

Understanding Environmental Performance of States:  
An Institution-centered Approach and Some Difficulties

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# Introduction<sup>1</sup>

Tracing its roots to the 1960s, environmental politics is approaching middle age. Although groups, societies and civilizations have been co-evolving with their natural environments throughout the history of humankind, modern nation states have only recognized the environmental problem as a political issue since the beginning of the 1960s. On an evolutionary or even historical time scale this is a very brief period, but it might nevertheless be tempting to think about environmental politics and policies as a yet another iteration in the ongoing process of adaptation to limits posed by the natural resource base. The difference might be that this time around, human and social adaptation to ecological limits is predominantly to be achieved within the framework of one of modernity's more peculiar inventions – the nation state. Although environmental politics displays a gradual migration from national to international policy arenas, the nation state is still the primary site for environmental management. Despite often voiced claims of environmental degradation as a prime example of globalized problems of the modern age, it is still nation states that manage or mismanage natural resources, reduce or increase emissions of harmful substances into air, water, and soils, stimulate or repress environmentally beneficial behaviour among their citizens, and choose to cooperate or defect from international environmental treaties. Since the nation state remains the primary mode of social and political organization and decision-making, it is important to understand how different aspects of this form of political organization affects the ability to address problems of environmental degradation.

For that purpose, this paper argues and outlines an *institution-centred* approach to the comparative study of environmental politics. This approach is based on the assumption that most environmental problems can be described as a conflict between collective and individual rationality to be found on all levels of society, ranging from interactions between individuals (e.g. recycling household waste) to international relations between states (e.g. international treaties and conventions such as the Kyoto protocol) (Hardin, 1968; Ostrom, 1990, 1998, Rothstein 2000, Sandler 2004). In practical settings, these environmental “social traps” (Rothstein 2000) can take on many concrete forms, ranging from difficulties in securing widespread participation in household waste recycling schemes to limited participation among nations in the Kyoto Protocol treaty. At the heart of all these cases of collective action

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problems is a profound difficulty of externalization of environmental costs: the inability to secure environmental collective action means that no single actor picks up the tab for environmental degradation. If environmental problems can be understood as fundamentally rooted in the difficulties of sustaining collective action, be it on group-, local- regional-, national-, or international political scales, then we should expect co-operation-facilitating factors such as well-functioning institutions and trustful norms and networks to be highly influential for progress in addressing environmental collective dilemmas. Societies equipped with transparent, non-corrupted, effective, Weberian-type state institutions and higher levels of social capital among its citizenry, should, all other things being equal, be more successful in combating environmental degradation than countries with weak institutions and widespread norms of distrust. Put differently, good institutions and high levels of social trust make a society more capable, and therefore more likely, to pick up the environmental tab.

This paper seeks to outline and discuss an institution-centred analytical framework for the study of the environmental performance of states. The paper starts off with a short discussion of previous research on environmental politics in a comparative perspective, identifies its limitations, and proceeds to outline an institution-based framework for the analysis of environmental performance. The concluding section discusses different approaches to the estimating environmental performance of states.

## Previous research

Theories of how social and political factors influence the ability of states to govern the environment are in short supply. In comparison with the large amount of scholarly effort devoted to the question of how political factors influence, for example, economic growth, processes of democratization, and the emergence of welfare regimes, theoretical understanding of variation in environmental governance among countries is clearly underdeveloped. There is however two major theoretical approaches that have been applied to the questions of environmental governance: Ecological Modernization Theory and the “Ecological Kuznets Curve Theory”.<sup>2</sup> Both these theoretical approaches focus heavily on economic factors for explaining societal impacts on the natural environment. The key notion is that the relationship between market economy and environmental degradation can be thought of as curve-linear rather than linear viewed over time. Economies in early stages of industrialisation rely heavily on extraction of natural resources for growth generation and therefore have a large impact on ecological systems. This phase of economic development is also marked by use of inefficient and crude technologies that generate further environmental damage. This relationship between nature and economy persists until a certain point of economic wealth is reached, beyond which the curve starts to slope downwards. In this new phase, economic growth is increasingly generated through production of services and the development of new technologies which lessens the need for extraction of crude natural resources. In addition, some scholars have argued that inhabitants in more affluent societies start to value other things than material wealth (Inglehart 1995; Welzel et al. 2003) a process that again serves to weaken the relationship between economic growth and environmental degradation. The Environmental Kuznets Curve theory has not gone unchallenged, and some authors argue that it is only valid for a small class of environmental impacts (local air pollutants related to energy production) and that it might not be applicable to developing countries (Raymond 2004; Dinda 2004).

In a similar vein, Ecological Modernization Theory takes its point of departure in the changing relationship between economic growth and environmental degradation purportedly visible in advanced industrial states and argues that it creates new conditions for environmental protection. Ecological Modernization theory is less concerned with explaining

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<sup>2</sup> A third approach to understanding environmental politics in a comparative perspective can be found in the Ecological Marxist tradition. This approach peaked during the 1980s and argues, in short, that solutions to environmental problems are impossible within capitalist nation states. However, as this theoretical approach is primarily directed at explaining how environmental degradations is generated rather than environmental performance of states, this perspective is not considered here. See Davidson and Frickel (2004) for a review.

differences in environmental performance between countries than it is with exploring new forms of environmental governance that follow in the wake of the de-coupling of economic growth and environmental impacts. Specifically, the reduced opposition between economic welfare and environmental protection means that environmental governance no longer requires heavy-handed state intervention to regulate a zero-sum game between economic growth and environmental protection (See Goldstone (2002) and York and Rosa (2003)). Economic growth, the evolution of the market economy, and technological developments are no doubt highly important sources of environmental impact, and are thus important objects of study. However, Environmental Kuznets Curve theory and Ecological Modernization theory has relatively little to offer when it come to understanding political aspects of environmental management, and we now turn to a discussion of studies that have focussed on finding political determinants of environmental performance.

Most of the studies in the field of comparative environmental politics have been carried out in the form of small-N case studies (Scruggs 2003; Easty and Porter 2005). In contrast, only a handful of large-N studies that explicitly link social, institutional, and political factors on the one hand and environmental impacts on the other can be found in the literature. In an early study of eighteen countries, Crepaz demonstrated a strong relationship between corporatism and the reduction of air pollutants (Crepaz 1995). This result is also reached in a study by Jahn, using an index of relative emission reductions in eighteen OECD countries (Jahn 1998). Both Jahn and Crepaz argue that the superior environmental record of corporatism is due to its ability to provide institutions and procedures for reaching agreements between elite actors. Turner (1998) finds evidence of a relationship between constitutional rules and deforestation rates of rain forests in a study of 58 countries. One of the few empirical studies performed on the topic the impact of democracy on the environment uncovered evidence of a negative relationship between democracy and CO2 emissions, soil erosion, and deforestation, but no positive environmental effects of democracy (Midlarsky 1998). Meyer et al. (2003) finds a correlation between institutional factors and deforestation rates in a study of 117 countries, the most notable effect being a strong correlation between corruption and loss of forest cover. The negative environmental impact of corruption is corroborated in a study by Welsch (2004). The importance of institutional factors is also suggested by a study of institutional arrangements and relative reductions of environmentally harmful industrial emissions in a sample of eighteen industrialized countries (Duit 2002, ch. 4), in which an earlier and more comprehensive institutionalization of the environmental issue

was found to correlate with measures of environmental performance. Grafton and Knowles investigate the impact of social capital defined as both interpersonal trust, membership in voluntary organisations (termed civic social capital by the authors), and public social capital (institutional quality) on national environmental performance (estimated through indicators from the ESI data set) in a study of 53 countries. The authors find little statistical evidence in support for the assertion that social capital is always better for the environment and argues that population growth is a more relevant factor to consider (Grafton and Knowles 2004). In a study of 21 OECD countries, Neumayer argues that he has found a robust effect of the strength of green/left-wing liberal parties on emission reduction, but no effects of corporatist structures (Neumayer 2003). A highly interesting recent study by Esty and Porter (2005) argues that countries that are more competitive on the world market also tend to have a better environmental performance record. The authors argue that the reason for this result is that factors conducive to national competitiveness also stimulate a better environmental performance, which in turn means that economic competitiveness and environmental performance does not necessarily present conflicting goals. Finally, the perhaps most comprehensive work on the subject of cross-national environmental performance can be found in Lyle Scrugg's *Sustaining Abundance* (2003). Scruggs uses a sample of seventeen industrialized democracies for which he constructs an index of environmental performance to serve as dependent variable. As in his earlier studies (1999, 2001) Scruggs finds that corporatism, higher per capita income and more centralized democratic institutions are positively related to environmental performance. Interestingly, no significant linkages are found between a more environmentally minded public opinion and better environmental outcomes.

### **The black box of environmental performance**

In sum, not very much is known about the preconditions for better and worse environmental performance in a cross-national perspective. Results from previous research present a scattered and sometimes contradictory overall picture. If one is to single out one reoccurring finding, it seems that corporatist schemes of interest representation and possibly a more consensual type of democracy has been beneficial for a higher level of environmental performance, at least for the reduction of point source emissions among Western industrialized countries (Scruggs, 1999, 2001, 2003; Neumayer 2003, Jahn 1998; Crepez 1995). This rather limited bulk of knowledge has multiple causes, such as limited and varying selection of cases and highly unreliable and differing measures of environmental

impacts as well as socio-political factors, but more than anything, its limitations are due to the absence of a theoretical approach to the empirical question of understanding variation in environmental performance. Furthermore, it is warranted to talk about one large gap, or black box, common to almost all the available scientific work on environmental performance in a cross-national perspective. This black box contains the environmental policy process: what are the political and societal factors associated with a more ambitious environmental policy, how is environmental policy translated into policy output (i.e. emission reductions, habitat preservation, and resource management), and how does this output affect the state of environmental resources? Most cross-national studies of environmental performance have paid little attention to the policy process itself, and have typically proceeded directly to search for correlations between structural-level factors and various environmental impacts. This tendency of environmental research can in part be explained by the lack of comparative measures or estimates of environmental policy, but it nevertheless means that we have little or no knowledge of more general patterns of how environmental policy is generated, adopted, and implemented, and how it in turn affects the environmental performance of states. Furthermore, the omission of the policy process in comparative research makes it difficult to develop more precise causal arguments necessary to provide a link between structural traits and environmental impacts.

Compared to other more traditional areas of comparative political research, such as studies on the origins and configurations of welfare state policy (cf P. Pierson 2000) or the creation of economic prosperity (Feng 2003), the relative dearth of environmental policy studies stands out as even more salient. Another contrast can be made to the study of institutions and management of small-scale environmental resources (so called Common Pool Resources). This line of research has generated an impressive bulk of information on how the interaction of collective action problems, resource characteristics, and institutional designs determine the sustainability of resource usage (Agrawal 2003; Ostrom 1990, 2005). A defining feature of all these examples of research traditions is that they are firmly secured within a theoretical framework, which means that empirical research can be directed and cumulative to a much larger extent. Simply put, we have, at best, a very limited knowledge about institutional, political, and social preconditions necessary for a better environmental performance of states. One minimal requirement for addressing this dearth is to put available (and, if needed, new) social science theories to work in the endeavour to understand the interaction between politics and environmental performance (Lundqvist 1978).

## Theorizing environmental performance

As stated above, the point of departure for this project is that most instances of environmental degradation is rooted in profound difficulties with securing collective action required for addressing those problems. This statement is however too broad to be analytically useful as it overshadows important dissimilarities between environmental problems stemming from the fact that there are several types of collective action problems. In a most general sense, a healthy natural environment is a public good. Following Ostrom et al. (1994) a basic distinction can be made between provisioning problems and appropriation problems of securing a public good. Provisioning problems has to do with the provision of a public good, such as building, financing, and maintaining an irrigation system or a waste recycling system in a city. Appropriation problems are problems related to the use of limited resources, such as withdrawals of water from a ground water basin or timber from a forest. Many environmental problems can be seen as being both provisioning and appropriation problems. For example, air pollution can be seen as a problem of implementing and maintaining a system for monitoring and sanctioning of emissions, or as a case of controlling withdrawals from a limited resource of clean air. The point to be made here is that both provisioning and appropriation problems create environmental externalities (cf Paavola & Adger 2005).

Environmental economists have long argued that environmental degradation is a case of externalisation of environmental costs (Baumol 1975). Price signals on the market do not fully reflect environmental costs associated with production and transportation of market goods, which in turn creates unsustainable consumption patterns. If a certain good is under-priced or even free, it can be expected to be over-used. If prices could be made to reflect correctly the full environmental costs associated with the production of market goods, environmental degradation would not be an issue. The trick is thus to internalize environmental cost, i.e. to make producers and consumers pay the full price for the environmental goods and services they are utilizing (c f Costanza et.al 2000; Stavins and Whitehead 1997). Traditionally, this has been addressed as a question of getting the incentives right, either in terms of correctly valuing the environmental costs or as a question of stimulating a certain frequency of the desired behaviour among agents.

In the present context the term “internalization of environmental externalities” is used with a slightly different meaning, which perhaps is best explained by analogy to another more established field of political inquiry; the study of the welfare state. A long-standing issue

within welfare state research is whether the welfare state should be primarily understood as a protection against the brutal forces of the market economy, or as an integral part of the market economy, necessary for its functionality (C. Pierson 1992, P. Pierson 2000). Some theorists pursuing the latter line of reasoning have argued that the welfare state can be understood as a institutional response created to counterbalance the effects of the market's externalizations of social and human costs (Therborn 1987). No actor operating on a perfectly "free market" will be willing to pay the price for things such as education, health care, justice system, social security, and child care, despite the fact that the market itself needs such services in order to secure long-term functionality. The solution, according to this (inherently functional) theory, has historically consisted in the state taking on the task of providing these services, usually financed through some sort of redistributive taxation scheme. Transferring this line of reasoning to the realm of environmental degradation (another form of market externalization), state responses to environmental management could be seen as an attempt to counterbalance the environmental effects of the market's wealth creation. Environmental performance of states can thus be defined as the extent to which a state is able to produce environmental public goods. These public goods can vary over scales, from protecting key habitats of endangered species in a local setting to reductions of greenhouse gases for the betterment of the global ecological system. Thus, the production of environmental public goods always entails a process of internalizing previously externalized environmental costs. As most forms of environmental degradation involves large numbers of actors with no or little incentive to unilaterally pay environmental costs, the process of internalizing environmental costs is likely to give rise to multiple collective action dilemmas. Previous research has shown that factors such as norms of cooperation and trust (social capital) and institutional quality are pivotal for the resolution of large-scale collective action dilemmas. It can therefore be assumed that in explaining variations among states in the capacity to address the dilemmas lodged in environmental management, social capital and institutional quality must be considered as important explanatory factors.

## Social capital and environmental performance

During the 1990s, the notion of social capital has gained a central position within social science – some would say undeservingly, other find it to be the most significant theoretical development of social theory during the last two decades (Ostrom & Ahn, 2003). Furthermore, the meaning of the concept is highly ambiguous, and there has been substantial

debate on what is actually meant by the term social capital, not to mention how it should be investigated and measured. Most observers would however agree on the importance and relevance of what could be considered the core of social capital – the idea that trustful relations (vertically between citizens and government, horizontally among citizens), and dense organizational networks on citizen level has profound implications on the ability of the community to resolve conflicts, implement policy, and most importantly; produce and maintain collective goods. (c.f. Putnam, 1990, 2000; Dasgupta & Serageldin, 2000). Social capital has been defined as "the shared knowledge, understandings, norms, rules, and expectations about patterns of interaction that groups of individuals bring to a recurrent activity" (Ostrom, 2000, p. 176). Scholarly interest in the notion of social capital is largely due to empirical results indicating a connection between social capital and more optimal social outcomes. Economies with high levels of social capital seem to be more flourishing (Dasgupta & Serageldin 1999); democratic participation (Inglehart, 1999) and governance tend to be more effective and dynamic (Putnam, 1993, 2000; Newton, 1999). The active ingredient in social capital seems to be trust; the level of trust in fellow citizens and trust in institutions is thought to be decisive for the level of collaboration in large scale collective dilemmas (Levi & Braithwaite 1998, Offe, 1999). There are many different suggestions as to what type of trust is the more important, as well as for how we can understand why trust facilitates cooperation in society (Hobson, 2004). One dividing issue is whether trust in generalized others or trust in society's institutions is the most important for achieving large scale cooperation (Rothstein & Stolle 2003). Another issue of debate is whether social capital is produced through participation in involuntary organisations or if such organisations should rather be seen as the product of social capital (Stolle, 1998, 2003). Based on discoveries of the crucial role played by social capital in overcoming collective action problems in many other policy areas, it has been suggested that there are strong reasons to expect a similar function for social capital in combating the collective dilemma of environmental degradation (Pretty & Ward, 2001).

The apparent question is thus how different aspects of social capital are connected to environmental performance of states: what causal paths are conceivable? Countries with higher levels of social capital should be able to benefit from this in roughly two ways. First, implementing policy, and especially the kind of policies that require broad scale cooperation among large portions of the populations (i.e. reduction of green house gases by changes in personal transport patterns, recycling household waste), should, relatively speaking, be easier in societies where trust and organizational networks are more frequent. If citizen A is to start

recycling her household waste, she has to have some confidence in her fellow citizens doing likewise. If this confidence in unknown others is lacking, citizen A will require more compelling incentives and more stringent third-party monitoring to start recycling, which in turn makes the task of implementing waste recycling schemes more taxing for the state. Second, citizens in high-trusting political cultures can be assumed to be in a better position to initiate and implement environmental cooperation schemes of their own. In other words, self-organization is more likely to occur in societies where levels of social capital are higher. Although it is unlikely that cross-national analysis using aggregate data will be able to distinguish between these two different effects, the scenarios suggest plausible causal paths for the effect of trust on environmental performance.

### The legacy and quality of institutions

Another strong theoretical current in contemporary social science stems from the idea of the pivotal role of the institution in explaining policy outcomes (Hall 1996). Advances in research on institutions can be applied to the question of variation in environmental performance along two routes. The first route acknowledges the significance of a historical analysis of institutional evolution to estimate institutional effects on environmental capacity. This approach suggests that an analysis of the historical trajectories of environmental institutions based on theoretical notions such as, institutional stickiness, path dependency, and formative moments, (North, 1990, Arthur 1994; Pierson 2000a and 2000b; Torfing 2001; Duit 2002; Thelen 2000, Thelen and Streek 2005), could reveal whether a relation exists between the institutionalization process of environmental politics and the subsequent environmental performance of states. Analyzing timing and content of the institutionalization of environmental politics (i.e. when environmental laws were first enacted, when environmental agencies were first set up, and the ratification of international environmental treaties) a description of the evolution of environmental institutions in a comparative perspective can be performed. In the next analytical step, patterns of convergence and divergence in the evolution of environmental institutions can be linked to policy outcomes. A set of environmental institutionalization data for 38 countries can be found in Weidner and Jänicke (1997, 2000). Based on nation-wise case studies, a rich data set consisting of dates for the seven different aspects of environmental institutionalisation (environmental ministry, national environmental agency, national environmental plan, environmental framework law, environmental article in the constitution, and a national council of environmental experts) is

provided. This data holds potential for in-depth analysis of historical institutional effects on environmental performance.

The second institutional route builds on theories that emphasise the pivotal role of the *quality* of institutions. The quality of institutions is argued to be a crucial factor for explaining variations in governance and economy, insofar that just, trusted, impartial, uncorrupted, and universal institutions are strongly correlated with societies with higher levels of human well being, democratic participation, and economic growth (North 1990, Rothstein, 2003; Newton, 1999, Olson, 1996). Well-functioning institutions—in terms of transparency, predictability, rule of law and low levels of corruption—alleviate problems of collective action by providing a structure of rules and sanctions within the institutional realm, thereby lowering the risks of engaging in cooperation for all actors. The second route introduces indicators of overall institutional quality, such as the *Governance Matters III & IV* data set developed by Kaufman, Kraay and Mastfuzzi (2003), in order to assess the institutional climate in the countries studied. In general, a higher institutional quality is expected to be positively associated with better environmental capacity. States plagued by weak and corrupted institutions fail to solve problems of large-scale cooperation in most other policy areas (Rothstein, 2003), and we therefore have strong reasons to expect similar effects when it comes to the capacity of addressing the large-scale collective dilemmas of environmental degradation. If A is to participate in a large-scale cooperative effort, A will want to know that there is an institutional structure in place to secure cooperation of B, C, and all other unknown persons. Being the only one (or one of very few) recycling your household waste in the long run seems pointless to most people, and when institutional structures supporting cooperation are lacking or weak, levels of cooperation will be lower. Furthermore, the overall institutional climate of a society could be assumed to be highly influential for the possibilities of small-scale cooperative efforts and institutions. Constructing and maintaining institutions for collective action should be easier in a society where rule of law, accountability, and an uncorrupted and open civil service prevails. Much in the same way as stable and open institutions seem to be a prerequisite for economic growth and accumulation of wealth, management of natural resources can be thought to be dependent on a benign institutional framework for long term success (c.f Robbins 2000). Furthermore, the overall institutional climate of a society could be assumed highly influential for the possibilities of small-scale cooperative efforts and institutions. Constructing and maintaining institutions for collective action should be easier in

a society where rule of law, accountability, and an uncorrupted and open civil service prevails.

### The dark side of institutions

There is an additional circumstance that needs commenting on before proceeding. Ultimately, good institutions have benign effects because they facilitate cooperative behaviour among agents. By reducing insecurities lodged in interaction with other agents, institutions cause an overall reduction of transaction costs (North 1990). Thus, good institutions make cooperation cheaper. This is why institutions are thought to cause higher levels of economic well-being, since more cooperation increases the overall level of transactions and thus wealth. As argued above, a similar function of institutions can be expected in the case of managing natural resources as this task requires large-scale cooperative behaviour of agents. The problem is that the destruction of natural resources also requires cooperation among many actors, stable institutional frameworks for transaction, protection of property rights, uncorrupted officials, and so on. Consequently, more 'effective' degradation of natural resources might also be facilitated by good institutions. Similarly, the discussion on social capital has long acknowledged that social capital can have bad as well as benign consequences for overall social welfare. Margret Levi's (1996) reminder about the possibility of "unsocial capital" and Woolcock and Narayan's (2000) distinction between "bonding" and "bridging" types of social capital serve as important correctives to the temptation to equate social capital with the production of good things in general (c.f Portes 1998). When it comes to economic growth, the assumption of (even minimally) rational actors also entails an assumption that actors will strive to maximize their wealth, which in a situation of stable institutions will lead to overall higher levels of welfare. However, we cannot as easily assume that rational actors will strive to protect the environment, or to internalize environmental costs in the presence of good institutions. Thus, we might assume, for instance, a waste recycling scheme to function more efficiently in societies with higher levels of social capital and high-quality institutions, but we cannot assume that such a cooperation-facilitating and transaction cost-lowering mechanism will produce the decision to implement the waste recycling scheme in the first place. Thus the transaction cost explanation of the effects of social capital and institutional quality cannot serve as the default account for why these factors can be expected to have a beneficial effect on environmental protection.

## Measuring the environmental performance of states: heroic assumptions and crude simplifications.<sup>3</sup>

There are without doubt large differences between countries with respect to how they manage their (and others') natural resources (c.f Jänicke & Weider, 1997, 2003; OECD, 2003), although, as Scruggs points out, states tend to handle different environmental problem with roughly similar levels of efficiency (Scruggs 2005). Nevertheless, in order to understand the social dynamic causing this variation, the central problem arises of how to obtain comparable and valid measures of environmental performance. The term "environmental performance" is deliberately chosen; analytical focus is placed on understanding how political and social factors both cause and remedy environmental degradation, as well as on identifying factors underlying better management of natural resources and reduction of environmentally harmful practices. An overall prerequisite for an environmental performance indicator should thus be that it reflects the action taken (or not taken) in relation to environmental management. As environmental performance was defined in terms of internalizations of environmental costs, indicators must furthermore reflect costly efforts to combat environmental degradation. Costly is here used in the most general sense, including monetary, political, and organisational types of costs.

Earlier attempts at producing cross-national indicators of sustainability have primarily focused on *absolute* estimates of environmental impact as grounds for comparison between countries. Well-known international "sustainability benchmarking" data collections such as the *State of the World* reports by Lester Brown and the Worldwatch Institute, the *Ecological Footprint* developed by Wackernagel et.al (2000), and the *Environmental Sustainability Index* (ESI) and the *Environmental Performance Index* (EPI) data sets compiled by World Economic Forum, Yale University, and CIESIN are examples of this approach. The underlying rationale for these indicators is to rank countries on how far off from a state of hypothetical sustainability they at present are. Sustainability is defined theoretically and then assessed through multiple indicators measuring resources use, emissions, and the state of natural systems within each country. Keeping tabs on the development towards (or from) sustainability might be an useful approach in many respects, but as Neumayer points out, the main problem is that there is no universally accepted definition of what sustainability means.

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<sup>3</sup> The phrase "heroic assumptions and crude simplifications" was coined by Neumayer in a review article of different approaches towards estimating environmental performance (Neumayer 2004:141).

In turn, this leads to widely diverging estimates between different indicators: “For example, some indicators tell us that most countries, particularly the developed ones, have no apparent problem with sustainability, whereas others suggest that the economies of many countries, and the developed ones in particular, are clearly unsustainable.” (Neumayer 2004:139).

By contrast, environmental performance of states can be estimated in terms of relative efforts to address environmental problems, i.e. changes in variables measuring various aspects of environmental impacts.<sup>4</sup> This approach has the advantage of producing more valid measures of the parameter in question (internalization of environmental costs) as changes in an indicator can be thought to reflect some sort of effort carried out with the purpose of reducing environmental impacts. This approach does not tell us very much about the overall sustainability of a certain state, but it does give an indication of how much political and monetary capital a certain state is willing to invest in a better environment – in other words, how much a state is capable or willing to internalize previously externalized costs.

An apparent drawback of this approach is that not all changes in environmental impacts are due to conscious efforts to reduce environmental pressures. Reductions in, say, emissions of a harmful substance, can be caused by a cognisant attempt to improve the state of the recipient in question, but it can also be caused by things such as industrial restructuring, the invention and adoption of new technologies, economic downturns, and so on. The problem is that there is no way of differentiating between all these factors and political efforts aimed at reducing that particular type of pollutant when interpreting cross-national patterns of changes in environmental indicators. Variations in economic performance can to some extent be compensated for statistically, but many other sources of error cannot. On the other hand, this is also true for the obvious alternative – absolute measures of environmental impact—and is therefore not by itself necessarily a disqualifying weakness of relative measures.

Another problem with this approach stems from the fact that there is no universal definition, applicable to all societies, of what is to be counted as an environmental problem. Certain problems such as green house gas emissions, dispersion of harmful chemicals, waste accumulation, and industrial emissions of sulphur dioxide are more likely to be found in more economically advanced societies, whereas deforestation, soil degradation, and biodiversity loss are more common in the least developed countries. This raises a problem of internal

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<sup>4</sup> This approach is used by Scruggs (1999, 2003) and Jahn (1998) when constructing overall indexes of environmental performance.

comparability (Gerring 2003), as not all environmental problems can be assumed to be equally difficult to address in all countries. For instance, combating biodiversity loss might be a lot more difficult than reducing green house gas emissions in a country such as Mali, whereas the very opposite might hold true for Germany. Furthermore, what is to be considered a reflection of better environmental performance – reducing green house gas emissions by 2 % in Germany or the protection of 2 % of endangered species in Mali?

Estimating environmental performance of states is different from measuring the state of the environment within states. The most basic reason for this difference is that the state of the environment within a certain nation state is only partially (and sometimes not at all) related to societal activities within that state. A basic distinction should therefore be made between variables measuring the state of environmental systems (e.g. forest cover, species diversity, ground water levels, concentrations of toxins in a recipient) and variables estimating environmental policy outputs (e.g. emissions reductions, waste recycling levels, energy efficiency). The crucial difference between these two types of estimates is that environmental state variables can only partially be attributed to societal causes, whereas policy output measures are wholly dependent on societal causes (albeit in a very complex manner). For example, differences between countries in threatened bird species as a percentage of total number of known species does say something about differences in the level of biodiversity, but the problem is that species loss can have many different causes in different contexts. Some of these causes are definitely related to biodiversity management (or lack thereof) such as land use policies, forestry policies, and control of toxic substances, but other factors also influencing species diversity are climatic variations, ecosystem dynamics, pest outbreaks, and the evolutionary succession of species. Moreover, globalization of environmental degradation might mean that ecological effects in a given country can have its origins in another country (e.g. acidification in Scandinavia caused by industrial emissions in Germany and the United Kingdom), which means that using acidification of Swedish lakes as a indicator of Swedish environmental performance might not accurately reflect the environmental performance of that country. Thus, for the purpose of estimating environmental performance, this means that policy output variables have an overall higher degree of validity, as changes in these variables over time must be attributable to some sort of societal change. Table 1 summarizes the preceding discussion and gives examples of potential indicators of institutional quality, social capital, and environmental performance.

**Table 1 A framework for analyzing environmental performance of states.**

<b>Parameter</b>	<b>Indicators</b>	<b>Data sources</b>
<b>(1) Institutions</b> ↓	<ul style="list-style-type: none"> <li>- Institutional quality</li> <li>- Trust, institutional trust, organizational membership.</li> <li>- Environmental institutions</li> <li>- Democratic quality</li> </ul>	<ul style="list-style-type: none"> <li>GM 3 data set</li> <li>WVS 3-4</li> <li>Jänicke &amp; Weidner 1997, 2000</li> <li>GM 3 data set, Polity 4</li> </ul>
<b>(2) Policy outputs</b> ↓	<ul style="list-style-type: none"> <li>- Pollution abatement expenditure</li> <li>- Participation in international treaties</li> <li>- Agricultural subsidies</li> <li>- Forest certification</li> <li>- Change point-source emissions</li> <li>- Change diffuse-source emissions</li> <li>- Waste recycling rates</li> <li>- Protection of natural habitats</li> </ul>	<ul style="list-style-type: none"> <li>EES/OECD; ESI 2005 data set; Geo Data Portal; World Development Indicators</li> </ul>
<b>(3) State of environmental systems</b>	<ul style="list-style-type: none"> <li>- Biodiversity</li> <li>- Landscape</li> <li>- Air</li> <li>- Water</li> </ul>	

## Conclusion

To sum up, I have argued that scientific knowledge of environmental politics in a comparative perspective is, although richly investigated in case-studies, lacking in terms of general explanations of variation in environmental performance. Conversely, the few large-N studies performed on the topic have typically been of exploratory and non-theoretical character, and have thus made limited contributions to the understanding of environmental governance in a comparative perspective. In order to provide a theoretical underpinning it was then posited that the task environmental politics can be understood as one of internalizing externalisations of environmental costs, a task which in turn requires addressing multiple and large-scale collective action dilemmas. Consequently, environmental performance of states can be defined as the extent to which a state has internalized previously externalized environmental costs. This definition raised the question of how to operationalize and measure environmental performance. First, a distinction was made between variables measuring the state of the environment and variables estimating environmental policy outputs, of which the latter type was argued to be preferable due to better validity in relation to the definition of environmental performance. Here it was argued that changes over time for different indicators of environmental performance would provide better estimates than would measures of absolute

environmental impacts, as the purpose is not so much measuring how good an environment a state enjoys, but rather to investigate how much it *tries* to address environmental problems. In explaining variations among nations in the extent to which they have internalized environmental cost institutional quality, institutional legacies, social capital were singled out as important explanatory factors. This assertion was based on theoretical works and empirical findings from other policy areas suggesting that these factors are highly influential when addressing large-scale collective action dilemmas. However, unlike the case of human well-being and the creation of economic wealth, high-quality institutions and high levels of social capital cannot *a priori* be assumed to have only beneficial environmental effects; factors facilitating cooperation can be also be used for more effective depletion of natural resources. An important caveat is thus that social capital and institutional quality can only be understood as indispensable prerequisites for, but not causes of, a more ambitious environmental performance of states.

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