Research Note

What We Know (and Could Know) About International Environmental Agreements

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Abstract

Initiated in 2002, the International Environmental Agreements Data Base (IEADB) catalogs the texts, memberships, and design features of over 3,000 multilateral and bilateral environmental agreements. Using IEADB data, we create a comprehensive review of the evolution of international environmental law, including how the number, subjects, and state memberships in IEAs have changed over time. By providing IEA texts, the IEADB helps scholars identify and systematically code IEA design features. We review scholarship derived from the IEADB on international environmental governance, including insights into IEA membership, formation, and design as well as the deeper structure of international environmental law. We note the IEADB's value as a teaching tool to promote undergraduate and graduate teaching and research. The IEADB's structure and content opens up both broad research realms and specific research questions, and facilitates the ability of scholars to use the IEADB to answer those questions of greatest interest to them.

Efforts by states to manage shared environmental resources, preserve natural habitats, and reduce environmental harm have produced a complex ecosystem of international environmental law. Since 2003, the International Environmental Agreements Database (IEADB) has developed into a comprehensive

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and current census of international environmental agreements (IEAs), fostering access to their texts and data on their design features and memberships.[1] Although other data sets contain many IEAs, the IEADB offers a foundation for research that is more comprehensive, current, consistent, and transparent about its contents. Since 2002, the lead author and colleagues have developed and applied systematic search and inclusion criteria to capture all IEAs, defined as any "intergovernmental document intended as legally binding with a primary stated purpose of preventing or managing human impacts on natural resources" (Mitchell 2003, 432). The IEADB includes agreements, protocols, or amendments that states successfully negotiated, even if they have not entered into force. The IEADB includes searchable texts; dates for signature, ratification, and entry into force; subjects; "lineage" categorizations (see below); performance indicators; and codings of design features. It contains multilateral IEAs (MEAs, open to three or more states) and bilateral ones (BEAs, limited to two states).

The IEADB reliably catalogs IEAs by systematically searching for candidate agreements and evaluating them against specified inclusion criteria.[2] When IEA lists of the 1990s were found to be incomplete in various respects, the IEADB began developing a census of IEAs from more than forty sources, including the United Nations Treaty Series, Environment Programme, and Food and Agriculture Organization; ECOLEX; CIESIN's Environmental Treaties and Resource Indicators; and various scholarly sources. Since then, the IEADB has become more comprehensive and current by systematic and recurring searches of secretariat, foreign and environmental ministry, and news websites as well as user suggestions. Regular assessments of the IEADB's contents consistently failed to find an equally comprehensive, complete, or current list of IEAs, either because of intentional substantive, geographic, or temporal limitations or simply because of IEAs being overlooked.[3] No existing census exists to ensure that the IEADB is comprehensive, but identification of missing IEAs has become increasingly rare, providing some confidence in the comprehensiveness of its coverage for MEAs and extensive, if yet incomplete, coverage for BEAs. That conclusion is supported by a recent network analysis that did not find any IEAs in the IEADB that referenced any IEAs that were absent from it (Kim 2013b). The IEADB seeks to continuously improve its coverage by including appropriate additions that users propose.

The IEADB's census is built by assessing proposed additions against clear definitions of IEAs operationalized as inclusion/exclusion rules, an essential

1. The IEADB undergoes comprehensive updates for new IEAs and new IEA memberships approximately every two years and also adds codings of design features by scholars using it as those become available. This article reflects data as of the update of December 2016.
2. Details on the IEADB's development, definitions, and contents are at https://iea.uoregon.edu/, last accessed December 2, 2019, and in the appendix.
3. Initial sources were individually and collectively incomplete, with many IEAs absent from all and none being the superset of all others. For example, most contained only a few of more than fifty amendments to the 1946 International Convention for the Regulation of Whaling. Most have not been systematically updated, becoming less complete over time. Regular reviews rarely find IEAs missing from the IEADB and add those that are.

process given the diversity of document sources. Inclusion rules for "agreement" and "international" are straightforward: documents are identified as "agreements" if their language shows that states intended them as legally binding (e.g., language on entry into force) and as "international" if they identify two or more governments as eligible for membership. We identify documents as "environmental" using an inductive process of creating a list of keywords that fit common understandings of *environmental*. The lead author initially populated that list by identifying words in titles and preambles that seemed to best explain their inclusion in the original data sets from which they were identified. We have added keywords to that list as the scope of environmental treaties has expanded or when assessing IEAs has failed to capture agreements in which environment was clearly a primary concern. The keyword list intentionally errs on the side of a too-broad definition of *environmental* (e.g., including some IEAs related to agricultural issues or nuclear energy), as scholars can more readily exclude agreements to create their preferred, narrower definitions than they can identify agreements to fit broader ones. The IEADB documents in each IEA's record the keywords used to identify it as environmental; extracting all such keywords allows users to determine the current operationalization of "environmental" agreements. The IEADB documents each IEA's status as an agreement, protocol, or amendment. It assigns each multilateral (with bilaterals in the future) to one or more of eight subject categories (Species, Pollution, Freshwater, Habitat, Energy, Climate, Human Sphere, and Other), and it identifies each IEA with a single "lineage" of IEAs to which it is legally linked to capture the evolution of governance efforts by groups of states to address an environmental problem.

The 3,600 IEAs currently in the IEADB constitute the ecosystem of international environmental law and reflect considerable variation in what problems they address and in the ambitiousness, design, and effectiveness with which they address them. It has become a major resource for scholars, students, and practitioners from around the world seeking IEA texts and metadata, lists of IEAs addressing a given problem, state-specific or IEA-specific membership information, and trends in indicators of international environmental governance.[4] In what follows, we use the IEADB to describe the IEA landscape, to summarize major findings from IEADB-based research, and to identify new research questions the IEADB has opened up.

Describing the Evolution of the IEA Landscape

The IEADB allows a more accurate, complete, and detailed description of how the IEA landscape has evolved than was previously possible. We document the

4. Google Analytics indicates that the IEADB receives visits from every state in the world, including more than one hundred users annually from states that span World Bank income categories: China, India, Pakistan, and the Philippines as well as the United Kingdom and the United States (data available upon request).

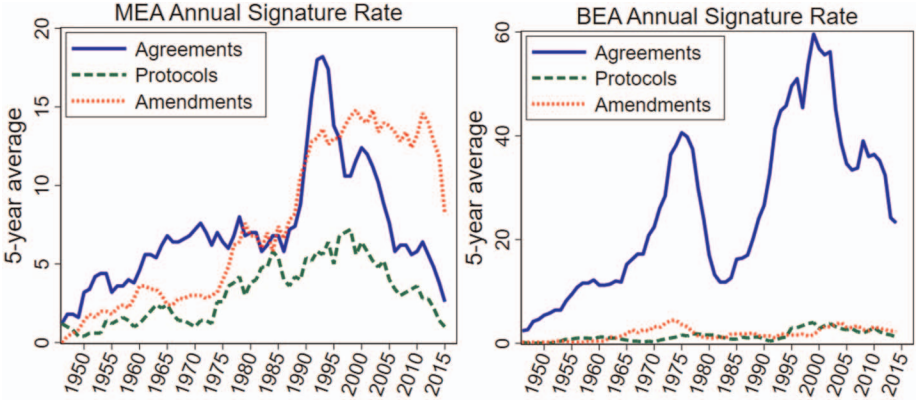

Figure 1
Rates of Successfully Completed IEA Negotiations

growth in MEAs and BEAs over time, the emergence of environmental problems on the international agenda, and variation in how many members IEAs have and how many IEAs states join.

Counting IEAs

Although the 1972 UN Conference on the Human Environment (UNCHE) is often viewed as having kick-started international environmental law (Joyner 2005, 198), states had signed more than 250 IEAs by 1950. Figure 1 shows the five-year moving average of the signing of negotiated "original agreements,"[5] protocols, and amendments, documenting that states negotiate many more original BEAs than MEAs but modify them via protocols and amendments less often. States negotiated many BEAs around the time of UNCHE and both MEAs and BEAs around the time of the 1992 UN Conference on Environment and Development.

These increasing numbers of IEAs have become increasingly diverse in the subjects they address. Assigning each IEA to one of eight subjects (see the appendix at https://iea.uoregon.edu/ieadb_article_online_appendix) shows that species-related concerns of overharvesting fish, marine mammals, and other wild animals and of trade threats to agricultural plants and animals dominated early MEAs and BEAs, with pollution and freshwater resources gaining significant attention only after the 1970s (Balsiger and VanDeveer 2012). Subjects have continued to diversify, and now one-third of IEAs address species, one-third address pollution and energy, and the remaining third cover an array of other issues (Figure 2).

5. We use "original agreement" to refer to IEAs that are not protocols or amendments and independent of their official designation as agreement, treaty, convention, accord, or other non-English synonyms.

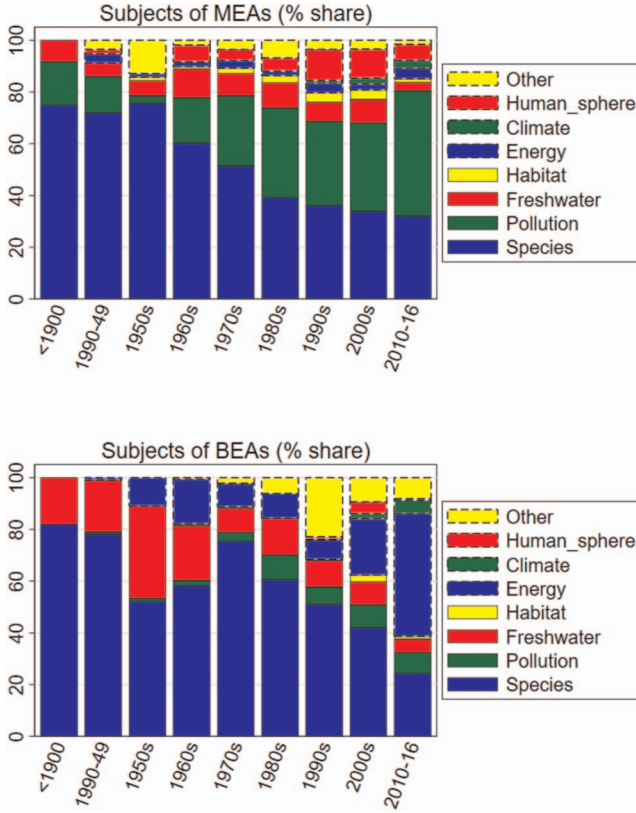

Figure 2
Share of Subjects Covered by MEAs and BEAs

Counting Lineages

The IEA landscape looks different when counting lineages rather than individual IEAs. Mitchell (2003, 435) coined the term *lineage* as a legal parallel to the concept of regime, defining it as a set "of agreements, protocols, and amendments that modify, extend, replace, or explicitly derive from one or more original agreements." The IEADB has placed more than 1,300 MEAs into 290 such lineages, with BEAs to be assigned in the future. Such groupings document when a set of states first address an environmental problem and how they modify their efforts over time. Thus the "ozone protection" lineage began with the 1985 Vienna Convention and has been modified by the 1987 Montreal Protocol and eighteen amendments and adjustments. States initiated the "international whaling" lineage in a 1931 treaty, modifying or replacing it via two treaties, nine protocols, and more than seventy amendments, including a 1982 amendment banning commercial whaling.

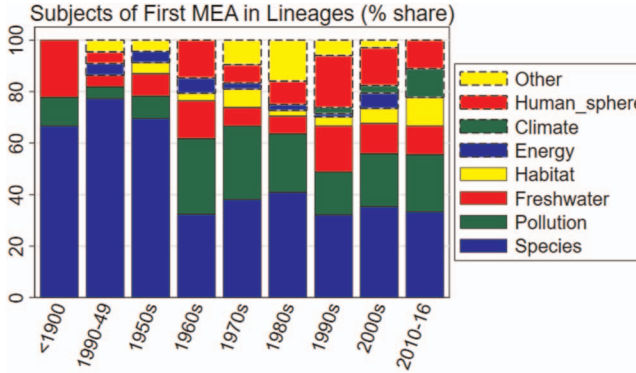

Figure 3
Subject Emergence

As IEAs within a lineage typically address the same subject, we use the subject of each lineage's initiating agreement as a proxy for when a set of states first successfully address a subject within a regional or global setting. Figure 3 graphs lineage-initiating agreements, showing how the mix of subjects addressed by lineages has changed, as states either take up new environmental problems or states in one region imitate efforts in other regions to address a given problem.

The sizes of lineages (the number of IEAs each contains) reflect quite different governance approaches. Of 290 lineages, most (70 percent) are not dynamic regulatory efforts and contain only an initial MEA and one or two modifying protocols or amendments. By contrast, each of the ten largest lineages contain twenty or more MEAs, collectively accounting for almost one-third of the 1,300 MEAs. This variation presumably reflects various factors, including lineage age; changes in scientific knowledge; state preferences that favor strong initial action or prefer to make modifications as support for action grows; changes in domestic and international concern about an environmental problem; and provisions in lineage-initiating IEAs that can require, facilitate, or impede regular modification.

Counting IEA Members and State Memberships

The extent of state engagement in international environmental law, proxied by counts of IEA memberships, has increased rapidly in recent decades. Growth in total IEA memberships reflects more MEAs and BEAs negotiated by states, more states in the international system (UN membership grew from 51 in 1945 to 193 in 2019), and more states joining more MEAs. Most IEAs are small: 80 percent are BEAs, 90 percent of MEAs have 10 or fewer members, and only 30 MEAs have more than 100 members. Many MEAs are open to new members indefinitely, with membership typically increasing over time; therefore, to

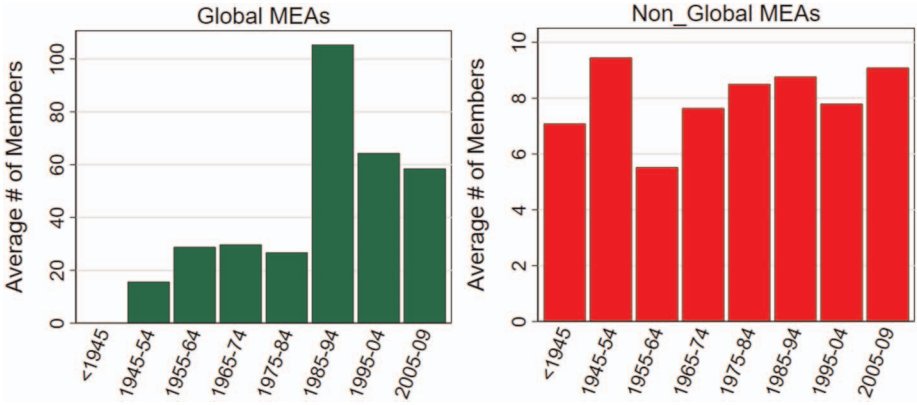

Figure 4
Average Year 9 Memberships in 69 Global and 388 Nonglobal MEA Agreements

compare changes in MEA size accurately over time, we count each MEA's memberships nine years after signature.[6] To address the fact that membership in protocols and amendments is often restricted to, and automatic for, members of the underlying agreement, we analyze 457 MEA agreements that have entered into force and that have at least nine years of membership data. Distinguishing 69 "global" MEAs (open to all UN members) from 388 MEAs that restrict membership reveals that, in their ninth year, global MEAs typically averaged fewer than thirty members until the 1980s but have since averaged more than fifty. By contrast, MEAs restricted to named states, states in a specified region, or states with specified traits have never averaged more than ten members (see Figure 4).

Using these same MEAs to identify the average state's MEA memberships (rather than the average MEA's state memberships) confirms that states are joining more IEAs. The approximately 140 UN members in the 1970s averaged ten MEA memberships; the 180 or more UN members since the early 1990s have averaged more than 50 memberships, with some exceeding 100 and even new states having ten to twenty. The ten states with the most MEA memberships are all European states in the World Bank's high-income category, with each having joined 25 percent (more than 116) of the 457 MEAs assessed.[7] Another twenty-eight have joined at least 15 percent (more than sixty-nine) of these MEAs, including states from all continents and nine that are not high income. This regional and economic diversity reflects various pressures on states to join IEAs, including domestic environmental concerns, international political pressure, and financial incentives included in some MEAs.

6. The average time for an MEA to enter into force is 8.5 years.
7. These are Italy and Finland (116), Spain (118), Sweden and the United Kingdom (133), Belgium (134), Denmark and the Netherlands (144), Norway (153), and France (166).

Using the IEADB to Identify Variation in IEA Design

The IEADB seeks to help scholars describe, compare, and explain variation in IEA design, deepening our understanding of IEA emergence, design, membership, and effectiveness. Providing fully searchable texts allows scholars to identify and categorize how IEA design varies with respect to goals, obligations, and enforcement strategies as well as dispute resolution, amendments, and entry into force. The IEADB initially sought to code key design features for all IEAs to document such variation. That work identified thirty-three IEA design features that, collectively, captured the major functions that IEAs perform. Of these, some proved simple to identify (title, source of text, and entry into force), while others required extensive coder training (e.g., substantive obligations, administrative financing, and information exchange). We succeeded in coding those features for 173 MEAs (152 agreements and 21 protocols and amendments). Codebook development clarified the need for a three-stage process to identify useful categories of IEA variation and to code IEAs into those categories. Stage 1 requires two trained coders reading each IEA multiple times to determine on which of the thirty-three design features it contains relevant information. Stage 2 requires extracting and comparing all paragraphs from all IEAs related to a given design feature to create codebook categories that will allow accurate and consistent coding of how that feature varied. Stage 3, then, requires reliably applying those coding rules to any provisions of interest in the selected IEAs.

The IEADB team completed Stage 1, identifying all paragraphs in each of the 173 MEAs as containing information relevant to at least one design feature. That exercise proved that even with extensive training and coding, intercoder reliability was elusive for Stage 1 alone.[8] We concluded that coding 1,300 MEAs for 33 design features, each with multiple subfeatures, was impractical. The process also revealed that the IEADB could not create appropriate codebook categories (Stage 2) or make appropriate coding choices (Stage 3) without knowing, in advance, the research questions and perspectives of the scholar involved.

Even stopping at Stage 1 generated benefits, however. It clarified a standard structure for IEAs, with goals and problem definitions found in the preamble; major obligations in the first several articles; provisions on monitoring, enforcement, and implementation next; and processes for dispute settlement, duration, and membership toward the end. In addition, our sample of IEAs provides a foundation for future scholarship. Scholars can extract all paragraphs related to a given design feature (e.g., dispute settlement or substantive obligations) (Stage 2) to develop a codebook with which to code IEAs of interest to them (Stage 3) (see, e.g., Green 2014). Alternatively, scholars can select a set of IEAs, code them into the IEADB's thirty-three design features (Stage 1), and then conduct Stage 2 and 3 coding to reflect their research interests.

8. For IEAs in the sample, the IEADB makes the codings of both coders available so users can assess intercoder reliability.

The ease of accessing texts also allows scholars to ignore our sample and select IEAs, download texts, and develop their own coding strategies. For example, Mitchell selected 517 MEAs (excluding protocols and amendments); identified their paragraphs related to membership, duration, reservations, and entry into force; and coded their empirical variation in fewer than ten hours. This exploratory exercise (see Table 1) confirmed intuitive expectations that MEA membership rules vary widely; entry into force of most, but not all, MEAs requires legislative "consent to be bound," not just executive signature; few MEAs limit their duration; and most are silent on, or preclude, states from making reservations. The value of such efforts lies as much in creating empirically useful categories as it does in describing variation across those categories.

IEADB Findings

Beyond clarifying the status and evolution of international environmental law, the IEADB allows scholars to gain new insight into the design, membership, and effects of IEAs. We summarize some of these findings here.

IEA Membership as an Independent Variable

The IEADB data on memberships have fostered research clarifying the links between state and IEA characteristics.[9] In addressing common pool resource problems, states prefer cooperating with neighbors, with close trading partners, and with states with similarly sized economies (Besedeš et al. 2016). In addressing overfishing problems, states negotiate IEAs to take advantage of complementarities among the functions provided by multiple BEAs and MEAs, a finding derived by combining data from the IEADB and other sources into a Global Fisheries Governance database (Hollway and Koskinen 2016a, 2016b). Further network analysis showed that fishery cooperation often starts among neighbors but later becomes more likely among states that already share IEA memberships (Stadtfeld et al. 2017).

Other scholars have used IEADB membership data to investigate state behavior. Andonova et al. (2017), for example, find that state IEA ratifications provide a broad proxy for environmental cooperation that helps explain the form of transnational climate governance. Scholars have incorporated IEA membership counts into a vulnerability-resilience index (Kolcava et al. 2019) used to explain cooperation over shared resources (Kalbhenn 2011) and environmental resilience (Angeon and Bates 2015). Prakash and Potoski (2014) use IEA memberships as a metric of state environmental policy stringency, finding that ISO-14000 rules only influence policy in states with few IEA memberships. States, especially lower-income states, tend to adopt new environmental regulations

9. Depending on their research interests, scholars operationalize membership using signature, ratification, or entry into force dates.

Table 1
MEA Design Features*

	Number
MEMBER ELIGIBILITY	
Closed	153
Open	136
Restriction basis	228
IO/other treaty	80
Geography	60
By invitation	39
Designated states	26
Functional	23
TOTAL	**517**
ENTRY INTO FORCE	
Consent to be bound	424
Delay after conditions met	234
When consent conditions met	181
Consent inferred	9
Upon signature	88
Language missing	5
TOTAL	**517**
DURATION	
Indefinite	489
Inferred or language missing	362
Specified	72
Autoextension	55
Duration limited	28
TOTAL	**517**
RESERVATIONS	
Reservation language missing	368
No reservations allowed	81
Only ratification reservations	24
All reservations allowed	23
Some reservations allowed	21
TOTAL	**517**

*Numbers for second-level (underlined) categories are the sum of any third-level (normal font) categories.

during periods when they are joining many IEAs (Brandi et al., 2019), and a state's annual environmental credibility score (the share of MEAs it has joined) predicts better than its economic power whether its trade agreements include environmental provisions (Morin et al. 2019).

Analyzing IEA Formation, IEA Design, and the Structure of International Environmental Law

The IEADB's census particularly fosters research that requires systematic selection and coding of IEAs. Green, alone and with Colgan, investigated delegation by building out the IEADB's Stage 1 codings to distinguish the policy functions that MEAs include and the actors to whom they delegate them (Green 2014, 61; Green and Colgan 2013). States prefer to delegate to public actors and to share delegation if delegating to private actors, and delegation is better predicted by shared preferences among states than by an MEA's number of members or voting rules (Green 2014; Green and Colgan 2013).

Scholars have also investigated claims regarding problem structure's influence on IEA design (Koremenos et al. 2001; Mitchell 2006). Coding nineteen IEA processes showed that states favor integrated, globalized, and formal IEAs when addressing industrial-sector environmental problems as opposed to agricultural or land-use sector problems (Ovodenko 2016; Ovodenko 2017). Balsiger and Prys (2016) found that a problem's geographic characteristics influence how likely states are to negotiate IEAs and the institutional form and obligational precision of IEAs, with states strongly preferring regional over global cooperation (Balsiger and Prys 2016). Spilker and Koubi (2016) and Mohrenberg et al. (2019) show that states take longer to ratify MEAs not only if domestic law requires a supermajority but also if the MEA contains provisions related to dispute settlement, monitoring, enforcement, quantitative targets, and financial mechanisms.

Scholars also have compared IEAs to treaties in other issue areas. Comparing sixty-seven MEAs to a sample of nonenvironmental UN treaties, Axelrod (2011) found the former were more deferential to international law in trade and other areas. Analyzing 300 IEAs selected as containing health-related provisions, Morin et al. (2019; Morin and Blouin 2019) revealed the large, previously unrecognized contributions of IEAs to global health governance, and Henckens et al. (2018, 355) found that extant MEAs provide strong normative foundations for negotiating a new treaty on sustainable use of mineral resources.

Finally, scholars have used the IEADB to reveal the structure of international environmental law. IEAs have helped reshape the substance and processes of global environmental governance, fostering involvement by transnational and subnational environmental actors and mainstreaming environmental issues in trade agreements, development banks, and other nonenvironmental entities (Andonova and Mitchell 2010). Bigagli (2016, 155, 57) found that IEA fragmentation likely hinders emergence of an "adaptive, complex systems approach" to

ocean governance. More optimistically, others have shown that IEA fragmentation has declined over time in ways that foster polycentric governance and adaptive capacity (Kim 2013a, 988; see also Kim, forthcoming) and that, despite gaps, the IEA network could support strong global policies on emerging problems of nitrogen and phosphorus pollution (Ahlström and Cornell 2018).

Pedagogic Value

The IEADB also has received increasing use from teachers encouraging graduate and undergraduate students to read specific IEA texts; to learn how lineages have evolved; or to undertake deeper research into IEA formation, design, and effectiveness. The IEADB seeks to provide basic facts and texts in ways that prompt user interest and point them to related IEAs, to data on effectiveness, and to existing scholarship on IEAs. IEADB data have contributed to doctoral dissertations investigating various research questions (Hollway 2015; Jessberger 2010; Jo 2008; Kim 2013b, 2014), and a forthcoming global environmental politics textbook references the IEADB extensively to describe global environmental cooperation and to clarify factors that foster such cooperation (Morin et al., 2020).

The Future of IEADB Research and the IEADB

The IEADB opens up numerous research frontiers into which environmental problems receive attention, which IEAs attract which types of states, which states sign more IEAs or do so more quickly, and which design features are common or rare. The ability to describe such patterns prompts research to explain them and to draw lessons for governance. The IEADB can deepen existing research programs, for example, by extending our knowledge of how the IEAs that states negotiate and the states that join them are influenced by the characteristics of states and the provisions IEAs contain (Balsiger 2012; Bernauer and Böhmelt 2013; Bernauer et al. 2013; Neumayer 2002; Perrin and Bernauer 2010; Roberts et al. 2004).

The IEADB offers particular value to scholars seeking to assess findings from single IEA case studies against multiple IEAs. For example, Bernauer et al. (2013) found, across many IEAs, that state membership was deterred by specific obligations but attracted by positive incentives. But scholars might investigate claims about the negotiation and approval burden imposed on particular types of states, for example, by creating metrics of how many IEAs states negotiate and ratify each year (Muñoz et al. 2009). By helping scholars systematically code any design feature for large numbers of IEAs, easily access membership data, and quickly combine IEA data with other data, the IEADB allows scholars to assess claims about how state characteristics influence choices regarding negotiating forums, design features, membership, and whether to comply.

Scholars also could investigate untested theories of how problem structure influences institutional design. The plethora of problem structure typologies and their influence on institutional design have received little empirical assessment (Hasenclever et al. 1996; Koremenos et al. 2001; Miles et al. 2002; Young 2002). Comparing across IEAs allows such assessments, holding particular promise in identifying and comparing cases where states adopted alternative designs in response to similar problems (Breitmeier et al. 1996; Hovi et al. 2003). Scholars could categorize the factors that influence how states define problems, set goals, and choose strategies, including comparative assessments of shallow versus deep obligations, open versus restrictive membership, incentives versus sanctions, self-reporting versus monitoring, and instrumental versus normative interventions (Downs et al. 1996; Gupta and Mason 2014; Mitchell and Keilbach 2001).

The IEADB also fosters large-*N* analysis of questions of IEA effectiveness. It encourages examining variation across IEAs, not just across states and time, foregrounding questions of how IEA goals, obligations, and monitoring and response systems influence whether states alter their behavior (e.g., Ringquist and Kostadinova 2005; Siegfried and Bernauer 2007). Kim compared members and nonmembers across MEAs and documented better performance from legally binding IEAs that promoted flexible decision-making (Kim 2014; Kim et al. 2017). Future research could assess the effects, rather than the determinants, of variation in IEA features mentioned in the previous paragraph (Böhmelt and Pilster 2010; Cirone and Urpelainen 2013). Analyses across hundreds of IEAs could disentangle the interplay and endogeneity among problem structure, IEA design, state characteristics, international context, and IEA effects (Mitchell 2009; von Stein 2005). Those results, in turn, could open up research on the "relative effectiveness" of IEAs to other IEAs, to private regimes among corporations, and to NGO campaigns and how such effectiveness depends on context.

Going forward, the IEADB will seek to make IEA coverage more comprehensive and current while building a repository of reliable data on IEAs that meets the research interests of scholars, practitioners, and students. One major goal is a systematic, multi-language search of state environmental and foreign ministries to increase the IEADB's coverage of BEAs. Another is keeping the IEADB more current by making identification and entry of new IEAs and membership data into the IEADB easier and more efficient. We are developing procedures to allow scholars to share relevant data (by providing hosting services on the IEADB or links to externally-hosted sites) including codings of IEA design features, independent data sets such as the International Regimes Database, or data sets combining IEADB and other data (Breitmeier et al. 2011).[10] To foster investigation of IEA effectiveness, the IEADB is designing strategies for linking state-year behavioral and environmental data to relevant IEAs, such as catch

10. We are developing strategies so scholars can control the content, timing, and conditions for releasing data.

data for fishery IEAs, harvest and population data for species IEAs, and emissions data for pollution IEAs. The IEADB will increasingly rely on crowdsourcing in these efforts as a way to improve the quality and depth of the IEADB's contents while fostering the research community's engagement with the IEADB.

Conclusions

The IEADB offers scholars, practitioners, and students a comprehensive overview of the state and evolution of international environmental lawmaking. It provides reliable texts, metadata, membership, and codings on IEAs and fosters coding of their features. Here we have described the landscape of international environmental law with improved detail and accuracy. We have summarized key findings from a growing literature enabled by the IEADB, including research on IEA formation, design, membership, and effectiveness as well as the larger structure of international environmental law, and we have identified new research frontiers opened up by the IEADB. We hope the IEADB will continue to help scholars as they improve the understanding and practice of international environmental law.

Ronald B. Mitchell is a professor of political science and environmental studies at the University of Oregon and an expert on international environmental politics and law. He founded and directs the International Environmental Agreements Database Project, a catalog of all environmental treaties. His research investigates the design and effectiveness of international environmental treaties. He has published four books and more than fifty articles and chapters, including in *International Organization*, *Global Environmental Politics*, and *Annual Review of Environment and Resources*. He has received three US National Science Foundation grants and the American Political Science Association's 2018 Elinor Ostrom Career Achievement Award.

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Jörg Balsiger is an associate professor at the Geneva School of Social Sciences and director of the Institute and Hub for Environmental Governance and Territorial Development at the University of Geneva, Switzerland. His research and publications examine the dynamics of regional environmental politics, with a special focus on sustainable development in transboundary mountain regions; he is also actively involved in promoting and coordinating mountain research at the national, regional, and global levels. He has coordinated the most systematic global assessment of regional environmental agreements and is currently working on a book manuscript on the topic.

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