Governing the Anthropocene:

Causes and effects of environmental governance in a comparative perspective.

Purpose and aims

This project addresses two central questions in the study on environmental governance: 1) Which factors explain cross-national differences in environmental policy outputs, and 2) Are environmental policy outputs linked to reductions of environmental harm? By compiling a data set of longitudinal and comparative environmental policy outputs in 38 countries for the period 1970-2010, this project will be able to address fundamental questions about society’s ability to respond to environmental problems, as well as providing evidence-based policy advice on the relative strengths and weaknesses of different policy instruments.

Global environmental change is threatening prosperity and well-being in developed and developing countries alike. Some scholars argue that we have now entered the geological age of Anthropocene, defined as an era in which humans have become the dominating factor in shaping the biosphere (Zalasiewicz et al. 2010). Perhaps less noticeable, there is also an ongoing and accelerating governance response to the changing global environment. Societies all around the globe are struggling to address problems related to environmental degradation, and environmental management and protection is now considered a core area of state responsibility in most countries. Indeed, many states now devote substantial proportions of their public spending to environmental monitoring, protection and restoration, and many have consequently developed considerable administrative, institutional, regulatory, and legislative capacities in the area. In the light of these large-scale and momentous developments, it is generally recognized that mitigating the ecological crisis will—and perhaps must—entail a reorganization of the social and political world on par with the previous great transformations, such as the emergence of the nation state system, the market economy, liberal democracy, or the welfare state. This project aims to understand this transformative process of society’s relationship with nature by studying the causes and effects of environmental policy making in a comparative perspective.

A number of previous studies (Jänicke and Weidner 1997; Weidner and Jänicke 2002; Holzinger et al. 2008) has found compelling evidence for a regulatory expansion in the environmental area that has been ongoing since the beginning of the 1970’s in most industrialized countries. Although this finding is well-established in the literature, few previous studies have focused on understanding both the causes and consequences of this regulatory expansion in the environmental area on a broad empirical basis. In other words, not only do we not understand the driving forces behind why societies are responding to environmental problems; we are also in dark with regards to the effects of society’s attempts at addressing environmental problems.
Survey of the field

This project brings together two separate strands of research within comparative environmental politics: policy change studies and environmental performance studies. Studies of policy change focus on understanding the observed regulatory expansion among industrialized countries, and various forms of policy diffusion processes are often advanced as main hypotheses. Research on environmental performance concerns the search for factors that can account for the vast differences in the ability of countries to address environmental problems. This body of research is less mature and does not have a privileged explanation for cross-national variation, but there are a number of reoccurring findings that can provide a starting point for continued research. The following section summarizes these two bodies of research and identifies knowledge gaps and outstanding issues in need of further study.

Environmental performance: the effectiveness of environmental policies and institutions

This quest to understand the determinants behind the environmental performance of states has primarily been conducted using large-N studies in which indicators of environmental quality are regressed against a set of socio-political explanatory variables. Pioneering works in this tradition are papers by Crepaz (1995), Jahn (1998) and Scruggs (1999) who tried to explain variations in point-source emission reductions among OECD countries. These early studies found that consensual democracies and corporatist labor market structures seemed to be associated with a better environmental record, possibly as a consequence of having a more developed set of institutions for negotiation and compromise between business interests and state actors. Findings from these early studies (in particular the effect of neo-corporatism) have subsequently been contested by later studies (Scruggs 2001; Neumayer 2003; Scruggs 2003; Walti 2004), and the applicability of the results is yet to be determined for diffuse-source emissions and natural resource management. A later sub-theme in studies on environmental performance has been the focus on the importance of good governance in combating environmental degradation. Here the guiding notion has been that countries with higher levels of institutional quality (in the sense of low levels of corruption and public governance in adherence to the principles of rule of law) can be expected to facilitate collaboration between societal actors seeking to address environmental problems (Robbins 2000). Some studies have indicated the existence of such an effect (Esty and Porter 2005; Pellegrini and Gerlagh 2006), whereas others fail to find any such linkages (Grafton and Knowles 2004; Duit, Hall et al. 2009). One reason for these mixed results can be, as (Barrett et al. 2006) points out, that institutional quality, in addition to being helpful when states are trying to protect the environment, is also a prerequisite for effective resource utilization.

Despite a fair amount of studies on this topic, a coherent understanding of what causes better environmental performance is yet to emerge. We still do not understand why some countries seem to do so much more and are so much better at protecting their own as well as global environments (Fiorino 2011). There are at least three causes to this knowledge gap. An first important reason are the difficulties associated with measuring environmental performance (Neumayer 2004; Meadowcroft 2012). Earlier studies tended to use estimates of
point-source emissions as proxies for environmental performance, which are often reliable but of limited validity in reflecting a state’s overall environmental performance. A second problem is that the policy process itself has been largely black-boxed, in the sense that most studies have in effect been designed to search for correlational patterns between political structures (e.g. democracy, corruption) and environmental outcomes (e.g. forest cover loss, SO2 emissions etc.). A third problem is that the vast majority of previous studies have been carried out using a sample of countries heavily biased towards OECD countries, thereby disregarding environmental governance in emerging economies. A fourth problem is that most studies of environmental performance have been distinctively explorative and therefore not relying on theoretically founded analytical models, which has prevented the emergence of a cumulative research program.

Policy change: what explains expansion of environmental policy?

There are a number of competing theories that can be used for explaining environmental policy change in a comparative perspective. Kemmerling and Bruttel (2006) identify a ‘holy trinity’ of theories on policy change: regulatory competition, policy learning and the effects of the domestic institutional framework. The latter can be divided into three subcategories: theories on path dependence, veto players and the role of the administrative capacity to develop and revise policies. Based on the categorization by Jones (1994; Wilson 2000: 250), two explanatory approaches on event-driven change and representational change complete the repertoire of theories on environmental policy change.

The theory of regulatory competition ranks prominently amongst the various approaches to explain environmental policy change (Holzinger and Sommerer 2011). To gain a competitive advantage for its economy, a government can decide to make their policy more distinct from the policies of its main competitors (Lazer 2001). The metaphor of a downwards spiral and a competition among governments of industrial nations has found its way into a standard illustration of regulatory change. The direction of change is central to a “race to the bottom” or a “race to the top”. In its classical formulation, the theory of regulatory competition predicts a downward trend of standards, e.g. on environmental protection, which will end up 'stuck at the bottom' (Wheeler 2000). Under specific circumstances, an opposite trend towards stricter regulations could occur as well (Vogel 1995; Holzinger 2003).

Theories of policy learning and policy diffusion are another popular approach to explaining regulatory change, which have been applied to the study of environmental politics as well. For this causal mechanism, it is basically assumed that states observe and assess the policy of other countries and transfer adequate solutions to their own polity (Simmons and Elkins 2004; Meseguer 2004; Volden 2006; Holzinger, Knill and Sommerer 2008). A process of learning is expected to lead to a gradual approximation or even a full imitation of foreign models (Holzinger, Knill and Arts 2008). Policy learning is commonly defined in a behaviorist way, meaning that it is based on the observation of existing policy models (Levy 1994). So learning presupposes the pioneering activities of other countries and a time lag that necessarily occurs between this and an imitation by a foreign government. Learning from
success should lead to an upward shift in the regulatory level (Volden 2006; Meseguer 2004). Emulation and herding are often associated with an inefficient or inadequate outcome, which could also a downward shift (Levi-Faur 2002).

There are various concepts referring to the influence of the domestic institutional context. A first theory refers to the power of veto player - both institutional and partisan – as obstacles to the change of a policy. Formalized by Tsebelis (1995, 2002), this theory has been widely tested across issue areas, however only rarely in the field of environmental politics (Knill, Debus and Heichel 2010). The basic assumption is that change will occur less frequently in a domestic context where veto player are powerful. Friction should be greater in presidential systems than in parliamentary systems, since policy change in the former is dependent on approval from several different bodies (Jones and Baumgartner 2005). Another aspect of the domestic institutional context, the role of administrative capacity, is more established in the environmental politics literature. It is assumed that organizational resources influence a governments’ ability to develop new policy and reform existing ones. It has been shown empirically that the existence of an independent environmental ministry affects the environmental performance of a country (Jänicke 2005: 130).

A final group of explanatory factors that could drive policy innovations and reforms could be subsumed under the label domestic demand. In this regard, Jones (1994) distinguishes event-driven change and change driven by the representation of domestic interests. It is widely agreed that environmental policy change could be affected by domestic political preferences, electoral competition and the presence of issue specific parties and well organized interest groups (Vogel 2000: 267). The societal mobilization of green interest groups is broadly associated with the spread of environmental policies (Schreurs 2002; Binder and Neumayer 2005). Vogel (2000) argues that in countries with a strong demand for green policies and with influential green pressure groups, we will find stronger and better enforced regulations. A high level of pollution, economical wealth and widespread post-materialist orientation represent the demand for ambitious environmental policies (Scruggs 2003; Weidner 2002).

The existing literature on environmental policy change exhibits three blind spots. All three are related to a selection bias found in many previous studies which have almost exclusively been applied in studies of policy-making in advanced industrial economies. Such countries are often intimately linked to each other through international organizations with controlled access (e.g. EU, OECD). This selection in earlier studies means that the effect of policy diffusion mechanisms (regulatory competition, policy learning, and international harmonization) becomes inflated, and only a more heterogeneous sample of countries can correct for this problem. A second shortcoming has to do more specifically with the notion of regulatory competition as a driver for more stringent environmental policies. Critics have argue that regulatory competition only servers to externalize environmental costs from advanced to developing economies, and that the relative success observed in cleaning up industrial production in the OECD world is really just a story about displacement of environmental damage to less advanced economies (Wackernagel, Schulz et al. 2002). Third, the focus on countries from Europe and Northern America also makes it difficult to assess the
impact of the level of economic development on the scope and stringency of environmental protection measures. By collecting and analyzing in-depth and longitudinal data on policy instruments and policy stringency from a sample of countries including both advanced and emerging economies, these blind spots in previous studies can be addressed.

**Project description**

This project is divided into two main sections, each corresponding to one overarching research question.

*Part 1: Policy change: causes of environmental governance*

In this part of the project, the aim is to construct a model for predicting environmental policy outputs in a comparative perspective. As seen above, there are several suggestions in the literature for how we can understand the driving forces behind the emergence of environmental policy-making capacity. A key hypothesis to be tested in this part of the project is whether policy diffusion processes can account for regulatory expansion also in emerging economies. The dependent variable can be specified in several different ways: as policy adoption (the rate at which a country adopts policies in different policy areas); as policy stringency (in terms of limit values or target values); or as policy instrument types (e.g. economic instruments, formal regulation, or voluntary agreements). In addition to exploring the main hypothesis about policy diffusion, we will also collect data for and assess the impact of other potential explanations of environmental policy output. An obvious such is problem pressure, which varies over time, policy areas, and countries and which can be assessed using state-of-the environment statistics collectable from international data sets. A second group of factors are related to the political system of a country: the presence of a green party (and its parliamentary position), the saliency of the environmental issue, the strength of the environmental movement, and the prevalence of environmental attitudes among citizens. The first two factors can be assessed longitudinally using the Manifesto Data Base (Budge 2001; Klingeman, Volkens et al. 2006), and the latter two using World Values Survey data. In addition to modeling the growth of environmental policy outputs, we will also analyze the outstanding issues identified in the literature review above. Specifically, by comparing regulatory standards and stringency over time and between countries we will able to draw far-reaching conclusions about a possible race to the bottom.

*Part 2: Effects of environmental governance.*

This part of the project addresses the overarching question about the effects of society’s efforts – through policy-making and institution-building– at mitigating environmental degradation. Specifically, research in this part studies the relationship between societal responses to environmental problems through policy outputs and the resulting outcomes (or lack thereof) in the natural environment.

The chief independent variable in this part of the project will therefore consist in different measures of policy outputs, whereas the dependent variable in this section will
consist in various measures of environmental policy outcomes over time, e.g. reductions in environmentally damaging emissions, concentrations of harmful substances in soils and water, and improvement in natural systems and landscapes such as increased biodiversity and reduced levels of forest cover. Compared to data on social aspects of environmental problems, there is a wealth of cross-sectional and longitudinal data on the state of natural systems. Many of these state-of-the-environment variables can be matched with a corresponding policy output coded in our dataset (see below). For instance, it will be possible to analyze if a more stringent limit value in lead content of gasoline leads to lower levels of lead found in the natural environment, or if an earlier adoption of a policy for waste recycling transforms into a larger proportion of waste being recycled. It should be noted, however, that this analytical strategy is only possible for relatively local environmental problems – changes in nature due to transboundary environmental problems such as acidification cannot be attributed to the actions of a single government. For this reason we will also construct measures of overall policy stringency for each country and assess these against aggregated measures of the state of the environment (e.g. the EPI and Environmental Footprint indexes).

Data collection

A key precondition for analyzing both causes and consequences of environmental regulatory expansion is longitudinal and cross-sectional data of high quality which accurately reflects the environmental policy portfolio of each country. This data must also be comparable over cases if meaningful comparisons are to be possible. The ENVIPOLCON project has recorded the presence of and changes in environmental policy outputs (e.g. limit values, product standards, process standards, policy instruments) for a total of nine environmental policy areas for the period 1970 to 2000 in 24 countries. This is an invaluable data source for estimating variation in policy outputs between states, but the overrepresentation of EU-countries in the sample (only Norway, Switzerland, Japan, Mexico and the US are non-EU countries in the sample, and only Mexico is an emerging economy) limits the possibility to make inferences that are applicable beyond a very small group of countries. Furthermore, as the ENVIPOLCON data is predominantly recording policy outputs for “first generation” environmental problem, this project will also add new policy categories from “second generation” policies. In total, this project will extend the ENVIPOLCON data base in five ways:

1) *Extending the set of countries to include non-EU countries and emerging economies.* Specifically, we will add five industrialized non-EU countries (Australia, Canada, Iceland, New Zealand, and South Korea) as well as nine non-European emerging economies (Argentina, Brazil, Chile, China, India, South Africa, Russia, Thailand and Turkey). Extending the sample to include non-European and emerging economies will enable extensive testing of the environmental externalization hypothesis, as we will produce a comparative dataset of environmental policy outputs that allows for analyzing diffusion processes and detection of possible “races to the bottom.”
2) **New “second generation” policy areas and instruments.** In addition to incorporating 14 new countries in the database, we will also introduce a set of new policy items in the combined data set of 38 countries. Most policies coded in the original ENVIPOLCON data set are related to “first generation” environmental problems related to industrial production, energy, and waste management. In particular, policy outputs pertaining to “second generation” environmental problems such as climate change, eutrophication, and biodiversity management are missing from the original dataset. We will therefore add a total of three new policy items for greenhouse gas regulation, biodiversity regulation, and eutrophication regulation to the data set. These new policy items will be coded using the same template as in the original data set, making them fully integrated.

3) **Updating all policy items.** The original ENVIPOLCON data base only recorded environmental policy outputs until the year 2000. Environmental policy making has continued to expand rapidly since then and we will therefore extend coding for all policy outputs items in both original and new countries in the database up until the year 2010.

4) **State interventions in the economy.** In addition to coding and measuring policy outputs we will also incorporate other measures of a country’s efforts at mitigating environmental harms. One particularly interesting aspect is the extent to which the states intervenes in the economy through environmental taxes and expenditures for the purpose of preventing environmental damage or mitigate the effects of environmental degradation. Comparative data on state-level expenditures on environmental protection is available through multiple and sometimes overlapping sources. The UN's System of National accounts (SNA 1993 and SNA 2008) contain data for government spending on environmental protection in a selection of countries, as does the OECD in their Environmental Outlook series. The OECD and Eurostat also provide data on environmental taxes, subsidies, and fees for the OECD countries. An important task is to merge these different data sources into a more coherent estimate of the level of public spending and transfers with environmental relevance.

5) **Environmental institution.** Finally, we will also code some institutional aspects of the environmental issue. Of interest here are the formal institutions of environmental governance, such as the existence and timing of a ministry of the environment, an environmental agency, an environmental framework law, and a system for environmental licensing and arbitration through environmental courts or administrative units. We will also seek to gather information on things such as the budget and staff size of the environmental administration. This data is necessary for giving a complete picture of regulatory capacity of a country.

**Strategies for data collection and coding**

Data produced first-hand by the project (essentially 1-3 and 5 above) will be collected using a two-step strategy. The first step consists in contracting country policy experts to collect (and translate into English when necessary) the relevant legislation and regulations.
Comprehensive guidelines for country experts on how to identify relevant legislation is already available through the ENVIPOLCON project, and these guidelines will be updated to include the additional time periods and policy items specified above. Country experts will receive reimbursement for their time and efforts. In a second step, the material gathered by country experts will be coded by project researchers, again using a revised version of the ENVIPOLCON’s coding manual to ensure compatibility with the original data set. The coding procedure is relatively costly and time-consuming, but it also generates unique and high-quality data with direct relevance for both practitioners and scholars in the field of environmental governance.

Significance

This project will provide much-needed research about which political factors contribute to society’s ability to address problems of environmental degradation. In particular, the comparative and longitudinal design, a large and diverse sample of countries, detailed and high-quality data about environmental policy outputs, and will provide new opportunities to address long-standing issues about the effectiveness of policy instruments.

In addition, this project will, thanks to the analytically powerful combination of high-validity data and longitudinal and cross-sectional design, be able to address two issues of high societal relevance. First, we will be able to assess the relative effectiveness of different policy instruments for addressing different environmental problems, which in turn can be used to produce evidence-based policy advice regarding the selection of policy instruments. Second, a sample including both “old” and “new” industrialized countries will let us address the debate about a “race to the bottom” in terms of environmental regulatory standards (Vogel 1997), as well as concerns about the externalization of environmental costs from advanced to emerging economies.

Preliminary results

Andreas Duit has published several articles and chapters on environmental performance and is also the editor of a forthcoming volume on comparative environmental politics. Thomas Sommerer has published extensively on environmental policy diffusion and policy change.

Responsibilities, time schedule, and deliverables

Andreas Duit will function as principal investigator and carry the overall responsibility for the completion and quality of the project. Thomas Sommerer was a member of the original ENVIPOLCON research team and his detailed knowledge of the original coding procedures will ensure comparability between the new and old data sets. Duit and Sommerer will be jointly working with data collection, data analysis, and publication of results. A post-doc researcher will be recruited through an international and open search process. The post-doc will be responsible for managing data collection and coding efforts, but is also expected to partake in analysis and writing publications in collaboration with other project members and individually. Finally, two research assistants will be employed during the first project year.
This is a substantial post in the project budget, but nevertheless necessary for generate the unique and extensive data set on which the project rests.

The first project year will mainly be devoted to data collection, and the second and third years will be used for analysis and dissemination of results. Findings from the project will be reported in international peer-reviewed journals, and summarized in a monograph published by a major international science publisher. The data set produced by the project will be made publicly available for download on a Stockholm university webpage within two years of the completion of the project. At this time the full data set, along with metadata description, will also be submitted SND for storage and public access.

**International collaboration**

The project will be conducted in close cooperation with Prof. Christoph Knill and his research group at University of Konstanz, Germany. Knill is a leading scholar in comparative environmental politics and policy. Preliminary plans have been established regarding a more systematic collaboration between comparative policy researchers in Stockholm and Konstanz.

An international advisory board consisting of Prof Christoph Knill, University of Konstanz, Katarina Holzinger, University of Konstanz, Prof. Peter John, University College London, and Prof. James Meadowcroft, Carlton University, Canada. Knill and Holzinger lead the original ENVIPOCON project and are both renowned scholars of comparative environmental politics and policy diffusion and are thus a most valuable source of expertise and experience. Peter John is a distinguished policy scholar with ample experience from comparative policy research as well as evidence-based policy analysis. James Meadowcroft is an authority in comparative environmental politics, and his research has focused on the state and the environment and difficulties in measuring environmental performance. The advisory group will conduct annual meetings with the project group, as well as continuously review progress and offer advice for key analytical decisions.

**References**


