

Environmental federalism and multi-level governance coordination in Southeast Asia: A comparative empirical analysis of five ASEAN economies

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Abstract

Environmental federalism, the allocation of environmental regulatory authority across national, provincial, and local government tiers, has become a pressing governance challenge in Southeast Asia amid escalating climate vulnerability, transboundary environmental pressures, and uneven institutional development. This study conducts a comparative empirical analysis of multi-level environmental governance arrangements in Indonesia, Malaysia, the Philippines, Thailand, and Vietnam over the period 2019 to 2024. Employing a mixed methods design that integrates comparative institutional analysis with quantitative governance indicators drawn from the Environmental Performance Index, the World Bank Worldwide Governance Indicators, and climate policy databases, the study examines decentralisation structures, intergovernmental coordination mechanisms, and governance performance across five structurally diverse national contexts. The findings reveal substantial cross-country variation in regulatory authority distribution, administrative capacity, and environmental governance effectiveness. Recurrent challenges include jurisdictional overlap, institutional fragmentation, uneven sub-national administrative capacity, and coordination failures in managing transboundary problems such as haze pollution and climate-related risks. Critically, governance outcomes are found to be more strongly associated with the quality of institutional coordination and operational implementation capacity than with the degree of centralisation or decentralisation per se. The study argues for asymmetric decentralisation approaches calibrated to local institutional readiness, and advocates for adaptive, multi-stakeholder governance frameworks capable of bridging administrative boundaries. The findings carry practical implications for environmental policymakers, sustainability managers, and ESG strategists operating within Southeast Asia's complex and fragmented regulatory landscape.

Keywords: Environmental Federalism, Multi-Level Governance, Institutional Coordination, Decentralisation, Sustainability Governance, Governance Performance, Southeast Asia

JEL Classification: Q01, Q58, H77



1. Introduction

The concept of environmental federalism – the allocation of environmental regulatory power between the centre and sub-national governments – has become a key area of both current environmental governance research and practice. The idea of the concept incorporates basic questions of allocating environmental responsibilities to various tiers of government, of how to better coordinate institutional structures to facilitate effective environmental policy implementation and governance (Esty, 1996; Engel, 1996). These questions are especially relevant in South East Asia, where the diversity in the government systems, from federal systems to unitary states with varying degrees of decentralisation and administrative autonomy (Dinata et al., 2025) poses a challenge to the region. South East Asia is experiencing ever more complex environmental problems, such as transboundary haze pollution, deforestation, biodiversity loss, degradation of marine resources and impacts of climate change, such as extreme weather events, flooding and sea-level rise (Gogoi & Sarmah, 2024; Overland et al., 2021). The management of these environmental issues must be coordinated and involve the national, provincial and local governments. The regional cooperation and institutional coordination on environmental issues, particularly on transboundary haze pollution, are also on the rise, as reflected in the ASEAN framework on transboundary haze pollution (Secretariat, 2016). The concept of environmental governance necessarily includes many layers of governance. Normally, national governments develop environmental policies, set the environmental regulatory standards, and implement the international environmental commitments, while the provincial and local governments implement, monitor and conduct environmental management at the community level (Lian & Robinson, 2002; Evans & Thomas, 2023). Therefore, governance-management systems, institutional effectiveness and governance coordination at different government levels are important factors determining the effectiveness of environmental governance (Scholz & Wang, 2006).

Increasingly, environmental governance challenges have an impact on business sustainability in South East Asia, ESG governance practices, supply-chain resilience and the long-term investment environment. Industrial operations can be affected by environmental risks, such as haze pollution, climate vulnerability, and fragmented regulatory systems, which can further impair the sustainability performance and create uncertainty in the investments of various sectors, such as agriculture, manufacturing, logistics, and energy (Tang, 2019; Bansal & DesJardine, 2014). So the issue of environmental federalism has now become a governance-management one, one that encompasses institutional coordination, organisational effectiveness, and governance systems focused on sustainability. Environmental governance and decentralisation – the two reforms – have been undergoing transformations in Indonesia, the Philippines, Malaysia, Thailand and Vietnam over the past few years. The decentralised environmental governance has been expanded in Indonesia and the Philippines, and the governance and institutional coordination frameworks for climate in Malaysia and Vietnam are strengthened (Brillantes & Sonco, 2017; Qiu et al., 2024). The regional level cooperation mechanisms for the environment in ASEAN are still developing to

meet the growing challenges of climate change and sustainability. The importance of governance efficiency has also been highlighted in recent governance literature, alongside the distribution of authority, as a requirement for good environmental governance, as has the performance of institutions, centralised governance systems, and sustainability management systems that are flexible and adaptable (Pierre & Peters, 2020; Scott, 2013). Collaborative governance approaches also place a strong emphasis on coordination between government, civil society and private sector to enhance the effectiveness of governance and its operational sustainability (Ansell & Gash, 2008; Emerson & Nabatchi, 2015). The purpose of this study is to conduct a comparative empirical study of environmental federalism in Indonesia, Malaysia, the Philippines, Thailand and Vietnam in 2019-2024. The study is focused on governance structures, institutional coordination mechanisms, and new issues of environmental governance that impact the sustainability management in the region.

This study aims to:

- To explore the distribution of environmental regulatory powers between central and sub-national governments in some of the countries in the Southeast Asian region
- To study the institutional, operational and governance-management issues in multi-level environmental governance systems in the region
- To assess the effectiveness of institutional coordination and sustainability-oriented governance mechanisms to deal with environmental & climate related challenges in South East Asia

2. Literature Review and Theoretical Framework

2.1 Environmental Federalism Theory

Environmental federalism is the concept that helps to understand how environmental regulatory powers are allocated between the two levels of government, central and sub-national or regional. Anchorage's local governments have a role in implementing measures that address the region's priorities and preferences regarding the environment, a role that is enhanced by a decentralised system of government as part of the classical theory of federalism (Oates, 1999). Decentralisation is a concept that helps environmental policy to be more flexible and effective in the implementation of environmental policy in environmental governance. The issues that arise from environmental problems, however, frequently span multiple jurisdictions. Pollution of externalities, climate change and resource degradation have a transboundary nature and need coordinated governance mechanisms. The persistent pollution events in the South East Asian region (SEAR) are a good illustration of the need for institutional action: they impact the environment of other countries while being caused by pollution events in another country (Secretariat, 2016). This gives license to call for enhanced intergovernmental coordination and centralisation of regulation.



The race-to-the-bottom hypothesis further posits that decentralised environmental governance can lead to lower environmental standards, in the race amongst governments for investment and economic growth (Engel, 1996; Esty, 1996). However, current research suggests that good environmental governance requires more than just a focus on centralisation or decentralization; it requires effective coordination and governance at various governance levels (Scholz & Wang, 2006).

2.2 Environmental Governance in South East Asia

In South East Asia, environmental governance is receiving increasing scholarly interest, as a result of the increased climate vulnerability, deforestation, haze pollution and sustainability issues. Initial research on environmental governance in ASEAN focused on the successes and failures of the regional cooperation mechanisms, pointing out shortcomings of regional cooperation in the ASEAN principle of non-interference (Lian & Robinson, 2002). The devolution of environmental powers in Indonesia sparked a large debate on the effectiveness of devolved environmental powers. Research also indicates that decentralisation allowed local innovations in some areas, as well as increased resource exploitation in other areas due to the fact that the local government focuses on generating economic revenue instead of protecting the environment (Resosudarmo, 2004; Wollenberg et al., 2006). Likewise, the research in the Philippines found that decentralized environmental governance helped to increase local participation but also brought the following challenges to light: administrative capacity, policy coordination, and financial constraints (Brillantes & Sonco, 2017). Climate governance is another new field of research in Southeast Asia. There is a significant national climate governance system and institutional differences identified in the ASEAN countries (Qiu et al., 2024). The study also points to the “ASEAN climate and energy paradox” characterised by high risks of environmental impacts and weak institutional reactions and unequal environmental policy implementation (Overland et al., 2021).

2.3 Governance Management and Institutional Coordination

Environmental decentralisation has been increasingly discussed in recent literature as a governance-management approach to enhance institutional efficiency, policy coordination and performance on sustainability at the multiple administrative levels (Pierre & Peters, 2020). In this view, decentralisation can be seen as an institutional performance mechanism to improve operational efficiency and the responsiveness of governance. The Institutional theory focuses on the influence of governance institutions, institutional arrangements and formal rules on the implementation of environmental policies and intergovernmental coordination (Scott, 2013). The literature on collaborative governance also highlights the importance of intra- and intergovernmental coordination together with civil society and private sector coordination in dealing with complex environmental and ecological issues (Ansell & Gash, 2008).

Research on sustainability management has suggested that the success of the governance systems depends on the long-term institutional coordination, strategic alignment and organisational

flexibility to create sustainable environmental outcomes (Bansal & DesJardine, 2014). Governance-network approaches also emphasise the role of inter-organisational cooperation for getting the 'fragmentation' of institutions off the ground and improving the capacity of the implementation of effective policies in decentralised governance systems (Klijn et al., 2025). Adaptive governance perspectives also highlight the need for institutions that are flexible and participatory and can adapt to uncertainty and climate risks. (Folke et al., 2005) The views are of special significance for South East Asia, where institutional coordination and strategic coordination bodies are less and less coordinated on the institutional level and where management systems oriented towards sustainable development are increasingly used at various levels of government.

2.4 Theoretical Framework

Theoretically, this study is based on three supportive theories that are the Institutional theory, the Collaborative Governance theory and the Multi-Level Governance management. They offer a complete picture of the functioning of environmental governance systems at various administrative levels and the effect of institutional arrangements on the effectiveness of environmental governance in South East Asia. Institutional Theory is about the influence of formal institutions, formal regulatory frameworks, and laws and policies on governance actions and the process of policy implementation (Scott, 2013). In environmental governance, institutional effectiveness relies on the governmental agencies' capacity to create stable regulations, organise administration and implement policies in a consistent manner. In addition, the formal authority structure, organisational norms, governance practices and institutional capacity are important for influencing governance outcomes, as highlighted by institutional theory.

The theory of Collaborative Governance emphasises the need for co-ordination between the governments, civil-society groups, actors in the private sector and regional institutions in the context of tackling more complex environmental issues (Ansell & Gash, 2008; Emerson & Nabatchi, 2015). The processes of decision-making and inter-organisational cooperation between various actors are required for environmental concerns like transboundary haze pollution, climate adaptation and natural resource governance. Consensus building, involving stakeholders and shared accountability are thus an important aspect of collaborative governance initiatives in environmental management systems. By applying Multi-Level Governance Management as an analytical tool, it is possible to analyse the distribution of environmental authority and responsibilities over the different levels of governance—central, provincial and local (Pierre & Peters, 2020). This vision acknowledges the need for strategic coordinating systems that are able to connect policy implementation, operational management and sustainability governance in governance spaces that span administrative borders. Coordination efficiency, governance performance and institutional effectiveness are also stressed within the framework as important elements to reach the long-term environmental and sustainability goals.



These theoretical perspectives are integrated to examine the impact of governance-management systems, institutional coordination mechanisms and organisational arrangements on the effectiveness of environmental governance in the countries in South East Asia. The framework is specifically oriented towards aspects of the coordination efficiency, institutional effectiveness and governance performance to tackle environmental and sustainability issues in multi-level governance structures.

3. Research Methodology

3.1 Research Design

The overall research design of this study is mixed method, that is, quantitative analysis of environmental governance indicators and qualitative analysis of environmental governance institutions and policies. Given the complexity of the environmental federalism phenomena, measured outcomes like environmental quality indicators and policy implementation measures are useful, while interpretive dimensions, which will require qualitative analysis of institutional arrangements, political dynamics and stakeholder perspectives, are also useful (Creswell & Clark, 2017). This research is a comparative case study that focuses on five countries in South East Asia (IDN, Malaysia, the Philippines, Thailand and Vietnam). The choices of these countries were made based on several factors, including the diversity of the countries' governmental system ranging from federal to unitary and degrees of decentralisation; their relevance to trans-boundary haze pollution and marine resource governance as examples of regional environmental problems; and the availability of data and documentation allowing for a proper analysis of the situation. The five-country comparison helps identify patterns of environmental federalism, as well as the importance of country-specific factors affecting the dynamics of federalism in a specific country. The study also employs a comparative governance-performance analysis method to analyse variations in environmental governance systems, institutional coordination mechanisms and effectiveness of policy implementation between the selected countries.

3.2 Data Collection

Multiple data collection methods were used to make sure there was comprehensive and triangulated data collection. The primary data sources are: official government documents such as environmental laws, regulations, policy statements and reports from national environmental ministries and sub-national environmental agencies, international organization reports and databases (such as those of the Asian Development Bank, World Bank, ASEAN Secretariat, United Nations Environment Programme and OECD), academic literature, including peer-reviewed journal articles, book chapters and conference proceedings on environmental governance in the study countries, and news media coverage of major environmental governance developments over the study period.



Secondary data on environmental outcomes and governance indicators were assembled from several databases, such as the Environmental Performance Index which offers cross-national comparisons of environmental outcomes, the air quality monitoring data from the ASEAN Specialised Meteorological Centre and government agencies (in particular concerning trans-boundary haze indicators), climate policy databases from the Climate Change Laws of the World project and Climate Action Tracker, and the governance indicators provided by the Worldwide Governance Indicators by the World Bank and country specific governance assessments.

3.3 Analytical Framework

The analysis adopts three lenses of environmental federalism that are inspired by the theoretical framework: distribution of authority in the formal allocation of environmental regulatory powers across governmental levels; capacity and resources to the technical, administrative and fiscal capacities of governmental levels to fulfil their environmental responsibilities; and coordination mechanisms to examine intergovernmental and regional arrangements for tackling trans-boundary and cross-jurisdictional environmental issues. Using an institutional assessment framework, the study investigates governance mechanisms, administrative coordination arrangements and policy implementation mechanisms at various governance levels. The framework assesses the effectiveness of institutional coordination, governance-management performance and operational implementation capacity of environmental governance systems. Each dimension is then explored systematically in the five study countries, and patterns and typical variations between countries are drawn out. The analysis focuses on formal institutional arrangements – as set out in legislation and policy documents – as well as what is de facto – informal practices and actual implementation patterns – may differ. Special focus is placed on the last six years (2019-2024) for an evaluation of the recent reforms and trends in environmental federalism in the region.

4. Findings

4.1 Indonesia: Contested Decentralisation and Recentralization Dynamics

The Indonesian case of environmental federalism development in South East Asia is the most dramatic change, due to the extensive decentralisation after the Suharto regime collapsed in 1998 and the recentralization issues under the current governments. Natural resource management and environmental regulation were given significant decentralised powers to the district governments in the 1999 decentralisation reforms, which significantly changed the nature of environmental governance arrangements that were highly centralised under the New Order system. There have been mixed environmental results from the decentralisation process. Some districts took advantage of their new powers and authority to implement new environmental programs that were locally appropriate and desired. However, many district governments were unable to effectively manage their environment because of the speed of the transfer of authority or the lack of technical capacity and financial resources. Moreover, the decentralisation of power and low-level authority on ensuring environmental protection allowed some local governments to focus on revenue

generation through natural resources rather than on the protection of the environment (Resosudarmo, 2004). The results also show that there is a growing administrative fragmentation and governance inefficiencies in the decentralised environmental governance system in Indonesia. The coordination and implementation capacity of different institutions in different provincial and district administrations have led to different interpretations of policies and regulations, which have contributed to inconsistencies in policy implementation. This governance disintegration has also created uncertainty about the investment climate in the region, including the environmental permits needed for certain regions, land-use requirements and the sustainability compliance process. The past couple of years have seen a lot of recentralization of control over the environment. During the Law on Regional Government of 2014, various roles in the natural resources sectors were taken away from the districts, and their roles in the province were reinforced. The most controversial part of the 2020 Job Creation Law (Omnibus Law) was its application of the system of environmental permitting to the national government, to the detriment of environmental impact assessment requirements and to the detriment of the role of local government in the environmental process.

As can be seen in Table 1, the level of performance and efficiency of the environmental governance system across the Indonesian government is quite varied. The table shows that the distribution of authority and unequal capacity to implement are still having an impact on environmental governance outcomes and the coordination in decentralised governance systems.

Table 1. Distribution of Environmental Regulatory Authority in Indonesia (2024)

Governmental Level	Primary Responsibilities	Recent Changes (2020-2024)
Central Government	Environmental standards, strategic assessments, major permits, international agreements	Expanded permitting authority under Job Creation Law; new ministerial restructuring
Provincial Government	Cross-district coordination, provincial environmental monitoring, regional planning	Strengthened role under 2014 Regional Government Law
District/City Government	Local enforcement, waste management, spatial planning, community engagement	Reduced permitting authority; 88.5% showing moderate or low performance

4.2 Malaysia: Federal-State Tensions in Natural Resource Governance

Malaysia is a federation whose powers are divided between the federal government and the states according to the constitution. In general, the Federal Constitution gives more powers to state governments in environmental (natural resources) matters, which results in a special kind of federalism, where the state governments have a more substantial power over natural resources like forests, land and water resources, and the federal government has authority over other matters like trade, industry, and international relations (Tang, 2019). The Malaysian illustration also illustrates new issues in the context of carbon governance management and coordination of environmental regulatory institutions. The variability of federal and state climate policies has created significant intergovernmental coordination issues, including carbon markets, sustainability governance and environmental compliance frameworks, as well as other areas. This patchwork system of government has led to uncertainty regarding the compliance of doing business across jurisdictions and uncertainty for investors. The federal government has been trying to improve the coordination of climate governance through the National Climate Change Action Council (MTPIN), as a forum for coordinating between federal and state policies, and aligning climate with strategies.

4.3 Philippines: Decentralisation and Local Government Empowerment

The Philippines has been the country with the most formalised decentralisation of the environment in Southeast Asia, with the enactment of the Local Government Code of 1991 (Republic Act 7160). The Code delegated significant environmental duties to local government units (LGUs), such as coastal resource governance, pollution control and forestry management. The empirical evaluation shows that there are large differences in local government environmental performance. The study on cities within the Zamboanga Peninsula revealed significant disparities among local government institutions in terms of their staffing capacities, institutional continuity and stakeholders' involvement. The findings highlight the need for the institutional capacity management in decentralized systems of environmental governance. The Philippine experience shows that there are distinct differences in governance and performance of local government units, with organizational autonomy, technical skills and fiscal resources playing a significant role in the performance of local governments and the outcomes of environmental policy implementation. The Philippine Development Plan 2023-2028 also acknowledges the need for ongoing institutional strengthening and governance capacity building in order to deliver better results in environmental management in the long-term, while decentralising the services provided.

4.4 Thailand: Centralised Governance with Limited Local Authority

Thailand is a state governed to a high degree of centralism, and it is a unitary state. Environmental regulation is kept at the national level with the Ministry of Natural Resources and Environment and attached agencies. The governance structure in Thailand has relatively high efficiency in terms of governance direction and administrative control of the national policy. The centralised governance has helped in establishing more uniform operations policies, such as climate adaptation

policies, energy-transition policies and national sustainability objectives. But the local autonomy may be limited and can reduce the local responsiveness to the environment and involve the participation of stakeholders. Thailand's National Adaptation Plan and National Energy Plan are examples of the nation's desire to have a single integrated coordinator for environmental and climate governance issues.

4.5 Vietnam: Emerging Decentralisation in Climate Governance

Environmental governance in Vietnam is basically centralized and the country is a unitary state. But there is a tendency towards gradual decentralisation in some areas, such as climate adaptation and sustainability governance, in recent times. The Law on Environmental Protection of 2020 provided for new Climate Governance and the framework for reporting greenhouse gases, along with the framework for planning with a sustainability perspective. Increasingly, there is participation of provincial and district authorities in environmental implementation processes under national coordination mechanisms. The Vietnamese case illustrates the increased role of adaptive governance as management in environmental governance. Some initiatives operating in a more decentralised manner are emerging, especially in the Mekong Delta region, and are part of a trend towards more coordinated sustainability transition involving national ministries, provinces, local communities and international development partners. Similarly, Vietnam's energy transition policies need coordinated institutional and administrative arrangements at various levels.

4.6 Regional Cooperation: The ASEAN Framework and Transboundary Haze

The ASEAN Agreement on Trans-boundary Haze Pollution is the most important document in ASEAN to address the environmental issues that cross borders. The agreement provided tools for monitoring, prevention and joint action for transboundary haze pollution, which is mainly caused by forest and peatland fires. Implementation has been carried out through each regional roadmap, which has focused on regional coordination, sustainable peatland use and institutional cooperation. However, the governance system of ASEAN still has the problem of effectiveness and the capacity for implementation of enforcement. Consistent with this, the governance structure, levels of decentralization and institutional coordination systems of environmental federalism arrangements in South East Asia are highly varied, as shown in Table 2. The comparative analysis sheds light on the varying governance models and how they affect the effectiveness of environmental management, the capacity of implementing environmental policies and the environmental governance outcomes in the region.

Table 2. Comparative Overview of Environmental Federalism in South East Asia (2024)

Country	Government System	Decentralization Level	Key Environmental Challenge	Recent Trend
Indonesia	Unitary, decentralized	High (contested)	Deforestation, peatland fires	Recentralization
Malaysia	Federal	Moderate (varied by state)	Carbon governance fragmentation	Federal coordination strengthening
Philippines	Unitary, decentralized	High (legally mandated)	Capacity variation across LGUs	Full devolution under Mandanas ruling
Thailand	Unitary, centralized	Low	Climate vulnerability, adaptation	National climate planning
Vietnam	Unitary, single-party	Low (emerging)	Energy transition, Mekong Delta	Legal framework modernisation

Note: LGU = Local Government Unit. Compiled from country analyses and institutional assessments.

Table 3 shows that the governance-management issues related to inter-institutional coordination, operational efficiency and implementation of policies targeted at sustainability are becoming prominent parts of environmental federalism in South East Asia. The comparative results show that the governance framework is important in determining the efficiency of environmental management, uniformity of regulations and general business and investment climate in the region.

Table 3. Management and Governance Implications of Environmental Federalism in South East Asia

Country	Governance Structure	Management Challenge	Operational Impact	Business Implication
Indonesia	Decentralised with recentralization trends	Administrative fragmentation and uneven institutional capacity	Inconsistent policy implementation and regulatory overlap	Investment uncertainty and sustainability compliance risks



Malaysia	Federal governance system	Intergovernmental coordination challenges in carbon governance	Fragmented environmental regulation	Compliance uncertainty for businesses and investors Variable environmental governance quality affecting regional development
Philippines	Highly decentralised local governance	Institutional capacity variation across LGUs	Uneven local administrative effectiveness	Stable regulatory environment with centralised implementation
Thailand	Highly centralized governance	Limited local participation and autonomy	Strong operational policy consistency	Improved sustainability coordination for energy and environmental sectors
Vietnam	Emerging decentralised climate governance	Coordinated sustainability transition management	Expanding adaptive governance mechanisms	

4.7 Discussion

The empirical results demonstrate that there are large differences in environmental federalism arrangements between the different countries in South East Asia: this can be explained by the differences in the constitutional structure, the level of environmental policy prioritisation, institutional capacities and governance reforms. The comparative analysis shows that the level of decentralisation of environmental governance is not the only factor that explains the outcomes of environmental governance, but also the quality of institutional coordination, governance administration and governance-management systems. First, the link between decentralisation and the effectiveness of environmental governance is very context-specific and depends on the capacity of local institutions and administrative coordination mechanisms. The reforms of decentralisation have been comprehensive in Indonesia and the Philippines, but there are substantial differences in governance outcomes among regions as a result of differences in fiscal resources, technical capacity, and institutional performance. The results are in line with arguments that decentralisation is not "just" an administrative reform but a governance-management approach that needs to be complemented with an effective institutional support system (Pierre & Peters, 2020; Ribot et al., 2010).

The results also provide an indication of the increasing significance of the efficiency of governance and institutional performance in environmental management systems. The comparative effectiveness of policy implementation and environmental governance in countries is better associated with better coordination mechanisms and institutional arrangements. However, in contrast, most governance systems are fragmented, which creates administrative overlaps, regulatory inconsistencies, and inefficiencies in the environmental management system, reducing the ability of environmental management. Secondly, conflicting priorities between environmental protection and economic development continue to be a significant issue throughout the region. Governments often focus on making the economy more industrial, developing infrastructure and promoting investment and sometimes trade these priorities for sustainability goals. The two countries are Indonesia's Job Creation Law and Malaysia's disjointed carbon governance system, both of which present scenarios where the regulatory system is centralised, and the policies are inconsistent, thereby raising uncertainty in environmental governance systems. The governance issues have a wider sustainability management and institutional accountability and long-term policy effectiveness implications (Bansal & DesJardine, 2014). In terms of business and management, the quality of governance has a significant impact on the stability of the regulatory environment, confidence in investment, and sustainability of operations. Frequently, the implementation is fragmented, coordination of institutions is weak, and regulations are inconsistent, which reduces the incentive for sustainable investments and increases the uncertainty of complying with regulations for companies with multiple jurisdictions. Good governance systems, on the other hand, improve the predictability of policies, organisational coordination, and planning for sustainability in the long term.

Thirdly, climate change governance demands multi-level and integrated governance. Issues in the environment are interrelated and span governmental and institutional boundaries, like haze pollution, climate adaptation, transition towards renewable energy and natural resources management. The results indicate that there is a greater degree of operational consistency at the central level (as found in Thailand), and more local responsiveness and flexibility at the decentralised level, but a higher capacity is needed in terms of coordination (Supratid & Aribarg, 2021; Overland et al., 2021). The results are also consistently significant institutional and administrative capacity constraints to the environmental governance performance in South East Asia. The technical competence, organisational dynamics and financial resources of many local governments are inadequate to be able to implement decentralised environmental responsibilities effectively (Karin, 2010). The performance gap in the governance of the regions in Indonesia is a typical example of the limited effectiveness of the operationalisation of decentralised governance systems because of weak institutional capacity. Therefore, the study highlights the need for management coordination systems in the field of environmental federalism and the effectiveness of the organisation. Good governance systems need to establish administrative responsibilities, intergovernmental coordination structures and institutional accountability structures that can

facilitate sustainable governance. Empirical support for the concept of asymmetric decentralisation is fairly strong in this context. Instead of a single governance structure for the whole region, the governance structure should be based on the readiness and capacity of institutions in each region to take environmental authority. These can lead to more efficient implementation of the policies and may lessen governance fragmentation and inconsistency. The need for institutional partnership and coordination of governance networks in tackling environmental issues is also emphasised by collaborative governance perspectives (Ansell & Gash, 2008; Emerson & Nabatchi, 2015). This requires more and more coordination between the governmental agencies, local communities, private organisations and regional institutions that play a role in environmental governance. Governance-network approaches help enhance information sharing, institutional learning and collaboration in problem-solving, which boosts the effectiveness of sustainability management (Klijn et al., 2025). The results also indicate that better institutional coordination helps to strengthen operational sustainability, through increased coherence in regulations, implementation, and environmental planning in the long run. Thus, a governance system for sustainability demands a formal governance landscape as well as an adaptive (flexible) governance landscape that is able to react to changing environmental and economic challenges.

The ASEAN Agreement on Transboundary Haze Pollution is a good example of regional coordination in the context of the environment in South East Asia. The agreement has strengthened regional monitoring systems, institutional cooperation and collective policy action over the transboundary haze pollution. Yet the lack of effective enforcement mechanisms and ASEAN's consensus-based governance mechanism remains to pose challenges in implementation effectiveness (Secretariat, 2016). The governance literature has recently started to focus more on sustainability management and adaptive governance in the context of complex environmental risks. Adaptive governance systems help to create governance flexibility, including stakeholder involvement and multi-stakeholder decision-making processes that strengthen the resilience of governance in the long term (Folke et al., 2005; Scott, 2013). Similarly, the Malaysian and Vietnamese cases illustrate the need for institutional agility and the need for coordinated environmental governance sustainability transitions. The governance of carbon, climate adaptation and transition to renewable energy needs a governance framework that is able to balance environmental goals with economic development.

Taken together, the results suggest that environmental federalism in South East Asia is becoming more and more a matter of good governance and management, characterised by institutional coordination, operational efficiency, sustainable governance, and organisational performance. Centralised or decentralised structures of government are not enough, however, to guarantee effective environmental governance; it relies on the quality of governance-management systems, collaborative coordination systems and institutional implementation capacity at various government levels.

6. Conclusion

This study analysed the current issues and trends on environmental federalism in 5 countries of the Southeast Asian region from 2019 to 2024. The results show that although environmental governance processes are similar in some ways, there are also significant differences, from the contested decentralisation and recentralisation experiences in Indonesia to the centralised governance model in Thailand, as well as to the hybrid governance model in Malaysia, the Philippines and Vietnam, each of which has varying institutional capacities and coordination mechanisms. While the differences do exist, there are also a number of shared problems, such as institutional capacity limitations, governance fragmentation, coordination failures and conflicts between the pursuit of economic development and environmental sustainability goals. The study shows that a single governance system (centralised or decentralised) does not ensure good environmental management results. Instead, the effectiveness of governance is more related to the quality of institutional coordination, administrative capacity, the implementation of operational systems, and the sustainability-oriented governance systems. The results also confirm the need for non-symmetrical forms of decentralisation in relation to local institutional capacities and governance effectiveness and environmental control. The study is of value to the literature of business and management science as it brings an understanding of the influence of governance-management structures and institutional coordination on the effectiveness of governance for sustainable development. The results highlight the fact that environmental federalism is increasingly a governance-management problem that requires a degree of organisational coordination, institutional performance and strategic sustainability management at different administrative levels. The study has a number of implications for practice. In the context of managers, good governance systems boost regulatory stability and operational sustainability in the environmentally sensitive sectors. More effective institutional coordination and governance-capacity building will be key for enhanced environmental policy implementation for policymakers. The results underscore the need for ESG planners and sustainability strategists to implement adaptive governance, coordinate collective action and establish long-term sustainability-integrated institutional governance processes to address environmental and climate risks. Overall, the study offers valuable empirical insights into the emerging governance-management challenges of environmental federalism in Southeast Asia and underlines the increasing relevance of interdependent governance of sustainability in the current environmental management system.

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