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Environmental Policy and Public Health: A Systematic Literature Review in Public Administration Perspective

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A B S T R A C T

Environmental policy and public health represent two intersecting domains within public administration governance. This Systematic Literature Review (SLR) examines the nexus between environmental policy and public health outcomes from a public administration perspective, drawing on 52 peer-reviewed studies (2020–2024) selected from 312 records across Scopus, Web of Science, ScienceDirect, Springer, and Taylor & Francis using the PRISMA 2020 protocol. Five principal findings emerge: institutional fragmentation constitutes the primary governance barrier; collaborative governance enhances policy implementation under specific institutional conditions; substantive community co-governance improves health equity outcomes; digital governance tools transform policy responsiveness; and climate governance remains an underutilized vehicle for public health co-benefits. This review contributes a six-dimensional governance failure typology, a cross-regional comparative matrix, and an Integrative Governance-Health Equity Conceptual Model to public administration scholarship.

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INTRODUCTION

The governance dimensions of the environmental-health relationship—specifically, how public administration systems design, implement, and evaluate environmental policies that produce measurable health outcomes—remain comparatively undertheorized in public administration scholarship. Policy effectiveness at this nexus is not merely a technical question but is fundamentally an administrative, institutional, and political one (Pahl-Wostl, 2020; Tosun & Leiringer, 2021).

Contemporary public administration confronts compounding challenges at the intersection of environmental degradation and evolving public health threats. The COVID-19 pandemic exposed systemic vulnerabilities in state capacity to govern environmental health risks, particularly in low- and middle-income countries characterized by fragmented institutional arrangements and under-resourced governance infrastructure (Abidin et al., 2022; Papadopoulos & Guijt, 2021). Concurrently, the intensifying impacts of climate change have elevated the urgency of integrating health considerations into environmental regulatory frameworks (Haines & Ebi, 2023; IPCC, 2022).

A critical research gap exists in the structural asymmetry between governance arrangements in high-income, institutionally robust contexts and those characterizing the Global South. The World Health Organization (2023) estimates that 24% of global deaths are attributable to modifiable environmental factors, with this burden disproportionately concentrated in low- and middle-income countries where governance capacity is weakest. This paradox—the greatest health burden where governance capacity is lowest—constitutes what this review terms the governance-health equity gap, which is a central analytical contribution of the present work.

Prior scholarship has increasingly recognized that environmental policy effectiveness as a determinant of public health is mediated by institutional quality, inter-agency coordination, civic participation depth, and regulatory coherence (Kettl, 2020; Buse et al., 2021). Environmental governance scholars have argued that polycentric and collaborative arrangements tend to produce more adaptive and equitable outcomes than hierarchical approaches (Biermann et al., 2022; Ostrom, 2010), yet much of this theorization draws predominantly from European and North American contexts—raising critical questions about transferability and embedded normative assumptions.

This article addresses these gaps through an SLR of peer-reviewed literature published between January 2020 and December 2024, guided by four research questions: (1) What theoretical frameworks dominate the literature on environmental policy and public health within public administration contexts? (2) What evidence exists regarding governance arrangement effectiveness across diverse institutional contexts? (3) What governance failures and implementation barriers are most consistently identified? (4) What governance innovations demonstrate promise in bridging the environmental policy–public health divide? This review makes four distinctive contributions: a six-dimensional governance failure typology; a cross-regional comparative analysis; an Integrative

Governance-Health Equity Conceptual Model; and a structured future research agenda.

LITERATURE REVIEW

Environmental Governance Theory

Environmental governance refers to the regulatory processes, mechanisms, and organizations through which political actors at multiple levels influence environmental actions and outcomes (Lemos & Agrawal, 2006). Contemporary theory has shifted decisively from state-centric, command-and-control models toward polycentric, multi-stakeholder frameworks that acknowledge the distributed nature of environmental authority and the limitations of any single actor in governing complex socio-ecological systems (Biermann et al., 2022; Ostrom, 2010). Governance effectiveness is analytically understood as a function of institutional design features including rule specificity, monitoring and enforcement capacity, inter-jurisdictional coherence, and adaptive management capability (Pahl-Wostl, 2020). Critically, dominant theoretical frameworks presuppose basic institutional infrastructure—professional bureaucracies, functioning courts, enforceable property rights—requiring theoretical adaptation for Global South contexts characterized by regulatory informality and weak statehood.

Collaborative Governance Framework

Collaborative governance, theorized by Ansell and Gash (2008) and extended by Emerson and Nabatchi (2015), describes arrangements in which public agencies actively engage non-state actors in collective decision-making and policy implementation. This framework is especially salient to environmental-health governance because the determinants of environmental health span multiple sectors, jurisdictions, and policy domains, rendering unilateral state action structurally inadequate. Emerson et al. (2012) identified three foundational drivers of successful collaboration: principled engagement, shared motivation, and sufficient organizational capacity for joint action. A critical theoretical caveat concerns assumptions of symmetrical power: Purdy (2021) and Holifield et al. (2021) have argued that collaborative arrangements can reproduce power asymmetries when marginalized communities lack organizational resources, legal standing, or political recognition—a concern particularly salient in Global South contexts.

Sustainable Development Framework

The sustainable development framework, operationalized through the United Nations 2030 Agenda and its Sustainable Development Goals, provides a normative architecture explicitly inter-linking environmental sustainability, human health, and institutional governance quality. SDG 3 (Good Health and Well-being), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 16 (Strong Institutions) are particularly relevant to this review (United Nations, 2015; Sachs et al., 2021). From a public administration perspective, the framework introduces vertical and horizontal policy integration—the coherent embedding of health objectives within environmental

policy instruments—as a central governance quality dimension (Jordan & Lenschow, 2021). The literature consistently documents challenges attributable to sectoral bureaucratic silos, conflicting ministerial mandates, and short-term electoral incentives (Buse et al., 2021).

Public Health Governance Framework

Public health governance encompasses the institutional arrangements, legal frameworks, and administrative processes through which governmental and non-governmental actors coordinate actions designed to protect and promote population health (Frenk & Moon, 2013). Two paradigms dominate contemporary scholarship: the whole-of-government approach, requiring coordinated action across all government ministries; and the Health in All Policies (HiAP) approach, advocating for systematic integration of health considerations across all policy sectors including environmental regulation (WHO, 2021). The critical analytical contribution of this framework is its insistence on distributional health equity—not merely average population health improvement—as the ultimate governance success criterion, aligning with the environmental justice literature informing this article.

METHODOLOGY

Research Design

This study employs a Systematic Literature Review (SLR) methodology adhering to PRISMA 2020 guidelines established by Page et al. (2021). The SLR approach was selected for its transparency, replicability, and bias-minimizing procedure for synthesizing scholarly literature, enabling identification of patterns, contradictions, and knowledge gaps across diverse empirical and theoretical contributions (Tranfield et al., 2003; Snyder, 2019). The review protocol was pre-specified in accordance with the PICO framework: Population (governmental and governance actors); Intervention (environmental policy instruments); Comparison (alternative governance arrangements across developed and Global South contexts); Outcomes (public health metrics and equity indicators).

Search Strategy

A systematic search was conducted across five major academic databases: Scopus, Web of Science (WoS), ScienceDirect, Springer Link, and Taylor & Francis Online, bounded to publications from January 2020 to December 2024. The Boolean search string applied uniformly across all databases was: ("environmental policy" OR "environmental regulation" OR "environmental governance") AND ("public health" OR "population health" OR "health outcomes") AND ("public administration" OR "governance" OR "policy implementation" OR "collaborative governance" OR "institutional capacity") AND ("sustainable development" OR "SDGs" OR "health equity" OR "environmental justice"). The search was limited to peer-reviewed journal articles in English.

Inclusion and Exclusion Criteria

Table 1 presents the inclusion and exclusion criteria applied during the screening process.

Table 1. Inclusion and Exclusion Criteria for the Systematic Literature Review

Inclusion Criteria	Exclusion Criteria
Peer-reviewed journal articles, 2020–2024	Conference papers, book chapters, grey literature, theses
Studies explicitly addressing environmental policy AND public health outcomes	Studies addressing single environmental medium without health nexus
Articles indexed in Scopus, WoS, ScienceDirect, Springer, or Taylor & Francis	Articles from non-indexed, predatory, or retracted journals
Studies incorporating explicit governance or public administration analysis	Purely clinical, biomedical, or toxicological studies without governance dimension
Empirical, theoretical, review, or mixed-methods studies meeting quality threshold	Opinion pieces, editorials, commentaries, non-systematic reviews
Publications in English language	Non-English language publications without English abstract

The screening process adhered to a three-stage PRISMA 2020 protocol. In Stage 1 (Identification), the database search yielded 312 records (Scopus: n=124; Web of Science: n=89; ScienceDirect: n=62; Springer: n=24; Taylor & Francis: n=13). After deduplication, 245 unique records proceeded to Stage 2. In Stage 2 (Title and Abstract Screening), two independent reviewers assessed all records; inter-rater reliability reached Cohen's Kappa $\kappa = 0.84$. Discrepancies were resolved through structured discussion or third-reviewer adjudication, yielding 87 articles for Stage 3. In Stage 3 (Full-Text Eligibility Assessment), 35 further articles were excluded—14 for insufficient governance analysis, 11 for absence of measurable health outcome indicators, and 10 for methodological insufficiency—leaving a final synthesis corpus of 52 articles.

Data Extraction and Analysis

Data were extracted using a pre-piloted standardized form capturing: bibliographic details; study design and methodology; geographic context and governance level; dominant theoretical framework; key governance findings; and identified barriers and enablers. Quality appraisal was conducted using the Mixed Methods Appraisal Tool (MMAT) for mixed-methods studies (Hong et al., 2018), the CASP qualitative checklist for qualitative studies, and the EPHPP tool for quantitative studies. Given methodological heterogeneity, a narrative synthesis approach supplemented by framework-based thematic analysis was

employed (Popay et al., 2006; Braun & Clarke, 2006), with iterative coding sensitized to cross-regional variation as a structuring analytical axis.

RESEARCH RESULT

Bibliometric Profile of Included Studies

The 52 included studies span a wide range of geographic contexts, methodological approaches, and governance levels. Geographically, studies concentrate in high-income regions: Europe (36.5%, n=19), North America (25.0%, n=13), and Asia-Pacific (19.2%, n=10). The Global South—Sub-Saharan Africa (7.7%, n=4), Latin America and the Caribbean (7.7%, n=4), and Southeast Asia (3.8%, n=2)—is proportionally underrepresented relative to the disproportionate environmental health burdens borne by those populations. Methodologically, qualitative studies predominate (46.2%, n=24), followed by mixed-methods (30.8%, n=16) and quantitative approaches (23.1%, n=12). Environmental governance is the most frequently invoked theoretical framework (34.6%, n=18), followed by collaborative governance (30.8%, n=16), sustainable development (19.2%, n=10), and public health governance (15.4%, n=8).

Table 2. Bibliometric and Contextual Profile of Included Studies (N = 52)

Characteristic	Category	n	% of Corpus
Geographic Region	Europe	19	36.5
	North America	13	25.0
	Asia-Pacific	10	19.2
	Sub-Saharan Africa	4	7.7
	Latin America	4	7.7
	Southeast Asia	2	3.8
Methodology	Qualitative	24	46.2
	Mixed-Methods	16	30.8
	Quantitative	12	23.1
Governance Level	National	22	42.3
	Subnational / Local	19	36.5
	Supranational / International	11	21.2
Dominant Framework	Environmental Governance	18	34.6
	Collaborative Governance	16	30.8
	Sustainable Development	10	19.2

	Public Health Governance	8	15.4
Publication Year	2020–2021	16	30.8
	2022–2023	22	42.3
	2024	14	26.9

Institutional Fragmentation as the Primary Governance Barrier

The most consistently identified finding across the reviewed literature is that institutional fragmentation—the absence of coherent coordination among governmental ministries, agencies, and jurisdictions with overlapping environmental and health regulatory mandates—constitutes the primary administrative barrier to effective integrated environmental-health policy (Kettl, 2020; Rayner & Lang, 2021; Doberstein, 2020). This fragmentation manifests in three analytically distinct forms: vertical fragmentation between national and subnational tiers (73.1% of studies, n=38); horizontal fragmentation among co-equal line ministries (78.8%, n=41); and temporal fragmentation—policy discontinuity across administrations (55.8%, n=29).

Kettl (2020) argues this fragmentation reflects deeper structural tensions in the modern administrative state: functional specialization produces sectoral ministries optimized for single-issue domains at the systematic expense of cross-domain coherence. Rayner and Lang's (2021) comparative analysis of 12 countries found that the most consistently effective performers shared either functionally integrated environmental-health regulatory agencies or powerful inter-ministerial coordinating bodies with binding authority. In Global South contexts, fragmentation is compounded by capacity deficits—inadequate monitoring infrastructure, insufficient technical expertise, and weak enforcement—creating governance voids that industrial polluters systematically exploit (Abidin et al., 2022; Papadopoulos & Guijt, 2021).

Governance Failure Typology

Building on the fragmentation literature, this review proposes a six-dimensional governance failure typology specific to integrated environmental-health governance (Table 3). The typology distinguishes between failures that are primarily technical-organizational (fragmentation, capacity failure, data-health disconnect) and those that are primarily political-structural (regulatory capture, participation exclusion, temporal discontinuity), maps each failure type to disproportionately affected communities, and demonstrates their mutually reinforcing interaction effects.

Table 3. Six-Dimensional Governance Failure Typology for Environmental-Health Governance

Failure Type	Definition	Manifestations	Disproportionate Impact	Illustrative Cases
Institutional Fragmentation	Absence of coordination across agencies with	Parallel monitoring systems; contradictory	Communities near jurisdictional boundaries;	ASEAN haze governance; US air quality

	overlapping mandates	regulations; accountability gaps (Kettl, 2020)	informal settlements	interstate disputes
Regulatory Capture	Regulatory agencies captured by industry interests	Weakened emission standards; lax enforcement; revolving-door personnel (Bullard, 2021)	Marginalized communities near industrial facilities	Indonesia palm oil/forestry regulation; US chemical industry deregulation
Capacity Failure	Insufficient technical, financial, or human resources	Monitoring data gaps; unenforced regulations; reliance on industry self-reporting	Global South populations; rural communities; indigenous peoples	Sub-Saharan Africa regulatory agencies; Latin American environmental ministries
Participation Exclusion	Systematic exclusion of affected communities	EIA processes without meaningful consultation; expert-dominated governance (Fung, 2020)	Low-income, racialized, and indigenous communities	Siting decisions for polluting facilities; dam construction displacements
Temporal Discontinuity	Policy reversal or abandonment across administrations	Regulatory rollback; abandoned environmental programs; monitoring data destruction	Communities dependent on long-term environmental remediation	US EPA rollbacks; Brazil INPE weakening; UK post-Brexit standards
Data-Health Disconnect	Structural separation of environmental monitoring and health outcome tracking	Failure to attribute health burdens to specific environmental causes; delayed response (Nam & Pardo, 2021)	Populations in data-sparse environments	Air quality-asthma causation gaps; chemical exposure latency

These failures rarely operate independently. Regulatory capture frequently correlates with participation exclusion—the same power asymmetries enabling industry capture also exclude affected communities from regulatory processes (Bullard, 2021). Capacity failure in environmental monitoring creates the data-health disconnect that makes it structurally impossible to establish

evidentiary causation between pollution sources and health outcomes, compounding regulatory impunity.

Collaborative Governance and Policy Implementation Effectiveness

Across 31 included studies (59.6%), multi-stakeholder collaboration was associated with more effective policy implementation, higher regulatory compliance, and more equitable distributional outcomes relative to purely hierarchical governance models (Emerson & Nabatchi, 2015; Doberstein, 2020; Purdy, 2021). However, this positive effect was contingent on three institutional conditions identified by Lienert et al. (2021): clear, legally specified mandates and authority boundaries; sustained political support and budgetary commitment; and robust multi-party accountability mechanisms. The absence of any one condition was associated with arrangements producing process legitimacy—the appearance of inclusive governance—without substantive outcomes, which Purdy (2021) terms legitimacy decoupling.

The contrast between the South Coast Air Quality Management District (California), where collaborative governance produced statistically significant reductions in PM2.5 concentrations and measurable reductions in pediatric asthma emergency visits (Gaines et al., 2022), and the ASEAN Agreement on Transboundary Haze Pollution, which failed systematically due to inadequate supra-national enforcement authority (Nurhidayah et al., 2023), illuminates the pivotal role of enforcement credibility as the conditio sine qua non of collaborative governance effectiveness.

Community Participation, Co-Governance, and Health Equity

Twenty-eight studies (53.8%) examined community participation as an independent or moderating variable, with strong evidentiary convergence that meaningful engagement—operationalized as substantive co-governance rather than pro forma consultation—consistently produces more equitable health outcomes from environmental policy (Fung, 2020; Holifield et al., 2021; Pipa & Bouchet, 2021). Fung's (2020) distinction between thin participation (public comment periods) and thick participation (community co-design authority, community-led monitoring, community veto rights) is supported by Holifield et al.'s (2021) analysis: communities with access to thick participatory mechanisms were 2.3 times more likely to achieve regulatory pollution reductions in their vicinity. Eleven studies (21.2%) demonstrated that formal legal recognition of indigenous territorial rights is associated with superior environmental conservation outcomes and measurably improved community health indicators (Schleicher et al., 2020; Garnett et al., 2021).

Digital Governance and Environmental Health Data Integration

An emergent cluster, prominent in studies from 2022 onward (n=18, 34.6%), concerns digital governance technologies' transformative potential in bridging the structural disconnect between environmental policy systems and public health monitoring. Innovations include integrated environmental-health monitoring platforms, GIS-based environmental justice mapping, AI-assisted compliance monitoring, and real-time epidemiological surveillance linked to

environmental sensor networks (Janssen et al., 2020; Nam & Pardo, 2021; Chen et al., 2023). Jurisdictions operating integrated environmental-health data platforms exhibit governmental response times to emerging health threats reduced by approximately 47% compared to siloed monitoring architectures (Nam & Pardo, 2021). Critically, Eubanks (2021) and Janssen et al. (2020) document how algorithmic governance systems can encode and amplify existing inequities when marginalized communities are excluded from design processes.

Climate Governance and Health Co-Benefits

Twelve studies (23.1%) addressed climate governance as a vehicle for public health co-benefits. Aggressive climate mitigation—particularly decarbonization of energy, transportation, and agriculture—produces near-term public health co-benefits through reduced combustion-related air pollution that exceed direct climate mitigation benefits in economic value over 5–20 year horizons (Haines & Ebi, 2023). The Lancet Countdown estimates that meeting the Paris Agreement's 1.5°C target would prevent approximately 153 million premature deaths from air pollution (Romanello et al., 2021). A critical governance asymmetry exists: institutional actors responsible for climate policy design are separate from those responsible for population health, rendering health co-benefits systematically invisible to climate policymakers (Haines & Ebi, 2023). Addressing this requires deliberate institutional redesign—cross-ministerial climate-health planning units and mandatory Health Impact Assessment for major climate instruments.

Cross-Regional Comparative Analysis

Table 4 presents a comparative matrix of environmental-health governance dimensions across developed nations and Global South contexts, synthesizing the cross-regional findings from the included literature.

Table 4. Comparative Matrix of Environmental-Health Governance: Developed Nations vs. Global South

Governance Dimension	Developed Countries (EU/NA)	Asia-Pacific (Emerging)	Latin America & Caribbean	Sub-Saharan Africa & SE Asia
Institutional Capacity	High: specialized agencies, professional bureaucracies, stable funding (Kettl, 2020)	Moderate: rapid capacity-building; uneven enforcement quality	Low–Moderate: capacity gaps; executive interference in regulatory agencies	Low: severe capacity deficits; regulatory voids exploited by extractive industries
Governance Failures	Horizontal fragmentation; sectoral silos	Vertical fragmentation; implementation gaps between	Regulatory capture; corruption; selective	State absence/informality; donor-dependency;

	(Rayner & Lang, 2021)	central/local tiers	enforcement benefiting elites	weak enforcement infrastructure
Collaborative Governance	Advanced: legally mandated multi-stakeholder bodies; binding agreements	Emerging: expanding; variable quality; often consultative rather than co-governance	Mixed: civil society active; co-optation risks; limited indigenous inclusion	Nascent: community-led conservation effective; formal mechanisms underdeveloped
Environmental Justice	Institutionalized EJ frameworks; persistent racial disparities despite regulation (Tessum et al., 2021)	Urban–rural and class-based disparities; industrial zones near poor communities	Strong EJ movements; constitutional rights of nature; implementation gaps persist	Most severe burden-benefit misalignment globally
Health Equity Outcomes	Generally better population-level outcomes; persistent intra-national disparities by race/income	Rapid urban improvement; rural and indigenous communities systematically excluded	High disease burden from agro-industrial pollution; gains reversible under austerity	Highest global burden: 1 in 4 deaths attributable to environmental factors (WHO, 2023)
Digital Governance	Advanced e-governance; real-time monitoring; AI-assisted compliance (Nam & Pardo, 2021)	China: integrated IoT-health surveillance; others lagging (Chen et al., 2023)	Variable: Brazil's INPE deforestation monitoring; limited health system integration	Limited infrastructure; mobile-health innovations show promise; data sovereignty concerns
Climate-Health Co-benefits	Quantified in NDCs; institutionalized health impact assessment (Haines & Ebi, 2023)	Fast-growing emissions; health co-benefit framing emerging in NDC revision cycles	Vulnerability high; adaptation planning advancing; mitigation co-benefits underutilized	Extreme vulnerability; minimal historical emissions; loss-and-damage governance framework absent

Three cross-cutting observations emerge from this comparative analysis. First, dominant governance failure modes differ systematically: high-income countries face horizontal fragmentation among well-resourced agencies, while low-income countries confront absolute capacity deficits and regulatory voids—a distinction with fundamental implications for reform strategy. Second, collaborative governance mechanisms demonstrably effective in institutionally mature environments face structurally different challenges in Global South contexts where civil society organizations are resource-constrained. Third, the communities bearing the greatest environmental health burdens globally are systematically the same communities whose governance participation is structurally constrained, producing a self-reinforcing cycle of exclusion and burden requiring explicit policy intervention.

DISCUSSION

Toward Integrated Environmental-Health Governance

The cumulative evidence synthesized in this review supports the central theoretical proposition that integrated environmental-health governance produces superior policy effectiveness and more equitable distributional outcomes compared to silo-based, fragmented administrative approaches. This finding, demonstrated consistently across diverse geographic, political, and institutional contexts, suggests that integration is not merely a normative aspiration but a structural prerequisite for effective environmental-health governance.

Theoretically, this finding resonates with Ostrom's (2010) polycentric governance framework, which predicts superior outcomes when governance systems are structured as overlapping, nested institutions with coordinating linkages rather than either hierarchical monocentric systems or fully fragmented arrangements. Critically, the review also demonstrates that structural integration is necessary but not sufficient: integration without equity-sensitive institutional design reproduces the distributional injustices already embedded in existing governance arrangements. This finding extends Ostrom's polycentric theory by introducing environmental justice as a non-negotiable evaluative criterion, challenging public administration scholars to move beyond efficiency-focused assessments toward equity-centered evaluations.

Environmental Governance as Health Equity Infrastructure

A recurrent and analytically significant theme across the reviewed literature is the relationship between environmental governance quality and the distribution of environmental health burdens across groups defined by income, race, ethnicity, and indigeneity. The evidence is unambiguous: governance failures disproportionately harm low-income, racialized, and indigenous communities, who bear systematically higher shares of environmental health burdens despite typically contributing least to the environmental problems generating those burdens (Tessum et al., 2021; Bullard, 2021; Schleicher et al., 2020).

This finding warrants reconceptualizing environmental governance not as a technical-regulatory domain but as health equity infrastructure—as

fundamental to population health equity as the architecture of hospitals, schools, and social protection systems. Benjamin's (2022) concept of viral justice and Bullard's (2021) environmental justice framework converge in insisting that governance design choices—about who participates in environmental decision-making, whose monitoring data is acted upon, and whose communities are protected by enforcement machinery—are profoundly moral and political choices with documented, measurable health consequences.

Integrative Governance-Health Equity Conceptual Model

Drawing on the thematic synthesis and comparative analysis, this review proposes an Integrative Governance-Health Equity Conceptual Model that advances beyond existing frameworks in three respects. First, it explicitly incorporates governance failures as mediating variables between governance architecture and health outcomes. Second, it maps the moderating role of intersecting social identities (race, class, gender, indigeneity) in shaping how governance arrangements translate into health equity outcomes. Third, it incorporates feedback loops linking health outcome evidence back to governance adaptation, acknowledging the dynamic and iterative character of the governance-health relationship.

The model's five-stage causal structure is intentionally non-linear: Contextual Drivers → Governance Architecture → Mediating Processes → Proximal Outputs → Health Equity Outcomes. Moderating variables—governance failures, environmental justice dimensions, and intersectional identities—operate across all stages. Feedback loops capture the adaptive governance dynamics documented by Pahl-Wostl (2020) and Haasnoot et al. (2021). This multi-stage, moderated model provides a more precise theoretical roadmap for diagnosing governance-health linkages in specific empirical contexts than existing frameworks treating the governance-health relationship as a largely unmediated direct effect.

Practical Implications for Public Administration

This review identifies six concrete implications for public administration practice, each responsive to a specific governance failure identified in Table 3. First, institutional integration: governments should invest systematically in inter-agency coordination infrastructure—joint environmental-health planning processes, integrated data systems, shared accountability frameworks, and cross-agency staff exchange programs—specifically designed to counter horizontal fragmentation. Second, anti-capture mechanisms: environmental regulatory agencies require robust institutional protections against industry capture, including transparent appointment processes, public interest mandates, strong whistleblower protections, and independent audit mechanisms. Third, Health in All Policies operationalization through mandatory Health Impact Assessment applied to all significant environmental policy proposals. Fourth, substantive co-governance with legally guaranteed standing, accessible expert support, and decision-making authority for communities. Fifth, equity-centered digital governance incorporating community data sovereignty provisions, accessible interface design, and algorithmic transparency requirements. Sixth, climate-

health institutional integration through cross-ministerial planning units and integrated national climate-health accounts.

CONCLUSIONS

This systematic literature review has synthesized 52 peer-reviewed studies published between 2020 and 2024 to examine the relationship between environmental policy and public health from an explicit public administration perspective. Five principal findings have been established: (1) institutional fragmentation constitutes the most persistent barrier to effective environmental-health governance, manifesting in vertical, horizontal, and temporal dimensions; (2) collaborative governance arrangements can enhance policy implementation effectiveness, but only under conditions of enforcement credibility, clear mandates, and sustained political commitment; (3) substantive community participation operationalized as co-governance consistently produces more equitable environmental health distributions; (4) digital governance innovations offer transformative potential for policy responsiveness but require equity-conscious design; and (5) climate governance remains a systematically underutilized vehicle for generating population health co-benefits, requiring deliberate cross-ministerial institutional redesign.

Beyond synthesis, this review advances the field through four distinctive analytical contributions: a six-dimensional governance failure typology; a systematic comparative matrix across developed nations and Global South contexts; an Integrative Governance-Health Equity Conceptual Model; and a structured six-domain future research agenda. The principal theoretical contribution is the demonstration that environmental governance must be reconceptualized as health equity infrastructure—fundamental to the equitable distribution of life chances as social protection systems, and as susceptible to the same political-economic dynamics of power, exclusion, and institutional capture.

RECOMMENDATIONS

Based on systematic evidence, six concrete policy recommendations are directed at public administrators, policymakers, and governance reform practitioners. First, governments should establish formal inter-agency environmental-health coordination bodies with binding regulatory authority, adequate technical staffing, and joint accountability mechanisms. Second, national environmental regulatory frameworks should incorporate explicit anti-capture provisions: independent oversight boards, mandatory public disclosure of industry-regulator communications, and enforceable cooling-off periods. Third, the Health in All Policies framework should be mandated by legislation, with Health Impact Assessment required for all major environmental policy instruments. Fourth, meaningful community co-governance should be institutionalized through legally guaranteed participatory rights, public financing of community technical capacity, and formal decision-making authority—particularly for historically marginalized communities. Fifth, national and subnational climate action plans should incorporate integrated climate-health co-benefit accounting. Sixth, international development

institutions should prioritize integrated environmental-health governance infrastructure in Global South capacity-building investments.

Practical Implications

These findings carry immediate practical implications for public administration practice. Administrators should audit existing institutional arrangements against the six-dimensional governance failure typology in Table 3 as a diagnostic framework. Training programs for environmental and public health administrators should integrate cross-domain competencies, disrupting the specialized knowledge silos reinforcing institutional fragmentation. Subnational governments operating under national frameworks should develop informal inter-agency coordination mechanisms—joint working groups, shared data platforms, co-located units—as administrative workarounds pending structural reform. Digital governance investments should be governed by community co-design principles from inception rather than retrofitted with equity provisions after deployment.

ADVANCED RESEARCH

The systematic gaps identified through this review—geographic concentration in high-income contexts, methodological dominance of qualitative approaches limiting causal inference, and undertheorization of governance failure interaction effects—generate a clear and actionable future research agenda structured around six priority domains (Table 5).

Table 5. Structured Future Research Agenda for Environmental-Health Governance in Public Administration

Research Priority	Research Questions	Methodological Approach	Theoretical Contribution	Practical Implication
Governance Failure Mechanisms in the Global South	How do specific failure types interact to produce compounding health burden disparities in low-capacity states?	Comparative case studies (n=15–20); process-tracing; Qualitative Comparative Analysis (QCA)	Extends institutional failure theory to non-OECD contexts; challenges universalism of governance models	Identifies leverage points for capacity-building interventions by international financial institutions
Intersectionality in Environmental Health Governance	How do race, gender, class, and indigeneity interact with governance arrangements to shape health	Intersectional quantitative modeling; feminist policy analysis; participatory action research	Develops intersectional governance theory; extends environmental justice to administrative science	Informs equity-weighted regulatory design; affirmative environmental

	outcome distributions?			governance frameworks
Digital Governance and Health Equity	Under what conditions do digital environmental-health systems reduce versus reproduce health inequities?	Quasi-experimental designs; algorithm audits; ethnographic studies of marginalized community access	Advances critical data governance theory; challenges technocratic optimism in e-governance literature	Design standards for equitable environmental health surveillance; data sovereignty protocols
Climate Governance and Health Co-benefit Institutionalization	What institutional designs most effectively mainstream health co-benefit accounting into climate governance?	Longitudinal panel studies of NDC revisions; natural experiments from carbon pricing implementation	Bridges climate governance and public health governance literatures; extends co-production theory	Templates for integrated climate-health ministries; HIA requirements for climate policies
Indigenous and Traditional Governance Integration	How can formal state governance systems effectively integrate indigenous governance authorities in environmental-health domains?	Participatory action research with indigenous communities; legal pluralism analysis; co-design methods	Advances pluralist governance theory; challenges state-centric governance assumptions	Policy frameworks for formal recognition of indigenous territorial health governance rights
Collaborative Governance Sustainability	What factors determine long-term institutional durability of collaborative environmental-health arrangements?	Longitudinal case studies tracking governance arrangements over 10+ year periods; survival analysis	Contributes to collaborative governance theory on institutional persistence versus decay	Design principles for durable multi-stakeholder environmental health institutions

Collectively, this research agenda advances public administration theory by providing a theoretically grounded diagnostic framework applicable beyond the environmental-health domain, advancing governance theory by incorporating equity as a design criterion and failure as a mediating variable, challenging the implicit universalism of dominant governance models, and advancing the conceptualization of governance quality from efficiency-centered to equity-centered evaluation.

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