Unpacking the Complexity of Environmental Regulatory Governance in a Globalizing World:
A Critical Review for Research Agenda Setting

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The core question of enquiry-

▶ **Why regulatory enforcement of well-intended pollution control and conservation regulations have not been effectively enforced?**

▶ **Whether and how?**

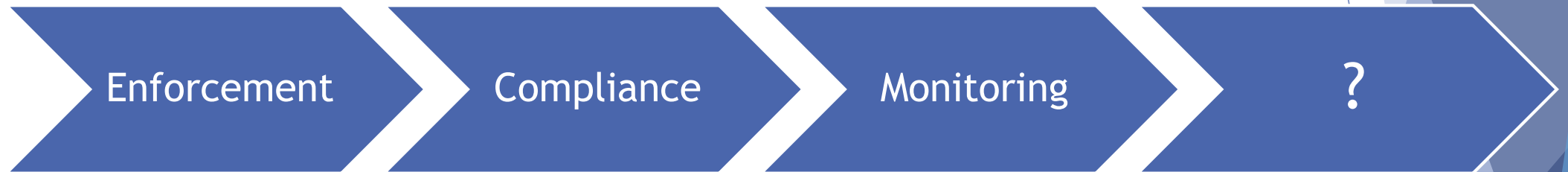# Research path

From simplicity to increasing complexity

Enforcement → Compliance → Monitoring → ?

"Regulatory triangle model" (World Bank, 2000)

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┌─────────────┐                    ┌─────────────┐
│  Regulatory │                    │  Industrial │
│  agencies   │────────┐  ┌────────│  enterprises│
└─────────────┘         \  /        └─────────────┘
                         \/
                    ┌─────────────┐
                    │    Civil    │
                    │organizations│
                    └─────────────┘
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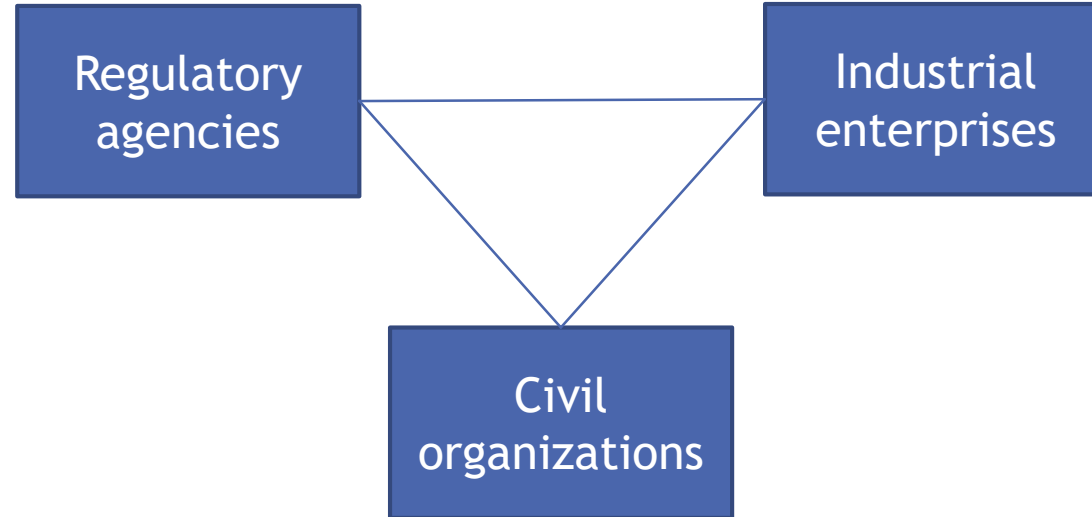
From enforcement to collaborations among regulatory agencies, non-governmental organizations, and business firms.

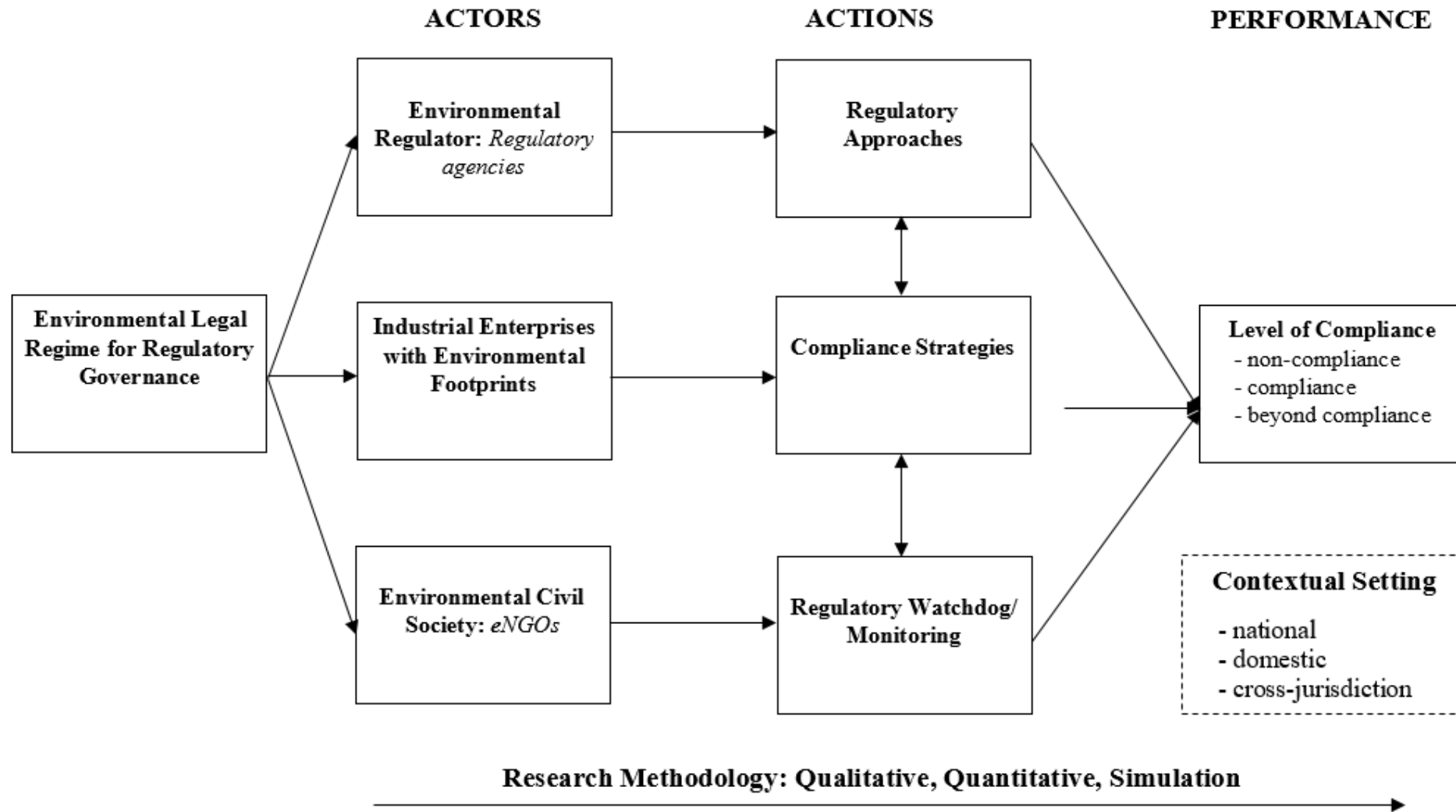Beyond compliance (Daley, 2009; Gunningham, 2009)

Research Model

FIGURE 1. Complexity in Environmental Regulatory Governance: Conceptualization

A Snapshot of Environmental Regulatory Research in JEPP

► We screened all JEPP issues in the Scopus database to see a general profile of research topics during 1999-2019.

Environmental regulatory governance review

Journal of Environmental Planning and Policy
(1999-2019)

Public Administration Review
(1963-2015)

Journal of Public Administration Research and Theory
(1992-2015)

Trend 1: Environmental regulatory enforcement – environmental agencies as a focus

i. Enforcement approaches: from command-and-control to different styles
ii. Enforcement agents: from agencies to street-level – national style to inspectors' styles
iii. Regulatory enforcement: campaign-style enforcement, as supplement to regular enforcement
iv. Market-based regulatory approaches
v. Voluntary Environmental Programs (VEP)
vi. Mixed approaches – co-creating cooperation

1. Regulatory Approaches and Instruments

Agency-dominated command-and-control instruments

- e.g., mandatory saving obligations, emission limits, adoption of pollution abatement technologies.

Market-based (incentive-based) instruments

- e.g., environmental taxes, tradable allowance and permits, grants and subsidies for pollution abatement.

Voluntary environmental programmes (VEPs)

- e.g., the adoption of ISO 14001, 33/50 programme, Green Lights, Leadership in Energy and Environmental Design (LEED).

Policy mix

- e.g., the European Climate Change Programme.

From state-level, local-level to street level →

1. Regulatory Approaches and Instruments

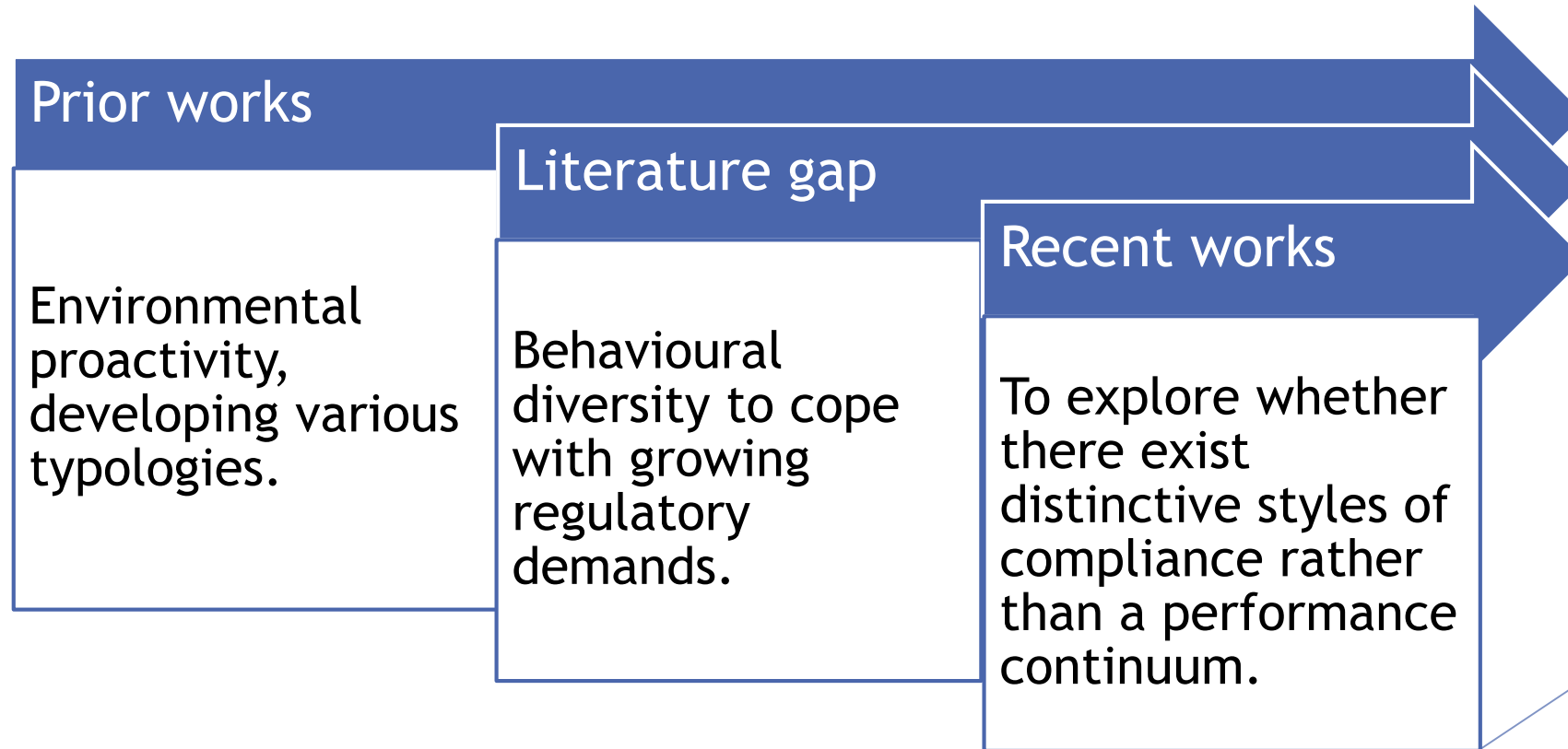| Regulatory approach	Related instruments	Strengths	Weaknesses
Command-and-control/direct approach	Technology mandates; Performance standards	High effectiveness	Economic inefficiency; high imposing and monitoring costs
Incentive-based/ Market-based approach	Marketable pollution permits and allowances; Effluent taxes; Grants and subsidies	High flexibility; low imposing costs	Mismatched incentives
Voluntary approach	ISO 14001; 33/50 programme; Green Lights; Leadership in Energy and Environmental Design (LEED)	High flexibility and organizational autonomy	Free-riding and shirking; excess entry
Mixed approach	the European Climate Change Programme ; Renewable Portfolio Standard	High flexibility; Low costs of compliance	Potential contradictions and trade-offs among different policies

Trend 2: Environmental regulatory compliance under increasing regulatory pressure – industrial firms as a focus

i. Corporate compliance strategies
ii. From proactive continuum to distinctive styles of compliance

2.1 Corporate Environmental Compliance Strategies –A Selection of Typology

| Author(s)	Conceptual Classifications
Braithwaite (2003)	Five motivational postures to capture the way regulatees position themselves in relation to regulatory authority, including two positive orientations (commitment and capitulation) and three defiance postures (resistance, disengagement, and game playing).
Roome (1992)	Four business positions on the environment: three reactive (driven by threat, legislation, and communication) and one discretionary (management driven). Five strategic options: noncompliance, compliance, compliance plus, commercial and environmental excellence, leading edge.
Aragón-Correa & Sharma (1998)	Three types of corporate approaches to manage the natural environment: information & education, traditional/regulated correction, modern/voluntary prevention.
Henriques & Sadorsky (1999)	Four profiles of corporate environmental practices: reactive, defensive, accommodative, and proactive.
Buysse & Verbeke (2003)	Three dominant environmental management strategies: reactive, pollution prevention, and environmental leadership.
Murillo-Luna, Garces-Ayerbe, & Rivera-Torres (2008)	Four types of environmental response pattern in terms of degree of proactivity: passive, attention to legislation, attention to stakeholders, total environmental quality.
Liu, Tang, Lo, & Zhan (2016)	A four-dimensional classification of corporate environmental coping strategies, namely, formalism, accommodation, referencing, and self-determination.

2.2 Corporate Environmental Compliance Strategies-Summary

Prior works

Environmental proactivity, developing various typologies.

Literature gap

Behavioural diversity to cope with growing regulatory demands.

Recent works

To explore whether there exist distinctive styles of compliance rather than a performance continuum.

Trend 3: ENGOs' monitoring role in environmental regulatory

i.   On behalf of the civil society
ii. Monitoring over industrial enterprises and regulatory agencies
iii. An ally to cooperate?
iv. Increasing space for their watchdog function in the regulatory process, particularly in developing and international contexts

3.1 The Role of ENGOs

Regulatory agencies

ENGO monitoring

Industrial firms

International

Domestic
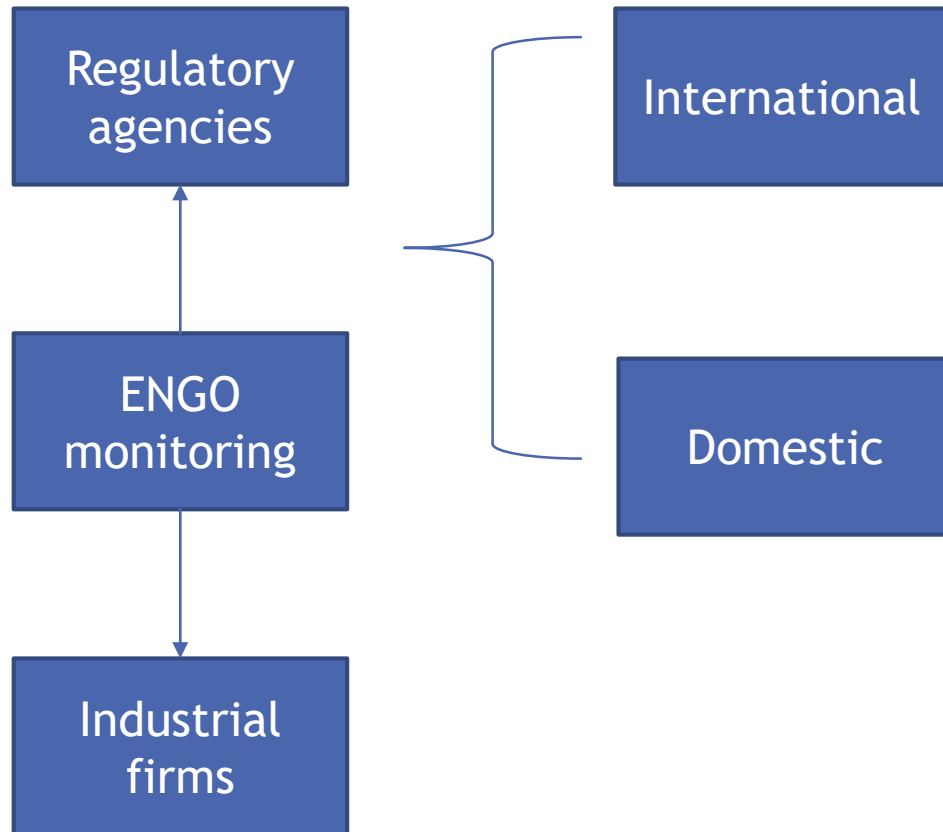
Example: The Convention on International Trade in Endangered Species of Wild Fauna and Flora relies heavily on ENGOs' monitoring to assess state compliance (Pallas & Urpelainen, 2012).

Example: The Canadian ENGO "Independent Environmental Monitoring Agency" actively monitor the operation of the first diamond mine in Canada and the relevant government regulators to make sure that their operations meet the environmental requirements (Ross, 2003).

3.1 The Role of ENGOs

Regulatory agencies

ENGO monitoring

Industrial firms

Monitoring Means

Law suits, organized political lobbying, mobilizing consumer boycotts and popular protests (Aldashev, Limardi, & Verdier, 2015; Spar & La Mure, 2003).

By setting independent screenings and endorsement, most notably in the EIA (Environmental Impact Assessment) process (Perez-Aleman & Paterson, 2008).

Building alliances with governments (Hsu, 2010).

3.2 ENGO in developing countries

Government-led ENGO

☺ Well-connected leadership and rich political access (Knup, 1997).

☹ GONGOs have been criticized for their limited role as being a watch-dog of government policies and regulation (Tang & Zhan, 2008).

"Grassroots" ENGO

☺ They have more room to perform the watch-dog duties compared with GONGOs, but usually in informal ways, such as writing letters to government officials, mobilizing media attention to certain environmental issues, and being involved in public hearings (Tang & Zhan, 2008)

☹ However, in developing economies, the civic ENGOs still need to tiptoe around the red lines since government still holds tight controls over their activities (Tang & Zhan, 2008).

3.3 Institute of Public & Environmental Affairs (IPE) -a Case of China ENGO monitoring and collaboration

▶ IPE is a non-profit environmental research organization established in 2006 in Beijing, China, director: Ma Jun.

▶ IPE collects, collates and analyzes **real-time** government and corporate environmental performance information to build a database of environmental information.

IPE's two platforms-the Blue Map website and the Blue Map app-integrate environmental data to serve green procurement, green finance and government environmental policymaking.

An example of IPE's monitoring of real-time national air quality from the Blue Map website

3.3 Institute of Public & Environmental Affairs (IPE) -a Case of China ENGO monitoring and collaboration

Trend 4: Cross-jurisdiction and cross-boundary comparative studies: convergence, divergence and possible crossvergence-Voluntary environmental governance as an illustration

i. Within nation and cross national: developed & developing, democratic & authoritarian settings
ii. Transboundary
iii. Convergence, divergence and possible cross-vergence

4. Cross-Jurisdiction Studies: Taking VEP as an Example

Do explanations of regulatory compliance differ across contexts?

▶ First, evidence from comparative investigations highlights divergence in regulatory goals, design, and implementation means (Prakash & Potoski, 2012).

▶ Second, institutional distinctions contribute to the global diffusion of voluntary tools and their effectiveness (Liu, et al., 2018).

▶ Third, the efficacy of VEPs also varies across contexts (Blackman & Guerrero, 2011; Darnall & Sides, 2008; Potoski & Prakash, 2013).

Trend 5: Increasing sophistication in research methodologies in environmental regulatory governance – growing demanding on research design and data quality

i. Qualitative, quantitative, and data analytics
ii. Experiment and simulation
iii. Mixed methods

5. Research Methodologies

The trend moves from cross-sectional single year observation to longitudinal analysis, from using single method to mixed methods, and from qualitative to integrating both qualitative and quantitative ones.

Research methodology	Analysis technique
Qualitative approach	Case study
	Survey study
	Interview
	Content analysis
Quantitative approach	Econometrics and modelling
	Cross-sectional/Longitudinal/Panel data analysis
	Meta-analysis
	Simulations
Integrated approach	Qualitative and quantitative approach integration

Reflection: Agenda setting for environmental regulatory research

i. In general: an interactive approach in the proper integration of the three actors the regulatory process

ii. Regulatory enforcement: integration of different level of street-level to national level

iii. Regulatory enforcement: conceptualization – a coherent concept? Differentiating inspection and sanctioning

iv. Regulatory enforcement: the proper integration of campaign-style enforcement and regular enforcement

v. Corporate compliance: integration of corporate strategies and environmental regulation

vi. ENGO monitoring: multi-stakeholders, mixed strategies, changing strategies

vii. Cross-jurisdiction & cross-boundary: cross-vergence – coexistence of divergence and convergence

viii. Methodological sophistication: mixed methods, time series studies and data science

Research Agenda

Proposed research	Actor	Direction	Research methodology
Integration research	Integrating regulatory agencies, industrial firms and ENGOs	Integrating different levels of regulation ranging from the street-level to the global level	Mixed methods (qualitative & quantitative); Data science
	Integrating regulatory agencies, industrial firms and ENGOs	Cross-jurisdiction comparison and analysis: convergence, divergence and crossvergence	
	Regulatory agencies and Industrial firms	Integrating regulatory and strategy literature to explore behavioral pattern formed in the regulatory process	
	ENGOs	Integrating a multiple-stakeholder perspective to understand monitoring strategies' changes over time	
Partition research	Regulatory agencies	Exploring complementary tools of enforcement campaigns	
	Regulatory agencies	Differentiating the inspection task from the sanctioning task	

Conclusion:
Originality and innovation, theoretical advancement and empirical problem solving

Thank you for your attention.