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CHAPTER 51

COMPLIANCE THEORY

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I. INTRODUCTION

INTERNATIONAL environmental agreements (IEAs) to protect the natural environment and manage natural resources have a long history.¹ They provide considerable evidence on whether and when IEAs reduce human harm to the environment, how much they vary in compliance and effectiveness, and what factors foster their effectiveness. This chapter examines the conceptual and theoretical challenges raised by efforts to understand IEA compliance and effectiveness.

Scholars and practitioners often conflate two different questions when inquiring into compliance with international environmental law. A strictly legal approach asks whether state behaviours conform to relevant legal standards in IEAs. A political science approach more often compares state behaviours to counterfactuals of how those states would have behaved if the IEA did not exist. Scholars of both approaches often use the term 'compliance'. The present chapter seeks to clarify the distinction between compliance and effectiveness, as the latter is discussed in detail later in this volume.² Table 51.1 illustrates the key difference in terms of whether causation is obscured or highlighted. Both compliance and non-compliance can arise for reasons unrelated to an IEA's causal influence. Equating IEA compliance (comparing state behaviours to legal standards) with IEA influence can overstate the latter by conflating IEA-induced compliance and 'coincidental' compliance, in which state behaviours meet IEA standards for reasons unrelated to the IEA. States may negotiate IEA obligations that require no change in their behaviours, may comply because doing so is cheaper than violation, or may lack

¹ IEA Database, *International Environmental Agreements Database Project—Version 2020.1* (University of Oregon 2020); Ronald Mitchell *et al.*, 'What We Know (and Could Know) About International Environmental Agreements' *Global Environmental Politics*, 20 (2020): 103; see Chapter 3, 'Origin and History', in this volume.

² See Chapter 57, 'Effectiveness', in this volume.

the capacity to violate IEA rules. Equating non-compliance with a lack of IEA influence also misleads because it ignores the fact that IEAs can lead states to take well-intended actions that fall short of legal standards, as when IEAs set ambitious obligations or exogenous changes put compliance out of reach. Indeed, IEAs with aggressive obligations may be highly effective despite having high non-compliance rates.

Table 51.1 Distinguishing the effectiveness of international law from compliance with international law

| | Compliant behaviour | Non-compliant behaviour |
|---------------------------------|-------------------------|----------------------------|
| IEA influenced behaviour | IEA-induced compliance | Good faith non-compliance |
| IEA did not influence behaviour | Coincidental compliance | Intentional non-compliance |

In short, this chapter argues that investigations of compliance improve to the extent that scholars use them to identify the causal influence of IEAs rather than a causal assessment of rule-following. This chapter focuses on conceptual, theoretical, and methodological issues raised when assessing IEA compliance and IEA influence, thereby complementing the deeper insights into variation in the effectiveness of various IEAs detailed in Chapter 57 ('Effectiveness').

A. Identifying a 'Performance Indicator' of Compliance as IEA Influence

How should we evaluate compliance in a way that reflects an IEA's causal influence? Policy analysts often distinguish among policy outputs, behavioural outcomes, and environmental impacts. Outputs (laws and regulations) provide useful indicators of IEA influence because policy changes are necessary to most logics of such influence and because they can provide strong process-tracing evidence of an IEA's influence (eg language that replicates an IEA's). However, they are not sufficient conditions: we cannot assume that IEA-induced policy changes lead inexorably to behavioural change and environmental improvement. Environmental impacts (ie changes in environmental quality) offer different advantages and disadvantages. On the one hand, environmental improvement is what motivates states to create IEAs. On the other, arguments of IEA influence prove convincing only by overcoming numerous rival explanations of environmental improvements, including natural cycles and shocks and numerous non-IEA human influences.

Behavioural outcomes appear to offer a particularly useful indicator that reflects both the legal and social science perspectives on IEAs. First, behaviours are necessary causal links between IEAs and environmental improvement. If we observed environmental improvement after states established an IEA but no relevant behavioural change,

we would readily dismiss claims that the IEA caused the environmental improvement. Second, although most behavioural changes we might observe have many non-IEA explanations, there are fewer such alternative explanations of behaviours than of environmental impacts. That said, we should avoid assuming that IEAs that dramatically alter behaviours necessarily lead to dramatic environmental improvements.

The choice of behaviours as indicators of compliance still poses several analytic challenges. First, data on many behaviours that IEAs target is incomplete, non-systematic, non-comparable, does not illuminate pre-IEA periods, or has never been collected. Second, discounting non-IEA influences on behaviours that IEAs target is analytically challenging. Third, although policy-makers often document whether they adopted new regulations in response to international treaties, governments and economic actors document what motivated new behaviours far less often. These are surmountable challenges but challenges nonetheless.

B. Selecting a Comparator of IEA Influence

To assess an IEA's influence also requires an appropriate comparator (reference point) for our observations of the performance indicator. We can compare observed behaviours to an IEA's explicit legal requirements, the estimated counterfactual of behaviours in the IEA's absence, or the IEA's behavioural goals, defined either by the IEA or an analyst.

1. *Legal requirements as comparators*

In its strict legal meaning, compliance is defined by comparing behaviours to legal standards and 'is agnostic about causality'.³ But using those standards has several shortcomings. When IEAs have clear legal standards, such assessments are possible. However, many IEAs have vague or ambiguous standards and others have none at all. In these cases, an independent analyst cannot assess compliance. Nor can they rely on assessments by IEAs (and non-governmental organizations (NGOs)) of particular behaviours as compliant or not. Although such assessments of compliance are valuable *mechanisms* by which IEAs influence behaviour, the fact that they often reflect political considerations make them unreliable as systematic assessments of compliance. Finally, focusing on whether a behaviour met legal standards or not encourages the analyst to ignore important information embedded in whether the behaviour exceeded (or missed) those standards by a lot or a little.

2. *Goals as comparators*

Alternatively, we might compare behaviours to behavioural goals or objectives. Behavioural goals, whether defined in an IEA's text or by an analyst, can be intended as

³ Kal Raustiala and Anne-Marie Slaughter, 'International Law, International Relations and Compliance' in Walter Carlsnaes, Thomas Risse, and Beth Simmons (eds), *Handbook of International Relations* (Sage 2002) 539.

realistic and achievable or ambitious and inspirational. Thus, using goals as comparators leads to assessments that vary as much based on the definition of the goal as the behaviour itself. Indeed, using goals as comparators could be expected to find that IEA goals were most likely to be achieved when those goals were set to be particularly unambitious.

3. *Counterfactuals as comparators*

Much political science argues that counterfactuals are the appropriate comparator for any assessment of international cooperation. Adopting legal standards or goals as comparators focuses our attention on correlation. Using counterfactuals, by contrast, focuses our attention on causation. A counterfactual is an analytically supported estimate of the behaviours that would have happened in the absence of the IEA, *ceteris paribus*. Good counterfactuals derive from efforts to estimate those behaviours as if all non-IEA influences had occurred as they did, but that the IEA had no influence on the state (eg because the IEA did not exist or the state never joined). Counterfactuals replace the dichotomizing question of 'did this IEA influence this behaviour or not?' by inquiring as to 'how much' influence an IEA had, allowing greater discrimination of whether and why state behaviour varies along a spectrum from significant over-compliance to significant shortfalls. Scholars can design counterfactuals that allow assessment of specific IEA provisions (vs IEAs as a whole) that can better inform IEA negotiations and re-negotiations. IEAs predicted to be influential but which fell short, can identify factors that inhibit IEA influence. And counterfactuals are particularly useful for assessing IEAs that lack or have unclear standards, in which strict legal compliance cannot be assessed.

C. Evaluating IEAs, IEA Provisions, or IEA Parties

The choice to compare across IEAs, across their provisions, or across parties requires aggregations that clarify some factors and obscure others. Research to clarify which IEAs have the most influence will obscure differences across diverse obligations and diverse parties. Research to clarify which types of parties are most influenced will obscure differences across obligations and across contextual conditions that foster or inhibit IEA influence. And research to clarify which types of provisions have the most influence will obscure differences in those contextual conditions and types of parties. The choices involved strongly influence any assessment of their influence precisely because IEAs vary in the number and type of member states and proscriptions and prescriptions as well as their background conditions.

An important but often overlooked issue here, flows from the fact that we can only assess the influence of IEAs through observational studies: neither provisions nor member states are randomly assigned to IEAs. The structure of the problem that states are seeking to address (including the power and interests of relevant states) influences how states *design* IEAs and the *membership* decisions of states about which IEAs to join. We must account for differences in underlying environmental problems before we can

interpret differences across parties, IEAs, and IEA provisions as meaningful. Accurately assessing an IEA's influence requires disentangling the influence of problem structure from the independent effects of the IEA on parties. These issues pose methodological challenges that, although not insurmountable, threaten inaccurate conclusions if ignored.

II. UNDERSTANDING HOW AND WHY IEAS MAKE A DIFFERENCE WHEN THEY DO

The foregoing arguments suggest strategies for assessing how IEAs influence state behaviour. This section, therefore, reviews explanations of *how and why* IEAs have influence when they do.

A. Two Models of Actor Behaviour

International relations scholarship suggests that two distinct logics drive state behaviour: a logic of consequences and a logic of appropriateness.⁴ The 'logic of consequences' model perceives states as choosing among behavioural options by comparing the costs and benefits of each on their material interests. In this view, IEAs influence decisions by making IEA-promoting behaviours more attractive to member states than IEA-degrading behaviours. The goals, preferences, resources, constraints, and values of states are viewed as largely impervious to international law's influence. In contrast, a 'logic of appropriateness' resonates with much international legal thinking and sees state behaviour being driven by the interplay of norms and identities. If states behave in ways that further their interests, they also behave in ways that reflect often-unquestioned assessments of 'legitimate' and 'appropriate' behaviours for actors who seek to promote a particular identity in particular situations.⁵ In this view, new obligations in an IEA influence behaviour, at least in part, by transforming an undifferentiated spectrum of behaviours into compliant or non-compliant behaviours. That dichotomization, even without sanctions for violation, can lead states to adjust their behaviour towards the former, especially states that prefer to be seen as law-abiding, rule-of-law states. This can reflect broad meta-norms of *pacta sunt servanda* (agreements must be kept) or IEA-specific norms that link specific behaviours to a state's reputation as 'environmental'.

⁴ James March and Johan Olsen, 'The Institutional Dynamics of International Political Orders' *International Organization*, 52/4 (1998): 943; Oona Hathaway, 'Do Human Rights Treaties Make a Difference?' *Yale Law Journal*, 111/8 (2002): 1935.

⁵ Martha Finnemore and Kathryn Sikkink, 'International Norm Dynamics and Political Change' *International Organization*, 52/4 (1998): 887.

Indeed, when states adapt their behaviour quickly to comply with IEA rules, despite high costs or without considering those costs, it suggests that a logic of appropriateness is at work. For example, judges in many states regularly make rulings that defer to international law with little consideration of the economic costs.⁶

States acting within a logic of appropriateness may make the conscious calculations characteristic of a logic of consequences but assess costs to their reputation with others rather than material consequences. Indeed, states sometimes oppose IEA provisions during negotiations, object to them after adoption, or withdraw from an IEA altogether but nevertheless comply with those provisions.⁷ Governments seeking to acquire 'green' identities are likely to feel a particularly strong compliance pull.⁸

The distinctions between these logics clarify how IEAs influence state behaviours but, in practice, are not mutually exclusive. They generate competing predictions about which, how, and when IEAs influence state behaviour. We can assess predictions from each logic against empirical evidence to distinguish IEAs that work mainly through one logic, mainly through the other, or where both logics are in play and reinforce or undercut each other.

B. Distinguishing State Compliance from IEA Influence

Isolating the influence of IEAs requires distinguishing coincidental compliance from behaviours that truly reflect such influence. The truth of Henkin's claim that states usually comply with their international obligations owes much to states negotiating IEAs that avoid 'obligations that might be harmful to them.'⁹ In such cases, compliance is best understood as an expression of states' interests, not a result of IEA influence. One can more easily explain the absence of mining in Antarctica as reflecting prohibitive costs than IEA influence.¹⁰ Similarly, international fisheries quotas are rarely exceeded when they are set to expected catch levels. Only when IEAs require behaviours that differ from business as usual can we equate high compliance with IEA influence.

Whether compliance reflects IEA influence depends considerably on the divergence between obligations and business-as-usual behaviour. Many IEAs include obligations that require little or no adjustment by the states advocating them, as those

⁶ Harold Koh, 'Why Do Nations Obey International Law?' *Yale Law Journal*, 106/8 (1997): 2598; Raustiala and Slaughter (n 3) 538; Karen Alter, *The New Terrain of International Law: Courts, Politics, Rights* (Princeton University Press 2014).

⁷ See eg 1946 International Convention on the Regulation of Whaling.

⁸ Thomas Franck, *The Power of Legitimacy among Nations* (OUP 1990).

⁹ Louis Henkin, *How Nations Behave: Law and Foreign Policy* (Columbia University Press 1979) 47; Hans Joachim Morgenthau, *Politics among Nations: The Struggle for Power and Peace* (McGraw-Hill 1993).

¹⁰ Steven Chown *et al*, 'Challenges to the Future Conservation of the Antarctic' *Science*, 337/6091 (2012): 158.

states care about but do not contribute to the problem or have already acted unilaterally for domestic political reasons. To attract participation, these 'leader' states often accept obligations that require very little of other states.¹¹ When they adopt 'common obligations', the standards may be set so low that leaders have complied before the IEA is signed (as in early European acid rain agreements).¹² The increasing use of state-specific 'differentiated' obligations does not always overcome this problem.¹³ Differentiated obligations that reflect scientific assessments may create standards that diverge significantly from business-as-usual trajectories, and in such cases compliance may well reflect IEA influence. But differentiated obligations that reflect political willingness to act (as under the 2015 Paris Climate Agreement) may simply be a codification of business-as-usual trajectories, with compliance providing little information on IEA influence. And compliance with initially-costly common or differentiated obligations becomes less compelling as evidence of IEA influence if economic or technological changes make compliance cheap or advantageous.

Scholars should thus *start* by assuming that states negotiate IEA obligations to reflect their short-term interests and subsequently comply because doing so remains in their interests. Yet, starting with that assumption does not require ending with it. IEAs can influence behaviour in several ways, resulting in either treaty-induced compliance or good faith non-compliance.

IEA influence may be passive, in the sense that institutional processes can alter state behaviour even without specific mechanisms of influence. Many international relations scholars assume that states start negotiations understanding the problem, knowing their interests, and supporting policy positions independent of the arguments and dynamics of negotiations.¹⁴ Others have shown that negotiations are often forums for education about the causes and impacts of environmental harms and persuasion that alters what states consider to be in their interests.¹⁵ Global environmental assessments

¹¹ Thomas Bernauer *et al.*, 'Is There a 'Depth Versus Participation' Dilemma in International Cooperation?' *Review of International Organizations*, 8/4 (2013): 477.

¹² Arild Underdal, *The Politics of International Fisheries Management: The Case of the Northeast Atlantic* (Universitetsforlaget 1980); Jon Hovi and Detlef Sprinz, 'The Limits of the Law of the Least Ambitious Program' *Global Environmental Politics*, 6/3 (2006): 28; Marc Levy, 'European Acid Rain: The Power of Tote-Board Diplomacy' in Peter Haas, Robert Keohane, and Marc Levy (eds), *Institutions for the Earth: Sources of Effective International Environmental Protection* (MIT Press 1993) 75; James Murdoch and Todd Sandler, 'Voluntary Cutbacks and Pretreaty Behaviour: The Helsinki Protocol and Sulfur Emissions' *Public Finance Review*, 25/2 (1997): 139.

¹³ See Chapter 19, 'Differentiation', in this volume.

¹⁴ Michael Zürn and Jeffrey Checkel, 'Getting Socialized to Build Bridges: Constructivism and Rationalism, Europe and the Nation-State' *International Organization*, 59/4 (2005): 1045.

¹⁵ Thomas Risse, "'Let's Argue": Communicative Action in World Politics' *International Organization*, 54/1 (2000): 1; Frank Schimmelfennig, 'The Community Trap: Liberal Norms, Rhetorical Action, and the Eastern Enlargement of the European Union' *International Organization*, 55/1 (2001): 47; Darren Hawkins, 'Explaining Costly International Institutions: Persuasion and Enforceable Human Rights Norms' *International Studies Quarterly*, 48/4 (2004): 779.

can clarify the benefits of action or costs of inaction, leading states to accept collective restraint or convincing them of the value of unilateral action, as when scientific evidence showed that acid rain from some European countries' factories was harming those countries' own lakes and forests.¹⁶ Negotiations also allow early adopters to convince other states of the benefits of particular environmental policies and strategies for reducing their costs. Such dynamics can lead initially-opposed states to come to the view that significant behavioural change is in their interests. Even as this mode of influence is encouraging environmentally, it creates challenges for evaluating IEA influence, as it shows states complying with obligations that they considered to be in their interest when negotiations concluded (even if not when they began).

IEAs also create opportunities for states to engage in interdependent rather than independent decision-making. Fulfilling an IEA's obligations involves fewer risks than, say, with an arms control agreement and, therefore, states may be willing to take actions that generate benefits even if only a few states reciprocate. Negotiations may reassure states enough that they take interdependent actions they would not have taken otherwise. IEAs also benefit from a contextual reassurance that arises because the politics of environmental policy development makes such policies less susceptible to subsequent reversal than, for example, tariffs. This fosters dynamics in which positive actions by 'unilateralists' prompt similar actions by 'slightly-contingent' states that, in turn, prompt similar actions by 'strongly-contingent' states.

IEAs may also influence states through relatively passive processes involving a logic of appropriateness. When an IEA simply codifies existing norms, of course, we cannot attribute any norm-driven behaviour to that IEA's influence. Yet, IEAs sometimes serve to strengthen existing norms or to generate new ones. In such cases, the analyst must try to parse behaviour as prompted by an IEA's strengthening of a norm, the independent development of that norm, and other paths of influence. Yet, these analytic obstacles should not lead us to assume norms are not paths of IEA influence. The international meta-norm of *pacta sunt servanda* generates an expectation that states should comply with treaties and imposes a burden of proof on those urging non-compliance. Both the collective negotiation of treaty obligations and states' voluntary and public acceptance of them (through membership decisions) give IEAs a normative legitimacy that generates a 'compliance pull' on states.¹⁷ Over time, processes of rhetorical entrapment reinforce this legitimacy both when states justify self-interested compliance in terms of meeting treaty obligations and when states adjust and justify non-compliance to fit within reservation, opt out, or escape clauses. As a norm gains strength, the discursive context shifts to make questions such as 'is fulfilling these obligations in our country's interest?' less legitimate. For example, consider the interest-based discussions of atmospheric nuclear testing likely during United States/Soviet negotiations of the 1963 Limited Test Ban

¹⁶ See Chapter 28, 'Transboundary Air Pollution', in this volume.

¹⁷ Franck (n 8).

Treaty, how they were discussed a decade later, and subsequent, more-normative, terms used to pressure France and China to end their atmospheric testing.

Norms can operate broadly or in identity-specific ways. The meta-norm of *pacta sunt servanda* presumably wields greater influence over rule-of-law and democratic states, making them systematically more likely to fulfil IEA obligations independent of costs and benefits.¹⁸ International obligations offer these states the opportunity to reaffirm desired identities. Other states (eg the Scandinavian states) may desire to maintain self-perceptions and international reputations as environmental leaders, reputations that IEA-non-compliance undercuts. If compliance generates large domestic costs, normative pressures may not be determinative, as evident in Norway's ongoing commitment to commercial whaling; but, in less demanding cases, they may tip the balance in favour of fulfilling IEA commitments. In addition, conforming to an IEA's provisions reinforces their legitimacy and generates normative expectations among a state's citizens and other states that make it rhetorically difficult to claim, subsequently, that conformity is no longer in its interests. And if a state's executive assesses violation as in a state's interest, the legislative branch, judicial branch, or polity may point to the *normative* importance of meeting international commitments, as evident in civilian lawsuits calling on governments to adopt stronger climate policies to meet their obligations under the 1992 UNFCCC (United Nations Framework Convention on Climate Change) and Paris Agreement.¹⁹

Such normative forces may have particular force within corporations. Businesses promulgate and train personnel in corporate procedures that reflect domestic and international laws, even when violations are likely to go undetected. Corporations cannot flout domestic laws the way states can flout international law. They cannot (publicly) discuss compliance—whether international or not—in terms of interests. Indeed, multinational corporations sometimes conform to treaty obligations before their home government has implemented relevant domestic laws since, many corporations see themselves as—and benefit from—being law-abiding. They may adopt IEA-required behaviours in response to asking 'what is the law?' rather than in response to asking 'is complying with these laws in our interests?'

The processes by which states negotiate and join IEAs may change how states perceive and calculate their self-interest and the normative and discursive context in ways that favour bringing behaviours in line with IEA obligations. These processes involve passive, subtle dynamics that help explain that fraction of compliance and behaviour change, large in some IEAs and smaller in others, that emerges even before or in the absence of explicit, visible, and active compliance management.

¹⁸ Eric Neumayer, 'Do Democracies Exhibit Stronger International Environmental Commitment?' *Journal of Peace Research*, 39/2 (2002): 139.

¹⁹ See the special issue on climate litigation of *Carbon and Climate Law Review*, 5/1 (2011); see also Hari Osofsky, 'The Continuing Importance of Climate Change Litigation' *Climate Law*, 1/1 (2010): 29; Jolene Lin, 'Litigating Climate Change in Asia' *Climate Law*, 4/1–2 (2014): 140.

C. Explaining Why States Fail to Comply and Why IEAs May Not Have Influence

Explanations of non-conformance with IEA rules are not simply the inverse of the foregoing explanations of state compliance. To be sure, state non-conformance sometimes reflects a logic of consequences, with states engaging in intentional violations because the costs of compliance exceed its benefits. Likewise, IEA requirements that run counter to strongly-held norms will tend to have less influence than those aligned with such norms. However, three additional factors also explain why IEAs sometimes lack influence.

First, consider incapacity. States and sub-state actors sometimes fail to fulfil IEA commitments because they lack relevant resources. Financial, administrative, or technological incapacities can all inhibit behavioural change. Developing countries may even violate environmental commitments that would be in their interests, because of more pressing concerns or inadequate resources. Indeed, many IEAs' compliance procedures include facilitative strategies designed to address such sources of non-compliance.²⁰ Many IEAs obligate governments to regulate myriad sub-state actors, a challenging task for states with weak informational or regulatory infrastructures. Thus, developing countries may fail to induce peasant farmers to stop cutting timber or draining wetlands because the government lacks information on who engages in those activities or the abilities to communicate regulations to them. Marine pollution regulation proves difficult, in part, because an effective regulatory infrastructure is lacking: tankers registered in Liberia and Panama rarely enter their ports, making inspections by those states difficult. Some incapacities are less country-specific: cultural, social, legal, economic, and historical contexts can make compliance more difficult to elicit from companies and citizens of some countries than others and can favour certain governance styles and policy approaches over others that would be more effective or cheaper.

Inadvertence may also contribute to behavioural shortfalls. A tax sincerely designed to achieve a national pollution reduction target may fall short because of an unexpected economic boom. The effects of many policies, especially those granting actors flexibility, depend on numerous unpredictable factors and uncertainties that may mean even developed states' policies do not achieve their intended results.

Finally, normative and ideological factors can undercut, as well as reinforce, IEA influence. A state will tend to oppose negotiations that contradicts its values, either leading to the failure of negotiations or to that state rejecting membership, as exemplified by Malaysia's opposition to the 1992 Forest Agreement. But, at times, proponents may press states to join IEAs, or accept amendments to IEAs, that contradict their values, as occurred for Japan, Norway, and Iceland when other countries banned commercial whaling. States may oppose particular IEA obligations that run counter to strongly held views on rights to development, rights to equitable benefits from cooperation, or

²⁰ See Chapter 56, 'Non-Compliance Procedures', in this volume.

appropriate allocations of burdens and responsibilities. We should expect IEAs in such contexts to be less effective than they otherwise would be.

III. SYSTEMS AND STRATEGIES FOR INDUCING BEHAVIOURAL CHANGE

The foregoing has delineated general processes common to IEAs that may lead states and sub-state actors to fulfil their IEA commitments. But states also expend considerable effort designing, negotiating, and implementing policies that actively seek to promote compliance, behaviour change, and environmental improvement beyond a given baseline level. Variation in the influence of IEAs, across them and over time, helps scholars and practitioners better understand what makes some IEAs work better than others. National characteristics explain differences in the influence of IEAs across countries.²¹ But some IEA designs also are systematically more influential than others.²² Both national and institutional factors can help states design, and re-design, IEAs to increase their influence.

IEA design has been characterized as reflecting either an 'enforcement' or 'managerial' approach. Those committed to an enforcement view see states driven by a logic of consequences. States, therefore, typically negotiate 'shallow' obligations that require behaviours states would have undertaken anyway. If they somehow agree to 'deep' obligations, the IEA will lack influence unless it contains potent sanctions that make compliance, however costly, less costly than non-compliance.²³ By contrast, the managerial view posits various mechanisms that IEAs can deploy to induce more IEA-consistent behaviours.²⁴ In this view, state decision-making reflects both a logic of consequences and a logic of appropriateness, with compliance promoted when IEAs assess and redress the source of the problem, with sanctions effective in response to intentional violations but rewards or capacity-enhancements more effective in response to incapacity or inadvertence challenges. Despite its heuristic value, the enforcement/

²¹ Edith Weiss and Harold Jacobson (eds), *Engaging Countries: Strengthening Compliance with International Environmental Accords* (MIT Press 1998); Oran Young (ed), *The Effectiveness of International Environmental Regimes: Causal Connections and Behavioural Mechanisms* (MIT Press 1999).

²² Carsten Helm and Detlef Sprinz, 'Measuring the Effectiveness of International Environmental Regimes' *Journal of Conflict Resolution*, 44/5 (2000): 630; Edward Miles *et al* (eds), *Environmental Regime Effectiveness: Confronting Theory with Evidence* (MIT Press 2002); Ronald Mitchell, 'A Quantitative Approach to Evaluating International Environmental Regimes' *Global Environmental Politics*, 2/4 (2002): 58.

²³ George Downs, David Rocke, and Peter Barsoom, 'Is the Good News About Compliance Good News About Cooperation?' *International Organization*, 50/3 (1996): 379.

²⁴ Abram Chayes and Antonia Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements* (Harvard University Press 1995).

management dichotomy obscures the range in and variation across the mechanisms IEAs use to influence state behaviour.

A. Types of IEAs

Oran Young²⁵ distinguishes four IEA governance approaches. *Regulatory* IEAs delineate proscriptions or prescriptions, for example the specific limits inscribed in many pollution IEAs. *Procedural* IEAs regularize collective decision-making to allow adaptive management, for example the many fisheries agreements that rely on scientific bodies for advice in setting catch quotas. *Programmatic* IEAs help states pool resources for collective projects, for example joint financing of environmental projects in developing countries under the Global Environment Facility. *Generative* IEAs foster development of new social practices, for example the requirement for 'wise use' of wetlands under the 1971 Ramsar Convention. We can expect different governance approaches to produce different effects on state behaviour. Programmatic IEAs should lead relatively immediately to projects that would not otherwise be undertaken but would have limited effects beyond such projects. The influence of generative regimes, by contrast, might take longer to appear and be more difficult to demonstrate convincingly. The distinction between regulatory and procedural categories nicely highlights the design endogeneity problem noted above. Thus, we might expect the precise, fixed rules of a regulatory IEA to be more effective than the changing annual quotas of a procedural IEA. But states will be more likely to adopt regulatory IEAs for pollution problems and procedural IEAs to foster the adaptive management needed for international fisheries management and the tendency to alter behaviours surely varies between these problem types.

We can make other distinctions among IEAs and the conditions under which states adopt them. States define environmental 'problems' and identify solutions through social and political processes that shape the material and perceived costs and benefits of an IEA. Those costs and benefits, in turn, determine support and opposition that make a problem more benign or malign (ie easier or harder to resolve) and the types of solutions that will be effective.²⁶ IEAs vary, inter alia, in the ambitiousness of their obligations, their specificity, their use of binding regulations or recommendations, the flexibility they grant states, and the degree to which they centralize institutional processes.²⁷ Such characteristics presumably shape an IEA's effectiveness, *ceteris paribus*, but also are likely to be adopted under systematically different circumstances. To accurately assess the contribution of specificity to IEA effectiveness, therefore, requires overcoming the

²⁵ Oran Young, *Governance in World Affairs* (Cornell University Press 1999).

²⁶ Arild Underdal, 'One Question, Two Answers' in Miles *et al* (n 22) 3.

²⁷ See eg Edith Weiss (ed), *International Compliance with Nonbinding Accords* (American Society of International Law 1997); Weiss and Jacobson (n 21); Barbara Koremenos, Charles Lipson, and Duncan Snidal, 'The Rational Design of International Institutions' *International Organization*, 55/4 (2001): 761.

analytic possibility that states accepted more specific rules for the easier-to-regulate problem and only vague rules for the more intractable problem.

B. Systems of Regulation

Regulatory IEAs typically provide more clarity than other IEA types about their obligations and nicely illustrate the three main sub-systems that contribute to an IEA's ability to effectively induce behaviour change.

An IEA's primary rule system consists of both core goals and specific proscriptions and prescriptions. Primary rule systems vary, *inter alia*, in whether their goals and rules are specific or vague; ambitious or limited; proscriptive or prescriptive; ban or limit behaviours; target few or many actors; or regulate acts of omission or commission. Deciding which activities to regulate and who will regulate dictate which actors with what interests and capacities must change their behaviour, the difficulty and cost of those changes, and whether other factors will reinforce or undercut compliance. Thus, specificity may foster behaviour change by clarifying expectations for those predisposed to comply while making it more difficult to claim inadvertence or misinterpretation by those predisposed to violate.²⁸ Primary rules tend to be most effective when they take account of the incentives, capacities, and other traits of the states the IEA targets.

Regulatory IEAs also require information systems to track how actors behave, as a basis both for fostering positive, and discouraging negative, behaviours and for assessing progress towards IEA goals. Research on transparency has documented the value of IEA systems that collect, verify, and distribute information about state behaviours in ways that reassure by clarifying how many states are fulfilling their obligations and warn states to protect their interests when some are not.²⁹ Many IEAs rely on self-reporting but develop programmes that incentivize, train, and build reporting capacity. Others review reports or verify performance independently, for example the 1973 CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) reliance on TRAFFIC to monitor endangered species trade.³⁰ IEAs that incorporate NGOs in their information systems gain the benefits of NGOs often having greater incentives and capacities than states to monitor government and corporate behaviours.

Beyond primary rules and information, regulatory IEAs vary in how they respond to member states to foster IEA-consistent behaviour and discourage its opposite. The 'tit-for-tat' reciprocity that underpins many trade and arms treaties³¹ can help resolve some symmetric externalities (eg overfishing) but proves less useful for many international

²⁸ Abram and Antonia Chayes (n 24).

²⁹ See Chapter 52, 'Transparency Procedures', in this volume.

³⁰ On systems of implementation review, see David Victor, Kal Raustiala, and Eugene Skolnikoff (eds), *The Implementation and Effectiveness of International Environmental Commitments: Theory and Practice* (MIT Press 1998).

³¹ Robert Axelrod, *The Evolution of Cooperation* (Basic Books 1984).

environmental problems, such as pollution or habitat degradation, both because states supporting action will rarely degrade the environment to retaliate for degradation by others and because such retaliation would be unlikely to hold much power over those engaged in such degradation. More often, IEAs contain procedures to identify whether non-compliance arose from intention, incapacities, inadvertence, or other factors and then to decide collectively whether the best response is retaliation, deployment of economic sanctions, diplomatic 'naming and shaming', praising positive behaviours, or financial incentives and capacity enhancements.³² These strategies can work either by increasing the material benefits of compliance, the material costs of non-compliance, or the normative pull of compliance.

C. Approaches to Regulation

We can conceptualize the approaches used by regulatory IEAs to shape behaviour as three pairs of two ideal types each: punitive and remunerative, preclusive and generative, and cognitive and normative.³³ First, IEAs often wield influence by distinguishing compliance from non-compliance and punishing or rewarding accordingly. Such punitive and remunerative approaches depend on information and response systems that effectively identify state behaviour and mobilize threatened or promised responses. Punitive approaches create incentives for states to hide non-compliant behaviours, often reducing information about the environmental problem; rewards, by contrast, can require compliance and its verification in advance. Both approaches are vulnerable to a lack of follow-through, however, as states imposing sanctions or providing rewards face significant costs but diffused and uncertain benefits.³⁴

Second, beyond altering the costs and benefits of particular behaviours, IEAs can alter opportunities to engage in them. Preclusive approaches make it more difficult or costly *to engage in* proscribed behaviours, not *to have engaged in* them. The 1987 Montreal Protocol prohibited exports of ozone-depleting chemicals to prevent their consumption by non-member states and the 1973 International Convention for the Prevention of Pollution from Ships adopted standards that shipbuilders voluntarily accepted, which, in turn, precluded ship-owners from buying non-compliant ships.³⁵ These cases illustrate IEAs influencing non-member states whose behaviours they do not even regulate, cases that are not even captured by standard notions of compliance. Alternatively, IEAs can make it easier or less costly for actors to take IEA-conforming actions. Many regional

³² Jørgen Wettestad, 'Science, Politics and Institutional Design: Some Initial Notes on the Long-Range Transboundary Air Pollution Regime' *Journal of Environment and Development*, 4/2 (1995): 165; Downs, Locke, and Barsoom (n 23).

³³ Ronald Mitchell, *International Politics and the Environment* (Sage 2010).

³⁴ Robert Axelrod and Robert Keohane, 'Achieving Cooperation under Anarchy: Strategies and Institutions' in Kenneth Oye (ed), *Cooperation under Anarchy* (Princeton University Press 1986) 226.

³⁵ Ronald Mitchell, *Intentional Oil Pollution at Sea: Environmental Policy and Treaty Compliance* (MIT Press 1994).

agreements promote inspections to detect violations of various marine pollution IEAs by requiring states to submit inspection reports to a central database that inspectors use because it helps them target limited inspection resources more efficiently.³⁶ Neither approach requires post-hoc responses by other states, thereby avoiding the need to monitor compliance and non-compliance. Just as banks lock money in vaults and provide trashcans in their lobbies, states can structure IEAs to make violation harder and fulfilling their commitments easier.

Third, IEAs can alter states' cognitive and normative perspectives on their alternatives. Cognitive approaches clarify available alternatives and their consequences, hoping to alter state calculations of the best ways to further their interests. Such approaches assume IEA-inconsistent behaviour results from states lacking full and accurate knowledge of their choices. Thus, IEAs requiring prior informed consent depend on the assumption that states will reduce unsafe trade in pesticides and hazardous waste if given better information about its risks.³⁷ By contrast, normative approaches seek to induce states to prioritize certain values, norms, and goals in a given realm. They seek to change the ends actors pursue, their beliefs about legitimate means to pursue certain ends, or whether a logic of consequences is an appropriate basis for choice. Concepts such as 'the common heritage of mankind', 'sustainable development',³⁸ and the 'precautionary principle'³⁹ seek to influence how states perceive and discuss particular problems and, thereby, how they behave. Codifying these concepts in IEAs creates rhetorical standards that delegitimize certain still-available actions (extracting deep seabed resources or releasing genetically-modified organisms) as inappropriate ways to achieve their objectives.⁴⁰ Cognitive and normative approaches tend to rely on long-term, internalized shifts that promote broad behavioural changes with little need for monitoring or manipulation of incentives. Unfortunately, cognitive approaches only work when new information shows IEA-consistent behaviours to be in a state's interests and normative approaches tend not to work rapidly.

IV. OTHER CONSIDERATIONS

Before concluding, some final considerations deserve mention. First, a focus on compliance with binding international environmental law ignores the value of numerous forms of non-binding cooperation (eg declarations, joint policy statements, aid programmes)

³⁶ Alan Tan, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation* (CUP 2006).

³⁷ See Chapter 33, 'Hazardous Substances and Activities', in this volume.

³⁸ See Chapter 17, 'Sustainable Development', in this volume.

³⁹ See Chapter 18, 'Precaution', in this volume.

⁴⁰ Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons since 1945* (CUP 2007).

where issues of compliance, legally-defined, do not arise.⁴¹ It also obscures the value of assessing IEAs against environmental, economic, social, and other criteria that an IEA fails to specify clearly enough to allow compliance to be assessed. Third, this chapter has glossed over the ways in which various forces inhibit or promote an IEA's influence including the nature of the problem being addressed and the solutions required (eg size and immediacy of problem; cost and availability of solutions; state of the science); the states involved (eg number, power, incentives, and traits); and the broader international context (eg trends in globalization and democratization; economic and security developments; levels of environmental concern). Such forces vary across problems, states, and contexts, and over time. And IEAs wield influence only when supportive governments, corporations, NGOs, and individuals 'breathe life into' them, tending to fail otherwise.

We understand compliance and IEA influence better when we focus on explaining variation in environmental behaviours rather than on whether and how IEAs influence those behaviours. The former approach foregrounds economic, political, and social influences on environmental behaviours that hinder or foster IEA influence. Identifying and controlling for these makes claims of IEA influence more convincing and allows assessment of whether IEAs wield more or less influence than other factors. New research can clarify when IEA influence is fast or slow and why it varies over time. Policy-makers would benefit from research that compares the influence of IEAs to trade treaties that incorporate environmental considerations, private regulatory governance that sets environmental standards, public-private partnerships, and efforts by NGOs and civil society.

V. CONCLUSION

International environmental law scholarship and practice can be improved by recognizing that a focus on strictly-legal notions of compliance can overstate or understate IEA influence by erroneously crediting IEAs with coincidental compliance and ignoring behavioural changes that fall short of legal standards. An excessive focus on compliance precludes the study of IEAs with vague obligations that leave compliance indeterminate or that influence states that are not members. That said, a careful and causally-informed notion of compliance can focus scholarly attention on how to convincingly show the extent to which post-IEA compliance can be accurately attributed to an IEA and to carefully identify the conditions under which different regulatory approaches best foster an IEA's influence.

⁴¹ Daniel Bodansky, 'Legally-Binding vs. Non-Legally-Binding Instruments' in Scott Barrett, Carlo Carraro, and Jaime Melo (eds), *Towards a Workable and Effective Climate Regime* (CEPR Press 2015) 155.

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