Sustainable Local Development in Indonesia's Decentralization Policy

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Sustainable Local Development
in Indonesia's Decentralization Policy

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Summary

This study examines the link between decentralization policy and sustainable development using empirical data of 33 provinces from 1995-2017. The study is structured into three parts. The first section analyzes the degree by creating the Sustainable Local Development Index (SLDI). This is based on a four-dimensional model, namely economic, social, environmental, and institutional dimensions. Secondly, the study examines the relationship between the decentralization policy and the degree of sustainable development with the panel data analysis. Lastly, in-depth interviews and focus group discussions were used to provide the basis for evaluating the constraints and opportunities of decentralization policy and discuss further policy in dealing with this development in Indonesia.

The results showed that the social and economic dimensions have a more robust influence on the increase of the degree of sustainable development in Indonesia than the environmental and institutional. The environmental dimension has slightly deteriorated, while the institutional remained stable. All provinces continue to experience a gradual yearly increase in development. From 1995-1999 this increment was relatively smaller compared to 2000-2017. An increase in the SLDI was relatively higher from the provinces in the western part of Indonesia than those in the eastern part.

Besides, the effective decentralization policy is linked to the quality of sustainable development based on the panel data analysis. The result of multiple regression analysis showed that some decentralization policy indicators, such as the percentage of females as parliamentarians, the ratio of local government officers per people, the General Allocation Fund (DAU), and the Local Own-Source Revenues (PAD), positively and significantly affect sustainable local development.

Furthermore, based on in-depth interviews and focus group discussions, decentralization and sustainable development policies are dynamic and interdependent approaches across regions. The enormous upheavals of the policy in Indonesia are not a linear-consistent process and do not produce similar outcomes in each government unit. Decentralization improves local governance and political democracy in the spirit of reform with undesirable effects on the creation of disparities and environmental degradation. Some constraints influence local governments in responding to new opportunities towards achieving sustainable development, such as insufficient political will, incompetence in leadership, lack of local capacity, poor administrative

management system, lagging renewable energy production, and shortcoming of public partnerships. Therefore, it is necessary to produce adaptive-responsive policies, such as interdisciplinary approaches, integrated planning designs, political-bureaucratic reform, leadership development, capacity building, strengthening public partnership, and local environmental knowledge according to the Sustainable Development Goals (SDGs) 2015-2030.

Zusammenfassung

Die vorliegende Studie untersucht den Zusammenhang zwischen der indonesischen Dezentralisierungspolitik und der nachhaltigen Entwicklung anhand empirischer Daten aus 33 Provinzen von 1995-2017. Die Studie ist in drei Teile gegliedert. Der erste Teil analysiert den Grad der Dezentralisierung mit Hilfe des Sustainable Local Development Index (SLDI). Dieser basiert auf einem vierdimensionalen Modell, das die wirtschaftliche, die soziale, die ökologische und die institutionelle Dimension der nachhaltigen Entwicklung abbildet. Zweitens untersucht die Studie die Beziehung zwischen der Dezentralisierungspolitik und dem Grad der nachhaltigen Entwicklung auf Ebene der Provinzen mit Hilfe einer Paneldatenanalyse. Basierend auf Experteninterviews und Fokusgruppendiskussionen werden, drittens, eine Bewertung der Grenzen und Möglichkeiten der Dezentralisierungspolitik durchgeführt und zukünftige Politikoptionen diskutiert.

Die Ergebnisse der Studie zeigen, dass die soziale und die wirtschaftliche Dimension der nachhaltigen Entwicklung in Indonesien erfolgreicher umgesetzt werden konnte als die ökologische und die institutionelle Dimension. Die Umweltsituation hat sich in fast allen Provinzen leicht verschlechtert, während die institutionelle Dimension stabil geblieben ist. In allen Provinzen ist jedoch ein stetiger jährlicher Anstieg des Index der nachhaltigen Entwicklung zu verzeichnen. Von 1995-1999 war dieser Anstieg im Vergleich zu 2000-2017 relativ geringer, wobei die Zunahme des SLDI in den Provinzen im westlichen Teil Indonesiens relativ höher war als in denen des östlichen Teils.

Das Ergebnis der multiplen Regressionsanalyse zeigt, dass einige Indikatoren der Dezentralisierungspolitik, wie beispielsweise der Prozentsatz von weiblichen Parlamentarierinnen, das Verhältnis von lokalen Regierungsbeamten zu Einwohnern, der Allgemeine Zuweisungsfonds und die lokalen Eigenmitteleinnahmen der Provinzen, die nachhaltige lokale Entwicklung positiv und signifikant beeinflussen.

Die tiefgreifenden Veränderungen der Politik in Indonesien sind kein linear-konsistenter Prozess und führen nicht in jeder Regierungseinheit zu ähnlichen Ergebnissen. Dezentralisierung reformiert die lokale Regierungsführung und die politische Demokratie, hat aber unerwünschte Auswirkungen auf sozial-räumliche Disparitäten und die natürliche Umwelt. Einige Einschränkungen beeinflussen die lokalen Regierungen bei der Reaktion auf neue Möglichkeiten zur erfolgreichen Umsetzung nachhaltiger

Entwicklung. Hier wären insbesondere ein unzureichender politischer Wille, Inkompetenz in der Führung, fehlende lokale Kapazitäten, schlechte Verwaltungsmanagementsysteme, der Rückstand beim Ausbau erneuerbarer Energien und Mängel bei öffentlichen Partnerschaften zu nennen. Daher ist es notwendig, anpassungsfähige Politikansätze zu entwickeln: beispielsweise interdisziplinäre Perspektiven, integrierte Planungskonzepte, politisch-bürokratische Reformen, eine bessere Ausbildung von Führungskräften, ein Aufbau von Kapazitäten und die Stärkung öffentlicher Partnerschaften und dem lokalen Umweltwissen gemäß den globalen Zielen für nachhaltige Entwicklung (SDGs) 2015-2030.

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List of Abbreviations

ADB	Asian Development Bank
APBD	Anggaran Pendapatan dan Belanja Daerah (Local Budget)
APBN	Anggaran Pendapatan dan Belanja Negara (State Budget)
APINDO	Asosiasi Pengusaha Indonesia (Employers' Association of Indonesia)
ASEAN	Association of Southeast Asian Nations
Babel	Provinsi Bangka Belitung (Province of Bangka Belitung Islands)
BIG	Badan Informasi Geospasial (Geospatial Information Agency)
BKN	Badan Kepegawaian Negara (National Civil Service Agency)
BKSP	Badan Kerja Sama Pembangunan (Development Cooperation Agency)
BOOT	Build, Own, Operate, Transfer
BPHTB	Bea Perolehan Hak atas Tanah dan Bangunan (Acquisition Duty of Right on Land and Building)
BPNT	Bantuan Pangan Non Tunai (Government's Non-Cash Food Assistance Campaign)
BPS	Badan Pusat Statistik (Central Statistics Agency)
CFA	Confirmatory Factor Analysis
CO_2	Carbon Dioxide
CSOs	Civil Society Organizations
CSR	Corporate Social Responsibility
DAK	Dana Alokasi Khusus (Special Allocation Fund)
DAU	Dana Alokasi Umum (General Allocation Fund)
DBH	Dana Bagi Hasil (Revenue Sharing Fund)
DIY	Provinsi Daerah Istimewa Yogyakarta (Province of the Special Region of Yogyakarta)
DKI	Provinsi Daerah Khusus Ibukota (Province of the Special Capital Region of Jakarta)
DPRD	Dewan Perwakilan Rakyat Daerah (Local Parliament)
ECA	Europe and Central Asia
EODB	Ease of Doing Business
FE	Fixed Effect
FGD	Focus Group Discussion
GDP	Gross Domestic Product

GIS	Geographic Information System
GPEDC	Global Partnership for Effective Development Cooperation
GRDP	Gross Regional Domestic Product
HDI	Human Development Index
HIPMI	Himpunan Pengusaha Muda Indonesia (Indonesian Young Entrepreneurs Association)
IBCSD	Indonesia Business Council for Sustainable Development
ICTs	Information and Communication Technologies
IG-SDF	Intergovernmental Committee of Experts on Sustainable Development Fishing
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IPB	Institut Pertanian Bogor (Bogor Agricultural University)
ITB	Institut Teknologi Bandung (Bandung Institute of Technology)
Jabar	Provinsi Jawa Barat (Province of West Java)
Jateng	Provinsi Jawa Tengah (Province of Central Java)
Jatim	Provinsi Jawa Timur (Province of East Java)
JKN	Jaminan Kesehatan Nasional (National Health Insurance)
Kalbar	Provinsi Kalimantan Barat (Province of West Kalimantan)
Kalsel	Provinsi Kalimantan Selatan (Province of South Kalimantan)
Kaltara	Provinsi Kalimantan Utara (Province of North Kalimantan)
Kalteng	Provinsi Kalimantan Tengah (Province of Central Kalimantan)
Kaltim	Provinsi Kalimantan Timur (Province of East Kalimantan)
Kemen ESDM	Kementerian Energi dan Sumber Daya Mineral (Ministry of Energy and Mineral Resources)
Kemen KKP	Kementerian Kelautan dan Perikanan (Ministry of Marine Affairs and Fisheries)
Kemen LHK	Kementerian Lingkungan Hidup dan Kehutanan (Ministry of Environment and Forestry)
Kemen PPN/ Bappenas	Kementerian Negara Perencanaan Pembangunan Nasional/ Badan Perencanaan Pembangunan Nasional (Ministry of National Development Planning/ National Development Planning Agency of Indonesia)
Kemen PUPera	Kementerian Pekerjaan Umum dan Perumahan Rakyat (Ministry of Public Works and Housing)
Kemenaker	Kementerian Ketenagakerjaan (Ministry of Manpower)
Kemendagri	Kementerian Dalam Negeri (Ministry of Home Affairs)

Kemendikbud	Kementerian Pendidikan dan Kebudayaan (Ministry of Education and Culture)
Kemenkes	Kementerian Kesehatan (Ministry of Health)
Kemenkeu	Kementerian Keuangan (Ministry of Finance)
Kemenko Perekonomian	Kementerian Koordinator Bidang Perekonomian (Coordinating Ministry for Economic Affairs)
Kemenko PMK	Kementerian Koordinator Pembangunan Manusia dan Kebudayaan (Coordinating Ministry for Human Development and Cultural Affairs)
Kepri	Provinsi Kepulauan Riau (Province of Riau Islands)
KIP	Kartu Indonesia Pintar (Smart Indonesia Card)
KIS	Kartu Indonesia Sehat (Healthy Indonesia Card)
KLHS	Kajian Lingkungan Hidup Strategis (Strategic Environmental Studies)
KPMG	Klynveld Peat Marwick Goerdeler (Accounting Firm)
KPPOD	Komite Pemantauan Pelaksanaan Otonomi Daerah (Regional Autonomy Watch Committee)
KPU	Komisi Pemilihan Umum (General Elections Commission)
Mabes Polri	Markas Besar Kepolisian Republik Indonesia (Indonesian National Police Headquarters)
Malut	Provinsi Maluku Utara (Province of North Maluku)
MDGs	Millennium Development Goals
NER	Net Enrolment Ratio
NGOs	Non-Government Organizations
NTB	Provinsi Nusa Tenggara Barat (Province of West Nusa Tenggara)
NTT	Provinsi Nusa Tenggara Timur (Province of East Nusa Tenggara)
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Square
OPM	Organisasi Papua Merdeka (Free Papua Organization)
OWG-SDGs	Open Working Group on the Sustainable Development Goals
PAD	Pendapatan Asli Daerah (Local Own-Source Revenues)
PBB	Pajak Bumi dan Bangunan (Land and Building Tax)
PBI	Penerima Bantuan Iuran (Premium Assistance Beneficiaries)
PKH	Program Keluarga Harapan (Family Hope Program)
PLN	Perusahaan Listrik Negara (Indonesian State Electricity Company)
PPh	Pajak Penghasilan (Personal Income Tax)

PPKI	Panitia Persiapan Kemerdekaan Indonesia (Preparatory Committee for Indonesian Independence)
PROPER	Program for Pollution Control Evaluation and Rating
R&D	Research and Development
RAN-GRK	Rencana Aksi Nasional Penurunan Emisi Gas Rumah Kaca (National Action Plan for Reducing Emissions of Greenhouse Gases)
RDTR	Rencana Detail Tata Ruang (Spatial Detail Plan)
Renstra K/L	Rencana Strategis Kementerian/ Lembaga (Ministry/National Institutional Strategic Plan)
Renstra OPD	Rencana Strategis Organisasi Perangkat Daerah (Local Working Unit Strategic Plan)
RKP	Rencana Kerja Pemerintah (Annual Central Government Work Plan)
RKPD	Rencana Kerja Pemerintah Daerah (Annual Local Government Work Plan)
RPJMD	Rencana Pembangunan Jangka Menengah Daerah (Local Medium-Term Development Plan)
RPJMN	Rencana Pembangunan Jangka Menengah Nasional (National Medium-Term Development Plan of Indonesia)
RPJPD	Rencana Pembangunan Jangka Panjang Daerah (Local Long-Term Development Plan)
RPJPN	Rencana Pembangunan Jangka Panjang Nasional (National Long-Term Development Plan of Indonesia)
RTRW	Rencana Tata Ruang Wilayah (Spatial Plan)
SDA	Sumber Daya Alam (Natural Resources)
SDGs	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
SEM	Structural Equation Model
SJSN	Sistem Jaminan Sosial Nasional (National Social Security System)
SLDI	Sustainable Local Development Index
SPAL	Sistem Pengelolaan Air Limbah (Wastewater Treatment Systems)
SPM	Standar Pelayanan Minimal (Minimum Service Standard)
Sulbar	Provinsi Sulawesi Barat (Province of West Sulawesi)
Sulsel	Provinsi Sulawesi Selatan (Province of South Sulawesi)
Sulteng	Provinsi Sulawesi Tengah (Province of Central Sulawesi)
Sultra	Provinsi Sulawesi Tenggara (Province of Southeast Sulawesi)

Sulut	Provinsi Sulawesi Utara (Province of North Sulawesi)
Sumbar	Provinsi Sumatera Barat (Province of West Sumatera)
Sumsel	Provinsi Sumatera Selatan (Province of South Sumatera)
Sumut	Provinsi Sumatera Utara (Province of North Sumatera)
TKKSD	Tim Koordinasi Kerja Sama Daerah (Regional Cooperation Coordination Team)
TMA	Town Municipal Administration
UGM	Universitas Gadjah Mada (Gadjah Mada University)
UNCED	United Nations Conference on Environment and Development
UNCHS	United Nations Human Settlements Programme
UNCLG	United Cities and Local Governments
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNHAS	Universitas Hasanuddin (University of Hasanuddin)
UNPAD	Universitas Padjadjaran (University of Padjadjaran)
USAID	United States Agency for International Development
UUDS	Undang-Undang Dasar Sementara (Temporary Constitution)
VNR	Voluntary National Reviews
WALHI	Wahana Lingkungan Hidup Indonesia (Indonesian Forum for the Environment)
WCED	World Commission on Environment and Development
WWF	World Wildlife Fund

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ONE

Graduate School
of Geosciences

Chapter I
Introduction

1.1. Background

Development, both in terms of 'practice' and 'process,' has to be a results-oriented approach. Undeniably, this act is directed to produce 'good change' and 'better things' in which institution and power are the primary keys (Chamber, 2005). The results of development need to cover all aspects of life, such as repairing the socio-political system, raising economic growth, providing infrastructure, ensuring security, achieving a sustainable environment, improving the quality of education, and making good institutions for public services (Potter, 2008; Thomas, 2000). In Indonesia, based on Law No. 25/2004 on National Development Planning System, national development is related to 'prominent actors.' Furthermore, it tends to occur due to some deliberate acts conducted by public institutions or by some authorities to attain 'improvement' and 'advantageous circumstances' (Bellù, 2011; Seers, 1969).

Development is also referred to as 'output' when it has been conducted by all stakeholders to achieve the purposes of the state, such as public welfare, educating the life of people, and participating towards the establishment of a world order based on freedom, perpetual peace, and social justice (Soemarsono, 2017). Hence, development needs effective 'inputs' to create sustainable 'output' (Oxtavianus, 2014). In accordance with the 'input-output' process and 'actors' in development, the resources constraint becomes a critical future challenge. Development without proper attention to sustainability may generate inefficient outputs, as well as poor unqualified actors in conducting some programs, which lead to negative impacts on natural exploitation and social injustice (Bossel, 1999; Happaerts, 2012). However, sustainable development in the current discourses has grown considerably since 1992, with more than 1,500 local governments from 49 countries, developing and experimenting planning management to contribute its implementation as 'Local Agenda 21' (Brugmann, 1996; United Nations, 1992).

In Indonesia, the implementation of the decentralization policy has been in existence for more than a decade. This policy was launched after the elected national parliament approved the decentralization Law No. 22/1999 on local

government and Law No. 25/1999 on intergovernmental fiscal transfer. Based on both regulations, the quality of development, in practice, is mostly determined by the merits system of the local government's performance (Hoelman *et al.*, 2015). The implementation of the decentralization policy is interpreted as the autonomous authority in empowering potential assets to improve local development, with the quality closely related to establishing a comprehensive policy (Barber, 2013; Fitri, 2008; Gibbs and Krueger, 2005; Hoelman et al., 2015; Kis-Katos and Sjahrir, 2017; Oates, 1999; Sarmistha Pal and Wahhaj, 2016).

Similarly, sustainable development as a development paradigm is part of an integrated approach that combines four fundamental dimensions, namely, social development, economic management, good governance, and environmental protection (Castro, 2004; Sachs, 2015). The local development policies in Indonesia are also related to the development of economic growth, poverty reduction, the eradication of unemployment, local democracy, and environmental sustainability (Bappenas, 2012). These policies require the effort of the central/local governments, Civil Society Organizations (CSOs), private enterprises, academics, and international organizations. Therefore, local development policies are comprehensive in all dimensions and in line with the essential requirements for human life and sustainability to meet both current and future 'needs' (Castro, 2004).

Hoelman *et al.* (2015) stated that the role of local governments is valuable in national development. Barber (2013) and Brugmann (1996) reported that the world hopes on the local government to solve several development problems such as climate change, sustainability, terrorism, and poverty. This statement is due to the following reasons: (1) the local governments are potential innovators and incubators for all sustainable dimensions, and (2) they are not burdened with the issue of sovereignty and national borders. Therefore, the success of sustainable development is associated with the important roles of local governments in allocating budget, conducting a variety of innovations, providing public services, and implementing development policies (Hoelman et al., 2015; Kis-Katos and Sjahrir, 2017; Oates, 1999; Sarmistha Pal and Wahhaj, 2016; UNCLG, 2010).

Moreover, the role of local governments in the decentralization policy tends to have more significant benefits in development, by improving basic service delivery, building good local governance, and reducing regional disparity (Brodjonegoro, 2009; Cohen and Peterson, 1999; Conyers, 2006; Dillinger, 1994; Oates, 1999). Decentralization remains a vital prescription for development institutions to promote more democratic governance (Cheema

and Rondinelli, 2007). Therefore, the decentralization policy is generally considered to promote the higher quality of local development. It is conducted by decentralizing the central government's authority in terms of planning, budgeting, resource management, and public services (Fitri, 2008).

In the development perspective, a decentralization concept plays three critical governmental roles in the allocation of local resources, distribution of income, and stabilization of the economy (Yunarti, 2008). The role of allocation is intended to guarantee that all resources used are run under the local people's preferences. The role of distribution is interpreted as efforts to maintain income distribution across different individuals, households, social classes, and areas. Meanwhile, the role of stabilization is meant to preserve fluctuations and externalities in economic development performance.

However, the relationship between decentralization and local governance is still problematic and contentious (Hadiz, 2010). Decentralization is still a critical issue to be reviewed after effort has been made by the government for more than half a century to adjust the sustainable problems and new perceptions of local governance. There are also many questions on the real success of sustainable development at the local level in the decentralization policy. Sustainable local development related to the relationship between different types of economic performance and environmental impact might be relatively dynamic and changing over time (Nogueira, 2019).

The achievement of environmental management in development is related to its local characteristics in a particular region. This process depends on the complex choices that are made in 'different places and times' with the difficulties associated with defining the required solutions (Adams, 2009). Local development requires more than just environmental perspectives or greener technological approaches (Gazzola *et al.*, 2019). It also needs new transformative ideas and more effective institutional policies to be given to social justice, environmental spirit, and green economic ethics (UNEP, 2011). Therefore, it tends to demand better comprehension, cohesion, fluidity, and a greater local policy in the form of capital, environmental, and human resources (Elkington, 2004; UNEP, 2011).

Based on a 'scientometric' review of 2094 bibliographic records in the global research corpus on sustainability, from 1991-2016, Olawumi & Chan (2018) stated that further studies need to be carried out on comprehensive sustainability assessment, public policy analysis, evaluation metrics, and stakeholders participation. Furthermore, a comprehensive sustainability assessment examining the empirical record of multidimensional approaches, public policy analysis, evaluation metrics, and public participation leads to

more reasonable holistic researches. There exists a large scope to discuss the evidence-based analyses that are used to express the degree of sustainable development based on public policy analysis. The factors influencing the role, especially in the decentralization process, are also challenging.

1.2. Research Problem

The notion of sustainable development is an essential and popular issue required to achieve the 2030 Agenda for SDGs (United Nations, 2015). Although the sustainability concept is currently widely accepted by scholars and government stakeholders, there are still concerns that need to be addressed at the operational level in local policies (Chan and Huang, 2004). However, the prominent issue of decentralization in supporting the sustainable development process has not become a serious concern by all stakeholders. The phenomena of local development in Indonesia seem to have some challenges in the troubled relationship amid economic, social, environmental, and institutional dimensions (Fauzi and Oxtavianus, 2014; Purnomo, 2002; Umami, 2010). Therefore, detailed technical studies are essential to understand the working process of policy recommendations at the local level when the scientific analysis is embedded in comprehensive approaches.

The absence of environmental and institutional aspects often occurs in all measurement indexes of sustainable development in Indonesia. It indicates that the development process focuses on fostering economic growth and increasing social welfare. Therefore, it is essential to analyze the environmental and institutional aspects. However, the development aspects of improving institutional quality and environmental preservation may not have been conducted properly. The environmental issues in the green economy have become a popular choice for every country to ensure a balance between economic activities and social needs (Bina, 2013; UNEP, 2011). Similarly, the institutional dimension needs to be included as the 'prism of sustainability' with other stakeholders' capabilities (Spangenberg, 2002).

In practice, the quality of life for the locals is influenced by the performance of the local governments (Cheema and Rondinelli, 2007; Sofyani and Akbar, 2015; United Nations, 1996). Local governments need to ensure the quality of public services, such as education, health, and infrastructures on waste management, disaster mitigation, and climate change action plan. The control of natural resources from local governments is also considered necessary in generating income sources, distributing public welfare, maintaining

ecosystem sustainability, and overcoming social conflicts related to the use of resources (Ascher, 2007).

Therefore, the success of a sustainable development related to economic, social, environmental, and institutional capacities in the provincial area is inseparable from the role of local government (Hoelman *et al.*, 2015). In addition, the government's authority, power of the local budget, quality of officers, public service provision, advanced innovations, and other potential resources are beneficial factors to reach sustainable local development targets (Treisman, 2007). Therefore, local governments are considered to possess potential roles in creating greener projects, designing more inclusive programs, and qualified development plans through strengthening their capacities in regulations, policies, institutions, and budgets.

However, there are still some limitations associated with the decentralization policy in terms of partial dimension, limited indicator, short-term analysis, and narrow-area of study. Firstly, many studies do not include the institutional dimension. Mahesa *et al.* (2019), Nurmalasari (2003), Pratiwi *et al.* (2018), Purnomo (2002), Rozikin (2012), Suhono (2008), Suliadi (2003), and Umami (2010) stated that sustainable developments were only based on the quality of social, economic, and environmental indicators without institutional analysis. The indicators were only limited to data related to population, poverty, income, human resources, quality of life, rainfall, infrastructure, as well as economic and ethnic growth.

Secondly, most of the studies are based on a limited set of indicators in the institutional dimension to depict the sustainability dimensions. Kustiadi (2011) and Oxtavianus (2014) conducted more comprehensive and multi-temporal researches using social, economic, environmental, and institutional dimensions, with limitations to the indicator of criminal cases. However, more comprehensive institutional indicators, such as corruption cases and budget allocation from local governments, were not included in the analysis model.

Thirdly, some studies are analyzing by comparing only two regions. Studies carried out by Purnomo (2002), Nurmalasari (2003), and Umami (2010) only covered a few provinces in one year. Therefore, there was no multi-temporal analysis used to describe the quality of sustainable development in Indonesia more comprehensively. Also, their studies that were only carried out for 5-10 years were not sufficient to provide a holistic analysis of sustainable development in Indonesia. Conversely, Nauval (2010) and Persada (2015) conducted a more comprehensive and multi-time analysis using complete indicators from all dimensions in sustainable development. Nonetheless,

their studies were limited to two regions, namely Jakarta and Bandar Lampung, in Indonesia. Therefore, both studies were not able to provide a holistic analysis of the degree of sustainable development in all provinces in Indonesia.

In addition, some decentralization studies are often criticized for academic deficiency, dependence on the dominance of qualitative evidence, narrow case studies, and 'anecdotal evidence' (Faguet and Pöschl, 2015). Therefore, there is a need to increase the technical thoroughness by using a more quantitative research approach without reducing the scientific enrichment associated with the concepts in the decision-making process. There are no common indexes related to local content and characteristics of development in Indonesia. However, in the context of sustainability, a composite index is an indispensable tool used to support policy formulation and acts as valued-aggregated indicators in communication and political approaches (Freudenberg, 2003; Kondyli, 2010).

This research aims to investigate the phenomenon of sustainability in the local area with a specific measurement. The investigation is expected to explain the quality of comprehensive sustainable local development and its linkage to the decentralization policy. Therefore, it is structured into three parts. In the first section, the degree of sustainable development in Indonesia is determined by creating the SLDI, which is based on a four-dimensional model, namely economic, social, environmental, and institutional dimensions. Secondly, the study examines the relationship between the decentralization policy and the degree of sustainable local development with the panel data analysis. Lastly, in-depth interviews and Focus Group Discussions (FGD) are used to provide the basis for an evaluation of the constraints and opportunities of the decentralization policy, with further discussion on dealing with sustainable local development in Indonesia.

1.3. Research Questions

This study is developed along with the following research questions:

1. What is the degree of sustainable local development in Indonesia at the provincial level?

2. How can a composite index of sustainable development on social, economic, environmental, and institutional dimensions be generated?

3. Does the decentralization policy influence the social, economic, environmental, and institutional performance of all provinces in Indonesia? – And if yes, why?

4. What are the constraints and opportunities of the decentralization policy, among the central, local, and non-government stakeholders, and on which further policy should be made dealing with sustainable local development?

1.4. Goal

This research's goal is to contribute to an understanding of the role of Indonesia's decentralization policy in sustainable local development.

1.5. Structure of the Thesis

The structure of this thesis entails seven chapters, as shown in **Figure 1.1**. Chapter I covers the general introduction, which consists of the background of the study, the research problem, questions, goal, and structure of the thesis. Chapter II provides a brief literature review on sustainable development and decentralization policy. Chapter III comprises the data methodology, research indicator, and data analysis. Chapter IV delivers results and discussion from determining the degree of sustainable local development in Indonesia, which is formed by composite indexes on economic, social, environmental, and institutional dimensions. Furthermore, Chapter V analyzes the results and discussion in examining the relationship between the decentralization policy and sustainable development indicators of all provinces in Indonesia. Meanwhile, Chapter VI explains the constraints and opportunities of the current decentralization policy and discusses further policy in dealing with sustainable local development in Indonesia. Lastly, Chapter VII provides a summary and recommendations.

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│     Chapter I       │
│    Introduction     │
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Chapter IV
Results and Discussion on the Degree of Sustainable Local Development Achieved in Indonesia

Chapter V
Results and Discussion on the Relationship between the Decentralization Policy and Sustainable Local Development in Indonesia

Chapter VI
Constraints, Opportunities, and Further Policy of Indonesia's Decentralization for Sustainable Local Development

Chapter VII
Summary and Recommendations

Figure 1.1. Structure of the thesis

- Sustainable Development
- Decentralization Policy
- Decentralization Policy & Sustainable Local Development
- Research Framework

TWO

Graduate School of Geosciences

Chapter II
Literature Review

2.1. Sustainable Development

2.1.1. Concepts of Sustainable Development

The prolonged continuous growth in sustainable development has become an essential concern for some scholars in environmental and natural resource issues (Jamieson, 1996; Kondyli, 2010; Mebratu, 1998). Sustainability is also often considered to be an ideal development concept (Cobbinah *et al.*, 2015). However, the term emerged only a few decades ago in several concepts and international meetings, as shown in **Figure 2.1**. Sustainable development is rooted in the idea of forest management in Europe during the 17th and 18th centuries. In 1713, Hans Carl von Carlowitz, a senior mining administrator of Saxony, published 400-page book on forestry in '*Sylvicultura öconomica, Anweisung zur wilden Baum-Zucht*' (Maryudi, 2015). In this literature, Carlowitz developed the concept of forest management for sustainable results, which influenced the wise use of natural resources and the development of environmental movements in America in the 1960s.

Furthermore, Meadows and colleagues argued that economic growth is severely limited by natural resource availability (Meadows *et al.*, 1972). Therefore, the distributions of goods and services generated by nature are continuously needed to create ecological and economic stability. The concept of sustainability also became first internationally recognized at the United Nations Conference on Human Environment in Stockholm in 1972, and the reference point for further development (Nogueira, 2019). Hence, the Stockholm Conference is the beginning of the rise of modern environmental law (Oxtavianus, 2014).

Ultimately, in the Agenda 2030 for SDGs, the heads of state and high representatives signed a historic agreement in New York, on 25 September 2015. The agreement was the international agenda to eradicate poverty, increase the quality of life/prosperity, promote peace/inclusive development, and protect sustainable development. This agenda announced 17 goals and 169 associated targets to all global actions across a broad and universal policy agenda to achieve global sustainable development (Dugarova and Gülasan, 2017; United Nations, 2015). Although SDGs are the successors of the

Millennium Development Goals (MDGs), they are structured to a better participatory process, which is available through *Myworld Survey* (http://data.myworld2015.org/). Moreover, it also contains some principles that emphasize inter-state/citizen equality and are applied to all countries (Hoelman *et al.*, 2015).

Currently, the notion of sustainable development is essential and popularly used issue to achieve the 2030 Agenda for SDGs (United Nations, 2015). The unanimous decision of SDGs by 193 countries encourages and stimulates all government and non-state stakeholders' actions over the next future. Therefore, this decision aims for better development of people, planet, prosperity, peace, and partnership (Dandabathula *et al.*, 2019; United Nations, 2015). Hence, almost all countries are using the term 'sustainable development' as an integrated part of their development process. Similarly, in Indonesia, a national action plan has been formulated in achieving SDGs by involving most ministries, agencies, civil society organizations, philanthropies, business sectors, and academics at both national and local levels (Bappenas, 2016).

However, the development concept is a definitive measure used to determine the level of sustainability. Sustainable development is a highly interdisciplinary concept with different meanings in a diversity of various systems (Urbaniec *et al.*, 2018). A nexus of the ideas on the interactions of three complex systems consist of the world economy, the global society, and the Earth's physical environment as a normative outlook (Sachs, 2015). These ideas are still encouraged on public policies and strengthen the community. Hence, the consensus on the sustainable concept is affected by dissonance amongst perspectives, understandings, and experiences between researchers, policymakers, communities, and professionals. It is an excellent concept for most environmentalists; however, it is often seen as an elusive concept and jargon (Dos Santos *et al.*, 2019; Oxtavianus, 2014; Suliadi, 2003).

The heads of state and high representatives signed the Agenda 2030 for SDGs in New York to eradicate poverty, increase the quality of life/prosperity, promote peace/inclusive development, and protect sustainable development.

The 3rd Earth Summit (Rio +20) was held by the United Nations in Rio de Janeiro, Brazil. The conference produced a document 'the Future We Want' as a direction for the implementation of sustainable development at the global, regional and national levels.

The World Summit on SD in Johannesburg delivered some international commitments on sustainable consumption and production, water and sanitation, energy based on the political declaration, Agenda 21 implementation, and also a range of cooperation initiatives.

The concept of SD adopted in the Agenda 21, as result of the UNCED in Rio de Janeiro, encouraged the international effort to draw up national action plans for affecting a more sustainable development in green economic growth, social life, and environmental protection.

Broader public attention was paid to SD in the WCED. The concept of SD implied an understanding that the close relationship between the sustainability of environmental development and economic growth should consider the 'needs' of two generations.

The UN formed WCED as an independent commission that discussed and provided recommendations on global environmental issues.

The sustainability concept also became the first internationally recognized at the United Nations Conference on Human Environment in Stockholm.

Donella H. Meadow and colleagues in 'the Limit to Growth' stated that economic growth is severely limited by natural resource availability.

Hans Carl von Carlowitz published a 400-page literature on forestry as the basic concept of sustainability in the forest management.

International Meetings and Concepts

1713   1972   1983 1987   1992   2002   2012 2015

Year

Figure 2.1. Timeline of international meetings and concepts of sustainable development (Alisjahbana and Murniningtyas, 2018; Bartelmus, 2013; Bina, 2013; Castro, 2004; Happaerts, 2012; Maryudi, 2015; Nogueira, 2019; Nurmalasari, 2003; Zaccai, 2012)

The different concepts of sustainable development are also related to interpreting and securing sustainability. Besides, the development dominated by the exploitation of nature on some elite interests results in negative perceptions from the community towards the development process and social injustice (Bossel, 1999; Happaerts, 2012). Therefore, the concept of sustainable development requires an in-depth exploration of the intersections between people and elites, human and nature, economy and environment, emotions and rationality, utopias and dystopias, theory and practice, present and future, politics and technocratic, and strengths and weaknesses (Bebbington *et al.*, 2017). In the dozens of different ideas of sustainable development, Fauzi & Oxtavianus (2014) stated that the concept of sustainability contains (1) time dimension on forecasting the future, and (2) interaction dimension on the relationship between the socio-economic and environmental systems.

According to Todaro and Smith (2012), the concept of sustainability reflects the importance of a balance between socio-economic growth and environmental preservation. From an anthropocentric viewpoint, sustainability consists of three components, namely preventing resource depletion, enabling harmony with nature in ecological aspects, and ensuring the quality of human well-being for the present and future generations (Van de Kerk and Manuel, 2008). Moreover, the government's priority policies in development tend to develop the economy, rather than envisage environmental performance (Fang *et al.*, 2007 in Wang *et al.*, 2019). The critical success of sustainable development is explicitly linked to poverty eradication on fulfilling the basic needs of life, such as shelter, food, and clothing. However, ecological sustainability is unattainable, assuming issues related to poverty issues are not successfully addressed worldwide.

The quality of life in the context of socio-ecological transition is related to human rights, and the enhancement of public awareness on environmental issues (Alier, 2009). The concept of sustainable development in public agencies is expected to meet the needs of society in limited environmental conditions (Robinson, 2004). Although the Brundtland Report of 1987 explicitly stated that economic growth leads to environmentally sustainable development, Alier (2009) stated that clear arguments to criticize and oppose that notion. The ideology of sustainable development has become an idea to describe the quality of human welfare and environmental management (Cobbinah *et al.*, 2015). In line with this classical theory of growth, it is expected that when the income of the population grows, the level of satisfaction in public consumption becomes constant or diminishes, while disutility in adverse consequences continues to grow (Berkhout *et al.*, 2009).

At this point, countries have started to invest significantly in improving environmental quality and reducing pollution due to the consumption process.

According to scholars, the approach of concepts has complex multi-dimension interdependencies and multi-interpretation understandings in a comprehensive framework. Dendler *et al.* (2012) reported that the problem of sustainable futures was influenced by four multiplicities, namely multi-levels (from physical to institutional aspects), multi-spatial scales (from global and national to local perspectives), multi-regions (different regions of the world), and multi-stakeholders (from the public to private actors). Therefore, sustainable issues are often multifaceted, inter-reliant, and challenging to comprehend, leading to the use of a holistic viewpoint (Isaksson, 2019; Tajvidi *et al.*, 2019). Furthermore, the concepts of sustainable development are related to three dimensions, namely economy, social, and environment, which are harmonized to achieve holistic sustainability (Olawumi and Chan, 2018).
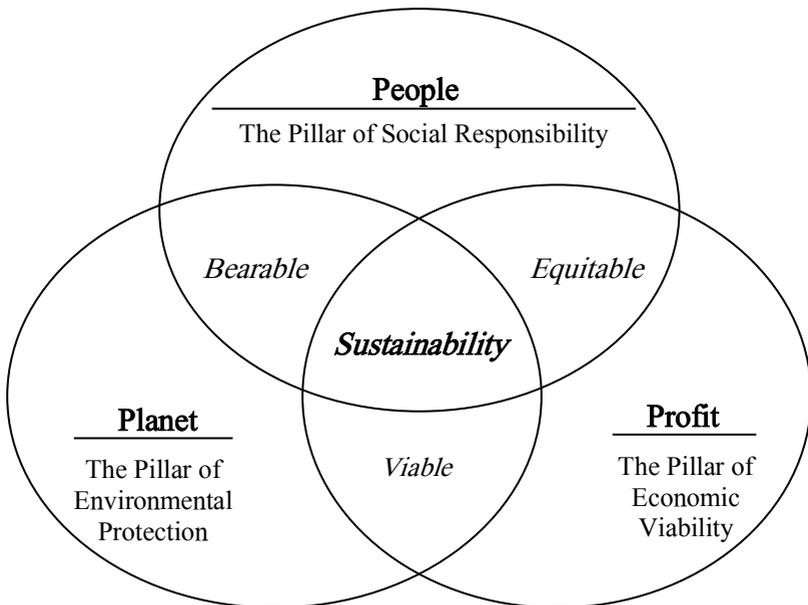
Figure 2.2. The pillars of sustainable development in the triple bottom line (Elkington, 1997)

Consequently, the concept of sustainability needs strong responsive and responsible actors to ensure inclusive social development, dynamic economic growth, and a sustainable environment. This developmental approach needs more than 'just' environmental perspectives or greener technologies. It also requires new transformative ideas and a more constructive role from institutions to obtain social justice, environmental spirit, and economic ethics[1] (Elkington, 1997). In the triple bottom line model, as shown in **Figure 2.2**, it tends to necessitate better comprehension, cohesion, and fluidity, as well as a more considerable effort in the form of capital, environmental, and human resources. This model has inspired some purely market-oriented or state-planned economic management. Therefore, it can induce the emergence of the long-term viability in economic activities, resource efficiency of environmental protection, and the inclusion of financially weaker stakeholders in social responsibility (Schulz and Bailey, 2014).

All sustainability concepts have been utilizing a similar approach in the economic-socio-environmental dimension with varying interrelationship reviews. Stanners *et al.* (2007) stated that there are three-dimensional models of sustainability, namely: three-legged stool model, three overlapping ellipses, never-ending triangle, and concentric ring/egg model. Although these models seem simple, they are needed to deal with the concerns of complexity, uncertainty, and ignorance system. The explanation of the relationship between the three dimensions is different from each other in some models. The comprehensive information needs to be made in the challenge of sustainable development implementation in the broad and diverse stakeholders ranging from policymaker to people.

Subsequently, the three-dimension models have evolved to add a new model of sustainability (Antoh and Arhin, 2018; Happaerts, 2012; Joseph et al., 2019). The institution factor is regarded as the capital from the result of interpersonal processes, such as the communication and cooperation aspects. In the development context, it produces some information and governing rules in the interaction of societies. Spangenberg (2002) proposed 'the prism of sustainability,' which consists of economic, social, environmental, and institutional subsystems. All of the dimensions have been characterized by interlinkage indicators in the holistically structured approach, as shown in **Figure 2.3**. Each dimension is complex, non-linear, and self-organizing.

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[1] The concept of 'triple bottom line' stated by John Elkington (1997), in which sustainability lies in the relationship amongst the three aspects, people (social aspect), planet/environment (ecological aspect), and profit (economic aspect).

However, these capabilities are also essential to enhance the maintenance of the social, environmental, and institutional systems in ensuring the success of the development.
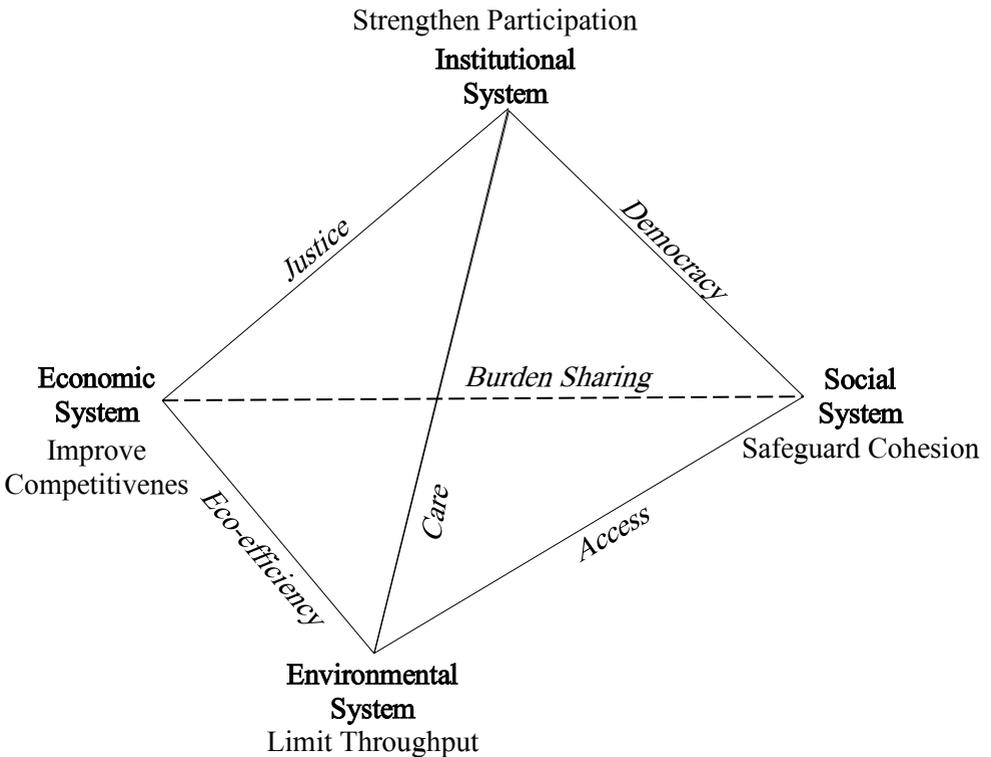
Figure 2.3. The prism of sustainability as the four-dimension model of sustainable development (Spangenberg, 2002)

2.1.2. Sustainable Development in Indonesia

Historically, Indonesia's involvement in sustainable development started in the Stockholm Conference of Human Environment in 1972 (Alisjahbana and Murniningtyas, 2018). Its participation in sustainable partnership continued in the Brundtland Commission in 1987. Afterwards, Indonesia continuously participated in various significant conferences related to sustainable development, such as the Rio de Janeiro conference in 1992, the MDGs declaration in 2000, the World Summit on Sustainable Development in Johannesburg in 2002, and the 3rd Earth Summit (Rio +20) in Rio de Janeiro in 2012 (Alisjahbana and Murniningtyas, 2018; Widhiyoga, 2010). The

country has always played an active role in the Open Working Group on the Sustainable Development Goals (OWG-SDGs) to discuss 27 groups of issues mandated by the results of the Rio+20 in 2012. Recently, it was involved in formulating the implementation of the Agenda 2030 for SDGs in New York in 2015 (Maryunani, 2018). Mr. Jusuf Kalla, the country's vice president, was among the 193 heads of state that endorsed this agenda for the world (Hoelman *et al.*, 2015).

Furthermore, Indonesia also played an essential role in the High-level Panel of Eminent Persons formed by the UN Secretary-general for giving input on the Post-2015 Global Development Agenda. The 6th Indonesian President, Susilo Bambang Yudhoyono, with the British Prime Minister, David Cameron, and the President of Liberia, Ellen Sirleaf Johnson, were appointed as the co-chair leaders of the panel (Percaya, 2015). Afterwards, Indonesia was also appointed as a member of the Intergovernmental Committee of Experts on Sustainable Development Fishing (IG-SDF), which is an essential part of the funding aspect of the SDGs implementation. Indonesia continued to make meaningful contributions throughout 2012-2014 in the Global Partnership for Effective Development Cooperation (GPEDC), which aims to develop mechanisms and patterns of international cooperation towards achieving SDGs targets (Alisjahbana and Murniningtyas, 2018).

Based on the results from the conference of Rio de Janeiro to the SGDs 2015-2030, the concept of sustainable development in Indonesia is grouped into four dimensions, namely social, economic, environment, and institution. The principle point of sustainability urges all stakeholders to possess a holistic vision of the future environment (Sachs, 2015). All of the dimension's indicators are in the themes amongst poverty, governance, health, education, natural hazards, biodiversity, energy, economic development, and global economic partnership. Therefore, Hadi (2012) stated that there were four approaches to sustainable development planning in Indonesia, namely (1) fulfillment of human needs, (2) maintenance of ecological integrity, (3) social equity, and (4) self-determination. Human needs are related to material (clothing, food, shelter) and non-material factors (security, human rights, and freedom). Ecological integrity carries out environmental use while paying attention to sustainability and carrying capacity. Social equity directs development in overcoming the issue of disparity. Meanwhile, self-determination includes the formation of the self-reliant community and democratic participation.

Social Dimension (**People**)	Economic Dimension (**Prosperity**)	Environmental Dimension (**Planet**)	Institutional Dimension (**Peace**)
▪ **Goal 1**: No poverty ▪ **Goal 2**: Zero Hunger ▪ **Goal 3**: Good Health and Well-Being ▪ **Goal 4**: Quality Education ▪ **Goal 5**: Gender Equality	▪ **Goal 7**: Affordable and clean energy ▪ **Goal 8**: Decent Work and Economic Growth ▪ **Goal 9**: Industry, Innovation and Infrastructure ▪ **Goal 10**: Reduced Inequalities ▪ **Goal 17**: Partnerships for the Goals	▪ **Goal 6**: Clean Water and Sanitation ▪ **Goal 11**: Sustainable Cities and Communities ▪ **Goal 12**: Responsible Consumption and Production ▪ **Goal 13**: Climate Action ▪ **Goal 14**: Life below Water ▪ **Goal 15**: Life on Land	▪ **Goal 16**: Peace, Justice, and Strong Institutions

Figure 2.4. The dimension of SDGs 2015 – 2030 in Indonesia (based on Bappenas, 2016 and United Nations, 2015)

In Indonesia, all seventeen goals associated with the SDGs are also divided into four dimensions, as shown in **Figure 2.4**. Firstly, the social dimension (people) needs to conduct some actions in SDGs for poverty, hunger, health and well-being, education, and gender equality. Secondly, the economic dimension (prosperity) consists of affordable and clean energy, decent work and economic growth, industry and infrastructure, reduced inequalities, and partnership. Thirdly, the environmental dimension (planet) consists of clean and sanitized water, sustainable cities and communities, responsible consumption and production, climate action, as well as life below, and on land. Lastly, in the institutional dimension (peace), it has one goal, which is for peace, justice, and strong institutions (Bappenas, 2016; United Nations, 2015).

SDGs in national development is also related to the dreams and hopes of President Joko Widodo for Indonesia. The dreams were listed on a piece of paper inside in a time capsule and placed in Merauke, Papua, on Wednesday, 30 December 2015 (Somba, 2015). It is expected to be opened in 2085. The seven dreams for Indonesia are as follows: (1) To ensure the human resources excels in accordance with other nations in the world, (2) To uphold pluralism, culture, religion, and ethics, (3) To be a center of education, technology, and civilization in the world, (4) Indonesia and its officials to be free of corruption, (5) infrastructure development throughout the country, (6) To be the most influential country in the Asia-Pacific region, and (7) for Indonesia to be the barometer of economic growth in the world. The seven dreams correspondingly underline the Vision for the Development of Indonesia in 2045. The vision is the development of human resources and science, sustainable economic development, equitable social development, and national security.

Moreover, Indonesia has many experiences in carrying out the global agenda of sustainable development. These experiences include the implementation of the MDGs and several other international conventions on the preparation of regulations, action plans, coordination among stakeholders, and monitoring-evaluation procedures. Hence, the Indonesian government is committed to becoming one of the foremost pioneers and role models to achieve SDGs 2015-2030 in the world (Bappenas, 2016). Indonesia has mainstreamed SDGs into national development plan documents, such as the RPJPN 2005-2025, the National Medium-Term Development Plan (RPJMN) 2015-2019, and the Annual Central Government Work Plan (RKP). The substance and objective of sustainable development programs are also in line with 'Nawacita'[2] as nine agenda priorities of the national development vision under President Joko Widodo's Government (Bappenas, 2017c).

President Joko Widodo's government has directly led SDGs implementation, as stated in the Presidential Decree No. 59/2017 on the implementation and launch of the National Action Plan for its Implementation from 2017-2019. The decree is a legal basis of institutional arrangements to implement SDGs in Indonesia. This implementation is conducted by the involvement of all

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[2] These nine agendas have delivered an aggressive approach to reforming the economy, education, and security sectors which consist of (1) returning the state to its task of protecting all citizens and providing a safe environment, (2) developing clean, effective, trusted and democratic governance, (3) development of peripheral areas, (4) reforming law enforcement agencies, (5) improve quality of life, (6) increasing productivity and competitiveness, (7) promoting economic independence by developing domestic strategic sectors, (8) overhauling the character of the nation, and (9) strengthening the spirit of 'unity in diversity' and social reform.

stakeholders at the national and local levels through the establishment of the National Coordination Team (Alisjahbana and Murniningtyas, 2018). All prominent stakeholders are expected to implement SDGs in order to eradicate poverty, promote shared prosperity, and improve environmental quality. Furthermore, the sustainability issues in Indonesia, such as inclusive economic growth, poverty, welfare, and environment, are considered as common challenges to be faced nationally. Therefore, one of the foremost necessary conditions to achieve SDGs in Indonesia is an enabling situation, which is mutually created for global peace, security, and stability (Bappenas, 2017c).

Indonesia also showed leadership in implementing the SDGs in the IMF-World Forum Annual Meeting 2018 forum in Bali (IMF, 2019; Shapiro, 2018). In this forum, the country agreed to some international agreements, such as the MoU of the Sustainable Development Solutions Network (SDSN), ASEAN leader gathering, ASEAN Ministerial Forum, and localizing SDGs for 34 provinces through the Regional Action Plan. It continues to encourage the establishment of SDGs centers in various state universities in more than six provinces. The county has continued to carry out various international and national events in supporting the implementation of the SDGs 2015-2030. Those events are such as the global partnership in the World Parliamentarian Forum, Philanthropy Festival, Academy with the 'Tanoto Foundation,' blended finance[3] in Islamic Donations, partnership guidelines with CSOs, and implementing the Annual Conference (Bappenas, 2017a). Therefore, Indonesia is one of six countries with the best formulation of Voluntary National Reviews (VNR) with active involvement in promoting the implementation of SDGs in the G20 (Bappenas, 2017c).

2.2. Decentralization Policy

2.2.1. Concepts of Decentralization

The concept of decentralization has grown and developed together with the demands and needs of democratic countries for a long time, as shown in **Figure 2.5**. The new concept was highly debated in developing countries in the 1950s. This period was tagged as the 'first wave' of the decentralization concept that received special attention from policymakers (Huda, 2014). The concept has also been articulated as the most important attribute used to

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[3] The strategic use of development funds from the government and philanthropic funds from the private sector to mobilize capital flows into sustainable development programs. This blended finance is expected to produce positive results for the interests of the community and investors.

strengthen and empower the local government administration. In the early 1960s, the decentralization concept was intended to open a revolution to achieve political equity and provide public goods and services (Huda, 2014). The concept. The 'second wave' of decentralization concept by the late 1970s, scholars were used to identify the eminent state agent to overcome regional disparities in administrative and market places (Cohen and Peterson, 1999). Therefore, in this decade, the decentralization process started to focus on the process of deconcentrating government hierarchy, bureaucratic structures, and public partnerships (Cheema and Rondinelli, 2007).
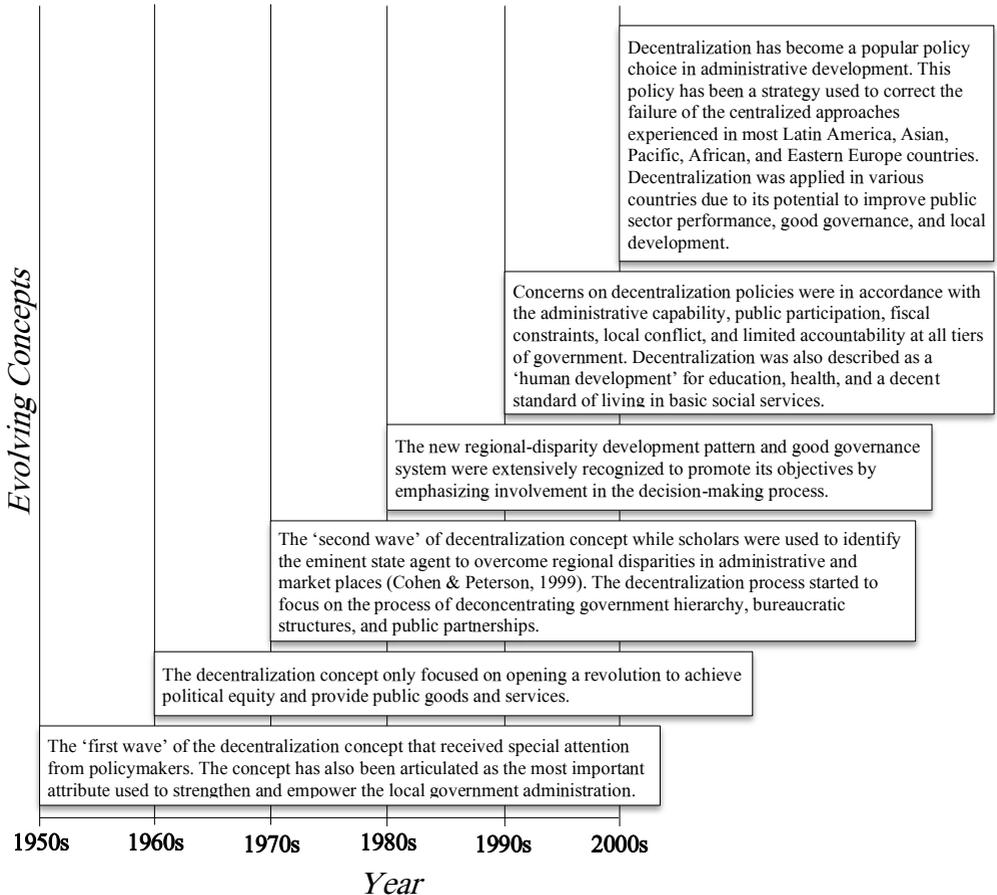
Figure 2.5. Timeline of evolving concepts of decentralization (Agrawal and Ostrom, 2001; Cheema and Rondinelli, 2007; Cohen and Peterson, 1999; Conyers, 2006; Grindle, 2007; Huda, 2014; Rondinelli et al., 1983)

In the 1980s, the new regional-disparity development pattern and good governance system were extensively recognized to promote its objectives (Rondinelli *et al.*, 1983; Agrawal and Ostrom, 2001; Grindle, 2007). This promotion was implemented by emphasizing public involvement in the decision-making process. The fall of authoritarian governments in Latin America and Central-Eastern Europe and also the growth of democratic principles in East Asia during the 1980s induced the critical decentralization role (Cheema and Rondinelli, 2007). Some Latin America, Central Europe, and East Asia countries have generated the transition from centralized planning to the market-economic policy. Therefore, decentralization policies in those countries have been focused on strengthening the private sector, privatization, deregulation, bureaucratic reform, and revitalization of local governments.

Furthermore, there were concerns about the decentralization policies in the early 1990s in accordance with the administrative capability, public participation, fiscal constraints, local conflict, and limited accountability at all tiers of government (Cohen and Peterson, 1999). It was also described as a 'human development' for education, health, and a decent standard of living in basic social services. Meanwhile, since the early 2000s, decentralization has become a popular policy choice in administrative development (Conyers, 2006). This policy has been a strategy used to correct the failure of the centralized approaches experienced in most Latin America, Asian, Pacific, African, and Eastern European countries. Therefore, it was applied in various countries due to its potential to improve public-sector performance, good governance, and local development (Huda, 2014).

Historically, this concept was formerly known as the theory of the distribution of government affairs. However, in practice, it has rapidly been used in the development of good governance (Mawardi *et al.*, 2004). There was tremendous interest in the potential contribution of decentralization policy on economic/cost efficiency, accountability, and the mobilization of financial resources (Oates, 1999). Hoffman and Kaiser (2006) stated that decentralization in regional development was the act of reorganizing accountability relationships amid inhabitants, parliaments, social organizations, and service providers. Smith (1985) and Hague & Harrop (2013) also reported that decentralization was a tool to reflect a unique political and social identity within a particular territory. This identity was reflected by the transfer of the central government's authority to the societies. The role of societies and local governments were also reemphasized in the changing of better regional development.

In addition, decentralization is also associated with central policies and strategies from the central government in promoting self-sustaining economic growth, reducing regional disparity, and improving public services (Brodjonegoro, 2006; Dillinger, 1994; Yonariza and Shivakoti, 2017). However, the issue of local democracy capacity allows people to communicate their preferences and create more responsible policymakers in triggering decentralization rules (Bardhan and Mookherjee, 2006). Thus, Grindle (2007) stated that decentralization promised stronger democracy in holding direct responsibility for local affairs and broader public participation. For example, a democratic system was implemented to fight against the failure of the centralized government in Central and Eastern Europe in the early 1990s and to strengthen the local democratic government in Latin America in the 1980s. Besides, decentralization has been generated as a treatment strategy in implementing inter-ethnic conflict resolution, such as in Uganda, South Africa, Cambodia, Sierra Leone, and Iraq (Devas and Delay, 2008). Therefore, it is considered as a powerful way to overcome the violent ethnic conflict, separatist movements, socio-political tensions, and preserve the autonomy of local culture and politics (Bardhan, 2002).

Decentralization has evolved into 'the heart of the policy-reform agenda' in the political perspectives of various developed countries (Faguet and Pöschl, 2015). Eaton (2001) stated that the adoptions of decentralization policies in developing countries were through political pressure in the local democratization and economic reformation. There are some pressures from sub-national political actors to national politicians to reconstruct the state in the more democratic mechanism, with reference to the parliament, leader, and public participation. In keeping with the defense of decentralization policy, politicians in some developing countries, like Argentina and the Philippines, try to propose some agenda of economic reforms (Litvack *et al.*, 2000; Yunarti, 2008). These agendas are used to remedy local economic development through intergovernmental fiscal transfer in some principles, such as equity, predictability, efficiency, simplicity, incentive, and safe.

According to Rondinelli *et al.* (1983), the critical role of decentralization in developing countries is considered due to the ease in the public administration and communication mechanism. It is also frequently acceptable to make the policy more effective in local development. Furthermore, the decentralization policy in developing countries is considered to possess an essential role in cutting complicated bureaucratic lines with highly structured procedures (Huda, 2005). Therefore, the decentralization policy is expected to encourage the growth of local democracy because indigenous people are provided more control over their

governance (Manor, 1999). The role of decentralization increases the efficiency of governance through public participation amid local communities, which is more responsive to their constituents (Duncan, 2007). This consequently increased the local accountability, thereby leading to better policies (Agrawal and Ostrom, 2001).

Table 2.1 shows that positive perspectives, right motivations, and public considerations from decentralization policy have dominated all stakeholders' purposes. Nevertheless, political considerations are relatively dominant in inducing a process in the world (Shah and Thompson, 2004). Generally, motivations have developed in terms of macroeconomic stability, such as tackling the financial crisis, good managing in local resources, reducing regional disparity, and facing other globalization and information revolution (Ahmad and Mansoor, 2002; Cohen and Peterson, 1999; Dillinger, 1994; Hadiz R., 2004; Manor, 1999; Oates, 1999; Suharyo, 2000; Tyson, 2010).

Table 2.1. Perspectives, motivation, and considerations of decentralization policy in the world

No.	Perspectives, Motivation, and Considerations	Countries/ Regions	Author
1.	Political, administrative, fiscal, and macroeconomic transformation	Central and Eastern Europe, most Asian countries	Bird (2003), Cheema and Rondinelli (2007), Duncan (2007), Faguet and Pöschl (2015), Firman (2003), Huda (2014), Litvack *et al.* (2000), Manor (1999), Yunarti (2008)
2.	Political crisis due to ethnic conflict and secessionist tendencies	Bosnia and Herzegovina, Ethiopia, Yugoslavia, Nigeria, Sri Lanka, Sudan, South Africa, Philippines, Uganda,	Bardhan (2002), Devas and Delay (2008), Hoffman and Kaiser (2006), Lockwood, (2006), Rasyid (2004), Shah and Thompson (2004)

No.	Perspectives, Motivation, and Considerations	Countries/ Regions	Author
		Cambodia, Sierra Leone, and Iraq	
3.	Political crisis due to regional conflict and path to national unity	Indonesia, Madagascar, Mali, Senegal, South Africa, Uganda, Mexico, Philippines	Eaton (2001), Fitri (2008), Holzhacker *et al.* (2016), Manor (1999), Nasution (2016), Shah and Thompson (2004)
4.	Enhancing public participation and 'grassroots supports' for central policies and making strong local democracy	Argentina, Brazil, Bolivia, Colombia, India, Pakistan, Philippines	Agrawal and Ostrom, (2001), Bardhan and Mookherjee (2006), Grindle (2007), Hoffman and Kaiser (2006), Litvack *et al.* (2000), Rondinelli *et al.* (1983), Said (2010a)
5.	Political maneuvering	Peru, Pakistan	Hague and Harrop, (2013), Hoffman and Kaiser (2006), Smith (1985)
6.	Financial crisis	Russia, Indonesia, Pakistan	Ahmad and Mansoor (2002), Hadiz (2004), Tyson (2010)
7.	Improving basic service delivery	Chile, Uganda, Côte d'Ivoire, Indonesia	Cohen and Peterson (1999), Conyers (2006)
8.	Prevent return to autocracy	Latin America countries, Indonesia	Kis-Katos and Sjahrir (2017), Noor (2012), Rasyid (2004),

No.	Perspectives, Motivation, and Considerations	Countries/ Regions	Author
			Syaukani *et al.* (2003)
9.	Preservation of communist rule	China	Bardhan and Mookherjee (2006), Shah and Thompson (2004)
10.	Building good local governance and reducing regional disparity	Indonesia	Brodjonegoro (2009), Cohen and Peterson (1999), Conyers (2006), Dillinger (1994), Mawardi *et al.* (2004), Oates (1999), Suharyo (2000), Yonariza and Shivakoti (2017)
11.	Globalization and information revolution	Most countries	Shah and Thompson (2004)

Source: Based on Shah & Thompson (2004)

Similarly, considerations have dominated in terms of good governance, such as conflict resolution, decreasing corruption acts, delivering public services effectively, strengthening local democracy, and developing public participation (Agrawal and Ostrom, 2001; Beier, 1998; Brodjonegoro, 2009; Firman, 2003; Kumar Sharma, 2006; Litvack et al., 2000). The decentralization policy aims to provide people and their elected representatives more power and influence in the public decision-making process (Hague and Harrop, 2013; Hoffman and Kaiser, 2006; Smith, 1985). Therefore, the political process needs to be based on constitutional reforms, pluralistic political parties, reinforcement of legislatures, and encouragement of active public interest communities (Litvack *et al.*, 2000).

In general, there are vast diversities in the definition of decentralization on comprehensive approaches, several forms, and combinations across countries. Nonetheless, decentralization is defined as the devolution process by the central government of precise purposes, which are related to political,

administrative, fiscal, and economic attributes from the central to local governments within the geographic and functional domains (Faguet and Pöschl, 2015; Manor, 1999). According to the World Bank (in Huda, 2014; Manor, 1999; White, 2011), decentralization has also evolved in the linkage amongst government, private sectors, and civil societies as follows: (1) deconcentration, (2) fiscal decentralization, and (3) devolution. Deconcentration refers to the transfer of administration from the higher to the lower government. Fiscal decentralization is correlated with an intergovernmental transfer from the central to local governments. Meanwhile, devolution is defined as the transfer of power, tasks, and resources from a higher to the wholly independent lower level of authorities (Rondinelli, 1981).
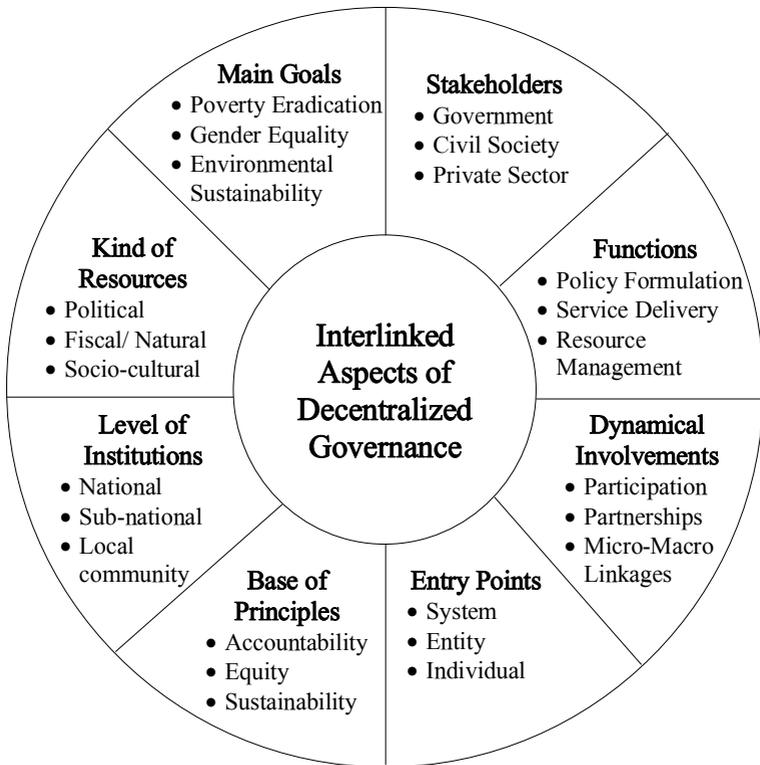
Figure 2.6. Interlinked aspects of decentralized governance (UNDP, 2004)

The UNDP (2004) specifically defined decentralized governments into policy, local, urban/rural development, and their linked relationship. Therefore, decentralization is interpreted as the rearrangement policy on the authority of co-responsibility between the central and local governments with some interlinked aspects comprising of levels of institutions, kinds of resources, primary goals, stakeholders, public functions, dynamical involvements, entry points, and principles as shown in **Figure 2.6**. It is in line with the transfer of the principle of subsidiary on political, fiscal, administrative powers from the higher to a lower level (Duncan, 2007; Litvack *et al.*, 2000). Therefore, the type of decentralization is relatively similar to the four criteria as follows: (1) political, (2) fiscal (resources reallocation), (3) administrative, and (4) market/economic.

2.2.2. Decentralization Policy in Indonesia

The decentralization policy in Indonesia moves in an up-down decentralization process, which is strongly influenced by various initiatives and implementation of public decisions in historical, legal, administrative, political, social, economic, and cultural designs. Therefore, its historical evolution since the colonial era and the reform era have been impressive. The concept of the archipelago nation, socio-political reasons, the challenges of globalization, and the improvement of public administration are also considered as an integral part of the historical events (Said, 2010).

There is a total of 1,340 tribes, with more than 350 ethnic groups, over 700 traditional languages, and approximately 7,200 cultural works, myriad geographical features, and large potential resources. In addition, the spread of the country's landmass across more than 17,500 islands on a land area of 1.9 million km^2 led to significant challenges to achieve social justice and sustainable development. Therefore, as a distinctive-culture country and a religious-pluralism state, Indonesia is perceived as requiring a devolution government system (Fitrani *et al.*, 2005; Sutiyo & Maharjan, 2017). The system needs to recognize the rights of originality and local distinctiveness in the decentralization of the constitutional mandate. Decentralization is an antithetical paradigm of the centralized regime in the hegemonic government of Indonesia that has existed since independence (Huda, 2005). Said (2010) stated that the decentralization policy in Indonesia had two potential direct outcomes, such as the increase of local governments to plan development policies and the rise of local capacity to deliver resources.

Moreover, the success of good decentralization is also considered to provide enormous benefits for Indonesia as a diverse country in fragmented societies

(Bird, 2003). It also plays an essential role in transferring the legal authorities from a centralized autocratic regime to a decentralized democratic government. This transfer of authorities is based on more economic growth, enlarging local revenues, efficient public services, national unity, and good democracy (Bräucher, 2015; Liddle, 2002; Silitonga *et al.*, 2016; World Bank, 2003). However, the implementation of decentralization holds much local potential promise as well as risk. Suharyo (2000) stated that there are three crucial constraints in carrying out decentralization in Indonesia, such as regional disparity, the tendency to increase local taxes, and mobilization of corruption to the local level.

Figure 2.7, showed that historically, the issue of decentralization in Indonesia had existed since the Colonial Era when the Dutch East Indies (Dutch Colony) implemented 'Desentralisatie Wet' in the *Staatsblaad* No. 329/1903 on the formation of the own-financed governmental area (Syaukani *et al.*, 2003; Mawardi *et al.*, 2004). This was shortly followed by the establishment of the 'Gemeente Batavia' (1905) and 'Gemeente Surabaya' (1906) as administrative cities, followed by other large cities outside Java Island. Nonetheless, this decentralization system was 'European' in nature because it mostly involved the Dutch Colony (Tikson, 2008). However, local areas were on the periphery and under the control of the central government. This decentralization regulation also evolved during the Japanese Colony becoming Law (*Osamu Seire*) No. 27/1942 on local government, period 1942-1945. Irrespective of these activities, the Dutch and Japanese Colony interpreted that decentralization was a deconcentration policy as the hierarchical transfer of power from the central to the lower-level government (Syaukani *et al.*, 2003). Therefore, from the macro perspective, the deconcentration policy in this era was considered as a way of maintaining the colonialist rule in Indonesia (Dhont, 2013).

In the early post-colonial period of the revolution era from 1945-1948, the term decentralization was introduced by the Preparatory Committee for Indonesian Independence (PPKI) after the end of the Japanese Colony. Mr. Soepomo, at the PPKI meeting on 18 August 1945, stated that the central government is going to respect the positions of local government with asymmetric decentralization, such as the Yogyakarta Special Region (Gie, 1968 in Noor, 2012). In general, during this revolution period, the newly formed central government focused on the integration process. The decentralization was feared to be a threat to national unity. These circumstances were related to many disintegrating conflicts from some political upheaval in many local areas (Tikson, 2008).

Colonial Era | Revolution Era | Old Order (Orde Lama) Era | New Order (Orde Baru) Era | Reformation Era

Historical Events

Law No. 5/1974 on principles of regional development divided the regions of the state into three local areas: (1) Province (included Capital City of Jakarta), 2) District/ City, and 3) Sub-District. The emphasis of local autonomy was dependent on the second level of region.

Law No. 23/2014 added the fairness aspect in the principles of local governance and also confirmed the criteria of mandatory government affairs as the basis for the minimum public services.

President Soeharto inauguration on 12.03.1967.

Law No. 18/ 1965 divided the state territory into three levels: (1) Province (level I), (2) District (level II), and (3) Sub-District (level III).

Law No. 32/2004 clarified and reinforced the hierarchical relationship between the local and central government based on the principle of administrative and regional unity in authority, finance, public services, and resource utilization.

Presidential Decree No. 6/1959 had focused on the stability and efficiency of local government. The regions of Indonesia entitled to regulating autonomous areas were known as I, II, and III.

Law No. 1/1957 highlighted broadly the implementation of local autonomy based on the article 31, paragraph (1) of the UUDS 1950. It replaced the term 'autonomous regions' to 'self-governing regions (Swatantra)'.

Law No. 22/1999 on local governance had the main points: (1) the principle of authority division within the unitary framework, (2) the province formed based on the principle of decentralization and deconcentration, while the district/city is formed based on the principle of decentralization, (3) the regions outside the province divided into some autonomous regions, (4) sub-district is part of district/city's agency.

UUDS 1950 as the foundation of local autonomy policy was more focused on the establishment of an 'independent state agency' and it defined the autonomy as 'the right to take care of the household itself' for a region.

Law No. 22/1948 regulated the local autonomy. The regions of Indonesia were composed of four levels: (1) provinces, (2) district/ big city, (3) village/ small town, and (4) the areas entitled for managing their own autonomous area.

The Asian financial crisis and the fall of hegemonic President Soeharto regime. Afterwards, President Habibie with 'Team 7' formulated several major-crucial agendas in the democratic-decentralization reform.

Deconcentration was to maintain colonialist rule in the Dutch colonial era with *Staatsblaad* No. 329/1903 on the formation of own-financed governmental area.

Decentralization concept was introduced by PPKI in the Proclamation of Indonesian Independence on 17.08.1945 and Law No. 1/1945 emphasized the principle of decentralization to regulate the formation of local government in residency, autonomous cities, and some regions.

Deconcentration was to maintain colonialist rule in the Japanese colonial era with Law (*Osamu Seire*) No. 27/1942 on local government.

Transition

Deconcentration | **Pseudo Decentralization** | **Real Decentralization**

1903 | 1942 1945 1948 1950 1957 1959 | 1965 1967 | 1974 | 1998 1999 2004 | 2014

Year

Figure 2.7. Timeline of historical events of decentralization policy in Indonesia (based on Firman, 2003; Kis-Katos & Sjahrir, 2017; Mawardi *et al.*, 2004; Noor, 2012; A. Said, 2010; Syaukani *et al.*, 2003; Tikson, 2008)

Nevertheless, the central government in the early post-colonial period stipulated two regulations related to decentralization, namely Law No.1/1945 and Law No. 22/1948. Law No.1/1945 emphasized the principle of decentralization to regulate the formation of local government in residency, autonomous cities, and some regions deemed necessary by the Minister of Home Affairs. The division of the region related to this law consisted of three regions, namely: (1) province, (2) district, and (3) village/small town. Meanwhile, Law No. 22/1948, which regulated the local autonomy in Indonesia since 10 July 1948 stated that the regions were composed of four levels namely (1) provinces, (2) district/ big city, (3) village/small town, and (4) the areas entitled for managing their autonomous area (Mawardi *et al.*, 2004).

In the 'Old Order (Orde Lama)' Era, local autonomy and decentralization policy failed to satisfy the local areas (Ferrazzi, 2000). Therefore, various administrative policies were implemented after independence did not support a decentralized state. Nevertheless, the regime of President Soekarno in this era stipulated three essential regulations, which consist of (1) Law No.1/1957, (2) Presidential Decree No. 6/1959, and (3) Law No. 18/1965. In 1950, 17 parties and groups in the national parliament also stipulated the Temporary Constitution (UUDS) 1950, which became the foundation of local autonomy policy in Indonesia (Syaukani *et al.*, 2003; Mawardi *et al.*, 2004; Noor, 2012). The temporary constitution was more focused on the establishment of an 'independent state agency,' and it defined autonomy as 'the right to take care of itself' for a region.

Subsequently, in 1957, the Indonesian multiparty system collapsed after a prolonged political-ideological conflict. The destruction of multiparty politics influenced the fall of parliamentary democracy and ultimately facilitated the generation of the 'Sukarno's Authoritarian Guided Democracy' (Mietzner, 2008). Law No. 1/1957 highlighted broadly the implementation of local autonomy based on article 31, paragraph (1) of the UUDS 1950. This regulation replaced the term 'autonomous regions' to 'self-governing regions (Swatantra).' In the Guided Democracy, the territory of Indonesia was divided into three levels of regions, according to Law No. 1/1957, namely 'Daerah Swatantra Tingkat I, II, and III.'

Furthermore, the 'Old Order' government stipulated Presidential Decree No. 6/1959. This Decree had focused on the stability and efficiency of local government since 7 November 1959. The regions entitled to regulating autonomous areas were known as I, II, and III, with deconcentration in the local autonomy particularly prominent in this decree (Mawardi *et al.*, 2004).

The head of the region was appointed by the central government, especially from the civil servants, which led to the stipulation of Law No. 18/1965 to compartmentalize the state territory into three levels, namely (1) Province (level I), (2) District (level II), and (3) Sub-District (level III). In this Law, the local leaders implemented national policies in the local area, by monitoring the development and carrying out other duties assigned from the central government. Also, the local leaders lead the executive power of government by signing the political decisions established by the parliament and representing their region (Mawardi *et al.,* 2004; Syaukani *et al.*, 2003).

The 'New Order (Orde Baru)' Era started from President Soeharto's inauguration on 12 March 1967. In this era, the pseudo decentralization policy was limited to the autonomy system was more clarified by Law No. 5/1974 on principles of regional development in accordance with the principle of decentralization (Huda, 2005). The regions of the state were divided into three local areas, namely: (1) Province, (2) District/City, and (3) Sub-District. The emphasis of local autonomy was dependent on the second level of the region, while the decentralization policy was only given to autonomous regions. Ironically, this regulation was claimed to be stimulating in Indonesia with the implementation of Law No. 5/1974 after twenty-five years. Central government agencies only maintained active control over local activities through their several representatives (Turner, 2006). In turn, the decentralization policy was intended to extend centralized authority in ways that appeared in the dominance of power, manipulation of interests, and the strength of client and patron relationships (Tyson, 2010).

Furthermore, the New Order Era before the real decentralization policy was called the 'hegemonic regime of President Soeharto.' In this regime, there were many gaps between the central and local governments in terms of equitable income distribution, a delegation of authority, the difference in prosperity level, and revenue sharing. The central governments mistreated all these factors, thereby triggering the severe threats of national disintegration (Kis-Katos and Sjahrir, 2017; Noor, 2012; Syaukani et al., 2003). In this era, the implementation of decentralization had little effect in encouraging a transparent and accountable governance agenda. Conversely, the decentralization policy played a role in creating a new predatory patronage network (Hadiz R., 2004). The case of Indonesia in the New Order era shows that the most important thing is the system of political power relations in which is the decentralization process is carried out.

The reformation era occurred in 1998 after the economic shock of the Asian financial crisis, with enormous pressure to change the central-local

government relationship in Indonesia. The pressure was to change the legal relationship from a centralized authoritarian to a democratic and decentralized state as proposed by reform activists (Ahmad and Mansoor, 2002; Tyson, 2010). Hadiz (2010) reported that the decentralization process of the Reformation Era opened massive experiments in shaping new political and economic regimes, which were democratic, transparent, and participatory. Therefore, the decentralization policy seems to be the appropriate answer for the post-reform Indonesia's disintegration. This policy is also considered necessary for the convenient compromise between the idea of a previously centralized unitary republic and the federal republic of Indonesia (Hadiz, 2004).

Bardhan & Mookherjee (2006), Fengler & Hofman (2008), and Firman (2003) stated that Indonesia's decentralization policy since 1998 is 'a big bang policy' in political and economic authorities. They further stated that the comprehensive big-bang political-economic devolution was a type of decentralization policy in some countries, such as Indonesia, Bolivia, and post-1994 South Africa. In Brazil and India, the policy was based on comprehensive political and partial economic devolutions. Currently, limited political devolution with more significant administrative-economic devolution is the basis of decentralization in China, Pakistan, Uganda, and South Africa (Bardhan and Mookherjee, 2006).

Moreover, some scholars claimed that the decentralization policy in Indonesia boarded upon 'a radical and rapid' political process (Fitri, 2008; Nasution, 2016). Political considerations also play an essential role in reducing the effect of separatism sentiments. The wide-ranging decentralization policy has delivered higher political power and budgets to local governments in the democratic and autonomous systems (Fitri, 2008; Holzhacker *et al.*, 2016; Nasution, 2016). The political reformation also increases the hopes of every citizen that the decentralization policy contributes to reducing the economic-fiscal disparity between the western and eastern parts of Indonesia (Brodjonegoro, 2009). Therefore, economic development in decentralization includes growth, equality, and equity. These are conducted within a short period by providing most of the authority to local governments to increase public services and local needs.

In the transition era (1998-1999), after the fall of hegemonic President Soeharto regime, the transition expert team[4] helped President Habibie to

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[4] Team 7 has the duty to design and coordinate the political reform agenda in the post-Suharto regime. They are Hamid Awaluddin, Djohermansyah Djohan, Afan Gaffar, Andi Mallarangeng, Ryaas Rasyid, Ramlan Surbakti, and Anas Urbaningrum.

formulate several major-crucial agendas. This team worked to develop the democratic system reform, preparation of Indonesian elections in June 1999, and comprehensive local government policy as the first draft decentralization bill (Smith, 2008). In May 1999, the Indonesian parliament formulated Law No. 22/1999 on local government and Law No. 25/1999 on intergovernmental fiscal relations with dependency on the decentralization policy. Both regulations are a starting point to force the central government to share its power and resources for all regions, as shown in **Figure 2.8**.

Law No. 22/1999 regulated the implementation of local governance in the real decentralization policy. The main points of the law consist of four essential policies. The first is the state administration system on the principle of authority division within the unitary framework. The second is the province formed based on the principle of decentralization and deconcentration, while the district/city (Kabupaten/Kota) is formed based on the principle of decentralization. Thirdly, the regions outside the province are divided into some autonomous regions, while the fourth, sub-district (Kecamatan) is part of the district/city's agency. Law No. 22/1999 and Law No. 25/1999 have been considered to bring much more progress in improving autonomous authority in the people's welfare, especially in level district/city. However, there are still fears that the provincial government finds it politically more difficult to control the lower governmental layers in coordination mechanisms of administrative affairs due to the district/city's autonomous authorities (Ahmad and Mansoor, 2002; Tyson, 2010).

Furthermore, Law No. 22/1999 was replaced by Law No. 32/2004 on 15 October 2014. This law clarified and reinforced the hierarchical relationship between the local and central government based on the principle of administrative-regional unity in authority, finance, public services, and resource utilization (Huda, 2005). Law No. 32/2004 has established the principle of local governance in three forms, namely deconcentration, decentralization, and co-administration task (Dwiyanto, 2015). In these principles, the central government has the right to coordinate, supervise, and evaluate the provinces and districts/cities. Likewise, the province also has the right to coordinate and supervise the districts/cities with the partnership between the local leader and parliament clarified. Law No.32/2004, which was later revised by Law No. 23 /2014 on local government has confirmed the criteria of mandatory government affairs as the basis for the implementation of minimum public services.

According to Law No. 23/2004, government affairs consist of the following categories: (1) absolute, (2) general, and (3) concurrent. The absolute affairs

are referred to the authority of the central government, such as foreign policy, defense, security, judiciary, national monetary and fiscal policy, and religion. Meanwhile, the general affairs are the authority of the president as the head of government consisting of awareness of national defense, unity, social conflict resolution, coordination, democracy, and the implementation of all governmental affairs.

Thirdly, the concurrent governmental affairs are related to all of the roles shared between the central and local governments. These affairs are divided into two parts, namely mandatory and optional affairs. The first part of mandatory government affairs are 'referred to basic services' (education, health, public works and spatial planning, housing and residential areas, protection of society, and social) or 'not referred to basic services' (workforce, empowerment of women, protection of children, the environment, civil registration, community empowerment, population control, transportation, communication and informatics, small-medium enterprises, capital investment, youth and sport, statistics, coding, culture, library, and archival). The second part of optional government affairs is marine and fisheries, tourism, agriculture, forestry, energy and mineral resources, trade, industry, and transmigration (Government of Indonesia, 2014).

Pseudo Decentralization
1974 – 1998 (New Order)
Based on Law No. 5/1974
on Principles of Regional Development

President
Appoints Governor upon provincial parliament's proposal

Ministry of Home Affairs
Main Channel of Communication

Line Ministries

Provincial Parliament (DPRD Provinsi)

Governor
Head of Autonomous Province and Head of Territory
Appoints Regent and Mayor (Bupati and Walikota) on behalf of President after district/city parliament's proposal

Directives

Local Government Agencies in Province

Information

Line Ministry Offices at Provincial Level (Regional Office/Kantor Wilayah)

Guidance

District/City Parliament (DPRD Kabupaten/ Kota)

Regent/Mayor (Bupati/ Walikota)
Head of Autonomous District/City (Kabupaten/Kota) and Head of Territory
Appoints Regent and Mayor (on behalf of President after district/city parliament's proposal

Directives

Local Government Agencies in District/City

Information

Line Ministry Offices at District/City Level (Department Office/ Kantor Departemen)

Guidance

Real Decentralization
1999 – Present (Reformation Era) Based on Law No. 22/1999 and later revised by Law No. 23/2014 on Local Government

President
Confirms Governor from directly local election

Ministry of Home Affairs
Supervision for local government

Line Ministries

Guidance on government affairs and SPM*)

Provincial Parliament (DPRD Provinsi)

District/City Parliament (DPRD Kabupaten/Kota)

Governor
Head of Autonomous Province and deconcentrated central government
Confirms Regent and Mayor from directly local election

Guidance on government affairs and SPM*)

Supervision on behalf of the central government

Regent/ Mayor (Bupati/ Walikota)
Head of Autonomous District/City

Local Government Agencies in Province

Local Government Agencies in District/City

Note: In the real decentralization, outside of **concurrent government affairs** (shared between local and central government) and **general government affairs** (under the authority of the president as head of government), there are still regional offices and department offices for six **absolute government affairs** (under the authority of the central government) not decentralized: (1) Foreign policy, (2) Defence, (3) Security, (4) Judiciary, (5) National monetary and fiscal policy, and (6) Religion. They are omitted in the figure for simplicity.

* Minimum Service Standard (SPM) on mandatory government affairs related to basic services: (1) Education, (2) Health, (3) Public works and spatial planning, (4) Housing and residential areas, (5) Peace, public order, and protection of society, and (6) Social.

Figure 2.8. The transformation of local government in Indonesia between 'before' and 'after' decentralization era (based on Law No. 23, 2014; Noor, 2012; Rainer Rohdewohld, 1995 in World Bank, 2003)

2.3. Decentralization Policy and Sustainable Local Development

In principle, decentralization shortens the range of control from the central to local governments and provides higher power to carry out various innovations and creativity in improving the quality of sustainable development (Fitri, 2008; Holtzappel, 2009; UNDP, 2004). Besides, the notion of sustainability in the decentralization process also focuses on resource constraints and futurity (Hazenberg, 2016). Therefore, decentralization, as the delegation of essential public responsibilities and resources to local authorities, tends to change local governance, which leads to sustainable development (Romeso in Said, 2010).

Furthermore, the more sustainable use of local resources undoubtedly acts as an essential capital for upcoming development. Olsen & Fenhann (2008) stated that sustainable development provides some benefits in environmental (for air, land, and water conservations), social (for health, welfare, education, and employment), economic (for growth, energy, and balance of payment), and other sectors. Conversely, various efforts were carried out to maximize the use of local resources using various attempts by threating the corruption, inefficiency, and oligarchy to the sustainability issue (Bappenas, 2013; Hadi, 2012; Holtzappel and Ramstedt, 2009). These various optimistic and pessimistic views on the potency of decentralization policy determines the valuable benefits and potential challenges for sustainable development in the future.

Along with the decentralization era, sustainable local development becomes interesting due to the fact that stakeholders heed only to a short-term perspective and partial development (Fauzi *et al.*, 2013). In the decentralization context of sustainable development, the role of government needs to be based on several principles in the new paradigm. In **Table 2.2**, the decentralized continue to be encouraged by the long-term intention to meet current and future community needs. The decentralized policies need to be related to the source of initiatives from several issues, challenges, opportunities, and public aspirations. Therefore, the governments are expected to bring the decision-making process closer to the source in interactive-pluralistic participation, which is undoubtedly based on psychosocial and environmental aspects.

Table 2.2. Changes in the government paradigm for sustainable local development

No.	Indicator	Old Paradigm	New Paradigm
1.	The base of management dynamics	Based on rules and implementation instructions (rule-driven)	Based on the long-term intention to meet current and future community needs (need-driven)
2.	Source of initiative	Ideas of development experts and planners	Issues, challenges, opportunities, and aspirations of all stakeholders in the development
3.	Meaning of decentralization	Distribution of power and resources	Bring decision making closer to the source of issues, challenges, opportunities, and aspirations
4.	Development implementation	Centralized	Decentralized
5.	Development insights	Sectorial and partial	Cross-sectorial and holistic
6.	Development planning	Based on techno-economic considerations	Based on techno-economic, social, political, and environmental considerations
7.	Decision-making process	Monolithic-deterministic based on rational analysis	Interactive-pluralistic influenced psychosocial and environmental aspects

Source: Based on Hadi (2012)

The implementation of a decentralization policy is also carried out in the form of networks using a cross-sectorial and holistic approach, which is applied by several policy instruments in the transparent-responsible system.

In general, there are five categories of decentralization policy instruments related to sustainable development, namely rules/norms, market-based/economic instruments, voluntary social instruments, collaborative actions, and information instruments (Zaccai, 2012). Therefore, sustainable development in the decentralization policy is more flexible, responsive, efficient, effective, innovative, and transparent. This policy also needs to be able to foster community participation in the framework of good governance, inclusive political institution, effective representative system, judicial independence, genuine public participation, and stable democracy (Hadi, 2012; Silitonga *et al.*, 2016).

The sustainability perspectives faced by the expansionist and steady-state ecological paradigm are a choice for local governments. The expansionist paradigm sees sustainability as business as usual from a pure perspective. The proponents of this concept assume that when there are no environmental constraints on economic development, there are technological substitutes for deficit resistance (Aung, 2003). Privatizing revenue allocation and eliminating trade barriers in both developed and developing countries are needed to tackle poverty, income equality, and economic growth. In turn, they habitually solve environmental issues (Rees in Aung, 2003).

In the steady-state ecological paradigm, the government perceives sustainability as an inextricably integrated system in the ecosphere. Economy, technology, human society remains stable in an interrelated connection of the sustainable environment. Sustainability is a more complex issue from an ecological resilience than it appears to be from economic development. Therefore, this ecological paradigm provides several sustainable indicators as crucial points in development, which are related to the existence of sustainable ability, generation of effective resources, adaptability, and co-existence in harmony (Meadows in Aung, 2003).

In the meantime, democratic governance and corruption in developing countries are essential in sustainable development (Holzhacker *et al.*, 2016). Hadi (2012) stated that the decentralization policy for sustainable development in Indonesia, such as regional ego, fragmentation, partial understanding, a narrow perspective of resources, and unimportant of environmental institutions. Sustainable development, in terms of environmental issues, goes beyond the administrative boundary because of the ecological nature. Therefore, the environmental sector needs to be properly managed with the principles of bioregionalism in order to reduce the pattern of fragmentation between institutions and stakeholders.

Hadi (2012) also noted a misleading understanding of the decentralization concept in local development. This was in accordance with the natural resources, which are carried out in local development. Their exploitations are conducted without regard to carrying capacity and environmental sustainability; therefore, it is utilized optimally without considering the negative impacts. Meanwhile, public environmental institutions are identified insignificant without political support because they are perceived more as cost centers compared to profit centers (Fauzi *et al.*, 2013).

Table 2.3. Size of local government in the Asia-Pacific countries

Country	Type of Government	Type of State	Federated Units and Special Regions/ Territories	Regional/ Provincial Level	Upper Level of Local Government	Lower Level of Local Government
Indonesia	Republic, presidential government (President is both the chief of state and head of government)	Unitary	2 special districts: Aceh and Papua	34 provinces (including special districts): capital district of Jakarta and Special Region of Yogyakarta	▪ District and Municipalities Level: 509 units (2017) ▪ City (Kota): 97 ▪ District (Kabupaten): 412 ▪ Subdistricts (Kecamatan): 7,164 ▪ Villages (Desa): 82,862	
Philippines	Republic, presidential government, (President is both the chief of state and head of government)	Unitary	The autonomous region of Mindanao	81 provinces	▪ 145 cities ▪ 1489 municipalities	42,036 villages (barangays)
Vietnam	Communist government (President as chief of state, Prime Minister as head of government)	Unitary	None	▪ 59 provinces ▪ 5 centrally-controlled cities (including the capital city)	662 district units, among which: 25 provincial towns, 42 urban districts (in centrally controlled cities),	10,776 municipalities: 1,181 wards (urban areas), 583 district towns (rural district centers), and 9,012 communes (lower units in urban and rural areas)
Japan	Constitutional Monarchy with a Parliamentary Government (Emperor as chief of state, Prime Minister as head of government)	Unitary	None	47 prefectures	▪ 1,820 municipalities ▪ 779 city councils ▪ 844 town councils 197 village councils	

Country	Type of Government	Type of State	Federated Units and Special Regions/ Territories	Regional/ Provincial Level	Upper Level of Local Government	Lower Level of Local Government
Thailand	Constitutional monarchy (King as chief of state, Prime Minister as head of government, at present provisional military government)	Unitary	None	▪ 75 Provincial Administrative organizations ▪ Bangkok Metropolitan Administration	▪ 1,129 municipalities (cities and boroughs) ▪ Pattaya City Council ▪ 7,255 Sub-district (tambon) Administrative Organizations (rural)	
Malaysia	Constitutional Monarchy (Paramount Ruler as chief of state, Prime Minister as head of government)	Federal	▪ 13 states ▪ 3 federal territories (Kuala Lumpur, Labuan, Putrajaya)	-	144 local government units (depending on population): ▪ 10 city councils, ▪ 36 municipal councils for large towns ▪ 98 district councils (areas with small urban centers)	
Pakistan	Republic, presidential government (President as chief of state, Prime Minister as head of government)	Federal	4 provinces (Punjab, Khyber Pakhtunkhwa Sindh, Balochistan) and 3 territories (Islamabad Capital Territory, Gilgit–Baltistan, Azad Kashmir)	111 district units including: ▪ City districts ▪ Large metropolitan areas ▪ Federal capital district (no self-government)	396 sub-district units: ▪ Tehsil in districts ▪ Town Municipal Administration (TMA) in city districts	6,125 union administrations
India	Parliamentary Democracy (President as chief of state, Prime Minister as head of government)	Federal	29 states and 7 union territories	*Urban areas: Single Tier: 3,694 urban municipalities *Rural areas: Single, dual, or triple tiers depending on the state, 246,977 rural councils comprising of: ▪ 459 zilla panchayats (district: third tier), ▪ 5,930 panchayat samitis (block: second tier) ▪ 240,588-gram panchayats (village: first tier)		

Note: * Autonomous areas mean a special administrative regime based on the recognition of special rights for ethnic groups

Source: Based on UNCLG (2009)

Furthermore, the proliferation of administrative units makes it possible for the government to be closer to the people and increase the quality of sustainable development (Fitri, 2008). Indonesia, along with Philippines, and Vietnam, has three-tier systems while Japan and Thailand have a two-tier, as shown in **Table 2.3**. Some federal countries, such as Malaysia, Pakistan, and India, have single, triple, and multiple subnational government layers,

respectively. The decentralization era has stimulated the proliferation of the provincial administration layer area in Indonesia from 27 to 34 provinces (BPS, 2019). Interestingly, the proliferation of local government layers in these countries is sometimes unclear and complicated with the combination of modern-traditional structure and some political purpose (UNCLG, 2009). Firman (2003) stated that the irresponsible creation of new autonomous units in Indonesia resulted in improved local government dependence on central government support. This high local dependency is related to financial and technical assistance. Therefore, the critical points in sustainable local development are dysfunctional intergovernmental arrangements and high local dependency in the size of the local government units.
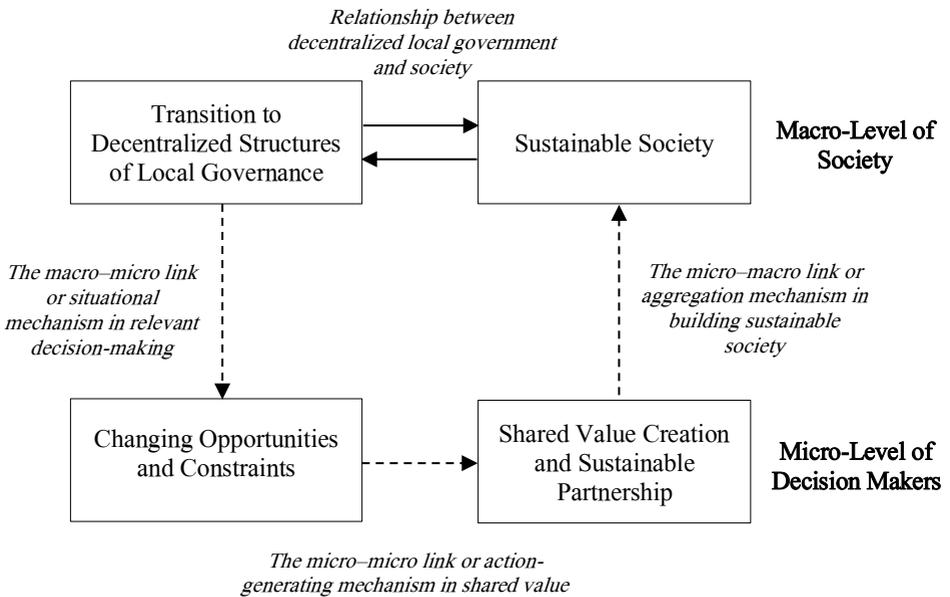
Figure 2.9. Analytical framework in the macro-micro-macro model of decentralization and sustainable local development (based on Holzhacker *et al.*, 2016)

From the perspectives of local preferences, governments try to overcome sustainable problems with the social institution mechanism (Holzhacker *et al.*, 2016). This mechanism is similar to the level of the relationship between the decentralized local government and society, as shown in **Figure 2.9**. Firstly, it changes the decentralized structure of local government at the macro level, which influences opportunities and obstacles in local

development for policymakers. Subsequently, those changes of the decentralized policy tend to induce a decision-making process at the micro-level, which is carried out by prominent stakeholders in public partnership and shared value programs. Lastly, this relationship at the micro-level contributes to building a sustainable society at the macro level.

Moreover, in the decentralization policy, change of social organization and technological capacity also influences their perception of the meaning of development patterns and approaches (Capra, 1997; Hughes, 2000). These patterns are related to the interaction between humans and their environment, with the paradigm of development shifting from the pattern of Cartesian (mechanical) to the pattern of ecological worldview (organismic). This shift needs to go hand in hand with changes in the system of local adopted values and tends to affect the transformation from 'reductionism' to 'holism' and 'linear' to 'non-linear' (Asdak, 2018). The trend of expansion tends to move towards the intensification and conservation, with the orientation of quantity converted into a perspective quality in the form of partnership. Eventually, the sustainable complex system in the decentralization policy requires the paramount importance of the interdisciplinary approach.

2.4. Research Framework

In the context of intergovernmental arrangement, Indonesia's current decentralization trajectory continues to reform various vital elements in multi-level governance structures and sustainable public cooperation. The principle of good local governance, cross-sectoral policies, long-term strategies, holistic approaches, and public partnership in the decision-making process is valuable in the legal concept of sustainable development. The attention of the relationship between local communities and the state on ways to resolve the conflict of resource accumulation is essential in sustainable development (Fine, 2009). According to SDGs 2015-2030, sustainable development needs effective, capable, accountable, and transparent public institutions at all levels (UNDP, 2015). This perspective is based on the decentralization efforts to create local governments being closer to the people. This study examines the link between policy and development, as shown in **Figure 2.10**.

This study uses the empirical data on the decentralization and sustainable development indicators in 33 provinces of Indonesia, from 1995-2017. In the first part, it developed a four-dimensional model consisting of social, economic, environmental, and institutional dimensions. This composite index determines the degree of sustainable local development in all

provinces. In the second part, the consequences of Indonesia's decentralization policy for sustainable local development indicators in all provinces were analyzed. In addition, the decentralization policy indicators were used by politically (House of Representative and local parliament), administratively (local regulation, local agency, and local government officer), fiscally (intergovernmental fiscal transfer), and economic decentralization (local own-source revenues).
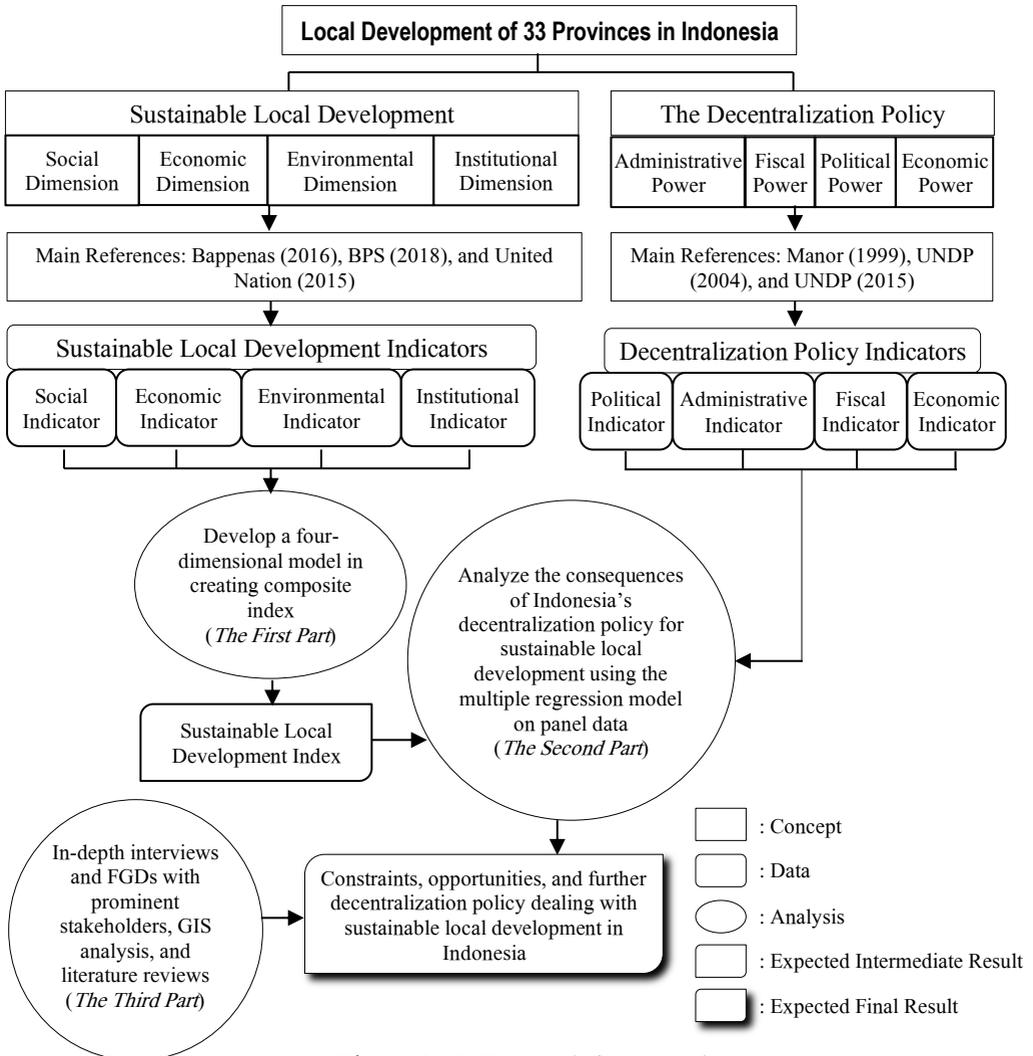
Figure 2.10. Research framework

In the third part, the research evaluated the constraints and opportunities of Indonesia's current decentralization policy. Furthermore, this study examines the policy in dealing with sustainable local development in Indonesia through in-depth interviews and FGDs with prominent stakeholders such as government, parliament, business actor, philanthropy, civil-society organization, media, academic, expert, and international organization. It also used the Geographic Information System (GIS), and literature reviews to quantitatively analyze the data. Various responses, views, inputs, suggestions, criticisms, and important recommendations from each stakeholder were used to discuss every constraint, opportunity, and decentralization policy towards sustainable local development. Quantitative and GIS analysis helps to explain the problem of sustainable local development based on decentralization policies from empirical data and spatial perspectives. The literature reviews, obtained from books, journals, newspapers, working paper, regulation, report, and thesis, tend to add and sharpen the discussion results on the qualitative, quantitative, and spatial analysis.

- Data Information
- Study Area
- Research Indicators
- Data Analysis

THREE

Chapter III
Data and Methodology

3.1. Data Information

This research used secondary data, comprising of numerical and spatial data. The numerical data were divided into two groups, including (1) sustainable development, and (2) decentralization indicators. The spatial data are the base maps for the provincial administration layer in Indonesia. All the numerical data are from some Indonesian national agencies, including (1) Central Statistics Agency (BPS), (2) Ministry of Home Affairs (Kemendagri), (3) Ministry of Finance (Kemenkeu), (4) Ministry of Health (Kemenkes), (5) Ministry of Education and Culture (Kemendikbud), (6) Ministry of Manpower (Kemenaker), (7) Ministry of Energy and Mineral Resources (Kemen ESDM), (8) Ministry of Public Works and Housing (Kemen PUPera), (9) Ministry of Environment and Forestry (Kemen LHK), (10) Ministry of Marine Affairs and Fisheries (Kemen KKP), (11) Indonesian National Police Headquarters (Mabes Polri), (12) National Civil Service Agency (BKN), and (13) General Elections Commission (KPU). Meanwhile, the spatial data are from Geospatial Information Agency (BIG).

Table 3.1. The Prominent stakeholders involved in the in-depth interviews

Group	Stakeholder
1. Central Government (CGOV)	(1). Coordinating Ministry for Economic Affairs-Kemenko Perekonomian (CGOV1). (2). Coordinating Ministry for Human Development and Cultural Affairs-Kemenko PMK (CGOV2). (3). Ministry of National Development Planning/National Development Planning Agency-Kemen PPN/ Bappenas (CGOV3). (4). Ministry of Home Affairs-Kemendagri (CGOV4). (5). Ministry of Finance-Kemenkeu (CGOV5). (6). National Secretariat of SDGs (CHOV6).
2. Local Government (LGOV)	(1). Provincial Government of DKI (LGOV1). (2). Provincial Government of Jabar (LGOV2). (3). Provincial Government of DIY (LGOV3). (4). Provincial Parliament of Jabar (LGOV4).

3. Business Actors/Entrepreneur (BA)	(1). The Indonesia Business Council for Sustainable Development-IBCSD (BA1).
	(2). Employers' Association of Indonesia-APINDO (BA2).
	(3). Indonesian Young Entrepreneurs Association-HIPMI (BA3).
4. Philanthropy (PI)	(1). Indonesia Philanthropy (PHI1).
5. Civil Society Organizations (CSO)	(1). Regional Autonomy Watch Committee-KPPOD (CSO1).
	(2). Indonesian Forum for the Environment-WALHI (CSO2).
6. Media (MED)	(1). Republika (MED1).
7. Academics (ACA)	(1). Bogor Agricultural University-IPB (ACA1).
	(2). Bandung Institute of Technology-ITB (ACA2).
	(3). University of Padjadjaran-UNPAD (ACA3).
	(4). Gadjah Mada University-UGM (ACA4).
	(5). University of Hasanuddin-UNHAS (ACA5).
8. International Organizations (IO)	(1). UNDP (IO1).
	(2). World Bank (IO2).
	(3). WWF (IO3).

The secondary data analysis is supported by the result of the in-depth interviews and FGDs with some prominent stakeholders. **Table 3.1** shows that prominent stakeholders involved in this research are divided into eight groups, including (1) Central Government, (2) Local Government, (3) Business Actors/Entrepreneur, (4) Philanthropy, (5) Civil Society Organizations, (6) Media, (7) Academics, and (8) International Organizations.

3.2. Study Area

Before the real decentralization policy applied in 1999, there were 26 first provinces in Indonesia. Eight new provinces formed in the post-decentralization policy include Malut, West Papua, Banten, Babel, Gorontalo, Kepri, Sulbar, and Kaltara (**Table 3.2**). Therefore, the total number of provinces in Indonesia is 34. However, this research is only conducted in 33 provinces (**Figure 3.1**). This is because the implementation of the governance and development process in the last established province, Kaltara, has only been carried out effectively since 2013. Therefore, data collection from the newest autonomous province, Kaltara, is limited and difficult.

Table 3.2. The proliferation of provincial administration area in the
Indonesian decentralization era

No.	Year	New Autonomous Province	Origin of Province	Capital City of Province	Legal Basis	Date of Proliferation
1.	1999	Malut (North Maluku)	Maluku	Sofifi	Law No. 46/1999	04 October 1999
2.	1999	Papua Barat (West Papua)	Papua	Manokwari	Law No. 45/1999	04 October 1999
3.	2000	Banten	Jabar (West Java)	Serang	Law No. 23/2000	17 October 2000
4.	2000	Babel (Bangka Belitung Islands)	Sumsel (South Sumatera)	Pangkal Pinang	Law No. 27/2000	21 November 2000
5.	2000	Gorontalo	Sulut (North Sulawesi)	Kota Gorontalo	Law No. 38/2000	22 December 2000
6.	2002	Kepri (Riau Islands)	Riau	Tanjung Pinang	Law No. 25/2002	25 October 2002
7.	2004	Sulbar (West Sulawesi)	Sulsel (South Sulawesi)	Mamuju	Law No. 26/2004	05 October 2004
8.	2012*	Kaltara (North Kalimantan)	Kaltim (East Kalimantan)	Tanjung Selor	Law No. 20/2012	25 October 2012

*) Governance has effectively started since 2013 and not included in this research
Source: Ministry of Home Affairs (2014)

MAP OF PROVINCES IN INDONESIA

100°0'0"E · 110°0'0"E · 120°0'0"E · 130°0'0"E

10°0'0"N

0 150 300 600 900 1,200
Km

THAILAND

VIETNAM   South China Sea   PHILIPPINES

MALAYSIA

BRUNEI

SINGAPORE   MALAYSIA

Celebes Sea

KALIMANTAN

SUMATERA

PACIFIC OCEAN

MALUKU

SULAWESI

PAPUA

INDIAN OCEAN

Java Sea

Capital City of Jakarta

JAVA

BALI - NUSA TENGGARA

Banda Sea

Arafura Sea

Geographic Coordinate System: WGS 1984

N
W   E
S

TIMOR - LESTE

Timor Sea

AUSTRALIA

Legend:

SUMATERA ISLAND
1. Aceh
2. North Sumatera (Sumut)
3. West Sumatera (Sumbar)
4. Riau
5. Jambi
6. South Sumatera (Sumsel)
7. Bengkulu
8. Lampung
9. Bangka Belitung Islands (Babel)
10. Riau Islands (Kepri)

JAVA ISLAND
11. DKI Jakarta (DKI)
12. West Java (Jabar)
13. Central Jawa (Jateng)
14. DI Yogyakarta (DIY)
15. East Java (Jatim)
16. Banten

BALI - NUSA TENGGARA ISLAND
17. Bali
18. West Nusa Tenggara (NTB)
19. East Nusa Tenggara (NTT)

KALIMANTAN ISLAND
20. West Kalimantan (Kalbar)
21. Central Kalimantan (Kalteng)
22. South Kalimantan (Kalsel)
23. East Kalimantan (Kaltim)

SULAWESI ISLAND
24. North Sulawesi (Sulut)
25. Central Sulawesi (Sulteng)
26. South Sulawesi (Sulsel)
27. Southeast Sulawesi (Sultra)
28. Gorontalo
29. West Sulawesi (Sulbar)

MALUKU ISLAND
30. Maluku
31. North Maluku (Malut)

PAPUA ISLAND
32. Papua
33. West Papua

Source: Geospatial Information Agency (BIG) - Indonesia, 2017
Created by.
Jayadi (7319237)

Figure 3.1. The study area in 33 provinces of Indonesia

3.3. Research Indicators

3.3.1. Sustainable Local Development Indicators

There are various indicators required to capture the performance of sustainable local development, including economic, social, environmental, and institutional dimensions. The selection process of the indicator is based on primary references from technical guidelines for Sustainable Development Action Plan in Bappenas (2016), indicators of sustainable development in BPS (2018), and the 2030 Agenda for SDGs in United Nations (2015). According to the complexity of sustainable development indicators and the consideration of data availability, several indicators offered on the references are used to measure the performance (**Table 3.3**).

Table 3.3. The selected indicators of sustainable local development in Indonesia

No.	Dimension	SDGs		Target	Indicator
1.	Social	**Goal 1**: No poverty	1.1.	"By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day".	▪ The Percentage of Poor People by Province
		Goal 3: Good Health and Well-Being	3.2.	"By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births".	▪ The Estimate of Infant Mortality Rate (IMR) Per 1,000 Live Births by Province ▪ The Estimate of Life Expectancy (e_0) by Province
			3.3.	"By 2030, end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, waterborne diseases, and other	▪ The Annual Malaria Incidence Per 1,000 People by Province

No.	Dimension	SDGs		Target	Indicator
				communicable diseases".	
		Goal 4: Quality Education	4.1.	"By 2030, ensure that all girls and boys complete free, equitable, and quality primary and secondary education leading to relevant and effective learning outcomes".	▪ The Net Enrolment Ratio (NER) from Primary Education (Junior High School) by Province
			4.6.	"By 2030, ensure that all youth and adults, both men and women, reach a proficiency level in literacy and numeracy sufficient to fully participate in society".	▪ The Literacy Rate of Population Aged 15 Years and Over by Province
		Goal 6: Clean Water and Sanitation	6.1.	"By 2030, achieve universal and equitable access to safe and affordable drinking water for all".	▪ The Percentage of Households with Access to Clean Drinking Water by Province
			6.2.	"By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations".	▪ The Percentage of Households with Proper Sanitation by Province
2.	Economy	**Goal 7**: Affordable and Clean Energy	7.1.	"By 2030, ensure universal access to affordable, reliable, and modern energy services".	▪ The Electrification Ratio of Household Customers Who Have a Source of Electricity by Province
		Goal 8: Decent Work and Economic Growth	8.1.	"Sustain per capita economic growth in accordance with national circumstances and in particular, at least 7% per annum Gross Domestic Product (GDP) growth in the least-	▪ The Growth of GRDP in Percent by Province

No.	Dimension	SDGs	Target		Indicator
				developed countries".	
			8.5.	"By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value".	▪ The Unemployment Rate (UR) in Percent by Province
		Goal 9: Industry, Innovation, and Infrastructure	9.c.	"Significantly increase access to ICT and strive to provide universal and affordable access to the internet in LDCs by 2020".	▪ The Percentage of Households with Access to the Internet in the Last Three Months by Province ▪ The Percentage of Households Having Cellular Phone by Province
		Goal 10: Reduced Inequalities	10.1.	"By 2030 progressively achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average".	▪ The Gini Ratio by Province
		Goal 11: Sustainable Cities and Communities	11.1.	"By 2030, ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums".	▪ The Percentage of Slum Households by Province
		Goal 12: Responsible Consumption and Production	12.2.	"By 2030, achieve sustainable management and efficient use of natural resources".	▪ The Percentage of Households Using Source of Lighting from Electricity (without Oil Lamp) by Province
3.	Environment	**Goal 11**: Sustainable Cities and Communities	11.5.	"By 2030, substantially reduce the number of deaths, the number of affected people, and the direct economic losses relative to the global gross domestic product caused by disasters, including water-related disasters, with a	▪ The Ratio of Natural Disaster Victims Died per 1000 People by Province

No.	Dimension	SDGs	Target	Indicator
			focus on protecting the poor and people in vulnerable situations, including through humanitarian assistance".	
		Goal 13: Climate Action	13.1. "Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries."	▪ The Estimate of CO_2 Emissions from Motorized Vehicles in Tonnes by Province
		Goal 14: Life below Water	14.5. "By 2030, conserve at least 10 percent of coastal and marine areas, consistent with national and international law, and based on the best available scientific information".	▪ The Ratio of Marine Conservation Area (Natural Conservation, Wildlife Conservation, Recreation Park, and National Park) in Km^2 per 1000 Km^2 by Province
		Goal 15: Life on Land	15.1. "Ensure the conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystems and their services by 2020, in particular forests, wetlands, mountains, and drylands, in line with obligations under international agreements, and take further action as needed by 2030".	▪ The Ratio of Protected Forest Area in Km^2 per 1000 Km^2 by Province ▪ The Ratio of Reforested Area in Km^2 per 1000 Km^2 by Province ▪ The Ratio of Land Conservation Area (Sanctuary Reserve and Natural Conservation) in Km^2 per 1000 Km^2 by Province
4.	Institution	Goal 16: Peace, Justice, and Strong Institutions	16.1. "Significantly reduce all forms of violence and related death rates everywhere."	▪ The Ratio of Homicide Cases in the Regional Police Office per 10,000 People by Province
			16.5. "Substantially reduce corruption and bribery in all its forms."	▪ The Ratio of Corruption Cases Solved in the Regional Police Office per 1000 Provincial Government Officer by Province

No.	Dimension	SDGs	Target	Indicator
		Goal 17: Partnerships for the Goals	17.1. "Strengthen domestic resource mobilization, including through international support to developing countries to improve domestic capacity for tax and other revenue collection."	▪ The Percentage of Provincial Budget for the Social Sector by Province ▪ The Percentage of Provincial Budget for the Economic Sector by Province ▪ The Percentage of Provincial Budget for the Environmental Sector by Province ▪ The Percentage of Provincial Budget for the Institutional Sector by Province

3.3.2. The Limitation of Sustainable Local Development Indicators

Indicators for measuring sustainable development targets are continuously multifaceted, interdependent, and dynamic throughout the year (Tajvidi *et al.*, 2019). In SDGs, there are 17 goals and 169 targets for sustainable development (Dugarova and Gülasan, 2017; United Nations, 2015). The results of the mapping of indicators showed that 323 and 220 national and international indicators are relevant and can be used to measure the achievement of all 169-SDGs targets (Bappenas, 2016; UNDP, 2015). However, mapping showed that only 67.8% of national indicators are considered ready for use in the period 2015-2030 based on the availability of data, the readiness of method for calculation, and the adaptability without significant adjustment (UNDP, 2015).

The availability of data for time-based and local analysis in Indonesia is a major obstacle for comprehensive sustainable research. Generally, the limitation of selecting sustainable indicators is caused by various problems, such as the availability of appropriate, quality, and short data series. Indicators in the social-economic dimension are quite robust and available in national agencies, such as BPS and Bappenas. However, the collection of indicators in the environmental-institutional dimension is difficult. The problems of data availability are more specific and severe in Indonesia. Unavailable indicators are related to the sensitive issues of environmental degradation and institutional crime. Therefore, more efforts are needed to conduct the measurements. Also, some indicators are still being developed based on the ratification of international policies, such as climate change, disaster mitigation, biodiversity, human rights, civil liberties, local democracy, peace, and inclusive development (Bappenas, 2017b).

In the social dimension, the percentage of poor people by province is used to monitor poverty levels to meet the sustainable development agenda of creating a world without poverty (UNDP, 2015). The extreme poverty in Indonesia is measured using the proportion of people living below the international poverty line. The percentage of poor people is defined as the population living on less than $ 1.90 per day at global prices (BPS, 2018c). In Indonesia, this minimum cost of living is converted to the value of least food needs which are equal to 2100 kilocalories per capita per day from 52 types of commodities (grains, tubers, fish, meat, eggs and milk, vegetables, nuts, fruits, oils, and fats). Also, non-food needs are essential and include housing, clothing, education, and health from 51 types of commodities in urban areas and 47 in rural areas (BPS, 2017c).

SDGs have a target of ensuring a healthy life for all children and ending the epidemics of diseases (UNDP, 2015). It is expected that by 2030, newborn and toddler mortality rates would have been reduced. Health matters for children, such as the status of stunting, malnutrition, and mortality rate, are appropriate indicators for the achievement of sustainable developments (BPS, 2018e). By 2030, Indonesia has to end the epidemics such as AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, waterborne diseases, and other infectious diseases. Nonetheless, only the data availability on Infant Mortality Rate (IMR), life expectancy, and annual malaria incidence for 23 years (1995-2017) are compiled in this research.

The IMR is the ratio of children dying at the age of less than one year per 1,000 live births in every province. It is an important indicator used to determine the achievement of welfare based on SDGs (BPS, 2019). In the third goal of SDGs, all countries in the world are expected to reduce neonatal mortality to at least 12 per 1,000 live births (UNDP, 2015). Also, this indicator is used to determine the target of the National Medium-Term Development Plan (RPJMN) 2015-2019 in Indonesia, which aimed at 24 deaths per 1000 live births in 2019 (BPS, 2018c).

The estimate of life expectancy is the number of years a person is likely to live in case the prevailing pattern of mortality at the time of birth remained stable throughout its life (BPS, 2017b). The calculation of this indicator is based on the population history and the conditions of Indonesia and Southeast Asian countries. The minimum-maximum values of life expectancy, according to UNDP standards, are 85 and 20 years (Preston, 2004 in BPS, 2017a). In this study, the indicator of annual malaria incidence measures the morbidity rate for every 1,000 people at risk in one year. Indonesia has a high number of morbidity and mortality due to malaria (BPS, 2018b). The climate

condition and environmental factors support Anopheles mosquitoes as carriers of malaria to reproduce. Therefore, the purpose of this indicator is essential in monitoring the level of malaria transmission in all provinces more effectively and efficiently.

The quality of education is also a crucial aspect of sustainable development (UNDP, 2015). Indonesia has implemented the fourth goal of SDGs to ensure citizens have the same right to access education, both men and women (BPS, 2018b). Many education indicators are related to sustainable development, including enrollment ratio, school participation and literacy rate, the minimum standard of a qualified teacher, and education facilities. Moreover, Net Enrollment Rate (NER) and illiteracy rate are good indicators that form part of priority educational programs in Indonesia. Data for both indicators are available for the long-time analysis.

The NER from primary education is the proportion of youngsters in junior high school still attending school to all children in that age group (BPS, 2018b). In Indonesia, the NER shows how many school-age populations take advantage of educational facilities following their level of primary education. In this study, the choice of the NER is based on the 'Nine Year Basic Education Program,' as stated by President Suharto on 2 May 1994, extending compulsory education to the 13- to 15-year-old population in junior high school (BPS, 2017b).

The literacy rate is the proportion of the population aged 15 years and above that can read and write Latin letters (BPS, 2018c). It is a primary indicator used to determine the educational achievements in the local area since reading is the basis for gaining knowledge. By knowing literacy rates, the absorption and openness of the locals are to new information and knowledge can be determined. The illiteracy alleviation program is still a priority of the Government of Indonesia, especially for local areas with high illiteracy rates, remote indigenous communities, and other disadvantaged areas.

Clean drinking water and proper sanitation are also essential targets in sustainable development. The target of SDGs in 2030 is to achieve universal, adequate hygiene, and equitable access to safe and affordable drinking water as well as proper sanitation for all (UNDP, 2015). The percentages of households with access to clean drinking water and proper sanitation are used to measure the proportion of urban and rural populations that access basic services for safe and affordable drinking water as well as proper sanitation (BPS, 2018c). The source of clean drinking water in Indonesia include pipe retail payment/pipe water, rainwater, and protected pump/well /spring with the distance to the septic tank larger than 10 m. Likewise, proper sanitation

is related to the use of facilities that meet health requirements, including toilets septic tanks or Wastewater Treatment Systems (SPAL), by households.

In the economic dimension, energy, as a basic need, such as electricity, need to spread throughout all the communities. Indonesia's large population requires abundant, reliable, and sustainable electricity. One indicator often used in providing affordable and clean energy is the electrification ratio. This is a comparison of the number of household customers with a source of electricity, either from the Indonesian State Electricity Company (PLN) or non-state companies (BPS, 2018c). However, the ratio does not involve sources based on fossil (coal and gas) and renewable energy (hydropower, geothermal, solar cells, biomass, and biofuels). The potentials for renewable energy, such as hydropower, geothermal, solar power, wind power, and biomass, are quite adequate and widespread throughout Indonesia (Lubis, 2007). Nonetheless, the use of renewable energy is still relatively limited. The reasons are due to the high investment costs, bureaucracy, incentives or subsidies, higher selling price, and lack of knowledge in adopting clean energy facilities (Akbar, 2017).

The eighth goal of SDGs offer opportunities for Indonesia to increase production and facilitate cooperation with other countries in building the pattern of more inclusive-green growth and providing decent work for all people (UNDP, 2015). Therefore, data on inclusive and green economic growth are crucial in sustainable development studies. Growth is not only based on economic and institutional dimensions. The social dimension of inclusiveness and the environment are also essential. Due to data limitations, the indicator used in this research is only the growth of GRDP. It is the growth rate of gross regional domestic product at constant market price 2010 by expenditure approach in consumer, investor, and government spending, export, and import (BPS, 2019).

Indicators representing the decent work, such as the average of net income per month of the worker, the average working hours, the unemployment rate, and the welfare index of the worker, are limited in Indonesia. Due to data unavailability, the indicator used in this research is only the unemployment rate by province. This is the percentage of unemployment to the number of all labor forces aged 15 years and above. Unemployment is defined as people in the province not working or actively looking for work, already have jobs but have not started working, or still preparing a business (BPS, 2019; Suryadarma *et al.*, 2005).

The ninth goal of SDGs contains three crucial aspects of sustainable development, including infrastructure, industrialization, and innovation (UNDP, 2015). Infrastructure provides necessary physical facilities that are essential for business and society. Industrialization encourages economic growth and job creation to reduce income inequality. Innovation may expand the technological capabilities of the industrial sector and lead to the development of new skills (BPS, 2018c). In this study, indicators of infrastructure, innovation, and industry, such as the index of infrastructure quality, the proportion of skilled labor in the manufacturing industry, the fraction of added value from small-medium industry to big-manufacturing industry, the ratio of innovation to the labor force and production, and the access of people to the ICT, are hardly accessed in Indonesia. Therefore, this research only uses the percentage of households with access to ICT on the internet and cellular phone. The indicators are used as a proxy for the affordability and the use of ICT to measure the development of digital society as a symbol of technological-scientific transformation (BPS, 2018c). From these indicators, the community positively utilizes the ICT for the development of small-medium to large industries, create various innovations, and help the dissemination of community-based sustainability programs.

The regional disparity in sustainability issues can not only be measured through income inequality. The disparity can be in the form of discrimination in sex, age, disability, sexual orientation, race, class, ethnicity, religion, and opportunities to develop in all regions (UNDP, 2015). Therefore, indicators, such as the index of civil liberties, the ratio of human rights violations to the population, the proportion of wages and social protection, and income inequity, are essential and should be included in the inequality analysis. The regional disparity threatens social and economic development in the long run and disrupts efforts to reduce poverty. If this disparity continues, it might induce crime, increase the spread of diseases, and cause environmental damage (BPS, 2018c).

According to the data available, only income inequality is measured in this study. Although the use of the Gini ratio is relatively weak, utilizing it with the income inequality analysis helps to examine the inclusive economic-social growth in the sustainability issue. Sustainable development needs to ensure the availability of equal opportunities and reduce income inequality (BPS, 2018c). The Gini ratio measures the income distribution among people of the equal-perfect distribution using the Lorenz Curve analysis. This curve plots the cumulative percentage of total income received against the number of people, starting with the poorest person (OECD, 2016).

More than half of all Indonesians live in urban areas. In 2030, it is projected that more than 60 % of the population might be living in urban areas (BPS, 2018c). This leads to many planning challenges because cities offer economies of scale at various levels, threats to environmental quality, natural resources management, and public service performance (Cobbinah *et al.*, 2015; Dawood, 2019; Quan, 2019). According to information-risk planning and management, cities can be incubators for innovation, growth, and drivers of sustainable development (BPS, 2018c). Therefore, indicators, such as the percentage of slum households, areas with the best service standards, and habitable areas, the index of disaster risk, and environmental quality are essential. However, some of the indicators are difficult to obtain for long-time series analysis.

This research only uses the percentage of slum households and the number of natural disaster victims to measure the quality of sustainable cities and communities. The indicator of slum households remains a development problem in Indonesia. This indicator uses composite index from slum households' settlements based on primary material of dwelling floor from the soil, main roof material from sugar palm/other traditional substances, and outer wall primary material from bamboo. Likewise, the indicator of natural disaster victims is a proxy to monitor the ratio of victims affected by disasters over time to evaluate the achievements of policies and strategies for disaster risk reduction (BPS, 2018c). However, this indicator is relatively weak. The number of disaster victims is not only related to the achievements of risk management or government initiatives but also depends on natural conditions that cannot be changed, such as earthquakes, volcanic eruptions, storm, and tsunami.

In the 12th goal of SDGs, irresponsible patterns of production and consumption increase environmental problems (UNDP, 2015). Commitment to change is needed for producers and consumers through the efficient use of resources, being environmentally friendly, and sustainable. Therefore, several indicators, such as the material footprint, the domestic material consumption, the percentage of hazardous waste, the level of waste recycling, and the proportion of environmentally friendly products, need to be analyzed. However, this research only uses the percentage of households with lighting from electricity for sustainable consumption analysis. This is because of the challenge of data availability for long-time series analysis. The source of lighting from electricity is a proxy to measure the quality of sustainable consumption from clean energy. Although the use of electricity is common for lighting, the direct utilization of fossil energy (kerosene, gas) is still prevalent in Indonesia (BPS, 2018c). Many poor people in disadvantage-

remote areas still use non-electricity lightings, such as pumped/'Aladin' lamp (kerosene, gas) and 'pelita/sentir (kerosene).

In the environmental dimension, climate change is also a substantial issue in sustainable development. It has a far-reaching negative impact on human life, such as lack of clean drinking water, poor air quality, health problems, damaged ecosystems, environmental degradation, and disasters (Bappenas, 2014). Climate change occurs globally, and Indonesia is no exception. Therefore, the government anticipates it through the National Action Plan for Reducing Greenhouse Gas Emissions (RAN-GRK) in 2010-2020 and the Action Plan for SDGs 2015-2030. The RAN-GRK is the implementation of various activities that directly and indirectly reduce greenhouse gas emissions by national development targets. One of its focuses is the reduction of CO_2 emissions in the atmosphere. Likewise, there is a need to target CO_2 emission reduction by about 26% in the Action Plan for SDGs 2015-2030 (Bappenas, 2017b). Many sources affect greenhouse gas emissions from CO_2, such as peatlands, forest fires, agriculture, energy and transportation, and industrial waste (BPS, 2018c). However, due to data limitations, this research only uses the indicator of CO_2 emission from motorized vehicles by province.

Also, preserving coastal and marine conservation is essential for maintaining the conservancy of marine resources and biodiversity in sustainable development (UNDP, 2015). Therefore, indicators of marine pollution and floating plastic waste, phytoplankton biomass indicators, the percentage of compliance of marine business operators, the ratio of ease of access to funding for fishing businesses are essential (BPS, 2018c). Nonetheless, marine indicators in the long-time series are measured by international agencies at large scales, such as the regional-country level. A more detail scale of marine indicators is commonly not available in the national statistical publication. Therefore, this research only uses the indicator of marine conservation areas (natural and wildlife conservation, Recreation Park, and national park) by province for long-term analysis. The indicator is relatively weak because the measurement only looks at the preservation of the quantity aspect. Also, the marine conservation indicator depends on the natural conditions of provinces that cannot be changed, such as the length of the coastline, climate condition, waves, tides, and current. However, this indicator is vital for capturing the primary condition of the existing marine conservation area beyond the more specific process of conservation in Indonesia.

Future development is also expected to preserve, restore, and utilize land ecosystems in a sustainable manner (UNDP, 2015). Some crucial indicators, such as the proportion of the protected forest area, the ratio of the land conservation area, the rate of degraded land, the value of biodiversity use, and the percentage of illegal logging are critical in the sustainable land analysis (BPS, 2018c). Many conservation and environmental indicators are difficult to find in secondary data sources over a long period. For instance, some typical and dependable indicators of land conservation have been effectively developed since 2010. Therefore, this research only uses the indicator of protection forest, reforested, and land conservation areas (sanctuary reserve and natural conservation). Protected forest and land conservation indicators are considered weak. They depend on the province's natural conditions that cannot be changed, such as geomorphological features, climate conditions, altitude, and soil type. Nevertheless, this indicator is considered critical in capturing the main conditions of terrestrial conservation areas, especially from deforestation and degradation issues.

In the institutional dimension, the 16th goal of SDGs involves creating an inclusive and peaceful society through justice for all and effective and accountable institutions (UNDP, 2015). Therefore, the world needs to fight homicide, corruption, violence against children, human trafficking, and sexual abuse, and build good institutional governance. Various indicators, such as the number of homicide cases, the proportion of the population that experienced criminal cases, the percentage of children that encountered physical violence, the prevalence of sexual violence against children and women, the ratio of victims of human trafficking, and the indexes of anti-corruption behavior, quality of governance, and local democracy are essential (BPS, 2018c). Nevertheless, most of the indicators are not available in statistical publications. The Indonesian government has not yet developed a survey to measure these unavailable indicators. Therefore, this research only uses the indicator of homicide and corruption cases.

Moreover, the 17th goal of SDGs is to strengthen program implementation through the domestic mobilization of government resources with the support of public partnership (UNDP, 2015). Domestic resource mobilization in the province uses the government budget as a catalyst for sustainable development in the local area (BPS, 2018c). For this reason, local finance and partnerships are essential indicators for supporting sustainability in the institutional dimension. However, due to limited data in public partnership, this research only uses the indicator of local finance in the provincial budget with four development sectors, such as the social (culture, social welfare, sport, and gender empowerment), economic (industry, agriculture,

manufacture, trade, finance, transportation, mining, and energy), environmental (environment, forest, and spatial planning), and the institutional aspects (institution, security, and public order).

3.3.3. Decentralization Policy Indicators

The selection process of the decentralization policy indicator is conducted using main references of decentralization and sustainable local development from Manor (1999), UNDP (2004), and UNDP (2015). The decentralization policy indicators comprise four aspects, including (1) political (the percentage of female parliament member), (2) administrative (administrative government tier, local regulation, a local agency, and local government officer), (3) fiscal (intergovernmental fiscal transfer), and (4) economic (local own-source revenue) decentralization. The data availability has also been considered for selecting decentralization policy indicators (**Table 3.4**).

Table 3.4. The selected indicators of decentralization policy in Indonesia

No.	Aspect	Indicator	Unit	Note
1.	Political Decentralization	▪ The Percentage of Females as House of Representatives Members in the Central Government by Province	▪ %	▪ Based on Indonesia General Election in 1992, 1997, 1999, 2004, 2009, and 2014
		▪ The Percentage of Females as Local Parliament Members by Province	▪ %	▪ Based on Indonesian General Election in 1992, 1997, 1999, 2004, 2009, and 2014
2.	Administrative Decentralization	▪ The Ratio of District (Kabupaten)/City (Kota) per Million People by Province	▪ Ratio	▪ All of the districts in Indonesia are called 'Kabupaten.' Meanwhile, all of the cities in Indonesia are called 'Kota.' Both of them are the second level of the local administration unit in Indonesia.
		▪ The Ratio of Sub-District (Kecamatan) per Million People by Province	▪ Ratio	▪ The majority of sub-districts in Indonesia are called 'Kecamatan.' Only in Papua and Papua Barat, a sub-district is called 'Distrik.' The sub-district is the third level of the local administration unit in Indonesia. The sub-district also is a local institution below the district/city's authority for conducting general government affairs

				and the function of public services in villages.
		▪ The Ratio of Local Regulation (Peraturan Daerah) per Million People by Province	▪ Ratio	▪ In some provinces in Indonesia, local regulation is called as `Qanun Aceh` (Aceh), `Perdasus` (between local government and Assembly of Papua/ Papua Barat People), `Perdasi` (between local government and local parliament of Papua/ Papua Barat).
		▪ The Ratio of Local Agency per Million People by Province	▪ Ratio	▪ The local agency is calculated from the number of Secretariats, Inspectorates, Departments, and Agencies/Offices.
		▪ The Ratio of Local Government Officer per 1000 People by Province	▪ Ratio	▪ The local government officer is only a civil servant from the local government.
3.	Fiscal Decentralization	▪ The Ratio of Natural Resources Revenue Sharing (DBH SDA) in Billion Rupiah per Million People by Province	▪ Ratio	▪ DBH SDA is calculated from the revenues in crude oil, natural gas, general mining, geothermal, forestry products, and fishery products.
		▪ The Ratio of Tax Revenue Sharing (DBH Pajak) in Billion Rupiah per Million People by Province	▪ Ratio	▪ DBH Pajak is calculated from the revenues in Personal Income Tax (PPh), Land and Building Tax (PBB), Acquisition Duty of Right on Land and Building (BPHTB).
		▪ The Ratio of General Allocation Fund (DAU) in Billion Rupiah per Million People by Province	▪ Ratio	▪ DAU is sourced from the state budget revenues allocated to bring equality inter-regional financial ability and to fund the needs of the region in the implementation of decentralization. It is based on the measurement of expenditure needs and fiscal capacities in local governments.
		▪ The Ratio of Special Allocation Fund (DAK) in Billion Rupiah per Million People by Province	▪ Ratio	▪ DAK is sourced from the state budget revenues and is allocated to a particular local area to help to fund specific activities that are under the authority of local government affairs.
4.	Economic Decentralization	▪ The Ratio of Local Own-Source Revenues (PAD) in Billion Rupiah per	▪ Ratio	▪ PAD is sourced from local tax and retributions, separated regional wealth management

Million People by Province	(net income from regional owned enterprises), and other legitimate income (tax penalty income, retribution fines income, current account service).

3.3.4. The Limitation of Decentralization Policy Indicators

The limitations of decentralization policy indicators are relatively similar to sustainable local development and relate to the availability of appropriate and short data series. In the political aspect, good indicators, such as the index of local democracy, the quality of voters and political parties, the ratio of democratic institutions, the percentage of political participation, and the index of press freedom are essential in the political decentralization analysis (BPS, 2018d).

The Rio Earth Summit in 1992 acknowledged the critical role of women in sustainable issues (United Nations, 1992). Although political leadership roles have converted more androgynous, patriarchal hierarchies still hinder women from their roles in sustainable development (Shinbrot *et al.*, 2019). The 5th goal of SDGs stated that "sustainable development has to end all forms of discrimination against all women and girls everywhere." Even the target 5.5 of SDGs showed that sustainable development needs to ensure women have full and active participation and equal opportunities for leadership at all levels of decision-making in political and public life (UNDP, 2015). Women in Indonesia have experienced some forms of discrimination in political participation, money-making jobs, and opportunity discrimination (Prihatini, 2017). Therefore, the sustainable development agenda needs to continue to empower potential women in the public sectors. Likewise, the government requires political parties to meet the minimum quota of 30% of their female candidates during general elections (Law No.2/2008). Therefore, this research selects the percentage of females as parliament members in the political decentralization indicators.

The implementation of the decentralization policy also has brought a variety of tasks and authorities to local governments. As the delegation of essential public responsibilities and resources to local authorities, it is intended to bring better changes in sustainable local development (Romeso in Said, 2010). With sufficient authority, local governments are expected to be more creative in creating advantages and incentives for development. Therefore, some essential elements for administrative decentralization, such as adequate authority, regulations, institutions, personnel, finance, representation, and services, are necessary (Suwandi, 2004). Moreover, a multi-tier decentralized

government is also a potential determinant of the quality of local development (Treisman, 2007). Fitri (2008) and White (2011) argued that that the proliferation of administrative units makes the government closer to the people and increase the quality of sustainable development.

The local governments that are closer to the community and have greater authority enable the devolution process to minimize the amount of time and distance of interaction with the community (Sutiyo and Maharjan, 2017; White, 2011). In turn, local governments are aware of the local preferences and achievement targets in allocating public goods and services. Hence, they are expected to have more contributions through their administrative capacities and authorities in sustainable development (Spangenberg, 2002). Similarly, the 16th goal of SDGs in target 16.6 stated that "sustainable development needs to develop effective, capable, accountable, and transparent public institutions at all levels" (UNDP, 2015). Therefore, this research needs to examine each capacity of local governments in empowering their administrative unit, regulation, agency, and government officer to achieve sustainable development.

The limitation of administrative indicators involves a considerable size effect because most of the indicators are in the absolute number. This may lead to distortion of the result of the regression analysis. Therefore, all administrative indicators are transformed into the ratio of indicator per population. The control of this effect also depends on objective arguments in the analysis. Some argumentative discussion of the results should be based on some previous empirical research, theories, and prominent stakeholder's judgments from in-depth interviews and FGDs. This research also aims to establish reasonable and empirical reasons to explain how the size of the effect is not a single factor that influences sustainable development. In the number of government tiers, it is assumed that a more significant local area and population needs greater administrative jurisdictions. However, the size of administrative jurisdiction is sometimes more driven by political interests than the administrative size of scale analysis in Indonesia (Fitrani *et al.*, 2005; Nasution, 2016; USAID, 2006). For example, the Province of Papua Barat (102,955 km2) has only 1,825 villages compared to Lampung (34,624 km2), which has 2,643 villages. Likewise, DIY (3.8 million people) has only 438 villages compared to Papua (3.3 million people), which has 5,317 villages (BPS, 2019).

Fiscal decentralization is an essential part of transfer mechanisms to mobilize local revenues and the financial gap of local governments. This mechanism of intergovernmental fiscal transfer is also claimed to be essential in utilizing

more considerable local resources for local needs because it encourages greater accountability of public institutions (Hadiz R., 2004). According to Litvack *et al.* (2000) and Platteau (2009), local fiscal authority needs to ensure there is public service provision based on local preferences, government responsibilities, political will, and strong fiscal capacities. Moreover, new public management related to mobilization and utilization of resources is key to sustainable development (Wardhani, 2017). More fiscal transfers provide a larger local financial space. The efforts of local governments to determine sustainable programs based on fiscal capacity and finances need to be more optimal. Likewise, the 17th goal of SDGs in target 17.1 stated that "sustainable development needs to strengthen domestic resource mobilization to improve local capacity for tax and other revenue collection" (UNDP, 2015). Consequently, this research selects four forms of intergovernmental fiscal transfers, including DBH SDA, DBH Pajak, DAU, and DAK, in examining the relationship between decentralization fiscal policy and sustainable local development.

In the economic decentralization, Oates (1999) stated that one of the initial capitals to finance local capabilities in decentralization economic policy was through the PAD. According to Bird & Vaillancourt (2008), the role of local revenues was ideal in financing public services and economic activities that principally benefited local development. The PAD is sourced from local tax and retributions, separated regional wealth management (net income from regional owned enterprises), and other legitimate incomes (tax penalty income, retribution fines income, and current account service). The PAD is similar to the function of fiscal transfers, though it is sourced from local revenue rather than the central government. Nevertheless, an increase of the PAD also provides larger local fiscal space like a transfer. This assumption is also in line with the 17th goal of SDGs in target 17.1 about local fiscal capacities (UNDP, 2015). Accordingly, the larger PAD is expected to have a positive impact on financing various sustainable development programs. Therefore, this research chooses the PAD as the economic decentralization indicator.

3.4. Data Analysis

3.4.1. Quantitative Data Analysis

In this research, there are two methodologies in the quantitative data analysis including (1) The four-dimensional model on composite index analysis to determine the degree of sustainable local development in Indonesia, and (2) The multiple regression model on panel data analysis to examine the

relationship between decentralization policy indicators and sustainable development index of all provinces in Indonesia. The analysis used an annual panel data set consisting of 33 Provinces in Indonesia for the period 1995-2017.

3.4.1.1. Four-Dimensional Model on Composite Index Analysis

The four-dimensional model on composite index analysis is used to determine the degree of sustainable local development. It is formed by creating composite indexes in four dimensions, including economic, social, environmental, and institutional. The composite index used in this analysis is defined as an indicator collection or a sub-indicator without a unit of measurement. Each composite index can be considered a model, and its compilation should follow the specific sequence. In general, the sequence of creating the composite index of sustainable local development is based on the technique of composite index composition in Kondyli (2010), OECD (2008), Oxtavianus (2014), and Saisana & Tarantola (2002). The entire stage of composite index formation consists of seven steps as follows

(1). *Construction of a theoretical framework.* In providing the base of selection, a theoretical framework is necessary to select single indicators for the composite index. The theoretical framework needs to be accurately analyzed to determine the theme of research and the indicators to be measured.

(2). *Identification of indicators.* The indicators used in the composite index should be selected based on reliability, availability, spatial coverage, and relevance. The use of proxy indicators needs to be considered when data are difficult to obtain.

(3). *Imputation of missing data.* Some missing data for new autonomous provinces during the pre-proliferation process, such as North Maluku, West Barat, Banten, Bangka Belitung Islands, Gorontalo, Riau Islands, and West Sulawesi are completed by existing data from each origin of the province.

(4). *Normalization of data.* The normalization process is needed to standardize all different units of data into the same size for creating the composite index to produce a comparable indicator value. In this research, the normalization uses the maximum-minimum formula. The determination of maximum-minimum value is based on the criteria shown in **Table 3.5**. The final value of the normalization process is 0 - 100. The normalization formula is as follows

$$Q_n = \frac{(Q_i - Q_{min})}{Q_{max} - Q_{min}} \; x \; 100 \; (for \; positive \; correlation \; in \; sustainable \; development)$$

$$Q_n = 100 - \frac{(Q_i - Q_{min})}{Q_{max} - Q_{min}} \; x \; 100 \; (for \; negative \; correlation \; in \; sustainable \; development)$$

(1)

Where:

Q_n : Normalized value of the indicator
Q_i : Observed value of the indicator
Q_{max} : Maximum value of the indicator
Q_{min} : Minimum value of the indicator

Table 3.5. The criteria for determining the maximum-minimum value of sustainable local development indicator in the normalization process

No.	Dimension	Indicator (Correlation with SLDI) *	Max. Value	Min. Value	Note (References)
1.	Social	▪ The Percentage of Poor People by Province (-)	▪ 100%	▪ 0%	▪ Based on SDGs 2015-2030, Goal 1: No poverty (UNDP, 2015).
		▪ The Estimate of IMR per 1,000 Live Births by Province (-)	▪ 1000	▪ ≤ 12	▪ Based on SDGs 2015-2030 Goal 3: Good Health and Well-Being, especially in Target 3.2. "By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births" (UNDP, 2015). ▪ The Estimate of IMR in the target of the national medium-term planning 2015 - 2019 is 24 per 1,000 live births. However, in its development, several provinces, such as DKI Jakarta and DI Yogyakarta, have achieved the estimate of IMR in 8 – 9 per 1,000 live births (BPS, 2018c).
		▪ The Estimate of Life Expectancy (e_0) by Province (+)	▪ 85	▪ 20	▪ Based on the target of the Human Development Index in Indonesia, 2017 (BPS, 2017b).

No.	Dimension	Indicator (Correlation with SLDI) *	Max. Value	Min. Value	Note (References)
		▪ The Annual Malaria Incidence per 1,000 People by Province (-)	▪ 1000	▪ 0	▪ Based on the Decree of the Ministry of Health No. 293/ 2009 on Elimination of Malaria in Indonesia. This decree stated that the implementation of the malaria elimination program in Indonesia must be achieved in the whole of Indonesia people is free from malaria in 2030 (Ministry of Health, 2018). ▪ Based on SDGs 2015-2030 Goal 3: Good Health and Well-Being, especially in Target 3.3. "By 2030, end the epidemics of malaria" (UNDP, 2015).
		▪ The NER from Primary Education (Junior High School) by Province (+)	▪ 100%	▪ 0%	▪ Based on the Nine Year Basic Education Program, as proclaimed by President Suharto on 2 May 1994, extending compulsory education to the 13- to 15-year-old population in Junior High School (BPS, 2017b). ▪ Based on the target of NER for 100% in the Action Plan for SDGs 2015-2030 in Indonesia (Bappenas, 2017b).
		▪ The Literacy Rate of Population Aged 15 Years and Over by Province (+)	▪ 100%	▪ 0%	▪ Based on SDGs 2015-2030 Goal 4: Quality Education, especially in Target 4.6. "By 2030, ensure that all youth and adults, both men and women, reach a proficiency level in literacy rate" (UNDP, 2015). ▪ The Indonesian government continues to eliminate illiteracy in all regions of Indonesia with literacy programs focused on the remote, disadvantaged, frontier, and outermost indigenous communities (BPS, 2018c).
		▪ The Percentage of Households with Access to Clean	▪ 100%	▪ 0%	▪ Based on SDGs 2015-2030 Goal 6: Clean Water and Sanitation, especially in

No.	Dimension	Indicator (Correlation with SLDI) *	Max. Value	Min. Value	Note (References)
		Drinking Water by Province (+)			Target 6.1. "By 2030, achieve universal and equitable access to safe and affordable drinking water for all" (UNDP, 2015).
		▪ The Percentage of Households with Appropriate Sanitation by Province (+)	▪ 100%	▪ 0%	▪ Based on SDGs 2015-2030 Goal 6: Clean Water and Sanitation, especially in Target 6.2. "By 2030, achieve access to adequate and equitable sanitation and hygiene for all" (UNDP, 2015).
2.	Economy	▪ The Electrification Ratio of Household Customers Who Have a Source of Electricity by Province (+)	▪ 100%	▪ 0%	▪ Based on SDGs 2015-2030 Goal 7: Affordable and Clean Energy, especially in Target 7.1. "By 2030, ensure universal access to affordable, reliable, and modern energy services for all" (UNDP, 2015). ▪ Based on the target of the electrification ratio between the electrified households and the total of households in Indonesia (Ministry of Energy and Mineral Resources, 2018). ▪ Based on the target of the electrification ratio for 100% in the Action Plan for SDGs 2015-2030 in Indonesia (Bappenas, 2017b).
		▪ The Growth of GRDP by Province in Percent (+)	▪ 7%	▪ 0% or minus	▪ Based on SDGs 2015-2030 Goal 8: Decent Work and Economic Growth, especially in Target 8.1. "Sustain per capita economic growth in accordance with national circumstances, and in particular, at least 7% per annum GDP growth" (UNDP, 2015). ▪ In economic development, the average growth rate of GRDP in Indonesia during the 1998 financial crisis was almost dominated by minus growth, between -1% and -18% (BPS, 1999).

No.	Dimension	Indicator (Correlation with SLDI) *	Max. Value	Min. Value	Note (References)
		▪ The Unemployment Rate (UR) in Percent by Province (-)	▪ 100%	▪ 0%	▪ Based on SDGs 2015-2030 Goal 8: Decent Work and Economic Growth, especially in Target 8.5. "By 2030, achieve full and productive employment and decent work for all women and men" (UNDP, 2015).
		▪ The Percentage of Households with Access to the Internet in the Last Three Months by Province (+)	▪ 100%	▪ 0%	▪ Based on SDGs 2015-2030 Goal 9: Industry, Innovation, and Infrastructure, especially in Target 9.c. "Significantly increase access to ICT and strive to provide universal and affordable access to the internet" (UNDP, 2015).
		▪ The Percentage of Households Having Cellular Phone by Province (+)	▪ 100%	▪ 0%	▪ Based on SDGs 2015-2030 Goal 9: Industry, Innovation, and Infrastructure, especially in Target 9.c. "Significantly increase access to ICT and strive to provide universal and affordable access to the internet" (UNDP, 2015)
		▪ The Gini Ratio by Province (-)	▪ 0	▪ 1	▪ Based on the measurement of income inequality in economic surveys Indonesia (OECD, 2016; Oxtavianus, 2014)
		▪ The Percentage of Slum Households by Province (-)	▪ 100%	▪ 0%	▪ Based on SDGs 2015-2030 Goal 11: Sustainable Cities and Communities, especially in Target 11.1. "By 2030, ensure access for all to adequate, safe, and affordable housing, and upgrade slums" (UNDP, 2015).
		▪ The Percentage of Households Using Source of Lighting from Electricity (without Oil Lamp) by Province (+)	▪ 100%	▪ 0%	▪ Based on SDGs 2015-2030 Goal 12: Responsible Consumption and Production, especially in Target 12.2. "By 2030, achieve sustainable management and efficient use of natural resources" (UNDP, 2015). ▪ Based on the measurement of households using the source of lighting from

No.	Dimension	Indicator (Correlation with SLDI) *	Max. Value	Min. Value	Note (References)
					renewable energy in electricity (without using a kerosene lighting, such as 'Aladin' pumped lamp – 'patromak,' oil lamp - pelita, and others) in Indonesia (BPS, 2019).
3.	Environment	▪ The Ratio of Natural Disaster Victims Died per 1000 People by Province (-)	▪ 1000	▪ 0	▪ Based on SDGs 2015-2030 Goal 11: Sustainable Cities and Communities, especially in Target 11.5. "By 2030, substantially reduce the number of deaths caused by disasters" (UNDP, 2015).
		▪ The Estimate of CO_2 Emissions from Motorized (Gasoline and Solar) Vehicles in Tonnes by Province (-)	▪ 1000	▪ 0	▪ Based on the target of CO_2 emission reduction in the Action Plan for SDGs 2015-2030 in Indonesia (Bappenas, 2017).
		▪ The Ratio of Marine Conservation Area (Natural Conservation, Wildlife Conservation, Recreation Park, and National Park) in Km^2 per 1000 Km^2 by Province (+)	▪ 104.33	▪ 0	▪ The target of the marine conservation area in the Climate Change Adaptation National Action Plan 2014 is about 200,000 km^2 in Indonesia. The total area in Indonesia is 1.917 million km^2. Hence, the ratio of marine conservation's target is about 104.33 per 1000 km^2 (Bappenas, 2014). ▪ Based on the target of the marine conservation area in the Action Plan for SDGs 2015-2030 in Indonesia (Bappenas, 2017).
		▪ The Ratio of Protected Forest Area in Km^2 per 1000 Km^2 by Province (+)	▪ 66.25	▪ 0	▪ Based on SDGs 2015-2030 Goal 15: Life on Land, especially in Target 15.1. "Ensure the conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystems and their services by 2020, in particular, forests" (UNDP, 2015). ▪ The target of the forested area in the Action Plan for SDGs 2015-2030 is about 127,000 km^2 in Indonesia.

No.	Dimension	Indicator (Correlation with SLDI) *	Max. Value	Min. Value	Note (References)
		▪ The Ratio of Reforested Area in Km^2 per 1000 Km^2 by Province (**+**)	▪ 28.69	▪ 0	The total area in Indonesia is 1.917 million km^2. Hence, the ratio of the reforested area's target is about 66.25 per 1000 km^2 (Bappenas, 2017) ▪ Based on SDGs 2015-2030 Goal 15: Life on Land, especially in Target 15.1. "Ensure the conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystems and their services by 2020, in particular, forests" (UNDP, 2015). ▪ The target of the reforested area in the Action Plan for SDGs 2015-2030 in Indonesia is about 55,000 km^2 in Indonesia. The total area in Indonesia is 1.917 million km^2. Hence, the ratio of the reforested area's target is about 28.69 per 1000 km^2 (Bappenas, 2017a).
		▪ The Ratio of Land Conservation Area (Sanctuary Reserve and Natural Conservation) in Km^2 per 1000 Km^2 by Province (**+**)	▪ 0.52	▪ 0	▪ The target of the land conservation area in the Climate Change Adaptation National Action Plan 2014 is about 1000 km^2 in Indonesia. The total area in Indonesia is 1.917 million km^2. Hence, the target of the land conservation area in each province is about 0.52 per 1000 km^2 (Bappenas, 2014). ▪ Based on the target of the land conservation area in the Action Plan for SDGs 2015-2030 in Indonesia (Bappenas, 2017b).
4.	Institution	▪ The Ratio of Homicide Cases in the Regional Police Office per 10,000 People by Province (**-**)	▪ 100	▪ 0	▪ Based on SDGs 2015-2030 Goal 16: Sustainable Cities and Communities, especially in Target 16.1. "Significantly reduce all forms of violence and related death rates

No.	Dimension	Indicator (Correlation with SLDI) *	Max. Value	Min. Value	Note (References)
					everywhere" (UNDP, 2015).
		▪ The Ratio of Corruption Cases Solved per 1000 1000 Provincial Government Officer in the Regional Police Office by Province (-)	▪ 1000	▪ 0	▪ Based on SDGs 2015-2030 Goal 16: Sustainable Cities and Communities, especially in Target 16.5. "Substantially reduce corruption and bribery in all its forms" (UNDP, 2015).
		▪ The Percentage of Provincial Budget for the Social Sector by Province (+)	▪ 40%	▪ 0%	▪ Based on mandatory spending of the local budget in social sectors: (1) for education affairs about 20 % (Indonesian Constitution 1945 and Law No. 22/2003 on National Education System), (2) for health affairs about 10% (Law No.36/2009 on Health). ▪ Based on local expenditure in other social sectors: culture, social welfare, sport, and gender empowerment (Ministry of Finance, 2017).
		▪ The Percentage of Provincial Budget for the Economic Sector by Province (+)	▪ 20%	▪ 0%	▪ Based on local expenditure in economic sectors: industry, agriculture, manufacture, trade, finance, transportation, mining, and energy (Ministry of Finance, 2017).
		▪ The Percentage of Provincial Budget for the Environmental Sector by Province (+)	▪ 20%	▪ 0%	▪ Based on local expenditure in environmental sectors: environment, forest, and spatial planning (Ministry of Finance, 2017).
		▪ The Percentage of Provincial Budget for the Institutional Sector by Province (+)	▪ 20%	▪ 0%	▪ Based on local expenditure in institutional sectors: institution, security, and public order (Ministry of Finance, 2017).

*) (+): for positive correlation in sustainable development, (-): for negative correlation in sustainable development. This correlation is needed to standardize all different units of data into the same unit size in the data normalization process.

(5). *Determination of weighting factors.* The weighting factor significantly affects the output of the composite index. All indicators should be weighed by the theoretical framework or based on empirical analysis. In this research, the determination of weighting factors is based on a statistical model from the value of the loading factor in the second-order of Confirmatory Factor Analysis (CFA). Each average value of normalized indicators from the period 1995-2017 is be included in the statistical model of second-order CFA in the Structural Equation Model (SEM). The SEM uses the software of IBM SPSS Amos Version 23.0. Afterward, the results of the analysis are used as the basis to determine the weighting factor for each normalized indicator. The weighting factor for each indicator is calculated by the proportion between the absolute value of the loading factor's indicator and their total values in every dimension. The weighting factor for each dimension can be measured based on the absolute value of the loading factor's dimension in creating the composite index.

(6). *Aggregation of indicators for calculating a composite index.* In this stage, the study uses the weighted-average method to determine the multiplication of all normalized indicators with the weighted value of each dimension. After the index of each dimension is obtained, the SLDI is calculated based on all weighted value of dimension indexes (social, economy, environment, and institution). The formula for generating SLDI is as follows

- SLDI for each dimension

$$SLDI_d = \sum_{i=1}^{I} W_i Q_i$$

(2)

Where:

$SLDI_d$: Sustainable Local Development Index for dimension d
W : Weighting factor of each indicator i
Q : Indicator of sustainable local development in each dimension ($i = 1, 2, ..., I$)
d : Dimension (1 = social, 2 = economy, 3 = environment, 4 = institution)
I : Total of all indicators in each dimension

- SLDI for all dimension

$$SLDI = \sum_{d=1}^{D} W_d X_d$$

(3)

Where:

SLDI : Sustainable Local Development Index for all dimensions
W : Weighting factor of each dimension **d**
X : Dimension of sustainable local development ($d = 1, 2, ..., D$)
d : Dimension (1 = social, 2 = economy, 3 = environment, 4 = institution)
D : Total of all dimensions

(7). *Visual representation of a* composite *index.* The composite index needs to provide accurate information for decision-makers and important stakeholders. The visual representation (graph or map) of the composite index should indicate the potential areas that required some policy interventions by decision-makers.

The important stage of composite index formation relates to the determination of weighting factors. In this research, the second-order CFA is part of the SEM. This is a method of multivariate dependency that combines the principles of path analysis, confirmatory factor analysis, and simultaneous equation models in econometrics (Budi, 2015; Musil *et al.*, 1998). It is developed to cope with some limitations in the previous statistical techniques in the regression, linear, and confirmatory factor analyses. The SEM combines several multivariate analyses that are regularly visualized by a path diagram as the representation of the set of matrix equations (Hox and Bechger, 1998).

According to Oxtavianus (2014), the SEM technique had three characteristics, including (1) it estimates a set of separated multiple regression equations, (2) it might represent the interconnected unobserved concepts and will correct measurement errors in the estimation process, and (3) it defines the interconnection of some indicators in a single model. In the SEM, the researcher can describe the dependent indicator in one equation. However, it can also be an independent indicator in another equation and include latent indicators in the analysis. Latent indicators are hypothesized and unobserved concepts, which can only be estimated by observable and measurable indicators (Holbert and Stephenson, 2002; Reisinger and Turner, 1999). Observable details from respondents are referred to as measurable

indicators. The critical stages are undertaken from the SEM, including (1) developing the measurement models based on the theoretical framework and (2) making the specification of the structural model.

In making the specification of the structural model, the SEM consists of two kinds of equations. These include the exogenous (independent) and endogenous (dependent) latent indicator equations (Holbert and Stephenson, 2002; Jonsson, 1997). According to the basic concept of the SEM, this research builds the composite index of sustainable local development using the model of second-order confirmatory factor analysis. The indicator name used in the model refers to secondary data describing the condition of 33 provinces in 1995-2017. The calculation of the composite index is conducted for each dimension of economic, social, environment, and institution, as shown in **Figure 3.2**. The value of the composite index in all dimensions is used to measure the degree of sustainable local development. Therefore, the composite index is expected to give the right direction to develop more specific policies for each province. In general, the formula of non-linear/structural SEM used is as follows

$$\eta_n = f_n(\xi_1, \xi_2, \xi_3, \xi_4) + \zeta_n, \ n = 1,2,3,4)$$
$$\eta_1 = \alpha_1 + \gamma_1 \xi_1 + \zeta_1$$
$$\eta_2 = \alpha_2 + \gamma_2 \xi_2 + \zeta_2$$
$$\eta_3 = \alpha_3 + \gamma_3 \xi_3 + \zeta_3$$
$$\eta_4 = \alpha_4 + \gamma_4 \xi_4 + \zeta_4$$

$$(4)$$

Where:

f_n : Specified non-linear functions for the $n = 1, 2, 3, 4$ (1 = social dimension, 2 = economic dimension, 3 = environmental dimension, 4 = institutional dimension)

η : Latent (unobserved) dependent indicators of SLDI

α : Vector of constant intercept terms for $\alpha_1, \alpha_2, \alpha_3, \alpha_4$

γ : Regression coefficient in the latent independent indicators of dimensions for $\gamma_1, \gamma_2, \gamma_3, \gamma_4$

ξ : Latent (unobserved) independent indicators of dimensions for $\xi_1, \xi_2, \xi_3, \xi_4$

ζ : Error term for $\zeta_1, \zeta_2, \zeta_3, \zeta_4$

Equation (4) needs to be converted to matrix algebra and replaced by the linear SEM as follows

$$\begin{bmatrix} \eta_1 \\ \eta_2 \\ \eta_3 \\ \eta_4 \end{bmatrix} = \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \end{bmatrix} + \begin{bmatrix} \gamma_1 & 0 & 0 & 0 \\ 0 & \gamma_2 & 0 & 0 \\ 0 & 0 & \gamma_3 & 0 \\ 0 & 0 & 0 & \gamma_4 \end{bmatrix} \begin{bmatrix} \xi_1 \\ \xi_2 \\ \xi_3 \\ \xi_4 \end{bmatrix} + \begin{bmatrix} \zeta_1 \\ \zeta_2 \\ \zeta_3 \\ \zeta_4 \end{bmatrix}$$

$$\boldsymbol{\eta}_{(4x1)} = \boldsymbol{\alpha}_{\eta(4x1)} + \boldsymbol{\Gamma}_{\eta(4x4)}\boldsymbol{\xi}_{(4x1)} + \boldsymbol{\zeta}_{(4x1)}$$

$$\boldsymbol{\eta} = \boldsymbol{\alpha_\eta} + \boldsymbol{\Gamma_\eta}\boldsymbol{\xi} + \boldsymbol{\zeta}$$

(5)

Where:

$\boldsymbol{\eta}$: Latent (unobserved) dependent indicators of sustainable local development

$\boldsymbol{\alpha_\eta}$: Vector of constant intercept terms for unobserved indicators $\boldsymbol{\eta}$

$\boldsymbol{\Gamma_\eta}$: Coefficient matrices for latent independent indicators of dimensions

$\boldsymbol{\xi}$: Latent (unobserved) independent indicators of dimensions

$\boldsymbol{\zeta}$: Error term, assumed no correlation between $\boldsymbol{\zeta}$ and $\boldsymbol{\xi}$

In **Equation (5)**, the vector $\boldsymbol{\xi}$ (xi) is not observed, though other observed vectors from $x_n = x_1, x_2, x_3, \dots, x_n$ can be calculated. In the **Figure 3.2**, there are 28 observable indicators $(x_1, x_2, x_3, \dots, x_{28})$. Each latent independent indicator of dimensions $(\xi_1, \xi_1, \xi_1, \xi_4)$ can be predicted in the multivariate regression. The calculation of the observed indicators $\boldsymbol{x}$ on the endogenous latent indicators $\boldsymbol{\xi}$ in the normal distribution is as follows

$$x_1 = \beta_1 + \lambda_1\xi_1 + \delta_1$$
$$x_2 = \beta_2 + \lambda_2\xi_1 + \delta_2$$
$$\vdots$$
$$x_8 = \beta_8 + \lambda_8\xi_1 + \delta_8$$
$$x_9 = \beta_9 + \lambda_9\xi_2 + \delta_9$$
$$\vdots$$
$$x_{16} = \beta_{16} + \lambda_{16}\xi_2 + \delta_{16}$$
$$x_{17} = \beta_{17} + \lambda_{17}\xi_3 + \delta_{17}$$
$$\vdots$$
$$x_{22} = \beta_{22} + \lambda_{22}\xi_3 + \delta_{22}$$
$$x_{23} = \beta_{23} + \lambda_{23}\xi_4 + \delta_{23}$$
$$\vdots$$
$$x_{28} = \beta_{28} + \lambda_{28}\xi_4 + \delta_{28}$$

(6)
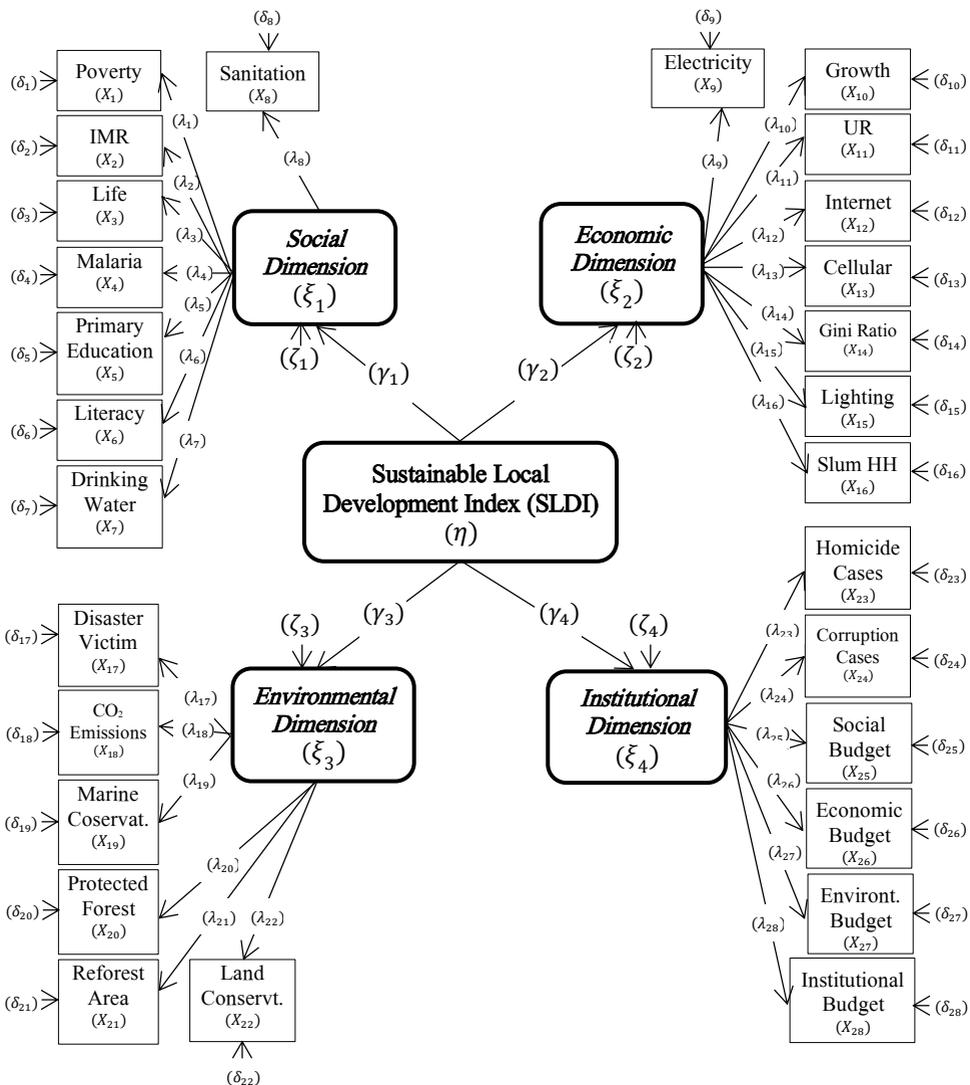
Figure 3.2. The SEM of second-order CFA in the formation of SLDI

Then, **Equation (6)** needs to be converted in the form of matrix algebra:

$$
\begin{bmatrix} x_1 \\ x_2 \\ \vdots \\ x_8 \\ x_9 \\ \vdots \\ x_{16} \\ x_{17} \\ \vdots \\ x_{22} \\ x_{23} \\ \vdots \\ x_{28} \end{bmatrix}
=
\begin{bmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_8 \\ \beta_9 \\ \vdots \\ \beta_{16} \\ \beta_{17} \\ \vdots \\ \beta_{22} \\ \beta_{23} \\ \vdots \\ \beta_{28} \end{bmatrix}
+
\begin{bmatrix}
\lambda_1 & 0 & 0 & 0 \\
\lambda_2 & 0 & 0 & 0 \\
\vdots & \vdots & \vdots & \vdots \\
\lambda_8 & 0 & 0 & 0 \\
0 & \lambda_9 & 0 & 0 \\
\vdots & \vdots & \vdots & \vdots \\
0 & \lambda_{16} & 0 & 0 \\
0 & 0 & \lambda_{17} & 0 \\
\vdots & \vdots & \vdots & \vdots \\
0 & 0 & \lambda_{22} & 0 \\
0 & 0 & 0 & \lambda_{23} \\
\vdots & \vdots & \vdots & \vdots \\
0 & 0 & 0 & \lambda_{28}
\end{bmatrix}
\begin{bmatrix} \xi_1 \\ \xi_2 \\ \xi_3 \\ \xi_4 \end{bmatrix}
+
\begin{bmatrix} \delta_1 \\ \delta_2 \\ \vdots \\ \delta_8 \\ \delta_9 \\ \vdots \\ \delta_{16} \\ \delta_{17} \\ \vdots \\ \delta_{22} \\ \delta_{23} \\ \vdots \\ \delta_{28} \end{bmatrix}
$$

$$x_{(28x1)} = \beta_{x(28x1)} + \Lambda_{x(28x4)}\xi_{(4x1)} + \delta_{(28x1)}$$
$$x = \beta_x + \Lambda_x\xi + \delta$$

(7)

Where:

x : Observed indicators x for $x_1, x_2, \dots, x_{28}$ with error term for $\delta_1, \delta_2, \dots, \delta_{28}$ on the endogenous latent indicators ξ

β_x : Vector of constant intercept terms for observed indicators x

Λ_x : Regression matrices for observed indicators x

ξ : Latent (unobserved) independent indicators of dimensions for $\xi_1, \xi_2, \xi_3, \xi_4$ with error term for $\zeta_1, \zeta_2, \zeta_3, \zeta_4$

δ : Vector of the error term, assumed $E(\delta) = 0$ and no correlation with ξ, η, ε

3.4.1.2. Multiple Regression Model on Panel Data Analysis

Determination of a good model in the multiple regression on panel data analysis requires the correlation analysis between two indicators. However, the analysis cannot be used to determine causality (Widarjono, 2007). It is carried out primarily to show the relationship between two indicators and the characteristics of the interrelation, which is based on the value of the correlation coefficient in the range of 0 -1 (**Table 3.6**). The criteria of the correlation coefficient are divided into five parts, including very low, low, moderate/sufficient, high, and very high relationships.

Table 3.6. Criteria of Correlation Coefficient (Based on Guilford, 1956 in Kameli & Baki, 2013)

Correlation Coefficient	Criteria
≤ 0.20	Very low relationship
0.21 – 0.40	Low relationship
0.41 – 0.70	Moderate/Sufficient relationship
0.71 – 0.90	High relationship
> 0.90	Very high relationship

This study uses the Pearson Correlation Coefficient in the analysis of the correlation. The result of the coefficient correlation in **Table 3.7** shows that almost all indicators in the study have various correlations. Socio-economic dimension indicators have high correlations to the SLDI indicator. Also, the political decentralization indicator (the percentage of female parliaments) still has a relatively low correlation on the SLD. In the administrative decentralization, all territorial division indicators (the ratio of district/city and sub-district) still have a less significant relationship on the SLDI and all indicators of the sustainable development dimensions. This result is also similar to the ratios of local regulation, a local agency, and local government officer indicators.

In the fiscal decentralization, all indicators of intergovernmental fiscal transfers still have a low correlation with the SLDI and all indicators of the sustainable dimensions. Only the ratio of DBH Pajak has a moderate relationship with the environmental dimension. Nonetheless, the value of the correlation coefficient is considerably higher than some indicators in political-administrative decentralization. In the ratio of DBH Pajak and the ratio DAU, the values are almost close to the moderate/sufficient correlation criteria with all indicators of sustainable local development. Additionally, the ratio of PAD in the economic decentralization indicator has a low correlation with the SLDI and the institutional dimension. However, it has a moderate relationship with the social-economic aspects.

Table 3.7. The table of coefficient correlation between the SLDI and decentralization indicators (Pearson Correlation)

Indicator	SLDI	Social	Econom	Environ	Institu	Fdpr	Fdprd	Dist/City	Subdist	Regul	Agency	Officer	DBHS	DBHP	DAU	DAK	PAD
SLDI	1																
Social	0.7956	1															
Econpm	0.8619	0.9143	1														
Environ	-0.038	-0.5586	-0.5078	1													
Institu	0.4381	0.3524	0.3763	-0.2227	1												
Fdpr	0.2564	0.2562	0.2728	-0.1164	0.1398	1											
Fdprd	0.3108	0.3057	0.3356	-0.1288	0.1084	0.1611	1										
Dist/City	-0.0875	-0.2442	-0.1851	0.1666	0.3117	0.1233	-0.0342	1									
Subdist	-0.0306	-0.2162	-0.1224	0.1688	0.2939	0.1332	0.0082	0.9052	1								
Regul	-0.0063	-0.0652	-0.0228	0.0621	-0.0071	0.0992	0.0008	0.2768	0.2816	1							
Agency	-0.168	-0.1669	-0.1781	0.0242	0.1076	0.1543	-0.036	0.6486	0.5369	0.3571	1						
Officer	0.1331	0.3441	0.2439	-0.3553	0.1864	0.1385	0.1616	0.0514	0.0761	0.1386	0.1055	1					
DBHS	0.1714	0.1894	0.2145	-0.1409	0.1341	0.0881	0.0286	0.2838	0.3658	0.1185	0.1397	0.0582	1				
DBHP	0.1485	0.3647	0.3095	-0.4302	0.201	0.0963	0.1628	-0.0184	0.0101	-0.0012	-0.0538	0.58	0.2206	1			
DAU	0.3622	0.2271	0.3434	-0.0548	0.3169	0.2982	0.1792	0.5853	0.6883	0.3825	0.4468	0.3076	0.3324	0.0853	1		
DAK	0.2891	0.2469	0.2837	-0.053	0.0753	0.1632	0.1517	0.1768	0.2195	0.051	0.1129	0.2737	0.1232	0.1094	0.486	1	
PAD	0.3856	0.5873	0.5527	-0.4891	0.2194	0.1563	0.2407	-0.1116	-0.093	-0.0467	-0.12	0.4534	0.2597	0.8189	0.1039	0.2163	1

Note:

- SLDI : Sustainable Local Development Index (SLDI)
- Social : SLDI in Social Dimension
- Econom : SLDI in Economic Dimension
- Environ : SLDI in Environmental Dimension
- Institu : SLDI in Institutional Dimension
- Fdpr : Female as House of Representative Members
- Fdprd : Female as local parliament members
- Dist/City : District (Kabupaten)/City (Kota)
- Subdist : Sub-District (Kecamatan)
- Regul : Local Regulation (Peraturan Daerah)
- Agency : Local Agency
- Officer : Local Government Officer
- DBHS : Natural Resources Revenue Sharing (DBH SDA)
- DBHP : Tax Revenue Sharing (DBH Pajak)
- DAU : General Allocation Fund
- DAK : Special Allocation Fund
- PAD : Local Own-Source Revenues

In **Equation (8)**, the SLDI and all indicators of sustainable development dimensions are dependent. The independent indicators include (1) political, (2) administrative, (3) fiscal, and (4) economic decentralization. The political decentralization indicators consist of the percentage of females as members of parliament. The administrative decentralization indicators comprise the ratios of district/city per million people, sub-districts per million people, local regulation per million people, local agency per million people, and local government officers per 1000 people. The fiscal decentralization indicators include the ratios of DBH SDA per million people, DBH Pajak per million people, DAU per million people, and DAK per million people. The ratio of PAD per million people is the economic decentralization indicator. The multiple regression model on panel data analysis can be written as follows

$$SLDI_{it}^d = \alpha + \beta_1^d\, PD_{it}^d + \beta_2^d AD_{it}^d + \beta_3^d\, FD_{it}^d + \beta_4^d\, ED_{it}^d + \gamma_{it}^d + \delta_{it}^d + \varepsilon_{it}^d$$

(8)

Where:

$SLDI_{it}^d$	:	Sustainable Local Development Index
PD_{it}^d	:	Political decentralization indicators (the percentage of females as House of Representatives Members from the province in the central government, the percentage of female as local parliament members)
AD_{it}^d	:	Administrative decentralization indicators (the ratio of district/city, the ratio of sub-district, the ratio of local regulation, the ratio of local agency, and the ratio of local government officer)
FD_{it}^d	:	Fiscal decentralization indicators (the ratio of DBH SDA, the ratio of DBH Pajak, the ratio of DAU, and the ratio of DAK)
ED_{it}^d	:	Economic decentralization indicator (the ratio of PAD/local own-source revenues)
d	:	Dimension
i	:	Province
t	:	Year in the period 1995-2017
α	:	Constant
$\beta_1^d, \beta_2^d, \dots, \beta_4^d$	:	Regression coefficient
γ_{it}^d	:	Provincial fixed effect
δ_{it}^d	:	Time fixed effect
ε_{it}	:	Error term

3.4.2. Spatial Distribution Analysis

The spatial distribution analysis uses GIS to disseminate and categorize some thematic maps as layers from the SLDI. The thematic map is used to examine the spatial distribution of sustainable development performance from all 33 provinces. This spatial distribution analysis explains the problem of sustainable local development based on decentralization policies from a spatial perspective. In this analysis, all layers in the result are divided into five categories with the formulation of the class interval in **Table 3.8**, as follows

$$CI \ (Class \ Interval) = \frac{Range}{Number \ of \ Class} = \frac{Maximum \ Value - Minimum \ Value}{Number \ of \ Class} = \frac{100}{5} = 20$$

(9)

Table 3.8. The category in the SLDI

No.	Category	Range of Value	Legend in Map
1.	Very Low	≤ 20.00	Very Low (0.00 - 20.00)
2.	Low	$20.01 - 40.00$	Low (20.01 - 40.00)
3.	Medium	$40.01 - 60.00$	Medium (40.01 - 60.00)
4.	High	$60.01 - 80.00$	High (60.01 - 80.00)
5.	Very High	≥ 80.01	Very High (80.01 - 100.00)

3.4.3. Qualitative Data Analysis

The qualitative data analysis evaluates some constraints and opportunities in Indonesia's current system of decentralization policy. It also discusses the implication for further policy in dealing with improved sustainable local development. This analysis is carried out by in-depth interviews and FGD with prominent stakeholders. Various responses, views, inputs, suggestions, criticisms, and essential recommendations from each stakeholder underlies the discussion of the results obtained from quantitative and spatial distribution analyses. The result of qualitative data analysis also discusses every constraint, opportunity, and decentralization policy on sustainable local development.

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Chapter IV
The Degree of Sustainable Local Development in Indonesia

4.1. Four-Dimensional Model on Composite Index Analysis

The four-dimensional model on composite index analysis was used to determine the degree of sustainable local development in Indonesia at the provincial level using an annual panel data set consisting of 33 provinces and 28 observed indicators for the period of 1995-2017. This involves identifying the quality of development in all the provinces using the aggregation of four-dimension indexes, including social, economy, environment, and institution called the SLDI, as shown in **Figure 4.1**. Meanwhile, all the dimensions and observed indicators were weighted through the SEM output based on the absolute value of the loading factor in the second-order CFA.

Table 4.1 shows that the weighting factor was calculated as a proportion between the absolute value of the loading factor's indicator and for all indicators in every dimension. Meanwhile, for each dimension, it was measured based on the ratio of the absolute value of the loading factor's dimension and the total obtained for all dimensions. The SEM results also indicated that the absolute value of social-economic dimensions on the weighting factor in the SLDI is more substantial than in environmental-institutional dimensions. This means the effect of social-economic dimensions is essential to create SLDI in Indonesia. However, based on some limitations, a more comprehensive analysis is needed for further studies on sustainable development in Indonesia, especially on environmental and institutional dimensions using entirely good representative data and proper information.

In general, the observed indicators in the social and economic dimensions have absolute values of loading factors above 0.70. This means indicators such as poor people, IMR, malaria incidence, primary education, clean drinking water, proper sanitation, electricity, internet, cellular phone, slum area, and lighting have a significant impact on this aspect of SLDI. Meanwhile, life expectancy and literacy rate have small values in the social dimension, as represented by 0.65 and 0.46, respectively. Likewise, the growth of GRDP, unemployment rate, and Gini ratio was observed to have a low value for the economic dimension with 0.05, 0.46, and 0.07, respectively.

| The Input Path Diagram (Model Specification) | The Output Path Diagram (Result) |
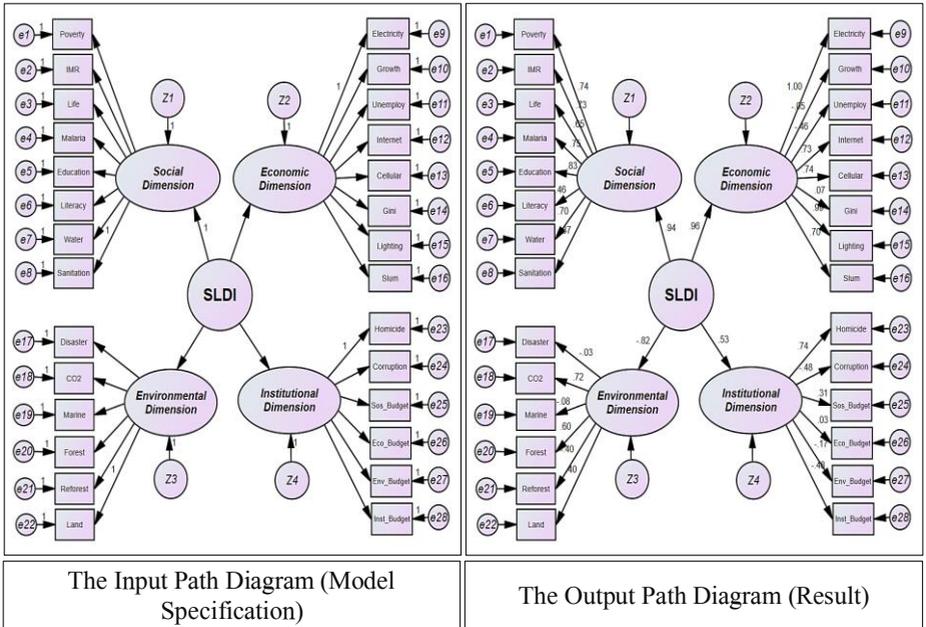
Figure 4.1. The result of second-order CFA in the formation of SLDI through the SEM

In the environmental dimension, two observed indicators, CO_2 emissions and protected forest area, have absolute values above 0.60, and this means they have substantial influences on this part of SLDI. Meanwhile, others such as natural disaster victims, marine conservation, reforested, and land conservation areas have values between 0.03 and 0.40. Moreover, in the institutional dimension, indicators such as homicide, corruption, and provincial budget for the institutional sector have a significant effect on SLDI with 0.74, 0.48, and 0.48, respectively. However, the other observed indicators from the percentage of the provincial budget for social, economic, and environmental sectors, have small absolute values below 0.31.

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Table 4.1. The weighting factor for SLDI based on the absolute value of the loading factor in the second-order CFA

No.	Indicator	Absolute Value of Loading Factor	Weighting Factor
A.	*SLDI*		
1.	Social Dimension	0.940	0.29
2.	Economic Dimension	0.961	0.30
3.	Environmental Dimension	0.818	0.25
4.	Institution Dimension	0.527	0.16
	Total	*3.246*	*1.00*
B.	*Social Dimension*		
1.	The Percentage of Poor People by Province	0.737	0.13
2.	The Estimate of Infant Mortality Rate (IMR) Per 1,000 Live Births by Province	0.730	0.13
3.	The Estimate of Life Expectancy (e0) by Province	0.653	0.11
4.	The Ratio of Annual Malaria Incidence Per 1,000 People by Province	0.754	0.13
5.	The Net Enrolment Ratio (NER) from Primary Education (Junior High School) by Province	0.831	0.15
6.	The Literacy Rate of Population Aged 15 Years and Over by Province	0.459	0.08
7.	The Percentage of Households with Access to Clean Drinking Water by Province	0.697	0.12
8.	The Percentage of Households with Proper Sanitation by Province	0.868	0.15
	Total	*5.729*	*1.00*

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No.	Indicator	Absolute Value of Loading Factor	Weighting Factor
C.	**Economic Dimension**		
1.	The Electrification Ratio of Household Customers Who Have a Source of Electricity by Province	0.997	0.21
2.	The Growth of GRDP by Province	0.048	0.01
3.	The Unemployment Rate (UR) by Province	0.458	0.10
4.	The Percentage of Households with Access to the Internet in the Last Three Months by Province	0.728	0.15
5.	The Percentage of Households Having Cellular Phone by Province	0.738	0.15
6.	The Gini Ratio by Province	0.072	0.02
7.	The Percentage of Slum Households by Province	0.992	0.21
8.	The Percentage of Households Using Source of Lighting from Electricity (without Oil Lamp) by Province	0.703	0.15
	Total	*4.736*	*1.00*
D.	**Environmental Dimension**		
1.	The Ratio of Natural Disaster Victims Died per 1000 People by Province	0.031	0.01
2.	The Estimate of CO_2 Emissions from Motorized (Gasoline and Solar) Vehicles in Tonnes by Province	0.717	0.32
3.	The Ratio of Marine Conservation Area (Natural Conservation, Wildlife Conservation, Recreation Park, and National Park) per 1000 Km^2 by Province	0.079	0.04

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No.	Indicator	Absolute Value of Loading Factor	Weighting Factor
4.	The Ratio of Protected Forest Area per 1000 Km^2 by Province	0.599	0.27
5.	The Ratio of Reforested Area in per 1000 Km^2 by Province	0.397	0.18
6.	The Ratio of Land Conservation Area (Sanctuary Reserve and Natural Conservation) in per 1000 Km^2 by Province	0.404	0.18
	Total	*2.227*	*1.00*
E.	***Institutional Dimension***		
1.	The Ratio of Homicide Cases in the Regional Police Office per 10,000 People by Province	0.744	0.34
2.	The Ratio of Corruption Cases Solved in the Regional Police Office per 1000 Provincial Government Officer by Province	0.478	0.21
3.	The Percentage of Provincial Budget for the Social Sector by Province	0.310	0.14
4.	The Percentage of Provincial Budget for the Economic Sector by Province	0.025	0.01
5.	The Percentage of Provincial Budget for the Environmental Sector by Province	0.171	0.08
6.	The Percentage of Provincial Budget for the Institutional Sector by Province	0.482	0.22
	Total	*2.210*	*1.00*

Furthermore, all the dimensions and observed indicators were aggregated to generate the SLDI depending on the weighting factor. **Figure 4.2** shows that

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the influence values in the social dimension with 0.29 and economic dimension with 0.30 are significant in the formation of SLDI, while some other observed indicators were also considered. For example, proper sanitation with 0.15 and primary education on NER with 0.15 affected SLDI formation from the social aspect while electricity and lighting with 0.21 influenced the economic aspect, as well as CO_2 emissions with 0.32 and protected forest area with 0.27 in the environmental dimension. Meanwhile, the ratio of homicide cases with 0.34 and the provincial budget for the institutional sector with 0.22 are very dominant in the institutional dimension.
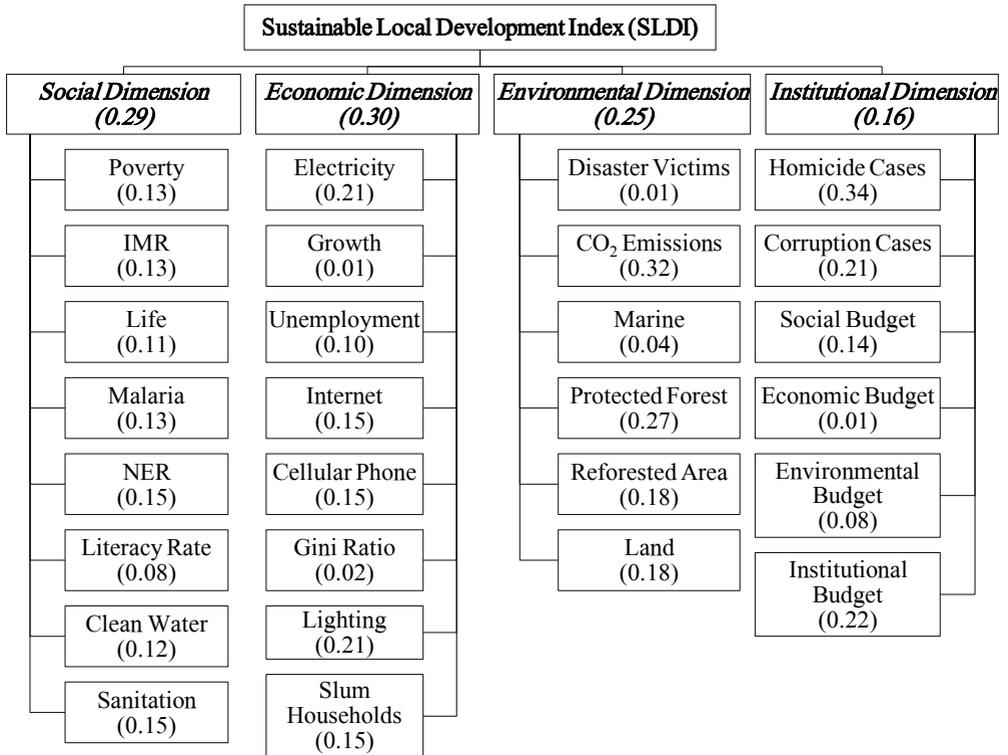
Figure 4.2. The weighting factor for SLDI

4.2. Social Dimension

The issues of sustainable development and human welfare are considered simultaneous relationships and cannot be treated in complete isolation.

Undeniably, major social problems, such as poverty, education, and health, need to become the primary considerations for sustainable development processes in order to achieve national prosperity and sustainability. This is important because it has been reported that social issues including high poverty, social welfare, quality of life, urban pollution, rapid urbanization, and food insecurity have several negative impacts on socio-economic development and environmental preservation, rather than being regarded as an ideal development lane (Cobbinah *et al.*, 2015).

However, there are several challenges against implementing comprehensive sustainable development programs in developing countries such as Indonesia due to the inability of some impoverished communities to meet their most basic needs, as well as changing the variations in 'needs' across generations and cultures (Pezzey, 1992; Redclift, 2006). For instance, it is difficult to apply the concept of eco-friendliness throughout the world due to the differences in the 'basic needs' of different societies. Those in developed countries are encouraged to be aware of the environment because they already have basic needs such as food, clothing, and shelter. Conversely, citizens of lesser-developed countries are less likely to care for the environment as they prioritize these basic needs over the future advantages associated with environmental sustainability (Castro, 2004).

This, therefore, means fostering strategic efforts towards attaining sustainable development requires implementing public policies to increase the living conditions of poor people and those in vulnerable communities. This further encourages the people to be good overseers of their environment. The 1st goal of SDGs in target 1.1 explicitly states extreme poverty should be eradicated for all people everywhere by 2030 while the 17th goal in target 17.15 also says "the government needs to establish and implement policies for poverty eradication in sustainable development" (UNDP, 2015). The SEM analysis conducted in this study showed that the quality of life in education, health, clean drinking water, and proper sanitation for poor people are significant in explaining the degree of sustainable local development.

In the SLDI's social dimension shown in **Figure 4.3**, almost all provinces in Indonesia had the ability to improve the quality of social development from 'before decentralization policy' in 1995 to 'during decentralization policy' in 2017. The national average of social index significantly went up from 66.26 points in 1995 to 83.03 points in 2017. Meanwhile, **Figure 4.4** shows that the category of SLDI's social dimension in the 'before decentralization policy' was dominated by medium and high categories. Several provinces in Sumatra, Java, Kalimantan, Sulawesi, and Maluku Islands were classified

under the high category while DKI was in the very high category with 80.40 points in 1995. Conversely, provinces in Bali-Nusa Tenggara and Papua Islands were generally in the medium category, while only Bali was in the high category with 75.42 points. Afterward, the growth of SLDI's social dimension in the following years was relatively considerable.
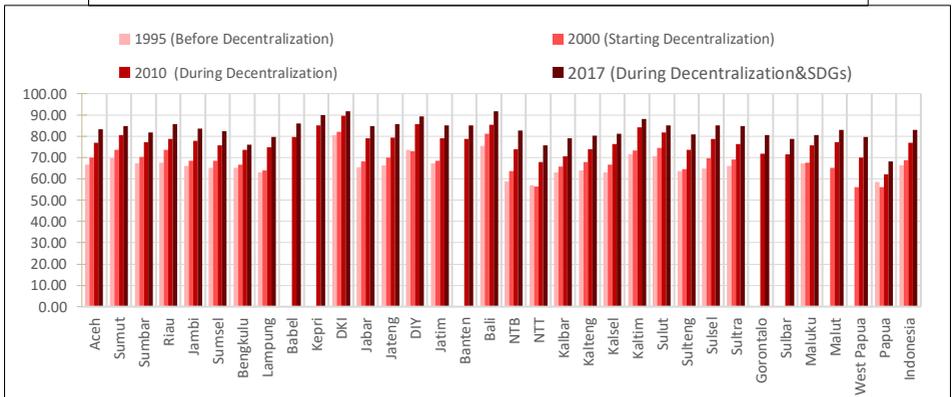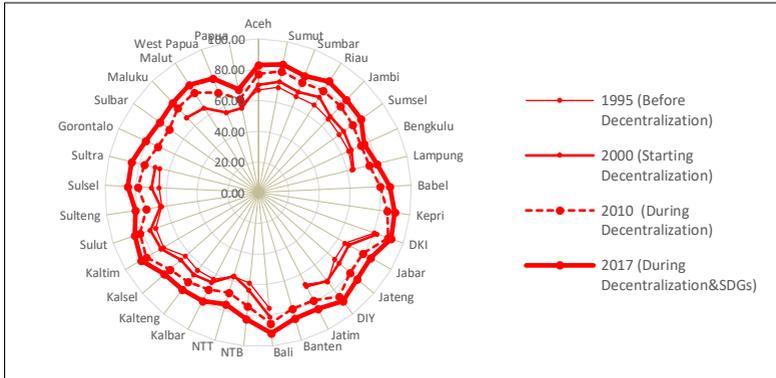
Figure 4.3. SLDI for social dimension in Indonesia, period 1995-2017
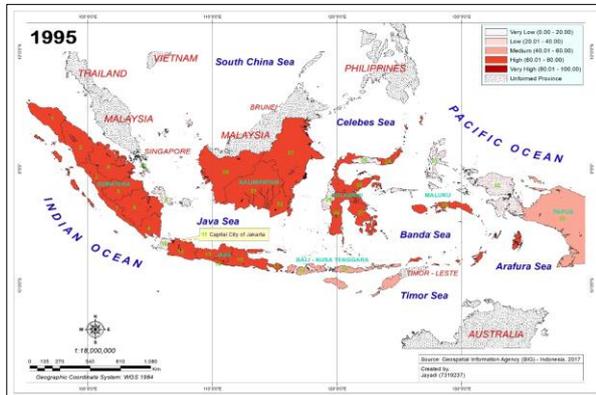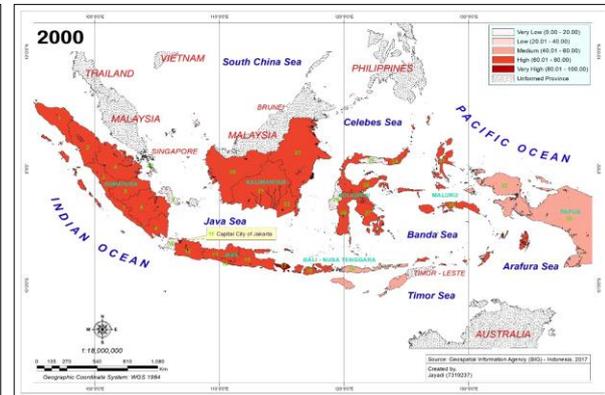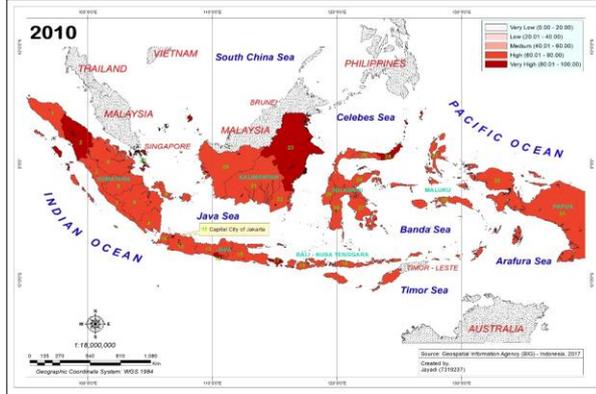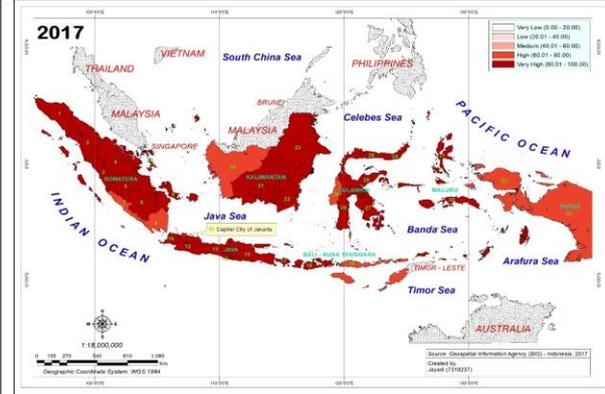
1995	
Before Decentralization Policy	Starting Decentralization Policy
During Decentralization Policy	During Decentralization Policy and SDGs

Figure 4.4. The spatial distribution of SLDI for social dimension in Indonesia, period 1995-2017

At the beginning of the decentralization policy in 2000, DKI and Bali reached the very high category, and other provinces in Sumatera, Java, Kalimantan, Sulawesi, and Maluku Islands remained stable in the high category while NTT, Papua Barat, and Papua were in the medium category. Furthermore, in 2010, the SLDI's social dimension in the medium category ended, and the high category became dominant in all the provinces with only Sumut, Kepri, DKI, DIY, Bali, Kaltim, and Sulut categorized as very high. In 2017, most of the provinces in Sumatra, Java, Kalimantan, Sulawesi Islands, and Maluku Islands reached the very high category while Bengkulu, Lampung, Kalbar, and Sulbar were in the high category. Moreover, all the provinces in Bali-Nusa Tenggara and Papua Islands were dominated by the high category, excluding Bali, which was in the very high category. However, Papua was at the lowest point by 68.21 compared to others, while DKI and Bali had the highest by 91.76.

The social dimension analysis indicates there are some improvements in terms of public social services, and this is evident in the continuous effort of the government to tackle the social gap between the rich and poor by providing more beneficial pro-poor programs at the local level. Moreover, the implementation of the first to the sixth goal of SDGs in Indonesia has promoted some social service programs such as education, health care, clean drinking water, and proper sanitation through the use of the provincial annual budget (In-depth interview CGOV2, CGOV3&LGOV2; FGD2, 2018). Some of these programs are indicated in the National Social Security System (SJSN) and integrated social assistance such as Family Hope Program (PKH), Premium Assistance Beneficiaries (PBI), Government's Non-Cash Food Assistance Campaign (BPNT), National Health Insurance (JKN), Healthy Indonesia Card (KIS), and Smart Indonesia Card (KIP) by prominent stakeholders to benefit poor people and vulnerable communities in the country (Bappenas, 2017c).

The implementation of sustainable local development in the social dimension was recorded to be significant over the last 20 years, as shown in **Table 4.2**. Improvement in education, the institutionalization of public institutions, management efficiency, redistribution of fiscal responsibility, and democratization were discovered to be remarkable strategies of decentralization policy to ensure social development (Weiler, 1993 in Hanson, 2006). Moreover, education and human resources were observed to be important aspects to establish good public participation in government institutions in the era, and this has led to positive growth in social development for the country (Hanson, 2006). This is evident in some

secondary empirical data on the period 1995-2017, which showed optimistic progress in the increase in NER of primary education, literacy rate, life expectancy, improved sanitation, provision of drinking water, and decreasing IMR.

Table 4.2. Indonesia social dimension, period 1995-2017

Indicator / Year	Poor People (%)	NER (%)	Literacy Rate (%)	Life Exp. (per 1000 people) births)	IMR (per 1000 live births)	Proper Sanitation (%)	Clean Water (%)
1995	13.67	50.96	84.05	63.50	55	21.93	38.03
1996	11.34	54.53	85.50	64.30	52	25.40	41.18
1997	17.65	57.84	87.41	64.40	41	27.65	42.76
1998	24.23	56.96	87.89	66.00	49	28.90	41.95
1999	23.43	59.23	88.40	66.21	46	32.56	42.18
2000	19.14	60.27	88.60	67.90	36	32.72	37.51
2001	18.41	60.47	87.89	68.50	34	34.30	48.68
2002	18.20	61.64	89.51	66.20	32	35.64	48.33
2003	17.42	63.49	89.79	66.72	35	35.61	46.90
2004	16.66	65.24	90.38	67.60	28	38.13	48.60
2005	15.97	65.37	90.90	68.10	29	44.09	48.94
2006	17.75	66.52	91.50	68.50	28	35.03	49.69
2007	16.58	66.90	91.87	68.70	28	44.20	52.92
2008	15.42	67.39	92.19	69.00	27	48.56	55.07
2009	14.15	67.43	92.59	69.21	26	51.19	58.18
2010	13.33	67.73	92.91	69.43	29	55.53	60.87
2011	12.49	68.36	92.99	69.65	29	55.60	63.48
2012	11.96	70.93	93.25	69.87	28	57.35	65.05
2013	11.37	73.88	94.14	70.07	27	60.91	67.73
2014	11.25	77.53	95.12	70.59	27	61.08	68.11
2015	11.22	77.82	95.22	70.78	27	62.14	70.97
2016	10.70	77.95	95.38	70.90	26	67.80	71.14
2017	10.12	78.40	95.50	71.06	25	67.89	72.04
Average (% and Ratio)	15.32	65.95	91.00	68.14	33	44.53	53.93
Difference (Percentage Points)	14.11	27.44	11.45	7.56	30	45.96	34.53
Minimum (% and Ratio)	10.12	50.96	84.05	63.50	25	21.93	37.51
Maximum (% and Ratio)	24.23	78.40	95.50	71.06	55	67.89	72.04

Source: BPS (2017, 2017), UNDP (2017), and World Bank (2017)

Proper sanitation had the highest attainment with 45.96 percentage points while the provision of clean drinking water, NER, literacy rate, and life expectancy reached only 34.53, 27.44, and 11.45 percentage points, respectively with the increase in the life expectancy factor found to be 7.56 points. However, the best social indicator describing the decrease in the number of infant deaths under one-year-old from 55 to 25 per 1,000 live births in the IMR. Meanwhile, the decrease in the percentage of poor for over 20 years was fairly significant and estimated at 14.11 percentage points. These empirical data show that some social development indicators have been improving gradually every year. In agreement with this, Dutu (2016) stated that the quality of life in Indonesia had significantly improved since the 1960s.

DKI and Bali are specifically the dominant provinces with a high category in the SLDI's social dimension up to the beginning of the decentralization policy. This, therefore, means they are both important in maintaining the quality of social development in Indonesia. DKI, as the capital city, certainly has many advantages and conveniences in terms of improving the quality of capital resources and easy access to the growth of society's welfare. Therefore, for 23 years, the provincial government of this area has continued to tackle some social problems such as clean drinking water, proper sanitation, and traffic congestion as well as opening up public spaces with infrastructural development to increase the quality of life (ADB, 2008; Huda, 2014).

Bali, as a favorite tourist destination, is well-known internationally and has been observed to be a barometer for the growth of social development due to the significant contribution of the tourism business to regional income as well as the maintenance of the socio-economic stability in Bali during the economic crisis in 1998 using the handicraft exports (Ramstedt, 2009). It is known as the country's paradise because of its beautiful landscape and traditional culture, which has attracted many people to be inhabiting the space comfortably. Moreover, the spirit of 'Tri Hita Kirana' (harmony and balance of life between God, humans, and the natural environment) has the ability to induce the Balinese government to continue maintaining the quality of social programs with greater emphasis on the environment and sustainability (Ardika, 2018).

Ironically, Papua with its natural resources, is currently in the medium category for the SLDI's social dimension. Despite the fact, a giant U.S. firm, Freeport-McMoRan Copper & Gold Inc., has significant operations of mining, processing, and exploration of ore containing copper, gold, and silver

in this province since 1967, factors such as natural isolation, migrant worker domination, marginalization of indigenous people, and lack of employment are creating structural poverty (Huda, 2014). According to Fengler & Hofman (2008), the poverty rate in Papua and other eastern provinces were high as the values recorded in some African countries while DKI and some other rich provinces in Indonesia have per capita incomes higher than Mexico. In 2017, the percentage of poor people in Papua was the highest in the country at 27.76%, while DKI had the lowest with 3.78% (BPS, 2018c). This shows the need for the government to focus on the social development of the eastern region, including Papua.

Papua also has always been overwhelmed with social conflicts and the issue of separatist movements since the 1963 integration. An example of this is the activities of the Free Papua Organization (OPM) since 1971 as a manifestation of the effect of inequality and social justice, causing problems to the development of the region in achieving peacefulness, prosperity, sustainability, and secured integration (Turner, 2006). Therefore, the transition from a high integrationist strategy to an accommodative approach is required to significantly reduce the social conflict in the area (Bertrand, 2007). This is attached to the ability of development programs to provide a more effective platform to resolve the problems found in the province. Moreover, local recognition and indigeneity empowerment are essential political persuasion strategies for the peripheral development process. Therefore, the Indonesian government needs to revamp the paradigm of security policy for stability in Papua in order to pressure peaceful resolution to accommodative social-right principles.

Auspiciously, the central government is relatively serious about attacking the negative issue of alienation and discrimination by building underlying infrastructure to accelerate social development in Papua (Somba, 2017). Moreover, increasing the connectivity in the areas with the most considerable geographic difficulty is also essential to foster better regional integration (in-depth interview CGOV1&CGOV3, 2018). Robinson (2007) offered five relevant strategies to tackle the social disparity issues observed in the region in order to improve equality, quality, and efficiency. They include (1) high commitment and political leadership, (2) political mobilization of local constituents, poor people, and marginalized communities, (3) institutionalized participation to facilitate and expand public involvement at the level of policy, planning and implementation considerations, (4) adequacy of local financial resources, and (5) high managerial-technical capacity.

4.3. Economic Dimension

Sustainable and equitable development is expected to create and promote economic prosperity while protecting the environment. However, ensuring the well-being of human life and sustenance of their habitat depends on the co-evolution and co-development of nature and people (Sheng *et al.*, 2019). Therefore, the utilization of nature, as well as the monitoring and evaluation process for potential impacts of ecological deterioration and depletion of natural resources, need to be carried out carefully. Economic development should be able to respond to the challenges in forming a new capital for the needs of community life by consistently maintaining the sustainability of nature (O'Connor, 1994).

Figure 4.5 shows that all the provinces in Indonesia have achieved a significant improvement in sustainable local development from the economic dimension. The national average of economic index significantly increased from 47.73 points in 1995 to 86.34 points in 2017. In general, the growth of SLDI's economic dimension is relatively the same as with the values recorded for the social dimension. In the era 'before decentralization policy' (1995), all provinces were dominated by low, medium, and high categories, as shown in **Figure 4.6**. Those in Sumatera, Java, Kalimantan, Sulawesi, and Bali-Nusa Tenggara Islands, were in the medium category while Lampung with 35.17 points, Sultra with 37.02 points, and NTT with 38.13 points were in the low category. Meanwhile, DKI was the only province in the high category with 68.09 points. Moreover, Maluku and Papua were in the medium and low category, respectively.

The positive growth in the SLDI's economic dimension continued to increase for the next five years up to the beginning of the decentralization policy in 2000, where all the provinces were dominated by medium and high categories. These circumstances showed the economic development in the post-hegemonic regime was steady and relatively vigorous. Local governments maintained sustainable economic growth, decent work, and improved basic infrastructure in housing, telecommunication, and electricity. Most of the provinces in Sumatra Island were in the medium category except Sumut, which was categorized as high with 63.60 points, and those in Java Island have also improved to the high category. Meanwhile, Kalimantan, Sulawesi, and Maluku Islands were also dominantly covered by provinces in the medium category while Papua and West Papua remained in the low category.

There was a rapid development in this dimension from 2000-2017. Since 2010, most provinces in the western part of Indonesia, including Sumatera, Java, and Kalimantan Islands, reached high and very high categories. For example, all the provinces in Java Island were in the very high, while Sumatera Island was dominated by provinces in the high category, except Sumbar, Babel, and Kepri, which were in the very high category. Also, Kalimantan, Sulawesi, and Maluku Islands were dominated by provinces with the high category while Kalsel, Kaltim, and Sulut reached the very high category. However, there were diversities in the three provinces in Bali-Nusa Tenggara Island, such that Bali, NTB, and NTT were in the very high, high, and medium categories, respectively. Meanwhile, Papua, as the easternmost province, was also in the medium category with 47.02 points.
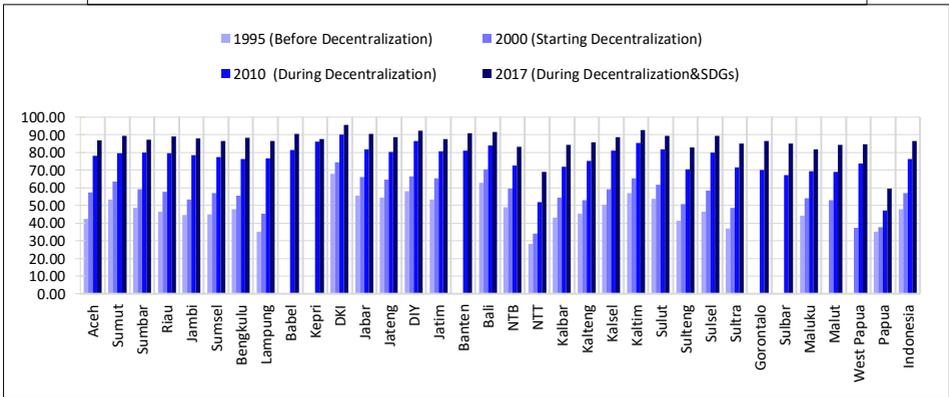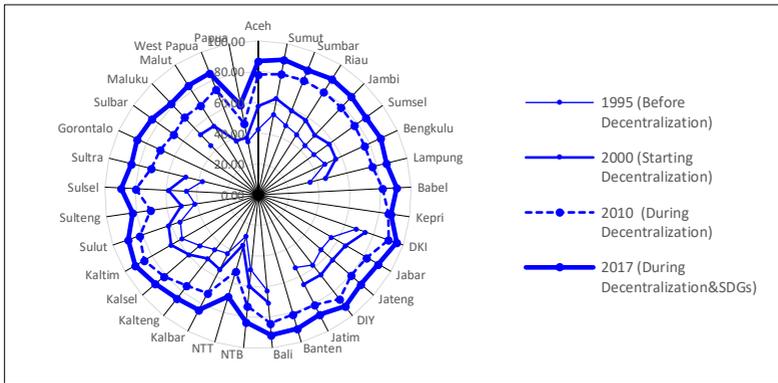
Figure 4.5. SLDI for economic dimension in Indonesia, period 1995-2017

Before Decentralization Policy	Starting Decentralization Policy
During Decentralization Policy	During Decentralization Policy and SDGs
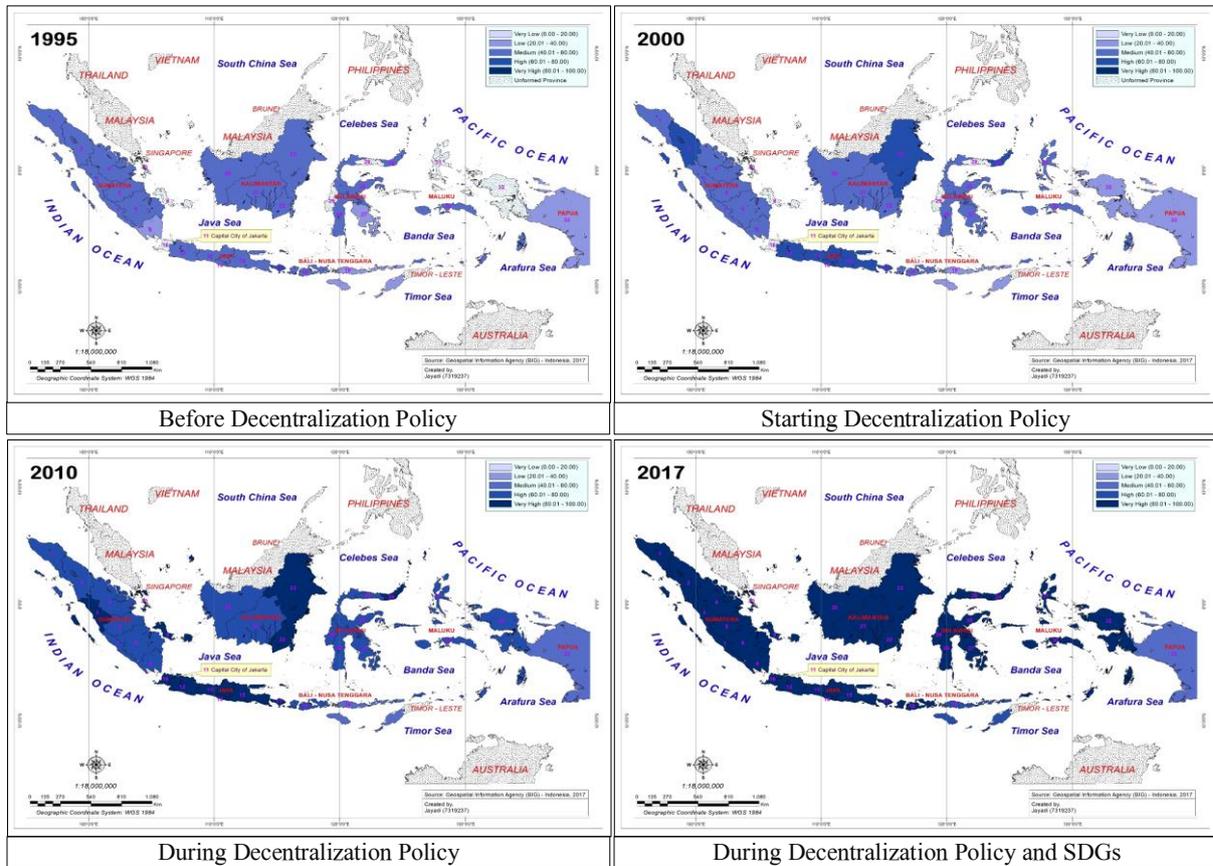
Figure 4.6. The spatial distribution of SLDI for economic dimension in Indonesia, period 1995-2017

DKI reached the highest index of 95.61 points in the economic dimension with the sector observed to have had the most development in the region in the period 1995-2017. This growth remained relatively stable between 4.33 - 6.73% from the 1998 economic crisis up to the end of 2017 (BPS, 2018c). The unemployment rate also continuously declined from 12.05 in 1995 to 7.14 in 2017, while several improvements were recorded in basic infrastructures such as housing, telephone, internet networks, and electrification (BPS, 2018c, 2019). DKI, as a megacity with more than 10 million people, is a place with a high concentration of infrastructures, economic power, and financial capital associated with its social-economic development processes (Kraas, 2003).

Papua was, however, the only one province in the medium category in 2017 with the lowest index of approximately 59.67 points. Despite the fact it lags behind other provinces in Indonesia, its economic development also increased gradually (BPS, 2017c). According to BPS (2018), the province was able to maintain the positive GRDP growth rate after the monetary crisis of 1998 and the global crisis of 2010. The unemployment rate in the province was recorded to have decreased to 3.62% while the GNI ratio was quite high at about 0.40 in 2017, slightly above the national average estimated at 0.39. Interestingly, the socioeconomic disparity in Papua was relatively better compared to other provinces such as DIY with 0.43, Sulsel with 0.41, and Gorontalo with 0.43. However, the weighting factors of economic growth, unemployment rate, and Gini ratio in this research were low by 0.01, 0.10, and 0.02 points respectively to create the SLDI. Therefore, SLDI's economic dimension in the province is relatively small.

In recent times, the central and local governments have continuously boosted the economic investment together with quality improvement in infrastructure, human capital, and good bureaucracy in Papua. The bureaucracy is being improved to increase local capacity, institutionalize innovations into regulations and policies, and open opportunities for every business investment (Grindle, 2007). Moreover, the increases in investment in the mining, forestry, tourism, agriculture, fisheries, and plantation sectors are expected to open up business opportunities and improve people's income (Amindoni, 2015). However, there are several challenges often faced by local governments in controlling the natural resource-based economies, and they include conflicts of interest, managing human capital, corruption, and negative externalities (Ascher, 2007). This, therefore, means the economic development in Papua generally depends on the natural-based sector, and

there is a need to employ the right, careful, and wise approach to deal with the observed challenges.

Francois (2002) highlighted the importance of cultural factors as social capital to economic development while Cheema & Rondinelli (2007) advised the use of globalization to deconcentrate economic activities between and within countries. This circumstance puts a burden on local governments to increase administrative capacity to facilitate the participation of individuals and business actors in the economic market. Moreover, political economy policies have shown decentralization as a better process to match several identical preferences from local people (Lockwood, 2006). These policies are developed with reference to the diversity of more than 250 ethnic groups in Papua, which are difficult to approach with a formal legal settlement and a uniform strategy to achieve economic development.

This, therefore, means the social network in Papua plays an essential role in nurturing the social capital and heterogeneous local preferences to encourage mutual interests, build good value, and generate more significant benefits (Somba, 2017). The involvement of local communities in the process of developing the economy is expected to be higher, and this is achievable by leaving them alone to choose their needs in bottom-up development strategies and keep them closer to 'sense of belonging.' Moreover, the government and other non-state actors also need to resolve land acquisition conflicts immediately with more priorities placed on economic policies while adequate respects are given to the customary law and indigenous land rights in the province (Amindoni, 2015).

The good result obtained for the SLDI's economic dimension shows the macroeconomic condition in Indonesia has improved, as evidenced by the noticeable outcomes achieved between the sluggish global economy and lower goods and services export in the last 20 years. Moreover, the GDP growth, electrification ratio, and infrastructure growth have caused excellent economic stability during the period (OECD, 2016). **Table 4.3** shows that the growth in the economy of the country has remained stable and relatively robust. This is associated with the potential impacts of decentralization policies through consumer-producer efficiency, the geographical distribution of resources, and macroeconomic stability (Martinez-Vazquez and McNab, 2003). Furthermore, the development of infrastructure such as electricity continued to grow significantly and positively while the average of GDP growth and unemployment rate in the period 1995-2017 were about 4.5% and 7.32%. The Gini Ratio also remained stable at 0.36 points, while the electrification has improved positively by 52.18 percentage points.

Table 4.3. Indonesia macroeconomic dimension, period 1995-2017

Indicator / Year	GDP Growth (%)	Gini Ratio	Unemploy. Rate (%)	Electrifi. Ratio (%)	Slum HH (%)
1995	8.22	0.34	7.24	43.17	18.61
1996	7.82	0.36	4.87	48.00	17.21
1997	4.70	0.34	4.69	52.98	15.31
1998	-13.13	0.32	5.46	56.04	14.40
1999	0.79	0.31	6.36	51.75	13.79
2000	4.92	0.30	6.08	57.96	12.35
2001	3.64	0.30	8.10	58.56	13.35
2002	4.50	0.33	9.06	58.93	12.36
2003	4.78	0.35	9.67	59.37	12.02
2004	5.03	0.35	9.86	61.04	10.86
2005	5.69	0.36	11.24	62.09	10.99
2006	5.50	0.36	10.28	63.00	11.13
2007	6.35	0.36	9.11	64.34	10.20
2008	6.01	0.35	8.39	66.71	9.40
2009	4.63	0.37	7.87	66.28	8.72
2010	6.22	0.38	7.14	67.15	8.28
2011	6.17	0.41	7.48	72.95	7.62
2012	6.03	0.41	6.13	76.56	7.62
2013	5.56	0.41	6.17	80.51	6.91
2014	5.01	0.41	5.94	84.35	6.06
2015	4.88	0.41	6.18	88.30	4.25
2016	5.03	0.40	5.61	91.16	3.67
2017	5.07	0.39	5.50	95.35	3.18
Average (% and Ratio)	4.50	0.36	7.32	66.37	10.36
Difference (Percentage Points)	21.35	0.11	6.55	52.18	15.43
Minimum (% and Ratio)	-13.13	0.30	4.69	43.17	3.18
Maximum (% and Ratio)	8.22	0.41	11.24	95.35	18.61

Source: BPS (2017, 2017), Ministry of Energy and Mineral Resources (2016), and World Bank (2017b, 2017c)

Despite the fact the macroeconomic stability seems promising and fascinating, some substantial risks are lurking in the vulnerable economic policies of Indonesia, and they include the rigidity placed by the government on domestic trade rules, export monopoly, lack of transparency, and data uncertainties in international monetary policy (Ikhsan, 2005; Salamah, 2001;

Sari and Fakhruddin, 2016). A massive amount of private foreign debt without a hedge policy, bad bureaucracy, and the weakness of law enforcement have also been essential factors, and they were observed to have stimulated the by the economic crisis of 1998 which led to the dramatic reduction in the growth of the economy for three decades by -13.13% (Tarmidi, 1999).

There was, however, a decline in slum households over the past 23 years was estimated at 15.43 percentage points. Moreover, the stability of the macroeconomic conditions in the country for the last 20 years is attributed to the inherent characteristics of the local economy with a huge domestic consumption base which has the ability to cause 'domestic-demand led growth' (KPMG, 2015 and Tjahjono *et al.*, 2009). This has the ability to make the domestic market and local purchasing power be the determinants for the production output, and this further contributes to the endurance of Indonesia's economic strength against external shocks of the global economy.

Another important point is reducing the unemployment rate during the economic crisis of 1998 at 5.46 %. This shows the significance of the small-medium sector to absorb the labor force under pressure based on the rationalization of workers due to the economic contraction during the crisis (Esther Magdalena, 2009 in Alghofari, 2010). Therefore, it is recommended that local governments continuously work with other non-government stakeholders, especially business actors in small and medium enterprises, to address labor force issues in the local area. This is important because of the threats the country's demography pose to the economy in the long run if not adequately managed.

The BPS (2013) projected the productive-age workers, 15 to 64 years, to be over 295 million in 2030 or approximately 68.1 % of the total population. There is a need for the local governments to extend this working-age into the middle class due to the fact that the country's economy is sustained through better and more stable consumer spending. This, therefore, means the governments at the local level have to do more than administrative functions by acting as entrepreneurs, coordinators, facilitators, and stimulators of the local economy (Arsyad, 2005). Moreover, the Indonesian workforce is also facing challenges presented by the fourth industrial revolution which has changed the work landscapes through automation and online technology and with the economic development now based on global technology, skills, and knowledge, as opposed to the previous dependence on only manufacturing (Bowman and Kearney, 2011). Therefore, local authorities are required to

develop innovative policies and appropriate regulations to ensure that investors have access to qualified workers.

The spatial data analysis in **Figure 4.6** also shows that the SLDI's economic dimension from most provinces in the western part is relatively higher than those in the eastern part of Indonesia, and this indicates the continuous spatial disparity in the country's economy. However, there are no expectations on decentralization to aid the ethnical and geographical polarization observed in the development process of each local area (Cote, 2013). Moreover, the limited fairness of public service provision produced severe disparities between rich and poor regions under the decentralization policy (Robinson, 2007). Therefore, sustainable development is expected to enhance equity services and welfare distribution for the poor and economically marginalized communities. Sachs (2015) also assumed the five major concerns involved ending extreme poverty, reducing inequality, increasing the degree of economic mobility, mitigating discrimination, and fostering social cohesion.

The new regional-disparity development pattern has also been extensively recognized to promote development objectives in decentralization since the 1980s (Rondinelli *et al.*, 1983; Suharyo, 2000; Agrawal and Ostrom, 2001; Grindle, 2007). Hadi (2012) mentioned four approaches to sustainable development planning in Indonesia, and they include human needs, ecological integrity, self-determination, and economic equity. Human basic needs are associated with both material and non-material resources. Ecological integrity involves environmental use while paying attention to sustainability and carrying capacity. Self-determination includes the formation of a self-reliant community and democratic participation, while economic equity directs development to focus on overcoming the issue of disparity. However, the over-arching objectives of economic equity are required to be in line with a good social-environmental aspect for current and future interests.

The functions and political rules of the local government in preserving the wellbeing also need to be implemented with functional institutional capacity. This is necessary because a bureaucratic-community based program is critical in the process of reducing the issue of disparity between people living in different provinces. Brodjonegoro (2009) also highlighted that the decentralization policy should contribute to the reduction of regional disparity between the western and eastern parts of Indonesia. Moreover, sustainable development in the decentralization policy should include dimensions of time, such as growth/development and income, such as equality. These policies should be directed towards developing basic

infrastructures, creating more employment opportunities, providing good health programs, improving education quality, maintaining social protection, and preserving environmental sustainability, particularly in remote areas in the eastern part of the country.

4.4. Environmental Dimension

In sustainable development, environmental problems such as the greenhouse effect, carbon emissions, pollution, environmental degradation, climate change, and other related issues are very important to all stakeholders. Development without the focus on sustaining the quality of the environment does not have any positive contribution but instead creates more problems for the future (Adams, 2009). Moreover, it also involves conveying good synergies rather than trade-offs in achieving efficiency, equity, viability, and sustainability (Sachs, 2015). The key to success is to ensure stakeholders work together and equally towards managing the rapid anthropogenic environmental changes by providing different ideas to address the observed issues and challenges (Sauvé *et al.*, 2016). In Indonesia, the cultural and biological diversity requires the input of everyone to sustain the environment for future generations.

In a decentralized government system, the interdependence between adverse environmental impacts caused by economic and social activities needs to be discussed across administrations, sectors, and actors. According to conventional environmental literature, the government has always been described as the sole bearer of responsibility for many environmental safeguards (Dalmazzone, 2006). This literature tends to ignore the fact that environmental policy does not originate from the initiation of a single unit but a result of the joint agreement between the people and the government. Therefore, decentralization is one way to deal effectively with such environmental cooperation by increasing flexibility in the policy-making process and enabling the more extensive use of co-management public instruments (Yonariza and Shivakoti, 2017).

Figure 4.7 shows that the SLDI's environmental dimension fairly deteriorated from the 'before decentralization policy' era in 1995 to the 'during decentralization policy' era in 2017 as observed from the decrease in the national average of the environmental index from 53.25 to 42.15 points. Moreover, the spatial distribution presented in **Figure 4.8** explains that the environmental dimension 'before decentralization policy' was reasonably good as observed in the fact that most of the provinces were in the medium and high categories except for Riau, DKI, Jateng, and DIY which were in the

very low and low categories. At the beginning of the decentralization policy in 2000, there were not too many changes except for DKI categorized as very low with 9.22 points. Furthermore, most of the provinces in Sumatra Island were in the medium category except for Bengkulu and Lampung, which were in the high category.
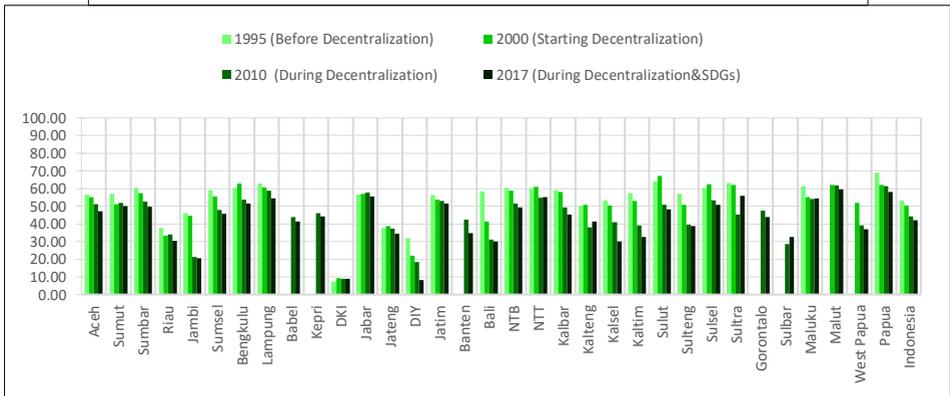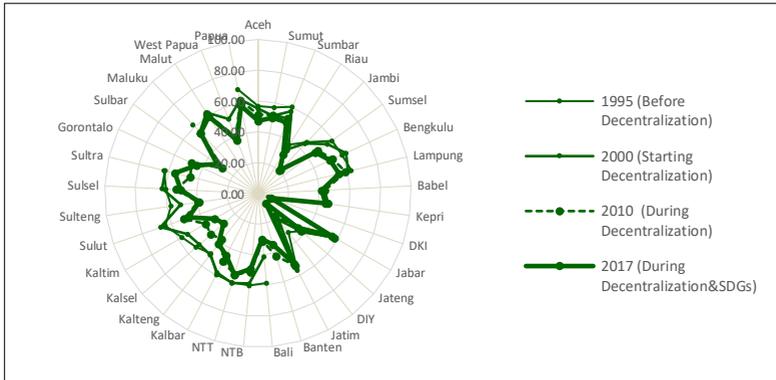
Figure 4.7. SLDI for environmental dimension in Indonesia, period 1995-2017
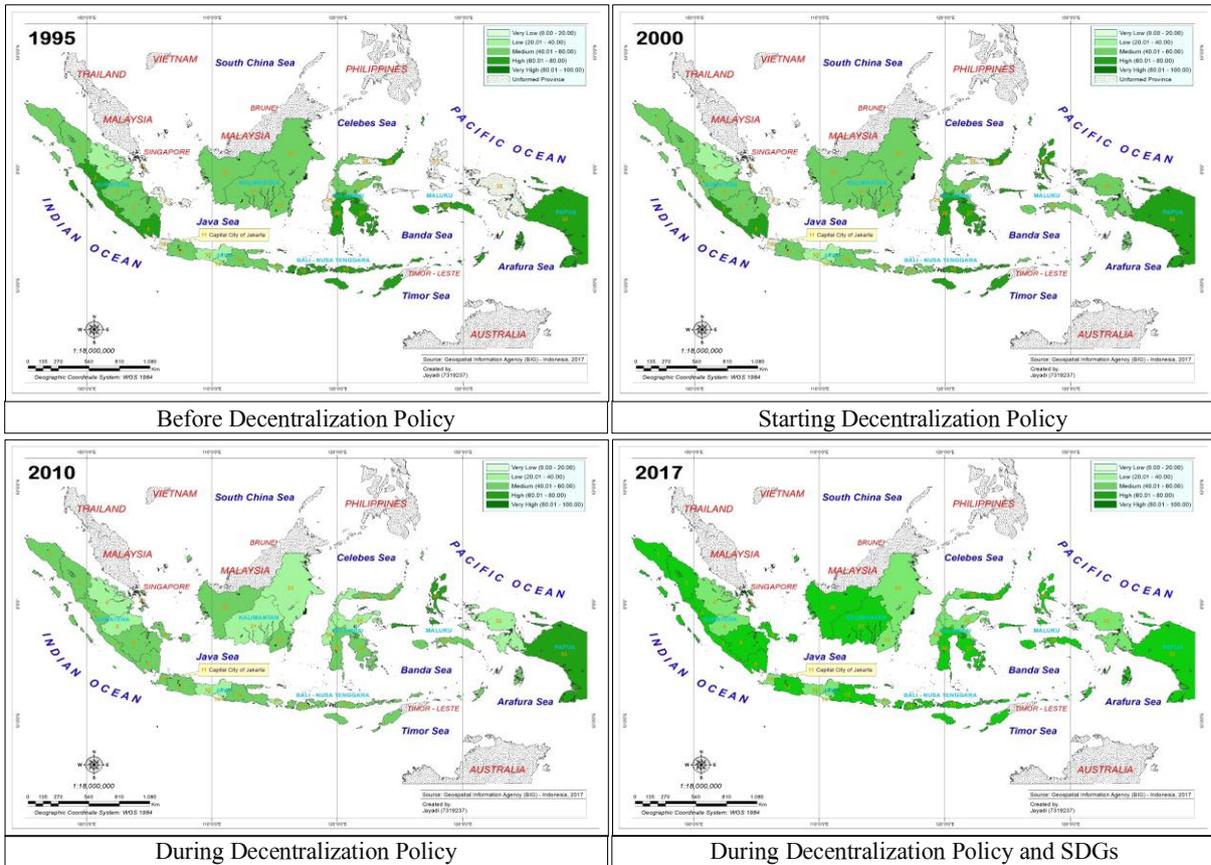
Figure 4.8. The spatial distribution of SLDI for environmental dimension in Indonesia, period 1995-2017

The results showed DIY was reduced to a very low category over a decade of implementing the decentralization policy, while DKI dropped to the lowest index by 8.96 points. Moreover, Riau, Jambi, Sulteng, and Sulbar in Sumatera and Sulawesi Islands also deteriorated to the low category while most of the provinces in Kalimantan were in the low and medium categories. In Bali-Nusa Tenggara Island, only Bali was in the low category with 31.31 points, while others such as NTB and NTT were classified in the medium category. Meanwhile, Malut and Papua were the only provinces in Indonesia found to have remained in the very high category. In 2017, most of the provinces were in the medium category, and this was also observed with Malut and Papua even though they both maintained an environmental index of 59.41 points and 57.94 points, respectively. Furthermore, DKI was also stable in the very low category.

DKI, with more than 10 million population, has several chronic problems related to traffic congestion, pollution, and flooding as well as some other bad environmental components such as air quality, waste problem, garbage, clean water, and carbon emission (Wijaya, 2018). For example, CO_2 emission from motorized vehicles dramatically increased from about 8 million tonnes in 1995 to 20 million tonnes in 2017 (BPS, 2018b). DKI has lost protected forests in the local area since 2008, such that it currently has only 3,131 green spaces, which is just 9.98 % of the total land in the city (BPS, 2018c; Wijaya, 2018). This is, however, far below the 30% required by Law No. 26/2007 on Spatial Planning in Indonesia. It is important to note that green spaces are public places created to perform ecological functions such as absorption of water, prevention of floods, and the elimination of carbon emission.

DKI, as a metropolitan area and capital city, is fragmented, and this makes it difficult to cooperate with other neighboring areas to tackle the problems of social segregation, disparity, and environmental degradation (Holzhacker *et al.*, 2016; Jones & Mulyana, 2015). It has a single local government responsible for all functions due to its evolution from the amalgamation of another political jurisdiction as the capital city and autonomous administrative government (ADB, 2008). Moreover, there has been a massive transition and movement of the manufacturing sector to the suburbs, while the city has been made to become the center of services and financial activities (Firman, 2002). The parochialism attitude of many local governments around DKI has caused several problems in public services and environmental preservations requiring cross-border cooperation (Firman, 2009). Therefore, there is a need for the city to optimize a coordinative institution such as the Jakarta-Bogor-Depok-Tangerang-Bekasi-Cianjur

Development Cooperation Agency (BKSP Jabodetabekjur) to improve the relations with neighboring cities towards urban development.

The BKSP Jabodetabekjur is a mutual partnership between Jakarta and some satellite cities made by the members of the local governments towards revitalizing the authority for the mega-urban area development (Firman, 2003). The issues associated with developing a sustainable environment in DKI are inherently holistic and based on several interrelated-integrated actors (Fauzi *et al.*, 2013). For example, the toll roads built towards disposal areas enables garbage trucks to travel directly to landfills instead of passing through residential areas. Moreover, the revitalization of some reservoir in the satellite cities of Bodatabekjur aids the mitigation of Jakarta floods while the cooperation with satellite cities to build park-and-ride facilities is also effective to curtail the use of private vehicles from commuters and, consequently, minimize traffic congestion and CO_2 emission in DKI.

The results of the environmental dimension in the SLDI showed that sustainable development is not restricted to improving the quality of social-economic sectors. It is also important to note that the increased pressure on ecological resources affects the process of self-sufficiency, income distribution, and future growth potential (Todaro and Smith, 2012). In the last 23 years, the main problems related to the environmental dimension in Indonesia include natural disaster management, greenhouse gas emission, and environmental depletion (BPS, 2018a). Therefore, the government needs a good and effective plan to strengthen disaster risk management due to the susceptibility of the county to disasters, recent deaths recorded, and because it is located along the Pacific Ring of Fire (Kusumastuti *et al.*, 2014; Wuryandari *et al.*, 2014).

Greenhouse gases also present a significant problem to future environmental protection due to the emissions from the motorized vehicles, industries, and changes in land-use (Hidayatno and Rahmawan, 2019). Meanwhile, the quality of the marine-land ecosystem is also negatively influenced by the social-economic activities from overfishing, pollution, habitat degradation, biodiversity loss, food security, and climate change (Sherman *et al.*, 2019). All these natural disasters and environmental problems are cross-cutting administrative issues in the country. Moreover, the complexity of the ecological system also implies the economic decisions of bureaucracy over the use of natural resources are influenced by more than one component outside the boundaries of government administration, and this means the impact is also cross-regional and difficult to predict.

According to some empirical facts, the quality of development in Indonesia based on the socio-economic dimension has significantly increased for 23 years. However, these reports excluded several efforts made toward maintaining environmental services (Daly, 2007). **Table 4.4** shows that the number of natural disaster victims was generally relatively small except for the Aceh tsunami of 2004, which caused the death of 243,494 out of 4.1 million people. Moreover, marine and land conservation increased by 14.87 km^2 and $0.04 km^2$ per $1000 km^2$ respectively between 1995-2017. Meanwhile, the CO_2 emissions from transport were observed to have improved by 368.81 tonnes per 1000 people, while the protected forest areas declined by 23.61 km^2 per $1000 km^2$ from $178.22 km^2$ in 1995 to $154.72 km^2$ in 2017.

In the SLDI's environmental dimension, indicators of protected forest and land conservation areas have more considerable influence than others on sustainable development. It is important to note that protected forest is an area designated to serve as a life support system, maintain the hydrological system, prevent flood, control erosion, ensure seawater intrusion, and maintain soil fertility (BPS, 2018a). Meanwhile, land conservation is a forest area with specific characteristics established to preserve animal and plant species as well as their ecosystem. It is further divided into two, and these include sanctuary reserve and nature conservation areas (BPS, 2019). The sanctuary reserve area consists of the strict nature reserve and wildlife sanctuary while the nature conservation area consists of national, grand forest, and nature recreation parks.

Indonesia's protected forest has, however, been reduced by more than 13% in the last 23 years, from 3.42 million km^2 in 1995 to 2.97 million km^2 in 2017 (BPS, 2019). Gellert (2005) argued this was influenced by the increased unemployment towards the forest industries in the era 'before decentralization.' Moreover, the global capital interest and market overcapacity were affected by excess labor and low prices of nationalist development projects in the forestry sector. This further aggravated the exploitation of forest beyond the ability of the ecosystem regeneration as well as massive changes in the plantation areas such as oil palm due to the government's policy to increase income from export activities based on higher international prices (Nawira and Rumbokob, 2008).

Table 4.4. Indonesia environmental dimension, period 1995-2017

Year	The Ratio of Natural Disaster Victims (Per Million People)	The Estimate of CO_2 Emissions from Transport in Tonnes (Per 1000 People)	The Ratio of Protected Forest in km^2 (Per 1000 km^2)	The Ratio of Marine Conserv. Area in km^2 (Per 1000 km^2)	The Ratio of Land Conserv. Area in km^2 (Per 1000 km^2)
1995	3	189.85	178.22	12.47	0.10
1996	5	218.86	178.22	12.47	0.10
1997	4	257.08	178.03	14.20	0.10
1998	21	263.51	177.97	22.90	0.10
1999	3	274.99	174.01	22.90	0.11
2000	3	279.59	168.46	23.23	0.11
2001	1	291.31	168.46	23.25	0.11
2002	1	291.55	168.46	23.25	0.12
2003	2	340.81	168.46	23.70	0.12
2004	1,123	327.78	166.17	23.74	0.12
2005	7	324.48	165.68	26.35	0.12
2006	46	304.53	164.86	26.36	0.12
2007	4	293.32	164.86	26.36	0.12
2008	1	319.40	164.59	26.37	0.12
2009	6	362.95	164.59	26.37	0.12
2010	7	404.60	164.10	26.37	0.13
2011	1	433.94	164.09	26.37	0.14
2012	1	476.12	156.94	26.37	0.14
2013	2	492.03	156.07	26.48	0.14
2014	2	503.04	154.60	26.48	0.14
2015	1	538.41	154.79	27.17	0.14
2016	2	547.98	154.82	27.34	0.14
2017	1	558.66	154.72	26.69	0.14
Average (% and Ratio)	54	360.64	165.70	23.79	0.12
Difference (Percentage Points)	1,122	368.81	23.61	14.87	0.04
Minimum (% and Ratio)	1	189.85	154.60	12.47	0.10
Maximum (% and Ratio)	1,123	558.66	178.22	27.34	0.14

Source: BPS (2017) and World Bank (2017b, 2017c)

In the era 'before decentralization,' the control of the forestry sector was the responsibility of the Ministry of Forestry, but the power was transferred to

the province as the representative of the central government in the 'decentralization' era. However, this authority is limited due to less control over the exploitation of forests by local community elements such as indigenous people, socio-economic institutions, and business agents (In-depth interview CGOV3, CGOV4, CGOV5, CSO2, ACA1, ACA5, IO1&IO3, 2018). Therefore, there is a need to provide more authority for the provincial government to act as the 'front liner' of forest governance in the local area and to take appropriate actions on the issues of high deforestation observed to be prevailing due to increased population, rent-seeking behavior in forest concessions, and illegal logging (Nawira and Rumbokob, 2008; Sunderlin and Resosudarmo, 1997).

Opoku (2019) highlighted that the preservation of biodiversity in proper forest management has the ability to enhance the adaption of the surrounding environment to climate change, mitigate disasters, and improve people's welfare. Consequently, best policies are required in the interactions between nature and the artificial environment to provide a myriad of advantages to humans and existing wildlife in the forest. However, in practice, local communities have little formal influence on the preservation of valuable forests, causing the high rate of deforestation as well as the release of greenhouse gases and the induction of some climatological natural disasters such as floods and landslides (Wollenberg *et al.*, 2009). Therefore, the complicated relationship between local communities and biodiversity conservation in the era 'decentralization' also needs to be immediately addressed by all stakeholders for more sustainable empowerment practices (Sheil *et al.*, 2009).

4.5. Institutional Dimension

The international agenda on sustainable development processes is expected to overcome several barriers found in national and local politics through its effects on the sovereign borders of each state and international relationships (Mehmet, 1995). Therefore, the institutional dimension is considered essential in mitigating global challenges based on the potential role of local matters. The fourth goal to achieve the economic, social, and environmental goals of sustainable development should be reached by 'good governance' in the institutional aspect (Sachs, 2015). Local governments require proper organizational arrangements in the well-defined systems and procedures for managing local resources. These public institutional structures certainly need suitable bureaucratic frameworks and strong public governance mechanisms

for engaging with other tiers of governmental agencies, business sectors, and non-governmental stakeholders (Wardhani, 2017).

Prasad (2019) emphasized the importance of the principle of good governance in the decision-making process in sustainable development. Political decisions and development policies need to be based on responsive mechanisms and accountability to the people. In theory, the institutional system is expected to have a positive impact on the provision of adequate public service, encourage economic growth, and preserve the environment (Boadway and Shah, 2009). The effectiveness of sustainable development practically depends on existing institutional arrangements, authority, and policy coherence to create the right incentive for bottom-up accountability. Therefore, there is a need to focus on good governance issues related to institutional dimensions such as sufficient accountability mechanism, corruption, adequate capacity, and high fiscal capacity (UNCLG, 2010).

UNDP (2015) showed that the roles of the institutional dimension in achieving goals 16 and 17 of the SDGs 2015-2030 focused on promoting peace and inclusive societies. Every individual is expected to have proper access to justice with the support of effective and accountable institutions, and this requires strengthening public cooperation using local resources. Therefore, security, law enforcement, corruption, local financial resources, and partnerships are essential indicators to support the sustainability of institutions to provide adequate development. However, due to limited data and scope of research, the focus of this study was only on security, corruption, and local financial resources, as observed from the percentage of local budget allocations.

Figure 4.9 shows that there was a stable growth in SLDI's institutional dimension between 1995 and 2017. In the 'before decentralization' era, most provinces in Indonesia were in the high category except Sumsel and Sultra, which were observed to be in the medium category, as shown in **Figure 4.10**. Meanwhile, during the 'decentralization' era, all the provinces also remained in the high category, and at the end of 2017, Papua Barat had reached the highest index of 77.06 points while Jatim had the lowest with 70.23 points.

Papua Barat is one of the new autonomous provinces in Papua Island, and the proliferation was due to the fact the island is the largest in Indonesia, as well as the need to improve the range of government control. The establishment of Papua Barat was based on Law No. 45/1999 on 4 October 1999, and this has brought several changes in terms of increasing government accessibility for the people and improvement in several aspects of institutions

(Suryawan, 2014). This was especially observed in local budget allocation; for example, 17.11% was budgeted for the environmental sector, such as the environment and spatial planning, while 6.39% was allocated to the institutional sector, including security and public order. These values were higher compared to the national average of 5.63% and 1.89%, respectively, for the two sectors (Ministry of Finance, 2017). Moreover, they have been recorded to have the highest percentage for the 23 years evaluated.
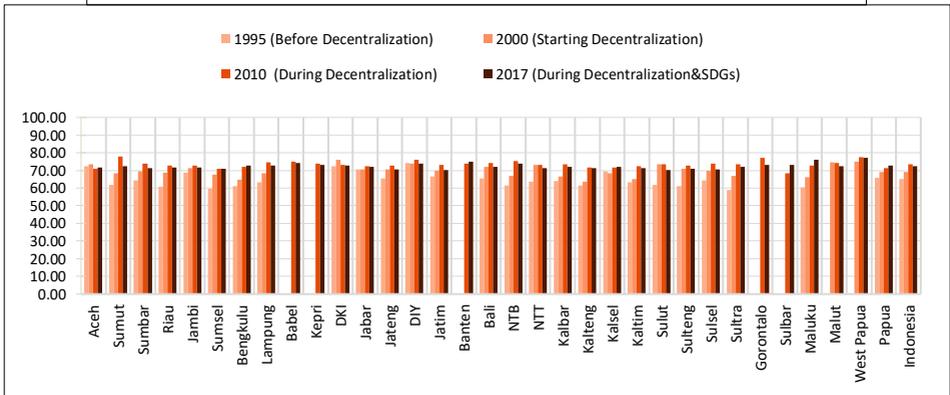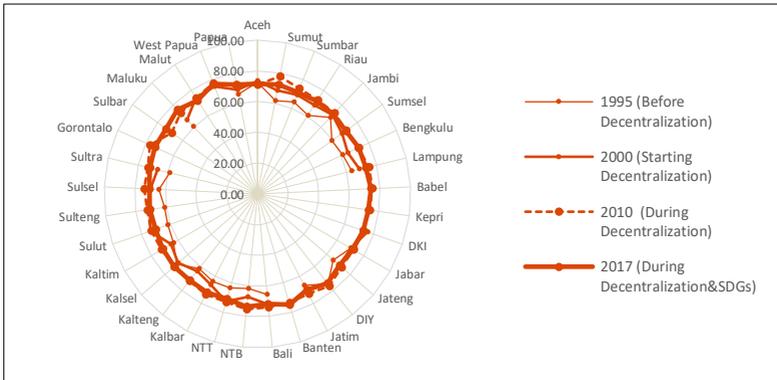
Figure 4.9. SLDI for institutional dimension in Indonesia, period 1995-2017
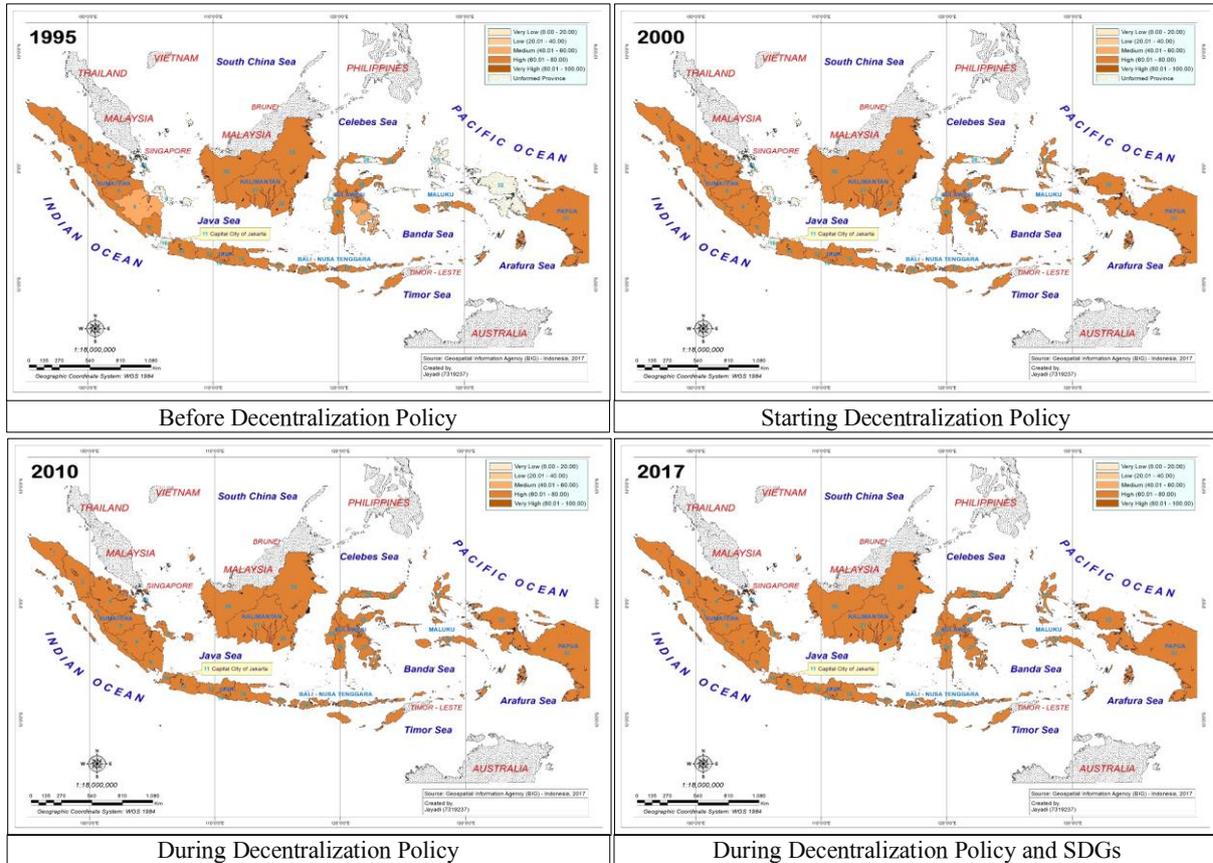
Figure 4.10. The spatial distribution of SLDI for institutional dimension in Indonesia, period 1995-2017

In contrast, Jatim had a poor institutional record as observed from the 1,503 corruption cases per million provincial government officers compared to the national average of 1,115 (BPS, 2017c, 2018c). In 2015, the number of corruption cases solved by the regional police office in this province alone was 8,023 cases per million local government, and this was found to be the highest recorded in the country from 1995-2017. Most of the perpetrators were elite policymakers, including both legislative and regional executives and in several forms such as bribery, budget mark up, and implementation of fictitious projects (Riawati, 2016).

In terms of homicide, Jatim also has a medium average of 32 cases per million people compared to the national average of 60 cases from 1995-2017 (BPS, 2017c, 2018c). Moreover, the percentage of provincial budget for institutional sectors, including security and public order, was 0.88%, which was lesser compared to the national average of 1.89% and the lowest in the country for the 23 years (Ministry of Finance, 2017). According to Pratiwi, Santosa, & Ashar (2018), the negative factors influencing the implementation of sustainable development in the social institutions of the province were population density and a high rate of crime. Marina & Budiantara (2013) also argued the high rate of crime, including homicide cases, was caused by population density, open unemployment, poverty, dropping out of school, the number of narcotics victims, and family problems. Moreover, Dona and Setiawan (2015) also claimed that the level of crime was significantly influenced by population density, poverty, social inequality, and low income.

The number of homicide and corruption cases were very dominant to generate the index for SLDI's institutional dimension and are considered significant development problems. **Table 4.5** shows that the corruption cases per million provincial government officers relatively increased by 5,534 cases while homicide cases relatively remained averagely stable at 60 cases annually for the period, and this shows the significance of the problem in the country (BPS, 2019). Moreover, several corruption cases in the decentralization policy were associated with the quality of governance and public services, as observed in different sectors such as health, education, infrastructure, and natural resource management (Hofman *et al.*, 2009).

Boadway & Shah (2009) categorized corruption into four forms, and these include small corruption, massive corruption, collusion, and patronage system. In Indonesia, the small, administrative, or bureaucratic form was observed to be conducted by individuals in public institutions through

bribery, kickbacks, diversion of public funds, and awarding of favors. The massive type was generated by state officials or political elites through the misuse of large amounts of public resources, while collusion or state regulatory capture involved private actors collaborating with public officials or politicians to enjoy mutual and personal benefits. Meanwhile, public officials and elites were mostly involved in patronage or paternalism system by using their official position unfairly on ordinary people (In-depth interview CGOV3&ACA3; FGD2, 2018). They were also found to be providing special assistance and treatment to clients with the same geographical, ethnic, and cultural origin with them.

According to the 2017 Corruption Perception Index, Indonesia ranked 96th out of 180 countries by having a similar score of 37 with the previous year (Transparency International, 2017). This was observed to be worse than China with 77, India with 81, Kuwait with 85, Sri Lanka with 91, and four of ASEAN countries, including Singapore at 6th, Brunei Darussalam at 32nd, Malaysia at 62nd, and Timor-Leste at 91st. This means the government needs to implement adequate strategies to tackle graft in the country. The data also showed corruption tops the list of 18 factors inhibiting the ease of doing business and also 'widespread and costly' factors related to the implementation of decentralization policy (Henderson & Kuncoro, 2004; Thohary *et al.*, 2015). Moreover, the additional responsibilities of disbursing funds by local public services have opened opportunities for corruption acts due to inadequacy income, lacking capacity, and bad attitudes in the local government. This further creates poverty, disparity, investment, and economic growth issues (Hofman *et al.*, 2009; Oxtavianus, 2014).

Table 4.5 also shows that expenditure in the social and economic sectors is higher than those in the environmental and institutional sectors. Moreover, the amount of money budgeted locally for the social sector, such as education, health, culture, social welfare, youth, women, and children, experienced a very remarkable increase of about 54.83 percentage over the 23 years. Meanwhile, the money expended in the economic sector for industry, agriculture, labor, trade, regional business development, regional finance, transportation, and mining also rose at a considerable percentage of about 53.55 percentage, while the environmental and institutional sectors increased only by 5.76 and 1.65 percentage, respectively. This means the affirmative action of the local government in pro-environmental and pro-institutional budgeting is lacking.

Table 4.5. Indonesia institutional dimension, period 1995-2017

Indicator / Year	The Ratio of Corruption Cases (Per Million Provincial Govern. Officer)	The Ratio of Homicide Cases (Per Million People)	The Percent. of Social Budget (%)	The Percent. of Eco. Budget (%)	The Percent. of Environ. Budget (%)	The Percent. of Institu. Budget (%)
1995	222	74	21.38	73.46	3.19	1.97
1996	197	69	23.40	70.58	3.27	2.74
1997	287	72	19.53	74.48	4.27	1.72
1998	783	83	18.99	75.93	3.98	1.10
1999	580	77	26.33	65.46	7.11	1.10
2000	174	68	29.96	61.39	7.42	1.23
2001	415	61	21.91	70.69	5.57	1.83
2002	903	55	37.31	54.60	5.79	2.29
2003	459	53	53.12	37.79	7.07	2.03
2004	504	53	56.99	33.42	7.53	2.06
2005	480	51	56.55	32.88	8.19	2.38
2006	726	50	55.91	33.83	8.17	2.09
2007	863	60	53.58	36.65	7.39	2.37
2008	695	59	51.88	38.69	6.79	2.64
2009	774	56	54.67	36.99	5.79	2.55
2010	643	68	63.17	31.32	3.81	1.71
2011	1,319	61	62.64	31.60	3.88	1.88
2012	1,185	59	62.42	31.89	3.87	1.81
2013	1,777	56	59.52	32.29	6.34	1.85
2014	2,727	49	59.79	31.90	6.62	1.68
2015	5,708	59	59.93	32.28	6.03	1.76
2016	3,338	49	63.16	30.65	4.87	1.32
2017	874	44	73.83	22.38	2.43	1.36
Average (% and Ratio)	1,115	60	47.22	45.27	5.63	1.89
Difference (Percentage Points)	5,534	38	54.83	53.55	5.76	1.65
Minimum (% and Ratio)	174	44	18.99	22.38	2.43	1.10
Maximum (% and Ratio)	5,708	83	73.83	75.93	8.19	2.74

Source: BPS (2015, 2017b, 2018), Ministry of Finance (2017), and World Bank (2017a)

4.6. SLDI in Indonesia

The quality of sustainable local development in Indonesia based on the SLDI's social and economic dimensions has expressively increased while the environmental aspect has slightly deteriorated, and the institutional dimension remained stable from 'before decentralization policy' (1995-1999) to 'during decentralization policy' (2000-2017). According to the data in **Figure 4.11**, there is a continuous development of the SLDI gradually from one year to another, and the national average was found to have increased from 57.24 points in 1995 to 72.10 points in 2017. The rise 'before' was relatively smaller compared to 'during decentralization policy.' The growth of the SLDI dramatically improved as observed in the value for all the provinces reaching above 60 points at the end of 2017.

Sustainable local development was also discovered to have been relatively distributed fairly in all provinces, as shown in **Figure 4.12**. In 1995, the quality was relatively diverse from the medium to the high categories. However, Sumut, Jabar, Jatim, Bali, Kaltim, and Sulut had the highest. At the beginning of the decentralization policy in 2000, some of those in the high category significantly increased as observed in Sumatra Island, except for Riau, Jambi, and Lampung, which were stable in the medium category. In Java Island, DIY was the only province in the medium category with 58.37 points while Bali in Bali-Nusa Tenggara Island also advanced to the high stage, and NTT remained in the medium category with 53.50 points. Moreover, the provinces in dominated Kalimantan, Sulawesi, and Maluku Islands were also categorized as high while Papua Barat and Papua remained stable in the medium category. This, therefore, means there was a continuous positive growth to produce prosperous, inclusive, sustainable, and well-governed development in the SLDI through the implementation of the decentralization policy.

The implementation of the decentralization policy in 2010 made almost all the provinces in the islands of Indonesia be in the high category, except for Sulbar and Papua that were stable in the medium category, and this was sustained up to 2017. For the past decade, the central and local governments have been trying to develop basic infrastructures such as roads, clean water facilities, improved sanitation, and electricity ratio in eastern provinces, including Nusa Tenggara, Sulawesi, Maluku, and Papua Islands to connect several isolated areas. These efforts are directed towards ensuring inhabitants of these areas are more comfortable while conducting their daily activities, visitations, and to increase their quality of life. Most developing countries have used decentralization through intergovernmental fiscal transfer and

bureaucratic reform in shaping local investments in socio-economic and environmental sectors (World Bank, 1994 in Bird & Vaillancourt, 2008).
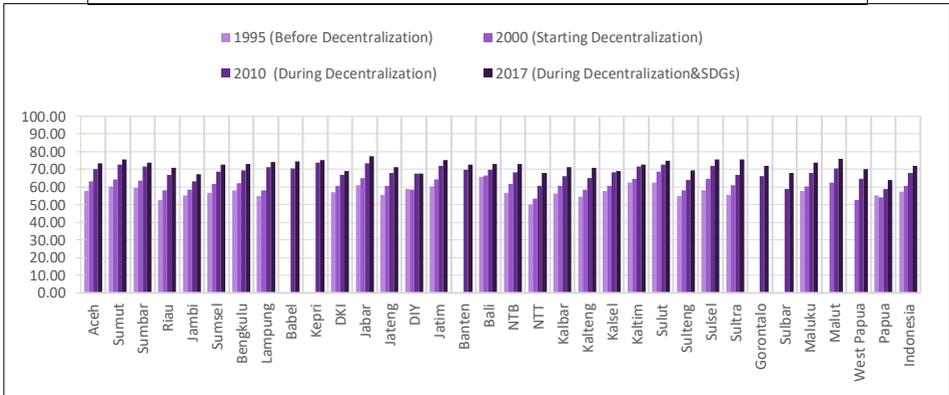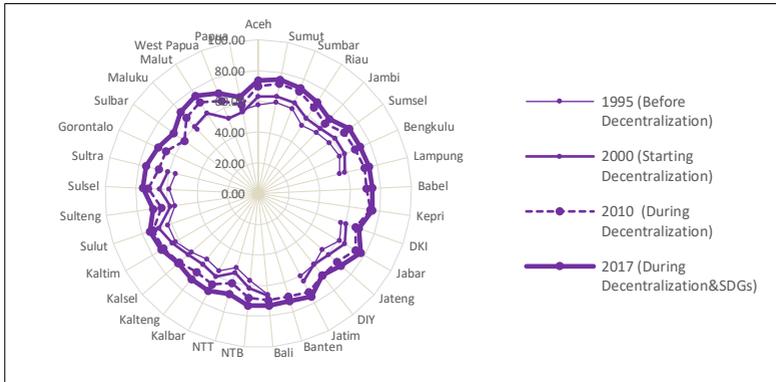
Figure 4.11. SLDI in Indonesia, period 1995-2017

In 2017, Jabar had the highest SLDI index with 77.20 points, and this was associated with its continued maintenance of the high and very high quality of sustainable development in some dimensions. For example, it has above 70 points for social-economic-institutional dimensions and the elements of social dimension such as the percentage of poor people, IMR, life expectancy, NER, malaria case, and literacy rate were found to be averagely better compared to the national value (BPS, 2018b, 2018e, 2019). It also had the largest electrification ratio, GRDP growth, internet access, cellular phone use, and slum area reduction in the economic dimension (BPS, 2018c, 2019; Ministry of Energy and Mineral Resources, 2018).

In the environmental dimension, Jabar had a high ratio of the reforested area with 5.67 km^2 compared to the national average of 0.18 km^2 per 1000 km^{2,} and some of its institutional dimensions were also found to be good (BPS, 2018a). For example, the homicide case per million people in was 19 compared to the national average of 60 while the corruption per million local government officers was 479 cases compared to the national average of 1,115 (BPS, 2016, 2019). In the local budget, the provision for the economic and environmental sectors at 47.73% and 5.96% were also above the national average of 45.27% and 5.63%, respectively (Ministry of Finance, 2017).

On the contrary, Papua had the lowest SLDI index of 63.78 in 2017, and this means the province is not at the same level as others concerning the quality of sustainable development. This was mostly associated with the social-economic disparity, as evidenced in the lowest social and economic index of 61.29 and 45.02 points, respectively. Moreover, the environmental dimension average index was also observed not to be too high with only 62.94 points, and this means the local people did not have access or were not directly involved in the development programs. It is, however, important to note that human capital through material, intellectual, social, and spiritual resources are critical to sustainable development but are usually limited by the quality of education and skills (Terselly Djese, 2016; In-depth interview CGOV1, CGOV3, CGOV6, BA3, ACA4&IO3; FGD1&FGD2, 2018). Furthermore, the average NER from primary education and literacy rate were also 46.11% and 73.89% and below the national average of 65.95% and 95.50%, respectively (BPS, 2017b).

The change in social organization and technological capacity also influences the patterns of the interaction between humans and their environment in using basic social-economic services (Capra, 1997; Cohen and Peterson, 1999; Hughes, 2000). Moreover, human resources development is the central vision for the seven dreams of Indonesia 2015-2085 and the Development of Indonesia 2045 (Bappenas, 2017c; Somba, 2015). Therefore, prioritizing only basic infrastructure and the economic sector is not enough to ensure sustainable development in remote areas such as Papua, it needs to be balanced with the empowerment of human resources (Somba, 2017).

The commercial extraction of natural resources in large quantities through mining, illegal logging and fishing, and private plantations has also been considered to induce social conflict and poverty in Papua (Yanuarti, 2012). The majority of the residents in this province are in villages and remote areas with subsistence economic life and dependence on nature, and this makes the natural habitat and environments important to them. This is associated with

their economy as well as identity, spirituality, and collective dignity. Therefore, the strategies formulated to ensure sustainable local development to improve the people's welfare is expected to be linked and integrated with the social, economic, and environmental aspects. According to Terselly Djese (2016), future policies should be able to build holistic-systemic and not partial, or reactive strategies. Therefore, the triple bottom line model of sustainable development, including social responsibility, economic viability, and environmental protection, needs to be implemented in Papua.

The political commitment to revitalize public policies within the framework of asymmetric decentralization in Papua should be continuously improved (Syaukani *et al.*, 2003). In the democratic era, there is a need to focus on customary land rights, local wisdom, and social capital as long as they do not threaten the integrity of the unitary nature of Indonesia (Tyson, 2010). Moreover, the Papua Government certainly needs to increase the bureaucratic capacity and continuously relocate local authority along with the enhancement of people's capacity to involve in peaceful collaboration, human rights protection, and rising standards of living. Furthermore, Lockwood (2006) argued that the high cost of decentralization policy was due to the coordination failure of stakeholder strategies, especially in terms of revenue management and expenditure externalities to exploit local resources of scale. Therefore, sustainable development policies in the province should be more accommodating to local aspirations and culture through mutual partnership.
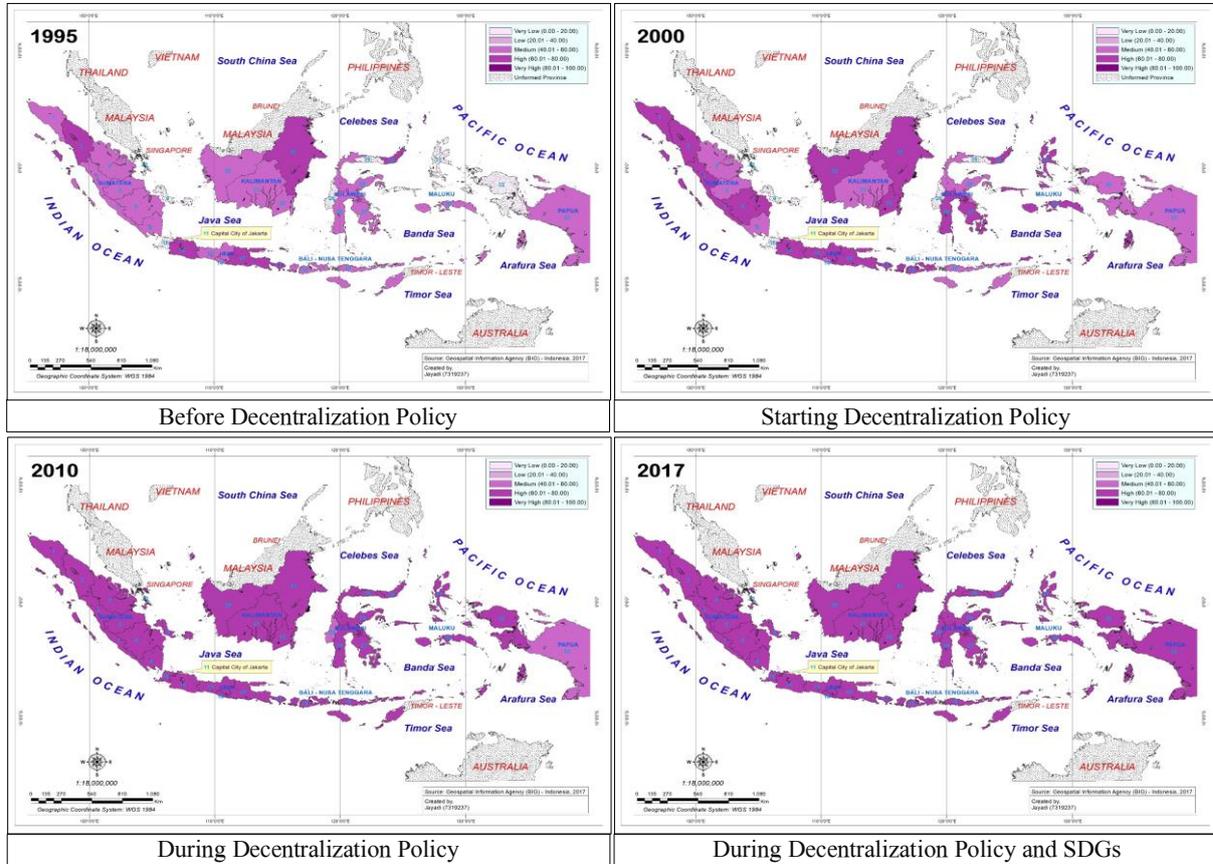
Figure 4.12. The spatial distribution of SLDI in Indonesia, period 1995-2017

- Political Decentralization
- Administrative Decentralization
- Fiscal Decentralization
- Economic Decentralization

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Chapter V
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A multiple regression model on panel data analysis was used to examine the relationship between decentralization policy indicators and the SLDI in Indonesia at the provincial level using an annual panel data set consisting of 33 provinces for the period of 1995-2017. This led to a total number of 759 research observations with the SLDI and decentralization policy as the dependent and independent indicators, respectively. The decentralization policy indicators were from political, administrative, fiscal, and economic decentralization.

The Fixed Effect (FE) model was used to determine the differences between individuals and their variations. Meanwhile, the FE model as the Least Squares Dummy Variable (LSDV) technique was used to capture the intercept differences between provinces (Jaya and Sunengsih, 2009; Mátyás and Sevestre, 1993; Pangetika, 2015). The FE model is also conducted to solve the restrictiveness of the Ordinary Least Square (OLS) model comprising of omitted indicator bias (Nachrowi and Usman, 2002; Widarjono, 2007). The FE model has the ability to control each data, and its impact is the reason behind the correlation between the entity's error term and predictor indicators. The FE model eliminates the effects of these time-invariant characteristics. Therefore, the model has the ability to assess the net effect of the predictor indicators.

Meanwhile, the OLS model tends to experience problems associated with endogeneity in the panel while ignoring the immeasurable indicators of the SLDI variable (Abdallah *et al.*, 2015). However, the OLS does not have the ability to measure the voter, candidate, and local officers' motivation capacity in the political decentralization as well as the psychological aspects and motives in the administrative, fiscal, and economic decentralization. All omitted indicators are likely to affect sustainable local development in Indonesia directly. Therefore, the error term overestimates the value for the

coefficient on β_1^d, β_2^d, till β_4^d, due to its inability to capture the impact in the OLS.

5.1. Political Decentralization

The decentralization policy is an effort to improve the effectiveness and efficiency of implementing regional government from a complex political entity using administrative rules and institutional arrangements. It is a multifaceted process used to establish a relationship between political stakeholders, local governments, and parliaments. In general, every case that triggers and encourages decentralization policies comes from a struggle for democratization (Turner, 2006). Hence, decentralization plays an essential role in political education, stability, equality, and public accountability (Syaukani *et al.*, 2003).

Political decentralization differs with people the same way democracy means different things for various countries (Tikson, 2008; Treisman, 2007). Cheema & Rondinelli (2007) stated that political decentralization in local democracy comprised of organizations and procedures for improving community participation by selecting political representatives through the devolution of power and freedom of association. Furthermore, it needs to ensure increased public participation in various political activities and regional development based on local initiative and creativity (Sutiyo and Maharjan, 2017). Consequently, open political communication, good coordination, and strong public participation are the keys to future policy synchronization (Bappenas, 2013).

However, women's participation in political decentralization through decision making and active participation is essential in sustainable development (Vargas, 2002). The 1992 Rio Earth Summit stressed the need for the government to ensure women's participation in ecosystem management and control of environmental preservation (Shinbrot *et al.*, 2019; United Nations, 1992). Similarly, the 3rd Earth Summit (Rio +20) in 2012 also recognized that gender equality and the empowerment of females were substantial for future sustainable development (United Nations, 2012). Even SDGs 2015-2030 have the target of ensuring equal opportunities for females in political participation (UNDP, 2015).

Table 5.1 shows that the relationship between political decentralization indicators and sustainable local development. In general, the percentage of females as House of Representatives and local parliament members by 0.02% and 0.14%, positively affects the SLDI. This statistically means that a 1%

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increase of female representative raises the SLDI by 0.02 points and 0.14 points. Furthermore, the indicator of females as local parliament members also significantly increases the social, economic, and institutional dimensions by 0.17%, 0.37%, and 0.08%. Therefore, the Indonesian government needs legislative reforms to ensure women have increased access to the political sphere, especially at the local level.

Table 5.1. The result of panel regression in fixed effects for political decentralization

Indicator	SLDI	Social Dimension	Economic Dimension	Environmental Dimension	Institutional Dimension
Females as House of Representatives Members	0.0156984* (0.0085426) [1.84]	0.0128967 (0.0095395) [1.35]	0.046100** (0.0196340) [2.35]	0.0006432 (0.0122559) [0.05]	-0.0127325 (0.0121691) [-1.05]
Females as Local Parliament Members	0.1397925*** (0.0243223) [5.75]	0.1662098*** (0.0271607) [6.12]	0.374618*** (0.0559017) [6.70]	-0.1375095*** (0.034895) [-3.94]	0.0846452** (0.0346477) [2.44]
Observations	759	759	759	759	759

Standard errors in ( ) and t-statistics in [ ]
*** significance level 1%, ** significance level 5 %, * significance level 10 %

Generally, the female parliament indicator is a proxy for empowering women towards increasing development participation in correlation with the value of openness, modernity, liberalism, capacity, and gender equality in addressing issues, such as marginalization, subordination, stereotyping, violence against women, low education, and limited skills (Prihatini, 2019; UNDP, 2015; USAID, 2006). However, the intensity of women is often in direct contact with problems of welfare, children's education, family health, clean water, and sanitation. The role of women in managing finance and the family economy becomes a vital actor for sustainable development at the local level (Dewi, 2011). In the environmental dimension, the critical role of women in educating children tends to have an essential influence in directing 'sustainable' lifestyles that are environmentally friendly, starting from the family level. Also, they can be leading actors in tackling global warming issues and protecting the environment at the grassroots (Sarwono, 2010; Soemiarno in Dewi, 2011).

According to Mavisakalyan & Tarverdi (2019), women's representation in national parliaments led to better climate change policies, thereby lowering carbon dioxide emissions. Shailaja (2000) stated that women played a significant role in biofuel management to achieve sustainable development

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in rural areas of India. Similarly, Gissi *et al.* (2018) also noted that women were often seen as the main actors that encouraged sustainable development due to their inclusive and collaborative role. Madrigal-Ballestero *et al.* (2013) reported that women tend to follow the procedures for preservation activities in community-based projects, based on their assumption, which aids to improve their self-esteem, empowerment, and self-determination. Overall, increasing the role of women in the decision-making process and political participation facilitates sustainable approaches based on their experiences with the use of natural resources.

Women's representation in parliament is essential in accordance with justice and equality for sustainable development (In-depth interview LGOV4; FGD1, 2018). In Indonesia, there are assumptions that higher female representation positively influences governance outcomes due to their rare involvement in cases of corruption, collusion, and nepotism (World Bank, 2001 in Hoffman & Kaiser, 2006). Women are perceived to be more sensitive in grassroots politics, as well as social and economic issues (Prihatini, 2017). They are also considered to possess better social role patterns than men in changing their behavior towards lower resource extraction based on formal regulations and social sanctions (Revollo-Fernández *et al.*, 2016).

The Rio Earth Summit carried out in 1992 and 2012 acknowledged the critical role of women in sustainable development. However, patriarchal[5] hierarchies in politics, still hinder their roles (Shinbrot *et al.*, 2019). Therefore, the sustainable development agenda needs to continue to empower potential women as leaders and men as partners. According to Law No. 2/2008, all political parties need to meet the minimum quota of 30% for their female candidates. However, in this study, the average percentages of female members in the central and local parliaments, in the period of 1995-2017, are still 13.94% and 13.37%, respectively (BPS, 2018d). This policy of minimum 30-percent-female candidates is an essential breakthrough in political decentralization, and genuinely defective.

Therefore, in the environmental dimension, female politicians do not significantly increase the sustainable index, which means that they do not play a significant role in improving the quality of the environment. USAID (2006) stated that there were still less functional-responsive female parliaments in Indonesia, with limited knowledge and skills in substantive environmental issues. Todaro & Smith (2012) stated that improving the quality of women's education in sustainable management was essential.

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[5] It is a social system in which men as the main power holders and dominates the role of political leadership, moral authority, social rights and property control.

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Therefore, capacity building and political training on the role of female parliamentarians need to be implemented at all local levels (Rukmo, 2009). It is also necessary to conduct training and education on planning, budgeting, operations, maintenances, and public communication strategies.

In Indonesia, female representatives in the parliament are still dominated by models, actresses, and family members of powerful male politicians (Drake and Higgins, 2006). The media darling's focus on the female candidate's popularity rather than her political capacity endeavors to further embed patriarchal norms in politics. The ability of women to balance domestic affairs and public responsibilities is also difficult (Devlin and Elgie, 2008). Furthermore, cultural aspects affect the role of women in parliament due to the negative perception between one religion's rule and women's political leadership in Indonesia (Prihatini, 2019).

Said (2010) highlighted two crucial problems related to female parliaments in Indonesia, namely a considerable variation of the educational level and limited staff resources. Many female politicians do not have good track records, adequate experiences, and knowledge. This ineffectiveness leads to the creation of unqualified female politicians in every political contestation. Moreover, most female parliament members also have a shortage of supporting staff, such as employees, expert consultants, and institutional facilities. In turn, these problems hamper the significant role of parliament in the policy-making process of sustainable environmental plans.

In the context of pseudo decentralization, the political party conditions were centralistic in contrast to the centrifugal system used in the 1950s. On the contrary, the contemporary political parties in the current reform era are mainly centripetal due to their homogenized ideological views (Mietzner, 2008). Consequently, the same pattern is not followed in the delegation of central authority to the local legislative. Parliament members in Indonesia tend to obey and follow the political interests of the central party leaders rather than support good local government policies (Huda, 2005). Hence, the shortcoming politician's contributions have induced some challenging and cross-cutting local issues related to environmental development. Meanwhile, more parliamentarians still view the narrow interests of their electorate's aspirations, such as social protection, welfare, and basic infrastructure in the short-term perspective. In contrast, environmental development needs more widespread public interest and cross-cutting actors in the long-term perspective.

Therefore, the role of female parliamentarians in environmental development is still necessary for policymaking, representation, and oversight functions.

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Furthermore, a special parliamentary committee is established to raise awareness and political will by promoting greater environmental development plans (Bowman and Kearney, 2011). They are also allowed to support and contribute to budget regulations and allocations. In the representation function, environmental policies require efficient communication, tight engagement, and public participation. In addition, local communities also need to be involved in participatory budgeting and open mechanism to express their preferences (Litvack *et al.*, 2000). In the oversight function, local female parliamentarians need to review and evaluate the implementation of sustainability program performances based on approved policies, regulations, and allocations.

5.2. Administrative Decentralization

Indonesia is currently experiencing significant challenges for consolidating governmental policies at the provincial levels in order to achieve sustainable local development agendas in the administrative decentralization aspects (Hoffman and Kaiser, 2006). According to Suwandi (2004), the essential elements for administrative decentralization, are function, regulations, institutions, personnel, finance, representation, and services. Furthermore, Treisman (2007) stated that the multi-tier decentralized government aims to fulfill people's welfare on public goods and services more precisely and efficiently. Consequently, this policy has spurred the rise of independent local governance.

However, decentralization is currently presenting the challenge of synchronizing development across the regional administrative authorities amid uneven capacity and unequal potency levels. The keyword of administrative decentralization is 'authority,' hence, the local governments are expected to be more creative in providing developmental incentives (Said, 2010). The local governments have the ability to overcome the limitations of fiscal and economic resources associated with administrative authority and creativity in every province (Syaukani *et al.*, 2003). The target of SDGs from 2015-2030 is to develop good administrative institutions at all levels (UNDP, 2015). Therefore, the challenge is each local government needs to possess its strategy and policy in an administrative unit, regulation, agency, and government office because it varies in terms of achievement and capacity.

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Table 5.2. The result of panel regression in fixed effects for administrative decentralization

Indicator	SLDI	Social Dimension	Economic Dimension	Environmental Dimension	Institutional Dimension
District (Kabupaten)/ City (Kota)	0.0928674 (0.1355996) [0.68]	-0.1031357 (0.1514235) [-0.68]	-0.5127949* (0.311658) [-1.65]	0.1484323 (0.1945433) [0.76]	1.495849*** (0.1931644) [7.74]
Sub-District (Kecamatan)	-0.0035836 (0.0145859) [-0.25]	0.0020177 (0.016288) [0.12]	0.059401* (0.033524) [1.77]	-0.0594014*** (0.0209262) [-2.84]	-0.0444914** (0.0207779) [-2.14]
Local Regulation (Peraturan Daerah)	-0.0605202** (0.0306596) [-1.97]	-0.0881811*** (0.0342375) [-2.58]	-0.185729*** (0.0704671) [-2.64]	0.1010637** (0.0439871) [2.30]	-0.028089 (0.0436753) [-0.64]
Local Agency	-0.1746525*** (0.0337146) [-5.18]	-0.026955 (0.0376489) [-0.72]	-0.23845*** (0.077488) [-3.08]	-0.3069521*** (0.0483699) [-6.35]	-0.1160458** (0.0480271) [-2.42]
Local Government Officer	0.6495101*** (0.1957407) [3.32]	0.6820878*** (0.2185829) [3.12]	0.8700673* (0.4498840) [1.93]	-0.2234627 (0.2808271) [-0.80]	1.538746*** (0.2788366) [5.52]
Observations	759	759	759	759	759

Standard errors in ( ) and t-statistics in [ ]
*** significance level 1%, ** significance level 5 %, * significance level 10 %

Table 5.2 shows that the result of a panel regression, which reduces the economic index by 0.51%. These results show that the ratio of the district/city has a negative influence on the economic dimension. Therefore, the size of the administrative jurisdiction, at the local government level, implicates an exchange between economies of scale and the costs of managing a more significant and diverse economy (Fitrani *et al.*, 2005). Hence, the addition of new districts significantly burdens the provincial government in terms of budget allocation, capacity, and assigned functions to produce more decent economic services.

This condition also explained the 1999 administrative decentralization with the continuous formation of the district/city in generating inefficient macroeconomic stability. The rapid proliferation of local areas has improved fragmentation and instability due to the interracial, interethnic, and interreligious conflicts thereby, leading to an unstable governmental system (Nasution, 2016). Furthermore, the negative consequences of regional proliferation are often related to inefficient government administration due to the increase in the per capita costs of the public assigned functions from

the central government to all districts/cities (USAID, 2006). The establishment of new local governments from 292 to 509 districts/cities in the proliferation process has continuously created fixed costs for the economy that weighed heavily on local-state budget spending. The high growth of the number of new autonomous districts/cities by 74.32% in 23 years was mainly driven by local politicians for their financial gain (BPS, 2017c).

Nonetheless, the districts/city' ratio has positive impacts on the institutional dimension by 1.5% statistically. This result elucidates that all-new autonomous areas in the district/city formed in the decentralization era have the ability to induce the fulfillment of local agency and government officers. Furthermore, a large number of new administrative institutions at the local level tend to narrow the range of control from the provincial government in the institutional performance. Decentralization draws the society closer, nurture local virtue, stimulate policy advance, and alleviate indigenous tension to the locus of authority (Treisman, 2007). Therefore, some possible strategies to apply in this context are making better public information, conducting more participation, and maintaining greater accountability (Faguet and Pöschl, 2015).

Besides, the ratio of sub-district also has a significant negative effect on environmental and institutional dimensions, by 0.06% and 0.04%. At the inception of the decentralization policy, some political actors in Indonesia stated that the proliferation process of the new autonomous region, highly determined the local areas within a province to assure justice, equity, and welfare (Fitri, 2008). The increase in the number of new autonomous sub-districts from 3,783 to 7,164 by 89.42% in 23 years, also led to a continuous creation of fixed costs for the economy (BPS, 2017c). During implementation, increasing the number of sub-districts adds a considerable institutional burden for the provincial government in terms of unequal capacity and financial resource allocation.

In the decentralization policy, the sub-district acts as a regional institution for conducting general government affairs and public services in villages (Government Regulation No. 17, 2018). Therefore, when the sub-district is expanded, it creates adverse effects on the village division, which is sometimes based on political interests than welfare (In-depth interview CGOV3, 2018). However, social responsibility and solidarity in the villages are essential for sustainable human development (Chabbi-Chemrouk and Driouèchea, 2011). Community-based development is vital in the creation of sustainable village sustainability activities (Fatimah, 2018). Therefore,

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Bebbington *et al.* (2006) suggested that local government policies in Indonesia need to empower social capital and help map out the capacity limits in sub-districts. Simultaneously, policies are taken by bonding, bridging, and linking social capitals in several villages, clarifies the different levels of capacity to overcome sub-district development issues.

Furthermore, **Table 5.2** shows that the ratio of local regulation significantly decreases the SLDI, social index, and economic index by 0.06%, 0.09%, and 0.19%. This result shows that some provinces in Indonesia have a critical problem with the harmonization of local regulations. The three layers of government, namely the central, provincial, and district/city, needs to clarify the regulations. In practice, the delegated authorities from the central to the local governments are based on aspects of externality, accountability, and efficiency, while the delegated regulatory architecture is much simpler (Suwandi, 2004). Various problems tend to arise in adjusting and detailing those delegated regulations based on local characteristics. In turn, the disharmonized legal and regulatory rigidity is blamed for law enforcement, sluggish economic growth, low quality of social protection, and environmental degradation (Dwiyanto, 2015).

The important principles in assessing local regulations need to create a coherent and workable legal product hierarchy. In preparing these legal instruments, the regulation needs to be based on several legal aspects, such as clarity of purpose, appropriate support, consistency of the content, feasibility of application, efficiency, effectiveness, clearness, and openness (USAID, 2006). Moreover, in the decentralization era, the central government appeared weak with a critical instrument used to control the provinces in the cancellation of contra-productive regulations. Any cancellation of local regulations on the basic principles of law need to be processed through higher laws (*lex superior derogat legi inferiori*), newer similar laws (*lex posterior derogat legi priori*), or more specific laws (*lex specialis derogat legi generali*) based on the fair-correct executive review from the central government (Novianto *et al.*, 2016).

Also, the ratio of local agency statistically decreases the SLDI, economic, environmental, and institutional indexes by 0.17%, 0.24%, 0.31%, and 0.12%, respectively. This means that the secretariat, inspectorate, department, and office in the province, do not have the essential roles in supporting sustainable development. Local agencies tend to carry out governmental and development functions, which are the authority of the provincial region (Government Regulation No. 18, 2016). In implementing the administrative functions, the decentralized policy is also expected to

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create more capable autonomous local agencies in conducting several delegated authorities and decentralized cooperation (Cheema and Rondinelli, 2007).

However, from this statistical result, the local agencies are unable to carry out their duties and responsibilities effectively and efficiently on sustainable programs and policies. Dwiyanto (2015) also argued that disharmony and overlapping authority amid local governments leads to different interpretations among functions of local agencies. Therefore, the overlapping authority induces the conflict of fragmented authority in the implementation of cross-sectoral sustainable development programs (In-depth interview CGOV4, CGOV5, CGOV6, LGOV2, LGOV3, BA3, PHI1, MED1, ACA1, ACA2, ACA3, ACA4&ACA5; FGD2, 2018).

In the meantime, the ratio of local government officers has a positive effect on the SLDI, social, economic, and institutional indexes by 0.65%, 0.68%, 0.87%, and 1.54%, respectively. Therefore, the local government officer is valuable in providing sustainable development. From 1995 to 2017, the average ratio of local government officers per 1000 people in Indonesia was two officers (BPS, 2019). However, although the quantity was significant, the quality needs to be considered, and the inability of the local government to maintain the quality of local agencies through educational-attainment officers becomes problematic for sustainable development (Krueger, 1990). Similarly, local government officers are stimulated to possess higher moral attitudes, stronger commitments, and more productive performance (Huda, 2005). Therefore, they need to thrive on providing more educated-skilled government officers based on the merit system[6].

Moreover, some local public services in the provincial government have an infamous autocratic system, vulnerable to extractive political intervention, endemic corruption, and inefficient performance (Silitonga *et al.*, 2016). Hence, a policy is needed to build an active performance-sustainable public service in the province through strategic human resource management. Based on this rationale, the local governments need to apply the merit principles in recruitment, placement, promotion, career development, training, pension, and recompense towards the right public institutions (Dwiyanto, 2015; Mardiasmo, 2007; USAID, 2006).

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[6] Process of recruitment, appointment, placement and promotion to government officials based on their capacity (knowledge, skills, and abilities) to perform a job rather than on their political connections and patronage influences (Bowman and Kearney, 2011).

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5.3. Fiscal Decentralization

Fiscal decentralization is defined as a set of formulas generated to support the structure of local governments. This, therefore, means that it is conducted through public revenue sharing amid all tiers of government (Cheema and Rondinelli, 2007). Hence, the fiscal transfer guarantees the minimum level of public services and tackle the inter-jurisdictional spill-over effects in providing cross-administrative public services spread over regional borders (Bird and Vaillancourt, 2008; Suparno, 2004). The intergovernmental fiscal transfer aims to mobilize local revenues and to tackle the gap between local governments (Brodjonegoro, 2009). In several countries, the central government needs to ensure that broad objectives in fiscal inequality and disparity are addressed to improve the quality of public services and development, as shown in **Table 5.3**. In addition to influencing political stability and even national unity, fiscal decentralization also has the potential to utilize higher development priorities for local needs (Hadiz R., 2004).

In general, the fiscal decentralization acts as the principal capital in improving satisfied public services and in dealing with several global challenges. Furthermore, it drives the local finance resource development closer to the people, with stronger incentives for local governments to perform well in providing development resources (Treisman, 2007). Oates (1999) and Saito (2008) stated that the proximity of local governments to the community is more appropriate than the central government. In this context, fiscal decentralization is a manifestation of the principle of subsidiarity[7]. Similarly, some global challenges and SDGs reinforce this significant role in handling multiple crucial issues, such as energy shortages, food security, and sustainability (UNCLG, 2010; UNDP, 2015). Therefore, providing more fiscal transfers provides a larger local fiscal space. Furthermore, the efforts of local governments with communities to determine sustainable programs based on fiscal capacity and financial needs become more optimal.

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[7] It is the principle of recognition that everyone is responsible for himself and has the right to determine his own destiny. Consequently, other people simply cannot interfere in someone's freedom for himself as long as his responsibility is able to be carried out properly and correctly. In the context of decentralization, this principle affirms that what can be managed and resolved by local governments with existing capabilities and facilities, the central government may not interfere. The central government may only intervene as far as helping local governments in pursuing public welfare and in creating distributive justice.

Table 5.3. Some broad objectives of intergovernmental fiscal transfer in the world

No.	Objectives	Grand Design	Countries	Practices
1.	Fiscal Gap	Reassign, tax base, extractive industry regulation	China, India, Malaysia, Pakistan, South Africa, Canada, a joint-venture grant of DBH in Indonesia	Deficit grants, tax by tax sharing, natural resources sharing
2.	Regional Disparity	Fiscal capacity equalization	Latvia, Lithuania, Poland, Romania, Russia, Ukraine, Australia, Argentina, Brazil, Colombia, India, Nigeria, Mexico, Pakistan, South Africa, Canada, Germany, Europe and Central Asia (ECA) region, the lump-sum grant of DAU in Indonesia	General revenue sharing
3.	Setting National Minimum Service Standard	Block transfers, conditions on service standards	Ex-Indonesia roads and education, Chile education, Colombia, South Africa, and the capitation grant to Malaysian states	Conditions on spending
4.	Benefit Spillovers	Matching grant and closed-ended matching	South Africa teaching hospitals transfer	Matching transfer
5.	Influencing Local Priorities	Conditional closed-ended matching, open-ended matching	India, Malaysia, Pakistan, Canada social assistance, matching grant of DAK in Indonesia	Ad hoc grants

Source: Based on Bird (2003), B. P. S. Brodjonegoro (2006), Enikolopov & Zhuravskaya (2007), Litvack *et al.* (2000), Lockwood (2006), Oates (1999), Platteau (2009), and Shah & Thompson (2004)

Moreover, the pressure of fiscal decentralization policy in Indonesia is motivated by the various reasons for supporting local development (Brodjonegoro, 2006). Many developing countries in Asia and Africa have implemented the fiscal decentralization mechanism as a strategy to emerge

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out of its ineffective-inefficient government and macroeconomic instability (Bird and Vaillancourt, 2008). Moreover, the provision of more massive fiscal transfers tends to enhance the endeavor of executive-legislative relations to determine sustainable development programs. Therefore, the allocation of intergovernmental fiscal transfer in Indonesia has continuously improved.

Table 5.4. Intergovernmental fiscal transfer in Indonesia, period 1995-2017

Indicator Year	The Ratio of DBH SDA in Billion Rupiah (Per Million People)	The Ratio of DBH Pajak in Billion Rupiah (Per Million People)	The Ratio of DAU in Billion Rupiah (Per Million People)	The Ratio of DAK in Billion Rupiah (Per Million People)
1995	2.12	2.95	21.30	6.70
1996	2.31	3.71	22.54	7.22
1997	2.51	3.88	22.81	8.09
1998	3.99	5.27	8.81	8.94
1999	4.36	6.21	10.79	14.27
2000	4.06	6.44	11.03	14.66
2001	16.07	20.75	31.92	0.75
2002	18.78	24.19	34.75	6.53
2003	16.70	30.34	40.39	7.93
2004	19.34	39.70	40.29	5.84
2005	29.55	40.24	40.29	3.60
2006	43.97	45.80	64.84	0.35
2007	30.27	48.49	72.39	3.70
2008	43.99	63.36	77.65	3.03
2009	36.35	64.56	79.65	5.77
2010	37.50	71.65	83.43	3.43
2011	53.53	66.72	93.41	5.26
2012	62.01	80.52	111.81	5.29
2013	42.47	70.04	125.31	7.29
2014	55.39	68.68	135.55	8.90
2015	37.91	48.77	135.91	13.93
2016	33.97	84.51	144.97	196.00
2017	30.38	103.35	208.40	232.86
Average	27.14	40.76	64.08	15.34
Difference	59.88	100.40	199.59	232.50
Minimum	2.12	2.95	8.81	0.35
Maximum	62.01	103.35	208.40	232.86
Sum	627.54	1,000.12	1,618.23	570.37

Source: BPS (2015, 2017a, 2017b) and Ministry of Finance (2017)

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Table 5.4 shows that the allocation of intergovernmental fiscal transfer in Indonesia has significantly increased over the last 23 years. In addition, the ratio of DAK and DAU per million people, rapidly increased by 232.50 Billion Rupiah and 199.59 Billion Rupiah, from 1995 to 2017. The smallest increase only occurred in the ratio of DBH SDA per million people, amounting to 59.88 Billion Rupiah.

Table 5.5. The result of panel regression in fixed effects for fiscal decentralization

Indicator	SLDI	Social Dimension	Economic Dimension	Environmental Dimension	Institutional Dimension
Natural Resources Revenue Sharing (DBH SDA)	-0.0002371 (0.0009595) [-0.25]	0.0006863 (0.0010715) [0.64]	-0.0002184 (0.0022053) [-0.10]	-0.0009027 (0.0013766) [-0.66]	-0.0009005 (0.0013668) [-0.66]
Tax Revenue Sharing (DBH Pajak)	-0.005853*** (0.0019596) [-2.99]	-0.0138023*** (0.0021882) [-6.31]	-0.0226447*** (0.0045038) [-5.03]	0.0233499*** (0.0028113) [8.31]	-0.0055859** (0.0027914) [-2.00]
General Allocation Fund (DAU)	0.0125956*** (0.0012961) [9.72]	0.0134716*** (0.0014473) [9.31]	0.0329154*** (0.0029788) [11.05]	-0.008039*** (0.0018594) [-4.32]	0.0051603*** (0.0018463) [2.80]
Special Allocation Fund (DAK)	0.0002887 (0.0016753) [0.17]	0.0034805* (0.0018708) [1.86]	0.0045130 (0.0038505) [1.17]	0.0000288 (0.0024036) [0.01]	-0.0130042*** (0.0023865) [-5.45]
Observations	759	759	759	759	759

Standard errors in ( ) and t-statistics in [ ]
*** significance level 1%, ** significance level 5 %, * significance level 10 %

Table 5.5 shows that the ratio of DAU has a positive effect on the SLDI, social, economic, and institutional indexes by 0.01%, 0.01%, 0.03%, and 0.01%, respectively. The DAU is the fund sourced from the state budget revenues allocated to obtain inter-regional financial funds in accordance with the needs of the region in implementing fiscal decentralization (Law No. 33, 2004). Besides, the DAU is also the most critical intergovernmental fiscal transfer used to bridge the horizontal gap due to differences in fiscal capacity across local jurisdictions (Shah *et al.*, 2012). Therefore, in the sustainability context, the DAU is a useful instrument used to solve the local disparity amid all provinces in Indonesia (Firman, 2003). This fiscal transfer tends to strengthen the local government institutions in order to apply some

sustainable social-economic programs, such as social protection programs and local economic empowerment.

In contrast, DAU has a statistically negative impact on environmental dimensions by 0.008%. Therefore, the DAU does not have a significant impact on environmental quality preservation because it is only used by local governments to allocate local officer's expenditures rather than to match crucial local needs and address any current environmental development (Hofman *et al.*, 2006). The dominance of the DAU allocation for official salaries in some local areas is considered incompatible with agency reorganization designs by prominent stakeholders (In-depth interview CGOV3, CGOV4, CGOV5&, IO3; FGD2, 2018).

Shah *et al.* (2012) stated that the DAU is commonly used in the form of incentives for local institutions in creating bureaucratic employment as an excellent public service provider. Consequently, the DAU for some local governments in Indonesia is dominantly considered as a wage financing strategy for civil servants without increasing the accountability for public performance. Therefore, the DAU needs to be directed in order to finance some sustainable environmental programs, such as communal forest, disaster mitigation, green economic development, sustainable agriculture, and community-based conservation.

Conversely, the DBH SDA does not have a significant impact on the SLDI and other sustainable development dimensions. Generally, it is the fund sourced from the state budget revenues allocated to local areas in the extractive industries, such as crude oil, natural gas, general mining, geothermal, forestry products, and fishery products (Law No. 33, 2004). Nevertheless, this fiscal transfer does not have a positive contribution to sustainable development. These results showed that the mining business had not found a close relationship with achieving sustainable development. This is due to the various problems caused by its activities. The key reasons for including the sustainable mining industry is a prerequisite for the protection of natural, human, and social capital (Tajvidi *et al.*, 2019).

In the decentralization era, fiscal policy arrangements tend to encourage local governments to generate more significant revenue through natural resource extraction (Duncan, 2007). Decentralized fiscal policy has also brought the changing paradigm of natural resources, which allows local governments and communities to play a more dynamic role in how their natural resources are utilized in the decision-making process (Agrawal and Ostrom, 2001). However, aggressive mining often works against the enormous benefits of indigenous peoples due to the effects of sporadic exploitation on the

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irreversible loss of natural resources. Meanwhile, the social-economic injustice between and within local communities, due to the exploitation activities, persists, and worsens in several cases (Happaerts, 2012). Over the past decade, the extractive activities in Indonesia led to severe environmental degradation and also enhanced the proliferation of social conflicts in the local areas (Rosyida *et al.*, 2018).

The local governments have benefited from the extractive operations by accepting large royalty payments from miners without considering their detrimental impacts on the environment and the surrounding communities (Chan and Huang, 2004; UNEP, 2011). The activity associated with sharing natural resource revenues through DBH SDA in the era of decentralization is basically to finance the replacement of exhausted resources on an alternative sustainable economic basis. The benefits of the transfer need to be manifested into sustainability programs for the present and future local communities. Therefore, firm government policy and an active role of the community are necessary to ensure mining activities are carried out with eco-friendly technologies.

Furthermore, the regulation in ensuring sustainable viability of mining investments undoubtedly plays an essential role in promoting inclusive jobs and contributing to the efficient use of resources, clean infrastructure, and the mitigation of environmental impacts (Monteiro *et al.*, 2019). However, the current system of the DBH SDA from mining activities prohibits intergenerational transfers, due to the selfish benefits of the local politicians and other elites in constituencies or the existing power structures (Bahl and Tumennasan, 2004). Although there has been no overall oversight of these expenditures, many believe that much of the money has been wasted. The 'windfall' revenue from the DBH SDA is relatively large with scant accountability and transparency.

The DBH Pajak has a significant negative effect on the SLDI, social, economic, and institutional indexes by 0.01%, 0.01%, 0.02%, and 0.01%, respectively. Therefore, the increase in local government's revenue from the DBH Pajak as a joint-venture grant tends to disrupt sustainable development programs, especially in the business sector and community welfare. According to Law No. 33/ 2004, the DBH Pajak is the fund sourced from the state budget revenues allocated to local areas, such as the PPh (Personal Income Tax), the PBB (Land and Building Tax), and the BPHTB (Acquisition Duty of Right on Land and Building). Libman (2010) stated that the role of intergovernmental fiscal transfer and tax revenue was crucial in

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territorial support as bargaining power in terms of lobbying investors and fostering economic industry concentration.

However, the policy of increasing taxes continuously becomes inaccessible and causes huge resistance in the community. For example, the property tax needs to be more careful in determining the policy of taxpayer registration, functional tax officer capacity, as well as a transparent system for assessment, enforcement, and collection. Furthermore, the government needs to revise the property tax regulation in the PBB and BPHTB, with an increase and better policy changes yearly (Paramita, 2015). Hence, the existing property taxes tend to hamper the property transactions, especially from the low-medium income people, while the end-users experience difficulty in purchasing their property.

Moreover, the problem associated with public finance concepts in accordance with tax has not been fully resolved. In addition, local revenue base from tax requires some comprehensive strategies in financial planning, to safeguard, and improve tax collection necessities, in the administrative system (Litvack *et al.*, 2000). The local governments need to employ a balanced tax system to tackle various counterproductive policies while adjusting the policy from the central to regional areas (Amir *et al.*, 2013). The central government also needs to apply the tax cut as an incentive for business actors to help prop up the depreciating rupiah in the struggling economic condition.

Furthermore, there is a 0.03% positive impact by the DAK on improving the social dimension of the state budget revenues allocated to a particular local area. It also acts as a matching grant to fund specific activities, such as education, health, roads, irrigation, water and sanitation, government facility, agriculture, fishery, and environment, which are under the authority of local government affairs and related to national priorities (Law No. 33, 2004). However, its positive impact on the SLDI's social dimension is not too large, and it is one of the intergovernmental fiscal transfers with an extraordinary increase by 60.9 Trillion Rupiah for 23 years (Ministry of Finance, 2017). Suparno (2004) reported that the DAK had the potential to overcome the inter-jurisdiction spill-over effects with an adequate level of public service in social-economic sectors. It also plays a vital role in local social-economic development by increasing the basic service infrastructures (Wandira, 2013).

Conversely, the DAK statistically decreased the institutional index by 0.01% and dominated by the socio-economic sectoral needs in line with development priorities. The local policy is still limited to allocating the DAK into institutional sustainability issues (Chrysolite *et al.*, 2016). However,

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there are still many problems in managing its allocation, such as coordination process amid stakeholders, transparency, participation mechanism, safeguarding policies, rewards/punishment system, and accountability procedures (Dwiyanto, 2015; Usman and Sampford, 2008). Therefore, the Indonesian government has continued to improve the institutional mechanism of the DAK allocation on governance, procedure, and supervision. In addition, it needs to be open-ended in the evaluation and monitoring system to align regional social-economic targets and promote sustainable development (Wibowo *et al.*, 2011).

5.4. Economic Decentralization

The rationale related to economic decentralization aims at promoting local economic development with an increase in public services. Therefore, economic decentralization allows local governments to finance their capital investments through long-term economic policies (Guess, 2005). In public services, the main reason for implementing economic decentralization is to generate financial benefits, with efficiency and quality of services (Robinson, 2007). The central government indirectly has delegated the burden of financing services to local governments and private sectors with the ability to produce public services at lower costs. The argumentations of allocative efficiency and service productivity are expected to encourage local governments to make appropriate and responsible decisions. Therefore, local governments are expected to have a better sense of preferences, more sensitive to disparities in local necessities, and open to the response from service users.

According to Breton (2002), decentralization failures are related to the incapacity of good intergovernmental competition to produce desired-economic outcomes and local finance. Therefore, the local governments need to pay attention to the right information on active political participation, public goods, and services provision, as well as on the stability of 'the race to the bottom policy[8].' Besides, there are numerous challenges domestically and internationally associated with the economic policy of the government to cope with global and regional uncertainty. According to one of the economic policy aspects, the budget function in fiscal capacity will be significant in supporting the role of local government in the decentralization era (Comola and Mello, 2010; Kis-Katos and Sjahrir, 2017; Yunarti, 2008).

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[8]   It is a socio-economic phrase used to explain the governmental deregulation policies on the business environment, which is usually associated with reduction in tax rates to attract investors or maintain economic activities in the local jurisdiction.

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Table 5.6. PAD and population, period 1995-2017

Indicator / Year	Local Own-Source Revenue (in Billion Rupiah)
1995	19.86
1996	21.91
1997	23.28
1998	15.24
1999	21.17
2000	31.63
2001	48.19
2002	67.71
2003	84.27
2004	103.94
2005	126.60
2006	136.00
2007	154.40
2008	186.57
2009	202.57
2010	239.88
2011	305.26
2012	352.60
2013	409.14
2014	482.76
2015	499.10
2016	512.61
2017	537.12
Average	183.85
Difference	521.87
Minimum	15.24
Maximum	537.12
Sum	4,581.81

Source: BPS (2015, 2017a, 2017b) and Ministry of Finance (2017)

Oates (1999) stated that one of the initial capitals to finance local capabilities in economic decentralization was through the PAD, which is sourced from local tax and retributions (motorized vehicle tax, motorized vehicle transfer fee, motorized vehicle fuel tax, surface water tax, and cigarette tax), separated regional wealth management (net income from regional owned enterprises), and other legitimate incomes (tax penalty income, retribution fines income, and current account service). There has been a rapid growth in PAD from all provinces by 521.87 Billion Rupiah per million people over the last 23 years, as shown in **Table 5.6** (Ministry of Finance, 2017). The role of local revenues is quite ideal in financing public services and economic

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activities that principally benefit local communities (Bird and Vaillancourt, 2008). However, the distribution of local revenue from each province is relatively diverse. The dominance of provinces in the western part of the country is still enormous compared to the east (Ministry of Finance, 2017). This shows that the inequality of regional income affects the low acceleration of the equitable development process.

The success of Asian countries on economic growth is dependent on public representations, wealth-sharing schemes, and competent bureaucracy t to induce long-term investment (Root, 2001). The set of open procedures only undertakes any public policy influencing local resources management, and economic activity fits within the professionalism of local apparatus for implementing the investment policy as a source of the PAD (Krueger, 1990). Therefore, the limited local government associated with the stable business investment, supporting infrastructure, the right administration of local finance, and the high quality of human resources can influence the low performance of PAD (Nasution, 2016). It means that most local governments with low PAD in eastern Indonesia are still dependent and only focus on intergovernmental fiscal transfers compared to increasing PAD for debt financing and routine spending. Therefore, it is challenging for many local governments in eastern Indonesia to manage their wealth efficiently because of the limited sources of regional income (Brodjonegoro, 2009).

Table 5.7. The Result of panel regression in fixed effects for economic decentralization

Indicator	SLDI	Social Dimension	Economic Dimension	Environmental Dimension	Institutional Dimension
Local Own-Source Revenues (PAD)	0.0072519*** (0.0006599) [10.99]	0.0103882*** (0.0007369) [14.10]	0.0207577*** (0.0015166) [13.69]	-0.010948*** (0.0009467) [-11.56]	0.0046782*** (0.00094) [4.98]
Observations	759	759	759	759	759

Standard errors in ( ) and t-statistics in [ ]
***significance level 1%, ** significance level 5 %, * significance level 10 %

Furthermore, **Table 5.7** shows that the PAD has a positive influence on the SLDI, social, economic, and institutional indexes by 0.007%, 0.01%, 0.02%, and 0.005%, respectively. This showed that some public service programs sourced from PAD, such as providing basic infrastructure, local economic development, health insurance, improving the quality of education, community development, gender empowerment, and poverty reduction, have

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been beneficial by the public in social-economic development. The 17th goal of SDGs in the target 17.1 also stated that "sustainable development needs to strengthen domestic resource mobilization to improve domestic capacity for tax and other revenue collection" (UNDP, 2015). Accordingly, the larger PAD is expected to have a positive impact on financing various sustainable development programs.

However, the PAD statistically decreases the environmental index by 0.01%, therefore, the decentralization policy is a mechanism used to revitalize the local authority on natural resources (Agrawal and Ostrom, 2001). The inability of the local government's authority in decentralization is a crucial issue for sustainability. In the decentralization era, the issuance of mining permits is a provincial authority (Law No. 23, 2014). Accordingly, some provincial governments tend to easily provide mining permits in the extractive business to increase the PAD. Also, each province tends to increase the participation of the regional owned enterprises through a participating interest in various mining businesses (Ngabiyanto, 2013). Therefore, many local governments compete with each other in increasing their economic growth by pursuing the more substantial portion of the PAD. As a result, they pragmatically exploit the potential natural resources on a large scale by various local permits, rules, and policies without considering the land carrying capacity (In-depth interview CSO2, MED1, ACA4, IO1&IO3; FGD2, 2018).

Moreover, every policy is necessary to ensure that the resource exploitation to pursue the PAD's target fails to create new negative externalities for environmental sustainability (In-depth interview CSO2, MED1, ACA4, IO1&IO3; FGD1&FGD2, 2018). The spirit of revenue extraction from natural capital is not often accompanied by the local government's responsibility to protect, conserve, reclaim, and rehabilitate the environment. Conversely, the adverse impact of those irresponsible exploitations creates some destructive disasters, like floods, landslides, and crop failures (Gunawan, 2005; Resosudarmo & Darmawan A., 2002). Hence, an increase in the capacity of local governments and communities, such as expertise, financial capacity, and network access needs to be implemented in the effective mechanism of natural-based production under the control system. The system is tagged as 'common pool resource management' between local governments and social organizations based on strong participation and proper alignment (Ascher, 2007). Therefore, the normative goal of good local governance needs to be refocused beyond the enormous economic outlook with enabling respect, protection, and furthering status-egalitarianism, social welfare, and a sustainable environment (Hazenberg, 2016).

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Chapter VI
Constraints, Opportunities, and Further Policy of Indonesia's Decentralization for Sustainable Local Development

The qualitative approach implemented in this research includes in-depth interviews and FGDs with prominent stakeholders to evaluate the constraints and opportunities in Indonesia's current system of decentralization policy and discuss their implication in developing further policies to improve sustainable local development. Several responses, views, inputs, suggestions, criticisms, and important recommendations were obtained from each stakeholder. Moreover, the prominent stakeholders involved in adjusting the current intra-and-inter governmental networks were grouped into four and they include (1) government and parliament, (2) business actors and philanthropy, (3) CSOs and media, and (4) academics, experts, and international organizations.

Figure 6.1 shows that each prominent stakeholder has a significant role in developing good collaboration, cooperation, and coordination. The government and parliament formulate several policies, targets, programs, and activities through significant inputs from academics, experts, and international organizations. Moreover, active participation of the CSOs and media are required to disseminate and advocate while the collaboration between business actors, philanthropists, and donor agencies of international organizations is needed to source funds in order to aid the efforts of the government towards achieving successful implementation of sustainable local development. The involvement of CSOs, media, academics, experts, and international institutions in monitoring and evaluation also has strategic value in maintaining the quality of each continuous program and activity. Meanwhile, all these stakeholders have an essential role in conducting capacity building programs for all the people involved in these processes.

Empirical data and information from prominent stakeholders showed the enormous upheavals of decentralization policy in Indonesia are not a linear-consistent process nor produce similar outcomes in each government unit.

This means the policy does not have the ability only to improve local governance in the spirit of sustainability and also has undesirable effects such as the creation of disparities and environmental degradation. In general, five constraints were observed and they include insufficient political will, incompetence in leadership and lack of local capacity, poor administrative management system, lagging renewable energy production, and shortcoming in public partnerships while responding to new opportunities of decentralization policy towards achieving sustainable development and these further discourage its implementation in every province.
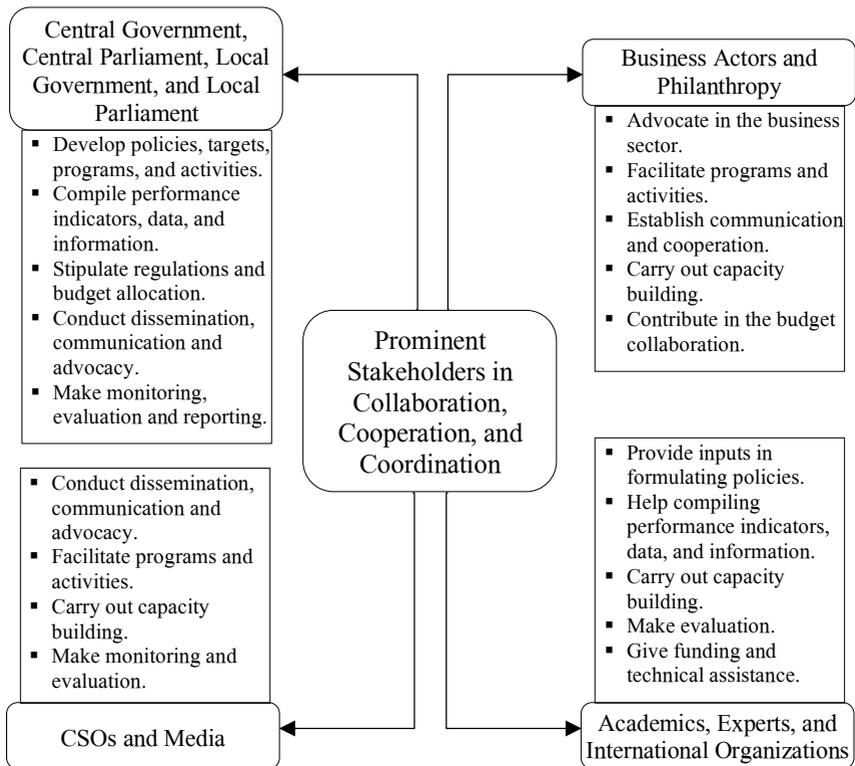
Figure 6.1. Mapping of prominent stakeholders in sustainable local development in Indonesia (based on In-depth interview CGOV2, CGOV3&CGOV6; FGD1&FGD2, 2018)

Nevertheless, the Indonesian government has potential opportunities to overcome sustainability issues in the era of decentralization, and this is founded in its abundant wealth of local environmental knowledge and the

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spirit of achieving SDGs 2015-2030. Decentralization and sustainable development policies going forward are expected to be dynamic and interdependent across actors and regions. Therefore, it is necessary to produce adaptive-responsive policies such as interdisciplinary approaches, integrated planning designs, political-bureaucratic reform, leadership development and capacity building, strengthening public partnership and communication strategies, and sustainable economic development.

6.1. Constraints of Decentralization Policy

6.1.1. Insufficient Political Will

Politics plays a critical role in defining the degree and kind of decentralization policies to be implemented (Faguet and Pöschl, 2015). However, several shortcomings have been identified in Indonesian public institutions due to the political traditions of feudalism, authoritarianism, and complicated bureaucracy (Eko, 2013). Moreover, the disruption of ecological functions or suppression of variability through several excessive and unappropriated policies has the ability to cause some environmental damage in development with seasonal, annual, perhaps decades of problems (Dalmazzone, 2006). Therefore, low political will, uncontrolled political coordination, and failure to honor administrative commitments by some politicians and bureaucratic actors are the main constraints in sustainable development (In-depth interview CGOV2, CGOV3, CGOV6, LGOV2, MED1, ACA1, ACA3, ACA5&IO3; FGD2, 2018).

Public governance in Indonesia is vulnerable to elite capture due to the participation of people from unequal positions of power. They have been reported to have asymmetrical social positions, different accessibility to resources, different levels of government political literacy, and varying quality of knowledge about bureaucratic protocols and procedures (Dasgupta and Beard, 2007; Platteau, 2009). Besides, the political campaign process in every local election is widely known as a high-cost democracy to increase the dominant popularity of all candidates. The heterogeneous nature of local politics also causes a substantial risk of information distortion by local elites charged with the responsibilities of generating sustainable development policies, and this further leads to inequality in the process due to power asymmetries in the patronage network (Platteau, 2009).

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In asymmetric preferences, clientelism[9] in a local political contest also has the ability to distort local government performance through lobbying from special interest groups. Clientelism is opposed to public investments and policies in promoting public goods, collective access, and broad-based sustainable development (Faguet and Pöschl, 2015; Grindle, 2007; Lockwood, 2009). Hadiz R. (2004) and Turner (2006) warned that decentralization policies marked by this concept aid the emergence of highly diffuse-decentralized corruption, the upsurge of money politics, and an alliance of political gangsterism such that, in the end, a dysfunctional legal system, an ideology of power retention, maintenance of patrimonial bureaucracy, disempowered people, and many less-qualified elected leaders are created (Ferrazzi, 2000; Nasution, 2016). The system has a short-term perspective to secure elite power to constituents, and this further makes sustainable development programs unpopular and ignored in regulations and policies (In-depth interview LGOV4, ACA1, ACA2, IO3, MED1; FGD1&FGD2, 2018).

In the sustainability context, apart from being an economic component, environmental resources also have a temporal dimension. Ecological functions of environmental resources have a variety of seasonal temporal and spatial cycles such as disasters, global warming, air pollution, and contamination of groundwater (Alberti, 2010). However, local parliament members often think in the short-term perspective about how to fulfill their political promises to constituents (In-depth interview CGOV3, CGOV5, LGOV2, ACA1&ACA4; FGD2, 2018). They tend to harness high political negotiations, political dowry, and money politics to facilitate several winning strategies and to maintain their power with a variety of populist policies. This, therefore, creates a disparity between populist political policies in social-economic dominated sectors and non-populist political policies in sustainable environmental ones.

Symbolic politics also often occur in the process of institutionalizing the concept of sustainability into government management. This has been discovered to be due to the lack of political will by leading politicians to sincerely pursue essential changes using concrete and effective policies on the cross-regime process of sustainable development, and this has led to a common problem of continuity of public policies after a change in regime (Happaerts, 2012; White *et al.*, 2005). Some politicians rarely commit to

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[9] A political phenomenon characterized by the exchange of goods and services for political support as a combination of particularistic targeting and contingency-based exchange in electoral and non-electoral markets among groups of political actors such as patrons, brokers, and clients.

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overcoming significant issues requiring long-term policies, such as sustainable development. Eventually, the process of negotiating between short-term political interests and long-term technocratic policies is often overlooked in budget-program decisions and strategic planning for some sustainability issues.

6.1.2. Incompetence in Leadership and Lack of Local Capacity

Mardiasmo *et al.* (2008) claimed that impeding variables to good governance implementation in Indonesia were generally related to the quality of leadership. Moreover, the crisis of local leadership was found to be presenting significant obstruction to sustainable development at the provincial level (In-depth interview CGOV1, CGOV5, MED1, ACA3&ACA4; FGD2, 2018). Even though executive and legislative positions are 'equal' in the era of decentralization, the local leaders are required to have sufficient integrity and capacity because they are 'primus inter pares'[10] in the legal environment and have more authority than the legislators (Syaukani *et al.*, 2003). This means they have the responsibility of making, implementing, and evaluating policies on sustainability.

In the meantime, local capacity refers to the ability of public institutions to respond effectively to revamp, make efficient-responsible decisions, manage social conflicts, and provide excellent public services based on ability and performance (Bowman and Kearney, 2011). The problems and delays in providing public services have been reported to be primarily due to the lack of empowerment for local governments to increase their capacity. Ahmad *et al.* (2005) also emphasized several ubiquitous problems related to the impact of decentralization on service delivery include the lack of capacity at the local government level to be responsible for public services. This, therefore, means there is an urgent need to increase the capacity of local executives in promoting decentralization reforms to manage policies, regulations, human resources, and fiscal capacities (Suwandi, 2004; In-depth interview CGOV2, CGOV3, CGOV5, ACA5&IO2; FGD2, 2018).

Concerning policy capacity, there are unsynchronized central-local planning documents with the Strategic Environmental Studies (KLHS), which are essential for the implementation of some sustainable local policies in

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[10] Someone is formally equal to the other members of their group, but in practices, he/she has more seniority and capability. This term is also related to the dignity of a local leader who has trust, quality, and better capacity in terms of organizational ability, visionary level, ability to record and understand public dreams and then implements them in public programs, respect justice, a good listener, and problem-solving.

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Indonesia (In-depth interview CGOV3&CGOV4; FGD1, 2018). However, they have problems in defining the integrated environmental assessment and aligning local capacity building activities for future sustainable development goals (Asdak, 2018). This is associated with their high dependence on central institutions, which further makes the passive local governments wait for policy directions from the top (In-depth interview CGOV3, CGOV4, LGOV3, & ACA5; FGD2, 2018). This shows the continued dominance of the central authorities in maintaining the strength at the local level and also has effects on formulating adequate policies using technological changes and future challenges as the catalyst for sustainability (Said, 2010).

Concerning the regulation capacity, most of the rules on natural resource management in Indonesia are 'trial and error' (Suwandi, 2004). To date, the legal framework and division of tasks among levels of administrative government, especially in marine affairs, forest management, environmental preservation, remain uncertain (UNCLG, 2009). Moreover, the decentralization policy is overwhelmed by the problem of regulatory vagueness, and at the local level, some of the standards have been reported to generally have specific deficiencies such as inconsistent definitions, contradictions amid legal instruments, ineffective provisions, repetitions, and delayed execution (Said, 2010a; USAID, 2006). This disharmony and overlapping can lead to different interpretations among public institutions and further induce conflict of fragmented authority in implementing cross-sectoral sustainable development programs (Dwiyanto, 2015).

In human resources and fiscal capacity, Chams and García-Blandón (2019) showed that the development of sustainable human resource management started through green recruitment, training, performance appraisal, and practices. This involves the inclusion of the workforce in several activities, efficient management of the natural resource, and stimulation of awareness and responsibility on sustainability issues. Meanwhile, some decentralization achievements have the ability to maintain the transition of authority in Indonesia to improve fiscal consolidation, public spending, and sufficient financial resources for poor provinces (Fengler and Hofman, 2008). However, the current challenge is not only related to the significance of the fund transferred to poor provinces but also ensuring the effective application of the financial resources (Fengler and Hofman, 2008). This, therefore, means low fiscal capacity in public treasury and unclear funding sources for budgeting are critical points for local governments in sustainable development (Nasution, 2016; UNCLG, 2010).

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Several policy reforms to improve the investment climate in fiscal independence, such as deregulating the lengthy process of issuing business permits and increased ease of doing business, do not fully guarantee investors to invest directly in the local areas (Wiryanto *et al.*, 2016). There are other factors influencing the growth of sustainable economic investment which have not been well organized by local governments, and they include the difficulty in controlling the business/economic sector using contra-productive policies, low investment in basic public infrastructure, and low public-private partnership (In-depth interview CGOV1, BA1, BA2, BA3, PH1&IO2; FGD1&FGD2, 2018). These further make it difficult to increase local own-source revenue through taxes and retributions. As a result, there is an imbalance between local fiscal needs and capacities creating a budget deficit. However, every sustainable policy in fiscal stress[11] discourages potential business actors from investing in local businesses.

6.1.3. Poor Administrative Management System

Shah (2008) reported that the implementation of decentralization was based on the spirit of reform due to the administrative management system problems and the 'rent-seeking' attitude of bureaucrats and political elites. Moreover, high local development fragmentation and the bulk of local administrative tasks in natural resources affairs are very important in the post-decentralization era. However, there are frequent conflicts of authority between the central and local governments with some local officials often relating the functions assigned from the center with the 'farm animal' (Ferrazzi, 2000; In-depth interview CGOV1, CGOV3, LGOV2, CSO1, ACA2, ACA3&ACA5; FGD2, 2018). For example, the central government, responsible for the natural resource management, has ostensibly decentralized some authorities to the local 'head' but continuously holds on to the 'tail' and this means its control is still robust and excessive. This shows decentralization has not been thoroughly and holistically implemented in the context of trust and responsibility for local governments.

Information on local sustainable issues has also not been adequately disseminated to all stakeholders by the government (In-depth interview CGOV6, LGOV1, ACA1& ACA2; FGD2, 2018). According to Bardhan & Mookherjee (2006), the remarkable impact of decentralization is particularly on local traditions and how they are designed within an enormous heterogeneity. Litvack *et al.* (2000) also argued that it is possible to blame

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[11] Inadequate revenues to cope budgeted expenditures in the local budget (Bowman and Kearney, 2011).

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'design flaws' on the failure of decentralization. This means that designing sustainable development relies on specific local issues, characteristics, and capacities across sectors and areas. Therefore, applying a one-size-fits-all policy based on 'Jakarta-centric' or the central government to implement some sustainable programs with the local dynamic-diverse characteristic of all provinces may be difficult.

The main motive of the administrative management system involves the use of local resources dominance to accumulate political capital, and this further denies the claim that decentralization policy has brought 'the government closer to the people' in ensuring sustainable management (In-depth interview CSO1, CSO2, ACA1&IO3, 2018). Therefore, more corrupt acts are created due to the inclusion of more tiers in the decision-making process and grater complexities in resource-allocation discretion at local levels (Manor, 1999; Silitonga *et al.*, 2016). Consequently, these cause illegal-excessive exploitations, levies, and bribes, as well as the inability of the local governments to create business-friendly conditions (Brodjonegoro, 2009). This further makes it difficult to establish an attractive platform for new investments in sustainable development due to persistent money manipulations and political-economic dominations.

6.1.4. Lagging Renewable Energy Production

According to Urbaniec *et al.* (2018), coal-fired power plants are the primary source of atmospheric emissions and solid waste in the world. Moreover, the dominant Indonesian industries in the land-based sectors such as oil palm, timber, and plantations, as well as non-renewable energy productions such as oil, gas, and coal have also been identified as main contributors of greenhouse gas emissions (In-depth interview BA1&CSO2, 2018). Arman (2017) warned that the trend of the world energy revolution towards 2030 had triggered structural reforms to reduce the use of traditional fossil energy, which had been a source of foreign exchange and substantial budget revenues for Indonesia. Moreover, carbon emissions are considerably caused by fuel combustion, but the energy development plans and regulations in the country are focused on the use of coal as the main fuel in electricity generation. There is also no significant investment in energy efficiency technologies and renewable energy (Hidayatno and Rahmawan, 2019).

The Indonesian government has not been able to generate the right policies to ensure affordable renewable energy using the Build, Own, Operate, Transfer (BOOT) scheme of public-private partnership and also to shift the process of determining renewable energy projects from the direct

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appointment to a more open-competitive auction system (Akbar, 2017; Bappenas, 2018; Cedrick & Long, 2017; In-depth interview CSO2, 2018). This shows it is undoubtedly difficult to create a conducive investment climate in the country. Consequently, the renewable energy industries in Indonesia have turned out to be unprofitable and challenging. Moreover, the supply-demand aspect related to green energy production also needs to be carefully considered using several alternative policies to ensure more effective and efficient use of local resources. For example, most of the equipment, such as hydroelectric, solar energy, and wind power plants, are imported (In-depth interview CSO2&IO1, 2018). Naturally, renewable energy is good, but what is the point if it does not convey added value to local areas and instead forces the local communities to consume more imported goods to meet green energy needs (Sulaiman, 2019).

Some prominent stakeholders also showed threats from the disruption of technology in renewable energy productions (In-depth interview IO2, 2018). The recent fast technological advancements have a profound influence on the way people live, interact, and do business. In particular, the internet, digital and computerized devices, artificial intelligence, and financial technology have forced the government, entrepreneurs, business leaders, and people to have the capability of adapting with rapid changes. However, this digital technology revolution is unavoidable and has triggered a wave of industrial automation and reshoring[12] to developed countries in global value chains (Arman, 2017).

Public institutions are receiving several requests from civil society to provide real-time social services, monitoring, and implement renewable energy required in the fourth industrial revolution (Hidayatno *et al.*, 2019). This shows the importance of promoting sustainable local business and renewable energy production to the delivery of social services in developing countries (Bardhan, 2002). This has increased the competitive ability of several local business sectors using the online system due to the invisibility and general presence of their competitors. However, there are low responses from the local governments to address some future policies required to tackle the risks using this phenomenon (In-depth interview IO2&ACA4, 2018).

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[12] The practice of bringing manufacturing and services back to developed countries with the additional impetus of increasing nationalist sentiment. Therefore, with the growth of reshoring will influence tight competition among developing countries to attract foreign exchange from export-oriented foreign investment.

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6.1.5. Shortcoming of Public Partnerships

One crucial aspect of the heterogeneity in achieving sustainable local development is the establishment of a good mutual partnership and participation in bureaucratic coordination and linkages (In-depth interview CGOV2, CGOV3, CSO1, &MED1; FGD1&FGD2, 2018). It has been discovered that the decentralization policy is a more complex system due to the presence of independent stakeholders with overlapping authority, different interests, and separated information streams. Therefore, there is a need to integrate coordination and partnership in the system to displace bureaucratic control and create win-win strategies as the fundamental method of implementation (Faguet and Pöschl, 2015; Zaccai, 2012).

Sustainable development has been interpreted as a new paradigm of the society created to generate the interests of collectivities by considering the balanced relationship between socio-economic sectors and environmental conservation efforts (Nogueira, 2019). According to Assan & Hunt (2018), active stakeholder participation is essential to achieving local sustainable development programs. Therefore, the key features to attain an effective network include broader social ties, trust between the members of the cluster, and ensuring incentive compatibility during interactions (Francois, 2002).

It has, however, been discovered that building a solid public partnership to restore and enhance the essence of local cooperation is a precarious issue in Indonesia, as shown in **Table 6.1**. The government and parliament argued the constraints in establishing the partnership were generally related to self-criticism on low commitment, complex regulations, public trust, and lack of incentives. In relation to the advancement of local strategic partnerships, the local governments are expected to implement adequate and correct regulations to ensure cooperation (Litvack et al., 2000; Yonariza and Shivakoti, 2017). This is necessary due to the lack of government's effort to optimally implement Regulation No. 45/2017 on Community Participation and 28/2018 on Regional Cooperation, which shows the importance of the Regional Cooperation Coordination Team (TKKSD) in increasing the access of potential non-government stakeholders in public participation. This, therefore, shows the key point on local partnerships to ensure sustainable local development is open access and trust.

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Table 6.1. The constraints in establishing a strong public partnership
between the government and non-government stakeholders towards the
achievement of sustainable local development in the decentralization era

Stakeholder's Perspectives	Constraints in Establishing A Strong Public Partnership
1. Government and Parliament	▪ Low commitment among stakeholders. ▪ Rigidity and less flexible regulations of partnership, except for strictly regulated sectors (security, criminality, illegal trade, and medicines). ▪ Low public trust in intergovernmental partnership. ▪ Lack of incentives/rewards. ▪ The implementation of Government Regulation No. 45/2017 on Community Participation and Government Regulation No. 28/2018 on Regional Cooperation has not been optimal. ▪ Not optimal role of Regional Cooperation Coordination Team (TKKSD). ▪ Difficult access to potential non-government stakeholders. ▪ Less acknowledgment for non-government stakeholders in the partnership. ▪ Less consider local characteristics. ▪ Low trust-building.
2. Business Actors and Philanthropy	▪ Inadequate basic infrastructure. ▪ No integrated licensing services. ▪ Less accountability and transparency. ▪ Slow and Expensive investment licensing process. ▪ Extra-illegal charges, bribery, and corruption. ▪ Rigidity and less flexible regulations of partnership. ▪ The more dominant role of government as a 'service provider' than as a 'regulative actor.' ▪ Non-equal partnership. ▪ The government only depend on Corporate Social Responsibility instead of public investment. ▪ A lack of competition or an oligopoly in the inefficiency of corporate governance. ▪ No holistic-integrated grand design of public-private partnerships.
3. CSOs and Media	▪ Low capacity, accessibility, and accountability of the public bureaucracy. ▪ The adverse perception of government (lack of capacity, inefficiency, too much bureaucracy).

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Stakeholder's Perspectives	Constraints in Establishing A Strong Public Partnership
	▪ Low motivation from non-government stakeholders. ▪ Lack of information dissemination. ▪ Shortcomings of incentives/rewards. ▪ Little community-based development programs. ▪ Lack of local community empowerment. ▪ Limited access for indigenous tribes, vulnerable people, local communities, and private smallholders to involve in local partnerships.
4. Academics, Experts, and International Organizations	▪ Low capacity of local government. ▪ Low entrepreneurship management of government. ▪ Less accountability and transparency. ▪ Overlapping regulations. ▪ Differences in political interests and technocratic policies in implementing public-private partnerships. ▪ Difficult negotiation in the management process, investment schemes, and profit-sharing. ▪ Administrative burdens to involve. ▪ Low motivation and spirit of participation. ▪ Bureaucratic rules and inflexibility of regulations in the investment. ▪ Low of Indonesia's Ease of Doing Business (EODB) ranking. ▪ Unclear mutual benefits. ▪ Lack of appropriate allocation of project risks. ▪ Limited attractive and profitable initiation in the proposed cooperation.

Source: In-depth interviews & FGDs (2018)

The perception of business actors and philanthropists in building public partnerships has also been related to inadequate infrastructure, licensing regulations, accountability, and transparency. Firstly, the public institutions in Indonesia need to provide adequate basic infrastructures such as roads, transportation systems, electricity, and communication networks to facilitate business collaboration with the private sector. Afterward, the government has to eradicate the licensing processes that have long been prone to extra-illegal charges, bribery, and corruption. Moreover, the business actors and philanthropists expected the government to build a controlled-integrated licensing system to ensure fast completion of business permits processing within a legal certainty. Several local regulations related to levies and tax

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also have problematic and burdensome to the business sector and investment conditions in the country (Huda, 2005).

The concept of 'reinventing government' requires the government to conduct the role of 'steering' rather than 'rowing' (Denhardt and Denhardt, 2000). This means the local governments need to focus on implementing 'regulative' roles instead of being 'service providers.' They do not need to depend only on Corporate Social Responsibility but also have the ability to position themselves proportionally with the private sector in public investment. Moreover, the power of oligopoly in Indonesia creating inefficiencies in corporate governance, needs to be immediately eliminated through the establishment of a holistic-integrated grand design of public-private partnerships. This is expected to create conducive, competitive, and productive business climates for the private sectors in order to produce several patterns of cooperation, such as 'Build Operate Own' and 'Build Operate Transfer' through public-private partnerships (Mawardi *et al.*, 2004).

In the same vein, CSOs and media also considered low capacity, accessibility, and accountability of the public bureaucracy as the main reason for the difficulty in establishing a local partnership in Indonesia. They highlighted the adverse perceptions of government, such as lack of capacity, inefficiency, and too much bureaucracy as the causes of low motivation for non-government stakeholders to be involved in sustainable public cooperation. Moreover, lack of information dissemination, unclear mechanisms, problems with incentives, and little community-based development programs are other constraints to a robust public partnership. Firman (2010) argued there was a basic need for openness and transparency in the negotiations for public cooperation considering the diverse and often conflicting interests of each of the stakeholders.

In reality, keeping the social-environmental dimension balance intact through local empowerment has not been implemented by some local governments, and this makes the induction of mutual partnership and active cooperation difficult between public institutions and communities. For example, indigenous tribes, vulnerable people, local communities, and private smallholders do not have open access to local partnerships. They have also been observed to have the ability to break their isolation from local markets, adequate information, investment opportunities, appropriate business services, and involvement in the policy-making process (Holzhacker *et al.*, 2016). These circumstances are in line with the opinion of Wollenberg *et al.* (2009) that decentralization constraints are triggering the revival of traditional values and genuine identities and restricting local

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cultures from becoming more politically relevant to tackle some provincial sustainability issues such as deforestation, poverty, local economic development, and social protection programs.

Academics, experts, and international organization stakeholders have also argued that bureaucratic reforms in capacity, entrepreneurship management, accountability, transparency, and legal certainty are the challenges in building a local partnership for sustainable development. They also emphasized that the balance between political interests and technocratic policies in implementing public-private partnerships is crucial. This means sustainable development is not only about political support from appointees but also technical policies from clean government, good governance, and high governability. This balanced political-technocratic approach is expected to attract the interests of non-government stakeholders in public cooperation (Mawardi *et al.*, 2004; Dwiyanto, 2015). However, several local governments and parliaments have not been able to determine the right strategic-dynamic administrative policies to advance some negotiating process of cooperation on investment schemes and profit-sharing.

MacIntyre (2003) showed that the configuration of administrative institutions in centralized governance is more vulnerable to the problems of policy volatility while the decentralized government is more prone to rigidity. Moreover, bureaucratic rules and inflexibility in the investment are the main problems of public cooperation in Indonesia, and this is evident in the low ranking in 2018 Ease of Doing Business (EODB) using indicators such as starting a business, construction permits, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency. The country was placed 72nd out of 190 countries below other ASEAN neighbors such as Singapore at 2nd, Thailand at 26th, Malaysia at 24th, and Vietnam at 68th (World Bank, 2018). Consequently, the Indonesian government has had a public-private partnership policy since the early 2000s, but only a few collaborative projects have been implemented in local areas. Furthermore, investors have low motivation to commit to some multi-year contract of sustainable programs due to several administrative burdens such as the rigidity of regulations and policies, unclear mutual benefits, lack of appropriate allocation of project risks, and limited attractive and profitable initiation.

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6.2. Opportunities for Decentralization Policy

6.2.1. Local Environmental Knowledge for Sustainability

The development of modern civilization and advanced technology has revealed several problems relating to human life and environmental destruction. According to Lupiyanto (2012), this has further led to the rise of spiritual philosophies in the form of development theology. It is also important to note that the concept of spirituality is more than the basic religiousness and has been considered to be possessed by everyone by contributing more to human attitude and awareness. Therefore, there is more diversity to the concept of humanistic spirituality (Holloway, 2015). However, the unique characteristics of some sustainable, holistic, systemic, and biocentric approaches to lifestyles, individual behavior, and spiritualities aid human awareness for sustainability (Tarsitano *et al.*, 2019).

Spirituality is an essential part of humanity concerning how individuals pursue and express their relationship with themselves, others, sacred-meaningful things, and nature (Puchalski *et al.*, 2009). According to Hedlund-de Witt (2011), this concept does not only play an important role in initiating individual awareness, behavioral, cultural, social, and institutional change but also to intrinsically shape the new understanding of sustainable development which is also the quest to maintain the 'quality of life.' Consequently, understanding basic sustainability approaches, policies, and practices require the knowledge of the values, views, and dimensions of spirituality suitable to meet present and future human needs. Therefore, apart from the social, economic, environmental, and institutional dimensions proposed by several theories and policies, the 'spiritual dimension' also needs to be considered.

This is further reflected in people's way of preserving the environment and maintaining happiness with local environmental knowledge of social learning[13] (Faguet and Pöschl, 2015). This means spirituality can be a new force in bolstering the achievement of sustainable development programs, especially in Indonesia (Ardika, 2018; Baiquni, 2015). Therefore, the goal is to ensure the better development of people (social dimension), prosperity (economic dimension), planet (environmental dimension), peace (institutional dimension), pro-happiness (spiritual dimension), and partnership (all dimensions). Meanwhile, local environmental knowledge

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[13] The collective acquisitions in a learning-by-doing phenomenon on direct interactions from knowledge, values, behaviours, norms, and practices, and trust are arising amongst social groups organized by geographical areas and local issues of their concern.

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usually refers to informal knowledge, personal, implicit, tacit, but possibly skillful owned by a local community involved in the environmental decision-making process (Raymond et al., 2010). It defines the response and adaptation of humans to their surroundings (Retnowati *et al.*, 2014).

Table 6.2. Examples of Local Environmental Knowledge related to sustainable local development in Indonesia.

No.	Local Knowledge	Meaning	Local Community	Province
1.	Ilmu Tiga Hutan	It is the three-forest science for the division of forest area into the customary forest, prohibited forest, and production forest.	Sakai tribe	Riau
2.	Pamali	It is a prohibition on damaging protected forests. A lesson in living without plundering natural resources.	Sanaga/ Sundanese in Kampung Naga	Jabar
3.	Pikukuh	It is an orientation, concepts, and religious activities that must be adhered to in preserving nature. Pikukuh is a rule on making the journey of life according to the mandate of ancestors (karuhun). It is manifested in the daily activities in interacting with each other, natural environment, and God.	Baduy tribe in Banten	Jabar
4.	Pranoto Wongso	It is the seasonal calendar of agricultural activities containing several aspects of phenology and other natural phenomena used as guidelines in farming activities and self-preparation for disasters.	Javanese Ethnic	DIY, Jateng
5.	Simpukng Munan	It a reliable distribution system of the ecological forest and trees due to the belief they have spirituality. It ensures every action and human activities concerning these forests are to be conducted with respect and caution. Therefore the forest for the Benuaq Dayak tribe is divided into six functions: (1) 'Talutn Luatn' (virgin forest-not be exploited), (2) 'Simpukng Brahatn' (forest for hunting and gathering firewood), (3) 'Simpukng Ramuuq' (forest whose	Dayak Benuaq ethnic groups	Kaltim

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No.	Local Knowledge	Meaning	Local Community	Province
		wood can be taken to make a house), (4) 'Simpukng Umaq Tautn' (forest for farming), (5) 'Keboth Dukuh' (forest for plantations), and (6) 'Simpukng Munan' (forest for growing fruit).		
6.	Tri Hita Kirana	It is a general concept of harmony and the balance of life between God (parahyangan), humans (pawongan), and the natural environment (palemahan). These principles of divinity, humanity, and territory are reflected by the harmonization of life at the micro, middle, and macro-level and protection from chaos, destruction, and alienation.	Balinese people	Bali
7.	Pasang Ri Kajang	It is moral values, ethics, and behavioral arrangements in the social sphere used in establishing relations with nature. The Kajang Ammatoa tribe believes the earth is a divine creation without any difference from humans, which means it also needs protection and care.	Kajang Ammatoa tribe	Sulsel
8.	Halaika	It is the belief system used as a spiritual connection through a precious tree of white sandalwood (Santalum album) on the earth to God in the sky. Therefore, Boti ethnic can protect sandalwood trees in long-standing conservation efforts.	Boti ethnic community	NTT
9.	Sasi	It is the customary law on environmental preservation. In 'Sasi,' there are restrictions, sanctions, penalties, and customary rules against the violations of rights and obligations of the community towards natural resource preservation and environmental degradation.	Haruku community	Maluku

Source: Based on Ardika (2018); Retnowati *et al.* (2014); In-depth interview ACA4 (2018); FGD2 (2018)

The concept contributes noticeably and also has the ability to be a principal component of the scientific knowledge base in determining the systematic

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treatment of fact-based and value-based environmental knowledge in the decision-making claim at the local level (Failing *et al.*, 2007; Smith et al., 2017). This integration has also been identified as the ethnoecological understanding of natural resources for sustainable development and livelihood enhancement (Ngmaadaba, 2016). This can, however, be conducted by communicating and assessing values and scientific evidence across local communities and cultures in a methodologically rigorous manner. As a consequence, more complete, accurate, and trusted sources of environmental knowledge would be obtained for general consideration. The local knowledge is currently being used to maintain the quality of forest conservation management and to ensure the harmonious co-existence of local populations with a limited environment (Glenk, 2011; Retnowati et al., 2014).

Moreover, **Table 6.2** shows that the maintenance of a kind of local environmental knowledge in Indonesia as observed in the small parts of cultural and spiritual diversity. For example, the 'Ilmu Tiga Hutan' (the three-forest science) from the Sakai tribe in Riau and 'Pamali' (a prohibition) from Sanaga people in Kampung Naga, Jabar are believed to have the ability to preserve the protected forest. 'Pikukuh' as an orientation, concepts, and religious activities from the Baduy tribe, Banten also needed to be adhered to in preserving nature. Moreover, 'Pikukuh' is a rule on making the journey of life according to the mandate of the ancestors (karuhun), and this is manifested in daily activities involved in interacting with each other, natural environment, and God. Pranoto Wongso, in Javanese Ethnic, is another local environmental knowledge on the seasonal calendar of agricultural activities containing several aspects of phenology and other natural phenomena used as guidelines in farming activities and self-preparation for disasters such as drought, disease outbreaks, plant pests, or floods.

In the central part, 'Simpukng Munan' from Dayak Benuaq ethnic groups in Kaltim is also a reliable distribution system of the ecological forest and trees due to the belief they have spirituality. It ensures every action and human activities concerning these forests are to be conducted with respect and caution. Moreover, 'Tri Hita Kirana' from Balinese people is a general concept of harmony and the balance of life between God (parahyangan), humans (pawongan), and the natural environment (palemahan). This principle is shown by the harmonization of life at the micro, middle, and macro-level and protection from chaos, destruction, and alienation.

From the Eastern part, 'Pasang Ri Kajang' in the Kajang Ammatoa tribe, Sulsel, has moral values, ethics, and behavioral arrangements in the social

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sphere used in establishing relations with nature. They believe the earth is a divine creation without any difference from humans, which means it also needs protection and care. Moreover, there is 'Halaika' which is the belief system from Boti ethnic community, NTT, used as a spiritual connection through a precious tree of white sandalwood (Santalum album) on the earth to God in the sky. This, therefore, leads to conservation efforts by the natives towards protecting the tree. Another is 'Sasi,' which is the customary law on environmental preservation in the Haruku community, Maluku. It provides an ecological culture through restrictions, sanctions, penalties, and customary rules against the violations of rights and obligations of the community towards natural resource preservation.

Some local environmental knowledge in Indonesia has become an essential component in the decision-making process at sustainable local development (Sutiyo and Maharjan, 2017). The spread of this local people is attached to several conditions such as (1) descendants of those inhabiting the country/local areas before conquest or colonialization, (2) voluntary maintenance of local cultural characteristics to ensure separation from the majority of the national inhabitants, (3) personal identification, and (4) shared experience from oppression, marginalization, deprivation, or discrimination (Stamatopoulou, 2007 in Bräucher, 2015). Moreover, they are considered the better guard of the local environment by not merely campaigning for environmental conservation but also breathing life into the traditions and culture. Their spiritual beliefs and traditional lifestyles, such as being environmentally-oriented consumers, sustainable producers, and energy-saving ability, underpin sustainable local development (Chapman and Shigetomi, 2018; Nugroho, 2015).

The multifaceted relationship between local people and policymakers is often in the form of 'competition' rather than 'collaboration' to work together as a reliable team. Local people depend on local governments because of the belief that they understand their real conditions and preferences. There is a need for more collaboration to have a deeper understanding of individual characteristics, social networks, and background knowledge of cultural history (Situmorang *et al.*, 2019). Having a better local knowledge of conditions and opportunities serves as social capitals in the dense traditional network, and this further makes the local community more important. This is not only to generate priorities, identify worthy beneficiaries, design plans, select methods, and strategies but also to enforce rules, evaluate projects, monitor performance, and verify activities (Platteau, 2009).

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Social capital is commonly known as trustworthiness, norms, and networks (Francois, 2002; Lawang, 2004). From the perspective of sociologists or culturalists, it is a type of inherent trust and norm in each individual or society, while economists see it as a feature of an encompassing network (Francois, 2002). In the multi-risk environmental management, the concept is important for local response capabilities (Bott *et al.*, 2019). Moreover, it defines how people in the local networks of trust and reciprocity have good access to mutual supports, loans, and information that are crucial to the capacities need to respond to disasters (Bott et al., 2019; Kerr, 2018; Petzold and Ratter, 2015).

There are at least three auspicious local networks owned by Indonesian people that have been functioning as social capital for a long time. They include 'musyawarah mufakat,' 'gotong royong,' and 'siskamling,'[14] and are considered essential to the implementation of policies on sustainable local development (In-depth interview CGOV2, CGOV3, PHI1, 2018). This, therefore, means the decentralization process can offer potential chances to reinforce the local networks in providing excellent public service tailored to local preferences (Ahmad and Mansoor, 2002). Moreover, reconstructing local institutions is the core of the conflict reconciliation process, which has been reported to be occurring naturally, from the bottom-up approaches, using local resources and communities, cultural capital, and social ties (Bräucher, 2015). These are eventually required to achieve sustainable local development goals.

One of the major challenges to empowering social capital is ensuring fair and accommodating involvement of all communities in traditional networks with social differentiation. This is due to the difficulties attached to the formation of a completed decision acceptable and satisfactory to all people. However, strong and empowered social capital is needed to encourage successful community-driven development and local democracy, or vice versa (Putnam, 1993 and Fukuyama, 1999 in Sutiyo & Maharjan, 2017). It has even become a more significant part of neo-institutionalist thoughts on the efficacy of public engagement in the decentralization process (Hadiz, 2010). Moreover, the differences in the domestic factors such as culture, history, finance, time, different political interests, subnational regional arrangements, ethnic

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[14] 'Musyawarah mufakat' is Indonesian-style democracy through a consensus-based deliberation in the traditional decision-making process which is usually carried out without voting. 'Gotong royong' is working together by several groups of people without getting paid to achieve desired outcomes and shared objectives. 'Siskamling' is a surrounding security system used as collective awareness usually created by village heads and residents to maintain the security and orderliness of the local village.

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diversity, development orientation, and the skills of planners have the ability to mediate between the best decentralization policies and the choice of public institutions (Turner, 2006).

6.2.2. Importance of SDGs 2015-2030

The failure to meet some of the goals outlined in the previous sustainable development policies have been identified. For example, Indonesia was unable to achieve four, including reducing maternal mortality rates, lowering the number of HIV-infected patients, ensuring environmental sustainability, and providing access to clean water and proper sanitation out of the eight targets of the erstwhile MDGs (Hoelman *et al.*, 2015). Some prominent stakeholders have associated this with the lack of coordination amid governmental institutions, low public dissemination, and failure to involve local governments and other non-government stakeholders. However, these previous sustainable development policies have been redefined and continued through the use of the newly formulated SDGs.

Table 6.3. The differences from the implementation of previous sustainable development policies and SDGs 2015-2030 in Indonesia

Previous Sustainable Development Policies	SDGs 2015-2030 Policy
▪ Only the minimum target in poverty and other social-economic targets. The target is considered realistic.	▪ Zero goals with 100% target in no poverty and zero hunger. The target is considered ambitious.
▪ More support from developed countries to developing countries.	▪ Universal perspective and involving all countries.
▪ Top-down approach.	▪ Bottom-up approach as public participation.
▪ Partial involvement of stakeholders.	▪ Extensive involvement of stakeholders.
▪ Exclusive programs and limited public access.	▪ Inclusive programs and 'no one left behind.'
▪ No integrated planning and policies at the national and local levels.	▪ More integrated planning and policies at the national and local levels.
▪ Low community empowerment.	▪ High community empowerment.
▪ Limited acknowledgment of local environmental knowledge to sustainability programs.	▪ More acknowledgment of local environmental knowledge to sustainability programs.
▪ Lack of supporting regulations.	▪ Sufficient supporting regulations.
▪ Dominated national actions.	▪ Need more local actions in the decentralization era.

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Previous Sustainable Development Policies	SDGs 2015-2030 Policy
▪ Central government as regulator and executor and local governments as beneficiaries.	▪ Central government as regulator, facilitator, and motivator, while local governments as executors and beneficiaries.
▪ Project-based implementation.	▪ Program-based implementation (sustainability).
▪ Limited financing scheme (governmental budget).	▪ Extensive financing schemes (governmental budget, bank, capital market, foreign investment, domestic investment, CSR, philanthropy, crowdfunding, alms, charity, and donation).
▪ Business as usual in the program implementation.	▪ Need more acceleration in the program implementation.
▪ Sustainable development as only a governmental program.	▪ Sustainable development as a social movement.
▪ Partial monitoring and evaluation conducted by government stakeholders.	▪ Collaborative monitoring and evaluation conducted by governments and non-governments stakeholders.
▪ Policies depend on three pillars of development: social, economic, and environment.	▪ Policy depends on four pillars of development: social, economic, environmental, and institutional.
▪ Lack of sustainable development centers.	▪ Many sustainable development centers.
▪ Dominant issue of disparity.	▪ Dominant issue of disparity and local capacity.
▪ Political-technocratic based program planning.	▪ The combination of political-technocratic based program planning and research-community based program planning.
▪ Low role of technological support.	▪ High role of technological support.

Source: Based on Hoelman *et al.* (2015); In-depth interviews & FGDs (2018)

The general fundamental differences between the implementation of previous sustainable development policies and SDGs 2015-2030 in Indonesia include more comprehensiveness in having zero goals, the involvement of all countries, and linking of all stakeholders. An inclusive approach integrated into the SDGs is a significant force aiding the implementation of sustainable development through the principle of 'no one left behind,' more integrated planning and policies, and high community empowerment. Therefore, there is a need to acknowledge more local environmental knowledge, expand sources of funding, emphasize human rights, and collaborative monitoring

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and evaluation by governments and non-governments stakeholders, as shown in **Table 6.3**.

The current implementation of SDGs in Indonesia continues to progress due to the support provided by sufficient regulations, the involvement of different stakeholders, and more local actions. Moreover, the role of the central government in terms of regulation, supervision, control, monitoring, evaluation, facilitation, and empowerment has been limited by the decentralization process (Said, 2010b; Suwandi, 2004). Therefore, the central government is trying to position itself as the regulator, facilitator, and motivator, while those at the local levels are executors and beneficiaries of the SDGs. This has further led to the efforts to create different community-based sustainable programs through extensive financing schemes such as governmental budget, bank, capital market, foreign investment, domestic investment, Corporate Social Responsibility (CSR), philanthropy, and crowdfunding by the local government.

Antoh & Arhin (2018) also claimed potential microfinance activities such as microcredit savings, remittance services, micro-insurance, and other non-finance operations have the ability to provide positive significance to the improvement of human capital development in the context of the SDGs. Interestingly, the majority of Indonesians are Muslim and Islamic religion has been reported to have a high potential for independent economic development (Lupiyanto, 2012). However, this has not been optimally utilized to improve the welfare of the residents due to factors such as weak management, limited competence of staffs, lagging distribution systems, low awareness on Islamic philanthropy programs by Muslim communities, lack of supportive government policy, problems associated with international cooperation, low collaboration at international Islamic financial systems across countries, and lack of Islamic business models in the real sector rather than financial markets (Gustiawati Mukri, 2014; Kusmanto, 2014).

The Islamic financial sector is, therefore, currently broadly aligned with Islamic philanthropy programs such as 'zakat' (alms), 'sadaqah' (charity), and 'wakaf' (donation), which have also contributed to the achievement of SDGs (Amymie, 2019). This is due to their ability to increase economic welfare, social assistance, income distribution, good health, quality education, and Islamic dawah (BAZNAS, 2017). Moreover, Indonesia has also continued developing through SDGs using concrete, transformative, inclusive, equitable, and sustainable policies based on national-local development plants created from the combination of a political-technocratic and research-community based approach (Bappenas, 2017c). Therefore, the

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implementation of program-based strategies, a strong sense of national ownership, and sustainable structural reform need to be accelerated as a 'social movement' to ensure the success of all sustainable programs.

Good local governance coupled with public participation and local ownership is also important for sustainable development using decentralization policies. This is associated with the advantages of the holistic pursuit of the achievement of SDGs by all stakeholders (Caiado *et al.*, 2018). Therefore, structural reform is expected to encourage the creation of centers and collaborative actions from different stakeholders, which would further ensure more interactive programs concerning the four pillars of sustainable development, including social, economic, environment, and institution.

It is also important to consider the role of technological change in implementing SDGs, and this involves accomplishing a better convergence between 'going green' and 'going smart' using 'smart-centric approaches' for sustainable development. These are expected to include local people, nature, and technology in a holistic vision of eco-innovations and environmental sustainability (Gazzola *et al.*, 2019). Moreover, energy efficiency, clean energy, and green technology needs are considered high priority factors in creating long-term policies and environmental preservation strategies (Karakosta and Askounis, 2010). Remarkable pieces of technology advancement and local capacity such as low-carbon and renewable energy industries, efficient transport services, green infrastructure, electric-and powered vehicles, also have the ability to help the achievement of sustainable development.

This, therefore, means technology advancement also enables the transformation to a clean energy system through the use of environmentally friendly technologies and high local capacities and these can be identified in three aspects which are being the key driver of long-term global economic growth, positive side effects of appropriate use, and goal-based public interaction in research development (Sachs, 2015). Accordingly, local governments need to encourage these strategies by using electronic governmental programs and to develop a more effective, efficient, and transparent bureaucratic system for sustainable energy, food production, environmental preservation, and public service delivery.

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6.3.   Further Policy of Decentralization

6.3.1.   Interdisciplinary Approaches

The traditional reproaches and major criticisms of sustainable development in some countries are too vague, oxymoronic, or alibi formed for the status quo (Zaccai, 2012). At the local level, these issues are often multifaceted, inter-reliant, and difficult to comprehend (Isaksson, 2019). Moreover, they have also become daunting tasks difference in the background and perception of sustainability by the stakeholders. The perceived disappointment in the form of misuse, inherent ambivalence, and diverse understandings of the concept might have also triggered cynicism and resentments within a community of professionals in development sciences, which are further embraced under the wrong label of 'sustainable development' (In-depth interview CGOV2, ACA1, ACA3&ACA4; FGD2, 2018; Sauvé *et al.*, 2016).

Consequently, the challenge for the future is to answer all cynicism, skepticism, and resentments to the concept of sustainable development using correct policies and better implementation at the local level. Moreover, the utilization of different capacities, potentials, and opportunities from the government and communities to achieve this purpose holistically and progressively is a primary task of all stakeholders. However, decentralization policy is one of the holistic, concrete, and harmonious efforts and strategies implemented in Indonesia to ensure future sustainable local development (In-depth interview CGOV3, CGOV5, LGOV1, BA3&CSO1; FGD1&FGD2, 2018).

According to Fehlner (2019), a solid foundation of knowledge on sustainability concepts from several disciplines had a central role in achieving the targets of sustainable development. This has been reported to involve the right knowledge from academics, high commitment from implementers, and strong support from policyholders (Faridah *et al.*, 2015). It generally covers some disciplines such as sociology, psychology, anthropology, demography, history, medicine, nutrition, agronomics, economics, business, management, accountancy, engineering, architecture, environment, ecology, biology, climatology, geography, political science, public administration, and law. Education in a holistic view of interdisciplinary is an essential key to realize sustainability (Nomura, 2009; Sinakou *et al.*, 2018). Moreover, the interconnectedness of sustainable programs makes policymakers from different fields and sectors work together since miscellaneous issues require cohesive knowledge and skills. This interdisciplinary approach is expected to be able to understand and act

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on multifaceted problems towards achieving effective sustainable development (Annan-Diab and Molinari, 2017).

A balanced combination of knowledge and experience in terms of thinking, empathy, work ethic, and the spirit of sustainability also determine the quality of sustainable development based on the locality, plurality, and biodiversity (Baiquni, 2015). According to Dos Santos *et al.* (2019) and Leal Filho *et al.* (2019), universities have an unrivaled opportunity to be involved in sustainable local development programs through teaching, research, and linking up with society. In agreement with this, Wakkee *et al.* (2019) argued they are considered as catalysts due to their ability to provide sustainable entrepreneurial ecosystems through the development of new knowledge and discovering advanced technologies. Therefore, researchers, scholars, and practitioners working in universities and Research and Development (R&D) institutions have the capacity to boost some evidence-based researches, novel challenges, innovative ideas, and scientific-based programs to support sustainable local development (In-depth interview CGOV2, ACA1, ACA3&ACA4; FGD2, 2018).

6.3.2. Integrated Planning Design

Sustainable development is a big agenda and international commitment to improving the quality of life and environmental preservation for the present and future generations, and due to the global threat attached to the changes in the environment, local governments need realistic and crucial plans to overcome these problems (Aung, 2003). An essential matter in the process of reforming local public expenditure management in the decentralization policy is related to the advancement of a mechanism in multi-level and autonomous local planning authorities by restructuring intergovernmental collaboration (Shotton and Winter, 2005). Sustainable development has, therefore, been the most meaningful discourse guiding collaborative planning interventions (Gazzola *et al.*, 2019).

Accordingly, the formulation of policies, plans, and programs for sustainable development is expected to be placed in the context of the current system and ongoing process rather than creating an entirely new working mechanism. For example, **Figure 6.2** shows that the sustainability principle in the local area needs to be in line with sectoral and spatial plans built on social, economic, environmental, and institutional interests. Fastenrath & Braun (2018) also argued that the evaluation process on the interests and perspectives of heterogeneous stakeholders should be crucial in the context of sustainability. This, therefore, means all interests and perspectives need to

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be in a balanced proportion based on public involvement towards ensuring sustainable local development (Asdak, 2018).
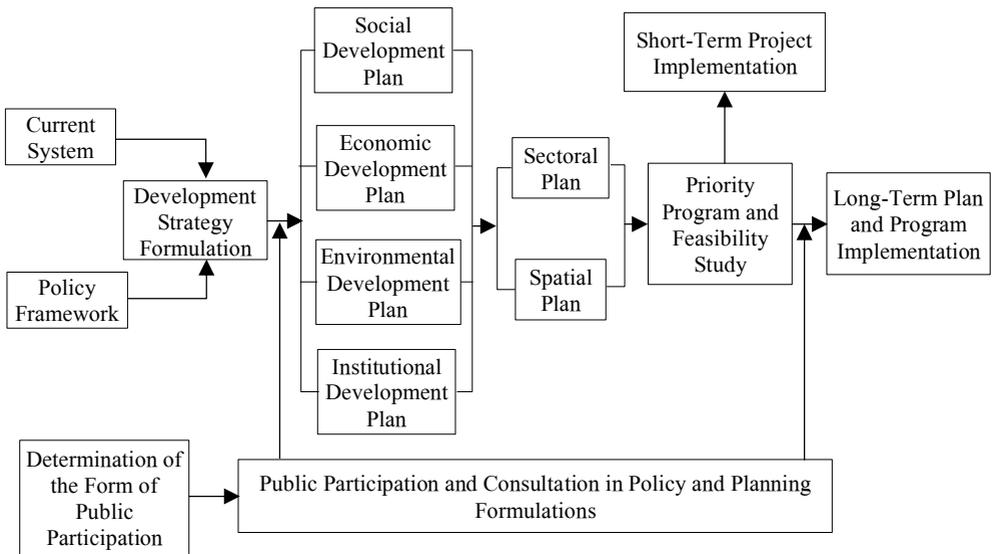
Figure 6.2. Planning model for sustainable local development in considering social, economic, environmental and institutional aspects (based on Asdak, 2018)

Sustainable development is one of the references for the planning, implementation, monitoring, evaluation, and reporting of national-local development in Indonesia. According to Broman & Robèrt (2017), the design process is expected to fulfill at least five principles based on (1) necessity (avoiding the imposition of needless restrictions), (2) sufficiency (allowance for association in thinking), (3) generalization (applicable in every sector), (4) concrete (guide problem solving and innovation), and (5) non-overlapping (enable comprehensive-structural indicators for monitoring). Meanwhile, in the public sphere, an integral-breakdown system of these designs is required to be fitted to local potentials, aspirations, and problems to achieve the proposed targets. Therefore, planning of development at the local level is inseparable from the systems employed at the national level.

A local strategic plan with reference to unrestricted space of freedom in transparent, responsive, productive, and accountable mechanisms is expected to ensure each stakeholder articulate and share the vision for local

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development, identify appropriate goals, translate preferences into realistic targets, agree on a time frame to achieve them, and deliver implementation responsibilities (Shotton and Winter, 2005). It also needs to be based on a precise monitoring instrument as a form of joint commitment towards ensuring the plans are well-developed. Moreover, adapting long-term plans for sustainable development into annual budgets is conducted using the cross-actor method involving stakeholders as well as the cross-sector strategy through policy formulations, programs, activities, measurable indicators, and sources of funding (Bappenas, 2017a).

: Consideration   : Reference   ----▶ : Guideline   : Detailing

◀▶ : Synchronization through development planning forums
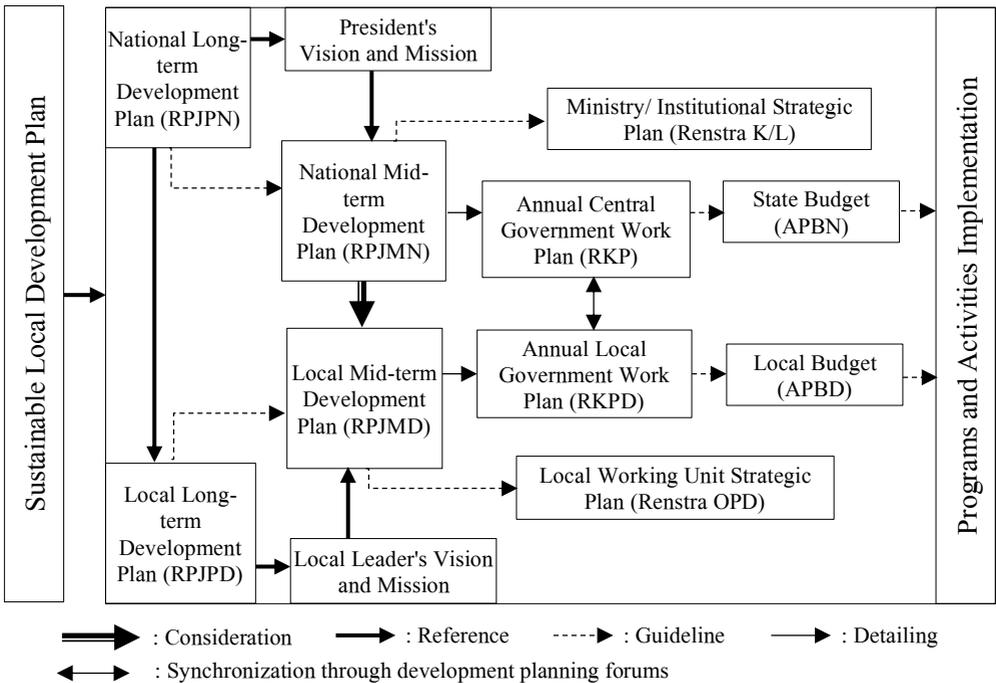
Figure 6.3. Integration of sustainable local development in Indonesia development planning documents (based on Bappenas, 2017; in-depth interview CGOV3&CGOV4; FGD2, 2018)

The breadth and interconnectedness of these programs into development plans at the national and local levels of Indonesia are shown in **Figure 6.3**. For example, The National Long-Term Development Planning (RPJPN) is a twenty-year document primarily referenced to design the Local Long-term Development Planning (RPJPD) for local governments. They are both used as guidelines in formulating the National Medium-term Development

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Planning (RPJMN) and the Local Medium-term Development Plan (RPJMD), respectively. These are five-year development plans mostly used by the presidential and local candidates competing in general elections to create vision and mission of their candidacy.

It is also important to note that RPJMN is also considered in the preparation of the RPJMD, and they are both designed to act as guidelines to formulate the Ministry/National Institutional Strategic Plan (Renstra K/L) and the Local Working Unit Strategic Plan (Renstra OPD) respectively. Moreover, the RPJMN is further used in the design of the Annual Central Government Work Plan (RKP) and also detailed in the State Budget (APBN) every year. Meanwhile, the Annual Local Government Work (RKPD) is expected to be prepared using the RPJMD and detailed in the Local Budget (APBD) as stipulated in the national development planning system of Law No. 25/2004. The process of synchronizing the annual planning documents between the RKP and the RKPD is usually conducted through development planning forums that involve public participation of all stakeholders. Finally, both budget documents at the central and local levels, jointly implement planning in the form of sustainable local development programs and activities.

6.3.3. Political-Bureaucratic Reform

In the political sphere, falling behind or moving ahead of sustainable development, is mainly determined by the activities of the government and parliament (In-depth interview CGOV1, CGOV2, CGOV3, LGOV2, LGOV4, CSO1&IO1; FGD1&FGD2, 2018). They are crucial actors to preside over the synergy between political interest and technocratic-bureaucratic policy using more executive-legislative collaboration. Moreover, the success of democratic decentralization has to be based on some specific factors such as democratic accountability, a better mechanism for community engagement, and good public service delivery (Devas and Delay, 2008). The strong cooperation of policymakers and local stakeholders also contributes to the achievement of sustainable public services. Therefore, political actors need to improve political willingness and firm commitments to achieving these goals, especially through the use of good policies to support the legal base and also by prioritizing sustainable programs in the budget.

Fundamentally, politicians need to transform their short-term political mindset into long-term perspectives and establish effective political education towards the achievement of sustainable local development. This is expected to be conducted through the eradication of political costs and money

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politics, increasing voter participation based on sustainability issues, and revitalizing the role of media in advocating sustainable development. Therefore, the democratic process needs to focus on potentials candidates with significant concern for sustainability instead of those with only higher financial support and broader popularity.

The consideration of equity, empowerment, and sustainability are also required in managing development in emerging countries (Coralie Bryant and Louise G. White in Ardika, 2018). Moreover, factors of decentralization such as political freedom, globalization pressure, conflict resolution, and equal-efficient public services in bureaucracy also require special attention (Said, 2010a). Therefore, bureaucratic reforms should be directed towards synchronizing sustainable programs in local-national development plans, disseminating information on local sustainability, and overcoming the conflict in government authorities. In Indonesia, this is related to the administrative, fiscal, and economic reforms as well as integrity, professionalism, and innovation (In-depth interview CGOV2, CGOV3, BA2, BA3, PHI1, MED1, ACA3, ACA4, IO2, IO3; FGD2, 2018).

In the administrative reform, circumventing the bureaucratic inefficiencies with the legal certainty, clear technical guidelines, and correct decisions are a significant force for future decentralization policy (In-depth interview CGOV2, CGOV3, BA2, PHI1, MED1, ACA3, ACA4, IO2; FGD2, 2018). However, the major constraint of public administration has been identified to be the conflict of authority. At this point, local institutions should eliminate sectoral ego among bureaucrats and readjust the solidarity to face multidimensional challenges they are facing. This is in line with the submission of all stakeholders that sustainability programs require long-term partnerships and good sustainable governance for any leadership succession. According to Rasyid (2004), messy coordination, collaboration, and cooperation between prominent stakeholders forced the need to strengthen leadership to maintain the commitment and supervision of several policies.

In the fiscal and economic decentralization reform, the bureaucratic system is based on meritocracy and professionalism, reformation of the local tax-retribution system, and institutional capacity in the fiscal management. The private sector is often reluctant to provide public goods because the non-rivalry and non-excludable nature of these goods do not allow them to maximize profits (Parlaungan, 2017). However, attractive and robust bureaucracy has the ability to continuously generate a blending finance scheme as a mutual-benefit investment and subsequently eradicate corruption

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and bribery cases. This involves combining public-private capital to deliver a better sustainable local development plan.

Local authorities also have to enhance public perceptions about the integrity and professionalism of local bureaucracy through the principles of transparency and accountability (Joseph *et al.*, 2019). Hofman *et al.* (2009) also proposed corruption eradication through essential policies such as an open list of each candidate's reputation, reform of police institutions, the publication of detailed local budget, transparent public procurement processes, clear permitting procedures, and independent local auditing agencies. This is expected to improve the ease doing of business, induce local investment, create more public-private cooperation, build new entrepreneurs as good influencers, and additional training in sustainable business (Wiryanto *et al.*, 2016).

One crucial factor in developing the capacity of the viable economic business is the ability to innovate. According to Silvestre & Țîrcă (2019), innovation is a key driver broadly accepted by academics, business actors, and government representatives to ensure sustainable local development. Moreover, it is possible to conduct innovative programs through sustainability lenses such as purpose-driven firms working towards social-economic development in communities, external contexts in social-environmental issues, and entrepreneurial cultures (Szekely and Kemanian, 2016). The main challenge is how to involve stakeholders with different thoughts and intentions to ensure every policy formulated guarantees the appropriate scope of innovations, user needs, and positive effects of sustainability (Buhl *et al.*, 2019).

The process of developing and adopting innovations has at least three fundamental characteristics, and they include complexity, dynamism, and uncertainty (Silvestre and Țîrcă, 2019). The innovation process is complicated due to is usual relation to a large number of interrelated-influencing factors, dynamic because these interacting factors tend to change and evolve, and uncertain due to technological and commercial feasibility, organizational suitability, and community acceptance. Therefore, the innovation ecosystem and breakthrough programs are expected to create added value services in sustainable local economic development through appropriate collaboration (In-depth interview CGOV1, CGOV3, CGOV6, BA3, CSO1, MED1, ACA1, ACA2&ACA5; FGD2, 2018).

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6.3.4. Leadership Development and Capacity Building

The majority of stakeholders in Indonesia stated that leadership is also an essential key to achieve sustainable local development. This involves the use of a transformational method to build emotional, organic, and interdependent relationships between local leaders and the people while the responsive aspect is also required in the initiation, invention, innovation, vision, risk-taking, high-energy level, persistence, and entrepreneurship in the face of real isolated and crucial community development problems (Bowman and Kearney, 2011). This situation sometimes required local leaders to formulate some pragmatic policies and make positive differences that are not only based on the transformational approach. Therefore, the leaders are expected to be 'phronetic'[15] by possessing the ability to implement appropriate-adaptive policies based on a 'whole-of-government perspective'[16] in the context of interrelated environmental and social problems (Dwiyanto, 2015; Novianto *et al.*, 2016).

The process of building 'phronesis leadership,' however, requires more than classroom training. It involves the continuous provision of debriefing by the central government to prospective local leaders through innovative training and education in the form of apprenticeship to the use of qualified private institutions, 'in class' and 'on the job,' training or career development systems in an appropriate tour of duty (Said, 2010a). Moreover, the leaders produced from these methods are expected to become 'facilitative leaders' for all the local people. According to Saito (2008), it is also to generate this type of leaders using the decentralization method by ensuring they act as facilitators in the interactive progression of partnerships formation in sustainable development.

The challenge of democratic decentralization is, however, related to the determination of the right policies to achieve welfare and sustainability while the success is not only determined by public participation but also by paying attention to institutional capacity factors (Robinson, 2007). The capacity

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[15] A leader has a virtuous habit and good capability to find the 'right answer' in a particular context of problems. He plays critical roles in the process of knowledge creation, design-approach innovation, and adaptive policies. Therefore, capabilities needed as phronetic leaders, as follows (i) decide what is the common good, (ii) build a knowledge environment in order to share contexts, (iii) explore the essence of the problems faced, (iv) reconstruct problems inductively and deductively in simple language, (v) utilizing the political channels needed to achieve a common good, and (vi) encourage the people they lead to become 'phronetic leaders' as well.

[16] The view of a bureaucratic leader sees public problems as a whole and is free from a narrow view of the sector (silo mentality) so that a leader has the right understanding and is able to take accurate discretion to fight for the public interest.

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building process is related to policy mobilization, professionalism, governance mechanism, fiscal capacity, and public expenditure management (In-depth interview CGOV1, CGOV2, CGOV3, CGOV4, LGOV1, BA2, BA3, PHI1, CSO1, MED1, ACA2, ACA3, ACA5, IO1&IO3; FGD1&FGD2, 2018). The policy mobilization aspects involve making local bureaucratic more responsive and capable of providing public needs (Bardhan, 2002). It is important to note that public policy analysis flourishes better when public institutions are proficient at implementing their decision beyond the interests of political groups and interests of other autocratic-coercive elites (Gormley, 2007). Therefore, it is necessary to neutralize the power of local oligarchs using an inclusive-holistic system of public policy.

The provision of technical and professional personnel is required for the standard value of service and is also needed to empower enormous local potencies such as individual talent, local wisdom, cooperation, local knowledge, and culture. Moreover, local governments need to develop a more robust governance mechanism to integrate development strategies (Wardhani, 2017). This, therefore, shows the realization of good governance requires political will and virtuous bureaucratic culture through a transparent, representative, accountable, and participatory design of public institutions and decision-making procedures (Cheema and Rondinelli, 2007; Deva Prasad, 2019; Hadi, 2012; Mardiasmo, 2007). These political-bureaucratic strategies are based on controlled approaches, cost-efficiency, and law enforcement with clear, objective, and transparent criteria.

Increasing the local fiscal capacity should also be based on optimizing local capital resources such as bureaucratic, social, economic, and natural capital by continually maintaining sustainability. This is further expected to increase the quality of public services through the improvement of local budget allocation. Moreover, Allen *et al.* (2004) argued local governments should lead the reform of public expenditure management with supports from international organizations or donors in the clear, integrated, and coherent design of medium-term cooperation. The international assistance has been discovered to be focusing more on improving the design of an accountable fiscal decentralization for growth, equality, and stability. Furthermore, a good relationship between donors and government stakeholders are expected to provide fiduciary risk assessments and problematic-modular approaches[17] for sustainable programs (Martinez-Vazquez and McNab, 2003).

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[17] Approaches emphasize the overall public expenditure management system and identifies links and relationships amid relevant its elements based on local characteristics and problematic

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6.3.5. Strengthening Public Partnership and Communication Strategies

The Rio Earth Summit in 1992 admitted the vital role of global partnership in ensuring sustainability (The General Assembly - United Nations, 1992). Governments need to strengthen an equitable partnership in all levels of cooperation between state stakeholders and other key sectors of society. This is expected to converse, protect, and restore the ecosystem and also ensure stability in maintaining a higher quality of life for all the people. Furthermore, the 3rd Earth Summit (Rio +20) in 2012 also reinvigorated the global partnership between major groups and stakeholders in pursuit of sustainable development. Existing public partnerships were also encouraged to mobilize public financing to support green economy policies (The General Assembly - United Nations, 2012).

The recent Agenda 2030 for SDGs formulated in 2015 also explicitly stated that sustainable development is developed on the integrated framework of 5Ps, including people, planet, prosperity, peace, and partnership (Dandabathula *et al.*, 2019; United Nations, 2015). Stakeholders in Indonesia need to collaborate to implement some policies in trust-building, equal partnership, participation, accountability, and mutual benefits towards the achievement of SDGs (Bappenas, 2017a). Accordingly, sustainable local development is expected to be conducted as cross-sectoral activities involving different stakeholders beyond administrative and bureaucratic matters and should include a collaborative-holistic way of thinking and acting in a strong partnership.

The lack of political campaigns related to sustainability by altruistic candidates does not make sustainable development a populist subject (In-depth interview LGOV2, MED1, ACA1&ACA5; FGD1&FGD2, 2018). Therefore, local governments with the help of other stakeholders need to strive to make this concept popular by expanding public communication strategies through the distribution of schedules and encouraging active public partnership using different online-and-offline media such as public notice board, brochures, pamphlets, theatre, newspapers, magazine, scientific journal, seminar, education, research, radio, television, advertisement, video, film, music, social media, and website. This should, however, be conducted with comprehensive stakeholders, accountability and transparency, and using easy-to-understand language (Bappenas, 2017c).

issues, such as institutions, compliance, revenue administration, audit and evaluation, monitoring and reporting, allocation and budget formulation, and expenditure policy analysis.

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Local governments also need to conduct empowerment, especially for young generations, to involve in more community programs based on indigenous character, identity, and culture. This is expected to increase community awareness, knowledge, creativity, and independence regarding the importance of sustainability (Faridah *et al.*, 2015). Moreover, sustainable endogenous development[18] has been discovered to have the ability to raise the awareness of young people on food security, sustainable agriculture, waste management, disaster mitigation, and environmental preservation (Arsyad, 2005). Therefore, flourished local collaborations in expertise, experience, and resources has the potential to build sustainable and self-reliant development in local areas. Owning programs is fundamental to local communities interested in strong collaboration and this further makes local people feel more comfortable managing their assets to rise out of poverty and contribute to a sustainable environment (Novianto *et al.*, 2016).

6.3.6. Sustainable Economic Development

Participating only in economic business without being balanced with efforts to maintain social-environmental concerns is not enough for sustainable development. The issue of an inclusive and green economy needs a specific policy and a considerable allocation of resources (In-depth interview CGOV5, CSO2, ACA1&IO1; FGD1&FGD2, 2018). Moreover, it has been discovered that the problems of sustainability are not limited to the environment but also the current industrial pattern and lifestyle of some people such as excessive use of plastic and private vehicles, disposal of electronic wastes, intensive use of and carbon energy (Fiksel, 2012). These further threaten global economic stability and hinder sustainable environmental progress (In-depth interview CSO1, CSO2, ACA3&IO3, 2018).

There is, however, the need for government regulatory initiatives to develop environmentally friendly production, encourage innovative eco-design products, and influence people's lifestyles with the focus on protecting the ecosystems and natural capital. For example, up to the present time, Indonesia has not been able to optimally utilize all renewable sources such as solar, wind, hydro, biomass, and geothermal energy. Moreover, effective and equitable provision of clean, reliable, and affordable energy is crucial to ensure bearable futures for all people in developing countries, but this has

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[18] Development policies are based on the indigenous characteristics of the local area by using potential human resources, institutional resources, and physical resources.

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not been implemented in the country despite the abundant sources several decades after independence (Sulaiman, 2019; Thomas *et al.*, 2018).

In the development of renewable energy, the government is required to set some rules to align the eco-efficiency of corporate performance with social accountability as a matter of higher priority and incentive policies (Caiado *et al.*, 2017). Therefore, the accommodative-consistent policy and firm regulation are necessary to provide a climate for green economy investment. This can be made more effective through practices such as building renewable energy infrastructure, increasing eco-friendly economic projects, creating green investments, and attaching the local community to sustainable economic development.

According to Zemigala (2019), several studies have been recently developed on local economic management, including corporate social responsibility, sustainable corporate development, supply chain management, innovation, and strategic management. Most studies conducted in recent times on economics have also intended to support the management of sustainable economic development. Interestingly, some experts in Indonesia have highlighted the diversification of local economic sectors and strengthening local services to be relevant policies towards non-renewable resources management (In-depth interview LGOV1, MED1, CSO2, IO1, 2018). This consequently focuses on the strengths and comparative advantages of the country.

Natural resources have paradoxically become curses for some natural resource-rich countries, as observed in their characteristic low economic growth, environmental degradation, and poor human development (Vijge *et al.*, 2019). This is, however, not a deterministic phenomenon but only reflects poor policy as observed in the mismanagement of natural resources due to high corruption, social conflicts, environmental degradation, and economic inequality (Auty, 2007). These countries such as Nigeria, Mexico, and Venezuela tend to be high-price macroeconomic countries, and this has limited their chances of sustaining rapid economic growth and in the long run, leads to lower regional entrepreneurship and reduced small-medium business development (Betz *et al.*, 2015; Sachs & Warner, 2016).

This means the supposed curse is not natural but more related to a lack of institutional quality and good policy (Vijge *et al.*, 2019). Therefore, these countries need public institutions with a good long-term policy focusing on non-renewable resources such as diversified-productive investments into public health, education, financial services, and infrastructures (Cockx and Francken, 2014, 2016; Hanafi and Martawardaya, 2015; Hodler, 2006). This

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further shows the revenue from Indonesian natural resources has to be immediately allocated on a large scale to more productive-strategic sectors such as education, health, social protection, local economic development, environmental preservation, and other capital expenditures for the benefit of future generations.

The current world energy revolution and the disruption of technology in business sectors have marked the emergence of a new era for Indonesia's economic structure. The advancement of ICTs, along with social commerce initiatives, collaborative economy, virtual currency, and new digital skills, have great potential to revolutionize the social business sector (Mora *et al.*, 2018). These technological advancements also will contribute to sustainable development in the future. Therefore, upcoming policies of local governments should be focused on tackling the risks and taking advantage of these phenomena with attention paid to increasing corporate governance standards' efficiency, transparency, and accountability and preparing development skills to support local economic capacity displaced by disruptive technologies.

The golden age of Indonesia characterized by the rapid growth of consumption and investment supported by foreign exchange using raw commodity exports since 2005, is likely going to end soon (Arman, 2017). Therefore, the dependency on natural resources-based export growth has the ability to lead to a continued increase in social and environmental costs (Gellert, 2005). According to Fiorini & Hoekman (2018), the current realization of different sustainable economic programs is mostly related to the need to strengthen the performance of the service sector. Moreover, some policies related to sustainability, such as financial access to green investment, technology support, and distribution services, are required to improve the quality of services. Therefore, there is a need for economic reform to improve competitiveness between manufacturing and service industries towards ensuring economic growth and another source of foreign exchange to replace the commodity sectors.

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SEVEN

Chapter VII
Summary and Recommendations

7.1. Summary

This study examines the phenomenon of sustainability at the provincial level with specific measurements to determine the quality of local development and its linkage to Indonesia's effective decentralization policy. The research utilized three methodologies, including the four-dimensional model, panel data analysis, and qualitative analysis. However, this study is limited by the difficulties associated with the collection of indicators in the environmental and institutional dimensions, such as inadequate data, and short data series which are continuously multifaceted, interdependent, and dynamic throughout the year.

This study generally shows the social and economic dimensions have a more robust influence on increasing the degree of sustainable development than the environmental and institutional. Furthermore, empirical evidence showed a significant increase in the SLDI's social and economic dimensions with a decrease in those in the environment. However, those related to the institution remained stable from the era 'before decentralization policy' (1995-1999) to the era 'during decentralization policy' (2000-2017).

There is a gradual continuous increase in the degree of sustainable local development for all provinces every year. This increment was relatively smaller in the era 'before decentralization policy,' compared to the era 'during decentralization policy.' However, the SLDI in social-economic dimensions from all provinces in the western part of Indonesia was relatively higher than those in the east. The critical issue observed to have emerged from the composite analysis is the continuous spatial disparity, and this means more strategies need to be implemented to reduce the regional disparities between people living in different provinces. Therefore, sustainable programs need to be conducted by further developing basic infrastructure, creating more employment opportunities, providing good health programs, improving education quality, maintaining social protection, and preserving environmental sustainability, particularly in remote areas of the eastern part.

The effective decentralization policy, for some aspects, is linked to the quality of sustainable local development based on the panel data analysis. For example, the multiple regression analysis statistically showed that having females as parliamentarians positively and significantly affects the SLDI, as well as the ratio of local government officers, DAU, and PAD, with adverse effects on the local regulation, agency, and DBH Pajak. These further showed that democracy and decentralized political systems had provided the governments and parliaments the authority to manage the process of sustainable local development. Therefore, the decentralization policy has spurred the rise of independent local values and resources. This further creates the challenge of synchronizing sustainable development across the regional authorities despite the uneven capacity of stakeholders in all the provinces.

In the political decentralization aspect, females as parliamentarians are statistically related to sustainable local development. Therefore, increasing the role of women in decision-making processes and broader political participation tend to facilitate sustainable approaches, especially with the focus on their experiences. They are more sensitive in grassroots politics and are expected to contribute to social, economic, environmental, and institutional issues. However, the female gender representatives in Indonesia are dominated by celebrity politicians such as models and actresses as well as family members, including wives, daughters, and relatives of powerful male politicians. The media's focus on female candidates' popularity rather than their political capacity endeavors to further embed patriarchal norms in politics. Similarly, the policy of minimum 30-percent-female candidates is genuinely defective in practice. There is also a negative perception of women's political leadership from a religious angle in Indonesia. These factors have further marginalized females with significant political potential but without capital and close relationship with influential persons.

In administrative decentralization, the ratio of local government officers is statistically crucial to sustainable local development. Despite the significant quantity of officers, there is also a need to consider their quality by using strategic human resource management to formulate an active performance-sustainable public service in the province. However, the ratio of local regulation and agency statistically has a negative impact on sustainable development. For example, some rigid and contra-productive regulations are potential factors causing sluggish economic growth, low quality of social protection, and environmental degradation. Furthermore, local agencies such as secretariat, inspectorate, department, and office in the province have not been effectively and efficiently conducting their duties and responsibilities on sustainable programs and policies.

In fiscal decentralization, the ratio of DAU was discovered to have a statistically positive effect on sustainable local development. As a lump-sum grant, DAU is a useful instrument to solve the regional disparity among all provinces. It has provided adequate encouragement for local government institutions to apply for some sustainable social-economic programs in terms of protection and empowerment. Meanwhile, the ratio of DBH Pajak statistically has a negative effect on sustainability. However, the increase in local government's revenue from it as a joint-venture grant is critical in sustainable development, especially in the business sector and community welfare. A balanced system between optimal tax revenue and taxpayers' ability to tackle various counterproductive policies is also essential. Therefore, the central government needs a tax adjustment policy to attract more sizeable investment into local areas.

In economic decentralization, the ratio of PAD statistically has a positive influence on sustainable local development, especially in the social-economic dimension. The PAD is considered to have a significant impact on financing different sustainable development programs. These include the provision of necessary infrastructure, health insurance, and improving the quality of education, community development, gender empowerment, and poverty reduction. However, the ratio statistically decreased the environmental index. This means there are many overactive local governments in Indonesia competing with each other to increase economic growth by pursuing a more substantial portion of the PAD. Therefore, this led to the pragmatic exploitation of natural resources on a large scale through several local permits, rules, and policies without due consideration for the land carrying capacity and a sustainable environment. However, the revenue extraction from natural capital is not often accompanied by the local government's responsibility for protection, conservation, rehabilitation, and reclamation of the environment.

The composite index and panel data analysis also showed some critical factors of policy interventions used to improve sustainable local development quality. For example, the enormous upheavals of decentralization policy are not linear, and neither does each government unit produce a similar outcome. Despite the fact that the policy has the ability to improve governance and democracy at the local level, several undesirable effects have also been discovered regarding disparities and environmental degradation. Furthermore, five constraints were found to generally influence the local governments effort to respond to new opportunities, and these include (1) insufficient political will, (2) incompetence in leadership and lack of local capacity, (3) poor administrative management system, (4) lagging renewable energy production, and (5) lack of public partnerships. Therefore, this means

each constraint of decentralization has the ability to hinder the implementation of sustainable local development in every Indonesian province.

7.2. Recommendations

No same model applies to all cases, and no single method works correctly under all circumstances in sustainability studies. Some of the limitations of this research show a need for more comprehensive analysis involving entirely useful representative data and complete information for further studies on sustainable development in Indonesia, especially with a focus on environmental and institutional dimensions. This is necessary because the indicators of the social-economic dimension are quite robust and available in the national agencies, while those on the environmental-institutional are difficult to be properly collected. Moreover, the composite index and panel data analysis also showed some essential factors of policy interventions to improve sustainable local development quality. However, the decentralization policy is not always good and useful, therefore, it needs to be implemented in the right conditions. Furthermore, the local governments and public sectors need to have a clear vision and good strategies to improve the area of strength in their provinces.

The decentralization policy in Indonesia is currently overwhelmed by the problem of regulatory vagueness. It is important to note that disharmony and overlapping regulations can lead to different interpretations among public institutions and induce a conflict of fragmented authority in implementing cross-sectoral programs. Therefore, policies and regulations need to be transparent and harmonized across sectors. Furthermore, the local government institutions need to enhance environmental degradation due to the rapid advancement of the socio-economic development. However, this requires the continuous improvement of human resources, institutional capacities, administrative management system, and the willingness to engage with non-governmental stakeholders.

The intensification and conservation of quality perspective through partnership, plays an important role in solving the problem of sustainable development, which requires paramount importance of the interdisciplinary approach. Therefore, local governments need to encourage efficient and effective involvement of several non-government stakeholders for better actions and practices to ensure the progression of sustainable local development is in the right direction.

Some sustainable local development achievements in Indonesia's decentralization policy are similar to future challenges due to overambitious

and unrealistic indicators. The local government also finds it difficult to achieve these goals due to the lack of academic inputs in the formulation of policies and problems associated with data. Therefore, they need to emphasize the importance of balancing political interests and technocratic policies during partnership implementation. This is necessary because sustainable local development is associated with political support from appointees and technical policies focused on clean government, good governance, and high governability.

In addition, the local governments and parliaments members need to develop adequate strategic partnership plans to advance some negotiating processes of cooperating in investment schemes and profit-sharing processes of sustainable regional development. There is also a need for a strong commitment from all stakeholders, including the central and local governments, civil societies, international organizations, philanthropies, entrepreneurs, academia, and media, to improve ideas, innovations, actions, programs, and policies. Furthermore, the combination of public-private capital, such as state budgets, local budgets, banks, capital market, foreign and domestic investments, crowd-funding, and alms giving is also essential in providing a better plan.

Decentralization and sustainable local development policies are also dynamic, unique, and interdependent approaches across actors and regions. Apart from the social, economic, environmental, and institutional dimensions offered by several theories and policies, the 'spiritual dimension' also needs to be included. This involves the indigenous people's method of preserving the environment and maintaining happiness based on local environmental knowledge. Moreover, the design of sustainable regional development relies on specific issues, characteristics, and capacities across sectors and areas.

Therefore, it is challenging to implement a one-size-fits-all policy program due to the different characteristics of the provinces. Sustainable local development is to ensure a better future for the people, prosperity, planet, peace, pro-happiness, and partnership. All of which are necessary to produce adaptive-responsive policies such as (1) interdisciplinary approaches, (2) integrated planning designs, (3) political-bureaucratic reform, (4) leadership development and capacity building, (5) strengthening public partnership and communication strategies, and (6) sustainable economic development.

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Appendices
Appendix A. The SLDI in Indonesia

Province	The SLDI of Social Dimension																						
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Aceh	66.64	67.05	68.19	67.66	68.05	70.11	81.54	84.49	71.59	73.28	70.81	70.30	71.66	74.01	75.53	77.06	77.86	78.92	80.52	80.76	81.15	82.72	83.18
Sumut	69.81	70.62	73.78	69.51	73.00	73.45	75.15	74.56	74.70	75.61	77.50	76.01	77.58	78.54	79.09	80.40	79.57	80.86	82.19	83.36	83.95	84.70	84.86
Sumbar	67.22	68.37	69.42	69.83	70.36	70.37	71.13	72.25	72.37	73.46	74.37	73.16	74.65	75.14	76.08	77.28	77.34	78.61	79.74	78.86	80.06	81.47	81.69
Riau	67.62	69.94	71.89	70.35	71.56	73.60	74.04	74.36	71.74	72.86	73.79	72.39	74.99	77.64	77.85	78.60	80.38	82.41	84.04	82.03	82.63	85.96	85.82
Jambi	66.05	67.38	68.98	66.78	68.57	68.42	70.58	71.65	69.65	71.92	72.97	71.35	73.61	74.71	75.16	77.74	78.09	79.69	80.94	81.83	82.02	83.33	83.57
Sumsel	65.17	66.58	67.99	66.44	68.03	68.60	69.32	67.61	68.81	69.93	72.92	70.72	73.40	73.97	75.07	75.78	77.22	77.70	78.57	80.53	81.53	82.11	82.46
Bengkulu	65.01	66.16	66.48	65.21	67.31	66.69	67.77	67.13	66.52	68.77	70.29	69.74	70.25	70.69	72.22	73.70	72.51	74.20	72.80	73.10	74.77	76.06	76.13
Lampung	63.03	65.29	65.13	64.61	65.28	63.86	67.07	68.15	68.16	69.24	72.30	70.27	71.65	73.25	73.59	74.78	75.30	76.42	77.63	76.53	78.18	80.03	79.61
Babel	It is still part of the Sumsel Province						68.75	69.08	69.34	71.16	74.54	71.07	73.93	75.85	77.37	79.69	80.75	82.50	83.26	83.95	85.50	85.49	86.09
Kepri	It is still part of the Riau Province						74.04	74.36	71.60	72.70	80.08	76.57	80.11	78.22	78.97	85.19	85.76	86.02	86.26	86.14	87.70	89.10	89.96
DKI	80.40	83.01	83.32	81.73	84.06	82.19	84.45	85.86	85.38	86.04	86.71	84.97	86.76	87.89	88.82	89.73	90.17	89.14	90.85	91.16	91.88	92.04	91.76
Jabar	65.38	66.86	68.54	66.97	67.90	68.15	69.96	71.00	71.62	72.73	73.73	72.38	75.11	76.47	77.74	78.90	78.76	79.98	81.94	83.07	83.30	84.16	84.80
Jateng	66.25	67.68	69.02	68.31	69.31	70.03	71.77	72.12	72.59	74.10	75.61	74.44	76.11	77.16	78.41	79.39	80.18	81.02	82.37	84.00	84.39	85.35	85.68
DIY	73.63	74.12	75.05	73.97	75.36	73.03	78.27	78.01	78.71	79.58	80.68	78.58	82.25	83.43	84.05	85.72	85.56	85.85	86.97	87.85	88.96	89.16	89.39
Jatim	67.25	68.35	67.99	67.09	68.12	68.51	70.83	70.92	71.82	73.23	74.42	73.62	75.85	77.10	78.24	78.93	79.72	80.82	82.51	83.74	84.02	84.75	84.96
Banten	It is still part of the Jabar Province						71.02	72.43	73.60	74.50	73.87	73.71	74.70	76.94	77.26	78.79	80.48	81.88	83.03	84.67	84.33	85.37	85.03
Bali	75.42	77.08	79.05	79.22	79.57	81.14	80.38	80.59	81.19	81.59	81.12	81.85	83.52	84.33	85.02	85.31	86.98	88.63	89.72	90.13	90.86	91.26	91.76
NTB	58.80	60.43	61.82	60.87	62.57	63.54	64.24	64.84	63.52	65.74	66.91	66.22	70.36	71.71	72.02	73.97	74.97	76.24	76.89	79.79	81.57	83.06	82.71
NTT	57.03	57.50	55.34	55.86	56.07	56.39	58.87	58.95	58.59	60.18	62.69	61.96	63.96	64.53	65.45	67.75	68.87	70.01	70.57	69.54	71.74	74.06	75.60
Kalbar	63.11	63.33	65.17	65.43	65.17	65.72	66.85	67.39	64.12	65.13	66.46	66.97	67.13	68.45	69.25	70.58	75.10	76.37	77.40	77.73	77.45	79.07	79.13
Kalteng	63.91	65.85	66.65	66.27	68.79	67.76	68.44	67.73	68.90	70.54	72.43	70.25	69.99	71.01	71.79	73.90	75.00	76.21	77.04	77.14	77.80	80.69	80.24
Kalsel	62.96	64.81	66.65	66.69	66.95	66.56	68.64	68.85	68.83	70.99	70.80	71.41	72.12	73.80	74.91	76.33	77.44	77.98	79.92	79.00	81.36	81.17	81.03
Kaltim	71.38	73.88	74.83	73.52	74.36	73.33	75.65	76.60	76.77	77.06	78.29	75.85	79.46	80.60	82.11	84.26	84.24	85.45	87.11	86.83	86.68	88.04	87.97
Sulut	70.71	70.62	72.21	71.11	72.90	74.38	78.29	77.58	77.92	78.60	78.66	77.16	79.01	79.38	81.33	81.78	81.32	81.66	83.27	84.03	83.88	85.09	85.12
Sulteng	63.59	64.85	65.57	64.42	65.17	64.50	65.97	65.84	67.43	68.40	70.37	69.02	69.77	72.24	72.78	73.55	74.81	76.16	76.81	78.06	78.91	79.81	80.74
Sulsel	64.79	66.78	67.70	68.08	68.86	69.63	69.36	70.78	70.71	71.81	72.51	72.73	74.61	75.65	77.44	78.64	79.62	81.31	82.22	83.03	83.84	84.70	85.17
Sultra	65.95	66.56	66.08	65.96	66.74	69.17	69.42	68.38	69.80	70.85	72.72	72.06	72.91	74.51	75.60	76.42	76.84	78.72	80.73	82.29	83.33	83.91	84.85
Gorontalo	It is still part of the Sulut Province						63.63	62.59	64.19	66.03	65.41	65.53	68.75	69.30	71.21	71.86	74.14	74.91	76.29	78.46	78.64	80.13	80.49
Sulbar	It is still part of the Sulsel Province										72.03	65.21	68.38	70.65	72.25	71.34	72.75	73.64	73.59	75.93	76.25	78.38	78.60
Maluku	67.26	68.89	66.18	65.57	66.25	67.47	68.97	72.18	67.96	69.85	73.04	71.06	71.80	72.42	73.61	75.81	74.96	76.10	78.19	79.46	79.32	80.70	80.58
Malut	It is still part of the Maluku Province					65.29	68.73	79.29	69.53	71.16	70.29	70.64	71.91	73.56	73.75	77.12	76.82	77.49	79.80	80.61	81.05	82.37	83.04
West Papua	It is still part of the Papua Province					56.09	58.96	67.78	59.75	60.17	59.99	61.85	61.16	63.61	65.37	69.98	70.98	74.34	74.97	77.89	78.12	78.89	79.73
Papua	58.53	59.04	58.48	56.25	56.48	56.09	58.96	67.78	59.55	60.01	59.23	57.75	59.73	60.44	62.25	62.03	63.21	63.22	64.65	64.73	66.26	66.76	68.21
Indonesia	66.26	67.57	68.32	67.35	68.45	68.73	70.32	71.57	70.22	71.47	72.65	71.42	73.25	74.46	75.50	77.04	77.81	78.92	80.08	80.80	81.56	82.72	83.03

Province	The SLDI of Economic Dimension																						
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Aceh	42.39	45.79	50.67	53.16	54.66	57.46	59.40	64.14	62.91	63.28	62.30	60.10	65.24	70.33	73.31	78.14	79.60	81.27	81.52	81.24	82.83	84.85	86.73
Sumut	53.25	56.13	58.59	60.58	62.66	63.60	63.23	63.67	64.74	65.42	66.30	63.64	70.25	73.83	75.86	79.73	81.53	83.14	83.51	83.34	84.71	86.35	89.28
Sumbar	48.64	52.01	54.16	55.76	57.78	59.04	59.44	60.95	62.34	62.54	64.92	61.35	69.78	73.24	75.85	80.08	81.05	83.33	83.98	82.15	84.11	85.71	87.15
Riau	46.52	49.25	53.37	53.37	54.41	57.59	58.11	59.60	60.45	62.05	61.34	64.60	69.83	74.95	76.73	79.54	81.87	83.14	84.47	83.38	85.09	86.33	89.11
Jambi	44.44	46.84	51.34	51.82	52.35	53.48	54.03	55.07	56.82	59.18	59.45	62.97	67.82	71.83	73.58	78.37	80.71	83.35	84.75	82.14	83.79	85.47	88.03
Sumsel	45.14	48.76	51.37	52.83	54.37	57.03	53.35	53.57	54.73	57.07	58.23	60.67	64.52	69.56	72.91	77.28	79.71	82.05	82.98	80.24	82.22	83.87	86.62
Bengkulu	48.00	49.19	51.83	52.60	55.41	55.62	54.61	54.33	54.84	57.76	57.98	60.12	64.07	68.82	74.33	76.43	78.81	82.24	83.60	82.21	84.16	85.29	88.21
Lampung	35.17	37.06	41.54	41.44	42.19	45.17	47.06	47.72	50.65	52.00	53.41	57.32	63.42	68.49	71.93	76.72	78.84	81.13	81.98	79.86	81.88	83.91	86.44
Babel	It is still part of the Sumsel Province						62.36	64.34	64.12	66.54	66.22	69.07	72.54	77.24	78.42	81.49	84.45	85.32	85.59	85.47	87.81	89.09	90.66
Kepri	It is still part of the Riau Province						62.64	63.66	67.63	68.29	71.29	72.01	77.45	75.59	79.55	86.03	87.90	88.96	89.92	84.84	86.35	87.47	87.65
DKI	68.09	69.22	70.36	71.09	72.99	74.31	74.24	74.93	75.04	76.53	77.46	79.26	81.12	84.46	86.59	90.18	90.78	92.05	92.16	92.55	93.96	94.55	95.61
Jabar	55.45	59.68	62.01	63.12	64.35	65.97	65.95	66.83	67.82	68.55	68.67	69.63	71.67	74.65	77.37	81.88	82.91	84.24	84.64	82.72	86.29	87.96	90.49
Jateng	54.45	57.42	59.99	61.02	63.38	64.56	65.09	65.98	67.01	67.73	67.87	69.06	71.13	74.13	76.48	80.23	81.49	83.78	84.46	82.81	84.94	86.34	88.67
DIY	58.10	60.71	63.22	64.81	65.49	66.31	68.27	68.65	70.05	72.17	73.38	75.96	78.38	80.39	81.90	86.32	86.87	87.83	88.73	85.90	87.79	89.11	92.26
Jatim	53.32	57.06	59.79	61.85	64.07	65.50	65.59	66.15	66.40	67.77	68.11	69.40	71.47	74.74	77.34	80.69	81.85	83.79	84.67	82.13	83.90	85.59	87.72
Banten	It is still part of the Jabar Province						63.40	63.97	65.06	66.87	65.77	68.08	70.22	74.93	76.76	81.11	83.77	85.60	86.10	85.73	87.58	89.85	90.82
Bali	62.69	63.94	65.63	66.44	67.55	70.60	70.46	71.10	71.39	72.29	72.77	74.30	76.37	78.60	80.62	83.91	85.68	87.36	88.37	85.98	88.36	90.15	91.69
NTB	48.89	51.24	54.43	55.43	58.51	59.71	56.74	57.35	57.24	59.64	58.22	60.66	64.62	66.43	70.91	72.79	73.92	77.13	79.99	75.77	78.56	81.33	83.21
NTT	28.13	29.52	30.29	34.47	33.33	34.19	34.75	35.47	35.48	36.54	36.40	37.52	38.90	42.70	46.21	51.89	53.29	58.87	63.46	63.11	64.84	66.02	69.14
Kalbar	43.07	46.30	52.93	51.31	51.46	54.54	53.37	53.71	55.63	56.80	56.66	59.38	63.89	67.06	66.88	71.93	74.63	76.71	77.60	77.51	79.62	81.99	84.49
Kalteng	45.50	48.36	50.72	52.52	52.62	53.00	53.74	54.07	55.41	56.26	56.58	58.00	62.82	66.39	69.08	75.15	75.97	77.79	77.99	80.07	78.33	80.22	81.93
Kalsel	50.30	52.20	54.93	56.47	58.67	59.31	60.86	62.20	63.55	65.69	65.76	67.36	70.66	75.35	77.28	81.20	82.88	84.41	85.99	83.21	85.29	86.78	88.53
Kaltim	57.09	59.12	61.99	63.98	65.35	65.37	66.88	66.93	68.13	69.25	69.77	71.94	73.65	77.82	80.62	85.53	84.86	86.37	87.07	86.95	88.99	90.87	92.60
Sulut	53.54	54.85	57.70	57.88	59.78	61.62	65.43	63.79	65.23	67.47	67.68	68.18	70.51	73.88	76.38	81.80	82.24	83.91	85.00	80.13	85.59	87.67	89.55
Sulteng	41.49	44.23	48.20	48.89	50.03	50.68	48.36	49.93	51.98	53.95	53.65	55.58	59.76	64.70	66.73	70.61	72.04	76.09	77.99	78.27	79.58	82.36	82.77
Sulsel	46.52	48.90	52.01	53.29	55.39	58.49	57.31	57.65	58.31	59.41	60.08	64.01	67.61	70.60	74.22	79.77	79.98	82.01	83.14	80.11	84.45	86.46	89.34
Sultra	37.02	38.17	42.22	45.60	47.73	48.51	48.31	46.61	49.00	51.13	52.52	53.77	58.89	63.95	68.83	71.52	74.51	78.42	80.60	79.88	78.96	81.60	84.99
Gorontalo	It is still part of the Sulut Province						47.92	49.79	49.96	49.53	51.79	53.71	59.03	63.16	68.20	70.18	73.21	75.75	80.33	78.69	81.02	85.12	86.52
Sulbar	It is still part of the Sulsel Province										56.05	54.52	58.92	64.37	68.37	67.27	70.64	74.22	75.43	73.12	77.10	80.09	84.87
Maluku	44.32	46.32	48.98	49.10	50.97	54.27	55.67	63.04	53.75	53.48	52.64	54.80	58.53	60.51	61.93	69.55	69.38	72.62	73.30	74.75	78.86	81.30	83.80
Malut	It is still part of the Maluku Province					53.07	57.96	59.70	50.72	50.01	52.96	52.63	59.03	62.70	62.39	69.17	70.13	73.41	75.89	76.08	80.03	82.60	84.15
West Papua	It is still part of the Papua Province					37.51	41.59	53.52	42.21	43.94	49.75	52.23	57.59	60.59	62.89	73.80	70.98	74.31	73.88	78.45	78.87	80.86	84.76
Papua	35.21	35.37	38.66	38.35	36.62	37.67	42.47	54.78	40.94	42.71	45.29	40.44	46.29	44.57	47.09	47.02	45.77	46.88	50.09	51.04	54.00	54.65	59.67
Indonesia	47.73	50.07	53.04	54.09	55.40	57.12	57.40	59.07	58.67	59.99	60.64	61.89	65.94	69.41	72.05	76.28	77.64	79.92	81.28	79.94	82.17	84.05	86.34

Province	The SLDI of Environmental Dimension																						
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Aceh	56.50	56.26	56.16	55.52	54.97	55.07	59.28	57.48	55.59	54.89	54.49	58.09	55.66	55.05	51.90	51.28	50.83	49.55	48.91	48.44	48.03	47.56	47.13
Sumut	57.03	54.62	52.52	52.05	51.78	51.28	51.10	51.04	49.06	50.77	50.50	53.54	55.08	55.38	52.16	51.92	51.62	48.99	48.68	48.65	49.06	49.41	49.91
Sumbar	60.41	59.84	59.27	58.75	59.29	57.28	55.89	56.10	54.46	57.79	55.06	57.62	58.54	57.81	54.21	52.60	51.00	49.59	49.42	49.39	49.66	49.72	49.88
Riau	37.76	37.09	36.42	36.14	34.33	33.38	32.86	31.36	28.89	33.23	30.08	35.28	36.81	37.03	34.40	33.90	33.03	31.62	28.46	29.68	29.83	30.05	30.26
Jambi	46.22	45.82	45.39	45.02	46.01	44.54	44.50	44.08	43.25	42.82	38.03	39.18	35.81	26.44	21.26	21.32	21.72	21.39	21.21	20.48	20.38	20.38	20.51
Sumsel	59.03	58.34	57.60	56.81	56.74	55.37	54.79	55.52	54.88	56.30	57.37	56.13	55.92	53.19	50.79	48.04	47.05	45.72	44.92	44.61	45.10	45.38	45.69
Bengkulu	60.37	60.07	59.73	59.96	62.88	63.01	63.04	63.06	61.27	61.26	63.28	60.73	57.37	57.39	55.17	53.68	53.14	51.52	51.46	50.72	50.61	51.10	51.52
Lampung	62.73	62.38	61.67	61.35	61.00	60.53	60.09	60.04	60.23	65.85	58.56	61.71	60.36	66.04	66.90	58.80	59.53	56.98	55.31	54.28	54.27	54.34	54.47
Babel	It is still part of the Sumsel Province						42.40	42.73	42.93	43.84	44.35	50.86	48.58	36.42	46.79	43.80	42.71	40.18	37.35	38.42	39.44	40.48	41.47
Kepri	It is still part of the Riau Province						44.43	44.89	45.12	44.66	44.70	47.18	50.76	51.24	50.19	46.22	44.54	43.03	43.01	42.97	43.34	43.86	44.34
DKI	7.36	5.30	5.30	9.25	9.22	9.22	9.22	9.22	9.22	9.22	9.22	14.59	9.22	17.46	9.29	8.96	8.96	11.38	8.96	8.96	8.96	8.96	8.96
Jabar	56.51	55.87	56.20	56.69	56.34	57.07	57.25	57.29	55.52	65.11	59.84	60.22	58.14	58.41	57.29	57.70	56.30	55.11	54.42	53.66	53.10	52.61	55.70
Jateng	37.63	36.67	36.78	37.04	37.62	38.69	37.43	36.97	35.54	47.14	37.00	37.47	39.12	39.61	38.48	37.19	35.80	35.03	34.42	34.25	34.20	34.17	34.32
DIY	32.00	32.00	27.28	21.06	20.89	21.94	22.01	21.72	19.33	30.18	16.49	22.30	18.82	17.64	10.67	18.27	5.53	4.17	4.19	4.64	5.79	6.97	8.12
Jatim	56.38	55.62	52.44	53.38	53.59	53.85	53.78	53.58	52.37	59.95	52.80	54.12	54.13	56.31	54.82	52.90	52.07	51.26	51.04	51.16	51.31	51.47	51.71
Banten	It is still part of the Jabar Province						42.83	42.84	43.36	44.31	42.32	45.68	44.67	43.95	40.76	42.42	39.95	39.66	39.64	37.40	35.73	36.21	34.80
Bali	58.63	52.52	46.16	44.76	42.44	41.50	40.34	39.72	39.26	41.39	35.70	43.63	43.12	39.41	33.65	31.31	29.93	29.93	30.76	30.03	30.03	30.03	29.98
NTB	60.13	60.20	60.12	59.33	58.87	58.84	58.65	58.30	58.54	60.88	57.22	60.44	58.18	59.88	54.01	51.40	50.36	50.36	50.46	49.29	49.45	49.15	49.21
NTT	60.19	59.35	58.34	58.38	60.29	60.85	61.19	61.33	61.10	62.03	60.25	61.82	59.91	60.58	56.36	55.00	54.89	54.53	54.32	54.81	55.62	55.31	55.07
Kalbar	59.30	58.98	58.67	58.36	58.29	58.06	57.77	57.64	56.98	56.56	57.28	55.41	54.04	53.81	50.54	49.43	48.38	46.76	45.31	45.09	45.12	45.12	45.18
Kalteng	49.96	50.08	50.16	50.22	50.19	50.71	50.68	50.87	49.69	47.67	44.59	45.70	42.82	42.66	37.90	38.15	37.08	40.52	39.10	39.58	40.26	40.86	41.48
Kalsel	53.34	52.88	52.38	51.92	52.11	50.62	50.48	50.17	49.10	49.76	46.64	48.67	46.62	47.00	42.25	40.82	38.82	36.43	35.59	31.66	29.94	29.89	29.94
Kaltim	57.46	56.75	56.05	55.42	55.35	53.03	52.64	52.08	49.95	47.92	41.70	44.84	45.55	45.66	42.00	39.27	37.40	35.02	33.42	32.62	32.59	32.60	32.59
Sulut	63.94	64.34	62.85	62.33	66.37	67.25	66.07	67.49	64.58	66.74	64.98	67.60	65.72	67.93	58.82	50.97	49.76	48.20	47.18	47.29	47.33	47.79	48.16
Sulteng	57.15	56.09	54.73	53.54	52.85	50.95	51.50	51.00	50.12	48.88	48.36	51.46	50.87	47.62	42.72	39.40	37.71	36.45	34.85	33.13	32.78	32.58	32.53
Sulsel	60.31	59.55	63.10	61.73	64.89	62.64	64.05	63.65	63.63	64.23	60.03	63.88	62.05	63.19	56.78	53.35	52.47	50.70	50.95	51.45	50.68	50.61	50.67
Sultra	63.06	62.76	62.43	63.03	62.78	62.26	62.19	74.72	73.88	61.45	58.61	62.21	58.13	55.41	50.25	45.33	58.53	57.61	57.55	56.54	56.12	55.94	55.76
Gorontalo	It is still part of the Sulut Province						64.10	62.98	63.02	66.69	62.58	66.77	66.81	56.33	49.80	47.69	47.84	44.90	44.56	43.59	43.57	43.62	44.04
Sulbar	It is still part of the Sulsel Province										28.20	30.36	29.03	31.33	28.20	28.57	28.20	32.53					
Maluku	61.44	59.06	57.69	56.29	56.40	55.12	55.30	55.83	55.04	56.22	56.08	59.10	58.54	60.43	53.63	54.01	53.52	53.61	52.69	53.00	53.41	53.89	54.32
Malut	It is still part of the Maluku Province					62.27	62.26	62.28	62.35	62.36	62.39	64.93	62.38	62.45	61.29	61.59	60.83	60.29	60.00	59.81	59.63	59.54	59.41
West Papua	It is still part of the Papua Province					51.83	42.74	48.16	42.83	47.51	46.26	52.18	50.26	49.03	43.05	39.30	38.42	37.55	37.43	37.19	37.15	37.15	37.14
Papua	68.89	68.64	68.40	68.17	65.18	62.06	60.86	63.05	61.93	62.78	62.59	64.40	63.87	63.71	62.18	61.33	61.08	61.27	61.01	60.15	59.38	58.65	57.94
Indonesia	53.25	52.25	51.24	50.83	50.75	50.61	50.30	50.77	49.73	51.47	48.71	51.46	50.21	49.57	46.02	44.42	43.61	42.78	42.28	41.86	41.83	41.94	42.15

Province	The SLDI of Institutional Dimension																					
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Aceh	72.55	72.46	73.94	72.14	68.97	73.40	71.58	71.59	71.99	71.18	72.27	73.40	71.33	70.62	72.37	71.02	71.09	71.22	71.68	71.39	71.44	71.35	71.60
Sumut	61.73	64.45	61.52	60.25	62.94	68.47	68.72	65.88	71.09	75.21	75.98	76.82	77.48	79.61	74.65	77.79	79.28	79.71	79.89	77.12	77.32	74.43	72.50
Sumbar	64.41	62.61	63.87	64.35	69.62	69.46	69.15	69.33	72.40	74.87	75.09	75.31	74.22	73.94	74.91	73.76	73.05	73.05	72.92	72.98	72.90	72.83	71.16
Riau	60.83	62.12	62.52	63.88	71.37	68.82	60.15	70.59	71.68	71.06	71.05	71.26	71.52	70.74	72.08	72.66	73.29	73.16	73.71	73.57	72.60	73.82	71.80
Jambi	68.85	64.60	63.39	62.66	66.77	71.20	71.89	68.33	74.60	72.66	72.65	71.62	72.20	73.48	72.59	72.76	73.63	73.67	73.36	73.72	73.21	73.53	71.63
Sumsel	59.54	58.93	59.02	58.28	62.60	67.65	63.31	62.85	70.17	70.22	70.22	70.50	70.91	72.57	71.46	71.08	72.80	73.24	74.69	75.34	74.54	74.15	70.87
Bengkulu	60.97	60.62	58.23	59.13	64.02	64.81	65.62	67.93	71.33	72.12	72.23	72.89	70.99	75.62	75.47	72.20	72.23	72.50	74.55	75.56	74.98	74.00	72.68
Lampung	63.33	64.46	62.42	61.53	63.90	68.33	69.34	74.14	73.42	70.59	72.86	74.13	74.21	74.95	77.29	74.70	74.31	75.47	74.18	74.04	74.72	74.92	72.75
Babel	It is still part of the Sumsel Province						61.47	62.35	68.51	70.20	70.09	70.00	73.66	77.65	78.18	75.05	75.28	77.05	75.44	78.42	78.34	76.53	74.14
Kepri	It is still part of the Riau Province						76.68	80.26	94.19	95.31	86.14	79.81	74.23	72.84	75.62	73.93	73.25	72.76	72.41	73.51	72.61	74.06	73.03
DKI	72.32	74.86	72.46	70.37	76.83	75.96	75.50	77.92	78.69	78.79	79.34	79.10	80.83	78.97	77.41	73.03	73.17	72.51	75.16	75.28	75.42	74.39	72.86
Jabar	70.53	71.29	71.33	63.92	68.36	70.46	64.01	66.69	74.26	74.03	73.49	74.75	75.32	75.33	75.67	72.23	72.48	74.74	73.61	74.69	75.11	77.32	72.11
Jateng	65.49	67.33	64.57	62.79	68.85	70.64	67.55	68.40	71.95	74.87	74.66	73.32	73.60	73.45	75.16	72.65	72.67	72.65	73.40	72.70	72.58	70.15	70.75
DIY	74.20	70.90	68.96	68.79	72.46	73.82	74.95	75.46	74.13	79.85	79.56	73.96	74.86	74.32	69.52	76.14	73.57	74.43	74.79	74.30	76.59	73.19	73.99
Jatim	66.63	69.37	65.86	64.03	69.90	69.95	61.90	68.78	71.20	70.79	71.04	71.49	71.98	72.03	72.73	72.98	72.02	71.73	71.73	71.61	71.13	70.57	70.23
Banten	It is still part of the Jabar Province						65.76	65.44	73.27	72.46	72.92	74.09	74.29	75.32	75.57	73.70	74.59	75.24	72.38	72.28	72.81	72.96	74.92
Bali	65.64	67.76	66.84	65.27	68.51	71.99	78.15	81.92	77.37	77.47	76.23	75.06	73.71	74.37	78.63	74.09	72.88	77.24	72.21	72.19	72.00	69.81	71.98
NTB	61.58	62.85	62.07	60.01	64.60	67.00	70.14	70.66	70.89	71.38	71.48	71.51	72.64	75.79	75.42	75.28	74.46	74.50	74.97	73.71	74.94	59.90	73.69
NTT	63.56	61.63	62.50	62.94	66.69	72.96	71.58	72.76	71.01	71.14	71.75	71.96	72.73	72.56	73.29	73.24	73.59	75.35	74.70	74.80	73.51	65.52	71.21
Kalbar	64.11	69.61	65.82	65.48	66.23	66.46	72.92	77.90	76.30	75.16	75.25	73.82	74.23	74.11	75.01	73.48	73.52	74.47	73.62	73.71	74.00	74.47	71.94
Kalteng	61.52	64.48	62.82	61.57	63.74	63.74	61.03	65.65	72.53	72.39	71.67	71.91	71.54	72.21	68.91	71.71	71.63	72.30	72.49	72.02	71.58	69.69	71.29
Kalsel	69.58	70.27	60.12	66.61	64.19	68.48	63.51	64.75	70.10	69.94	71.51	70.99	71.13	71.34	71.89	71.83	72.03	72.25	71.75	72.26	72.19	72.15	71.89
Kaltim	63.38	65.12	64.14	64.46	67.32	65.25	63.65	64.75	63.94	71.10	71.48	71.28	71.11	78.63	80.56	72.32	71.97	72.13	75.99	76.29	73.74	72.30	71.18
Sulut	61.91	63.37	61.40	65.13	67.30	73.64	71.57	68.33	77.70	80.93	84.14	81.00	81.98	80.10	72.14	73.50	73.27	72.67	73.26	73.17	72.24	63.10	70.37
Sulteng	61.08	60.72	60.13	60.51	63.48	70.98	71.83	71.69	71.23	71.98	72.89	73.46	75.77	74.83	72.39	72.80	73.00	71.67	72.30	71.74	71.42	71.29	70.91
Sulsel	64.31	65.88	64.48	63.65	68.56	69.78	64.00	73.33	79.80	79.18	79.86	78.99	76.66	73.46	75.44	73.96	75.07	74.48	75.15	76.33	75.68	71.66	70.68
Sultra	58.83	61.05	60.82	61.12	65.42	66.95	66.97	67.31	69.67	69.14	72.61	75.57	76.73	75.61	75.72	73.52	72.77	75.46	74.41	74.60	74.19	74.35	72.15
Gorontalo	It is still part of the Sulut Province						57.29	58.37	65.97	73.13	74.05	70.88	74.39	77.08	73.44	76.94	73.80	74.12	74.49	73.90	75.51	74.36	73.28
Sulbar	It is still part of the Sulsel Province											78.99	77.56	74.75	74.04	73.79	68.55	73.47	71.16	72.46	73.28	75.17	76.09	73.08
Maluku	60.46	59.66	59.80	59.98	62.94	66.29	66.06	65.61	89.87	76.31	72.94	73.81	71.35	71.49	72.33	72.83	74.08	73.29	74.22	73.59	74.15	74.15	75.88
Malut	It is still part of the Maluku Province						74.47	79.57	85.48	92.53	77.95	75.30	76.07	73.37	74.81	74.06	74.27	75.24	75.67	76.02	75.80	74.61	72.51	72.30
West Papua	It is still part of the Papua Province						75.08	77.89	78.70	79.16	83.66	88.26	82.77	78.97	89.01	78.84	77.45	81.23	78.44	79.06	78.36	78.95	77.23	77.06
Papua	65.79	69.62	64.78	66.31	73.49	69.15	73.57	80.38	84.99	75.05	76.48	74.38	73.17	73.41	72.17	71.28	75.75	71.02	69.78	70.75	70.98	72.41	72.59
Indonesia	64.97	66.64	64.93	64.37	67.36	69.21	68.67	70.79	74.89	74.82	74.98	74.35	74.12	74.98	74.39	73.42	73.83	73.92	73.96	74.03	73.97	72.40	72.38

Province	The SLDI																						
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Aceh	57.78	58.84	60.85	60.99	60.91	63.08	67.74	69.57	65.05	65.35	64.41	64.68	65.68	67.63	68.45	69.97	70.54	71.05	71.50	71.32	71.82	72.75	73.38
Sumut	60.36	61.29	61.95	60.98	62.98	64.15	64.53	64.02	64.72	66.28	67.15	66.81	69.74	71.51	70.68	72.66	73.13	73.39	73.84	73.68	74.40	74.73	75.47
Sumbar	59.49	60.41	61.42	61.96	63.70	63.55	63.50	64.36	64.89	66.49	66.82	66.07	69.09	70.05	70.36	71.39	71.18	71.88	72.34	71.54	72.53	73.42	73.69
Riau	52.74	54.27	55.96	55.67	57.08	57.98	56.74	58.58	57.63	59.42	58.69	60.59	63.34	65.58	65.73	66.76	67.85	68.45	68.63	67.99	68.56	70.15	70.67
Jambi	55.06	55.38	56.90	56.19	57.78	58.41	59.30	59.25	60.00	60.94	60.13	60.84	62.19	61.58	60.80	63.03	64.07	65.25	65.94	65.29	65.73	66.66	67.23
Sumsel	56.72	57.95	58.97	58.64	60.24	61.67	59.94	59.62	61.32	62.71	64.19	64.02	65.97	67.23	67.78	68.54	69.72	70.30	70.86	70.63	71.51	72.18	72.66
Bengkulu	58.10	58.66	59.08	59.14	62.10	62.15	62.29	62.40	62.48	64.13	65.16	65.11	65.29	67.59	69.11	69.27	69.51	70.67	70.98	70.63	71.58	72.26	73.05
Lampung	54.64	55.96	56.75	56.35	57.06	58.14	59.69	60.95	61.76	63.44	63.29	64.86	66.77	70.29	72.01	71.35	72.26	72.82	72.81	71.57	72.76	73.96	74.28
Babel	It is still part of the Sumsel Province						59.08	60.00	61.04	62.79	63.79	65.25	67.13	66.70	70.17	70.51	71.47	71.90	71.23	72.14	73.53	73.88	74.39
Kepri	It is still part of the Riau Province						63.64	64.73	67.40	67.98	69.57	68.37	71.04	69.82	71.41	73.90	74.10	74.03	74.33	72.94	73.79	74.89	75.16
DKI	57.15	58.14	58.19	58.60	60.87	60.59	61.15	62.15	62.17	62.82	63.38	64.72	64.73	67.83	66.44	67.00	67.33	67.91	68.26	68.49	69.14	69.20	69.19
Jabar	61.01	62.67	63.94	62.76	64.02	65.10	64.63	65.63	66.88	69.78	68.70	68.90	69.87	71.23	72.18	73.43	73.39	74.20	74.54	74.27	75.34	76.32	77.20
Jateng	55.44	56.79	57.54	57.42	59.53	60.65	60.51	60.89	61.55	61.57	63.48	63.40	64.96	66.27	67.33	68.01	68.28	69.01	69.57	69.40	70.12	70.42	71.35
DIY	58.65	59.05	58.58	57.17	58.31	58.37	60.68	60.72	60.54	65.05	62.26	62.99	64.05	64.61	62.73	67.51	64.03	64.20	64.85	64.29	65.84	66.04	67.47
Jatim	60.25	61.94	61.30	61.60	63.56	64.17	63.57	64.81	65.23	67.88	66.58	67.14	68.49	70.38	71.24	72.00	72.22	72.87	73.56	73.17	73.74	74.41	75.12
Banten	It is still part of the Jabar Province						60.84	61.38	63.42	64.34	63.40	65.08	65.78	67.83	67.72	69.58	70.39	71.38	71.40	71.19	71.31	72.44	72.59
Bali	65.84	65.51	64.85	64.54	64.91	66.61	67.04	67.74	67.16	68.09	66.48	68.94	69.71	69.78	69.83	69.59	70.07	71.75	71.78	70.99	71.89	72.19	73.13
NTB	56.60	58.00	59.22	58.72	60.75	61.77	61.54	61.89	61.57	63.60	62.61	63.95	65.96	67.82	67.73	68.18	68.42	69.76	70.90	69.99	71.58	70.36	73.04
NTT	50.20	50.23	49.72	51.20	52.00	53.50	54.25	54.71	54.27	55.30	55.64	56.19	56.83	58.28	58.66	60.68	61.74	63.65	65.03	64.77	65.92	65.60	67.83
Kalbar	56.30	58.14	59.97	59.44	59.51	60.57	61.51	62.53	61.73	62.09	62.63	62.90	64.02	65.28	64.78	66.16	68.03	68.77	68.84	68.86	69.46	70.72	71.10
Kalteng	54.52	56.44	57.14	57.38	58.48	58.43	58.40	59.08	60.63	60.83	60.59	60.70	61.30	62.73	62.04	64.99	65.27	67.14	68.00	67.23	68.14	69.34	70.74
Kalsel	57.82	58.92	58.52	59.92	60.31	60.71	60.94	61.53	62.52	63.93	63.36	64.44	65.15	67.17	66.97	68.19	68.55	68.60	69.35	67.35	68.22	68.59	69.04
Kaltim	62.33	63.77	64.57	64.68	65.78	64.57	65.35	65.67	65.42	66.48	65.50	66.19	67.91	70.72	71.39	71.48	70.75	70.99	71.89	71.63	71.78	72.51	72.83
Sulut	62.46	63.16	63.79	63.99	66.43	68.65	70.30	69.44	70.74	72.67	72.82	72.69	73.61	74.98	72.75	72.76	72.42	72.53	73.16	71.94	73.39	73.02	74.85
Sulteng	54.95	55.81	56.78	56.41	57.28	58.00	58.01	58.29	59.08	59.76	60.26	61.31	63.00	64.24	63.39	64.01	64.41	65.50	66.94	67.24	67.83	68.92	69.27
Sulsel	58.11	59.47	61.33	61.35	63.78	64.57	63.56	65.47	66.67	67.37	66.84	68.91	69.70	70.67	70.99	71.91	72.21	72.77	73.55	73.19	74.43	74.62	75.48
Sultra	55.41	56.21	57.17	58.34	59.84	60.89	60.88	63.26	64.55	62.31	63.11	64.67	65.62	66.74	67.25	66.71	70.91	72.83	73.88	73.90	73.75	74.70	75.59
Gorontalo	It is still part of the Sulut Province						58.02	58.17	59.91	62.38	62.00	63.15	66.25	65.46	65.31	66.13	67.23	67.53	69.28	69.08	70.08	71.58	72.03
Sulbar	It is still part of the Sulsel Province										57.39	55.26	56.72	59.48	60.32	58.98	61.10	63.14	64.28	63.96	65.47	67.07	68.08
Maluku	57.84	58.18	57.88	57.41	58.67	60.23	61.10	64.30	63.98	62.57	62.66	63.63	64.43	65.70	64.91	68.01	67.79	68.99	69.71	70.49	71.88	73.13	73.63
Malut	It is still part of the Maluku Province						62.34	65.61	70.15	65.77	63.70	63.92	64.68	65.90	67.73	67.27	70.40	70.57	71.67	73.07	73.28	74.36	75.16	75.75
West Papua	It is still part of the Papua Province						52.49	52.73	60.34	53.36	55.90	58.01	59.90	60.22	63.12	61.20	64.65	64.48	65.79	65.91	67.96	68.23	68.78	70.16
Papua	55.29	56.03	56.02	55.47	55.42	54.15	56.83	64.71	58.63	57.92	58.65	56.88	58.88	58.57	59.27	58.83	59.45	59.08	60.19	60.44	61.61	62.00	63.78
Indonesia	57.24	58.34	58.92	58.77	59.93	60.79	61.17	62.50	62.38	63.56	63.44	64.04	65.43	66.81	66.91	68.08	68.57	69.39	70.01	69.72	70.60	71.27	72.10

Appendix B. The Result of In-depth interview and Focus Group Discussion

Table 1. The aspects of decentralization policy in inhibiting the achievement of sustainable local development in Indonesia based on government and parliament perspectives

Political Decentralization Aspect	Administrative Decentralization Aspect	Fiscal Decentralization Aspect	Economic Decentralization Aspect
▪ Low political will. ▪ Lack of parliament capacity. ▪ Uncontrolled political coordination. ▪ High political negotiations, political dowry, money politics. ▪ Differences in perspectives on short-term political interests and long-term sustainable development programs. ▪ The disparity between populist political policies in social-economic sectors and non-populist political policies in sustainable environmental sectors.	▪ The problem of data (data availability, lack of quality data, data validation, inadequate data series). ▪ Unsynchronized central and local planning documents. ▪ Unsynchronized local planning document and Strategic Environmental Studies (KLHS). ▪ Difficult negotiations in term of political interests and technocratic policies. ▪ Passive local governments (only waiting for policy directions from the central government). ▪ Little innovation for breakthrough programs.	▪ Low fiscal capacity. ▪ Unclear funding sources. ▪ The high fiscal dependence of local budget on intergovernmental fiscal transfers. ▪ The imbalance between fiscal needs and fiscal capacity.	▪ Ease doing of business and local investment problems. ▪ The difficulty of controlling the business/ economic sector by contra-productive policies. ▪ Low investment in basic public infrastructure. ▪ Hard collaboration in public-private partnerships.

Source: In-depth interviews & FGDs (2018)

Table 2. The aspects of decentralization policy in inhibiting the achievement of sustainable local development in Indonesia based on business actor and philanthropy perspectives

Political Decentralization Aspect	Administrative Decentralization Aspect	Fiscal Decentralization Aspect	Economic Decentralization Aspect
▪ High corruption and bribery. ▪ Weak leadership. ▪ Lack of best-elected leaders from the local democratic process. ▪ Emerging 'small kings' in local areas.	▪ Disharmony local regulations and policies. ▪ The burden of local taxes and retributions. ▪ Lack of official capacity in the frequent tour of duty. ▪ Rampant corruption and bribery. ▪ Inconsistency between Local Spatial Plan (RTRW) and Spatial Detail Plan (RDTR). ▪ Lack of coordination among government stakeholders. ▪ Lack of dissemination for sustainability. ▪ A little intergovernmental cooperation in the cross-regional sustainable programs.	▪ Low fiscal capacity. ▪ The high fiscal dependence of local budget on intergovernmental fiscal transfers.	▪ More constraint of costs than benefits. ▪ They are overlapping licensing of business. ▪ Low investment in infrastructure ▪ Weakness incentives for good sustainable productions. ▪ Maintaining a balance of economic interest and environmental preservation. ▪ Shortcomings of public-private partnership.

Source: In-depth interviews & FGDs (2018)

Table 3. The aspects of decentralization policy in inhibiting the achievement of sustainable local development in Indonesia based on CSOs and media perspectives

Political Decentralization Aspect	Administrative Decentralization Aspect	Fiscal Decentralization Aspect	Economic Decentralization Aspect
- Low integrity. - High corruption and bribery. - Lack of capacity building. - Shortcoming provision of political education platforms. - Insufficient political education for communities as voters.	- Lack of official capacity. - Little innovation for breakthrough programs. - Lack of dissemination for sustainable programs. - Not optimal use of local wisdom. - Low community empowerment.	- Fiscal justice in intergovernmental fiscal transfer. - Lack of PAD. - The high fiscal dependence of local budget on intergovernmental fiscal transfers.	- Problems in leaving behind dirty/coal energy use. - Dominant land-based sectors and non-renewable energy productions. - Shortcomings of public-private partnership. - Unfavorable and difficult to implement the renewable energy industries.

Source: In-depth interviews & FGDs (2018)

Table 4. The aspects of decentralization policy in inhibiting the achievement of sustainable local development in Indonesia based on academic, expert, and international organization perspectives

Political Decentralization Aspect	Administrative Decentralization Aspect	Fiscal Decentralization Aspect	Economic Decentralization Aspect
▪ Lack of capacity building. ▪ Many less-qualified elected leaders. ▪ Dominant popularity contest in a high-cost democracy (not based on capacity, competency, and capability). ▪ Lack of dissemination about sustainable development for politicians. ▪ Differences in perspectives on short-term political interests and long-term sustainable development programs.	▪ Low capacity of local leaders. ▪ Lack of academic inputs in formulating technocratic policies. ▪ The problem of data (data availability, lack of quality data, data validation, inadequate data series). ▪ 'Trial and Error' regulation in the natural resource's management. ▪ High local development fragmentation from regional proliferation process. ▪ The bulk of administrative tasks from the central government. ▪ Conflict of authority and partial devolution of intergovernmental tasks. ▪ Disharmony and overlapping regulations. ▪ Dominant short-term policy in sustainable development. ▪ Less popular of sustainability issues. ▪ Policy equality and single approach (one size fits all) in local capacity differences.	▪ Low fiscal capacity. ▪ The high fiscal dependence of local budget on intergovernmental fiscal transfers. ▪ Fiscal disparity amid provinces. ▪ Low-quality spending in the local budget.	▪ Many oligarchy capitalists in business sectors. ▪ A trade-off between economic interest and environmental preservation.

Source: In-depth interviews & FGDs (2018)

Table 5. Some priorities of future decentralization policies for sustainable local development in Indonesia based on government and parliament ideas

Political Decentralization Aspect	Administrative Decentralization Aspect	Fiscal Decentralization Aspect	Economic Decentralization Aspect
- Improving the synergy between political interest and technocratic-bureaucratic policy in more executive-legislative collaboration of sustainable policies. - Improving Political willingness and strong commitments to sustainable local development. - Supporting legal base in sustainable local development. - Prioritizing sustainable programs in budget allocation.	- Stipulating strong legal base (central and local regulation). - Making clear technical guidelines in sustainable program implementation (indicator metadata, action plan, monitoring-evaluation procedures). - Enhancing institutional supports (strategic planning, effective foresight mechanism, budget allocation process, implementation process). - The central government needs to develop local capacity building programs based on typology, cluster, and grouping of local wisdom/characteristics. - Strengthening local leadership. - Integrating and synchronizing sustainable programs in local-national development plans. - Broaden the dissemination of local sustainability. - Overcoming conflict of a government authority.	- Increasing the local fiscal capacity based on optimizing local financial resources. - Generate a blending finance scheme as a mutual-benefit investment. - Improving the local fiscal management in 'collecting more and spending better.' - Need reformation of the local tax-retribution system and institutional capacity. - Restructuring all rigid budget accountability programs and not burdening substantive technical activities.	- Local innovations and breakthrough programs. - Intensification of public-private partnership. - Reducing the myriad regulatory and financial risks in local economic business.

Source: In-depth interviews & FGDs (2018)

Table 6. Some priorities of future decentralization policies for sustainable local development in Indonesia based on business actor and philanthropy ideas

Political Decentralization Aspect	Administrative Decentralization Aspect	Fiscal Decentralization Aspect	Economic Decentralization Aspect
▪ Requiring local parliament amelioration in regulatory, institutional, and capacity building. ▪ Reducing the domination of political democracy compared to economic democracy (political freedom versus social welfare). ▪ Maintaining stable domestic politics and well-run local democracy for long-term investment.	▪ Circumventing the local regulatory and bureaucratic inefficiencies (the legal certainty, clear technical guidelines, and correct decisions). ▪ Eliminating sectoral ego and increasing solidarity in facing multidimensional challenges. ▪ Building long-term partnerships and good sustainable governance in maintaining sustainability programs in any leadership succession. ▪ Need more coordination, collaboration, and cooperation amid local stakeholders in cross-sectoral sustainable programs. ▪ Strengthening local transformational-responsive leadership (a 'phronetic leader').	▪ More emphasis on local bureaucratic reform based on meritocracy and professionalism in fiscal management. ▪ Need reformation of the local tax-retribution system and institutional capacity. ▪ Generate a blending finance scheme as a mutual-benefit investment. ▪ Eradicating corruption and bribery. ▪ Public-financial institutions should be credible and transparent in the adequate control system.	▪ Improving ease doing of business to induce local investment. ▪ Accelerating infrastructure development and pushing for deregulation. ▪ Improving local budget financing and government guarantees in public-private cooperation. ▪ Creating more new entrepreneurs as good influencers in sustainable business. ▪ Providing sustainable education and training for Small and Medium Enterprises.

Source: In-depth interviews & FGDs (2018)

Table 7. Some priorities of future decentralization policies for sustainable local development in Indonesia based on CSOs and media ideas

Political Decentralization Aspect	Administrative Decentralization Aspect	Fiscal Decentralization Aspect	Economic Decentralization Aspect
▪ Changing from a short-term political mindset to long-term perspectives in sustainable development. ▪ Establishing good political education in sustainability. ▪ Eradicating political costs and money politics to induce creating short-term and pragmatic development programs. ▪ Increasing voter participation based on sustainability issues in political campaigns. ▪ Revitalizing the role of media in advocating sustainable development in the local democratic era.	▪ Need a comprehensive roadmap in attaining sustainable local development goals. ▪ Need more promotions and good communication strategies to spread local sustainability goals. ▪ Expanding public communication channels in sustainable development transparency. ▪ Need regular public meeting amid stakeholders in discussing sustainable local development progress. ▪ Need more effective supervision and coordination from the central government to local governments. ▪ Local empowerment, especially the young generation, to involve in community-based sustainable programs. ▪ Strengthening the character, identity, and culture of the local community in providing benefits to sustainable activities. ▪ Building sustainable and self-reliant development in local areas through local collaboration.	▪ Increasing local fiscal independence (not only depend on intergovernmental fiscal transfer). ▪ Generating more local fiscal transparency in the open government process. ▪ Reforming in the local budget system (more orderly, efficient, effective, and accountable). ▪ Eliminating some rigid and contra-productive fiscal regulations in terms of bothering local investment, creativity, innovation, and collaboration.	▪ Accelerating the pace of inclusive and green economic growth. ▪ More practicing sustainable production methods based on principals of sustainability. ▪ More building renewable energy infrastructure to support increasing eco-friendly economic projects and green investments. ▪ Attach to the function of local community factors in sustainable economic development.

Source: In-depth interviews & FGDs (2018)

Table 8. Some priorities of future decentralization policies for sustainable local development in Indonesia based on academic, expert, and international organization ideas

Political Decentralization Aspect	Administrative Decentralization Aspect	Fiscal Decentralization Aspect	Economic Decentralization Aspect
▪ Eliminating more domination of pragmatic-political interest than community-based needs. ▪ Changing from a short-term political mind-set to long-term perspectives in sustainable development implementation. ▪ Improving Political willingness and strong commitments to sustainable local development. ▪ Establishing good political education in sustainability to build 'critical thinking' for public involvement.	▪ Combining knowledge and experience in terms of thinking, empathy, work ethic, and the spirit of sustainability. ▪ Boosting some researches, innovations, and scientific-based sustainable programs. ▪ Equitable distribution of community welfare and reducing social-economic disparity. ▪ Building institutional capacities. ▪ Neutralizing the power of local oligarchs with a good-holistic system of safeguarding and supplying professional personnel. ▪ More emphasis on local bureaucratic reform. ▪ Empowering social capital. ▪ Realizing good governance and open government.	▪ Providing fiduciary risk assessments and problematic-modular approach in public expenditure management system. ▪ Increasing the local fiscal capacity based on optimizing local financial resources. ▪ Increasing local fiscal independence (not only depend on intergovernmental fiscal transfer). ▪ Proper fiscal management with a credible, transparent, and adequate control system. ▪ Decreasing discrepancy in local budget allocation between personnel expenditure and public services.	▪ Integrated capital development: political-bureaucratic capital, social capital, natural capital, and financial capital. ▪ Diversifying local economic sectors and improving natural resources management to prevent the fall into the curse of natural resources. ▪ Focusing on the local's strengths and comparative advantages in developing the local economy. ▪ Increasing corporate governance standards. ▪ Reforming the competitiveness of the manufacturing and service industries replacing the commodity sectors. ▪ Preparing skills development to support local economic capacity displaced by disruptive technologies. ▪ Increasing the global awareness of the sustainable industry and environmentally friendly production. ▪ Carrying out environment-based economic policies.

Source: In-depth interviews & FGDs (2018)

Appendix C. Formulir Wawancara Mendalam (*Form of In-depth Interview*)

Informasi Orang yang Diwawancara (*Interviewee Information*)		
Tipe Pemangku Kepentingan (*Type of Stakeholder*)	:	(1) Pemerintahan Pusat (Central Government), (2) Pemerintahan Daerah (Local Government), (3) Parlemen Daerah (Local Parliament), (4) Pelaku Usaha (*Business Actor*), (5) Filantropi (*Philanthropy*), (6) Organisasi Kemasyarakatan (*Civil Society Organization*), (7) Media, (8) Akademisi (Academic), (9) Organisasi Internasional (*International Organization*)]
Tanggal Wawancara (*Date of Interview*)	:	
Waktu Wawancara (*Time of Interview*)	:	
Lembaga (*Institution*)	:	
Nama (*Name*)	:	
Jabatan (Position)	:	
Umur (*Age*)	:	
Jenis Kelamin (*Gender*)	:	
Pendidikan Terakhir (*Latest Education*)	:	
Catatan (*Note*)	:	
Definisi (*Definition*)	:	(1) Pemerintah Pusat adalah Presiden Republik Indonesia yang memegang kekuasaan pemerintahan Negara Republik Indonesia yang dibantu oleh Wakil Presiden dan menteri sebagaimana dimaksud dalam Undang-Undang Dasar Negara Republik Indonesia Tahun 1945 (UU No. 23/ 2014 tentang Pemerintahan Daerah). *The Central Government is the President of the Republic of Indonesia, who holds the power of government of the Republic of Indonesia, which is assisted by the Vice President and the Minister referred to in the Constitution of the Republic of Indonesia 1945 (Law No. 23/ 2014 on Local Government).* (2) Pemerintahan Daerah adalah kepala daerah sebagai unsur penyelenggara Pemerintahan Daerah yang memimpin pelaksanaan urusan pemerintahan yang menjadi kewenangan daerah otonom (UU No. 23/ 2014 tentang Pemerintahan Daerah). *Local Government is a local leader as an element of local government institutions, who leads the implementation of government affairs, which are the authority of the autonomous areas (Law No. 23/ 2014 on Local Government).* (3) Parlemen daerah atau Dewan Perwakilan Rakyat Daerah (DPRD) adalah lembaga perwakilan rakyat daerah yang berkedudukan sebagai unsur penyelenggara pemerintahan daerah (UU No. 23/ 2014 tentang Pemerintahan Daerah).

Local Parliament is a representative institution for local people as an element of the regional government. (Law No. 23/2014 on Local Government).

(4) Pelaku Usaha adalah setiap orang perseorangan atau badan usaha baik yang berbentuk badan hukum maupun bukan badan hukum yang didirikan dan berkedudukan atau melakukan kegiatan dalam wilayah hukum Negara Republik Indonesia, baik sendiri maupun bersama-sama melalui perjanjian menyelenggarakan kegiatan usaha dalam berbagai bidang ekonomi (Peraturan Pemerintah No. 59/ 2017 tentang Pelaksanaan Pencapaian Tujuan Pembangunan Berkelanjutan).

A business actor is any individual or business entity whether in the form of a legal entity or non-legal entity established and domiciled or conducting activities within the territory of the Republic of Indonesia, either alone or jointly through agreements to conduct business activities in various economic fields (Indonesia Government Regulation No. 59/ 2017 on Implementation on Achievement of Sustainable Development Goals).

(5) Filantropi adalah pihak yang berbagi dukungan dan sumber daya secara sukarela kepada sesama dan bertujuan untuk mengatasi masalah sosial kemanusiaan serta memajukan kepentingan umum dan berkelanjutan (Peraturan Pemerintah No. 59/ 2017 tentang Pelaksanaan Pencapaian Tujuan Pembangunan Berkelanjutan).

Philanthropy is an organization that shares support and resources voluntarily to others and aims to address social issues of humanity and promote the common and sustainable interests (Indonesia Government Regulation No. 59/ 2017 on Implementation on Achievement of Sustainable Development Goals).

(6) Organisasi Kemasyarakatan adalah organisasi yang didirikan dan dibentuk oleh masyarakat secara sukarela berdasarkan kesamaan aspirasi, kehendak, kebutuhan, kepentingan, kegiatan, dan tujuan untuk berpartisipasi dalam pembangunan demi tercapainya tujuan Negara Kesatuan Republik Indonesia yang berdasarkan Pancasila (Peraturan Pemerintah No. 59/ 2017 tentang Pelaksanaan Pencapaian Tujuan Pembangunan Berkelanjutan).

Civil Society Organization is an organization founded and formed by the community voluntarily based on the similarity of aspirations, wills, needs, interests, activities, and objectives to participate in the development and in order to achieve the objectives from the Unitary State of the Republic of Indonesia based on Pancasila (Indonesia Government Regulation No. 59/ 2017 on Implementation on Achievement of Sustainable Development Goals).

(7) Akademisi adalah pendidik profesional dan ilmuwan dengan tugas utama mentransformasikan, mengembangkan, dan menyebarluaskan ilmu pengetahuan, teknologi, dan seni melalui pendidikan, penelitian, dan pengabdian kepada masyarakat (Peraturan Pemerintah No. 59/ 2017 tentang Pelaksanaan Pencapaian Tujuan Pembangunan Berkelanjutan).

	Academic is a professional educator and scientist with the primary task of transforming, developing, and disseminating science, technology, and art through education, research, and community service (Indonesia Government Regulation No. 59/ 2017 on Implementation on Achievement of Sustainable Development Goals).

Pertanyaan Wawancara (*Questions of Interview*)			
A. Hambatan bagi Kebijakan Desentralisasi terhadap Pembangunan Daerah Berkelanjutan (*Constraint of Decentralization Policy to Sustainable Local Development*)		
No.	Pertanyaan (*Question*)	Jawaban (*Answer*)
1.	Aspek kebijakan desentralisasi secara umum terkait dengan: (1) aspek politik; (2) aspek administrasi regulasi, wilayah, aparatur, dan kelembagaan; (3) aspek fiskal; dan (4) aspek pasar/ ekonomi. Berdasarkan keempat aspek tersebut, manakah aspek yang paling menghambat dalam pencapaian pembangunan berkelanjutan di daerah dalam perspektif Anda sebagai **[pemerintahan pusat, pemerintah daerah, parlemen daerah, pelaku usaha, filantropi, masyarakat, jurnalis, akademisi, organisasi internasional]]**? Mengapa? *The aspects of decentralization policy are generally related to (1) political aspects; (2) administration aspect of regulation, region, apparatus, and institution; (3) fiscal aspect; and (4) market/economic aspect. Based on these four aspects, which aspects are most hindering in achieving sustainable development in the local area in your perspective as **[a central government, a local government, a local parliament, a business actor, a philanthropy, a society, a journalist, an academic, an international organization]? Why?***	
2.	Potensi masalah apa yang dapat memicu konflik dalam penyelenggaraan kebijakan desentralisasi di daerah bagi pembangunan berkelanjutan? *What are the potential problems that can trigger conflict in the implementation of decentralization policies in the local area for sustainable development?*	
3.	Dalam pembangunan berkelanjutan di era desentralisasi, ada 4 (empat) dimensi tujuan: (1) Peningkatan kesejahteraan ekonomi masyarakat (dimensi ekonomi), (2) Keberlanjutan kehidupan sosial masyarakat (dimensi sosial); (3) Menjaga kualitas lingkungan hidup (dimensi lingkungan), serta; (4) Pembangunan yang menjamin keadilan dan terlaksananya tata kelola (dimensi kelembagaan). Dari empat dimensi tersebut, dalam perspektif Anda sebagai **[pemerintahan pusat, pemerintah daerah, parlemen daerah, pelaku usaha, filantropi, masyarakat, jurnalis, akademisi, organisasi internasional]**, manakah dimensi pembangunan berkelanjutan yang paling banyak kendala dalam pencapaiannya? Mengapa? *In sustainable development in the era of decentralization, there are 4 (four) dimensions of purpose: (1) Increasing the economic welfare of society (economic dimension), (2) Sustainability of social life on society (social dimension); (3) Maintaining the quality of environment (environmental dimension), and; (4) Development to guarantee the justice and good governance implementation (institutional dimension). From those four dimensions, in your perspective, as **[a central government, a local government, a local parliament, an entrepreneur, a philanthropy, a society, a journalist, an academic, an international organization],***	

	which dimension of sustainable development is the most obstacles to its achievement? Why?	
4.	Apakah yang menjadi kendala dalam membangun prinsip kemitraan dan partisipasi antara **[pemerintah pusat, pemerintah daerah, parlemen daerah, pelaku usaha, filantropi, masyarakat, jurnalis, akademisi, organisasi internasional]** (membangun kepercayaan, kemitraan yang setara, partisipasi, akuntabilitas, dan saling menguntungkan) terhadap pencapaian pembangunan berkelanjutan di era desentralisasi? *What are the constraints in establishing the principles of partnership and participation amid **[central government, local government, a local parliament, a business actor, a philanthropy, a society, a journalist, an academic, an international organization]** (trust building, equal partnership, participation, accountable, and mutual benefits) towards the achievement of sustainable development in the era of decentralization?*	

B. Peluang bagi Kebijakan Desentralisasi terhadap Pembangunan Daerah Berkelanjutan (*Opportunities of Decentralization Policy to Sustainable Local Development*)

No.	Pertanyaan (*Question*)	Jawaban (*Answer*)
1.	Bagaimana pemerintah pusat dan pemerintah daerah melibatkan **[parlemen daerah, pelaku usaha, filantropi, masyarakat, jurnalis, akademisi, organisasi internasional]** dalam pelaksanaan kebijakan desentralisasi di Indonesia bagi pembangunan berkelanjutan? *How does the central government and the local government involve **[a local parliament, a business actor, a philanthropy, a society, a journalist, an academic, an international organization]** in implementing decentralization policies in Indonesia for sustainable development?*	
2.	Apakah dengan adanya SDGs 2015 – 2030 akan meningkatkan kualitas kehidupan dan kesejahteraan masyarakat di daerah? Mengapa? *What the existence of SDGs 2015 - 2030 will improve the quality of life and people's welfare in the local area? Why?*	
3.	Perbedaan mendasar dari pelaksanaan kebijakan pembangunan berkelanjutan sebelumnya dengan SDGs 2015 – 2030: lebih komprehensif dalam melibatkan seluruh negara, memperluas sumber pendanaan, menekankan pada HAM, inklusif dan *no one left behind*, melibatkan seluruh pemangku kepentingan, dan *zero goals*. Apakah semua penyempurnaan tersebut akan mudah dalam pencapaian semua target-target dalam pembangunan berkelanjutan? Mengapa? *The fundamental differences from the implementation of previous sustainable development policies and SDGs 2015-2030: more comprehensive in involving all countries, expanding sources of funding, emphasizing human rights, inclusive and no one left behind, involving all stakeholders, and zero goals. Will all these improvements be easy in achieving all targets in sustainable development? Why?*	
4.	Prinsip dalam pelaksanaan pembangunan berkelanjutan di daerah adalah universal, terintegrasi, dan *no one left behind*. Manakah dari ketiga prinsip tersebut yang paling penting menurut Anda sebagai **[pemerintahan pusat, pemerintah daerah, parlemen daerah, pelaku usaha, filantropi, masyarakat, jurnalis, akademisi, organisasi internasional]**? Mengapa?	

	Principles in implementing sustainable development in the local area are universal, integrated, and no one left behind. Which of these three principles is the most important to you as [*a central government, a local government, a local parliament, a business actor, a philanthropy, a society, a journalist, an academic, an international organization*]? Why?	
C.	**Kebijakan Desentralisasi Ke Depan untuk Peningkatan Kualitas Pembangunan Daerah Berkelanjutan** (*Further Policy of Decentralization to Improved Sustainable Local Development Performance*)	

No.	Pertanyaan (*Question*)	Jawaban (*Answer*)
1.	Sejauh apa kebijakan desentralisasi sudah dilakukan oleh Pemerintah dan Pemerintah Daerah dalam mengurangi ketimpangan, menguatkan demokrasi lokal, meningkatkan kesejahteraan masyarakat dan kualitas lingkungan hidup dalam pembangunan berkelanjutan? *To what extent have decentralization policies been undertaken by the Government and Local Government in reducing inequality, strengthening local democracy, increasing people's welfare, and environmental quality in sustainable development?*	
2.	Apa yang menjadi prioritas kebijakan desentralisasi ke depan bagi peningkatan kesejahteraan masyarakat dan kualitas lingkungan hidup dalam pembangunan daerah berkelanjutan? *What are the priorities of future decentralization policies for the improvement of people's welfare and environmental quality in sustainable local development?*	
3.	Tantangan apa dalam kebijakan desentralisasi yang menjadi penting dalam menyukseskan pelaksanaan pembangunan daerah berkelanjutan ke depan? *What are the challenges in decentralization policies that are important in the successful implementation of sustainable local development in the future?*	
4.	Dalam strategi pelaksanaan pembangunan daerah berkelanjutan harus didukung dengan: (1) Landasan hukum (regulasi pusat dan daerah) yang kuat; (2) Pedoman teknis (metadata indikator, rencana aksi, pedoman monitoring dan evaluasi); serta (3) Dukungan kelembagaan (perencanaan, pendanaan, pelaksanaan, pemantauan, dan evaluasi). Menurut Anda sebagai **[pemerintahan pusat, pemerintah daerah, parlemen daerah, pelaku usaha, filantropi, masyarakat, jurnalis, akademisi, organisasi internasional]**, manakah yang paling diperlukan dalam pencapaian pembangunan daerah berkelanjutan dalam era desentralisasi ke depan? Mengapa? *In the implementation strategy of sustainable local development should be supported by:* *(1) Strong legal base (central and regional regulation); (2) Technical guidelines (indicator metadata, action plan, monitoring, and evaluation guidelines); (3) Institutional support (planning, funding, implementation, monitoring, and evaluation). What do you think as [a central government, a local government, a local parliament, a business actor, a philanthropy, a society, a journalist, an academic, an international organization], which is most needed in achieving sustainable local development in the future decentralization era? Why?*	

Erklärung zur Dissertation

gemäß der Promotionsordnung vom 02. Februar 2006 mit den
Änderungsordnungen vom
10. Mai 2012, 16. Januar 2013 und 21. Februar 2014

"Ich versichere, dass ich die von mir vorgelegte Dissertation selbständig angefertigt, die benutzten Quellen und Hilfsmittel vollständig angegeben und die Stellen der Arbeit -einschließlich Tabellen, Karten und Abbildungen -, die anderen Werken im Wortlaut oder dem Sinn nach entnommen sind, in jedem Einzelfall als Entlehnung kenntlich gemacht habe; dass diese Dissertation noch keiner anderen Fakultät oder Universität zur Prüfung vorgelegen hat; dass sie - abgesehen von unten angegebenen Teilpublikationen - noch nicht veröffentlicht worden ist, sowie, dass ich eine solche Veröffentlichung vor Abschluss des Promotionsverfahrens nicht vornehmen werde. Die Bestimmungen der Promotionsordnung sind mir bekannt. Die von mir vorgelegte Dissertation ist von Prof. Dr. Boris Braun betreut worden."

Köln, im 20.04.2020,

………………………….
Jayadi

This study examines the link between decentralization policy and sustainable development using empirical data of 33 provinces from 1995-2017. The study is structured into three parts. The first section analyzes the degree by creating the Sustainable Local Development Index (SLDI). Secondly, the study examines the relationship between the decentralization policy and the degree of sustainable development with the panel data analysis. Lastly, in-depth interviews and focus group discussions were used to provide the basis for evaluating the constraints and opportunities of decentralization policy and discuss further policy in dealing with this development in Indonesia.

The results showed that the social and economic dimensions have a more robust influence on the increase of the degree of sustainable development in Indonesia than the environmental and institutional. The environmental dimension has slightly deteriorated, while the institutional remained stable.

Besides, the effective decentralization policy is linked to the quality of sustainable development based on the panel data analysis. The result of multiple regression analysis showed that some decentralization policy indicators, such as the percentage of females as parliamentarians, the ratio of local government officers per people, the General Allocation Fund (DAU), and the Local Own-Source Revenues (PAD), positively and significantly affect sustainable local development.

Furthermore, based on in-depth interviews and focus group discussions, decentralization and sustainable development policies are dynamic and interdependent approaches across regions. The enormous upheavals of the policy in Indonesia are not a linear-consistent process and do not produce similar outcomes in each government unit. Decentralization improves local governance and political democracy in the spirit of reform with undesirable effects on the creation of disparities and environmental degradation. Some constraints influence local governments in responding to new opportunities towards achieving sustainable development, such as insufficient political will, incompetence in leadership, lack of local capacity, poor administrative management system, lagging renewable energy production, and shortcoming of public partnerships.

Universität zu Köln

Köln, 2020