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# Reorienting Regulation: Pollution Enforcement in Industrializing Countries

LESLEY K. MCALLISTER, BENJAMIN VAN ROOIJ, and  
ROBERT A. KAGAN

*This special issue aims to set a course for future inquiry on regulatory enforcement in industrializing countries. With examples from major countries including Brazil, China, and Indonesia, the articles develop four cross-cutting themes: (1) how enforcement and its institutional context vary geographically and temporally, (2) how enforcement is affected by deficiencies in regulatory capacity and autonomy, (3) how civil liability regimes interact with enforcement, and (4) the relationship between enforcement and regulatory instrument choice.*

## I. INTRODUCTION

Environmental regulation has become a global concern, as pollution is no longer contained by borders. The control of risks from pollution demands effective regulation at the international and national level, not just in industrialized OECD (Organisation for Economic Co-operation and Development) countries but around the globe, especially in so-called industrializing countries. Countries such as Brazil and China that have recently witnessed rapid industrialization have become highly interwoven in global markets, and weaknesses in their regulation of risks can have significant worldwide as well as local effects.

To reduce pollution, OECD countries have, with mixed success, applied a combination of regulatory instruments. Direct legal instruments in which a government sets standards and issues permits to polluting facilities dominated the early regulatory landscape (Bardach and Kagan 1982; Gunningham, Grabosky, and Sinclair 1998). In later years, economic market-based instruments such as discharge fees, pollution taxes, and emissions trading systems were incorporated into regulatory frameworks (Weale 1992; Tietenberg 2006). In addition to mandatory approaches, OECD countries also have experimented with a wide range of voluntary or semivoluntary programs

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such as certification and public disclosure, as well as quasi-voluntary methods such as environmental covenants and governmentally sponsored self-regulatory mechanisms (e.g., Gunningham, Grabosky, and Sinclair 1998; Coglianese and Nash 2001). Industrializing non-OECD countries have to some extent copied these regulatory instruments, but effective implementation has been difficult, leaving national and global risks underregulated (e.g., Van Rooij 2006; McAllister 2008).

Limited law enforcement capacity and low levels of regulatory compliance often explain why environmental regulation in industrializing countries has been inadequate (Laffont 2005; Blackman 2006). China serves as an example. There, in many fields of regulation, including arable land protection, pollution, food safety, mining, intellectual property rights, and labor, enforcement has been weak and violations widespread (e.g., Economy 2004; Mertha 2005b; Cooney 2007). Low compliance and weak enforcement are mutually reinforcing, creating a vicious circle that undermines the implementation of any regulatory instrument, be it legal, economic, or voluntary (e.g., Huppés and Kagan 1989; Sinclair 1997). Such vicious circles often are embedded in and facilitated by a governance structure susceptible to the capture of state regulatory institutions by business elites (Russell and Vaughan 2003). Several factors, including the unclear demarcation between state and market institutions (e.g., Saich 2001; Robison and Hadiz 2004; Hecht 2005), the state's lack of steering and coordinating capacity (Schulte Nordholt 2003; Mertha 2005a; McAllister 2008), and the dominance of informal networks over formal legal structures (Lindsey 2001; Yang 2002; Hochstetler and Keck 2007) can foster the capture of state regulatory institutions by business elites.

Contemporary environmental regulation, therefore, requires the improvement of regulation in industrializing countries. This imperative suggests a reorientation of regulatory research, shifting the focus partly away from the industrialized OECD countries to study how implementation is affected by capture-prone governance settings and how regulation functions when enforcement capacity and compliance levels are low.

In this endeavor, understanding ground-level enforcement is critical. The study of regulatory enforcement in industrializing countries can build directly upon a diverse body of policy and academic research exploring patterns and practices in pollution-related law enforcement. The World Bank (2000) and the International Network of Environmental Compliance and Enforcement (e.g., Grenade-Nurse 1998; Nolet 1998; Oposa 1998) have published a variety of papers by policy analysts and law enforcement practitioners. Yet, while a number of economists, environmental scientists, lawyers and political scientists have studied law enforcement in a particular country, they have done so, for the most part, without comparing the target country with others, and, with few exceptions, without referring to the theories and concepts that have been used to study regulatory enforcement in OECD countries.<sup>1</sup>

This special issue aims to set a course for future inquiry on regulatory enforcement in industrializing countries. The articles in the issue primarily

analyze aspects of environmental enforcement in one of three countries: Brazil, China, or Indonesia. As in other industrializing countries, national policy in these countries has focused heavily on economic growth. Yet significant developments in environmental protection policy have also occurred in recent years, setting the stage for tensions between these two broad policy objectives. Given their size and complexity, these countries have necessarily decentralized environmental law implementation and enforcement, delegating to state and local bodies that have varying levels of commitment and institutional capacity. Brazil, China, and Indonesia are particularly dynamic and complex, but almost all countries face similar conflicting policy objectives and coordination challenges.

The articles in the issue develop four cross-cutting themes: (1) how enforcement and its institutional context vary geographically and temporally, (2) how enforcement is affected by deficiencies in regulatory capacity and autonomy, (3) how civil liability regimes interact with enforcement, and (4) the relationship between enforcement and regulatory instrument choice. The remainder of this introduction discusses these themes, summarizing the articles' findings and analyzing their wider implications.

## II. ENFORCEMENT VARIATION AND ITS INSTITUTIONAL CONTEXT

Due to rapid industrialization and related high levels of economic growth and urbanization, the institutions of many industrializing countries are in a constant process of change and transformation. Larger industrializing countries such as Brazil, China, and Indonesia also often contain quite diverse regions, as well as large urban and rural divides. As a result, regulatory enforcement in industrializing countries tends to be highly variable, temporally and geographically. The study of regulatory enforcement in industrializing contexts therefore warrants extra attention toward understanding the nature of this variation, the reasons for it, and how such variation affects attempts to reform regulation.

In their article in this issue, Benjamin van Rooij and Carlos Wing-Hung Lo (Van Rooij and Lo 2010) address these issues by studying enforcement variation in China, looking at changes over time as well as geographical differences. Contrary to the common static and general portrayal of Chinese pollution enforcement (Ma and Ortolano 2000; Economy 2004), Van Rooij and Lo argue that there is considerable variation in regulatory enforcement. Between 2000 and 2006, they show, enforcement became more formal, coercive, and active. Coastal and urban areas tend to score higher in terms of coercion and effort than inland and rural issues. The study links such variation in enforcement patterns to mutually reinforcing, converging institutional factors such as increasing attention to environmental protection in national policy and law, a higher level of wealth and diversification of the economy, growth in grassroots community pressure, and in proenvironment policies of

local governments. The article argues, however, that the basis for such convergence has been fragile. National pressures have lacked consistency, and local community and government support evaporates when dominant sources of income are threatened by stringent regulatory enforcement.

Adriaan Bedner's article in this issue (2010) examines the relationship between large governmental change and regulatory law implementation and enforcement. Bedner's focus is on how Indonesian decentralization reforms, initiated in 1999, affected the implementation of legal requirements for environmental impact assessments and the enforcement of pollution law. In these two areas, the reforms made clear that district-level government authority would largely replace central government authority. Yet the powers actually exercised by each level of government did not change as much as would be expected. Provincial-level government agencies that had exercised important types of authority before decentralization often continued to do so afterwards. Some districts did actively assume their powers, leading to more diversity in enforcement processes and outcomes between districts and provinces. Through his case study, Bedner usefully addresses the question of whether decentralization is detrimental or beneficial to environmental quality and finds evidence of both. Decentralization has been accompanied by negative outcomes such as weak district-level capacity and higher potential for capture, but a positive trend of increased local level responsiveness to citizen complaints is also observed.

Both articles demonstrate the importance of understanding how the institutional context affects regulatory law enforcement practice. Whereas in China, concurrent political, economic, and social changes converged to create more formal, coercive, and active law enforcement, in Indonesia a large decentralization program had a lesser impact on enforcement practices than would be expected given the extent to which it sought to change the legal structures in which enforcement is embedded. Regulatory enforcement in these contexts is the result of interplay among complex economic and political forces. Reforms directed at a singular institutional factor may be unlikely to have much effect unless they successfully coincide with favorable forces and neutralize opposing forces.

### III. ENFORCEMENT STYLE AND REGULATORY CAPACITY

Understanding the operation of regulatory enforcement in industrializing countries requires a conceptual framework to describe and analyze how regulatory officials relate to regulated entities and approach the task of enforcing the law. The existing conceptualization of enforcement style (e.g., Bardach and Kagan 1982; Hawkins 1984; Hawkins and Thomas 1984; Reiss 1984) provides an important point of departure but is limited in its application to industrializing countries because it does not consider variations in the autonomy and capacity of regulatory agencies.

Studies of enforcement style in OECD countries emphasize variation along two dimensions: the degree of “formalism” (strict adherence to detailed regulatory requirements) and the degree of “coercion” (regulators’ willingness to impose legal sanctions on violators) (Kagan 1994; May and Winter 2000). Lesley K. McAllister’s article in this issue (2010) proposes two additional enforcement style dimensions: the degree of autonomy (regulators’ susceptibility to external influence) and the degree of capacity (energetic and proactive detection of violations). Incorporating these new dimensions, McAllister proposes an expanded spectrum of enforcement styles, which includes the retreatist style, the conciliatory style, the flexible style, the perfunctory style, and the legalistic style.

McAllister’s article then applies this analytical framework to two state pollution control agencies in Brazil. She finds that the São Paulo state agency is best characterized as exhibiting a perfunctory style, with high degrees of legalism and formalism and low degrees of autonomy and capacity. The Pará state agency exhibits low degrees in all dimensions, and is best characterized as retreatist. The contrast in enforcement style between these two Brazilian states, despite the fact that they look to the same body of federal law, highlights the significant regional variations in institutional development that often exist, and the need, discussed in the previous section, for more explicit attention to such variation.

McAllister’s framework provides an entry point for renewed inquiry into the linkages between enforcement styles and enforcement outcomes. Many scholars of OECD countries have found that cooperative enforcement—as long as it is backed by a readiness to swiftly punish noncooperation by regulated entities—elicits greater progress toward compliance than a legalistic enforcement style (Bardach and Kagan 1982; Vogel 1986; Gray and Scholz 1991; Ayres and Braithwaite 1992; but see Harrison 1994; Kagan and Axelrad 2000). Where low levels of autonomy and capacity prevail as they often have in industrializing countries, however, a heightened degree of coercion or formalism may affect enforcement outcomes differently (cf. Tang, Lo, and Fryxell 2003; Lo and Fryxell 2005). It may be, for example, that a coercive enforcement approach has a declining marginal value in terms of effectiveness. The initial units of coercive enforcement may greatly enhance effectiveness by making regulated entities aware of the law and its potential consequences (cf. McAllister 2008). At greater levels of coercion, however, its inefficiencies—such as high levels of legal conflict, resentment, and delay—may overshadow its benefits. On the other hand, in a context where agency capacity to punish noncooperation is lacking, a regulatory approach that emphasizes cooperation and accommodation may more easily lead to capture or corruption.

#### IV. CIVIL LIABILITY AS AN ENFORCEMENT MECHANISM

In countries worldwide, civil liability regimes predate regulatory regimes as a possible means to protect against the health and environmental risks of

pollution. Those affected by pollution may file suit against polluters, activating courts to determine whether and how such harm should be remedied. To understand the outcomes, empirical study is required. On one hand, courts in industrializing countries tend to have weaknesses in autonomy and capacity similar to their regulatory agencies. In addition, they suffer from the typical impediments faced by judicial bodies in these types of cases, including case resolution delays and lack of technical expertise. On the other hand, legal institutions such as courts, public prosecutors, and public interest law firms have a set of powers and capabilities different from regulatory institutions and may, in a variety of ways, enhance and complement (or restrain or detract from) the legal force of substantive regulation and regulatory authority.

In her article in this issue, Rachel Stern (2010) examines the decisions of local Chinese courts in pollution compensation cases to discern the factors that influence judges. She views judicial decision making in a one-party state as varying along two axes: the degree of legal formality, reflecting how closely the judges adhere to the letter of the law; and the degree of individual autonomy, reflecting how much power judges have to decide individual cases without interference from the political party. Stern finds low legal formality as judges inconsistently handle matters of evidence and frequently fail to apply principles of national law such as the shifting of the burden of proof to the defendant. Stern also observes a “fluctuating autonomy” depending on particularities of the plaintiff and defendant, the judge, and the local political party. The result is one of “rough justice” as judges try to reach solutions that leave both parties satisfied, often by awarding some, but not all, of the plaintiff’s requested compensation. Along the way, judges also sometimes innovate in ways that “quietly” validate new types of environmental cases and claims.

Bernardo Mueller’s article in this issue (2010) analyzes the central role of public prosecutors (the Ministério Público, or MP) in Brazilian environmental policy. Mueller observes that Brazil’s executive branch faces an imperative to pursue monetary stability and fiscal responsibility that systematically works against consistent and adequate funding of environmental policy and other residual policy areas. He then identifies the MP as being particularly well-suited to providing a counterweight to this fiscal imperative. With a constitutional mandate to protect the environment and with ample political independence and institutional resources, prosecutors file civil environmental actions and force legal settlements not just against private polluters but also against governmental agencies for alleged failures to adequately enforce environmental laws (cf. McAllister 2008). Mueller provides statistical analysis supporting his argument that prosecutors have a significant positive impact on environmental policy outcomes. By regressing a measure of prosecutorial strength against a measure of environmental quality at the state level, he finds that Brazilian states with stronger and more organized prosecutors will tend to have, *ceteris paribus*, higher levels of environmental quality.

The cases of China and Brazil exemplify the wide variation in the extent to which legal institutions in industrializing countries have an impact on regulatory enforcement. Whereas local courts in China are just beginning to become actors as they innovate at the margins in civil liability cases, the possibility of enforcing environmental law through the courts in Brazil has enabled prosecutorial institutions to become key players in environmental policy.

#### V. ALTERNATIVE REGULATORY INSTRUMENTS AND ENFORCEMENT

Industrializing countries have become sites of experimentation for new regulatory approaches and instruments. In OECD countries, alternative regulatory instruments have developed amidst concern about overregulation and inflexible and inefficient regulation (Weale 1992; Gunningham, Grabosky, and Sinclair 1998; Black 2002), generally in the context of a reasonably well-functioning system of state regulatory enforcement. In industrializing countries, in contrast, calls for alternative approaches arise out of the state's inability to effectively regulate industry using traditional approaches (World Bank 2000). Given this difference, the use of novel regulatory instruments in industrializing countries warrants careful study.

The article in this issue by Benjamin van Rooij (2010) addresses the vital question of whether substituting legal "standards-based" regulation with economic "market-based" and voluntary regulation—often advocated by the World Bank—is a promising approach in contexts with weak state law enforcement. He considers the evidence supporting the success of discharge fees in Colombia, the Philippines, and China; environmental management systems in Mexico; and stock market valuation effects on environmental performance in the Philippines. While acknowledging the positive aspects of market-based and voluntary instruments in terms of decreasing compliance costs for industry, he questions whether apparent successes are transferable beyond pilot program levels and whether the measures of their success are reliable. Van Rooij argues that these novel approaches to regulation, like traditional regulatory approaches, ultimately depend on reliable monitoring data and other facets of state enforcement to back them up. His findings resonate with similar conclusions from studies about regulation in OECD countries.<sup>2</sup> In industrializing countries, where state enforcement tends to be weak, market-based and voluntary regulation is unlikely to be a realistic alternative to standards-based regulation, let alone a panacea for regulatory ineffectiveness.

Van Rooij also considers whether public disclosure strategies can be employed to enable citizens in industrializing countries to directly contribute to enforcement by detecting and reporting violations as well as taking legal or political action against polluting firms. He finds this approach to be limited by many factors, including low levels of community awareness,



resources, and organization and communities' economic dependence on polluting sources. Moreover, public disclosure strategies require reliable information about industrial environmental performance and compliance, which is unavailable without a properly functioning basic monitoring system. When lacking such information, Van Rooij finds it is difficult to even ascertain that the public disclosure mechanisms so positively discussed by the World Bank have truly achieved the effects they are claimed to have.

In their article in this issue, John McCarthy and Zahara Zen (2010) document the failures of traditional approaches to control pollution from agro-industry in Indonesia and consider whether advances have been achieved with the use of environmental policy instruments that are more flexible and cooperative. Rubber and oil palm plantations in Indonesia are associated with high levels of air and water pollution as manufacturing facilities burn some wastes and discharge others into local rivers. Environmental impact laws that might have prevented some of the worst pollution have become mere "procedural and reporting hoops" plagued by corruption. Enforcement of the technical standards set for water and air pollution is left to sector-specific agencies that have a primary interest in supporting the economic development of the sector. And although the laws-on-the-books have been amended to say that polluters are strictly liable for harm to individuals and that the public must receive information about proposed developments, the law-in-action rarely accords.

Regulatory reforms in Indonesia in the 1990s and 2000s involved a turn towards using alternative regulatory instruments as well as decentralization (cf. Bedner 2010). McCarthy and Zen show that the supposed gains in regulatory responsiveness associated with decentralization have been hobbled by jurisdictional coordination problems as well as resource and capacity constraints at the local level. They further show that the new alternative regulatory instruments encountered impediments. A self-regulatory program in which a rubber industry association threatened to shut down rubber factories that purchased contaminated raw rubber from smallholders failed because the industry association ultimately did not have the interest or power to effectuate its threat. The diffusion of an international certification scheme in the palm oil sector was severely limited by the extent to which the sector is composed of smallholder raw material producers, which are difficult to control as necessary to meet the certification standards. Echoing Van Rooij, McCarthy and Zen explain that many of the same issues complicating the enforcement of traditional governmental regulation in Indonesia's agro-industry sector created barriers to the success of the self-regulatory approaches.

All of this shows that there is no easy fix for weak enforcement capacity and that all regulatory approaches require a basic level of law enforcement. Important insights about the usefulness of combining regulatory approaches (Sinclair 1997; Gunningham, Grabosky, and Sinclair 1998), as well as the inherent limits in each approach (e.g., Huppel and Kagan 1989; Coglianese

and Nash 2001; Tietenberg 2006), should not be forgotten when analyzing industrializing countries. The question that should be explored is how enforcement capacity and strategy can be matched with the proper mixture of legal, economic, and voluntary regulatory instruments.

## VI. CONCLUSION

Weak enforcement capacity, widespread violations of law, and a capture-prone governance context are formidable challenges. They can render environmental regulation in industrializing countries an ineffective paper tiger. They also challenge academics, forcing them to rethink concepts about regulation and its enforcement. The study of regulatory enforcement in industrializing countries may lead to a fundamental reevaluation of the core theories in the field, as these ideas are likely to be challenged outside of the OECD settings they have been studied in so far.

Four themes strongly emerge from the articles in this special issue. First, industrializing countries tend to experience more rapid institutional change and more incongruity of institutional development among geographic regions within the country. As such, studies of regulatory enforcement in industrializing countries warrant extra attention to institutional change, internal institutional variation, and how these affect attempts at regulatory reforms. Second, industrializing countries tend to have lower levels of regulatory autonomy and capacity, with important implications for enforcement outcomes. Studies of the relationships between regulatory agencies and regulated entities, embodied in discussions of enforcement style, must account for these differences. Third, civil liability regimes have the potential to bring traditional legal actors—particularly courts and prosecutors—into the regulatory enforcement equation. As courts adjudicate liability claims, they create or deny space to an alternative judicial mechanism for environmental enforcement, with many implications for regulatory enforcement itself. When, as in Brazil, a dedicated state institution itself pushes the courts to act against regulatory offenders, the positive potential of judicial enforcement is enhanced. Finally, because traditional regulatory approaches have often failed, industrializing countries have become sites of experimentation with alternative regulatory instruments. Their outcomes should be studied to better understand the preconditions for the success of such approaches and particularly the extent to which a certain level of effective state enforcement may be one of those preconditions.

While this summary in many ways depicts a relatively bleak picture of the state of regulatory implementation in industrializing countries, we want to emphasize that there are also many examples to be found of dedicated officials and imaginative programs. One example is Brazil's politically insulated MP, which has developed enforcement mechanisms to supplement and in some cases substitute for administrative enforcement by environmental

agencies (McAllister 2008; Mueller 2010). Other innovations not highlighted in this issue include Mexico's fifteen-year-old national environmental auditing program that certifies "Clean Industry" (Blackman 2008) and China's law enforcement campaigns that have had some, especially short-term, success in breaking continuing patterns of weak enforcement and widespread violation, in part by combining concentrated state enforcement with public participation experiments (Van Rooij 2006). Thus, a related important agenda for socio-legal scholars is to base regulatory studies not merely on models drawn from strong-state economically advanced nations, but on success stories from countries that struggle with the particular regulatory challenges of weaker rule-of-law cultures and uneven governmental capacity.

We hope that this collection of works will provide area specialists working on industrializing countries with the inspiration to engage with the existing regulatory enforcement literature, while at the same time attracting OECD regulation scholars to study industrializing countries. With the concerted effort of both groups, a reorientation of regulatory studies towards industrializing countries holds the potential to break the vicious cycle of weak enforcement, low compliance, and ineffective regulation, with important implications for risk reduction both nationally and globally.

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#### NOTES

1. See, for example, Lemos (1998); Stuligross (1999); Wang et al. (2003); Wang (2000); Blackman (2008); World Bank (2000); Ma and Ortolano (2000); O'Rourke (2004); Chege Kamau (2005); and El-Zayat, Ibraheem, and Kandil (2006). Exceptions in this regard include Lo and Fryxell (2003); McAllister (2008); and Van Rooij (2006).
2. See, for instance, Gunningham, Grabosky, and Sinclair (1998); Huppel and Kagan (1989); Tietenberg (2006); Sinclair (1997); Blackman and Harrington (1998); and Metzenbaum (2001).

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