



## Spatial Planning Regulation and Sustainable Development: A Review of Governance, Spatial Justice, and SDG Implementation

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### ABSTRACT

This article analyzes the relationship between spatial planning, sustainable development, and the implementation of the Sustainable Development Goals (SDGs). This study aims to explain how spatial planning concepts, principles, objectives, and regulatory instruments can be integrated with sustainability principles, as well as identify the challenges and agendas for strengthening the law and governance that are needed. The research uses qualitative literature review with an interpretive-integrative approach to reputable journal articles, especially since 2020 and relevant laws and regulations. The literature is analyzed through critical reading, cross-source comparison, and thematic synthesis. The results of the study show that sustainable spatial planning requires five-dimensional interconnectedness, namely normative coherence, institutional capacity, procedural legitimacy, evidence-based capacity, and substantive outcomes that reflect spatial justice, climate resilience, ecosystem protection, and the achievement of the SDGs. Key challenges in Indonesia include fragmentation of regulations and authorities, mismatches between planning and land use, unequal local government capacity, weak surveillance and recovery, geospatial data that has not yet been interoperable, formalistic participation, spatial injustice, and increased climate risks. This article concludes that spatial reform must go beyond the harmonization of norms by strengthening risk-based control, recovery-oriented law enforcement, deliberative participation, data interoperability, climate proofing, nature-based solutions, and synergy analysis and trade-offs of the SDGs

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## INTRODUCTION

### Background and Urgency

Space is a place for the continuation of life, economic activities, social relations, ecological functions, infrastructure, and cultural expression. Because its availability is limited and any decision to use it produces long-term consequences, the management of space cannot be left solely to market mechanisms or sectoral interests. Spatial regulation is needed to determine the direction of space utilization, divide the rights and obligations of stakeholders, prevent conflicting uses, and ensure that development does not reduce the ability of the region to support the lives of current and future generations. Thus, spatial planning regulations must be understood not only as administrative laws regarding planning and permitting, but also as governance instruments that link legal certainty, social justice, environmental protection, and the achievement of development goals [1], [2], [3].

The urgency of integrating spatial planning regulations with sustainable development is even stronger when urban, rural, coastal, forest, agricultural areas, and mining areas are under pressure that takes place simultaneously. The expansion of built-up areas, land conversion, increased housing and infrastructure needs, and competition between sectors can cause ecosystem fragmentation, inequality of access to space, and increased disaster risk if not controlled through consistent and feasible plans. Recent studies show that the existence of a plan alone does not automatically result in sustainable land use; Its effectiveness is determined by the quality of the instruments, institutional capacity, cross-sector coordination, supervision, spatial data, and the government's ability to enforce the conformity between the plan and the realization of space utilization [4], [5], [6].

In the Indonesian context, the main foundation for the implementation of spatial planning is contained in Law Number 26 of 2007 concerning Spatial Planning, which directs the realization of safe, comfortable, productive, and sustainable national spatial space. The framework has undergone changes through Law Number 6 of 2023 concerning Job Creation and is further elaborated, among others, through Government Regulation Number 21 of 2021 concerning the Implementation of Spatial Planning. This reform strengthens the linkage between spatial planning, detailed spatial planning, suitability of space utilization activities, control, supervision, and dispute resolution. However, the acceleration of investment services and the simplification of procedures need to remain within ecological limits, the principle of prudence, and the state's obligation to protect the public interest so that administrative efficiency does not reduce the quality of environmental and social protection [7].

The fundamental problem that is still faced is the fragmentation of the regulation and authority of space management. Land space, forest areas, coastal and marine areas, mining, settlements, and infrastructure are often regulated through different legal regimes and institutions. Such asynchrony can result in overlapping permits, land use conflicts, plan changes driven by short-term interests, and weak accountability when deviations occur. Studies on spatial management in Indonesia confirm that fragmented approaches limit the ability of spatial regulation to function as an integrative framework, while the

experience of regulatory failures in Bali shows that the relationship between legal, political, and economic factors can make spatial planning ineffective in preventing environmental damage [8], [9], [10].

The gap between the plan and the actual conditions also shows that the quality of the spatial layout must be judged by the results, not just by the completeness of the documents. An evaluation in West Java found that the sustainability of spatial planning policies is influenced by differences in the character of districts and cities, the suitability of spatial policies with the status of the area, vegetation cover, and socio-economic conditions. Research in Tangerang and Jakarta Regencies also shows that there is a mismatch between land use and spatial patterns and the limitations of achieving green open space. The findings emphasized the importance of indicators that can measure compliance, carrying capacity, equitable distribution of benefits, environmental quality, and periodic changes in land use so that plans do not stop as normative documents [5], [11], [12].

Spatial regulation also has a strategic position in implementing the Sustainable Development Goals (SDGs). Decisions on settlement locations, transportation, industry, agriculture, open space, protected areas, water networks, and infrastructure determine the simultaneous progress of various goals, especially SDG 6 on clean water and sanitation, SDG 9 on infrastructure and innovation, SDG 11 on sustainable cities and settlements, SDG 13 on climate change management, SDG 15 on terrestrial ecosystems, SDG 16 on effective institutions, and SDG 17 on partnerships. Because these inter-destination relationships contain synergies as well as potential trade-offs, spatial planning needs to function as an arena to align development priorities, identify ecological boundaries, and distribute development benefits and burdens more equitably [1], [3], [6].

The dimension of climate change and disasters further clarifies this urgency. The risk of flooding, sea level rise, drought, landslides, fires, heat waves, and a decline in ecosystem quality has a spatial character so that mitigation and adaptation must be integrated into spatial plans at the national, regional, and village levels. Jakarta's experience shows that climate knowledge, community information, geospatial data, local government leadership, and trust between stakeholders must be combined in order for risk information to truly influence spatial decisions. At the local level, village spatial planning can serve as a safeguard to protect livelihoods, reduce land conflicts, and operationalize mitigation and adaptation based on environmental character and local knowledge [13], [14], [15], [16].

Spatial sustainability cannot be achieved without meaningful public participation. The community is not only the party who receives the impact of the decision, but also the owners of local knowledge, the users of the space, and the subject of the law who have an interest in a healthy environment and fair access to resources. However, participation that is only formal, carried out after a primary choice has been determined, or does not provide a mechanism to respond to objections risks escalating conflict and diminishing the legitimacy of the plan. The literature emphasizes the need for open procedures from the

formulation stage, access to understandable information, representation of vulnerable groups, conflict management, consensus building, and accountability mechanisms for the use of public input [17], [18], [19].

In addition to participation, sustainable spatial transformation requires adequate institutional capacity and knowledge infrastructure. Geospatial database integration, map updates, land use change monitoring systems, and *Planning Support Systems* can improve transparency and quality of decisions. However, technology cannot replace law and governance; The benefits only appear when data is accessible, inter-agency standards are compatible, local governments have resources, and the decision-making process is open to public correction. Therefore, the digitalization of spatial planning must be developed along with strengthening coordination, apparatus competence, independent supervision, as well as effective incentive and sanction instruments [3], [6], [13]. Various studies have discussed spatial regulation, sustainable development, participation, climate change, and the SDGs. However, these discussions are often separated between legal doctrinal studies, land use evaluations, institutional studies, and technical analysis of planning. A conceptual synthesis is needed that explains how the principles, objectives, and instruments of spatial regulation can be translated into sustainable development governance, as well as an analysis of the obstacles that make normative provisions not always produce safe, fair, productive, resilient, and sustainable spaces. This article is compiled to fill this need through a qualitative literature review that connects the legal, institutional, social, economic, ecological, and implementation dimensions of the SDGs in one analysis flow [2], [5], [8].

### **Research Questions**

1. How can the concepts, principles, objectives, and instruments of spatial regulation be integrated with the principles of sustainable development to support the implementation of the SDGs in Indonesia?
2. What are the main challenges and legal, institutional, participatory, and data-driven efforts needed to realize sustainable spatial planning in Indonesia?

### **Purpose of Writing**

This article aims to: (1) explain the basic concepts, principles, objectives, functions, and instruments of spatial planning regulation as well as the concept of sustainable development; (2) analyze the normative and functional linkages between spatial regulation, the three dimensions of sustainable development, and the implementation of the SDGs; (3) identify gaps between regulation and implementation, including regulatory fragmentation, weak controls, limited participation, institutional capacity, and data availability; and (4) formulate directions for strengthening laws and governance that can encourage the use of space in a fair, transparent, adaptive to climate change, and consistent with the carrying capacity of the environment. With this goal, the article is expected to provide a conceptual basis for the development of spatial regulation studies as well as practical inputs for policy improvement and sustainable spatial implementation in Indonesia.

## LITERATURE RIVIEW

### **Spatial Regulation as a Legal and Governance Regime**

#### ***1. Definition, Object, and Scope of Spatial Planning Regulation***

Spatial regulation can be understood as a public legal regime that regulates how space is planned, utilized, controlled, monitored, and restored so that various interests over land, water, sea, air, natural resources, settlements, infrastructure, and protected areas can be placed in a consistent order. This definition places space not as a neutral geographical expanse, but as an arena where rights, obligations, restrictions, economic interests, social functions, and ecological carrying capacity interact with each other. Therefore, information about rights, restrictions, and responsibilities for space must be able to be linked to land administration systems and geospatial data so that spatial norms can be accurately known, applied, and monitored [20], [21].

Functionally, spatial regulation includes three series that cannot be separated, namely spatial planning, the implementation of space utilization, and the control of space utilization. Planning establishes objectives, spatial structure, spatial patterns, strategic areas, and development directions; the use of space translates plans into development activities; Meanwhile, control ensures that investment, development, and land use decisions do not deviate from the plan. If one of these sets is weak, the plan risks becoming an indicative document that is unable to direct land-use change. The literature on development control in Indonesia shows that the effectiveness of spatial planning requires a clear linkage between planning, land development, regulatory apparatus, apparatus capacity, and control practices that live in the community [4], [21].

The scope of spatial regulation is also cross-regime because it relates to environmental, agrarian, forestry, coastal and marine law, housing, transportation, mining, land acquisition, local government, and disaster management. The cross-sectoral nature of this explains why spatial planning requires more than just a regulatory hierarchy. The government must carry out the meta-governance function, which is to coordinate various regulatory patterns, networks of actors, instruments, and levels of government to overcome coordination failures and ensure that the goals set by one sector are not nullified by the decisions of other sectors. This perspective is relevant for Indonesia, which is still facing fragmentation of authority and overlapping spatial arrangements [8], [10], [22].

#### ***2. Spatial Regulation as a Strategic Instrument for Development***

In contemporary planning theory, spatial planning is no longer seen solely as a technical activity to divide zones, but as a strategic instrument for shaping territorial relationships, managing uncertainty, and negotiating conflicts between interests. Strategic planning connects the long-term vision with the choice of location, investment priorities, activity restrictions, and institutional capacity required to realize the vision. Therefore, the quality of spatial regulation is not only judged from procedural certainty, but also from its ability to direct regional transformation towards better social, economic, and ecological outcomes [1], [2], [3].

A strategic approach demands institutional capacity that includes clear authority, human resources, spatial knowledge, coordination skills, and public legitimacy. Ambitious plans can fail if local governments do not have the data, financing, technical competence, or political support to implement them. Instead, strong institutional capacity allows plans to be updated adaptively, conflicts to be resolved transparently, and control instruments to be used consistently. Thus, spatial regulation serves as a bridge between formal norms and the practical capacity of their implementation [2], [5], [6].

### **Principles of Spatial Regulation and Theoretical Perspective**

#### ***1. Policy Integration, Sustainability, and Coherence***

The principle of integration requires horizontal alignment between sectors and vertical alignment between the national, provincial, district/city, and local community levels. Theoretically, this principle is in line with the policy integration and nexus governance approach, which views development issues as a cross-sectoral cause-and-effect relationship, rather than as a stand-alone set of problems. In spatial planning, decisions about industrial estates, settlements, food, water, energy, and transportation must be analyzed as a single system because the benefits in one sector can incur costs in another. Policy coherence is needed to maximize synergies and manage those trade-offs openly [23], [24], [25]. The principle of sustainability requires that every spatial decision consider the carrying capacity and carrying capacity of the environment, intergenerational needs, territorial resilience, and irreversibility of damage. This principle extends the measure of development success from short-term economic growth to the ability of the region to maintain ecological and social functions in the long term. Sustainability should therefore not be interpreted as a mechanical compromise between three interests that are always equal, but as a decision-making process that acknowledges ecological boundaries while ensuring that the benefits and burdens of development are distributed fairly [1], [26], [27].

#### ***2. Spatial Justice, Participation, and Recognition***

The principle of justice in spatial planning has at least three dimensions. First, distributive justice is concerned with the sharing of benefits, access, risks, and the burden of space use. Second, procedural justice demands real opportunities for the public to obtain information, raise objections, and influence decisions. Third, recognition justice demands respect for identity, local knowledge, the rights of indigenous peoples, vulnerable groups, and livelihood patterns that are often not seen in formal data. These three dimensions are important because space policies that appear to be efficient in aggregate can remain unfair if they displace, marginalize, or shift risks to less powerful groups [17], [27], [28].

Public participation is an instrument to improve the quality of knowledge as well as legal legitimacy. Meaningful participation begins before key alternatives are defined, providing easy-to-understand information, allowing adequate time, engaging affected groups, and explaining how input is used. A participatory model that only fulfills formalities has the potential to result in pseudo-consultations and reinforce power imbalances. The planning literature suggests that consensus building requires procedural design, conflict facilitation,

and accountability mechanisms, rather than simply opening forums or receiving written comments [17], [18], [19].

### **3. Legal Certainty, Prudence, and Accountability**

The principle of legal certainty requires that plans, zoning, activity requirements, licensing procedures, and the consequences of violations can be understood and predicted. However, legal certainty is not synonymous with rigidity. Spatial planning faces demographic, technological, climatic, and economic changes that make plans need to be reviewed periodically. The challenge is to build plan change rules that are transparent, evidence-based, not easily captured by short-term interests, and still protect legitimate expectations. Regulatory failures occur when changes or exceptions are given without a testable justification, so that formal certainty masks substantive deviations [2], [9].

The principles of prevention and prudence direct governments to avoid damage before it occurs, especially when the impact is extensive, cumulative, or difficult to recover. In the context of spatial planning, this principle can be applied through the protection of high-risk areas, the establishment of carrying capacity thresholds, cumulative impact assessments, restrictions on the intensity of use, and the obligation to provide buffer space. Accountability then ensures that decisions, data bases, responsible actors, and oversight results can be traced and tested. The legal and governance perspective of adaptation affirms that legitimacy, transparency, accountability, equity, and distributive justice should be substantive criteria in assessing policy choices [14], [27].

### **Legal Instruments and the Effectiveness of Controlling Space Utilization**

#### ***1. Planning, Zoning, Licensing, and Development Control***

The main instruments of spatial regulation include general and detailed plans, zoning regulations, approval or suitability of space utilization activities, technical provisions for buildings, land acquisition, and supervision and control mechanisms. A general plan provides a strategic orientation, while a detailed plan and zoning translates that orientation into rules of location, function, intensity, elevation, density, and environmental requirements. Consistent relationships between the levels of instruments are essential so that individual decisions do not deviate from regional objectives and for businesses and communities to gain certainty about activities that are allowed, restricted, or prohibited [20], [21].

The literature distinguishes between a control system that is predominantly regulative and a system that provides discretion. The regulatory system prioritizes pre-established rules so as to increase consistency and predictability. Discretionary systems allow for case-by-case consideration so that they are more adaptive to local conditions, but risk creating uncertainty and non-transparent negotiations. For Indonesia, the combination of the two requires binding minimum standards, testable discretionary criteria, apparatus capacity, and documentation of reasons for decisions. Without these prerequisites, flexibility can easily turn into an exclusion that weakens the plan [9], [21].

The effectiveness of control is not only determined by the design of the instrument, but by the implementation gap between the plan and the realization. These gaps can stem from inadequate data, poor coordination, limited oversight, conflicting economic incentives, political changes, or sanctions that do not provide a deterrent effect. Spatial planning evaluation in West Java as well as land use suitability studies in Tangerang Regency show the importance of linking policy indicators, land cover conditions, and socio-economic character to assess whether plans truly produce sustainable spatial patterns [4], [5], [11].

### ***3. Economic, Sanctions and Recovery Instruments***

Economic instruments reinforce the rules through incentives and disincentives that affect the behavior of landowners, developers, and space users. Incentives can be in the form of relief, ease, transfer of development rights, or financing support for activities that maintain a protective function and provide public benefits. Disincentives can be in the form of imposition of fees, service restrictions, or compensation obligations for the stress caused. Economic instruments must be carefully designed so that they do not become a mechanism to buy the right to commit violations, but rather to strengthen compliance and internalize socio-ecological costs into development decisions [19], [24].

Administrative, civil, and criminal sanctions are required for violations of varying degrees of seriousness, but the enforcement of spatial planning regulations should also be restorative-oriented. Cessation of activities, revocation of approvals, restoration of space functions, demolition, and environmental rehabilitation can be more relevant than fines alone if the damage can still be repaired. Consistency of sanctions is important to prevent moral hazards and maintain public trust. The experience of hotel project control failures in Bali shows that good norms can lose manpower when enforcement is influenced by political and economic relations [7], [9].

### ***4. Geospatial Data, Information Systems, and Transparency***

Modern spatial planning relies on interoperable, up-to-date, and accessible geospatial data. The integration of plan information with land data allows the government and the community to see the rights, restrictions, responsibilities, land use changes, and suitability of an activity more transparently. Standardization of data structures also reduces conflicts due to differences in maps and references between institutions. However, digitization is not an automatic solution; The quality of the decision remains dependent on the completeness of the data, the capacity of the user, the rules for updates, data protection, and the openness of the interpretation process [6], [20].

Planning support systems can help compare scenarios, map risks, measure access, and identify locations for nature-based interventions. In the Indonesian context, this potential is still limited by a lack of collaboration, limited capacity of local governments, and unequal access to quality spatial data. Therefore, the use of technology needs to be placed in governance that ensures that methodologies can be understood, assumptions can be examined, and the results of analysis do not replace legal, social, and local knowledge considerations [3], [6], [13].

## **Sustainable Development and Climate-Resilient Spatial Planning**

### ***1. Sustainable Development as a Systemic Framework***

Sustainable development is a paradigm that integrates economic well-being, social justice, and ecological sustainability in a long-term horizon. The three dimensions are not three separate lists of goals, but components of a social-ecological system that affect each other. Economic growth can expand the financing capacity of public services, but it can also increase land consumption and environmental pressures. Ecological protection can lower disaster risk and preserve livelihoods, but the cost of the transition needs to be shared fairly. Therefore, space policy must analyze the cause-and-effect relationship, beneficiaries, cost-bearers, and possible indirect impacts [23], [26], [29].

The sustainable development framework also demands institutional integration. Integration can take place through mandate coordination, database unification, joint planning processes, cross-sector budgeting, and evaluation of results using shared indicators. Integration failures typically arise in the form of organizational silos, differences in work scale, misaligned goals, and the absence of actors responsible for cross-sector impacts. The climate adaptation literature emphasizes that integration must include procedural, organizational, policy, and knowledge dimensions so that sustainability issues are not only added as an appendix, but also influence core decisions [22], [30].

### ***2. Resilience, Adaptation, and Climate Proofing***

Climate change adds uncertainty to spatial planning as patterns of hazard, vulnerability, and exposure are constantly changing. Concept Climate Proofing directing that climate risks be considered at every stage of planning, from setting goals, preparing alternatives, assessing locations, granting approvals, to monitoring. This approach requires cross-regional and cross-sectoral coordination because floods, droughts, heat waves, fires, and sea-level rise do not follow administrative boundaries. Integrative framework Climate Proofing emphasizing vertical and horizontal cooperation, the use of scenarios, co-benefit assessments, and the institutionalization of periodic review processes [30], [31]. Climate-resilient spatial planning not only reduces exposure to hazards, but also preserves options for the future. Prohibition of development in certain areas, protection of ecological corridors, green open spaces, infiltration areas, and nature-based infrastructure can reduce losses while providing health and biodiversity benefits. However, urban compaction strategies to reduce the expansion of areas can conflict with the need for green space and ventilation. The conflict demonstrates the need for integrative governance that compares alternatives, identifies affected groups, and seeks combinations of actions that produce shared benefits [6], [12], [24].

At the local level, village spatial planning and community knowledge integration can serve as a safeguard against conflicts, disasters, and loss of livelihoods. Local plans allow information about water sources, productive lands, customary territories, evacuation routes, and vulnerable areas to be translated into context-relevant rules. However, local plans must be connected to plans at a higher level so as not to lose legal force and budget support. The two-

way relationship between local knowledge and formal frameworks is an important element of just adaptation [14], [15], [16].

## **Spatial Planning as an Instrument for the Implementation of the Sustainable Development Goals**

### ***1. Localization of SDGs and Inter-Destination Interaction***

The SDGs are designed as an interconnected agenda so that their implementation cannot be carried out through stand-alone sectoral targets. The study of the interaction of SDGs shows that one target can strengthen, depend on, or inhibit another. Such relationship analysis is important for spatial planning because location and land use decisions produce simultaneous impacts on water, food, housing, energy, employment, mobility, ecosystems, and climate risk. Spatial planning provides a concrete medium for translating those global interactions into manageable choice of regions and projects [25], [26], [32].

The localization of the SDGs requires indicators and priorities that are in accordance with the character of the region. The relationship between destinations can differ according to income levels, location, demographic characteristics, and institutional capacity. Therefore, one spatial pattern cannot be applied uniformly to metropolitan areas, small islands, forests, coasts, and rural areas. Planning needs to combine global targets with local data and consider who benefits and who faces risks. This approach supports the principle of leave no one behind and prevent aggregate achievement of covering spatial inequality [28], [29], [33].

### ***2. Spatial Planning's Contribution to Priority Goals***

Spatial planning is directly related to SDG 11 through the provision of housing, access to services, transportation, public space, reduction of vulnerable settlements, and control of urban expansion. The relationship with SDG 6 can be seen in the protection of water catchment areas, sanitation networks, and pollution control; with SDG 9 through infrastructure locations and production areas; with SDG 13 through climate mitigation and adaptation; and with SDG 15 through the protection of terrestrial ecosystems. Space decisions also determine the quality of institutions and partnerships as emphasized in SDG 16 and SDG 17, as implementation requires transparency, coordination, and participation [3], [6], [33].

However, a contribution to a single goal can create trade-off. The development of infrastructure that supports connectivity and growth can reduce habitats or agricultural land; urban compaction can improve transportation efficiency but reduce open spaces; and the expansion of renewable energy can give rise to land conflicts. Analysis Trade-offs It must be done from the stage of determining alternatives, not after the project is decided. The literature suggests that analytical tools need to be simple, flexible, understandable to decision-makers, and generate actionable recommendations so that the relationship between objectives really influences policy [23], [28], [32].

### ***3. Synthesis of the Conceptual Framework of the Article***

Based on the literature, the integration of spatial regulation and sustainable development can be analyzed through five interconnected dimensions. The first dimension is **Normative Coherence**, namely the alignment of principles, objectives, plan hierarchy, and sectoral regulations. The second

dimension is **Institutional capacity**, including authority, coordination, resources, and competence. The third dimension is **Procedural legitimacy**, namely openness, participation, recognition, and access to justice. The fourth dimension is **Evidentiary Capacity**, which includes data quality, interoperability, scenario analysis, and monitoring. The fifth dimension is **Substantive results** in the form of compliance, spatial justice, climate resilience, ecosystem protection, and contribution to the SDGs [2], [20], [22], [25].

The framework affirms that sustainable spatial planning is not produced by a single regulation or one technology. Its success depends on the relationship between the quality of norms, the capabilities of the institution, the legitimacy of the process, the knowledge used, and the real consequences on the ground. This framework forms the basis for the Results and Discussion section to answer two research questions: how spatial planning regulatory concepts and instruments are integrated with sustainable development and the SDGs, and what efforts are needed to address the implementation gap in Indonesia. Thus, the next discussion can move from a conceptual foundation to the evaluation of challenges and the formulation of an agenda for strengthening law and governance [5], [8], [21].

## METHODOLOGY

This article uses the *Qualitative literature review* (QLR) with an interpretive-integrative orientation to examine the relationship between spatial planning regulations, sustainable development, and implementation *Sustainable Development Goals* (SDGs). This approach was chosen because the purpose of the research is not to calculate the magnitude of the effect, test statistical hypotheses, or collect all publications extensively, but to interpret concepts, legal principles, control instruments, inter-policy relationships, and patterns of implementation problems spread across the cross-disciplinary literature. The QLR in this article is *Non-systematic literature review*: The study did not apply the protocol *Systematic Literature Review*, PRISMA diagrams, meta-analysis, and formal bias risk assessments. However, the study process is still made directed and transparent through the determination of focus based on research questions, selection of traceable sources, critical reading, and argumentative synthesis. This approach allows the author to connect the legal literature, regional planning, environmental governance, spatial justice, climate change, and SDGs to build a conceptual explanation that is complete and relevant to the Indonesian context [34], [35].

Literature is purposively and iteratively identified through academic search engines, national journal portals, and international scientific publisher pages, while the existence and accuracy of source metadata are checked through journal pages and DOI links where available. Keywords are used in Indonesian and English, including "spatial regulation", "sustainable spatial planning", "spatial use control", "spatial justice", "spatial planning law", "sustainable spatial planning", "land-use control", "public participation", "climate adaptation", and "SDG localization". Reputable journal articles published since 2020 are prioritized so that the analysis reflects the latest developments, while maintaining laws and

regulations and longer conceptual sources if they have a fundamental position. Sources are selected based on their relevance to the research question, the quality and clarity of the publication, traceability through DOIs or internet addresses, conceptual or empirical contributions, and their ability to explain the Indonesian context and provide comparative learning. Duplicate publications, unverifiable sources, writings that only marginally address the topic, and material that does not provide analytical support are excluded from the main material of the study [35], [36].

The analysis is carried out through in-depth reading and comparison between sources, followed by recording information about the main concepts, context, approaches, findings, differences in arguments, as well as legal and policy implications. The findings are then coded and synthesized thematically-reflectively, rather than simply summarized individually, to find suitability, contradictions, gaps, cause-and-effect relationships proposed by the literature, and policy strengthening agendas. These themes are grouped into five analytical dimensions that have been built in the Literature Review, namely normative coherence, institutional capacity, procedural legitimacy, evidential capacity, and substantive outcomes in the form of compliance, spatial justice, climate resilience, ecosystem protection, and contribution to the SDGs. The credibility of the synthesis is maintained through triangulation between legal sources, spatial planning research, governance studies, and sustainability literature; checking consistency between citations and reference lists; and critical reflection on differences in context and limitations of evidence. The results of the synthesis are then used to answer both research questions and formulate recommendations that are conceptual, institutional, procedural, and implementive. [37], [38].

## RESULT AND DISCUSSION

### **Integration of Spatial Planning, Sustainable Development, and SDGs Regulations**

#### ***1. Synthesis Results: Sustainable Spatial Planning as a Legal and Governance System***

The synthesis of literature shows that the integration of spatial planning regulations with sustainable development is not enough to be interpreted as the inclusion of the term sustainability in the plan document. Substantive integration is formed when five elements work in unison, namely norm coherence, institutional capacity, procedural legitimacy, quality of spatial knowledge, and measurable development outcomes. These five elements form a causal chain: norms determine the direction and limits of space utilization; the institution translates norms into decisions; participatory process builds legitimacy; data and analysis reduce uncertainty; Meanwhile, monitoring tests whether decisions actually result in spatial justice, climate resilience, and ecosystem protection. Thus, sustainable spatial planning is a legal and governance system, not just a product of maps or zoning regulations [2], [3], [22], [39].

In the framework of Indonesian law, the system is based on Law Number 26 of 2007 as amended through Law Number 6 of 2023, and further described in Government Regulation Number 21 of 2021. This framework connects the planning, utilization, control, supervision, and role of the community. However,

policy developments until 2025 show that spatial planning regulations must also be read together with long-term development agendas, service standards, and land use regulation. Law Number 59 of 2024, Regulation of the Minister of ATR/Head of BPN Number 3 of 2025, and Government Regulation Number 48 of 2025 emphasize the need to connect spatial planning with the quality of public services, optimize land use, and the direction of national development 2025-2045.

## ***2. Normative Coherence and Integration Between Legal Regimes***

The first key finding is that normative coherence is a prerequisite for integration. Spatial planning interacts with environmental, agrarian, forestry, coastal and marine, mining, housing, transportation, disaster management, and local government laws. When objectives, area definitions, map bases, approval procedures, or division of authority differ, decisions that are formally valid in one regime may give rise to inconsistencies in another. Such fragmentation is not only a technical administrative issue, but it can also result in legal uncertainty, transaction costs, social conflict, and ecological degradation. Therefore, harmonization needs to be carried out at the level of norms, maps, procedures, and implementing institutions, not just through incidental coordination after conflicts arise [7], [8], [10], [27].

Vertical coherence is also important because national, provincial, district/city, and village policies work on different scales. National-level plans provide strategic orientation and networking, while local governments translate them into spatial patterns and control provisions that are in direct contact with citizens. At the village level, knowledge of water sources, productive land, customary territories, evacuation routes, and livelihood spaces is often more detailed than formal data. Two-way integration is necessary so that local plans are not disconnected from higher legal and financing frameworks, as well as so that higher plans do not ignore micro-conditions. Studies on village planning in Indonesia confirm that inter-scale relationships determine sustainability and the ability of plans to function as a development safeguard [14], [15], [16], [40].

Horizontal integration requires that policies on transportation, housing, investment, environmental protection, food, and infrastructure use consistent spatial assumptions. Transit-oriented development, for example, can support low-carbon mobility and access to services, but the benefits are diminished if the increase in building intensity is not balanced with the protection of open space, affordability of housing, and pedestrian connectivity. Jakarta's experience shows that changes in land use around transit nodes can result in progress as well as pressure on green space. This emphasizes that spatial planning must be a forum for policy integration, not just a means to allocate sectoral project locations [1], [12], [41], [42].

## ***3. Basic Operationalization through Control Instruments***

The second finding shows that the principles of sustainability, integration, justice, openness, legal certainty, and accountability have transformative power when translated into operational decision criteria. The principle of sustainability needs to be realized through carrying capacity and carrying capacity limits, protection of ecologically valuable areas, control of land conversion, and restoration requirements. The principle of justice needs to be translated into

equal access to services, reduced exposure to vulnerable groups, livelihood protection, and objection mechanisms. The principle of openness requires the publication of maps, reasons for decisions, and monitoring results. Without this kind of operationalization, the principle risks becoming a normative declaration that is difficult to use to test the legality and quality of decisions [17], [18], [43], [44].

Spatial plans, detailed plans, zoning, suitability of space utilization activities, environmental requirements, and building standards must work as a series. The plan establishes the objectives and structure of the region; zoning provides rules that can be applied to the field or area; the approval process tests concrete proposals; Meanwhile, supervision compares field conditions with the plan. The literature on implementation effectiveness shows that a good plan does not automatically result in compliance if the indicators are vague, the data is not up-to-date, the oversight agency is weak, or the exclusion decision is not transparent. Therefore, the success of control must be measured by the consistency between plans, permits, land use changes, and environmental outcomes, not by the number of documents that have been determined [4], [11], [21], [39].

Control instruments need to combine rules, economic incentives, sanctions, and recovery. Clear rules increase predictability, but land market pressures can prompt a change of plan or violation if the private gain far outweighs the cost of non-compliance. Incentives can be directed to maintain ecological functions, build public spaces, provide affordable housing, or utilize abandoned land as planned. Instead, disincentives and sanctions should be strong enough to prevent violations and not stop at the payment of fines. In cases that cause damage, the restoration of spatial and environmental functions becomes an essential part of law enforcement. This approach makes control a mechanism for behavior change, not just licensing administration [9], [19], [21].

#### **4. Spatial Planning as a Platform for Localization of SDGs**

The third finding is that spatial planning is a concrete platform for localizing the SDGs. Various global targets ultimately require decisions regarding location, area, density, networking, access, and protection of areas. SDG 11 is directly related to housing, transport, public space, and urban risk reduction; SDG 6 requires the protection of water resources and space for sanitation; SDG 9 requires efficient infrastructure locations; SDG 13 requires reduced exposure and adaptation; and SDG 15 depend on ecosystem protection. Even SDG 10 and SDG 16 have a spatial dimension because inequality of access, transparency, and participation are influenced by the distribution of facilities and the process of determining space [26], [33], [43], [45].

However, the localization of the SDGs cannot be done by attaching a destination number to an existing program. The interaction between goals must be analyzed because a single decision can result in synergies as well as trade-offs. The construction of transportation networks can expand access to work and reduce emissions, but it also triggers increases in land prices, displacement of citizens, or habitat loss. Urban compaction can reduce *urban sprawl*, but reduces green space if the design and control are weak. The development of water

infrastructure can increase resilience, but it creates conflict when it changes community access to resources. Therefore, alternative assessments need to compare benefits, burdens, beneficiaries, affected groups, and long-term risks [23], [25], [28], [32].

*Strategic environmental assessment* can serve as a bridge between spatial planning and the SDGs because it assesses the consequences of policies, plans, and programs before individual project decisions are made. This relationship is mutualistic: SDGs provide cross-sectoral goals and indicators, while strategic environmental assessments provide a process for assessing alternatives, cumulative impacts, and mitigations. The integration needs to be done from the formulation of the plan objectives, not at the final stage to justify the choices that have been set. In this way, spatial planning can direct investment towards a combination of goals that produce economic, social, and ecological benefits simultaneously [30], [32], [46], [47].

## **The Challenge of Realizing Sustainable Spatial Planning**

### **1. Fragmentation of Authority and Implementation Gaps**

The most fundamental challenge is institutional fragmentation. Many decisions that affect the space are made by agencies with different mandates, databases, time horizons, and performance indicators. Coordination is often consultative without sufficient authority to resolve conflicts, while local governments must implement national policies in a non-uniform capacity. As a result, plans can lose their integrative function and turn into a compilation of sectoral interests. Indonesian studies and international experience show that unclear leadership, weak political priorities, and ineffective coordination are major obstacles to the implementation of spatial planning and environmental justice [2], [8], [22], [43].

The implementation gap is also seen from the mismatch between spatial patterns and actual land use. Rapid urban growth, the expansion of settlements, industrial estates, and road networks can move faster than revisions of plans and supervisory capacity. A study in Makassar shows that urban sprawl, land use change, agglomeration, and transportation systems are related to environmental quality degradation. Studies in Tangerang and West Java also show that the alignment of land use and policy outcomes differs according to regional character and control capabilities. The findings confirm that spatial planning requires continuous monitoring of land change and correction mechanisms before deviations become permanent [4], [5], [11], [48].

Investment pressure and land values can widen the gap. Governments face demands to speed up licensing and provide land for economic activities, while the benefits of ecological protection are often not immediately visible in fiscal revenues. In this situation, changes in plans or the granting of discretion have the potential to be more responsive to actors who have political and economic resources. Studies on densification and tourism projects show that the implementation of spatial planning has always been about the distribution of power, not just technical compliance. Therefore, transparency of the reasons for the change, control of conflicts of interest, and public access to decision documents are prerequisites to prevent regulatory capture [1], [7], [9], [19].

## **2. Institutional Capacity, Data, and Digital Transformation**

Local government capacity is the next challenge. The preparation and implementation of the plan requires planners, legal experts, environmental analysts, surveyors, data managers, participation facilitators, and supervisory officers. Limitations in personnel and budgets can make the government dependent on consultants without adequate knowledge transfer mechanisms. As a result, documents are completed, but the ability to update data, assess proposals, or enforce provisions remains weak. The literature emphasizes that institutional capacity includes not only technical expertise, but also leadership, coordination, organizational learning, legitimacy, and conflict management skills [2], [30], [39], [43].

Digitalization and geospatial information systems offer great opportunities, but they can also create the illusion of certainty. High-resolution maps don't necessarily represent indigenous rights, seasonal uses, social vulnerabilities, or rapid changes on the ground. Differences in data standards, update dates, and administrative boundaries can result in conflicting decisions. *Planning support systems* It will be useful if the assumptions, data sources, and levels of uncertainty are open and understandable to users. Indonesia needs interoperability between plan, land, environmental, disaster, infrastructure, and social statistics data, along with data update protocols and audits [3], [6], [13], [20].

## **3. Participation, Spatial Justice, and Protection of Vulnerable Groups**

Public participation is still often carried out as a fulfillment of procedures after the primary choice has been formed. In such conditions, the public can express their opinions, but do not obtain sufficient information or do not know how their input affects decisions. Meaningful participation requires involvement from problem identification, development of alternatives, impact assessment, to monitoring. The government also needs to provide understandable documents, adequate time, objection channels, and written responses. A comparison of Indonesian and Australian procedures shows the need for a more independent and deliberative mechanism, especially for large projects with broad impact [17], [18], [40], [49].

Spatial justice demands attention to the distribution of benefits and burdens. Low-income groups often live in locations most vulnerable to flooding, heat, pollution, or eviction, while also having the least access to transportation, green space, and basic services. Successful environmental improvements can also increase land values and trigger displacement if they are not accompanied by residential protection. The study in Yogyakarta shows the importance of viewing urban land not only as a commodity, but also as a living space and shared resources. Therefore, sustainable spatial planning must include affordability, security of residence, recognition of rights, and fair compensation mechanisms [1], [19], [43], [44].

The recognition dimension is also important for indigenous peoples, coastal communities, farmers, and groups whose knowledge systems are not always recorded on formal maps. Integration of village spatial planning can help document livelihood spaces, areas of cultural value, water sources, and safety pathways. However, documentation must be done with adequate approval and

safeguards so that community data is not used to accelerate the takeover of resources. The relationship between local knowledge and technical science must be coproductive, so that the community plays a role in determining problems, interpreting risks, and choosing interventions [13], [14], [15], [16].

#### **4. Climate Change, Disaster Risk, and Conflict Development Goals**

Climate change magnifies the challenge because historical data-driven plans can lock in development in increasingly risky locations. Floods, sea level rise, droughts, heat waves, fires, and landslides have dynamic spatial patterns. The Jayapura study showed the link between coastal land cover change and climate impacts, while the climate proofing study emphasized the need to use scenarios, assess the resilience of options, and conduct periodic reviews. Spatial planning needs to avoid lock-in by limiting development in certain areas, maintaining ecological corridors, providing water spaces, and maintaining future relocation or adaptation options [27], [31], [47], [50].

Conflicts between destinations are also an analytical and political challenge. Housing needs can conflict with the protection of agricultural land; urban compaction can conflict with the need for open space; Energy and infrastructure development can conflict with biodiversity and community rights. Not all conflicts can be eliminated, so the legal process must ensure that trade-offs are explicitly identified, alternatives are compared, and the burden is not shifted to the weakest groups. Sustainable spatial planning is not a process of finding solutions without cost, but rather a mechanism of choosing a combination of benefits and burdens in a transparent, evidence-based, and accountable manner [24], [28], [29], [32].

#### **Legal and Policy Agenda to Realize Sustainable Spatial Planning**

##### **1. Harmonization of Regulations and Strengthening Multilevel Governance**

The first effort is to build a permanent harmonization mechanism between spatial planning and sectoral regimes. Any policy or strategic project that changes land use needs to be tested against spatial planning, environmental carrying capacity, climate risk, and SDG targets through the same database and criteria. The coordination forum must have conflict resolution procedures, deadlines, documentation of decisions, and the person in charge. At the same time, the central government needs to provide minimum standards and technical support, while local governments retain space to adapt policies to the character of the region. Approach *Meta-governance* can be used to regulate the interaction of various networks without removing the autonomy of individual actors [2], [8], [22], [23].

Harmonization should begin before the preparation of the plan, through agreement on objectives, definitions, map scale, baseline data, and development scenarios. Strategic environmental assessment and climate proofing need to be integrated into the same stage, so that the results affect spatial patterns and zoning provisions. This process prevents situations when environmental considerations only arise after development allocations have been set. Plan updates also need to use clear triggers, such as changes in risk, land use deviations, technological developments, or changes in national targets, to be

adaptive without opening up opportunities for ad hoc change that benefits specific interests [27], [30], [31], [46].

## **2. Reform of Control, Law Enforcement, and Economic Instruments**

The second effort is to shift the focus from accelerating the issuance of approvals to the quality of the entire control cycle. Initial checks should ensure suitability of location, carrying capacity, disaster risk, infrastructure access, and cumulative impact. Once approval is granted, the obligations of the activity holders need to be translated into auditable indicators, reporting schedules, and recovery guarantees. Risk-based oversight can prioritize activities with a high impact or history of non-compliance. Any changes or dispensations must be announced with reasons, supporting data, and mitigation requirements to keep discretion within the legal corridor [7], [9], [21], [39].

Sanctions must be proportionate, consistent, and recovery-oriented. Minor administrative violations can be remedied through an adjustment order, but activities that incur substantial damages or profits from non-compliance require consequences that eliminate the economic benefits of the violation. The restoration of spatial functions, ecosystem rehabilitation, demolition, and compensation for affected communities need to be considered according to the nature of the case. Economic instruments can also be used positively through incentives for green space, conservation, affordable housing, adaptive buildings, and the reuse of built-up or abandoned land [12], [19], [51].

Controlling urban growth needs to be linked to transportation and basic services. Transit-oriented development must be accompanied by the protection of open spaces, parking management, pedestrian connectivity, housing affordability, and mechanisms to capture the increase in land values to finance public facilities. In suburban areas, restrictions on urban sprawl must be balanced with the provision of housing and economic opportunities so that prohibitions do not just move informality. This approach allows spatial planning to reduce travel, emissions, and land conversion while maintaining inclusivity [41], [42], [44], [48].

## **3. Data, Monitoring, and Accountability Infrastructure Based on Results**

The third effort is to build an interoperable and auditable geospatial data infrastructure. A public portal should ideally display the applicable plan, approval status, land use change, risk areas, carrying capacity indicators, developer obligations, and violation follow-up. Each data layer needs to list the source, date, method, accuracy level, and agency in charge. Integration with land data can clarify rights and restrictions, while remote sensing imagery can detect changes. However, decisions should not be fully automated; Field Verification and Community Correction Mechanism Still Needed [6], [13], [20], [39].

Accountability needs to shift from the size of administrative outputs to outcomes. The indicator does not adequately calculate the number of detailed plans or approvals issued, but must assess land use suitability, access to services, changes in green space, protected habitat area, number of people exposed to hazards, affordability of habitation, compliance, and recovery. These indicators can be linked to local SDGs targets and used in performance audits. Studies on SDGs implementation audits in Indonesia show that cross-objective assessments can provide a more comprehensive picture than separate sectoral evaluations, especially when resources and data are limited [5], [25], [29], [45].

#### ***4. Deliberative Participation and Protection of Spatial Justice***

The fourth effort is to build participation as a deliberative process. Governments need to map affected groups, provide information in an easy-to-understand format, use face-to-face meetings and digital channels, and provide support for groups that are difficult to participate in. For high-impact decisions, an independent panel or multi-stakeholder forum can assess the evidence, hear objections, and issue open recommendations. The decision report should show the input received, the changes made, and the reasons for the rejection. This mechanism improves the quality of knowledge, reduces conflict, and strengthens the legitimacy of decisions [17], [18], [40], [49].

Spatial justice assessments need to be a mandatory part of alternative plans. Governments must identify groups that benefit and bear the burden, including impacts on livelihoods, transportation costs, housing security, health, and access to public spaces. When relocation is inevitable, the choice of location, compensation, and livelihood restoration must be worked out with the community. Protection against gentrification and displacement is also needed when green investment increases land values. Thus, sustainable development not only results in a better environment, but also ensures that the benefits can be maintained by the people who originally lived in the region [1], [19], [43], [44].

#### ***5. Mainstreaming Climate Resilience and SDGs Synergy***

The fifth effort is to make climate resilience a mainstream criterion. Each plan needs to use climate scenarios, hazard and vulnerability maps, and sensitivity analysis to changing assumptions. Zoning provisions can specify no-development areas, elevation standards, water retention spaces, ventilation corridors, coastal protection, and nature-based infrastructure obligations. Interventions are prioritized based on social risks and vulnerabilities, not just the value of economic assets. The plan should also have a gradual adaptation path that describes actions when a certain risk threshold is reached [24], [31], [47], [50]. *Nature-based solutions* It needs to be positioned as part of the region's infrastructure, not an ornament. Green spaces, urban forests, mangroves, wetlands, and river corridors can reduce heat, absorb water, preserve biodiversity, and provide public space. However, the location and design must be adapted to local needs and connected to the maintenance and financing system. Planning support systems can help select locations and compare scenarios, while community participation ensures solutions are appropriate to actual space use and do not create new exclusions [6], [12], [49], [51].

Finally, the synergy analysis and *Trade-offs* The SDGs need to be institutionalized in the preparation and evaluation of plans. Interaction matrices can identify mutually reinforcing goals, prerequisites, and conflicts that require mitigation. However, the tool must be equipped with distribution analysis and deliberative processes so as not to reduce decisions to technical scores. The results of the analysis should be translated into location priorities, investment sequences, indicators, as well as responsibility sharing. This approach allows spatial planning to function as a development coordination mechanism that connects a global vision with concrete choices at the regional level [23], [26], [28], [32].

## 6. *Synthesis of Answers to Research Questions*

The answer to the first research question is that spatial planning concepts, principles, objectives, and regulatory instruments can be integrated with sustainable development and the SDGs through a system that connects five dimensions: normative coherence, institutional capacity, procedural legitimacy, evidential capacity, and substantive outcomes. The principles of sustainability and justice are translated into ecological boundaries, benefit-burden distribution criteria, and protection of vulnerable groups; the principle of integration translates into vertical and horizontal synchronization; Meanwhile, the principles of openness and accountability are realized through access to data, reasons for decisions, monitoring, and objection mechanisms. Planning, zoning, approval, environmental assessment, incentives, sanctions, and recovery instruments must work as a cycle and be evaluated through SDGs indicators that are sensitive to regional conditions [3], [25], [39], [46].

The answer to the second research question is that Indonesia's main challenges include fragmentation of regulations and authority, incompatibility with land use plans, uneven local government capacity, weak monitoring and recovery, incompatible data, formalistic participation, spatial injustice, and increasing climate risks. Efforts needed include permanent harmonization between regimes, strengthening multilevel governance, control cycle reform, recovery-oriented law enforcement, consistent incentives, auditable geospatial portals, results-based audits, deliberative participation, protection of rights and livelihoods, climate proofing, nature-based solutions, and analysis of SDGs interactions. The effectiveness of the agenda depends on political commitment and the ability to ensure that the long-term interests of the SDGs are Short does not shift the function of space for future generations [8], [17], [21], [30].

## CONCLUSIONS AND RECOMMENDATIONS

This article concludes that spatial regulation has a strategic position in realizing sustainable development because almost all economic, social, and ecological activities require space and produce spatial impacts. Spatial planning is not only the technique of dividing areas into zones, but also the legal and governance regimes that determine how benefits, risks, access, and responsibilities are distributed. Integration with sustainable development occurs when norms, institutions, participation processes, data, and field outcomes are interconnected. Thus, the quality of spatial planning must be measured by its ability to maintain the carrying capacity of the environment, reduce inequality, strengthen resilience, and create legal certainty at the same time.

Normatively, Indonesia has a foundation through the Spatial Planning Law and its amendments and implementing regulations. However, the existence of the regulation has not completely overcome the fragmentation between spatial planning, environment, agrarian, forestry, coastal, infrastructure, and investment. The main challenges lie in coherence between rules, the division of authority, consistency between plans and approvals, and the ability to carry out oversight and remediation. Therefore, harmonization should not be limited to the alignment of legal texts, but should include objectives, maps, databases, decision-making procedures, indicators, and conflict resolution mechanisms.

Spatial planning is also the main means of localization of the SDGs. Spatial decisions have a direct impact on sustainable cities, water, infrastructure, climate, ecosystems, inequality, and institutions. However, this contribution will only be effective if synergies and trade-offs between goals are assessed from the beginning. Plans need to compare alternatives, uncover beneficiaries and burdens, and prevent the achievement of one target at the expense of other targets or vulnerable groups. Strategic environmental assessments, climate proofing, and results-based audits can make the SDGs a decision-making framework, not just a program label.

The improvement agenda needs to prioritize strengthening the capacity of local governments, geospatial data interoperability, controlling risk-based space utilization, recovery-oriented law enforcement, and deliberative participation. Transparency must include access to plans, approvals, changes, business actors' obligations, monitoring results, and follow-up on violations. Spatial justice needs to be an explicit criterion, especially for low-income communities, indigenous peoples, coastal communities, farmers, and groups living in at-risk areas. With this approach, spatial planning can control urban sprawl, protect ecological space, improve access to services, and strengthen climate adaptation.

Future research needs to test the five-dimensional framework proposed by this article through cross-regional comparative studies and longitudinal analysis. The research can develop quantitative indicators regarding plan coherence, land use suitability, fairness of facility distribution, effectiveness of participation, quality of law enforcement, and spatial planning contribution to SDGs targets. Further studies also need to examine the impact of digitization of spatial approvals, the use of artificial intelligence and remote sensing in supervision, the risk of data bias, and models for protecting communities from displacement due to green investment. A combination of legal research, planning, environmental science, and geospatial analysis is needed so that the resulting recommendations are more operational and in accordance with the diversity of Indonesia's regions.

## **FURTHER STUDY**

This research still has its limitations, so further studies on the topic of Spatial Planning Regulation and Sustainable Development: A Review of Governance, Spatial Justice, and SDG Implementation are needed to improve this research and add insights for both the author and the readers

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