Institutional Change
in the Transfer of Climate-Friendly Technology

This dissertation is submitted for the degree of
Doctor of Philosophy

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Declaration

Except for commonly understood and accepted ideas, or where specific reference is made, the work in this dissertation is my own and includes nothing which is the outcome of work done in collaboration. The work has not previously been submitted in part or in whole to any university for any degree or other qualification. In accordance with the regulations of the Judge Institute of Management the dissertation contains no more than 80,000 words of text.

Date

Signature: _____

Bettina Wittneben

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To my parents, Jürgen and Gabriele Wittneben (née Kroehnert)

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Summary

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Institutional theory scholars have been successful at explaining how organizations strive to attain a stable framework for their patterns of interaction, but have, until recently, struggled to account for institutional renewal. Institutional change happens when new practices become accepted and interactions between organizations carry new meanings. This historical study of the international climate change mitigation regime (1992 - 1997) provides insight into the dynamic processes that take place during the early stage of institutionalization. More specifically, the thesis examines the following issues: How do power differentials shift during institutional change? How do institutions operate in the environmental field? How can entrepreneurs influence their institutional setting? How do certain groups of organizations bring about or support particular sets of ideological frames? The empirical study analyses the policy innovation of the Clean Development Mechanism, proposed in the Kyoto Protocol to the United Nations Framework Convention on Climate Change. The thesis confirms that the proposed governance of climate-friendly technology transfer constitutes institutional change and the emergence of a proto-institution. It furthermore analyzes how the organizational actors brought about this innovation and how the change in meaning was introduced into the public sphere. The qualitative research methods that were employed include observation at climate negotiations, focus groups of climate policy professionals, semi-structured interviews of policy makers, and content analysis of archival data.

The contributions of this thesis to institutional theory are threefold. Firstly, it is demonstrated that power relations amongst organizational actors change during institutional renewal. Even powerful actors may disappear from the organizational field. Secondly, organizational agents acting as institutional entrepreneurs can assess their desire to intervene in an institutional structure, evaluate their ability to change these structures and choose the institutional strategy that best fits their abilities and goals. They can thus succeed in

bringing about institutional change. Thirdly, the findings show against expectations that a proto-institution can emerge rapidly and new ideas are almost instantly suggested, accepted and embedded. An analysis of the roles of structure, institutional logic and groups of organizational actors demonstrates that these are more closely interlinked than previously thought.

Key words: institutional change, innovations, policy climate change

Introduction

The motivation for this doctoral thesis is twofold: on the one hand, I am acting on the interest among institutional theorists to explain institutional change brought about by actors embedded in an organizational field; and on the other hand, I am responding to the urgent need to act on climate change. My work thus contributes to both the theoretical development of organization theory and the analysis of global climate change policy. Throughout my doctoral studies, I have interacted with organizational theory scholars and climate change policy makers to assess which research questions are pertinent and to present my ideas for further development. This thesis is a reflection of the socially significant issues that are addressed in those circles today.

Climate change poses a very real threat to the way people live in every part of the world. Global warming, sea level rise and the increase in frequency and intensity of extreme weather events concern everyone but more directly people who already live in flood and drought affected areas as well as people who cannot afford to adapt to the changes. Scientists have repeatedly linked these present and future climatic changes to atmospheric CO_2 levels that are substantially higher than they have been over at least the past 420,000 years (IPCC 2001). According to experts then, slowing climate change means drastically lowering greenhouse gas emissions worldwide. These gases, however, underlie fossil energy usage and are a by-product of numerous processes of production and consumption. Generally, industrialized countries have very high per capita energy consumption and bear the historical responsibility for the unprecedented levels of carbon dioxide present in the atmosphere. For these countries, averting the adverse effects of climate change means fundamentally changing patterns of production and consumption that people have become accustomed to. Policy makers will need to encourage innovation in energy production, consumption and efficiency to take industrial processes into a new direction.

The issue of climate change mitigation in the developing world is slightly different. Countries that have not yet undergone the shift from agricultural to industrial production face different hardships as well as opportunities. Their

efforts to reach their potential in terms of patterns of production and consumption cannot be denied. Nevertheless, they face a window of opportunity to leapfrog environmentally harmful technologies. They can build their growing economies on the next generation of sustainable energy technologies. Technology transfer from wealthier countries is essential in this process but countries will have to use new technology creatively to address their particular needs and innovate further.

This thesis engages with the issue of climate-friendly technology transfer from countries of the global North to countries of the global South. The international treaties discussed here are not the only way renewable energy and sustainable transport technology are exchanged, but they represent a powerful arena where innovation is encouraged and technical knowledge is shared. The thesis is comprised of three papers. Although each of them is a standalone work, the thesis can be seen as an interrelated whole where the first paper sets out research questions that are dealt with in the following two papers. Therefore, the second and third paper could not have been conceived without first developing the ideas in the first paper. All of the papers extend institutional theory using the empirical study of climate change policy. Nevertheless, the three papers differ in terms of the research questions posed, the methodology employed and the academic audience that is addressed.

In this section, I would like to introduce the reader to the research questions that I set out to answer in my thesis and the way the methodology of the three papers combines to a framework for researching organizations that comprises the economic, social and political. The contributions of the three papers will be summarized in the concluding chapter of this thesis.

Three research questions

In my first paper, entitled “The Clean Development Mechanism: Institutionalizing New Power Relations”, I examine how power relations among organizational actors change during the emergence of a new institutional arrangement. Although institutional theory is firmly rooted in

discussions of power (e.g., Selznick 1949), it has over time lost its critical viewpoint and has focussed increasingly on explaining how and why organizations strive to be so much alike (e.g., DiMaggio and Powell 1983). Recently, however, there has been a surge of research into institutional change that interprets institutional structures as outcomes of power struggles and acknowledges that organizations act as agents of change (Beckert 1999; Hardy and Phillips 1998; Lawrence 1999). My paper connects with this research endeavour and further extends institutional theory to take into account changes in power relations amongst organizational actors.

Considering that a discussion of institutional frameworks and power struggles eventually leads to an analysis of the agents of institutional change, it is no surprise that I was keen to explore the question of how organizational agents attempt to change the institutional framework they operate in. The second paper, therefore, goes deeper into the case study of climate policy to find out which organizational actors had pushed for the observed institutional change and how they were able to initiate a change of meaning in the pattern of social interaction surrounding climate change policy. This paper is entitled "Environment Policy Innovation – Institutional Theory as a Framework for Action". It combines the institutional strategies apparent in the case study with insights from institutional theory to describe a framework that explains the actions of institutional innovators. It thus addresses the question of how organizational agents can attempt to reorganize their institutional setting. The proposed model offers both a novel approach to managing the natural environment and a new way for researchers to theorize environmental action.

Having explored the connection of changes in the institutional framework and changes in power relations as well as having established how organizations behave to bring about institutional change, another question arose from my work. How are ideas that signal a new institutional framework introduced to an organizational field over time? The paper "Birth of Athena or the Discursive Construction of a Proto-Institution" then addresses this aspect of institutional change by providing a content analysis of archival data. The paper also explores how a rapid change of meaning came about in this case of institutional innovation.

Methodology

Institutional change is a highly complex process that evolves over time with no clear temporal boundaries. Qualitative research methodology allows the researcher to understand how this complex, multi-layered social world is interpreted, experienced and produced (Mason 1996, Berger and Luckmann 1967). Throughout my work I have tried to relay a multidimensional view of the rich data that I have been able to collect and analyze. Where quantitative methodology allows the researcher to gain a sharp focus on a limited set of predetermined research categories, qualitative methodology provides a less precise vision of a broad strip of complex relationships between many categories that have been defined during the process of research (McCracken 1988). Qualitative research methodology is more appropriate for my inquiry because it requires data collection and interpretation that is flexible and sensitive to the social context (Mason 1996).

I have chosen the international climate change policy context as my empirical study because it is a well-documented, clear case of institutional change. As I lay out in my first paper, all the indicators of institutional change are present in the policy proposals brought forward by the Kyoto Protocol. I was very fortunate to have privileged access to the field through my prior work at the United Nations climate change secretariat in Bonn. Through my analysis of the climate change policy arena, I have attempted to provide a holistic view of one case of institutional change.

In qualitative research design, it is more important to work for a long time with great care with a few subjects rather than superficially with many of them (McCracken 1988). At the same time, my close engagement with the field of study risks giving up the critical perspective an outside observer can take. In order to counteract this concern, I have continuously sought to find voices that provide a different view of the climate change negotiations and also exchanged ideas with academics from different fields. A qualitative

researcher has to constantly acknowledge subjectivity and bias in her data and analysis (Patton 2002). I have thus tried to triangulate the perspectives on the climate change negotiations by interviewing individuals from a wide variety of backgrounds and with diverse affiliations (Miles and Huberman 1984).

Patton (2002) describes three ways to collect qualitative data: conducting open-ended interviews, collecting data from field observations and analysing written documents. I have been able to use all three types of data collection methods for this thesis. Table 1 shows how these methods relate to my research questions.

Table 1 –How do organizations enact or adapt to institutional change? A list of research questions and methods that each paper discusses.

Paper	Research Questions	Research Methods
1	How do power differentials shift during institutional change?	Interpretation of the two international climate change treaties; observation at five international climate change conferences; secondary literature about the history of the treaties; focus groups of professional staff at the UN climate change secretariat.
2	How do institutions operate in the environmental field? How can entrepreneurs influence their institutional setting?	Interviews of twelve participants at a climate change conference representing eight countries and two international organizations; interpretation of historical secondary sources.
3	How do certain groups of organizations bring about or support a particular ideological framework?	Content analysis of 100 New York Times articles dealing with climate change over the relevant time period.

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Paper One

The Clean Development Mechanism: Institutionalizing New Power Relations

Earlier versions of this paper were presented at the following international institutes and conferences between 2002 and 2004:

- **United Nations Framework Convention on Climate Change (UNFCCC) Secretariat in Bonn, Germany;**
- **Potsdam Institute for Climate Impact Research (PIK), Potsdam, Germany;**
- **Hamburg Institute of International Economics (HWWA), Hamburg, Germany;**
- **Social Forum of the World Climate Change Conference (WCCC) Moscow, Russia;**
- **14th Annual Conference of the International Association for Business and Society (IABS), Rotterdam, the Netherlands;**
- **19th European Group for Organizational Studies Colloquium (EGOS), Copenhagen, Denmark;**
- **64th Annual Meeting of the Academy of Management, New Orleans, USA.**

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The Clean Development Mechanism:
Institutionalizing New Power Relations

Abstract

Institutional theory describes *institutions* as procedures, practices and shared meanings among members of an organizational field. *Institutional change* happens when new practices become accepted and interactions between organizations carry new meanings. The differences in the way climate change mitigation projects are facilitated under the Kyoto Protocol as compared to the financial mechanism of the United Nations Framework Convention on Climate Change (UNFCCC) demonstrate institutional change processes that evolved from global climate change negotiations. Under the UNFCCC, the institution of 'aid' governs the interactions, whereas the Clean Development Mechanism (CDM), outlined in the Kyoto Protocol, is premised on a slightly different economic mindset with aspects of free market ideology and tools borrowed from venture capital investment. Although both mechanisms have the aim of setting up mitigation projects in developing countries, the two models will coexist once the Kyoto Protocol comes into effect and evolve to compete with or complement each other. Models of the two policy options are presented in this paper depicting organizational interactions to demonstrate the impact of this institutional change. A discussion of power implications is provided with the conclusion that countries of the North as well as business corporations have increased their influence in the institutional framework of international climate change mitigation as outlined by the CDM. Institutional theory needs to be further developed to be able to explain the dynamic changes that led to this shift in power potential.

Key words: Climate Change, Institutional Theory, Power

The Clean Development Mechanism: Institutionalizing New Power Relations

Introduction

Institutional change is a critical concept that is not sufficiently well described in the organization theory literature. Institutional theory helps understand how organizations interact within an institutional framework (DiMaggio and Powell 1983). Institutions are created through the social interaction of actors, taken for granted and self-regulating (Barley and Tolbert 1997; Lawrence et al. 2002; Meyer & Rowan 1977; Zucker 1987). However, the organizations involved in the institutionalization process are not part of a calm, equal playing field. Instead, their interactions resemble more an institutional war (Hoffman 2001). Actors use institutional strategies (Lawrence 1999) to influence each other, powerful actors may force stability in the institutional framework to discourage institutional entrepreneurship (Beckert 1999) or actors may collaborate with each other gain power over other actors (Lawrence, Hardy and Phillips 2002).

Although the sociological roots of institutional theory are clearly intertwined with reflections on power (DiMaggio and Powell 1983; Giddens 1984; Jaffee 2001), a consideration of power inequalities in the process of institutionalization has only recently resurfaced in the arguments of institutional theorists (Greenwood and Hinings 1996). Power differentials in an organizational field have to be made explicit and taken into account when describing the process of institutionalization. An organizational field cannot be assumed to operate democratically. Sources of power, symbols of power and types of power (Pfeffer 1981) have to be considered to make an analysis of institutionalization complete. The notion of power as potential capability to use resources in such a way as to enhance one's own position (Bacharach and Lawler 1998) needs to be reintegrated into the arguments of institutional theorists. When we explicitly recognize that power struggles occur within the organization as well as across organizations to form institutionalized structures, we can use institutional theory to help explain how power is

distributed and utilized in an organizational field and where power struggles occur.

Institutional theorists describe three triggers for institutional change (Greenwood, Hinings and Suddaby 2002): social upheaval, regulatory change and technological disruptions. This theoretical consideration can be extended to construct three dimensions of the organizational field where power struggles may bring about institutional change: the societal, policy and project arenas. Meyer and Rowan (1977) discuss how organizations may display a legitimizing ceremonial front that represents their formal organization (policy arena) yet act differently within their informal organization on daily activities (project arena) in order to gain efficiency in their operations. Outcomes from both arenas are measured against the beliefs and values developed in the societal dimension of the organizational field.

To portray the functioning of power struggles within the boundaries of the arenas developed in this paper, I draw on the example of the international funding mechanism for climate change mitigation projects, i.e. the way climate-friendly technology is transferred to developing countries. The account details the emergence of a competing proto-institution (Lawrence et al. 2002). The paper examines the shift in power differentials between actors in order to determine who has an interest in bringing about this institutional change. Interorganizational relations cannot be understood without examining the context in terms of power differentials.

The paper is divided into four main sections. The theoretical context of this study will be outlined, followed by an explanation of why and how the climate change mitigation regime was used to demonstrate power struggles in the policy arena. The empirical study is then discussed and general implications are drawn. The article concludes with a call to research power relations at all three levels in more depth.

Theoretical context

Institutional theorists have been accused of sidestepping a discussion of how institutions change in favour of analyzing how they maintain stability (DiMaggio and Powell 1991; Greenwood and Hinings 1996; Oliver 1991). Clearly, it is paramount to point out that institutions encourage order in a society by shaping human interaction in social, economic and political life (Farjoun 2002). Nevertheless, fascinating aspects of institutions become apparent once one dispels their taken-for-grantedness and opens the discussion on how institutionalized routines change over time. DiMaggio and Powell's (1991) call for institutional theorists to dedicate more research into issues such as change and power has produced a strong response from the scholastic community. Greenwood and Hinings (1996) point out that the old institutionalism has acknowledged change as part of institutional reality. They suggest combining the lessons learned from new institutionalism with the more courageous approach to power relations taken by earlier scholars. Many authors have since tackled certain aspects of institutional change: institutional entrepreneurship using institutional strategies (Lawrence 1999; Oliver 1991) or interorganizational collaboration (Hardy and Phillips 1998; Lawrence et al. 2002), institutional development in turbulent organizational fields (Farjoun 2002), and radical organizational change (Greenwood and Hinings 1996) to name a few. Despite all this effort the examination of change from an institutional theory angle has only just begun (Hensmans 2003).

Institutions as the central theme have been recently defined as "procedures, practices, and their accompanied shared meanings enacted and perceived by members" (Zilber 2002: 234). Although they were created through social interaction of actors, institutions have reached a level of taken-for-grantedness that allows an action within an institution to be much less costly to the actor than an action outside of the institutional framework (Barely and Tolbert 1997; Lawrence, Hardy, & Phillips 2002; Meyer and Rowan 1977; Zucker 1987). Initially, institutional theorists discussed institutional pressures toward conformity that were exerted mainly from the surroundings of an organization (Barley and Tolbert 1997). Since then, institutionalization has also been examined looking at the organization as the source of institutional pressures (Zucker 1987). Organizations thus are not only exposed to external pressures, they also exercise power over the institutional framework through

institutional strategies (Oliver 1991; Lawrence 1999). This balance essentially forms the inherent duality Barley and Tolbert discuss: “institutions […] both arise from and constrain social action” (1997: 95).

Institutional pressures can be interpreted as power exerted by members of an organizational field on other members. An organizational field is defined by institutional theorists as a “community of organizations that partakes of a common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside the field” (Scott 1995: 56). Hoffman (1999) adds to this discussion that the field is formed around a common issue rather than a common product or market. The power structure in such an organizational field cannot be assumed to be democratic but has instead been described as an institutional war (Hoffman 2001). Although organizations can use entrepreneurial strategies to change their institutional context (Lawrence 1999), institutional practices can also deliberately remain resistant to change when the current environment is beneficial to powerful agents (Beckert 1999).

Institutionalization is the process that sees a new set of routines and practices become taken-for-granted and entrenched. Lawrence, Hardy and Phillips (2002) call this emerging system a proto-institution. They explain: “These new practices, technologies, and rules are institutions in the making: they have the potential to become full-fledged institutions if social processes develop that entrench them and they are diffused throughout an institutional field.” (2002: 283).

A new set of institutionalized routines will change the organizational landscape. According to Fligstein (1991) institutional change occurs either when power relations shift in an organizational field or when the goals of powerful actors change. Greenwood and Hinings (1996) add to this analysis that those actors in position of power can enable or suppress radical change. Institutional change is intertwined with the notion of power. In order to understand institutional change, power relations have to be made explicit and central in the analysis of interorganizational relations.

Power can be defined as the “capability or potential that may or may not be used by actors and, if used, may or may not be effective” (Bacharach and Lawler 1998). It is therefore not only merely a resource in itself but rather the utilization of resources. Power is a strategy rather than a property (Foucault 1979). Resources are the vehicle through which power is exercised to reproduce structures of domination (Giddens 1979). Organizations in a field can exert power on each other depending on the type and amount of resources they can manipulate and how effective they are in this utilization. This also means that power resides in the relationship between actors rather than within actors themselves (Hatch 1997).

The distribution of power that exists in an organizational field therefore has to be analyzed within the social relationships of institutional actors. Pfeffer (1981) cautions that the notion of power can become a tautology if it is used to explain everything. Instead, Pfeffer notes that “A person is not ‘powerful’ or ‘powerless’ in general but only with respect to other social actors in a specific social relationship.” (1981: 3). To establish the existence of power relations and dependencies, the actors have to be studied in the context of the institution that they act within (Greenwood and Hinings 1996). In the context of the climate change policy regime, power is measured as influence over the policy process.

How power relations affect the dynamics in an organizational field becomes apparent when institutional structures change. When a proto-institution (Lawrence, Hardy and Phillips 2002) emerges, power dependencies shift and offer a unique opportunity to study the influence of various actors. The discussion surrounding climate change mitigation projects in developing countries governed by international treaties bears witness to the emergence of such a proto-institution. The way renewable energy projects are funded is about to change drastically through the provisions of the Clean Development Mechanism as outlined in the Kyoto Protocol. This context gives us an opportunity to begin to see institutional change in the light of power differentials.

Methodology

The international climate change policy context was chosen first and foremost because it provides a unique opportunity to study the evolution of a proto-institution. However, there are also three additional distinct reasons why this context is particularly valuable. Firstly, choosing this case study is a response to a social concern and of utmost importance in international policy efforts. "Social science should be guided by problems of life and practice rather than by intellectually self-generated conceptions and techniques." (Selznick 1996: 270) It is grounded in the economic, social and political life of the global community.

Secondly, the context provides a well-documented, highly-institutionalized interplay of organizations. Documents of official texts and decisions are publicly available in at least three languages (English, French and Spanish), making them accessible to a wide-ranging audience. Lists of organizations participating in the policy process are also publicly available. Meyer and Rowan discuss the degree to which an organizational environment is institutionalized: "Societies that, through nation building and state formation, have developed rational-legal orders are especially prone to give collective (legal) authority to institutions which legitimate particular organizational structures. […] The stronger the rational-legal order, the greater the extent to which rationalized rules and procedures and personnel become institutional requirements." (1977: 347, 348).

Thirdly, the group of actors is particularly diverse, adding to the complexity of the organizational field. Participants include representatives of governments of almost all of the world's states, members of intergovernmental organizations, corporate managers, environmentalists, and researchers from an array of disciplines. Despite this diversity, however, all actors are grouped into organizations. Every individual who wants to enter the grounds where the negotiations take place has to be a member of an approved organization. Democratically elected or not, country representatives have the legitimate power to set up new institutional arrangements.

The following account demonstrates the emergence of a competing institution in an institutional field. The discussion will focus on the overlap of climate change policy and development: the rules and regulations for climate change mitigation projects in developing countries that are sponsored by industrialized countries. This is a very narrow and specific area covered by the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol.

The two models of institutional framework (Figures 1 and 2) were developed during the winter of 2002 and spring of 2003. They were first constructed using the official information provided in the UNFCCC and Kyoto Protocol documents as well as interpretations thereof by secondary sources including the UNFCCC website. To verify the models, a focus group of UNFCCC secretariat administrators was conducted and feedback incorporated into the models. Details were further discussed with individual UN informants. The altered models were then once more presented to UN informants. Note that the models featured in this paper are not officially endorsed by the UNFCCC secretariat.

The organizations in the organizational field were classified into six groups: the official designations of *Annex I* and *Non-Annex I* refer to the UNFCCC document where industrialized countries (including economies in transition such as Russia) are listed in Annex I. The remaining actors were classified as *intergovernmental organizations* (e.g. UNFCCC, World Bank), *not-for-profit organizations* that are not directly affiliated with the private sector (e.g. Greenpeace, Potsdam Institute for Climate Impact Research), *private sector organizations* and affiliations (e.g. Shell, Business Council for Sustainable Energy) and the organizations acting as *Designated Operational Entities* described in the Kyoto Protocol. The table of power relations (Table 1) was constructed by determining the role of each type of organization in each of the institutional frameworks. The interests of the category of organization were extrapolated from secondary data and websites of organizations in the respective groups.

Institutional change in the transfer of climate change mitigation technology

Traditional model: Aid

Increasing scientific evidence of human interference with the climate system, coupled with growing public concern over global environmental issues, pushed climate change onto the political agenda in the mid-1980s. Recognizing the needs of policy-makers for authoritative and up-to-date scientific information, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) in 1988. In 1990, the IPCC issued its First Assessment Report, confirming that climate change was indeed a threat and calling for a global treaty to address the problem. The UN General Assembly responded by formally launching negotiations on a framework convention on climate change. On 9 May 1992 their Intergovernmental Negotiating Committee adopted by consensus the United Nations Framework Convention on Climate Change (UNFCCC).

The Convention is a legally binding treaty, which seeks to address both the causes and adverse effects of climate change. It was signed in Rio de Janeiro in June 1992 and came into force on 21 March 1994. It currently has 188 member states. The treaty has the "ultimate objective" of stabilizing atmospheric concentrations of greenhouse gases (GHG) at safe levels (Article 2, UNFCCC). To achieve this objective, all countries have a general commitment to address climate change, adapt to its effects, and report on the action they are taking to implement the Convention (Article 4, UNFCCC). The Convention then divides countries into two groups: those listed in its Annex I (known as "Annex I Parties") and those that are not named in this Annex (so-called "non-Annex I Parties").

The countries listed in Annex I of the Convention are industrialized countries including economies in transition that have historically contributed the most to climate change. Their per capita emissions are higher than those of most developing countries and they have greater financial and institutional capacity to address the problem of climate change. The principles of equity and

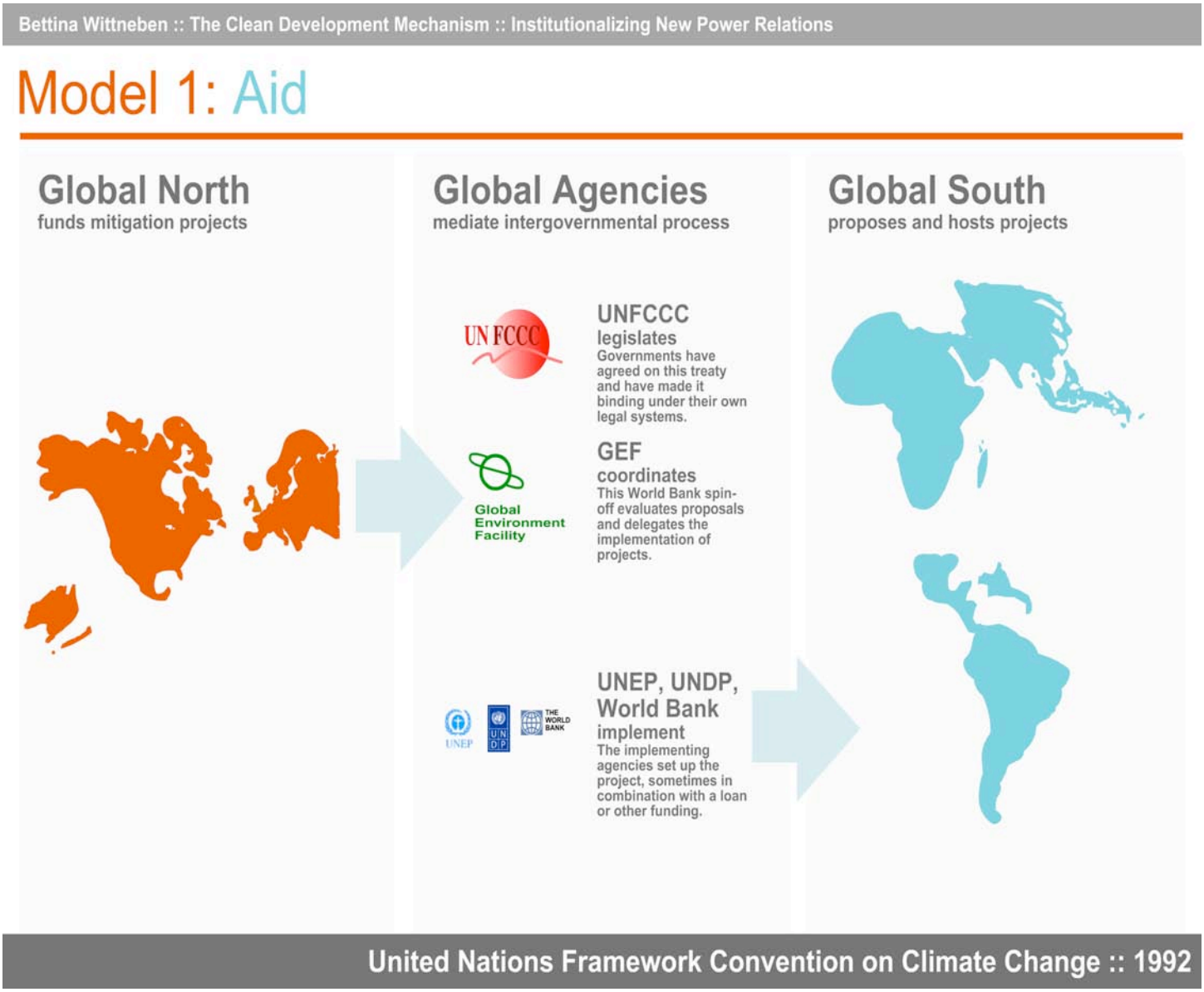
"common but differentiated responsibilities" enshrined in the Convention (Article 4.1) therefore require these Parties to take the lead in modifying longer-term trends in emissions.

Working in line with these considerations, a funding mechanism was required to sponsor climate change mitigation projects in developing countries. These projects may embrace renewable energy technologies, such as wind power or solar power, or help make existing facilities more efficient and cleaner. They may be large energy projects such as a hydro dam or small local projects such as natural gas powered buses in urban centers. The funding mechanism that was chosen to coordinate these kinds of projects was the Global Environment Facility (GEF) which was set up by the World Bank as a pilot project in 1991 and restructured in 1994 to be governed by an assembly and a council. Since 1991, this agency has allocated $4 billion in grants and leveraged an additional $12 billion in co-financing from other sources to support more than 1000 projects in the area of climate change, biodiversity loss, degradation of international waters, ozone depletion, land degradation, and persistent organic pollutants. The grants come from over 30 donor nations and are transferred to over 140 developing countries. GEF aims to work in partnership with the private sector, NGOs and international institutions to address complex environmental issues while supporting national sustainable development initiatives. The UN Development Program (UNDP), the UN Environment Program (UNEP) and the World Bank as well as regional development banks implement the projects on the behalf of the GEF.

Figure 1 illustrates the funding process of a GEF sponsored climate change mitigation project. I choose to call the overarching institution ‘aid’ because donor countries submit funds to intergovernmental agencies that in turn coordinate projects in developing countries. Furthermore, the UNFCCC implies a concern for equity between industrialized countries that have caused most of the atmospheric greenhouse gases and the developing countries that are vulnerable to the impacts of climate change (Michaelowa 2000). The UNFCCC therefore aims at the distribution of the costs of mitigating and adapting to climate change. Some practitioners may prefer to call the model

‘development cooperation’ to differentiate this effort from the stigmatized term ‘foreign aid’.

Figure 1: Institution 'aid' under the UNFCCC



The governments of the global North (Annex I Parties) and the global South (Non-Annex I Parties) have together negotiated the UNFCCC. As discussed earlier, the funding mechanism under the UNFCCC is the GEF which operates in cooperation with the World Bank, UNDP and UNEP. The latter organizations are the ones that actually execute the climate change mitigation projects in the South.

In summary, the North donates the money to operate the UNFCCC secretariat, the GEF secretariat and other intergovernmental organizations as well as the money needed to set up climate change mitigation projects in countries of the South. The UNFCCC legislates which projects are appropriate, the GEF selects project ideas offered by a government of the South, and coordinates the design and implementation of it. The World Bank, UNEP and UNDP execute projects that have been approved by the UNFCCC and GEF. The countries of the South host the projects and generate new project ideas.

Emerging model: Investment

The Kyoto Protocol to the United Nations Framework Convention on Climate Change strengthens the international response to climate change. Adopted by consensus in 1997, it commits Annex I Parties to individual, legally-binding targets to limit or reduce their greenhouse gas emissions, adding up to a total cut of at least 5% from 1990 levels in the period 2008-2012. Since the impact of climate change is not easily quantifiable because of the time lag and uncertain impact, the setting of targets was a political decision, battled out between economic and environmental interests (Michaelowa 2000). It is not based on scientific knowledge about safe levels of greenhouse gases in the atmosphere and targets are not calculated according to a set formula. This made it easier to reach consensus at the time but complicates the setting of targets for the second commitment period. Currently, 132 Parties have ratified the Kyoto Protocol including 37 Annex I Parties (industrialized countries). For the protocol to come into effect, Parties representing 55% of Annex I emissions have to ratify. Now that Russia has completed the formal

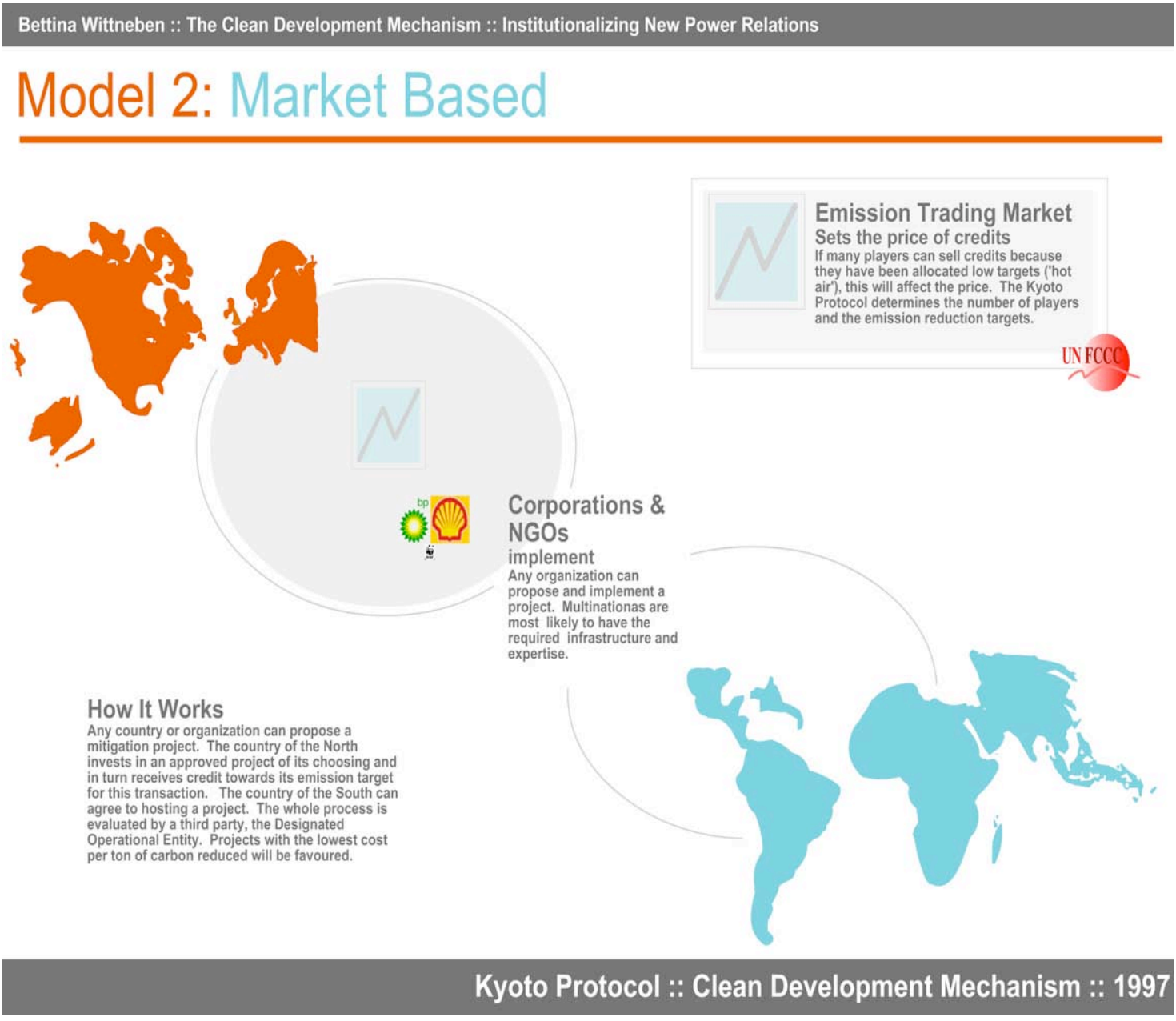
process of ratification, the treaty will come into effect on 16 February 2005. (UNFCCC website)

Countries will have a certain degree of flexibility in how they make and measure their emissions reductions. In particular, an international emissions trading regime will be established according to Article 17 of the Protocol allowing industrialized countries to buy and sell emissions credits amongst themselves. They will also be able to acquire 'emission reduction units' by financing certain kinds of emission reducing projects in other developed countries that would not have otherwise occurred. This is regulated in Article 6 of the Protocol and called the Joint Implementation (JI). In addition, a Clean Development Mechanism (CDM) (Article 12 of the Protocol) will enable industrialized countries to finance emission reduction projects in developing countries that would not have otherwise occurred and to receive credit for doing so. The three innovative mechanisms, emissions trading, JI and CDM, are designed to help Annex I Parties reduce the costs of meeting their emissions targets by achieving or acquiring reductions more cheaply in other countries than at home. It is considered the least cost option. On a global playing field, emission reductions in other countries contribute just as much to the overall global reduction of GHG emissions. Therefore a joint effort by Annex I countries (JI) or an investment by an Annex I country supporting a project in the developing world (CDM) will reduce emissions on a global scale at the lowest cost to governments, businesses and consumers in the industrialized country. It can be argued, however, that these measures delay the economic transition of industrialized countries to a carbon constrained future.

In this paper, I deal with the institutional framework of the CDM. This mechanism is a competing framework for climate change mitigation projects in developing countries. Its institutional framework competes with the institutional framework of the GEF-coordinated projects in Figure 1. I call the model that the CDM operates under 'investment'. Non-governmental organizations are encouraged to design and implement a climate change mitigation project. Except for the UNFCCC secretariat and the KP executive board, no further involvement of intergovernmental organizations is required.

The operational guidelines for the CDM that have been established so far are depicted in Figure 2. Once it functions fully, it will be self-contained and funds for its operations will be self-generated.

Figure 2: Institution 'investment' under the Kyoto Protocol



In the investment model, project ideas can be generated by a government of the North or South, as well as by a non-government organization, such as a corporation or not-for-profit organization (NGO). The proposals are examined by the designated operational entity (DOE) and passed on to the KP executive board. The latter legislates, validates and registers climate change mitigation projects. If the project is approved, it will be implemented by a corporation or NGO of the North or South. The DOE continually verifies that the project is operating under its initial mandate. When the project is completed, the DOE and the KP executive board validate its contribution to reducing greenhouse gases and offers the country of the North an emission credit certificate. The government of the North has thus an incentive to support the organization that is operating the project in the South. It will do so through tax incentives or direct facilitation of the project. The government of the South approves the project and hosts it within its borders.

Discussion

The policy changes in the climate change mitigation field are an account of the emergence of a competing proto-institution. Lawrence, Hardy and Phillips describe a proto-institution as "institutions in the making: they have the potential to become full-fledged institutions if social processes develop that entrench them and they are diffused throughout an institutional field" (2002: 283). The institution of 'investment' in the international climate change mitigation regime is in the initial phase of institutionalization. It has not been entrenched yet, that is the process exists only on paper. However, the actors are moving to turning this model into reality. This proto-institution will be competing for resources against the traditional institution of 'aid' that was outlined in Figure 1. How did this change come about? Institutional theory can help us recognize that institutional change is underway, but the notion of power needs to be considered when discussing how the change came about. Institutional theory can therefore be seen as a road map of institutional change. Analysing evolving power differentials, however, is required in order to understand the traffic as well as road blocks and diversions.

Transformation

The brief account of the climate change models clearly indicates that power is shifting between the actors in this organizational field. Under the institution 'aid', the GEF has immense power over other actors by choosing and verifying projects. Its implementation agency (World Bank, UNDP or UNEP) is a powerful actor as well, because it turns the plans into action and offers the funds that it deems necessary. Surprisingly, these two powerful actors have effectively been wiped off the organizational landscape in the proto-institution of 'investment'. Instead, formerly secondary actors have potentially become more powerful: corporations and NGOs, actually any organization can now assume the role of these intergovernmental organizations in designing and implementing a climate change mitigation project.

Dacin, Goodstein and Scott (2002) explore four ways an organizational field can be transformed. All four indicators of institutional change are present in the case study outlined above. Their first indicator relates to changes in the relationships between existing organizations. In the climate change policy context, organizations that still remain in the institutional framework now relate to each other in different patterns. For example, a government of the North can now choose a project directly that it intends to financially support. The second indicator deals with modifications of the boundaries of existing organizations. In the CDM framework, many organizations can now propose projects that were not able to do so earlier. The third indicator concerns changes in the make up of the organizational field with new actors entering. It has already been mentioned that the GEF and its implementing agencies have lost their position whereas new organizations, such as the DOE, have emerged in the organizational field. The final indicator of institutional change, alterations of the field's boundaries and changes in the governance structures in an organizational field, is also present in our case study. The organizational field now involves actors directly which were only side players in the traditional model, such as corporations and NGOs. Clearly, the patterns of interaction have changed.

When further considering the transformation of the organizational field, two peculiar characteristics of the proto-institution become apparent. Firstly, although the proto-institution is designed to compete with the traditional institution, the latter continues to exist and progress. Indeed, the GEF has made several modifications to its project policies (Global Environment Facility 2002) to meet demands made by governments from both the North and South. Also, since the administration of the United States of America has declared its refusal to ratify the Kyoto Protocol, the GEF funding mechanism will continue to be a vehicle for United States funding. We can therefore not call this transformation a deinstitutionalization, preinstitutionalization or reinstitutionalization. The stages of institutional change developed by Greenwood et al. (2002) therefore do not apply to this case.

Secondly, despite the observation that the issue underlying this organizational field (Hoffman 1999) continues to be international climate change mitigation, the shared meaning of this issue has changed fundamentally. It is for this reason that institutional change is evident. Zilber demonstrates the importance of the interpretation of meaning for any discussion on institutional change. "Institutionalized meanings should be analyzed not only as qualities of actions and structures, but also as the cognitive process of interpreting actions and structures – as shared and […] contested cognitive models" (2002: 236). She goes on to claim that an individual's interpretations of meaning can be seen as the social actions that create, reproduce and change institutions. The institution 'aid' has spun off a competing proto-institution that incorporates modified power relations between existing actors as well as new actors. However, most importantly, the proto-institution brought about a change in meaning: the UNFCCC implied that countries of the North admit to greater responsibility in causing climate change through industrial processes and wish to help developing countries leapfrog traditional technology choices in order to avoid duplicating the high emission models of industrialization. This is what I call the institution of 'aid'. The Kyoto Protocol on the other hand facilitates more cost-effective climate change mitigation projects in developing countries as a mechanism for industrialized countries to get around cutting emissions in their own backyard. This is what I call the institution of 'investment'. The balance between equity consideration and efficiency

considerations has shifted. We have thus moved to a change in meaning of the action and structure. Zilber emphasizes “meaning and interpretation as parts of the medium through which institutional power struggles and relations take place” (2002: 236).

Shifting power

The question remains how this dramatic shift in the institutional framework could have come about. To shed some light on this matter, the notion of power has to be introduced. Power tactics are implemented to promote changes that are viewed by the actor as in their own interest (Bacharach and Lawler 1998). The next step is thus to analyze the actor’s potential interests. Power is not inherent in an actor; rather, it lies in specific social relationships with other actors (Pfeffer 1981). Therefore, the kind of institutional pressures that actors can exercise on the process of institutionalization should be discussed. Lastly, we can compare power potentials to the emerging structure of the proto-institution in order to infer which players have been successful in realizing their interest.

It is beyond the scope of this paper to analyse all aspects of the relations between players in the climate change mitigation field. I have instead compiled the most prominent organizational interests (incorporating the discussion by Greiner 2000) and power potentials in Table 1. Power relations have indeed changed and the emergence of the proto-institution means an increase of institutionalized power for some players and a decrease for others. It is also important to note that the table only reflects the relations that are *institutionalized,* not the ones that are hidden or indirect. These may be as important in shaping the policy outcomes but are beyond the scope of this paper.

Table 1: Power potentials by actor and institution

Actors	Interests in the climate change mitigation policy arena	Involvement in the process within institution 'Aid'	Involvement in the process within proto-institution 'Investment'	Difference in influence over the decision making process due to the institutional change
Annex I Countries (industrialized)	-appease electorate -shift costs across actors, across voters and to distant future -accommodate economic interests -avoid normative pressure regarding development and environment	legislates donates	legislates designs selects facilitates receives credit	-design project -decide on which project to support -decide on which implementing organization to support
Non-Annex I Countries (developing)	-receive untied foreign transfer -accommodate economic interests -meet national development goals	legislates designs cooperates	legislates designs approves	-no longer necessary to be directly involved in project work -no longer the only actor who can design projects

Inter-Governmental Organizations (GEF, World Bank, UNEP, UNDP)	-encourage caring for the environment -see legislation implemented -increase level of reliance on bureaucratic procedures	selects implements	legislates verifies validates accredits	-GEF and Implementing Agencies are no longer necessary in this process -UNFCCC bodies, such as the Kyoto Protocol executive board are now more directly involved in the decision making process
Not-For-Profit Organizations (non-industry)	-fulfil organizational mandate -appease donor groups -receive positive press coverage -defend common good	N/A	designs implements supports	-design project -implement project -support project
Corporations and business associations	-expand markets -distribute risk -lower costs -gain and sustain 'green' image	N/A	designs implements supports	-design project -implement a project -support project
Designated Operational Entities	-increase level of involvement in procedures -good record of performance	N/A	evaluates	-involved in selecting project ideas -evaluate project progress

Although the interests of the organizations are diverse, they all originate in the drive to continue to exist. A democratic government wants to get re-elected and thus has to gauge public interest in the issue as well as the interests of the government's benefactors (Hertz 2001). A government that was not democratically elected needs to sustain its control over the population through military means and thus needs such resources at its disposal. Governments also have diplomatic responsibilities and need to consider their image on the international stage. In fact, a government's position in the world economy may dictate which other governments can pressure it into acting in a certain way (Chase-Dunn 1998). Furthermore, an intergovernmental organization like the World Bank has to sustain its raison d'être and therefore needs to maintain the worldview that development is necessary (Ferguson 1990).

Besides these general concerns for continued existence, the organizations have special interests in the climate change mitigation field. These are the ones outlined in the first column of Table 1. The next two columns give an account of the ways in which the actors can influence the process in each institutional framework. The last column is a brief indication of the implications of the emergence of the proto-institution. I will now go over actors listed in Table 1 in turn to discuss their involvement in the two models.

We can infer from this table that the actors that were able to increase their institutional power potential through the CDM are Annex I countries, private sector organizations and bodies of the UNFCCC. *Annex I countries* by definition have more resources available to them than Non-Annex I countries. This gives them an advantage in the negotiations in two ways. Directly, Annex I countries can send larger delegations to conferences who can constantly seek advice from civil servant experts at home. Non-Annex I countries can often not afford to send anyone and therefore only have the one delegate whose travel is funded by the UN. Workshops and negotiation meetings often run simultaneously at conferences and thus need more than one national delegate. Thus a government with more resources will be able to exert influence on more levels of the negotiation process. In addition, this government receives more exposure in the media and may have special interest groups in tow that support its economic interests.

In the CDM framework, countries of the North can now directly select and sponsor climate change mitigation projects. They are therefore in a position to make geopolitical criteria part of their decision to invest. They can also choose which implementing agency to support. In the GEF process, this aspect was much more bureaucratised.

The table indicates that *Non-Annex I countries* may have lost influence over the process of setting up mitigation projects. They are now no longer the sole source of project ideas and once a project is underway, close cooperation with the local government is no longer necessary, as the DOE fulfills the third party evaluation criteria.

In fact, developing countries tried to block the CDM when it first appeared on the institutional landscape in 1993 (Michaelowa 2000). The government of Costa Rica was the first to switch position, which brought it much criticism but also a prompt reward of eight US climate change mitigation projects (Dutschke 2000). This instance shows that although collaboration amongst Non-Annex I countries could increase their negotiating power (Lawrence et al. 2002), it is very difficult to negotiate as a solid entity, when the group contains over 100 countries representing a wide array of interests.

The opposition to the CDM was based on a variety of economic, ethical and moral claims. The CDM allows industrialized countries to buy their way out of reducing emissions in their own country by capitalizing on low-cost emission reduction projects in developing countries while continuing environmentally harmful ways of production and consumption at home. This could effectively lead to a slower rate of emission-reducing technological innovation. Developing countries were also concerned about the substantial power differential between project participants (Dubash 1992). A powerful investor may be able to reap increased profits from the project while lowering the host country's benefits. Furthermore, while the developing country has less control over the actual project, financial support from the North may come out of the country's development aid budget and in effect lower overall funding of development projects (Greiner, 2000). On the other hand, however, it has

been argued that liquidity for the financial mechanism may be enhanced by soliciting private sector participation (Michaelowa and Dutschke 2000).

In Table 1 the governments are divided into those that are listed under the Annex I of the Convention and those that are not listed there (Non-Annex I countries). Of course there are other ways to classify country governments in climate change negotiations. Paterson (1996) describes three dimensions that governments can be divided into in order to understand their bargaining position in global warming politics. The first dimension of energy dependency divides countries into three categories: countries that depend on energy imports, ones that depend on energy exports and those that have their own indigenous energy supply sufficiently large to support their own activities but not for export. The second dimension is economic dependence and the third dimension perceived vulnerability to climate change, depending on the country's ability to adapt. These dimensions determine whether the country is willing to act in order to mitigate climate change or whether the country has an interest in blocking action. They also demonstrate whether a country is able to act independently. In addition, the consensus format used in the climate change negotiations favours blocking action rather than pushing for action (Paterson 1996).

The decline of the *GEF with its implementing agencies* under the institution of 'investment' may broaden the rift in power relations between the North and South. These intergovernmental organizations were the medium for distributing donations. However, the GEF cannot be seen as non-partisan or apolitical, and is affected by an inherent mistrust of the World Bank by developing nations (Paterson 1996). The GEF has often been called inefficient by both the North and the South, despite the fact that it has received only meagre funding over the years considering the immense task it has been assigned (Michaelowa 2000).

Another set of actors in the climate change policy field are *corporations.* Policy decisions concerning fossil fuel production and consumption will directly impact operations of oil companies. Levy and Kolk (2002) demonstrate that the strategic choices of oil industry giants have been diverse: Exxon has

chosen to assertively resist responding to the threat of climate change and Texaco has avoided responding whereas the European oil giants BP and Shell have had a proactive stance on climate change action. Nevertheless, their strategies have recently converged with Exxon investing in fuel cell technology and carbon sequestration and Shell and BP continuing to direct the majority of their investments into fossil fuel exploitation. Throughout the negotiation process, industry lobby groups have ensured access to delegates and the press, industry representatives hold seminars, distribute leaflets and discussion pieces to delegates during conferences and consult delegates on the negotiation process upon request. As can be seen on Table 1, the CDM has effectively moved these organizations from behind their information booths to the floodlights of the center stage. Although they will not be able to negotiate legislation, they can now freely suggest projects, implement projects with the help of Annex I governments and invest in projects that they see worthwhile.

Could not the same benefit accrue to the non-industry *not-for-profits*? Not exactly. Although they can also be said to have moved from the corridors to center stage, they may not have the resources available to realize a project that they approve of and may not have the means to push a project idea through the bureaucracy of the UN and rally support from an Annex I government. Their projects are often not large enough to qualify as a CDM project or to absorb the required transaction costs to turn a project into a CDM project. NGOs actually are well positioned to take on CDM projects: they are very efficient information distributors, they are experienced in capacity building, have lower labour costs and enjoy trusting relationships with the locals (Michaelowa 2000). However, the tax incentive schemes that may be offered by a government of the North do not work for NGOs because they usually do not pay taxes. Instead, the government would have to facilitate a project through direct financial support, which may not be as politically viable with the electorate (Michaelowa 2000).

Corporations are much more likely to seize the opportunities that the CDM brings. Not-for-profits will be able to participate, but likely not to the same degree. Considering that the CDM operates under the institution of

'investment', corporations have the advantage that they are very comfortable interacting under this institution. The knowledge and skill set that business corporations encompass are a very close fit with the institution. The shift towards this institutional arrangement gives them an advantage over non-profits, intergovernmental as well as public organizations. In fact, they are experts in this institution that will be consulted and relied upon in the setting up of the governance structure.

Notice that the interests of all organizations include neither the protection of the earth's climate nor the efficiency of abatement strategies (Greiner 2000). These become relevant issues only if they are connected to the actor's interests. For example, countries dependent on energy imports will call for a rapid development of renewable energy options, as this will ease their geopolitical dependencies.

Conclusion and future research

Overall, it can be observed that a competing proto-institution of 'investment' has emerged from the traditional institution of 'aid' in international climate change mitigation funding. The shift from interpreting climate change mitigation projects as political 'aid' to economic 'investment' may be attributed to the meaning shared by the actors that have benefited most from this power struggle in the policy arena: industrialized countries as well as large corporations. Economic forces seem to be favored by their constituents over political ones. It has been observed that the private sector is becoming more successful in exerting institutional pressure in the policy arena (Hertz 2001). This examination of institutional change in the policy dimension shows that regulatory innovation is not necessarily based on a level playing field between unequal actors (Michaelowa and Dutschke 2000). Instead, it resembles more an institutional war where actors gain and lose interorganizational power.

This paper has shed some light on the process of institutional change. Institutional theory aided in the examination of the organizational field and helped determine whether institutional change indeed took place. This was

accomplished by using the forms of transformation outlined by Dacin and colleagues (2002) which are a useful tool to understand the extent of the institutional change. Furthermore, the discussion surrounding a proto-institution by Lawrence and colleagues (2002) aids the understanding of the evolution of new patterns of interaction. It was recognized, however, that institutional theory alone cannot explain institutional change. The notion of power was necessary in order to comprehend how actors relate to each other in the traditional and the new pattern of interactions. We can only arrive at a more complete understanding of institutional change once we understand how power differentials in an organizational field are affected. The notion of power can therefore inform us about how the institutional change has affected the power positions of the actors. We cannot assume, however, that a better power position necessarily means that this actor was instrumental in bringing about the change. Instead, it is pertinent to develop a dynamic dimension of institutional theory that can help observe the changes as they are occurring. In order to accomplish this, further theoretical development is needed.

It becomes clear that an analysis of the institutional changes would have been incomplete without examining the power struggles that are played out in this policy arena. The next step is to analyze the power relations of these and other organizations in the project arena. How do organizations cope with the efficiency demands of the project while keeping the ceremonial front established in the policy arena? According to Meyer and Rowan (1977), we should find much more decoupling and reliance on trust in the 'aid' institution than in the proto-institution 'investment'. Is technological innovation more likely to occur in one model rather than the other or do projects under either institution resemble each other quite extensively despite such a differing institutional framework? Are the power differentials similar in the project arena as in the policy arena or are some organizations able to exert more power? Since the aim of the climate change mitigation negotiations is to lower emissions, having a closer look at the power relations in the project arena is critical. How is the environment faring under the proto-institution? It has been argued that the lengthy discussions surrounding the Kyoto Protocol mechanisms have been used to divert attention away from developing strategies to reduce emissions (Michaelowa and Dutschke, 2000). Clearly, an

examination of the power struggles in the project arena is necessary to answer these questions.

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Paper Two

Environment Policy Innovation – Institutional Theory as a Framework for Action

Earlier versions of this paper were presented at the following international conferences in 2003 and 2004:

- **First Annual Toulouse Colloquium, Toulouse, France;**
- **2004 Administrative Sciences of Administration Canada Conference (ASAC), Quebec, Canada;**
- **64th Annual Meeting of the Academy of Management, New Orleans, USA.**

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Environmental Policy Innovation - Institutional Theory as a Framework for Action[1]

Abstract

This article presents a new approach to environmental management through the management of the institutions that mediate the relationship between human action and the natural environment. The proposed model builds on recent developments in institutional theory and a case study of innovative global climate change policy, the Kyoto Protocol. With its emphasis on patterns of social interaction, institutional theory can inform environmental management by providing an awareness for institutional arrangements and describing how institutional change can take place. We address the questions of how institutions define the governance structures in the environmental field and how organizational agents can attempt to reorganize this institutional setting. The proposed model offers both a novel approach to managing the natural environment and a new way for researchers to theorize environmental action.

1 This paper is currently under review with Nelson Phillips, my supervisor, as second author. His contribution mainly included the organization of ideas and the revising of the paper.

In December 1997, after one and a half weeks of heated deliberations, the delegates at the third Conference of the Parties to the United Nations Framework Convention on Climate Change conceived an important policy innovation: the Kyoto Protocol. Whether this treaty will avert the perils of a changing climate is debatable. However, it cannot be denied that the market-based mechanisms, such as CO_2 emission trading, have extended a new way of organizing from the arena of free trade negotiations to environmental management. In particular, the way industrialized countries facilitate renewable energy projects in developing countries has been affected by this change of meaning underlying the interactions between organizations. Where the meanings associated with the institution of 'aid' underlie projects facilitated by intergovernmental agencies, such as the World Bank, the Kyoto Protocol offers organizations a way to interact along the lines of the institution of 'investment' where corporations move to the center stage and projects are financed and distributed according to an open market.

Recognizing and analysing the institutions that govern the relationship between organizations and the environment has the potential to greatly enrich the environmental management literature. Institutional theory, which explains how patterns of social interaction become entrenched in society, can therefore assist scholars of environmental policy. An analysis of environmental policy innovation, on the other hand, can also contribute to the institutional theory literature by extending recent theoretical developments to cases of successful policy renewal by resourceful actors. This article offers such a description and asks the question of how central actors were able to change their institutional framework.

Analyzing a case of organizational agency in the global climate change policy arena, we discuss the types of institutions that are prevalent in the environmental policy context and draw on concepts of institutional strategy to understand how institutions can be changed by resourceful actors. Our analysis will proceed in three steps. First, we discuss how institutional theory can contribute to the understanding of environmental management. We look at the recent developments in understanding institutional change and discuss how it is relevant to the study of environmental policy innovation. Second, we

present an overview of the case including the methodology we used. Third, we discuss how the resourceful actors in our case study have managed to bring about institutional change. We draw on insights from institutional theory to explain their success. Finally, we conclude with the proposal of a general theoretical framework of institutional entrepreneurship that applies to the environmental context.

What can institutional theory contribute to environmental management?

The environmental management literature was first established in the late 1980s by a group called the Greening of Industry Network (GIN) as a response to the environmentalist movement. Their goal was to bring industry's perspectives into environmental policy negotiations. Scholars have since struggled to define this field of research. Initially, academics have sought to advise managers on how to incorporate ecological concerns into their decision-making (for example, Hart and Milstein 2003; Post and Altman 1992; Schmidheiny 1992). More recently, this has developed into a field of academic research that takes cultural and organizational principles into account as well (Jennings and Zandbergen 1995; Kallio and Markkanen 2004). Since Gladwin (1993) called for more rigorous and systemic research, articles dealing with environmental concerns appeared more prominently in the mainstream management literature (Coopey 2003; Kallio and Markkanen 2004). In the midst of this scholarly work, the underlying anthropocentric (human-centered) paradigm was challenged by the urgency to put nature at the center of managerial concerns, which came to be known as the eco-centric approach (Gladwin, Kennelly and Krause 1995; Purser, Park and Montuori 1995; Shrivastava 1995a, 1995b).

These theoretical developments have brought about a departure from discussing strategic considerations of greening industry to searching for novel ways of conceiving environmental problems and solutions. Examining environmental policy issues from an organization theory angle makes it possible to address common beliefs among organizations, shared systems of meaning and power relations (Hoffman and Ventresca 2002). In particular, institutional theory offers tools to analyse how organizational interactions with

the environment become institutionalized and what role these institutions play in society (Jennings and Zandbergen 1995). In this paper, we describe an instance of environmental policy innovation and propose a model, drawing on institutional theory, that explains the entrepreneurial actions.

New institutional theory understands institutions as “stable designs for chronically repeated activity sequences” (Jepperson 1991: 145). They are social patterns that have reached a state of taken-for-grantedness that results in their reproduction across social situations. Socially constructed rewards and sanctions control any deviation from these patterned ways of interacting (Jepperson 1991). Therefore, once an institution has been created through the social interaction of organizational actors, it in turn constricts these same actors in terms of what actions are more easily processed and less costly (Lawrence, Hardy and Phillips 2002; Meyer and Rowan 1977; Zucker 1987). However, institutions should not be understood as monolithic but instead as more-or-less institutionalized patterns of organizational behaviour that can overlap and coexist (Levy and Egan 2003). Organizations that operate within a particular institutional arrangement constitute the organizational field. This field can be defined as a “community of organizations that partakes of a common meaning system and whose participants interact more frequently and fatefully with one another than with actors outside the field” (Scott 1995, 56). An organizational field can be thought of as formed around a common issue or interest rather than a common product or market (Hoffman 1999).

Institutional theory has undergone a surge in research interest recently as scholars have begun to pay more attention to the role of power and agency in organizational fields (Fligstein 1991; Greenwood and Hinings 1996; Hensmans 2003). According to more recent neo-institutional theory, organizations are not only exposed to external institutional pressures as earlier new institutional theorists argued (Oliver 1991), but can choose to attempt to change or reinforce the institutional framework that surrounds them to their strategic advantage (Beckert 1999). Since this realization, institutional theory has become a useful framework for understanding the activities of organizations who work to change the institutional arrangements that characterize the arenas in which they operate (Maguire, Hardy and Lawrence

2004). By synthesizing these new developments with the acknowledged contributions of institutional theory, we were able to construct a model that makes this knowledge actionable and adequately explains the actions of the resourceful actors in our case study.

Case study and method

Our empirical study takes place at the intersection of climate change policy and development: the international frameworks that govern industrialized countries' investments into cleaner energy projects in developing countries. The focus of our discussion is on the policy innovations that the Clean Development Mechanism (CDM) under the Kyoto Protocol brings to international climate change mitigation. This case was chosen because it clearly displays the characteristics of institutional change. In addition, due to the highly formalized proceedings, this institutional change is well documented and clearly structured.

We gained insight into the organizational interactions through personal observations at five international climate change negotiations conferences over more than three years from June 2000[2]. We established that there is a fundamental difference between how the United Nations Framework Convention on Climate Change (UNFCCC) and its Protocol govern the intergovernmental transfer of renewable energy technology through the textual analysis of these two international treaties and the associated rules and regulations. This gave rise to the conceptual underpinnings of the proposed institutional change.

Our understanding of the processes underlying the functioning of the global climate change mitigation regime, both under the UNFCCC and the Kyoto Protocol was presented to a focus group of UNFCCC secretariat staff who in turn provided feedback to gain a clearer picture of the institutional structures. Several in-depth discussions with key UNFCCC secretariat staff were conducted to obtain specific information regarding the CDM and its legislative

[2] The appendix of this thesis has details on the conferences attended.

progress. In order to establish a description of the organizational field pertaining to the two treaties, we needed to understand the diverse perspectives of the actors involved. For this purpose, we developed a protocol for semi-structured interviews after a broad study of the publicly available literature on the climate change negotiation context. After the interview protocol was tested in a pilot phase and modified, twelve interviews were conducted at an international conference in June 2003[3]. Respondents were official climate change policy makers from eight countries selected to represent a balance in terms of the countries' geographical location, size and wealth. The set of interviews also included representatives of two intergovernmental agencies other than the UNFCCC staff. Due to the highly political nature of the negotiations, the names and origins of the interviewees remain strictly confidential.

The questions in the interview protocol pertained to the past, present and future of intergovernmental technology transfer as governed by the two treaties. Respondents were asked to reply from their country's perspective, in particular mentioning the opportunities and threats that the country faced with each legislation. The interviews were transcribed and helped construct the patterns of social interactions between the actors in the organizational field. In some cases, respondents were contacted with further questions.

Global climate change mitigation

News items concerning the effect of increasing temperatures, rising sea levels and reports on natural disasters of ever increasing frequency and intensity are brought to us every day: The Royal Horticultural Society (RHS) is advising British gardeners to plant drought resistant shrubs, build shelter for their plants in anticipation of storms and warns not to plant in areas liable to floods. Their own research suggests that global warming may be bringing an end to "the English country garden and the great British lawn." (RHS website 2003). NASA's records since 1978 suggest that the permanent ice cover in the Arctic has been reduced by an area five times the size of Britain (Pearce 2003).

[3] The appendix of this thesis lists the interview protocol as well as background information on the interviewees.

Global temperatures are estimated to have risen by 0.6° Celsius (± 0.2° Celsius) over the last 140 years shifting eco-systems out of balance (IPCC 2001). The complexity of the problem calls for urgent and coordinated action across the global community in order to slow down human-induced climate change.

The issue of climate change was first brought to the attention of global policy makers by scientists and public concern in the late 1980s. Political world leaders at the Rio Earth Summit in 1992 signed and later ratified the United Nations Framework Convention on Climate Change (UNFCCC) in a spirit of cooperation between countries. Industrialized countries took on much greater responsibilities in terms of reporting and policing greenhouse gas (GHG) emissions, because both historically and in per capita terms, industrialized countries have been emitting substantially more GHG than the developing world. The legally binding treaty calls for 'common but differentiated responsibilities' (UNFCCC, Article 3, Paragraph 1) where developed countries charge ahead to take the lead in combating climate change and its adverse effects. To enable the transfer of clean energy technology, the Parties to the UNFCCC set up a financial mechanism that grants money towards renewable energy projects in the developing world. This money is administered by the Global Environment Facility (GEF), a spin-off of the World Bank, which coordinates projects that are implemented by the United Nations Environment Programme (UNEP) and its Development Programme (UNDP) as well as the World Bank.

Right from its inception, however, delegates from various countries have expressed dissatisfaction with the GEF. The project approval process can take several years and the incremental cost requirement, which allows funding only equivalent to the additional cost incurred because of the environmental aspect of the project, is often difficult to meet. The dissatisfaction with the GEF can be seen as part of the general disappointment that the developing country governments felt after the Rio Summit. They had hoped that the elaborate promises of industrialized countries would materialize into financial

support. Industrialized country governments, on the other hand, saw this sentiment as a consequence of a major misunderstanding at the Rio Summit.

It was in this context that the Brazilian delegation hammered out their Brazilian Proposal in 1997 to counter efforts by the US delegation to force developing countries to take on emission reduction targets in the future. The Brazilian Proposal is based on the polluter-pays-principle. An elaborate calculation would determine by how many degrees a particular country has historically increased the temperature of the planet. The countries with a history of high carbon dioxide emissions would then share the burden of reversing climate change. The countries that do not adhere to their commitment would have to pay a penalty into a so-called Clean Development Fund.

Obviously concerned about this proposed concept of historical emissions, the US government sent a small delegation to Brazil to discuss this innovative proposal. After one long day of back room talks in Brazil, the Clean Development Mechanism (CDM) emerged, where historical emission calculations were put on the back burner of international negotiations and the concept of penalties was scrapped. The US delegation convinced the Brazilian government that broad private sector involvement in climate change mitigation efforts would bring more clean energy investment into their country. This satisfied Brazil's frustration with the GEF and brought hopes for a more lucrative financial mechanism. On the US side, an alarming shift to commitments based on historical emissions had been averted and a market-based mechanism brought corporate players to the center stage. A surge in demand for US business expertise could further spur national economic interests.

At the third Conference of the Parties (COP 3) to the UNFCCC in Kyoto, Japan, in December 1997, the member states adopted the Protocol to the Convention setting legally binding emission reduction targets for industrialized countries and economies in transition. The Kyoto Protocol contains several market-based mechanisms such as the emissions trading regime. Whereas the UNFCCC had been negotiated in an atmosphere of industrialized

countries extending a hand to developing countries to help them develop in a sustainable way, the Kyoto Protocol was based on economic calculation of the lowest cost way to cut global GHG emissions. The Clean Development Mechanism, championed by the Brazil and US governments, appeared as the 'Kyoto Surprise' (Werksman and Cameron 2000) and was decided on rather quickly. It took another six years to hammer out the details of its functioning. Table 1 presents a comparison between the two financial mechanisms.

Table 1: The two treaties with their financial mechanisms.

	United Nations Framework Convention on Climate Change, UNFCCC	**Kyoto Protocol to the UNFCCC**
Signed	**1992** during Rio Earth Summit	**1997** during COP3 in Kyoto
Status	In effect since 1994	Will come into effect on 16 February 2005
Parties to the treaty	188 countries	132countries
Greenhouse gas emission reduction target	Developed countries aim to return to emission levels of 1990 (Art. 4, Para. 2b)	Industrialized countries are bound to reduce emissions by 2012 to at least 5% below the levels of 1990 (Art. 3, Para. 1)
Commitment	Common but differentiated responsibilities for developing and developed countries	Legally-binding targets for industrialised countries and economies in transition
Financial mechanism (exerts from the treaties with added emphases)	**UNFCCC, Article 11**: "1. A mechanism for the provision of financial resources on a *grant or concessional basis*, including for the transfer of technology, is hereby defined. It shall function under the guidance of and be accountable to the *Conference of the Parties*, which shall decide on its policies, programme priorities and eligibility criteria related to this Convention. Its operation shall be entrusted to one or more *existing international entities*. 2. The financial mechanism shall have an *equitable and balanced representation* of all Parties within a *transparent* system of governance. […]"	**Kyoto Protocol, Article 12**: "1. A clean development mechanism is hereby defined. 2. The purpose of the clean development mechanism shall be to assist [developing countries] in achieving *sustainable development* and in contributing to the ultimate objective of the Convention, and to assist [developed countries] in achieving *compliance* with their quantified emission limitation and reduction commitments […]. 7. The Conference of the Parties […] shall, at its first session, elaborate modalities and procedures with the objective of ensuring *transparency, efficiency and accountability* through independent auditing and verification of project activities. […] 9. Participation under the clean development mechanism […] may involve *private and/or public entities*, and is to be subject to whatever guidance may be provided by the *executive board* of the clean development mechanism. […]"

The emergence of a new way of financing climate change mitigation projects in developing countries marks the institutional change. The GEF mechanism set up in the UNFCCC can be labelled the institution of 'aid' which is now being challenged by an emerging institution of 'investment'. The underlying meaning of projects changed from furthering development under the umbrella of foreign aid to the economic consideration of cutting emissions at lowest cost resulting in foreign direct investment. It is a peculiar aspect of this institutional change that the strong reliance on markets to determine the amount and distribution of investment in climate change mitigation projects in developing countries, which was proposed and pushed by the US government, lives on in the CDM despite the complete US withdrawal of any support for the Kyoto Protocol. Since powerful competing economic ideologies in the governance of countries ceased to exist with the fall of the Soviet Union, this strong belief in the market has penetrated international negotiations not only in the climate change field, but also in the UN in general, with a recent example being the UN Global Compact.

Discussion

Institutional formation in the context of environmental intervention

Institutions mediate between organizations, society and the natural environment. One way, therefore, to change the way that human activity affects the environment is to change the structure of the institutional framework (Frank 2002). But before an actor can begin to create change, it is critical to understand the extent to which the current institutions govern social interactions (Leca Forthcoming). The literature points to three dimensions that have to be assessed (see Table 2). First, actors examine the technical and procedural knowledge, regulations as well as the practices that are required to operate within this institution. Second, the isomorphic mechanisms that are in place to support the institution need to be understood. Third, the importance of the discursive structures that have become entrenched in the institution has to be recognized.

Table 2: Assessing the institution

What are the characteristics of the institution?	a. technical and procedural skills
	b. regulations
	c. practices

What are the isomorphic mechanisms that reinforce the institution?	a. normative
	b. coercive
	c. mimetic

What is the discursive structure of the institution?

Typology of institutions

Leblebici and colleagues (1991) developed three core concepts that institutions evolve around: technology, regulation and practice. Technology here can mean certain technical tools, but it also refers to knowledge and skills regarding the content and process of organizational or interorganizational transactions within the field. With new technologies, new capabilities are added to members of an organizational fields' repertoire of possible practices. A regulation dictates which actions are permissible within an institutional field and which ones should be avoided. Regulations spell out an actor's right to make use of a certain capability. A practice is voluntary and it is assumed that the actors can also behave differently if they wished to do so. This means that within certain rules (regulation), a member of an interorganizational field can choose to use a certain set of capabilities (technology) to act or not act (practice). (Leblebici, Salancik, Copay and King 1991).

New technologies can certainly affect international environmental negotiations, just as the discovery of a substitute for the chemical responsible for ozone depletion broke the deadlock in the negotiations leading to the banning of chlorofluorocarbons (CFCs) in the Montreal Protocol in 1987 (Litfin 1994). In our case study, when broadly defined, technology as "tools,

knowledge and methods that endow capabilities to agents in a field for establishing and maintaining their transactions" (Leblebici et al. 1991: 338) is clearly important. In fact, by redefining how transactions are to be conducted in the CDM, certain actors from the private sector will have an advantage because they already possess the capability and experience to act in a free market setting. When the emphasis shifted from helping a country develop to setting up efficient projects, the required knowledge changed from one of country context analysis and communication to one of market analysis and competition. Actors that have the required skill set will be at an advantage.

Although regulations play a major role in the environment field, they often only follow once technical and procedural knowledge is established. Rules and regulations are much more important as a coercive isomorphic force than as a founding factor of an environmental institution.

Practices are voluntary actions which organizations choose to apply during transactions in the organizational field (Leblebici et al. 1991). In the environmental context, this concept can become pivotal. In fact, the practices of organizations involved in climate change negotiations are the reason why negotiations are necessary in the first place since consequences of their practices include greenhouse gas emissions which in turn affect the global climate. In the environmental context, it is human activity that causes the issues of concern which in turn requires counter-actions.

Isomorphic Mechanisms

Organizations that interact within an institutional field have been found to become more and more alike over time. This is due to three mechanisms of isomorphism, which DiMaggio and Powell (1983) have developed to describe how organizations tend to resemble each other. *Coercive* isomorphism occurs when a powerful actor exerts pressure on another organization either through law, persuasion or invitation. A punishment or reward that is critical for the conforming organization is implied in this type of power relation. *Mimetic* isomorphism describes the process where an organization mirrors the actions of another organization that it believes have proven to be successful. An organization may copy a certain capability of a successful actor, assuming

that this capability is causal to the success. Innovation sometimes occurs when this process of imitation "goes wrong". *Normative* isomorphism pressures can come from many sources but are always driven by shared values regarding correct conduct. One important source of normative pressure arises through processes of professionalization. The collective effort of members of an occupation determines how work is to be accomplished in this milieu and leads to normative pressures regarding organizational and interorganizational conduct.

Normative pressures are certainly the most important in the environmental policy arena. Governments gather to discuss what ought to be done to improve the condition of the natural environment. Science plays an ambiguous role here, because it can both exert normative pressure on the institution as well as face political pressures from the institution (see Litfin 1994).

Coercive pressures, such as government regulations, are vital in the local environmental context and are becoming increasingly important in the global context (Jennings, Zandbergen and Martens 2002). However, climate change policy is negotiated by consensus which means that every party has to agree to the negotiated text and a country cannot be forced to sign a treaty. International agreements only become legally binding once they are ratified on a national level. In addition, even strong national regulations need clear enforcement; otherwise coercive pressures to conform will be weak (Jennings, Zandbergen and Martens 2002).

Since there is no other world to model after, mimetic pressures are not as important in this context. Nevertheless, countries can copy each other's position as was the case when Australia declared its complete dismissal of the Kyoto Protocol mimicking the US position in 2001.

Discursive elements as representation of ideology

Organizations within an organizational field develop a common discourse that can be seen as an indicator of a particular institution. Elements of talk and text play a profound role in shaping social reality (Phillips and Hardy 2002). It

appears from our research that discourse is a critical element of an environmental institution at the policy level. In international negotiations, policy text can assign power to one specific group or practice. In fact, it is the "discursive structure of culture, ideology, and symbolism that guides behaviour and lends legitimacy to particular organizations, practices, and distributions of resources." (Levy and Egan 2003). It was not coincidental that the language of the Brazil Proposal of the "Clean Development Fund" changed to the "Clean Development Mechanism" in the Kyoto Protocol. The US representatives had advised Brazil to alter the language to make it more viable in the Kyoto negotiations. The word "fund" is part of the discourse of aid, where money is collected, deposited and distributed. A "mechanism" sounds more dynamic and in tune with the institution of investment, because it facilitates and catalyses rather than controls. Broad ideological shifts in society put pressure on actors in the organizational field to adopt the discursive elements of a new institution. A change in discourse signals a change in the meaning system in society which in turn can affect world and national polity governing environmental issues (Frank 2002).

Organizations as change agents

Traditionally, institutional theory scholars have focussed on pressures for change from shocks external to the organizational field. More recently, scholars have recognized organizational agency as a factor in institutional change (Zucker 1987; Oliver 1991; Barley and Tolbert 1997, Maguire et al. 2004). The literature points to two aspects of an organization that determine whether it is likely to act as a change agent: the organization's desire to intervene and its ability to revolt (see Table 3).

Table 3. Organizations as change agents

desire to intervene	a. Are the goals of the organization consistent with institutional norms and requirements?
	b. Does the institution provide social legitimacy?
	c. How interconnected and dependent is the organization in the organizational field?

ability to revolt	a. formal authority
	b. key resources
	c. discursive legitimacy

Desire to intervene

The environmental context seen in the light of Oliver's (1991) theory of organizational resistance appears to place organizations on the fence between acquiescence and defiance towards the institution. Generally, environmental policy offers little efficiency gains for the actors, because it is cheaper to be reckless with abundant resources as their true value to society is often not included in the market price (Bossone 1990). In addition, the organizational actors are quite diverse, including non-governmental organizations, national and local governmental agencies as well as firms (Michaelowa 2000). The organizational field endures a moderate amount of uncertainty, because predictions about future environmental impact of greenhouse gases are difficult to obtain despite the emergence of scientific consensus (Bodansky 2001). According to Oliver (1991), these factors all predict that organizations will conform rather than rebel, because the costs of changing the institution outweigh the perceived benefits from a new institutional arrangement. However, some critical factors drive organizations to defy the institutional structures and, as in our case study, choose to attempt to change the institution.

Using Oliver's theoretical framework, it is not at all surprising that the governments of Brazil and the United States opted to defy the institutional structure. Three questions guide the organizational actor in deciding whether

it is to the organization's advantage to intervene in the institutional structure: Firstly, are the organization's goals consistent with the institutional norms? In our case study, the representatives of the Brazilian government were looking for ways to gain more funding. The US government was looking to include the private sector more directly in the transactions. The current arrangements under the institution of aid were not adequate for their needs. The current institution was not serving the organizations' interests.

The second question pertains to the legitimacy that the institution provides for the organization to satisfy the needs of its stakeholders. It is necessary to assess the importance that the institutional arrangements carry for the organization's constituents.

The third question that will help examine whether an organization would benefit from institutional change relates to its position in the organizational field. This depends on the interconnectedness and the dependencies of organizations in the field (Oliver 1991). If the organization is found to be highly interconnected with, or dependent on, other actors in the field, it may be too risky to offset this balance. In our particular case study, the two focal actors were relatively independent in their power positions. The United States is regarded as very powerful and can exert this power on other countries to persuade them to cooperate. Brazil is one of the most populous countries in the world and one of the ten largest economies. As a formerly highly protectionist country, its economy is broadly diversified across all industrial sectors. The Brazilian and US governments therefore represent unique yet similar positions in the organizational field, and are hence relatively independent.

Resources

Organizations are capable of instigating institutional change depending on their power position in the organizational field. Hardy and Phillips (1998) describe three aspects of power: formal authority, possession of key resources and discursive legitimacy. Organizations that exert formal authority on an organizational field have the power to influence the stability of an institution. In this vein, a government can, for example, develop new

legislation that changes fundamentally the way interactions around an issue are handled. Organizations that depend on others for scarce resources such as funding, expertise or information, will be at a power disadvantage. On the other hand, organizations that neither exert formal authority nor own key resources may still be able to exercise power by making use of their discursive legitimacy. This discursive legitimacy allows an organization to pressure more powerful players by affecting public perception of the issue through influencing the media.

Institutional strategies

After examining the organization's desire and ability to resist the institution, an actor may then be ready to look for institutional strategies that will create pressure on the institution and may eventually lead to institutional change. Lawrence (1999) describes two sets of strategies that organizations can use to bring about institutional change: membership and standardization strategies.

According to Lawrence (1999), whether an actor is accepted into an organizational field depends on the institution's membership rules. The institutional boundaries that are set determine the extent of interaction between organizations, structures of domination within the institution, the amount of information that will be processed and an awareness of a common undertaking (DiMaggio and Powell 1983). Rules of membership exert normative pressures on the organization to conform. However, if an organization has a high degree of discursive legitimacy or formal authority, it has the ability to affect membership rules. An actor can thus utilize membership strategies to redefine which organizations are involved in the institutional transactions.

Both the US and Brazil set out to change the rules of membership in the organizational field of international climate change mitigation. Brazil was frustrated with the processes of the GEF and its implementing agencies and was looking for solutions that excluded these powerful actors. The US, on the other hand, wanted to assign the private sector a more prominent role in order to give its own companies a new arena to place foreign direct investment.

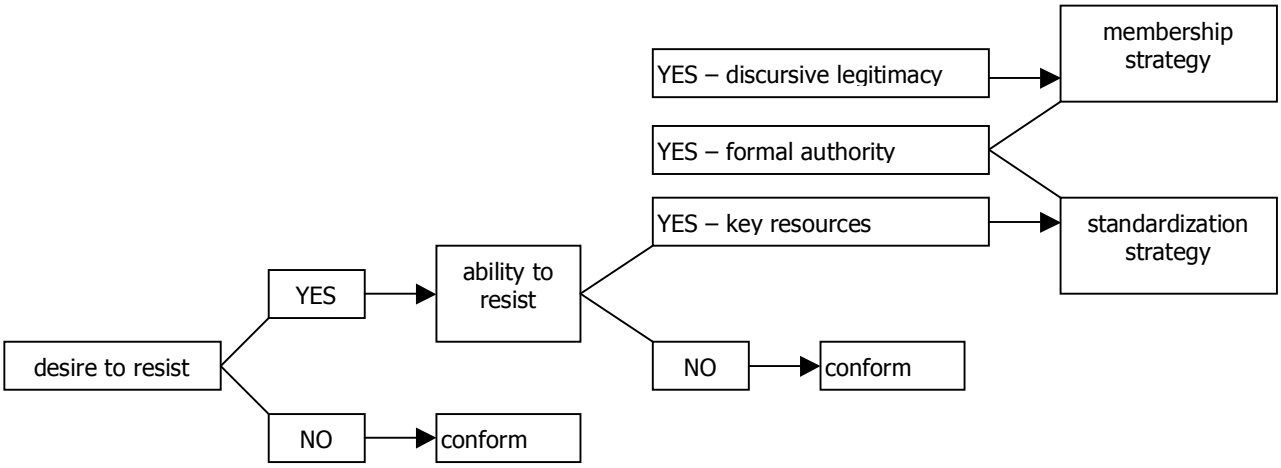
Besides membership strategies, Lawrence also describes another way organizations can bring about institutional change: standardization strategies. Through social mechanisms an institution assigns value to practices or products beyond their intrinsic merit. Regulation or other forms of norms establish what is perceived as normal within the organizational field. Standards of practice exert coercive and mimetic pressure on organizations. By employing standardization strategies, actors can move practices from the technical realm to the institutional realm or discredit accepted practices. In order to successfully do so, the particular organization will benefit from having control over critical resources, such as technical or legal expertise. Organizations can also make use of their formal authority to change standardized practices in an organizational field.

The two organizations featured in our case study brought about the institutional change mostly through membership strategies. In fact, as the institutionalization process is still ongoing, standards are still being established.

Framework for action in the environmental policy context

When the insights of institutional theory, depicted in Tables 2 and 3, in the context of environmental policy are connected and linked to the institutional strategies available to actors, a framework for action appears. It is in form of a decision tree that the organizational actor makes use of when attempting to change the institutional arrangements. Our case study demonstrates that organizations that successfully change the institutions they operate in have appropriately assessed the institution, juxtaposed organizational goals and means of power with the opportunities available and decided on an institutional strategy to enact institutional change. Figure 1 illustrates this process.

Figure 1: Decision tree



Conclusion

In this article, we have developed a framework for action which organizations employ when they are changing the institutional context in the international environmental policy field. We argue that environmental management can be conducted by analyzing and acting on the institutions that mediate between individuals, organizations and the natural environment. This requires organizations to act as innovators in the context of an environmental issue (Jennings and Zandbergen 1995). As such, they need to first understand the institutional framework that underlies the pattern of activity in the particular field of organizational operations. This requires an analysis of the isomorphic pressures that sustain the institutions (DiMaggio and Powell 1983). Normative pressures give rise to the impetus to change (Frank 2002) but coercive pressures are becoming more important, although they require political will to come into being and enforcement once they are in place (Jennings, Zandbergen and Martens 2002). Understanding the institutional framework also involves analyzing the ways in which the institutions operate, i.e., what kind of knowledge and skills are necessary to function, what kind of practices are common and which rules apply (Leblebici et al. 1991). In addition, it is necessary to assess the discursive structure of the institution, because a change in the interorganizational discourse might be signalling an institutional change (Phillips and Hardy 2002).

We found in our case study that the agents of change showed a desire to intervene in the institutional framework and had the ability to change the institutional framework. These are critical characteristics of organizations that successfully rebel against the institutional arrangement (Oliver 1991). In fact, due to their position in the organizational field, the key actors were able to redefine the membership rules (Lawrence 1999) and therefore succeeded in changing the institution to further their interests.

In conclusion, the case study shows that two resourceful organizations cooperated to change the institutional structure of their organizational field. They were able to move organizational interactions from a system of international aid to the structures of foreign direct investment. With the help of

the framework for action presented here, other organizations can also create institutional pressure that may bring about institutional change. Even organizations on the periphery can recognize and use the strategies demonstrated in our theoretical framework developed in this paper. Their goal might be to change the institution that global climate change mitigation operates in to one of cooperation and empowerment. Gathering key resources, formal authority or discursive legitimacy (Hardy and Phillips 1998) will enable actors that are currently at the fringe of the organizational field to successfully employ institutional strategies.

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Paper Three

Birth of Athena
or the Discursive Construction of a Proto-Institution

Earlier versions of this paper were presented at the following international conferences in 2004:

- **Second Annual Toulouse Colloquium at Queens' College in Cambridge, UK;**
- **20th European Group for Organizational Studies Colloquium (EGOS), Ljubljana, Slovenia.**

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Birth of Athena or the Discursive Construction of a Proto-Institution

Abstract

This historical study of the international climate change mitigation regime (1992 - 1997) provides insight into the dynamic processes that take place during the early stage of institutionalization. Interviews and archival data were used to examine institutional change around the Kyoto Protocol. An analysis of the roles of structure, institutional logic and groups of organizational actors demonstrates that these are more closely interlinked than previously thought. In fact, institutional change in its initial phase appears quite rapidly in this case study. The introduction of the new institutional logic instantly brought about its acceptance in the dominant discourse and its entrenchment in climate change policy structure. The new meaning system was not nurtured like a child to adulthood but rather appeared in the organizational field like Athena sprung from her father's forehead: fully grown and in full armour. In addition, a type of actor labelled 'Unorganized Voices' was discovered in the discourse of this organizational field that was found to be used as a tool during intense debate to either give voice to a powerless actor or to legitimize another actor's position.

> Zeus lusted after Metis the Titaness, who turned into many shapes to escape him until she was caught at last and got with child. An oracle of Mother Earth then declared that this would be a girl-child and that, if Metis conceived again, she would bear a son who was fated to depose Zeus, just as Zeus had deposed Cronus, and Cornus had deposed Uranus. Therefore, having coaxed Metis to a couch with honeyed words, Zeus suddenly opened his mouth and swallowed her, and that was the end of Metis, though he claimed afterwards that she gave him counsel from inside his belly. In due process of time, he was seized by a raging headache as he walked by the shores of Lake Triton, so that his skull seemed about to burst, and he howled for rage until the whole firmament echoed. Up ran Hermes, who at once divined the cause of Zeus's skull, from which Athene sprang, fully armed, with a mighty shout.
>
> (Graves, 1996, p. 51, 52)

Introduction

Until recently, the concept of institutional change has not been part of the institutional theory research agenda (Zucker 1987; DiMaggio and Powell 1983). Instead, the emphasis in the literature has been on describing how institutional structures maintain stability (Farjoun 2002) and pressure organizations to strive to be alike through isomorphic mechanisms (DiMaggio and Powell 1991). Institutions are thus resilient social structures that bring meaning and stability to a community of actors (Scott 2001; Zilber 2002). Besides creating the path for social interaction, institutions have also been formed through social processes (DiMaggio and Powell 1983). These theoretical developments lead to the understanding that interactions between organizations are constrained by the institutional framework but can also influence the formation of an evolving institution by challenging the status quo.

Examining the formation of novel institutional structures has led to a discussion of institutional strategies (Lawrence 1999), institutional tactics (Fligstein 1997) and collaborative action (Lawrence, Hardy and Phillips 2002). A proto-institution emerges, i.e. a new pattern of social interaction that may or may not become entrenched in society (Lawrence et al. 2002). The notion of organizations as entrepreneurs that attempt to change their institutional surroundings in order to benefit from new structures (DiMaggio 1988; Beckert 1999; Zimmerman and Zeitz 2002) has seen a surge of research interest in

recent years (e.g. Lawrence 1999; Hoffman 1999; Anand and Watson 2004). Institutional entrepreneurs are organizational actors that deliberately change the social framework in which they operate through a political struggle (Fligstein 1997; Rao, Morrill and Zald 2000).

What is still lacking, however, is an empirically founded body of scholarly work that examines the dynamic processes of institutional change in more depth. This article contributes to the emerging field of research by discussing the pace and sequence of institutional change processes based on the historical study of the evolution of climate change policy. How do institutional systems emerge? What is the role of groups of actors in the emergence of a proto-institution? When during this process is regulation established? What is the role of changing ideological frameworks? In this paper, these questions will be addressed through the examination of a longitudinal, historical case study.

Language is a vehicle to legitimize a new institution (Hirsch 1986) and institutionalization is achieved through discourse (Phillips, Lawrence and Hardy 2004). Discourse analysis is thus employed in this paper to better understand institutional change. An American newspaper is chosen as the research site through which some of the interorganizational discourse can be observed and analysed. It is not a reflection of the actual power struggle between organizations, but the medium where powerful actors propose and defend their ideas based on their interests. Being able to gain access to and secure the discourse is power in itself (Foucault 1972). The actors that are partaking in the conversation reflected in this newspaper are therefore already the ones that have influence over the evolution of the institution.

Before the case study of global climate change policy is presented, a framework linking institutional change and the analysis of discourse is warranted. These theoretical considerations are presented in the next section. The policy innovations governing the transfer of climate change mitigation technology are analysed along three dimensions proposed in the literature: institutional structure, institutional logic and the actors in the organizational field. The changes that occur along those three dimensions are juxtaposed to gain insight into the dynamics of institutional change. In

fact, the pace and sequence of events in each dimension turn out to be so intimately linked that they require a new, more holistic view of institutions. The concluding section speculates on the implications of the findings for future institutional theory developments in light of the proposed theoretical framework.

This paper contributes to the literature in three distinct ways. Firstly, it offers a longitudinal, discursive approach to the analysis of institutional change and therefore enables the researcher to study dynamic processes. The analysis spans six years leading to the innovative policies proposed in the Kyoto Protocol. The institutional change is traced by examining how climate change action is discursively constituted in the discourse of an American newspaper. Secondly, the paper provides a temporal link between the institutional elements of structure, logic and actors. The ideas that marked the institutional change were found to have surfaced rapidly rather than slowly over time and therefore resemble the process described as punctuated equilibrium in the organization studies literature (e.g, Gersick 1991; Romanelli and Tushman 1994; Siggelkow 2002). Thirdly, the paper allows for an understanding of rapid regulatory change. The structure that is examined in this article is the international treaty that guides international climate change action.

Theoretical Considerations

Dynamics of Institutional Change at the Organizational Field Level

We can observe institutional change at the micro level (subsystem), meso level (organizational form) and macro level (organizational field) (Scott 2001: 184). This article focuses on changes at the macro level and therefore addresses the organizational field, which is defined as the array of diverse organizations that interact more frequently and intimately (Scott 2001) surrounding a particular issue (Hoffman 1999). Institutional change at the macro level is manifested through the transformation of several factors: interorganizational relationships, organizational boundaries, make-up of the organizational field with new actors entering and boundaries and governance structures of the organizational field (Dacin, Goodstein and Scott 2002). A macro level analysis allows us to pay attention to ideological shifts and

changing power structures across organizations (Hoffman and Ventresca 2002). It is where conflicts arise and are dealt with (Anand and Watson 2004). Institutional features at the macro level influence the success of certain organizational capabilities and encourage certain practices used by firms to share authority (Whitley 2003).

The organizational field is comprised of three dimensions: the structure, the make-up of actors and the institutional logic (Scott 2001). The structure sets up social mechanisms that entrench certain patterns of interactions and thus make them less costly and more legitimate to follow by organizations. Underlying the structure is an institutional logic that legitimates the structure and superimposes a meaning system on organizational interactions. These interactions, governed by institutional structure and made meaningful through institutional logic, occur among a group of organizations, the actors, forming the organizational field. During institutional change, all three dimensions change (see Dacin et al. 2002). However, further research is needed to determine the pace and sequence of the changes (Pettigrew, Woodman and Cameron 2001). Acting on this call for research, this paper examines institutional change as it happened over time along the lines of these three dimensions.

Discourse as Textual Space for Institutional Change

Drawing from the tradition of social constructivism (Berger and Luckman 1967) and ethnomethodology, researchers have been analyzing institutional frameworks in order to understand how they are shaping as well as are being shaped by patterns of human interaction. However, the transitions between states of institutional stability continue to be a mystery in organization studies. This is partially due to the tendency of institutional theorists to use research methodology that has been critiqued as functionalist (Hirsch and Lounsbury 1997), which leads to an emphasis on conformity and legitimacy rather than deviance. In order to portray the dynamics of changing patterns of social interaction, an approach that traces developments over time is needed to see the changes unfolding, allowing for a social constructivist perspective and enabling us to observe shifting power relations.

Patterns of interaction and the meaning constituted within the interactions change over time. Examining the discourse between organizations sheds light on what those patterns are and what meaning the organizations relate through their behaviour. By analysing inter-organizational discourse over time, one can trace the path of institutional change. Discourse analysis looks at the way in which a set collection of text is produced, disseminated and received (Fairclough 1992, Phillips and Hardy 2003). The analysis of these texts that are taken for granted by the actors in an organizational field allows us to become aware of underlying ideological processes (Porter 1995). Discourse is shaped by actors to make certain social patterns conceivable and acceptable (Hirsch 1986).

In a policy setting, control over discourse gives actors the power to facilitate or prevent the introduction and legitimation of proto-institutions. Discourse is therefore at the same time the target, locus and outcome of power struggles. Power and discourse constitute each other: discourse embeds power relations and power relations in turn determine which actors influence the discourse (Hardy and Phillips 2004). Examining the patterns of this discourse can thus allow us to interpret which actors in an organizational field are powerful and how they go about legitimizing the meaning that changes reality to suit their interests. In order to turn discourse into structure, however, an actor has to be able to exert power over the other actors. Discourse analysis can reveal how meaning is created and how these discursive struggles impact the way an organizational field is governed (Mumby and Clair 1997).

Symbolic and cultural resources play a critical role in enabling social change in an institutional setting. Organizational myths and rituals grant legitimacy to organizations (Meyer and Rowan 1977). Language can reveal the processes of institutionalization, because it empowers actors to make sense, legitimize and routinise the institutional environment (Hirsch 1986). Analysing this discourse presents a methodology that allows us to portray the dynamic dimension of institutional change. Traditional qualitative studies can pick apart social constructs, but discourse analysis can go farther and show how social constructs are developed, contested, sustained or overturned (Phillips and Hardy 2003). Linking discourse analysis with broader social theory

considerations offers the opportunity to explain and understand organizational processes in a new way (Grant, Hardy, Oswick and Putnam 2004). This methodology is employed in order to contribute to the growing literature on institutional change and demystify the dynamic processes that constitute emerging institutions.

Method

In order to confirm that institutional change has occurred, the United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol treaties with their respective official documentation were interpreted with the aid of secondary literature in regards to how they defined the organizational interactions that were set up to facilitate climate change mitigation projects in developing countries. Two models were devised and further developed through focus groups of United Nations professional staff. The institutional change that became apparent in the models was confirmed by the knowledge gained through participant observation at five climate change conferences and semi-structured interviews of ten policy makers from a variety of countries in June 2003. The conclusions led to the establishment of the two models of 'aid' and 'investment' that are discussed in turn in this paper.

In order to examine the evolution of the new institutional logic apparent in the model of 'investment', the entrenchment of this logic into a new structure and the changing role of actors in the organizational field, i.e. the dynamics of this institutional change, 100 New York Times articles on climate change from the period of 1992 to 1997 were analysed. The New York Times was chosen for three distinct reasons. Firstly, the paper quotes key actors in power positions and therefore represents a stage for these actors to converse. Secondly, the authors of the letters to the editor reveal that the paper is read by the actors in power positions in the climate change organizational field and that it is a sought-after medium for this discourse community. Nevertheless, the newspaper should not be confused as a reflection of reality in climate change policy. Instead, it should be regarded as a channel through which part of this discourse is conveyed. The third reason for choosing the New York Times is its American perspective, giving more voice to US viewpoints. As the highest

single emitter of greenhouse gases in the world, the USA is the key actor in the climate change negotiations, because in this field, an actor gains power with more emissions. Being responsible for at least one quarter of the world's emissions, the effectiveness of any climate change treaty rises and falls with the US position, which heavily influences the institutional framework.

The 100 articles were randomly selected from the total of 298 articles that include the words 'climate change', 'greenhouse effect' or 'global warming' in their abstract, choosing approximately every third article to retain the time relations. A database was constructed using the headings of: Summary of Article, Actors, Concept of Climate Change, Force and Intertextuality. The 'summary' aided the overall understanding of the article, the 'actors' column was constructed to later derive the typology of actors and the 'concept of climate change' was described in order to derive the categories for the emerging institutional logic. 'Force' and 'intertexuality' were also examined. The former describes the 'actional component' of the text (Fairclough 1992), for instance whether a question is posed as a request, threat, order or complaint. The latter refers to the links implied in the text to other text, building the present discourse out of the past (Fairclough 1992). These two measures were used to further the researcher's understanding of the complexities of the inter-organizational discourse[4].

The categorization process yielded understanding about two issues: (a) how climate change was discursively constructed and (b) what actors were prominent in these discussions on climate change. Based on the former aspect, categories of institutional logic were constructed and based on the latter aspect, categories of the types of actors were constructed. The categories developed around the institutional logic were then sorted to only retain the ones relating to the new institutional logic of 'investment'. Four elements of the emerging institutional logic of 'investment' emerged in the analysis of the treaties and are outlined in Table 1.

[4] A sample of this database is provided in the appendix of this thesis.

Table 1: Elements of the institutional logic of 'investment' that can be detected in the newspaper articles

1. market liberalization	The article encourages policy to open markets in developing countries; this is also often discussed under the terms 'economic reform', 'trade liberalization' and 'elimination of subsidies';
2. emission trading	The idea of commodification of carbon, i.e. putting a price on carbon dioxide emissions that has been set in a market;
3. market-based financial mechanism	Text that mentions the Clean Development Mechanism or generally a mechanism that promotes investment in developing countries rather than aid;
4. counterarguments	Text directly addressing one of the above points and giving a counterargument, such as moral dilemma of legitimizing pollution by granting permits to pollute or the failure to reduce emissions in industrialized countries. This type of text unit shows that the logic is being accepted in the form of a debate.

The entrenchment of this institutional logic in the organizational field is observed over time by coding the articles in reference to the elements in Table 1. Each time a notion relating to an element of this institution of 'investment' was mentioned, the text unit was recorded and classified. A text unit was determined to be one paragraph, one to three sentences long, that contained one thought. Fifty-six text units were found that related to the institution of 'investment'. This coding was performed manually, not electronically, so that even indirect references to the elements were included in the analysis.

In order to ascertain whether the concept of emission trading surfaced in newspapers of other countries prior to being observed in the New York Times, 127 articles of the European business newspaper Financial Times were sampled, employing the same method as above. Emission trading as a concept was introduced in this newspaper in late 1997 and discussed in four text units of the same year. The distribution over time was similar to the one found in the New York Times articles and therefore demonstrates that the findings discussed below were not unusual but were, in fact, more frequent in the American newspaper.

Discussion

Institutional change

This study examines the institutional change that has occurred in the climate change policy arena in regards to how projects with the aim of reducing greenhouse gas emissions are proposed to be set up in the developing world. As will be ascertained below, there has been an institutional change in this organizational field. How did this change come about? What was the pace and sequence of this transformation? Dacin, Goodstein and Scott (2002) explore four ways an organizational field can be transformed. Table 2 shows that all four of these indicators of institutional change are present in our case study. In the table, the indicators have been linked to the three dimensions discussed above: structure, logic and actors. The discussion of the case below will be conducted along these three dimensions.

Table 2: Institutional change process in the climate change mitigation policy arena (extending Dacin et al. 2002)

Indicator of institutional transformation	Climate change mitigation policy context	Examples
1. changes in the relationships between existing organizations (LOGIC)	Organizations that still remain in the institutional framework now relate to each other in different patterns.	A government of the North chooses projects that it will facilitate directly, rather than funding an intergovernmental organization that decides which projects will be supported. Corporations or NGOs can implement a project and relate directly to countries and the UNFCCC. The UNFCCC gives valuable credits to governments of the North instead of only being funded and co-directed by them.
2. modifications of the boundaries of existing organizations (within ACTORS)	Boundaries of organizations that remain in the framework have been opened up or narrowed.	The UNFCCC now processes projects right until their termination, instead of only validating projects in their initial phase. Any organization can now propose a CDM project. Governments of the South are not directly involved in running projects anymore.
3. changes in the make up of the organizational field with new actors entering (between ACTORS)	New organizations have emerged and some actors have lost all responsibilities.	The Kyoto Protocol Executive Board and the Designated Operational Entity (DOE) have emerged; the Global Environmental Facility and its Implementing Agencies are not directly involved in the process anymore.
4. alterations of the field's boundaries and changes in the governance structures in an organizational field	The organizational field now involves actors directly which were only side players in the	The proto-institution calls for a third party evaluation (DOE) and different governing rules under the

(STRUCTURE)	traditional model. The patterns of interaction have changed.	Kyoto Protocol. Firms and NGOs can now directly contribute to the process.

Structure: The two treaties

The institutional structure that governs the international climate change mitigation arena is made up of two international, legally-binding treaties. The treaties will be discussed in turn and the particular mechanism outlined in each treaty facilitating mitigation projects in developing countries will be juxtaposed. These treaties are used as proxy for structure, because policy is the framework or guide for global climate change action.

The United Nations Framework Convention on Climate Change, 1992

After alarming scientific evidence of the depleting ozone layer and melting polar ice caps, the public view of the *weather* as something that happens to people in different places in different ways changed to the concept of *climate*: a complex, interrelated system of weather events that humanity is beginning to alter as a by-product of industrialization (Weingart, Engels and Pansegrau 2000). Although the first World Climate Conference took place in 1979, an international scientific body to investigate the extent and possible impact of climate change was not established until 1988. This Intergovernmental Panel on Climate Change (IPCC) called for a global treaty on climate change and the wheels were set in motion at the United Nations that led to the signing of the Framework Convention on Climate Change (UNFCCC) in 1992, in the following referred to simply as 'the Convention'. Parties to the Convention committed themselves to “protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities” (UNFCCC, Art. 3, Para. 1). The industrialized countries committed themselves to report to the United Nations on their progress on climate change mitigation “with the aim of returning individually or jointly to their 1990 levels these anthropogenic emissions of carbon dioxide and other greenhouse gases” (UNFCCC, Art. 4, Para. 2b). The treaty went

into effect in March 1994 and currently has 188 signatories. The countries that have not ratified the Convention are: Andorra, Brunei Darussalam, Iraq, the Holy See and Somalia.

Regarding our particular study of climate change mitigation projects in developing countries, this treaty set up a financial mechanism that would be managed by the Global Environment Facility (GEF) and implemented by the World Bank, the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP). The treaty describes the mechanism in the following manner:

> "1. A mechanism for the provision of financial resources on a *grant or concessional basis*, including for the transfer of technology, is hereby defined. It shall function under the guidance of and be accountable to the *Conference of the Parties*, which shall decide on its policies, programme priorities and eligibility criteria related to this Convention. Its operation shall be entrusted to one or more *existing international entities*.
> 2. The financial mechanism shall have an *equitable and balanced representation* of all Parties within a *transparent* system of governance. […]" (UNFCCC, Article 11, emphasis added)

The Kyoto Protocol to the Convention, 1997

Generally, a protocol defines the aims of a convention more clearly. During the third Conference of the Parties to the Convention in Kyoto in 1997, countries adopted the Kyoto Protocol to the Convention, setting legally-binding targets of at least 5% emission reduction below the levels of 1990 by 2012 for industrialized countries and former Communist states. These forty countries are called the 'Parties included in Annex I' after the annex of the Convention that lists them. It has since been ratified by 132 states, which means that the legal requirements to make the treaty law in the respective country have been met. For the Protocol to come into effect, enough Annex I countries have to ratify the treaty to represent 55% of their combined

emissions. Since Russia's ratification in November 2004, this requirement has been met and the Protocol is now due to come into effect on 16 February 2005.

As for the particular aspect of mitigating greenhouse gas emissions in developing countries (also called the 'Parties not included in Annex I'), the Protocol proposes a flexibility mechanism, called the Clean Development Mechanism (CDM). It allows Annex I Parties to gain credits toward their emission target by investing in a mitigation project in a developing country. The process of matching investors and projects is conducted in a market-based system. The value of credits will be set on a carbon market in which credits can be freely traded between signatories. Any organization can implement a project, including corporations and not-for-profit organizations. A third party evaluation is conducted by the Designated Operational Entity (DOE) on a regular basis. This is how the Kyoto Protocol describes the financial mechanism:

> "1. A clean development mechanism is hereby defined.
> 2. The purpose of the clean development mechanism shall be to assist Parties not included in Annex I in achieving *sustainable development* and in contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving *compliance* with their quantified emission limitation and reduction commitments […].
> 7. The Conference of the Parties […] shall, at its first session, elaborate modalities and procedures with the objective of ensuring *transparency, efficiency and accountability* through independent auditing and verification of project activities. […]
> Participation under the clean development mechanism […] may involve *private and/or public entities*, and is to be subject to whatever guidance may be provided by the *executive board* of the clean development mechanism. […]" (Kyoto Protocol, Article 12, emphasis added)

With these provisions, the Kyoto Protocol introduced a proto-institution that set new patterns of interaction to facilitate climate change mitigation projects in developing countries. Since the signing in 1997, a process of institutionalization has taken place producing documents to clarify the provisions of the Kyoto Protocol. The Marrakesh Accords (2001), for example, contain over 200 pages of text clarifying some of the aspects of the 30 page Kyoto Protocol. The European Union has set up an elaborate emission trading regime, modelled after the Kyoto Protocol, that will start operating in 2005. Considerable amounts of thought and negotiation went into the writing of the Kyoto Protocol; using it as a basis for international climate change action lowers the social, economic and cognitive cost to the actors involved (Phillips et al. 2004).

Logic: Aid versus Investment

When the structures embedded in the treaties are examined more closely, it becomes apparent that the Convention treats the facilitation of mitigation projects in developing countries within the institution of 'aid' whereas the Kyoto Protocol, signed just five years later, sets up a financial mechanism that is constructed within the institution of 'investment'. These two models were the ones that evolved from the process of not only analysing the treaties and secondary literature, but also through the interview and focus group research design discussed in the methods section. The difference between the two treaties points to a change in institutional logic. An institutional logic pertains to the principles and beliefs that govern the practices within an institutional field (Scott 2001).

The 'Aid' logic

The concept of 'underdevelopment' or 'developing countries' has been traced back to the early 1950s (Esteva 1992; Fowler 2000). The notion of a 'third world' made up of countries that are neither committed to the West and capitalism nor to the East and Communism has shifted the global dichotomy from East-West to North-South (Berger 2004). The fall of the Soviet Union made the East-West classification obsolete which strengthened the North-South dichotomy pitting 'developing countries' against 'industrialized countries'. The Framework Convention on Climate Change (FCCC)

entrenched this polarity in its 'Annex I' which only lists some forty industrialized countries including former Communist regimes, placing more than 140 developing countries into the awkward position of negotiating as a 'Non-Annex I' block. The dichotomy underpins the “common but differentiated responsibilities” that countries face based on their historical emissions “and respective capabilities” (UNFCCC, Art. 3 Para. 1).

This distinction between countries is also intertwined with the institution of 'aid'. Within this institution, countries of the North select and implement development projects in the South to encourage economic growth simulating the industrial development that the North has undergone. Policy makers are generally “physically, organizationally, socially and cognitively distant from the people and conditions they were analysing, planning and making predictions about.” (Chambers 1997:31). Often, the projects actually serve the countries of the North more than the countries of the South or inadvertently lead to greater oppression of the people the project intended to serve (Ferguson 1994). The way the World Bank is governed gives donor countries more decision power over development projects than host countries (Vallette, Wysham and Martinez 2004).

The financial mechanism laid out in the FCCC and quoted in the previous section operates within this institution of 'aid'. Climate change mitigation project ideas originate in Non-Annex I countries, are then approved by the Global Environment Facility, a spin-off of the World Bank, and finally implemented by the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP) or the World Bank.

The 'Investment' logic

The institution of 'aid' requires governments to be highly involved: developing country governments write project proposals, follow their approval process and support the management of the projects once they are approved. Industrialized country governments decide how much money to allocate to foreign aid and are directly and indirectly involved in the project cycle through intergovernmental organizations, such as the United Nations and World Bank, as are their developing country counterparts to a lesser extent. The institution

of 'investment', on the other hand, opens up this process to private entities, including corporations and not-for-profit organizations. The underlying belief is that governments are not as efficient and effective in allocating resources as corporations in a free market system which is to be kept honest through transparency measures and public participation processes (Sen 2002; Stiglitz 2002). Project proposals and investors are to be matched in a market setting. The objective of the Clean Development Mechanism (CDM) is to help industrialized countries reach their emission reduction targets through lowering emissions elsewhere. In addition, the market mechanism is believed to make this possible at the lowest cost per unit of emissions reduced.

Market mechanisms are based on the assumption that a market will allocate resources in the most efficient way and thus minimise costs of climate action. It is based on the premise that cutting emissions is critical no matter where on the globe this happens unless local air pollution is also affected by the measure. Given this institutional arrangement, an international emissions trading regime is necessary to match the supply and demand of emission credits as well as investors and instigators of climate action projects. It is assumed that through emission trading the lowest cost will be realized by distributing cost cutting measures between high and low cost areas, creating a 'bubble', rather than forcing every country to use the same measures.

Opponents to emission trading fear that such a regime could allow rich countries to buy their way out of reducing their own harmful emissions and that it would undermine the sense of shared responsibility required in the negotiations. Allowing countries to trade emission credits implies that emitting greenhouse gases is not fundamentally wrong but in fact acceptable as long as the polluter can afford to pay the fee (Sandel 1997). Beside these moral arguments, an emissions trading regime is only environmentally effective if the targets are stringent and rigorously enforced. Even the most elaborate emissions trading regime may not lower global emissions if there are numerous loopholes and lax targets.

Emission trading as an economic tool to lower pollutants is not new. Textbooks on environmental economics discussed the idea as early as the

1960s; a sulphur dioxide emission trading regime has long been implemented in the Eastern United States. Nevertheless, it only became possible to entrench this concept in an international environmental treaty once all negotiators shared the institutional logic of 'investment'. Emission trading requires the commodification of carbon dioxide, something that is invisible in the air, and the trading of this new commodity on an open market that sets its price. Organizations that want to participate in the CDM have to be able to function in a market, which means that they need to emulate the organizational form of the business corporation. If any of the powerful actors had endorsed organizing around the logic of 'central planning', for example, global consensus on the CDM in its present form would have not been possible. The Kyoto Protocol is clearly a post-Cold War treaty.

Critics of this ideological framework are cautious about the successes of market systems in other areas, such as international trade. They remain unconvinced that proposed mechanisms of public participation will offset the harmful consequences that have been observed in current unregulated markets: social disintegration through capital flight, moral decline and increasing economic inequality (Sandbrook 2000).

The emerging logic of 'investment' was traced through the articles from 1992 to 1997 by coding text units for the four categories described in Table 1. Fifty-six text units were found in the 100 articles and their distribution across the years can bee seen in Figure 1.

Figure 1: The distribution of text units mentioning market logic over the years 1992 to 1997.

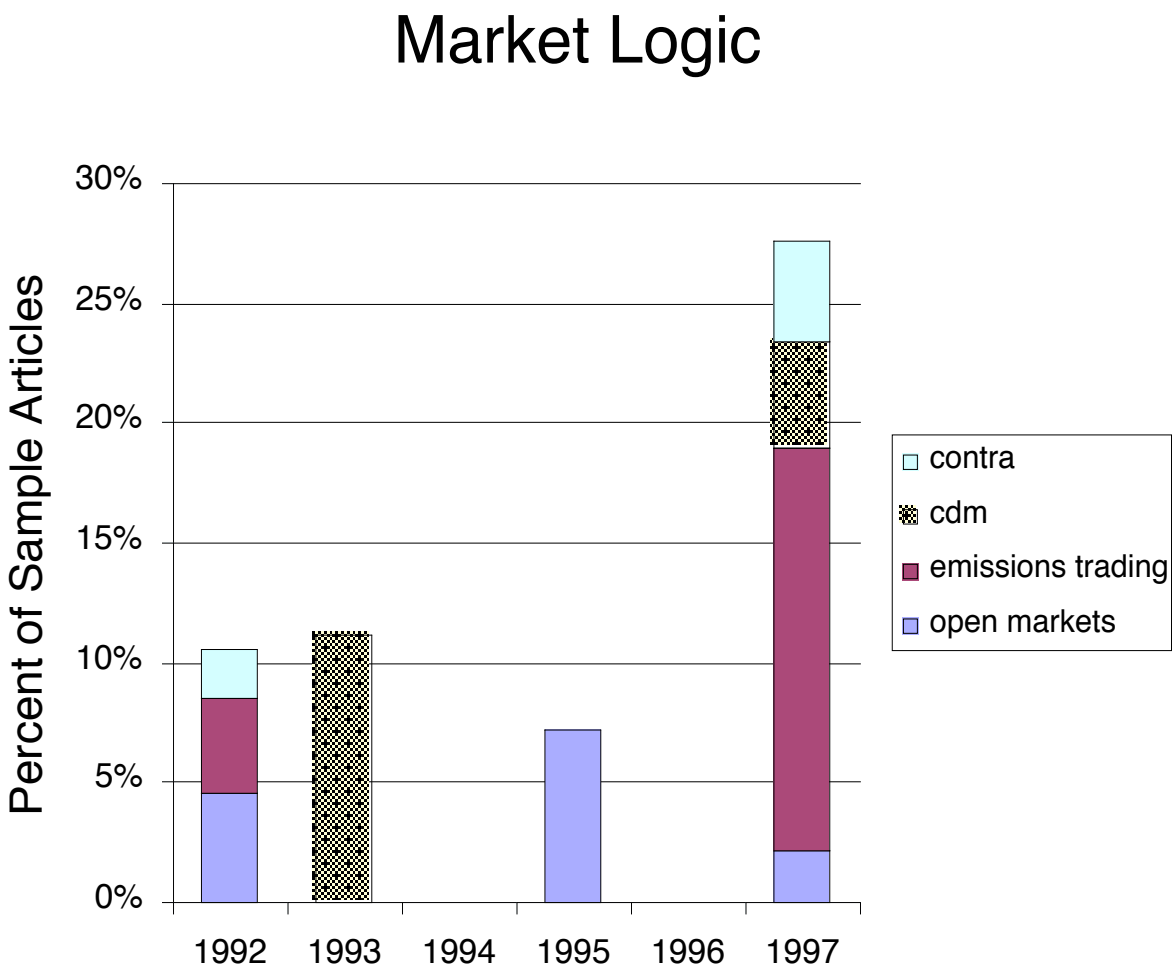
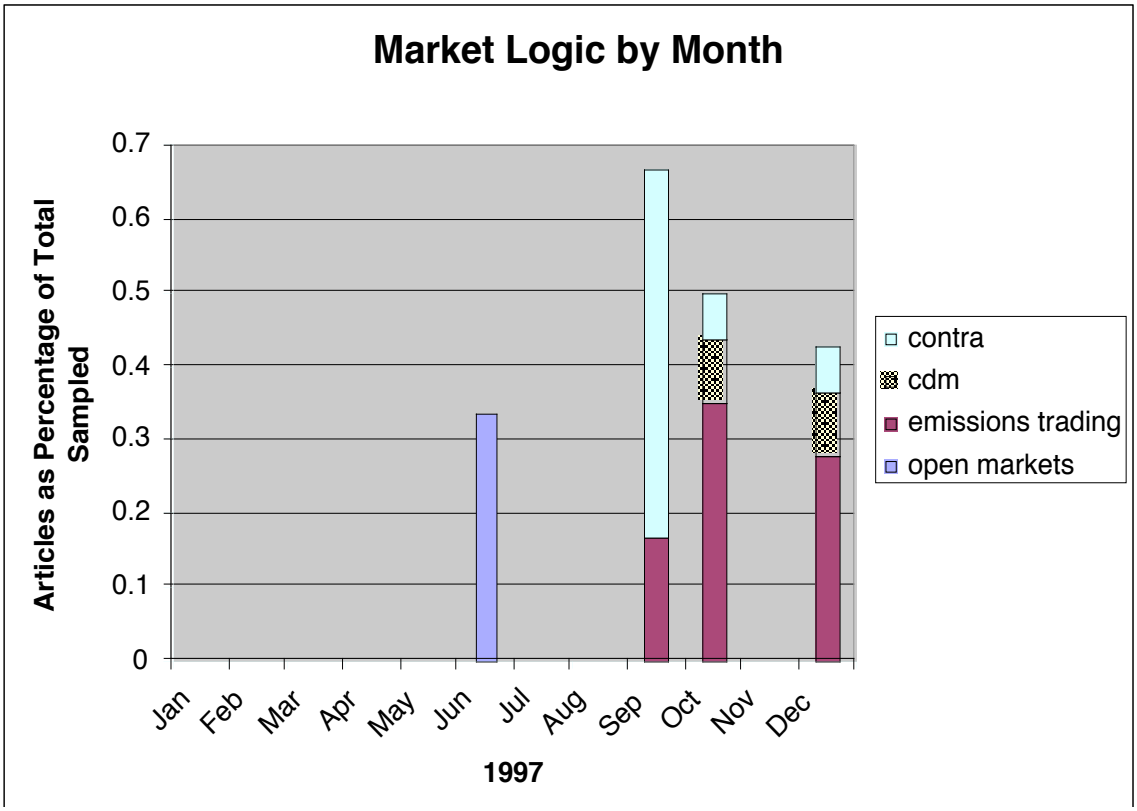


Figure 2: Text units representing the market logic over the months in 1997.



The institutional logic of 'investment' was present intermittently, namely in 1992, 1993 and 1995, but the majority of the text units dealing with concepts related to the new institution of 'investment' occurred in 1997. In fact, when the data is looked at by month rather than by year as in percent of the articles sampled (Figure 2), it becomes apparent that most text units are indeed from December 1997, which is when the Kyoto Protocol was adopted. The climate change negotiations started on 1 December 1997. The US delegation brought their idea of emission trading into the policy arena on that day. The Kyoto Protocol was adopted on 11 December 1997. It can therefore be said that the institutional logic changed before the structure changed but the time difference was minute. Even regulative change can therefore be rapid. Rather than slowly introducing the 'investment' logic, borrowed from other organizational fields such as international trade, and nurturing it like a child to grow into a mature person, the idea of emission trading was launched into the organizational field by the most powerful player, just like Athena sprung from the forehead of Zeus, fully grown and in full armour. This idea was rapidly accepted by other actors in the field and embedded in the structure of the international treaty. The observed change in institutional logic fits into the conception of the punctuated equilibrium (Gersick 1991) marked by long periods of stable states with intermittent shifts brought about by revolutionary upheaval.

Actors: A typology

The term 'actors' refers to the organizations that make up the organizational field. These organizations share the same meaning system regarding their practices and interact more "frequently and fatefully" (Scott 2001:56) with each other than with actors outside the field. In this study, an organizational field is drawn around a particular issue, in this case climate change policy, rather than a common product or market (Hoffman 1999). Actors within the field constantly vie for positions of power and prestige (Anand and Watson 2004) and field boundaries are redrawn during institutional change (Dacin et al. 2002).

The New York Times is a stage where the powerful actors interact. The views of the prominent actors in the climate change policy arena are reflected in the articles, and the individuals that are part of these organizations read the paper and respond in letters to the editor. During the analysis of the articles, any mention of persons or groups of people was recorded in the database that was constructed from the articles. All the actors mentioned in the articles were grouped into six types. the types of actors and examples of actors in each category are described in Table 3. The six types of actors that emerged were: scientists, politicians, environmentalists, economists, industry and a group made up of voices that are not organized into one set of interests or activity.

Table 3: Actor typology with examples from the articles that were sampled

Examples of person or group of people mentioned	*Type of Actor*
scientists, scientific advisers, biologists, ecologists, glaciologists, geologists, physicists, geochemist, (paleo-)climatologists, meteorologists, oceanographers, investigators, graduate student	**Scientists**
governments, diplomats, negotiators, Reagan/Bush/Clinton administration, Environmental Protection Agency, White House officials, developing countries / industrial countries delegates, European allies, Congress, government analysts, rich countries, state, presidents	**Politicians**
environmentalists, Natural Resource Defence Council, World Resource Institute, Earthwatch, conservationists, WWF, Rocky Mountain Institute, Worldwatch Institute, Greenpeace, Sierra Club, environmental movement	**Environmentalists**
economists, energy specialist, Economic Research Service, modelling community	**Economists**
business leaders, utilities, business, industry, European industry lobby, industrial interests, automotive industry, executives, businessmen, Western companies, insurers, American business community, American Petroleum Institute,	**Industry**
friends in Bangladesh, children, coal miners, public perception, my husband and I, writers, consumers, musicians, bird watchers, worker, home owners, pilot, Eskimos, Indians, world public, people, opinion polls, teacher, students	**Un-organized Voices**

Some actors clearly fall into one of the six categories and are even described as such in the text. There are some actors, however, that are ambiguous in terms of their role, such as 'naturalists', or take on the roles of two or more sets of actors, for instance the 'Union of Concerned Scientists' or the 'United Nations Environment Programme'. See Table 4 for more examples of actors, mentioned in the data, that have ambiguous, multiple or fluid roles. Another contentious point regarding the actors is the role of the reporter, writer, editor and indeed the New York Times. In this study, these actors have assumed the role of facilitator of the debate on climate change, but in fact, they attribute the right to produce discourse to certain groups or individuals. They restrict this access to the most legitimate and thus powerful actors, e.g., the US President and their perspective is certainly focussed on the USA. They may also pay attention to their own interests, for example, when they protect their

advertising clients. This means that they may not be inclined to discuss the greenhouse gases emitted by sports utility vehicles when some of their main advertisers are American automotive corporations.

Table 4 – Fluid actors

Examples of person or group mentioned	*Types of Actors*
Union of Concerned Scientists, environmental scientists, naturalists, British scientists, met office, government researchers	scientists, environmentalists, politicians
automotive workers' union	industry, voices, politicians
anti-hunger lobby group, Environmental Defence Fund,	environmentalists, economists
World Bank, United Nations, IPCC	politicians, economists, scientists
experts, researchers, sceptics, revisionists, optimists, academic theorist,	scientists, politicians, environmentalists, economists, industry
OPEC	politicians, industry
third world, nations of the world, industrialized world,	voices, politicians

When the articles were coded for the type of actor mentioned and the actors were weighted so that the number of articles remained constant, it becomes apparent that the make up of the organizational field, as represented in the New York Times arena, has changed significantly (see Figure 3). It is easier to observe these changes when each bar in the graph represents one year of articles and the actors are represented in percentage of the articles sampled (see Figure 4).

Figure 3 – Categories of actors cited in the sample of articles over the years 1992 to 1997.

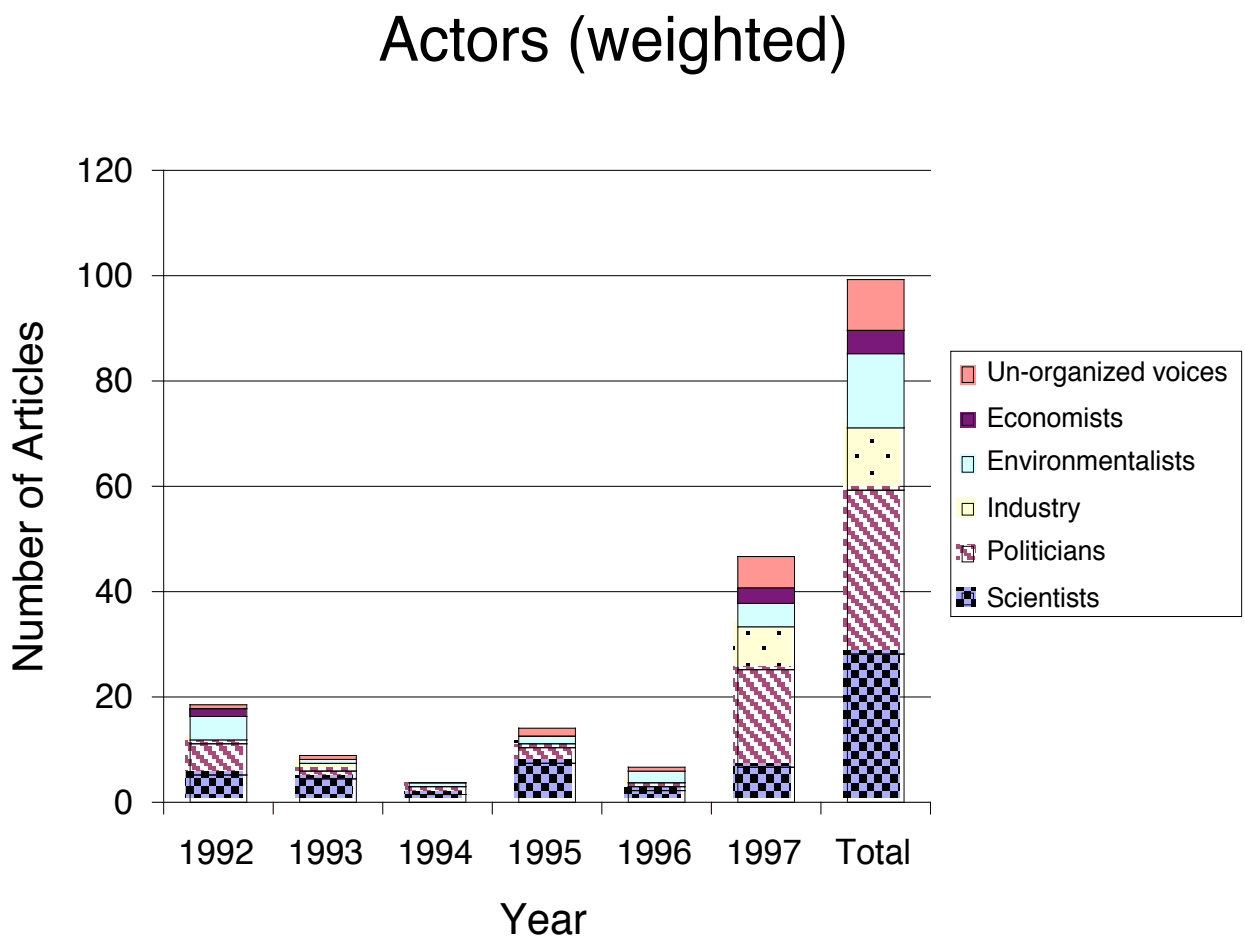
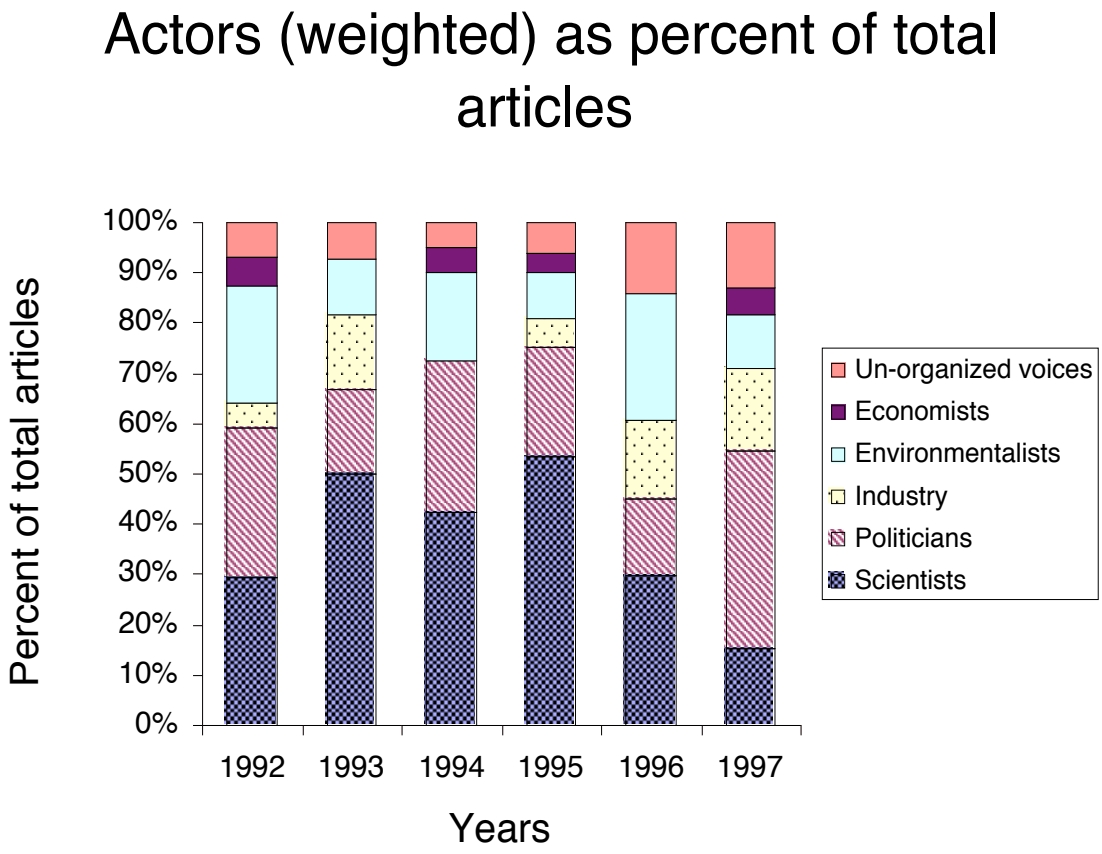


Figure 4 – Actor categories over time as percent of sampled articles

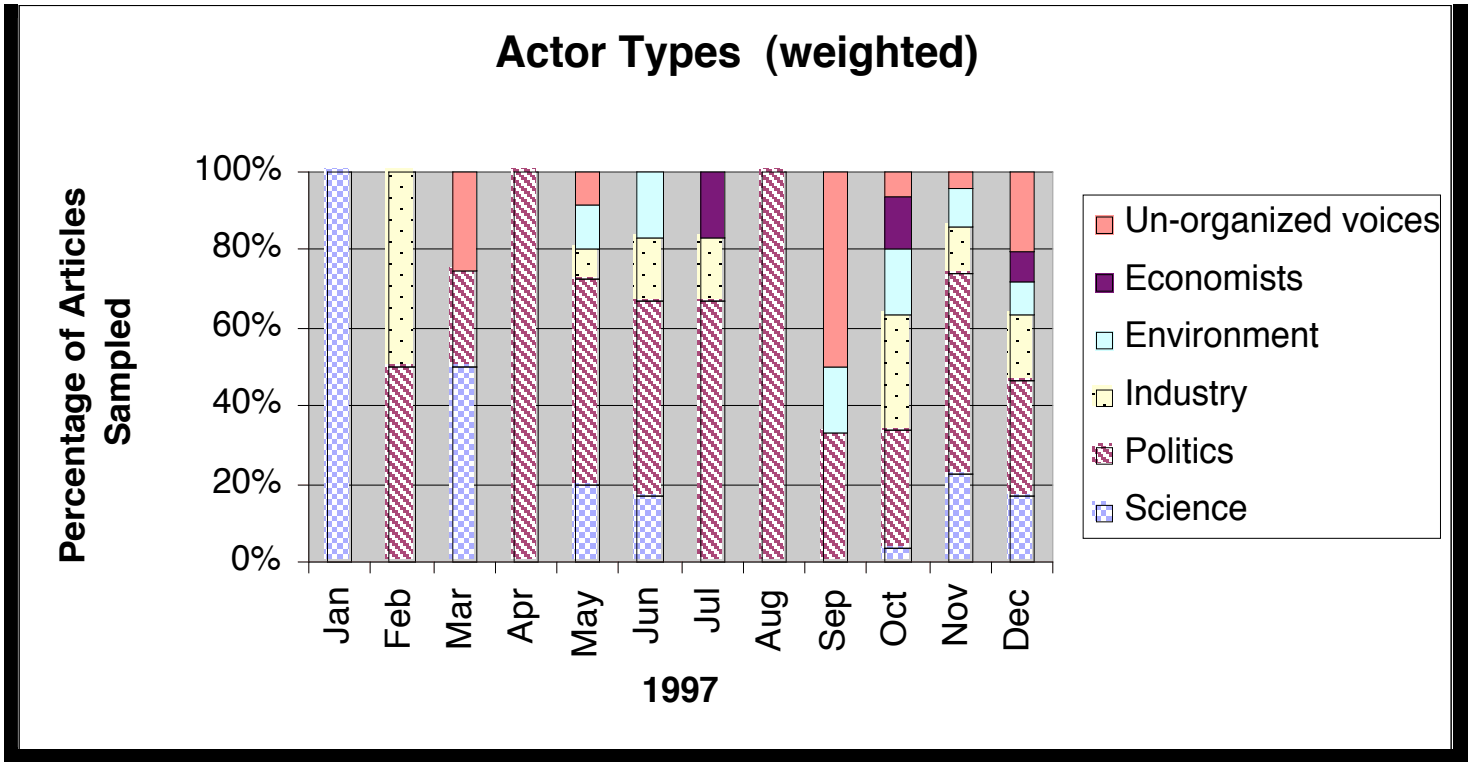


Politicians' positions are incorporated in the newspaper's discourse more prominently in 1992 (negotiation of the UNFCCC and election year in the USA), 1994 (UNFCCC comes into effect) and again in 1997 (negotiation of the Kyoto Protocol). Scientists are greatly referenced throughout the years, but their importance in the debate diminishes after 1995. It is also interesting to follow the opposing groups of actors: environmentalists and industry. They zigzag through the years where if one is strong, the other is weak. During the signing of the Convention, the environmentalists' view is very pronounced. During the signing of the Protocol, on the other hand, industry's view is more drawn upon. This is in line with the observation that corporations gain power in the Protocol and become major players in the CDM. In fact, these actors are experts in the institutional logic of 'investment' and will be the ones who can lead the way in implementing a market-based approach to climate change mitigation. The institutional logic of the market approach is intrinsic to this

actor. Finally, the economists are usually drawn on when a cost-benefit analysis is discussed and often relate rhetoric representing ideas from neoclassical economics.

A closer look at the data when represented by month running up to the adoption of the Protocol in December 1997 can be seen in Figure 5, where actors are graphed after being weighted in percent of total articles sampled that month.

Figure 5 – Actors cited over the months leading up to the Kyoto Protocol as a percentage of total articles sampled.



From this data it becomes apparent that although actors can drift between types, particular types of actors represent an institutional logic and thus their importance changes with institutional change. This change happens immediately before the structure changes.

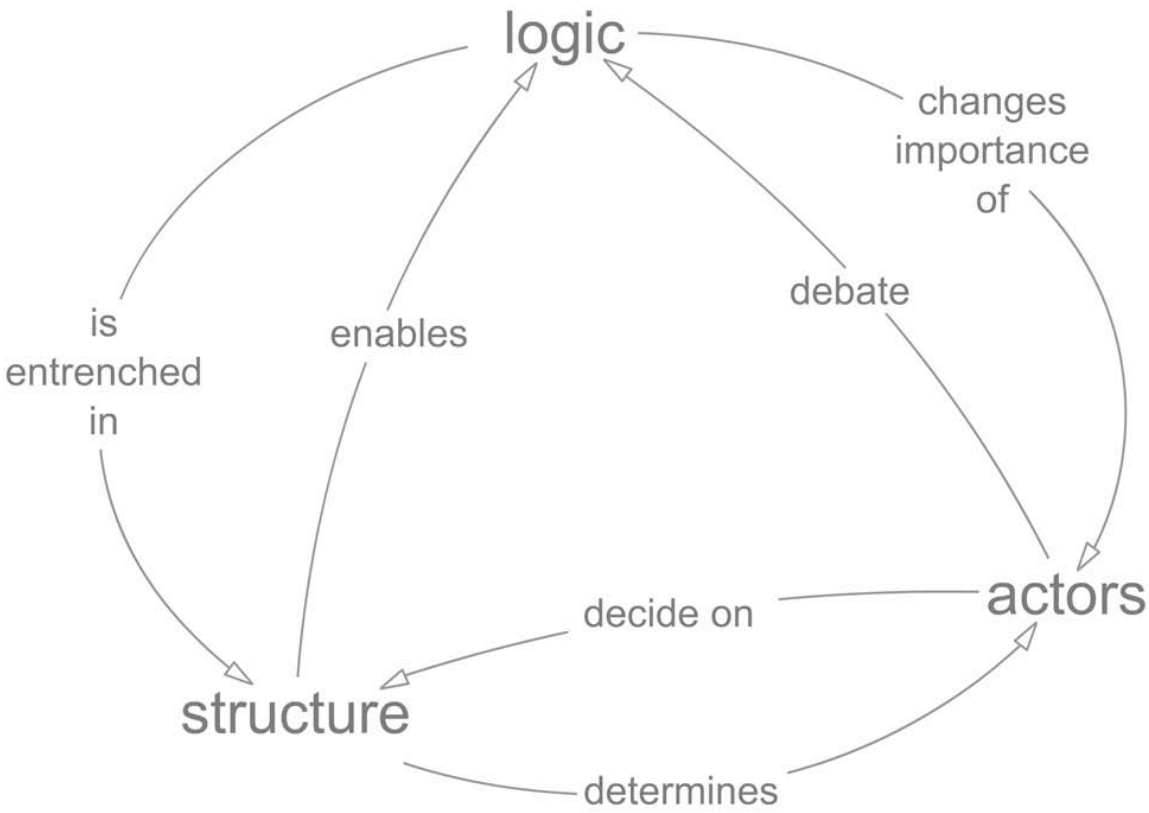
The term 'Unorganized Voices' in Table 3 refers to actors that do not clearly belong to one of the other actor categories. Actors who are powerless or not organized often do not have a voice in international policy negotiations, for example, children or concerned citizens. Collective action by the public can make the voices of powerless actors heard (Rao et al. 2000) and the newspaper would have to take these voices as subject positions, i.e. indicate that they are the ones who produce the discourse rather than the ones who are being talked about (Fairclough 1992, Munir and Phillips Forthcoming). Often, however, the interests of this group are so diverse that their consensus cannot be assessed, such as 'the world' or 'the public' or 'Americans' and drawing on this actor in discourse can be seen as a tool to legitimize another actor's pursuit. The 'Unorganized Voice' is therefore given the subject position but in fact, another actor is speaking through this subject. In the data, we can see that these Voices are drawn on more heavily when the debate becomes more intense during the negotiation of a treaty that entrenches a certain institutional logic into structure and therefore sets off institutional change. 'Unorganized Voices' are therefore frequently drawn on in institutional discourse, but more heavily so during times of intense debate immediately before drastic change in the institutional structure.

Conclusions

This study has analysed the discourse during the initial stage of this particular case of institutional change, namely the construction of a proto-institution. The pace and sequence of institutional change have been outlined. How was the institutional change expressed in the structure of the institution? At what moment was the new institutional logic introduced? How do the actors of this organizational field represent the logic and influence the change in structure? It becomes clear that the structure, logic and actors that make up the organizational field as described by Scott (2001) are so closely intertwined

and interdependent that one cannot be examined without the other two. In fact, each dimension reflects the other two. If an actor, for example, did not share the same institutional logic as the others in the organizational field, it would not be a significant actor or considered within the organizational field by definition. Figure 6 shows how the three dimensions relate to each other.

Figure 6- The three dimensions are intimately linked



There are three pivotal findings from the examination of the data: firstly, when examining the institutional change within the dimension of logic, it becomes apparent that the change in logic immediately preceded the change in institutional structure, that is the new institutional logic was prevalent in the discourse only months before it became entrenched in the structure. The logic did therefore not change incrementally, but rapidly. The logic of 'investment', which had already existed in other organizational fields, was born not as an infant but rather like Athena, who sprung - adult and fully armed from her father's forehead. Secondly, an organizational field is made up of types of actors that can be categorized based on their common interests and activity. Nevertheless, some actors intentionally or unwittingly transcend these boundaries and exist within or drift between various categories. Generally, though, certain types of actors impersonate certain interests and their importance in the organizational field changes instantly with the

institutional change evident in logic and structure. Thirdly, it was found that the voices that are not associated with any particular organization, interest group or idea, the 'Unorganized Voices', are always present to a certain extent in the discourse of the newspaper. During times of intense debate, these Voices are more heavily drawn on. They are either allocated subject positions in order to make their voices heard despite their powerlessness and diversity or used as a discursive tool to legitimize a particular position, not an independent actor. Their increasing presence in the organizational discourse can thus be seen as a precursor to institutional change.

Considering the highly interdependent nature of the three dimensions and the instant response to change from one to the other, institutional theorists have to equip themselves with a holistic lens so that they can capture the dynamics of institutional change. The analysis of discourse offers such a tool because it involves the structure, logic and actors of the organizational field simultaneously. This paper has made use of this method to shed light on the dynamic processes of institutional change. The conclusions brought forth in this paper give impetus for more research efforts.

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General Conclusions and Final Remarks

Contributions

This thesis has extended organization theory as well as shed light on the innovative environmental policies of the Kyoto Protocol. The first paper reintroduced the notion of power into institutional theory in order to adequately explain the changes in power relations between actors in the climate change policy field. It becomes apparent that some actors gained power by increasing their role in the governance of international technology transfer. Other actors, albeit powerful in the previous arrangement, might be less prominent or even excluded from the new governance structure and thus have less influence over the process.

The second paper seeks to put institutional theory into action by going over the processes that the institutional entrepreneurs of the case study invoked. From the case study it emerged that the organizational actors that brought about the innovative mechanisms in the Kyoto Protocol knew the institutional arrangements they operate in very well. According to institutional theory this entails knowing the technology, regulations and practices embedded in the institution, assessing isomorphic mechanisms that are in force as well as recognizing the discursive structure of the institution. Furthermore, the case study indicated that the change agents decided that it was beneficial for their organization to revolt against the institutional framework and that they had adequate resources to be able to intervene. Again, the literature can guide the researcher in terms of what this desire and ability involves. Finally, the organizational actors in the case study used a particular institutional strategy to bring about change. The literature suggests what types of strategies can be successful and what kind of resources are necessary to be able to use them.

The third paper captures the dynamics of institutional change by tracking the novel ideas introduced in the Kyoto Protocol, such as emissions trading, in the public sphere. Surprisingly, it becomes clear that institutional change in this instance came about much more rapidly than the literature suggests. In fact,

the change in logic, structure and set of actors happens almost instantaneously. This suggests that these three pillars of institutional change are very closely interrelated. One aspect cannot be understood without examining the other two. In fact, the boundaries between the three aspects may be so blurred that it is difficult to draw any meaningful distinction. The contributions of the three papers are summarized in Table 1.

Table 1. Contributions of the three papers towards institutional theory and climate change policy analysis

Paper	Institutional Theory	Climate Change Policy
1	Power relations change during institutional renewal; powerful actors may disappear from the organizational field.	The Kyoto Protocol represents a new mindset and therefore an emerging institution; power relations between actors are changing.
2	Institutional entrepreneurs can assess their desire to intervene in an institutional structure, their ability to change these structures and choose the institutional strategy that best fits their abilities and goals.	Two governments brought about change in the climate change policy arena by acting as institutional entrepreneurs and using their resources in such a way as to bring about change.
3	A proto-institution can emerge rapidly, ideas are almost instantly suggested, accepted and embedded; in a situation of intense debate, actors may invoke 'unorganized voices' to strengthen their argument.	The new ideas embedded in the Kyoto Protocol emerged rapidly; the role of the public in influencing technology transfer projects remains to be established.

In this thesis, some of the shortcomings of institutional theory have been addressed. Through their choice of methodology and empirical focus, institutional theorists have tended to overemphasize stable states in patterns of social interaction. The historical analysis of archival documents has allowed me to bring a dynamic dimension to the field. There is much more to be learned about institutional change, however. I have only analyzed a small fraction of the complex interplay of events and actors in this process. Narrowing the lens on one particular aspect of institutional change, namely the distribution of the new institutional logic in the public sphere, made it possible to gain insight into the pace and sequence of embedding new meaning into an institutional setting.

Institutional theory runs the risk of taking for granted institutional structures without considering power imbalances in these governance arrangements. This thesis attempts to point out how new institutional frameworks lead to the acceptance of a new logic and the transfer of power within the organizational field. If institutional theory scholars do not dissect the power structures inherent in an institutional configuration, they are themselves caught in the mindset of the institution. Inherent inequalities and inadequacies are left

unexplored. In essence, scholars have to be careful not to take an institutional arrangement as the natural outcome of a historical trajectory, but question the motives and interests of the organizational actors that have initiated the governance structures. With this thesis, I have attempted to add an emphasis on political and dynamic processes to the analysis of institutional change.

Future Research

Each paper highlights some areas of future research. Nevertheless, there are some particular strands of future inquiry I would like to emphasize in this section. New quests can be set out with this thesis as a starting point expanding the breadth and depth of this work.

Firstly, I would like to point out that the thesis deals with climate change mitigation from a policy perspective. Policy both influences and is determined by projects and society in general. During the time of the research conducted for this thesis it was yet too early to see how the Kyoto Protocol innovations would influence the projects that are conducted on the ground. Although a multitude of Global Environment Facility (GEF) projects existed, the Clean Development Mechanism (CDM) was a new concept and had not been defined in detail. In fact, at the time of writing of this thesis, the Kyoto Protocol had not come into effect. Once CDM projects have been approved and are under way, these can be compared to GEF projects and the impact of the policy innovation can be assessed. It would not be at all surprising if the actual projects were to be very similar but the actors and logic behind the projects were to differ. It would be interesting to observe how the institutional change at the policy level impacts on the conducting of every day work at the project level.

Secondly, the thesis looks at the international arena of climate change negotiations and therefore neglects the fact that the implementation of any treaty will differ in the national and local context. An extension of this thesis would thus be necessary to conduct a comparative study of individual projects and see how the national system of innovation affects the success of the

project. It would be interesting to find out how the institutions that govern the treaty are transposed into the national and local context.

During the academic conferences that I attended I became aware that many studies on institutional change actually track the emergence of the same kind of institution that I have observed in my case study. A third extension of this thesis would therefore be to examine the multitude of studies that have been conducted recently within the literature of institutional entrepreneurship. Instead of summarizing their advances in the literature, however, the literature would be reviewed in terms of the outcome of their case study. Is the institution of 'investment' that I identified in my case study also emerging in other fields? Is the institutional change that institutional theorists are tracking actually *unidirectional*? The research could then contain a list of the research fields that have been studied where institutional change occurred and in what direction the change pointed.

This thesis intends to bring to the attention of policy makers in particular and the public in general that the Kyoto Protocol is embedded in an institutional framework that is underpinned by the mindset of 'investment' and free market ideology. In this institution selfish and competitive behaviour will be encouraged. However, if we were truly committed to solving the climate change crisis, we would have to work together in a manner that is cooperative and complementary in order to live up to this gigantic task. It is therefore not clear whether the Kyoto Protocol will be able to offer solutions to climate change when cooperation and building on each other's capabilities is hindered by its institutional logic. As a final note on future research efforts I would like to point out that creative thought is needed to assemble a new framework of climate change policy that strongly encourages climate-friendly and socially relevant innovation in an atmosphere of determination and cooperation.

Appendices

A) Observations

Observations were conducted to gain a better understanding of the climate change policy arena at the following climate change negotiations:

June 2000 – Twelfth Session of the Subsidiary Bodies of the United Nations Framework Convention on Climate Change, Bonn

July 2001 – Sixth Conference of the Parties to the UNFCCC Resumed Session, Bonn

June 2002 – Sixteenth Session of the Subsidiary Bodies of the UNFCCC, Bonn

June 2003 – Eighteenth Session of the Subsidiary Bodies of the UNFCCC, Bonn

October 2003 – World Climate Change Conference, Moscow

B) Interview Protocol for Policy Makers

Climate Negotiations (SB18)
June 2003 (Bonn, Germany)

Introducing myself:

I am from the University of Cambridge, Judge Institute of Management Studies. I am conducting research for my doctoral thesis in organization theory, which discusses how organizations interact around one issue. The organizations of interest include governments, NGOs, as well as corporations. In organization theory, it is especially interesting when there is policy change and organizations start to interact in a new way. The case of climate change policy is of interest, because the Kyoto Protocol forms new policy structures that have never existed before. In my work, I am looking at how mitigation projects are funded in developing countries. Under the UNFCCC, we have GEF coordinated projects and under the KP we have the CDM. I am interested in your government's role in the change and the impact of change on your country.

Professional experience; establishing rapport:

Before we start, can you tell me about your involvement in the policy process?
How many years, in what capacity?
What is your current position and what are your responsibilities?
What is your background in terms of education and work experience?

Past:

To what extent has your country embraced the GEF funding mechanism?
(I understand you have XX projects?)
What do you think are the strengths and weaknesses of this system?
Do you think it is effective? Does it fulfil its goals?

In 1993, the idea of the CDM first came up as JI and AIJ. How did your government perceive the idea when it first was brought up? How about other governments, NGO, private sector?

Looking back over the last XX years, how has your organization/government played a role in the development of the CDM?

Present:

We are now in a state of transition. Do you think that the CDM will mend some of the problems that the GEF has been accused of? Will it be more effective? Will it replace the GEF projects?

Future:

How will the CDM affect your government's future CC policy? Will you continue to sponsor the GEF CC projects? What new opportunities does CDM offer your government? How will this new structure change the operations of projects in your country?

C) Interviewees

To protect the anonymity of the twelve interviewees, I am will not provide the names of countries and organizations whose representatives were interviewed. The climate change policy field is a close community and respondents have expressed the concern that even mentioning their country of origin might identify them as a person. To provide some idea of where respondents came from to the reader, however, I am offering insight on the interviewees' background through the following tables.

Geographical distribution:

Continents	**Interviewees**
Africa	1
Asia	1
Australia and South East Asia	1
Caribbean	2
Europe	1
North America	2
South America	4

Types of organizations that the interviewees belonged to:

	Interviewees
Country delegates	10
Intergovernmental Organizations (excluding UNFCCC Secretariat)	2

Political distribution:

	Interviewees
Industrialized countries	4
Developing countries	8

Number of UNFCCC secretariat professional staff consulted for this research: 14

D) Sample of Article Database

ID	Summary	Actors	Concept of Climate Change	Force	Intertextuality
910827	tide gauges may be flawed	scientists, researchers, experts,	CC research can be flawed	seas seem to be rising but we don't know enough	scientific books, studies, journal Geophysical Research
910910	Sununu's policy ideas	Sununu, Bush, scientists, 'no-growth' mov't, administration, US, EC, American environmentalists	CC is vague and may be opposing economic growth	Bush advisor Sununu is finding CC action not necessary and harmful	mathematical models, politician's interviews, scientists' accounts
910926	EC proposes to tax energy	EC, scientists, US, Japan, Reagan and Bush admins, Europ. indust. lobby, OPEC	CC action requires using less energy, possibly tax	there is a mov't to tax fuel, which will cost consumers	EC proposals, industry accounts, OPEC accounts
920107	aircraft emissions have 30X the effect of ground emissions	British scientists, scientists	causes of CC are complex	aircraft is harmful to atmosphere	Atomic Energy Authority study, journal Nature, computerized models
920207	economic dev't brings energy efficiency	WB, economists, IIE, Russia, developing nations, rich countries, environmentalists, Rocky Mountain Institute, Worldwatch Institute,	economic measures can be taken to decrease CC impact, these are easier in dev'ing co's	energy subsidies in dev'ing co's should be lifted	WB study, academic studies, enviro research institutue
920210	Bush admin versus environmentalists over CC	enviro, Bush admin, experts, scientists, Weurope, Japan, officials, dev'ing co's	CC action requires coordinated action from science + politics	Bush fails to bring enviro and officials together to talk	recent political debates