities that have internalized the SDGs in their own Development Plans will be able to formally establish links between follow-up and review systems and strategic processes for the next phase)	5-C-1. National level: partially (e.g., the government will consider completing the first round of follow-ups and reviews by 2019, in accordance with the SDGs Implementation Guiding Principles. However, these are not supported by legal frameworks, which means a relatively weak institutional arrangement in the long term) Local level: partially (e.g., the SDGs Future Cities are required to set goals, targets, and indicators for follow-up of their SDGs plans) 5-C-2. National level: partially (e.g., the government of Japan will review the achievement of the SDGs using data including relevant statistical data, but there is no legal framework and no clear decision on how to deal with them in the long term) Local level: partially (e.g., some local authorities have internalized the SDGs into their own Development Plans, and their monitoring and evaluation data will be retained under those planning systems)

Main sources: Ministry of Foreign Affairs Japan (2017), Government of Japan (2017), Prime Minister of Japan and His Cabinet (2019a, b), Ministry of the Environment Japan (2018), Science Council of Japan (2019), Ministry of Internal Affairs and Communications Japan (2019), Iwaki City (2019), Japan for Sustainability (2019) and Shiga Prefecture (2019)

Table 4 Results of the analysis of Indonesia

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
1. Vision and objective setting	1-A-1. National level: yes (e.g., a steering committee, an implementation team, and working groups were set up to develop national visions and objectives for the SDGs) Local level: yes (e.g., a local development planning agency is tasked with establishing local visions and objectives for the SDGs) 1-A-2. National level: yes (e.g., there is strong planning capacity and the ministries involved have the knowledge and human and financial resources to inform decision making) Local level: partially (e.g., there is potential for a high level of planning capacity, but support is required from national government/non-state actors) 1-A-3. National level: No (e.g., the SDGs coordination structure does not include a continuous internal institutional review mechanism) Local level: No (e.g., the coordination structure for the SDGs is the first that local governments have set up; it was not available during the MDGs, and there is no internal institutional review mechanism)	1-B-1. National level: partially (e.g., there is well-structured stakeholder engagement at the ministerial level, but there is a lack of involvement by non-state actors, who are only used for consultation) Local level: partially (e.g., similar to the national level) 1-B-2. National level: yes (e.g., the SDGs are aligned to the nine national visions operationalized in the National Mid-term Development Plan 2015 – 2019) Local level: yes (e.g., by law, the SDGs visions and objectives at the local level should align with the national SDGs visions and objectives) 1-B-3. National level: partially (e.g., collaboration is well-designed among ministries but there is a lack of participation by non-state actors) Local level: No (e.g., there is a lack of collaboration, and most of the work is done by the mayor and the local development planning agency) 1-B-4. National level: No (e.g., there is no framework for bargaining and negotiation; visions and objectives are seen as the government's prerogative) Local level: No (e.g., similar to the national level)	1-C-1. National level: yes (e.g., mapping analysis aligning national vision and the SDGs was based on all ministerial and statistics data) Local level: partially (e.g., those pilot areas receiving support from national government are able to access relevant data at national and local level) 1-C-2. National level: yes (e.g., available data and the approach used in relation to the MDGs were used for the initial assessment of the level of achievement of the SDGs) Local level: No (e.g., local governments have no experience in developing local visions based on a global agenda) 1-C-3. National level: partially (e.g while scenario analysis has not been conducted, the government has mapped alignments of the SDGs with the National Mid-term Development Plan 2015 – 2019 and ministerial programs) Local level: partially (e.g., mapping analysis is used to identify alignment of the SDGs with plans and programs using UNDP tools)

Table 4 (continued)

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
2. Research and assessment	2-A-1. National level: yes (e.g., the working groups involve experts from academia to help align the discussion with existing research) Local level: partially (e.g., the situation varies across pilot areas, with research and analysis capacities depending on the level of support from development partners, the national government, and local universities) 2-A-2. National level: yes (e.g., the SDGs implementation team receives supports from experts and partners conducting multidisciplinary research) Local level: partially (e.g., it varies in pilot areas, with the potential for high capacity where there is a research group/SDGs Center/Center of Excellence for SDGs)	2-B-1. National level: yes (e.g., the SDGs Center was created to link research organizations and inform planning and implementation of program for achieving the SDGs) Local level: partially (e.g., in pilot areas, local universities have launched research groups in relation to the SDGs to consolidate their research and build human resources (Jember)) 2-B-2. National level: yes (e.g., the SDGs Secretariat has acted as a facilitator of dialogues between ministries and academia) Local level: partially (e.g., it varies depending on the level of support from development partners (UNDP Indonesia provides technical assistance and connects stakeholders in Riau)) 2-B-3. National level: yes (e.g., collaborative arrangements through the SDGs Center include experts from the fields of economics, law, social sciences, governance, and the environment) Local level: partially (e.g., collaboration varies depending on the availability of local experts)	2-C-1. National level: partially (e.g., a national system for SDGs research sharing is in place, but the level of knowledge retention is unknown) Local level: partially (e.g., similar to the national level) 2-C-2. National level: No (e.g., research on the SDGs has only commenced recently, and the priority is unknown) Local level: No (e.g., similar to the national level) 2-C-3. National level: partially (e.g., data are available, but as with many compound government datasets, the data on the SDGs and related research are unstructured and not aggregated at the lowest level) Local level: No (e.g., there are gaps between national SDGs indicators and local data to be used in decision making)

Table 4 (continued)

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
3. Strategy development	3-A-1. National level: yes (e.g., planning capacity for strategy development was consolidated through the SDGs implementation team with support from non-state actors) Local level: partially (e.g., it varies across pilot cities depending on the level of support from the national government and partners; Riau received support from the UNDP) 3-A-2. National level: yes (e.g., working groups are involved in cross-sectoral strategy development with support from non-state actors to inform the SDGs implementation team) Local level: No (e.g., commitment and regulatory capacities are in place, but these require support at the national level or from partners for strategy development) 3-A-3. National level: No (e.g., there is no internal institutional review mechanism in place to improve the implementation system for the SDGs) Local level: No (e.g., similar to the national level; local governance capacity and bureaucratic reform post-decentralization varies across pilot areas)	3-B-1. National level: yes (e.g., by law, strategy decision making in relation to planning and implementation of the SDGs shall include the involvement of non-state actors) Local level: yes (e.g., the inclusion principle also applies to the local process) 3-B-2. National level: yes (e.g., a National Action Plan and a 15-year SDGs Roadmap are aligned to national visions and the SDGs) Local level: partially (e.g., SDGs local action plans are being prepared in pilot areas) 3-B-3. National level: yes (e.g., by law, the National Action Plan is the main reference for local action plans, which should be aligned with the National Mid-term Development Plan 2015–2019) Local level: yes (e.g., by law, the local action plans should be aligned with the Local Mid-term Development Plan and the National Action Plan) 3-B-4. National level: yes (e.g., there is collaboration between state and non-state actors in the development of the National Action Plan) Local level: yes (e.g., by law, the local governments have to establish a similar platform to that established at the national level) 3-B-5. National level: Unknown Local level: Unknown	3-C-1. National level: yes (e.g., the National Action Plan has internalized assessments of sustainable and environmentally friendly behavior, economic development, and sustainable livelihoods) Local level: Unknown 3-C-2. National level: partially (e.g., it is unknown whether scenario testing has been conducted, but metadata indicators on the economy, society, the environment, and governance were developed in 2017 to support strategy development) Local level: partially (e.g., in pilot areas where external supports is received, social, economic, and environmental assessments have been conducted)

Table 4 (continued)

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
4. Implementation	4-A-1. National level: yes (e.g., the capacity exists within the SDGs implementation team to carry out structured implementation with the Presidential Decree as the legal basis for institutional arrangements) Local level: partially (e.g., there is a lack of capacity to carry out implementation, but a strong regulatory framework is in place through Governor Regulations) 4-A-2. National level: partially (e.g., at present, implementation is only funded through the national budget. A platform for infrastructure development financing to support the SDGs was established in 2018) Local level: partially (e.g., local implementation is funded through local budgets. There is no platform available for non-state financing) 4-A-3. National level: No (e.g., there is no internal institutional review mechanism to ensure that key organizations are fit to implement the SDGs) Local level: No (e.g., similar to the national level)	4-B-1. National level: partially (e.g., there are emerging partnerships and integration arrangements between policy and delivery systems through the SDGs implementation team and a platform for infrastructure development financing to support the SDGs, but there needs to be active mobilization of non-state actors, especially in the private sector and philanthropy) Local level: No (e.g., there are weak partnerships and integration arrangements between policy and delivery systems, as the involvement of non-state actors in local implementation is limited, and there is a weak regulatory framework) 4-B-2. National level: Unknown Local level: Unknown 4-B-3. National level: yes (e.g., the SDGs Center facilitates capacity building to enable policy-makers to support the implementation of the SDGs) Local level: partially (e.g., this varies across pilot areas (the UNDP acted as a broker in developing the multiple stakeholder partnership approach to achieving the SDGs in Riau Province))	4-C-1. National level: No (e.g., there is insufficient research available to inform continuous improvement, with the SDGs Center having only recently been established) Local level: No (e.g., similar to the national level) 4-C-2. National level: Unknown Local level: Unknown 4-C-3. National level: yes (e.g., Bappenas has developed the Satu Data Portal/One Data Portal, which is used for the SDGs monitoring dashboard) Local level: No (e.g., local datasets in relation to the SDGs are limited, and there is currently no framework to manage and retain datasets)

Table 4 (continued)

Function/structure	A. Decision-making capacity	B. Connectivity	C. Knowledge use
5. Monitoring, evaluation, and review	5-A-1. National level: partially (e.g., Bappenas was assigned to coordinate the monitoring, evaluation and reporting of the SDGs but has limited cohesive capacity, and decentralized laws apply) Local level: partially (e.g., the provincial government is mandated to monitor, evaluate, and report on the SDGs, but has limited cohesive capacity, and decentralized laws apply) 5-A-2. National level: No (e.g., there is no existing collective alliance across the system) Local level: partially (e.g., in Riau province, the SDGs secretariat responsible for the monitoring process using local statistics has invited the participation of non-state actors) 5-A-3. National level: partially (e.g., academia, the SDGs Center, and CSOs are expected to provide independent evaluations) Local level: partially (e.g., similar to the national level) 5-A-4. National level: yes (e.g., formal reporting capacity is available in the ministries to enable high levels of accountability, and there is previous experience in monitoring the MDGs) Local level: No (e.g., there is a lack of reporting capacity, as well as a lack of experience and support)	5-B-1. National level: yes (e.g., the SDG metadata that are linked to the National Action Plan were developed to ensure uniformity and comparability across integrated monitoring systems) Local level: No (e.g., the SDG metadata do not include all disaggregated local data, especially in new regions) 5-B-2. National level: yes (e.g., the SDGs metadata are directly associated with national long-term development monitoring) Local level: No (e.g., there is no local framework to link the evaluative and review mechanisms to long-term monitoring) 5-B-3. National level: yes (e.g., the SDGs metadata are used as the main reference for planning, implementation, monitoring, evaluation, and reporting of the SDGs) Local level: partially (e.g., in Riau province, the regional bureau of statistics and the local development agency are developing an SDGs data system by establishing a Provincial Data Forum to inform strategic processes)	5-C-1. National level: yes (e.g., the SDGs metadata and Satu Data Portal/One Data Portal monitor 241 indicators that were agreed on by the government) Local level: partially (e.g., this varies across pilot areas, and the Provincial Data Forum that was developed in Riau monitors social, economic, and environmental aspects of the achievement of the SDGs) 5-C-2. National level: partially (e.g., a regulatory framework for coordinated and integrated data provision for the SDGs is available, but the quality of the data is unknown and there is a lack of continuous datasets) Local level: No (e.g., there is no regulatory framework for long-term data retention and limited datasets on the SDGs are available/being retained over the long term)

Main sources: Government of Indonesia (2004, 2014, 2017a, b), United Nations Development Programme (2019), Ministry of National Development Planning Indonesia (2017), SDGs Partnerships Platform (2019a, b), United Nations Sustainable Development Group (2016), Angelina and Rahwidiati (2019) and University of Jember (2019)

Fig. 1 Structure and functions of Japan's national governance system for the SDGs

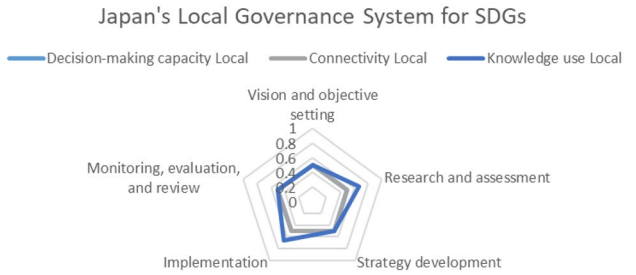

Fig. 2 Structure and functions of Japan's local governance system for the SDGs

Fig. 3 Structure and functions of Indonesia's national governance system for the SDGs

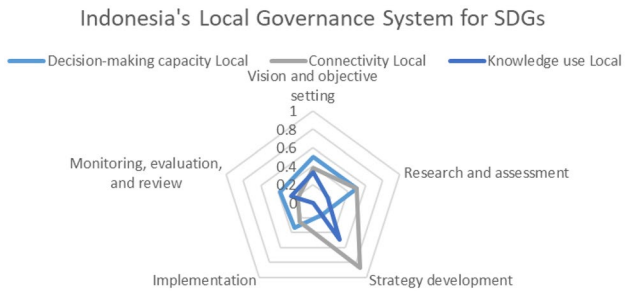

Fig. 4 Structures and functions of Indonesia's local governance system for the SDGs

the SDGs and making institutional arrangements at both the national and local levels to coordinate existing policy frameworks and involve a wide range of actors from various sectors. Using a matrix tool consisting of analytical questions designed to evaluate the national and local governance systems in relation to the SDGs, this study identified not only the differences in terms of governance structures between Japan (a developed country) and Indonesia (a developing country), but also the challenges the two countries face in improving the performance of national and local governance systems for the SDGs.

At the national level, Japan has relatively well-structured systems in relation to "vision and objective setting", "research and assessment", and "strategy development", especially in terms of its "decision-making capacity" function. High scores in relation to "vision and objective setting" and "strategy development", especially in terms of the "decision-making capacity" function, are mainly the result of the development of new governance systems for the SDGs such as the establishment of follow-up and review processes and improved systems facilitating "decision-making capacity", as stipulated in the SDGs Implementation Guiding Principles (Ministry of Foreign Affairs Japan 2017). The SDGs Implementation Guiding Principles were developed based on discussions in the SDGs Promotion Roundtable Meetings involving a wide range of actors including representatives from the national government, the private sector, academia, and NGOs, who provided the necessary knowledge and resources for vision and objective setting and strategy development, thereby elevating the "decision-making capacity" score above those of the other functions. In relation to "research and assessment", the Advisory Board for the Promotion of Science and Technology Diplomacy, acting as an advisor to the Ministry of Foreign Affairs in Japan, compiled a list of recommendations in relation to the SDGs (Ministry of Foreign Affairs Japan 2019) that included research and analysis capacities for the SDGs, which increased the "decision-making capacity" score. However, Japan faces challenges in relation to "implementation" and "monitoring, evaluation, and review", especially in terms of the "connectivity" function. This is mainly because of the limited incorporation/internalization of the SDGs into government plans and strategies, and the lack of a legal system that ensures support for the long-term implementation, follow-up, and review of the SDGs in relation to future policy steps and from a long-term perspective, which reduced the "connectivity" score.

Indonesia has relatively well-structured systems for "research and assessment", "strategy development", and "monitoring, evaluation, and review" of the SDGs in terms of the "connectivity" function at the national level. In particular, the scores for the "connectivity" function in relation to "strategy and development" and "monitoring, evaluation,

and review" are high mainly because the legal system in Indonesia provides a basis for enhanced linkages between national plans and strategies and the SDGs, and for linkages between national and local plans and strategies and the SDGs. In addition, the involvement of non-state actors in the strategy development, and monitoring, evaluation, and review processes are supported by laws such as the SDG metadata and National Action Plan 2017–2019 that enable integrated long-term monitoring of the SDGs. Furthermore, the high "connectivity" function score in relation to "research and assessment" can be attributed to the establishment of an SDGs center, which connects research organizations, and an SDG secretariat, which facilitates dialogue between academia and policy-makers. However, at the national level, Indonesia faces challenges in relation to "vision and objective setting", which is particularly lacking in terms of the "connectivity" function, and in relation to "implementation", which is particularly lacking in relation to the "decision-making capacity" and" knowledge use" functions. The "connectivity" function challenges in relation to "vision and objective setting" mainly arise from a lack of non-state actor engagement in the process. In addition, the challenges regarding the "decision-making capacity" and "knowledge use" functions in relation to "implementation" mainly arise from the fact that there is no mechanism to continuously improve systems, thereby weakening the "decision-making capacity" function. Further, insufficient research effort informing continuous improvement in the implementation of the SDGs has weakened the "knowledge use" function.

Both countries have introduced initiatives to implement the SDGs at the local level and many local governments have vigorously promoted policies including the localization of the SDGs (e.g., Japan's SDGs Future Cities and Indonesia's pilot areas). However, the local governance systems face more challenges than those at the national level in both countries. Japan faces challenges in relation to "vision and objective setting", "strategy development", and "monitoring, evaluation, and review" at the local level. The low scores in relation to "vision and objective setting" and "strategy development" are mainly because only a limited number of local authorities such as SDGs Future Cities have mainstreamed the SDGs into their policy plans and established coordinated bodies featuring multiple stakeholders to focus on the SDGs. The low score in relation to "monitoring, evaluation, and review" is mainly because only a limited number of local authorities such as SDGs Future Cities have established follow-up and review processes in association with the implementation of the SDGs. Indonesia faces challenges in relation to most categories at the local level. The low scores at the local level are mainly the result of a lack of coordinated systems involving multiple stakeholders and inadequate capacity, experience, resources, and data for implementing and reporting on SDGs activities. Nonetheless, Indonesia has a higher level of "connectivity" in relation to "strategy development" than Japan because of the legal framework that aligns local action plans with national and local strategies in Indonesia, while there is no legal framework related to the SDGs in Japan.

Discussion of the key elements that could result in different governance systems for the SDGs

The differences between the two countries in terms of the structure of the governance system for the SDGs and the challenges to improving performance have arisen in relation to three key elements: the development of the governance system for the SDGs, the lead ministries in relation to implementation of the SDGs, and the existence of a supportive legal framework.

In terms of the development of the governance system for the SDGs, Japan has created a new and inclusive governance system involving a wide range of actors from the private sector, academia, and civil society in developing the SDGs Implementation Guiding Principles and SDGs Action Plans, which are Japan's main policy documents. This has led to well-structured systems in relation to "vision and objective setting", "research and assessment", and "strategy development", especially in terms of "decision-making capacity" at the national level. In addition, Japan has developed a new coordinating body for SDGs implementation involving the head of state (i.e., the prime minister) and members of all government ministries. Meanwhile, in Indonesia, well-structured systems for "research and assessment", "strategy development", and "monitoring, evaluation, and review" of the SDGs in terms of the "connectivity" function at the national level are associated with the fact that Indonesia has developed a governance system for the SDGs based on the existing governance system that was developed to achieve the MDGs, and their governance system for the SDGs is supported by an appropriate legal framework. Indonesia has also developed coordinating bodies involving the head of state (i.e., the president) and members of government ministries. Although both Japan and Indonesia have developed coordinating bodies at the national level, the process of development of the SDGs in Indonesia is different from that in Japan, which has created a new system that is not based on the MDGs. The Japanese approach to the MDGs, which was also seen in other developed countries, was focused more on providing support for other countries. Thus, Indonesia's previous experience in relation to governance for the MDGs involving close alignment with national development policies and plans has influenced the development process related to the implementation of the SDGs.

Regarding the lead ministries in relation to the implementation of the SDGs, in Japan, the Ministry of Foreign Affairs

mainly led the process of preparing the policy documents to support the implementation of the SDGs, such as the SDGs Implementation Guiding Principles. The Ministry of Foreign Affairs also played a central role in coordinating the establishment of inclusive governance systems for the SDGs at the national level, reaching out to multiple stakeholders including the private sector, academia, and civil society. The development of multi-stakeholder engagement has been affected by the international process for the 2030 Agenda and the SDGs. The SDGs Implementation Guiding Principles, quoting the 2030 Agenda in particular on cooperation with a wide range of stakeholders, show that the Japanese government established the SDGs Promotion Roundtable Meetings, bearing in mind that the 2030 Agenda requires multi-stakeholder involvement (Ministry of Foreign Affairs Japan 2017). Japan successfully incorporated inclusiveness, having learned from the international process for the SDGs. In Indonesia, the lead ministry was the Ministry of National Development Planning (Bappenas), which also coordinated the national effort in relation to the MDGs. Having learned from the lack of a clear governance mechanism during the implementation of the MDGs, the enactment of Presidential Decree 59/2017 on the implementation of the SDGs aims to ensure that the governance structure and mechanisms for the SDGs have a strong supporting legal framework and the mainstreaming of the SDGs is built on a convergence between the SDGs and the Mid-Term National Development Plan. The Presidential Decree requires Bappenas to coordinate the national mechanisms for planning, budgeting, financing, monitoring, and reporting related to the SDGs. However, the Bappenas-led process of developing governance systems for the SDGs has some limitations as a result of the limited involvement of non-state actors.

As for the existence of a supportive legal framework, Indonesia has developed a legal framework for the SDGs, while Japan has not yet developed a similar legal framework. This may be partly because of the difference in the lead ministries. Although the SDGs are related to foreign affairs, many of the actions involved in the implementation of the SDGs relate to internal policy areas. Thus, Bappenas in Indonesia might be better placed to internalize the SDGs into its policy framework, including the establishment of a new legal framework, than the Ministry of Foreign Affairs in Japan. The legal framework in Indonesia enables Bappenas to lead efforts in implementing the SDGs at both the national and local levels by linking the SDG implementation process with its key mandate to coordinate the national–local development planning process, including ensuring that local governments adopt the SDGs Local Action Plan and mainstream the goals, targets, and indicators in the next generation of the local Medium-Term Development Plan. The process at the local level is led by the Local Development Planning Agency (Bappeda). These well-placed national and local structures supported by a suitable legal framework have contributed to the high degree of "connectivity" in relation to "strategy development" at the local level. Thus, adding legal elements to the framework to support the SDGs implementation could help to overcome the challenges faced in Japan in relation to the "implementation" and "monitoring, evaluation, and review" of the SDGs, especially in terms of "connectivity", which are mainly the result of limited incorporation/internalization of the SDGs into government plans and strategies.

In this study, based on the cases of Japan and Indonesia, we identified three factors, namely, differences in the development of governance systems for the SDGs, the lead ministries in relation to the implementation of the SDGs, and the existence of a supporting legal framework, that are responsible for differences in the structure of the governance systems for the SDGs and the challenges the countries face in improving their performance in terms of the implementation of the SDGs. However, these three factors could also apply to the implementation of the SDGs in other countries.

Our analysis of the Japanese and Indonesian cases shows that the structure of governance systems for the SDGs and the challenges faced in improving their performance differ among countries, highlighting the importance of identifying the challenges faced by each governance system by assessing their structure and function with a view to building more effective institutional arrangements.

Discussion of the strengths and limitations of the matrix tool

The analytical tool we developed based on the framework proposed by Dale et al. (2013) contributed to identifying the structure of the national and local governance systems for the SDGs and the challenges faced in improving the performance of the systems. Our analytical tool addresses the shortcomings of existing approaches that have not been applied to analyzing governance systems that aim to implement an agenda as complex, overarching and cross-cutting as the SDGs, and lack a systemic view. Furthermore, unlike the existing conceptual analytical frameworks, our tool uses a number of questions to analyze each analytical category, and enables us to analyze each country's governance system using mostly published data.

However, there are some limitations in relation to the matrix tool used in this study. These include (1) the lack of questions evaluating the effectiveness of the governance systems for the SDGs, (2) the lack of weighting of questions (we evaluated all questions equally), and (3) the large number of questions and the same responses being provided to different questions, resulting in overlap. Thus, to improve the tool, more discussion is necessary on the possible indicators necessary to evaluate the actual effects that governance systems produce and contribute to achieving

the SDGs, and on ways to develop more practical tools that are able to evaluate the governance systems in other countries more easily.

Conclusions

The results of our study show that the governance systems for the SDGs in Japan and Indonesia are structurally and functionally different, and the two countries face different challenges in improving their governance systems. Japan has relatively well-structured "vision and objective setting", "research and assessment", and "strategy development", mainly as a result of the development of new governance systems for the SDGs involving a wide range of stakeholders and the existence of strong research and analysis capabilities. However, Japan faces challenges in relation to "implementation" and "monitoring, evaluation, and review" of the SDGs, especially in terms of the limited incorporation/internalization of the SDGs, the lack of an appropriate legal system, and inadequate governance at the local level. Meanwhile, Indonesia has relatively well-structured "research and assessment", "strategy development", and "monitoring, evaluation, and review" of the SDGs, mainly because of the legal system that has been developed at the national level. However, Indonesia faces challenges in relation to "vision and objective setting", which is the result of a lack of non-state actor engagement in the process, "implementation", which is mainly the result of the implementation of the SDGs lacking mechanisms to improve the systems, and "knowledge use", which is mainly the result of insufficient research and governance at the local level.

This study shows that the differences between governance systems for the SDGs in Japan and Indonesia have arisen in relation to differences in the development of the governance systems for the SDGs, differences in the lead ministries involved in driving the implementation of the SDGs, and the existence or otherwise of a supporting legal framework. We argue that the matrix tool we have developed is useful in identifying the structure of governance systems for the SDGs and the challenges faced in improving the performance of those systems. However, some analytical limitations must be overcome before the tool can be applied to other countries.

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