



Reconstructing Institutional Governance Capabilities to Accelerate the Sustainable Bioeconomy Transformation in Indonesia

Rekonstruksi Kapabilitas Tata Kelola Kelembagaan untuk Mengakselerasi Transformasi Bioekonomi Berkelanjutan di Indonesia

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Abstract

The transition toward a sustainable bioeconomy in Indonesia is severely hindered by institutional governance failures rather than regulatory deficits. This study evaluates the structural bottlenecks within centralized governance and the policy capacity deficits of the state apparatus in driving circular economy transformations. Utilizing a multi-method qualitative design, this research integrates institutional policy analysis and socio-legal normative approaches. The findings reveal that extractive path dependence, scalar mismatches, and semantic hijacking have triggered severe policy lock-ins. Furthermore, the state bureaucracy exhibits acute analytical, operational, and political capacity deficits, rendering it captive to the hegemony of extractive industries. As a prescriptive intervention, this paper proposes the capability-based institutional reconstruction model. This framework advocates for executive meta-governance, durable legally binding designs, and polycentric tenure restitution for indigenous communities. Ultimately, accelerating this sustainable bioeconomy necessitates a shackled leviathan, a mission-oriented state rigorously constrained by democratic civic oversight to guarantee long-term ecological justice across the nation.

Abstrak

Transisi menuju bioekonomi berkelanjutan di Indonesia sangat terhambat oleh kegagalan tata kelola kelembagaan daripada ketiadaan regulasi. Studi ini mengevaluasi hambatan struktural dalam tata kelola sentralistik dan defisit kapasitas kebijakan aparatur negara dalam mendorong transformasi ekonomi sirkular. Menggunakan desain kualitatif multi-metode, penelitian ini mengintegrasikan analisis kebijakan institusional dan pendekatan hukum sosio-legal. Temuan mengungkapkan bahwa ketergantungan lintasan ekstraktif, ketidaksesuaian skala, dan pembajakan semantik telah memicu penguncian kebijakan yang parah. Selanjutnya, birokrasi negara menunjukkan defisit kapasitas analitis, operasional, dan politis yang akut, menjadikannya tertawan oleh hegemoni industri ekstraktif. Sebagai intervensi preskriptif, artikel ini mengusulkan model rekonstruksi tata kelola kelembagaan berbasis kapabilitas. Kerangka ini mengadvokasi orkestrasi meta-governance eksekutif, desain regulasi mengikat, serta restitusi tenurial polisentris bagi masyarakat adat. Pada akhirnya, akselerasi bioekonomi berkelanjutan ini mutlak membutuhkan kehadiran leviathan yang dibelenggu, yakni sebuah negara berorientasi misi yang dibatasi secara ketat oleh pengawasan sipil demokratis untuk menjamin keadilan ekologis jangka panjang di seluruh penjuru wilayah nasional.



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A. INTRODUCTION

1. Background

In the Anthropocene, as planetary ecological boundaries are increasingly transgressed and climatic anomalies approach critical tolerance thresholds, a paradigm shift toward sustainable economic governance is no longer merely a normative preference, but an existential imperative. At the epicenter of this transition lies the concept of the "bioeconomy," a comprehensive framework encompassing the efficient generation, extraction, and utilization of biological resources for the sustainable production of goods, services, and energy.¹ Conceptually, the bioeconomy is designed to reconcile the imperatives of macroeconomic growth with the absolute mandate of environmental preservation. Nevertheless, the policy manifestations of this concept are highly heterogeneous and frequently emerge as arenas of contestation for competing politico-economic interests. The transformation toward a bioeconomy necessitates fundamental changes in public governance structures, which in practice are frequently impeded by bureaucratic inertia, institutional rigidity, and the dominance of extractive industry interest groups.²

In Indonesia, the discourse surrounding the bioeconomy has garnered strategic momentum through the economic transformation initiatives spearheaded by the Ministry of National Development Planning (Bappenas).³ As a preeminent megadiverse nation, Indonesia holds strategic economic valuation potential, provided its genetic resources are managed through advanced biotechnological approaches and circular economy principles.⁴ Although strategic documents such as the Indonesia Bioeconomy Initiative have emphasized the equilibrium of economic, social, and environmental dimensions, empirical realities indicate an anomaly. Three decades post-ratification of the Convention on Biological Diversity (CBD), the development paradigm in Indonesia remains dominated by fossil-based extractive approaches and massive-scale monoculture land

¹ Markus Bugge, Teis Hansen, and Antje Klitkou, "What Is the Bioeconomy? A Review of the Literature," *Sustainability* 8, no. 7 (July 2016): 691, <https://doi.org/10.3390/su8070691>.

² F.-D. Vivien et al., "The Hijacking of the Bioeconomy," *Ecological Economics* 159 (May 2019): 189–97, <https://doi.org/10.1016/j.ecolecon.2019.01.027>.

³ Kementerian PPN/Bappenas, "Dukung Transformasi Ekonomi, Bappenas Mutakhirkan Konsep Bioekonomi Berkelanjutan Di Indonesia," Kementerian PPN/Bappenas, 2025, <https://www.bappenas.go.id/berita/dukung-transformasi-ekonomi-bappenas-mutakhirkan-konsep-bioekonomi-berkelanjutan-di-indonesia-wCZ1q>.

⁴ Indonesian Business Council, "From Natural Wealth to Bioeconomy How Biodiversity Can Power Indonesia's Economy," *Indonesian Business Council*, 2025, <https://navigator.ibc-institute.id/pdfs/IBC-Navigator-Vol.11.2025-Biodiversity-to-Bioeconomy.pdf>.

exploitation, posing significant risks to the resilience of primary ecosystems.⁵

The divergence between ecological ambitions and implementation realities underscores a critical phenomenon: the primary impediment to operationalizing the bioeconomy is not a deficit of regulatory discourse, but rather institutional governance failure. High-level strategic frameworks, such as the Indonesian Biodiversity Strategy and Action Plan (IBSAP), frequently operate as soft law instruments lacking imperative legal enforceability, thereby engendering weak and fragmented cross-sectoral commitments.⁶ Furthermore, "green" initiatives implemented in the absence of integrated institutional oversight are acutely susceptible to catalyzing spatial appropriation, or "green-grabbing"—a condition wherein biodiversity is reduced to a commercial commodity, thereby risking the displacement of Indigenous Peoples and Local Communities (IPLCs).⁷

To date, the extant literature on bioeconomy governance remains bifurcated into two principal discourses. The first strand focuses on epistemological and conceptual critiques concerning the risks of "semantic hijacking" and policy siloing. Scholarship within this vein reveals that visions of the bioeconomy and circularity are frequently co-opted by pro-market institutions to legitimize the commercialization of biomass irrespective of ecological boundaries, thereby paradoxically precipitating environmental degradation.^{8,9} Meanwhile, the second strand endeavors to proffer structural solutions through collaborative governance intermediation and a transition toward transformative innovation policy, aiming to mitigate jurisdictional fragmentation at both the subnational and national levels.^{10,11}

Despite the theoretical richness of this discourse, a salient research gap persists. The preponderance of extant literature confines its focus to narrative critiques of the commercialization of nature or to the proposition of micro-level collaborative

⁵ Fiorentina Refani and Viky Arthiando Putra, *Socio-Bioeconomy: Policy Brief* (Jakarta: CELIOS, 2025). Page, 35.

⁶ Government of the Republic of Indonesia, *Indonesian Biodiversity Strategy and Action Plan (IBSAP) 2025–2045* (Jakarta, 2025). Page, 10.

⁷ Refani and Putra, *Socio-Bioeconomy: Policy Brief*. Page, 37–39.

⁸ Dalia D'Amato et al., "Green, Circular, Bio Economy: A Comparative Analysis of Sustainability Avenues," *Journal of Cleaner Production* 168, no. 1 (December 2017): 716–34, <https://doi.org/10.1016/j.jclepro.2017.09.053>.

⁹ Vivien et al., "The Hijacking of the Bioeconomy."

¹⁰ Chris Ansell and Alison Gash, "Collaborative Platforms as a Governance Strategy," *Journal of Public Administration Research and Theory* 28, no. 1 (January 1, 2018): 16–32, <https://doi.org/10.1093/jopart/mux030>.

¹¹ Johan Schot and W. Edward Steinmueller, "Three Frames for Innovation Policy: R&D, Systems of Innovation and Transformative Change," *Research Policy* 47, no. 9 (November 2018): 1554–67, <https://doi.org/10.1016/j.respol.2018.08.011>.

instruments. Scant scholarship has comprehensively dissected the macro-institutional architecture and the capacity of the state apparatus to execute the bioeconomic transformation, particularly within the context of developing nations characterized by profound politico-economic power asymmetries. As its primary novelty, this research transcends mere critiques of regulatory overlap by proposing a "Capability-Based Institutional Governance Reconstruction Model." This model delineates a state institutional architecture endowed with robust capacity to enforce industrial compliance, yet simultaneously shackled by local community oversight to ensure ecological justice.¹²

This study contends that the stagnation of Indonesia's bioeconomy transition is primarily an institutional governance failure, precipitating from deep-seated path dependencies, jurisdictional fragmentation, and acute deficits in state policy capacity. Consequently, this research introduces a "Capability-Based Institutional Governance Reconstruction Model," which advocates for a paradigm shift toward a "shackled leviathan"—a mission-oriented state apparatus empowered with robust regulatory authority to enforce industrial compliance, yet constitutionally constrained by organized civil society oversight to guarantee equitable and long-term ecological outcomes.

2. Research Questions

Departing from the aforementioned implementation discrepancies and scholarly gaps, this article pursues three principal analytical objectives. First, this research endeavors to investigate how a centralized institutional architecture structurally locks in the implementation of bioeconomy policies in Indonesia. Second, this study evaluates the extent to which the incumbent state apparatus possesses the requisite policy capacity—encompassing analytical, operational, and political dimensions—to effectively respond to the imperatives of a circular ecosystem. Third, as a prescriptive contribution, this research proffers a capability-based institutional governance design intended to eradicate jurisdictional fragmentation and accelerate an ecologically just bioeconomic transformation.

3. Research Method

This research employs a multi-method qualitative design that integrates Institutional Policy Analysis (IPA) with a normative-empirical socio-legal approach. This

¹² Sheri Berman, "The Narrow Corridor: States, Societies, and the Fate of Liberty. By Daron Acemoglu and James A. Robinson. New York: Penguin Press, 2019. 576p. \$32.00 Cloth.," *Perspectives on Politics* 18, no. 3 (September 2020): 903–5, <https://doi.org/10.1017/S1537592720001838>.

methodological architecture is predicated upon the postulate that public policy does not operate in a vacuum; rather, its efficacy is bound by the rigidity of formal statutory texts while being simultaneously dictated by sociological and politico-economic realities at the grassroots level.

Primarily, the IPA approach is operationalized as the principal analytical framework. This analysis is explicitly adapted from the Institutional Analysis and Development (IAD) framework to evaluate how rules, norms, and strategies structure policy outcomes.¹³ The IPA process is operationalized through four rigorous sequential phases: (1) Institutional Structure Mapping, delineating actors, statutory mandates, and jurisdictional overlaps among state agencies (e.g., Bappenas, KLHK, and the Ministry of Agriculture) within the bioeconomy ecosystem; (2) Institutional Efficiency Evaluation, assessing the incumbent structure's capacity to minimize transaction costs and manage environmental externalities; (3) Institutional Choice Analysis, evaluating alternative governance configurations (e.g., centralization versus polycentricity); and (4) Institutional Reconstruction, aimed at formulating a definitive blueprint for governance reconstruction.

Second, to bolster the analytical rigor of the IAD framework, this research employs qualitative document analysis underpinned by a normative legal approach.¹⁴ Rigorous thematic analysis and codification were conducted on primary and strategic regulatory instruments, encompassing Presidential Regulation (Perpres) No. 52 of 2023 concerning the Government Work Plan and Government Regulation (PP) No. 47 of 2024 regarding the debt write-off for bio-based Micro, Small, and Medium Enterprises (MSMEs),¹⁵ as well as the Indonesian Biodiversity Strategy and Action Plan (IBSAP) 2025–2045 document issued by Bappenas.¹⁶ This normative evaluation is specifically focused on identifying statutory inconsistencies, sectoral mandate redundancies, and the legally binding deficit

¹³ David P Carter et al., "Integrating Core Concepts from the Institutional Analysis and Development Framework for the Systematic Analysis of Policy Designs: An Illustration from the US National Organic Program Regulation," *Journal of Theoretical Politics* 28, no. 1 (January 20, 2016): 159–85, <https://doi.org/10.1177/0951629815603494>.

¹⁴ Muh. Ali Masnun, Dicky Eko Prasetyo, and Maalikatussofa, "Reconstruction of the Normative Legal Research Paradigm in Responding to Global CPagelenges: An Epistemological Analysis," *Novum Jurnal Hukum* 12, no. 3 (2025): 372–84, <https://doi.org/10.2674/novum.v12i03.74364>.

¹⁵ Siti Kartina, "Peraturan Pemerintah (PP) Nomor 47 Tahun 2024 Dan Direktorat Jenderal Kekayaan Negara," 2025, <https://www.djkn.kemenkeu.go.id/kpknl-gorontalo/baca-artikel/17652/Peraturan-Pemerintah-PP-Nomor-47-Tahun-2024-dan-Direktorat-Jenderal-Kekayaan-Negara.html>.

¹⁶ Government of the Republic of Indonesia, *Indonesian Biodiversity Strategy and Action Plan (IBSAP) 2025–2045*. Page, 2.

inherent within these strategic instruments.

Third, the empirical (socio-legal) dimension is incorporated to validate the extent to which these normative postulates resonate with factual implementation realities on the ground.¹⁷ Data collection is predicated exclusively upon the extraction of secondary data through rigorous desk research. This empirical data is derived from independent institutional research reports and syntheses of Focus Group Discussions (FGDs), with explicit reference to the Socio-Bioeconomy Policy Brief issued by CELIOS (2025). This strategic document is operationalized to trace empirical precedents concerning the escalation of land conflicts, distributional anomalies of Green Sukuk instruments, and the dynamics of spatial appropriation (green-grabbing) that directly impact Indigenous Peoples and Local Communities (IPLCs) at the grassroots level.¹⁸

The comprehensive corpus of legal and empirical data was subsequently analyzed utilizing a deductive-inductive thematic logic. Through this data source triangulation technique, the macro-postulates of new institutionalism were rigorously tested for precision against the empirical realities of bioeconomy governance in Indonesia, before ultimately being synthesized into a capability-based governance model that is valid, precise, and replicable for subsequent public administration scholarship and policy formulation.

B. DISCUSSION

1. Structural Impediments in Centralized Institutional Governance Design

Research findings indicate that the inertia impeding the acceleration of the bioeconomy in Indonesia is rooted not in a deficit of macroeconomic vision, but rather in historically institutionalized structural pathologies. Dissecting these impediments necessitates the analytical framework of path dependence. Douglass C. North postulates that inefficient institutions—in this context, extractive regimes—tend to persist due to the prohibitive transaction and political costs associated with restructuring the developmental trajectory for elite factions that have amassed economic rents.¹⁹ In Indonesia, land licensing regimes, fossil fuel subsidies, and the expansion of monoculture

¹⁷ Tunggul Ansari Setia Negara, "Normative Legal Research in Indonesia: Its Origins and Approaches," *Audito Comparative Law Journal (ACLJ)* 4, no. 1 (February 2, 2023): 1–9, <https://doi.org/10.22219/aclj.v4i1.24855>.

¹⁸ Refani and Putra, *Socio-Bioeconomy: Policy Brief*. Page, 53.

¹⁹ Douglass C. North, *Institutions, Institutional Change and Economic Performance* (Cambridge University Press, 1990), Page, 110. <https://doi.org/10.1017/CBO9780511808678>.

agricultural concessions (HGU) have configured an incentive structure that structurally locks the policy ecosystem into a destructive extractive trajectory.

The primary structural impediment is the phenomenon of scalar mismatch and the fragmentation of authority. As is endemic to macro-environmental governance, implementation failures are frequently precipitated by a structural disconnect between the biophysical scale of natural resources and the administrative jurisdictional boundaries of their managing institutions.²⁰ Essential ecosystems, such as watersheds and peatlands, do not conform to provincial or municipal demarcations; nevertheless, the prevailing governmental architecture imposes a rigid fragmentation of authority. Although Bappenas articulates the bioeconomy vision through the IBSAP 2025–2045, operational jurisdiction remains highly dispersed among the Ministry of Environment and Forestry (KLHK), the Ministry of Agriculture, and the Ministry of Investment/BKPM. Viewed through the theoretical lens of New Institutionalism, the Indonesian bureaucracy suffers from a profound deficit of "coordinative discourse" within its inter-ministerial apparatus.²¹ This absence of institutional cohesion exacerbates regulatory redundancy; for instance, degraded land restoration targets are directly counteracted by centralized food estate ambitions that paradoxically precipitate the encroachment upon forest cover.²²

The second structural impediment manifests through semantic hijacking and the phenomenon of green-grabbing. The nomenclature of the bioeconomy is frequently co-opted by capitalist industrial coalitions to confer spurious ecological legitimacy upon conventional exploitative practices.²³ Empirical precedents derived from the national energy transition policy underscore this anomaly: the expansion of biofuel (CPO biodiesel) mandates is frequently projected to the international community as a triumph of circularity. In empirical reality, however, this intervention paradoxically exerts severe pressure on spatial land-use configurations and catalyzes the conversion of secondary natural forests.²⁴ This reality constitutes the "green-grabbing" trap, wherein the

²⁰ Hans Bressers et al., "The Governance Assessment Tool and Its Use," in *Governance for Drought Resilience* (Cham: Springer International Publishing, 2016), 45–65, https://doi.org/10.1007/978-3-319-29671-5_3.

²¹ Katarína Staroňová and György Gajduschek, "Guy Peters – Institutional Theory in Political Science: The New Institutionalism. Perspectives from Central and Eastern Europe," *NISPAcee Journal of Public Administration and Policy* 12, no. 2 (December 1, 2019): 281–85, <https://doi.org/10.2478/nispa-2019-0024>.

²² Refani and Putra, *Socio-Bioeconomy: Policy Brief*. Page, 77.

²³ Vivien et al., "The Hijacking of the Bioeconomy."

²⁴ Refani and Putra, *Socio-Bioeconomy: Policy Brief*. Page, 42.

bioeconomy narrative is instrumentalized to marginalize the territorial sovereignty of Indigenous Peoples and Local Communities (IPLCs) to facilitate massive-scale biomass commercialization.

The third structural impediment constitutes a legally binding deficit. A normative evaluation of the IBSAP document corroborates this structural vulnerability. Reflecting upon the failures of its antecedent framework (BAPI 1993), strategic biodiversity protection instruments frequently operate merely as soft law guidelines devoid of imperative sanctioning mechanisms.^{25,26} Furthermore, spatial protection instruments, such as the moratorium on plantation concessions, are predicated solely upon Presidential Instructions (Inpres), which are inherently ad-hoc and temporary in nature. In the absence of rigorous legal reconstruction that firmly anchors these commitments to the foundational principles of a green constitution, environmental governance will remain perpetually vulnerable to policy drift during successive transitions of political regimes.

Table 1. Synthesis of Structural Impediments in Indonesian Bioeconomy Governance

Dimension of Institutional Pathology	Empirical Manifestation in State Governance	Structural Impact on the Policy Ecosystem
Path Dependence	Fiscal incentives and licensing discretion persistently prioritize extractive industries (CPO/Coal) over circular agroforestry.	Lock-in effect; nature-based innovation stagnates due to the asymmetry of political-economic transition costs.
Fragmentation of Authority (<i>Scalar Mismatch</i>)	The integrative vision of the IBSAP (Bappenas) horizontally collides with the issuance of Land Utilization Permits (IPL) by technical ministries.	Jurisdictional redundancy; bureaucratic inertia and structural accountability deficits at the regional implementation level.
Semantic Hijacking	The designation of "green projects" on mega-infrastructure and biodiesel expansion without rigorous Life Cycle Assessment (LCA) audits.	Green-grabbing; the marginalization of Indigenous Peoples' and Local Communities' (IPLCs) living spaces, legitimized by pseudo-

²⁵ Government of the Republic of Indonesia, *Indonesian Biodiversity Strategy and Action Plan (IBSAP) 2025–2045*.

²⁶ The Biodiversity Action Plan for Indonesia (BAPI) 1993 constituted the inaugural strategic document formulated by Bappenas. This instrument served as a historical milestone representing Indonesia's commitment to biodiversity management, subsequently evolving into the long-term directive currently recognized as the Indonesian Biodiversity Strategy and Action Plan (IBSAP).

			sustainability narratives.
Legally Deficit	Binding	Essential protection policies are formulated as ad-hoc legal instruments (Presidential Instructions/Inpres) rather than being integrated into organic statutory laws.	Regulatory capture; the persistent corruption of licensing regimes and the absolute absence of long-term ecological protection guarantees.

2. Evaluation of the Policy Capacity of the State Apparatus

An analysis of the stagnation in policy implementation would lack comprehensiveness without evaluating the extent to which the state apparatus possesses the requisite competence for execution. Grounded in the theoretical framework of Policy Capacity articulated by Howlett and Ramesh, the institutional capabilities of the state must be measured across three fundamental dimensions: analytical, operational, and political.²⁷ Research findings indicate that the Indonesian bureaucracy suffers from significant deficiencies across all three of these dimensions.

Analytical capacity refers to diagnostic competence, the mastery of science-based empirical evidence, and the ability to forecast policy impacts. In navigating the transition toward a circular bioeconomy, the Indonesian bureaucracy is confronted with a distinct scarcity of integrated macroeconomic instruments capable of calculating the shadow pricing of ecosystem services, such as the carbon sequestration value of mangroves or wildlife pollination services.²⁸ As a consequence of this limited analytical literacy concerning ecological circularity, environmental risk assessments, such as the Environmental Impact Assessment (Amdal), are frequently reduced to mere exercises in administrative compliance (formality), rather than being operationalized as instruments of mitigation against the tipping points of ecosystem collapse. This condition corroborates the postulate that conventional environmental governance paradigms frequently fail to adopt science-based adaptive learning.²⁹

Operational capacity pertains to resource allocation and bureaucratic proficiency in effectively executing regulatory instruments at the grassroots level. The current state

²⁷ Michael Howlett and M. Ramesh, "Designing for Adaptation: Static and Dynamic Robustness in Policy-making," *Public Administration* 101, no. 1 (March 17, 2023): 23–35, <https://doi.org/10.1111/padm.12849>.
²⁸ D'Amato et al., "Green, Circular, Bio Economy: A Comparative Analysis of Sustainability Avenues."
²⁹ Claudia Pahl-Wostl, "The Role of Governance Modes and Meta-Governance in the Transformation towards Sustainable Water Governance," *Environmental Science & Policy* 91 (January 2019): 6–16, <https://doi.org/10.1016/j.envsci.2018.10.008>.

policy design remains locked within Frame 1 (linear research subsidies) and Frame 2 (pro-commercialization national innovation systems), but crucially fails to advance to the stage of Frame 3: Transformative Change, which is essential for the sustainability of the bioeconomy.³⁰ This operational deficiency is most evidently manifested within the architecture of green financing. Bappenas projects a budgetary requirement of Rp118.17 trillion solely to achieve ecosystem protection targets.³¹ Although the government endeavors to bridge this discrepancy through Green Sukuk (Green Bond) instruments, inherent limitations in operational capacity paradoxically distort the allocation of these funds. CELIOS data reveals a striking empirical anomaly: over 98% of Green Sukuk funds are channeled into large-scale physical infrastructure (such as mega-dams)—which carry the ecological risk of disrupting hydrological connectivity—while less than 1% is disbursed strictly for biodiversity protection and nature-based solutions.³²

Political capacity constitutes the art of cultivating public support, garnering legitimacy, and demonstrating the institutional fortitude required to delegitimize the veto players that impede structural reforms.³³ Bioeconomy governance is fundamentally a manifestation of Industrial Policy. Juhász et al. argue that modern industrial policy does not constitute a mechanism for unconditional subsidy distribution; rather, it is a strategic intervention wherein the state imposes rigorous conditionalities that compel corporations to comply with sustainability standards or face the revocation of their operational rights.³⁴ In Indonesia, the concentration of political-economic power within the extractive sector engenders an asymmetry of power that effectively holds the political capacity of the bureaucracy hostage. The state apparatus exhibits a profound hesitation to restrict palm oil export quotas or to revoke problematic land concessions, driven by apprehensions regarding potential shocks to foreign exchange stability. This deficit in political capacity frequently results in the reduction of the state's role: rather than functioning as an authoritative gatekeeper of the ecosystem, it is relegated to a merely

³⁰ Schot and Steinmueller, "Three Frames for Innovation Policy: R&D, Systems of Innovation and Transformative Change."

³¹ Government of the Republic of Indonesia, *Indonesian Biodiversity Strategy and Action Plan (IBSAP) 2025–2045*. Page, 83.

³² Refani and Putra, *Socio-Bioeconomy: Policy Brief*. Page, 39.

³³ X Wu, M Ramesh, and M Howlett, "Policy Capacity: A Conceptual Framework for Understanding Policy Competences and Capabilities," *Policy and Society* 34, no. 3–4 (September 1, 2015): 165–71, <https://doi.org/10.1016/j.polsoc.2015.09.001>.

³⁴ Réka Juhász, Nathan Lane, and Dani Rodrik, "The New Economics of Industrial Policy," *Annual Review of Economics* 16, no. 1 (August 22, 2024): 213–42, <https://doi.org/10.1146/annurev-economics-081023-024638>.

passive facilitator of exploitative market mechanisms.

Table 2. Evaluation of Institutional Capacity in Indonesian Bioeconomy Governance

Capacity Dimension (Howlett & Ramesh)	Actual Condition of Indonesian Governance	Institutional Root Causes
Analytical Capacity	Amdal (Environmental Impact Assessment) as a mere formality; absence of ecosystem shadow pricing; scarcity of material circularity data.	Deficit in environmental science diagnostic competence; policy evaluation relies excessively on conventional GDP metrics.
Operational Capacity	Distortion of Green Sukuk allocation (>98% directed to "gray" infrastructure); strategic documents (IBSAP) are not legally binding.	Paralysis of precise execution instruments; innovation architecture remains locked in a linear model without catalyzing transformative change.
Political Capacity	Moratorium policies retain an ad-hoc status (Presidential Instructions/Inpres); inertia in penalizing extractive corporations (CPO/Coal).	Power asymmetries dictate decision-making processes; the state lacks the capability to impose rigorous industrial conditionalities.

3. The Capability-Based Institutional Reconstruction Model

Predicated upon an in-depth diagnosis of structural pathologies and state capacity deficits, this study formulates a conceptual and practical novelty: the Capability-Based Institutional Reconstruction Model. This model rejects the dichotomy between a pure *laissez-faire* paradigm and a conventional, hierarchical command-and-control bureaucracy. Instead, it offers a hybrid institutional design that amalgamates centralized mission command with the radical decentralization of sociological governance. This model is engineered upon four principal theoretical pillars:

Meta-Governance Orchestration and Trans-sectoral Institutionalization. Pahl-Wostl conceptualizes *meta-governance* as a reflexive societal process to develop, evaluate, and steer governance systems in order to navigate profoundly complex challenges.³⁵ To dismantle scalar mismatches and the silo mentality in Indonesia, the government must not merely establish ad-hoc task forces. Instead, the mandate of Bappenas must be institutionally reconstructed into the supreme *meta-governance* authority, vested with

³⁵ Pahl-Wostl, "The Role of Governance Modes and Meta-Governance in the Transformation towards Sustainable Water Governance."

cross-ministerial budgetary veto power. Every National Medium-Term Development Plan (RPJMN) and Government Work Plan (RKP), as stipulated in Presidential Regulation (Perpres) No. 52 of 2023, must be strictly subordinated to the absolute limits of ecological carrying capacity. The Biodiversity Management Index must no longer serve as a cosmetic document; rather, it should be positioned on par with macroeconomic inflation metrics, functioning as a legally binding baseline for the allocation of regional transfer funds.

Durable by Design: Transformative Legal Architecture. To counteract policy drift and the volatility of political discretion, bioeconomy preservation policies must be structurally engineered for resilience. Jordan and Moore propose the concept of *Durable by Design*, wherein regulatory frameworks are architected to create "policy feedback" loops that lock in sustainability.³⁶ Empirically, the Presidential Instruction (Inpres) on the Moratorium on oil palm plantation permits must conclude its transitional phase and be permanently codified into a formal Act of Law (Undang-Undang), anchored to the foundation of a Green Constitution. The injection of this Green Constitution paradigm provides an absolute constitutional basis, ensuring that the protection of ecological space is a mandate of the highest legal supremacy, rendering it immune to the arbitrary dismantling that often follows political regime transitions. Furthermore, this legal reconstruction mandates the enforcement of "No-Go Zone" principles for areas of high conservation value—such as heath forests (*hutan kerangas*), deep peatlands, and coastal mangrove landscapes—which must be categorically locked away from all forms of large-scale extractive concessions, without compromise.³⁷

Polycentric Decentralization and Restitution of Tenure Rights (Governing the Commons). Bioeconomy, at its essence, is the management of common-pool resources. Elinor Ostrom empirically demonstrated that the tragedy of exploitation can be avoided without resorting to privatization or state coercion, but rather through collective action by grassroots communities managed in a polycentric manner. Adhering to Ostrom's design principles—such as the clear definition of jurisdictional boundaries for communities and equitable collective-choice mechanisms—Indonesian bioeconomy governance must centralize the sovereignty of Indigenous Peoples and Local

³⁶ Andrew J. Jordan and Brendan Moore, *Durable by Design?*, Cambridge University Press (Cambridge University Press, 2020), Page, 212. <https://doi.org/10.1017/9781108779869>.

³⁷ Government of the Republic of Indonesia, *Indonesian Biodiversity Strategy and Action Plan (IBSAP) 2025–2045*. Page, 91.

Communities (IPLCs).³⁸ Institutional reconstruction must actively facilitate the reallocation of state assets. Specifically, land derived from the Objects of Agrarian Reform (TORA)—recovered from abandoned corporate Land Cultivation Rights (HGU)—must be redistributed to Indigenous Peoples and Local Communities (IPLCs) to be incubated as units of circular agroforestry. Utilizing Ansell and Gash's strategy of *collaborative franchising*, the state should establish modular governance platforms across each bioregion. Within these platforms, Indigenous communities would transcend their status as vulnerable recipients of social assistance, instead operating as institutional partners empowered to monitor and enforce corporate compliance with local ecological standards.³⁹

In the Anthropocene, where planetary ecological boundaries are increasingly transgressed and climate anomalies approach thresholds of tolerance, a paradigm shift toward sustainable economic governance is no longer merely a normative choice, but an existential imperative. At the epicenter of this transition lies the concept of the "bioeconomy," a comprehensive framework encompassing the efficient creation, extraction, and utilization of biological resources for the sustainable production of goods, services, and energy.

The Mission-Oriented State and the Shackled Leviathan. The final pillar synthesizes Mazzucato's economic innovation theory with the political sociology of Acemoglu and Robinson. Specifically, Mazzucato argues that the state must transcend the role of merely addressing "market failures"; rather, it must evolve into a "Mission-Oriented State"—a visionary entity that invests directly to create new markets, akin to "moonshot" projects, to resolve the environmental crisis.⁴⁰ In the Indonesian context, this necessitates a radical orchestration of green fiscal policy. The state must enact an aggressive carbon tax alongside a wealth tax targeting the apex of the extractive oligarchy, wherein projected revenues amounting to one hundred trillion rupiah should be entirely earmarked for subsidizing biotechnological research, incubating bio-based startups, and providing payments for ecosystem services to local smallholder farmers.

³⁸ Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge University Press, 1990), Page, 271-280. <https://doi.org/10.1017/CBO9780511807763>.

³⁹ Ansell and Gash, "Collaborative Platforms as a Governance Strategy."

⁴⁰ Mariana Mazzucato, *Mission Economy: A Moonshot Guide to Changing Capitalism*, Mariana Mazzucato (New York, 2021), HarperCollins. Page, 120.

Conversely, Acemoglu and Robinson provide a critical caveat: a state endowed with massive market intervention capacity risks transforming into a "Despotic Leviathan"—an authoritarian regime that represses civil liberties. Therefore, for ecological freedom and justice to materialize within the "narrow corridor," a robust state apparatus—capable of sanctioning environmentally destructive corporations and reallocating capital—must be strictly shackled by an organized and assertive civil society.⁴¹ Supply chain transparency, absolute legal protections for environmental defenders (through anti-SLAPP legislation), and the veto rights of indigenous communities concerning industrial expansion within their territories serve as essential 'shackling' instruments; these mechanisms ensure that the state apparatus is oriented toward a bio-ecological mandate, rather than the interests of capitalist elite factions.

Table 3. Comparison of Governance Paradigms: From Centralized Extraction to Capability-Based Reconstruction

Governance Characteristics	Centralized Paradigm (Conventional)	Extractive	Capability-Based Reconstruction Model (Proposed)
Institutional Philosophy	Command-and-control, hierarchical, ministerial silos.		Polycentric meta-governance, bioregional collaboration.
State Role	Absentee Leviathan regarding ecological degradation; passive facilitator of extractive oligarchic interests.		Shackled Leviathan & Mission-Oriented State; robust intervention subject to rigorous civil society oversight.
Legal Instruments	Loose political discretion, susceptible to policy drift (temporary Presidential Instructions).		<i>Durable by design</i> ; binding and permanent regulations (e.g., legislation for IPLC protection & No-Go Zones).
Innovation & Economic Model	Frames 1 & 2 (Linear commercial research); semantic appropriation (<i>green-grabbing</i>).		Frame 3 (Transformative Change); TORA redistribution, circular agroforestry, and funding dedicated strictly to nature-based solutions.

C. CONCLUSION

This study concludes that the failure to accelerate bioeconomy transformation in Indonesia is rooted in permanent structural weaknesses within centralized governance, characterized by path dependence, inter-ministerial jurisdictional fragmentation (scalar mismatches), and semantic appropriation that normalizes land dispossession under the

⁴¹ Berman, "The Narrow Corridor: States, Societies, and the Fate of Liberty. By Daron Acemoglu and James A. Robinson. New York: Penguin Press, 2019. 576p. \$32.00 Cloth."

guise of green projects (green-grabbing). This condition is exacerbated by a deficit in the policy capacity of the state apparatus across analytical, operational, and political dimensions, where the asymmetry of political-economic power in the extractive sector undermines bureaucratic capacity to implement transformative regulations and results in the distortion of fiscal instrument allocations, such as Green Sukuk. As a strategic intervention, this research recommends a "Capability-Based Institutional Reconstruction Model" that pivots on meta-governance orchestration at the executive level, durable-by-design legal engineering, and the redistribution of tenure rights to indigenous communities through polycentric schemes. Ultimately, the success of the transition toward a circular bioeconomy necessitates the realization of a "Shackled Leviathan" state apparatus—a mission-oriented entity endowed with the coercive authority to enforce extractive industry compliance, yet constitutionally constrained by the democratic oversight of grassroots communities to guarantee long-term ecological justice.

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