



Faculty of Economics and Business Administration

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**New ways of governing environmental
pollution from business:
Voluntary approaches from an
institutional economic perspective**

Dissertation

*Submitted at Ghent University
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Doctor in Economics*

by

Roeland Bracke

Supervisor: Prof. Dr. Marc De Clercq



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Voorwoord

Veel vroeger dan verwacht, keerde ik na mijn studies op mijn stappen terug. De traditionele studenteneed nooit meer een voet in deze Faculteit te zetten, werd snel opgeborgen toen Prof. De Clercq me na enkele maanden verzocht zijn team te komen vervoegen. Dat het einddoel deze keer een doctoraat was in plaats van een licentiaatdiploma, werd met een zelfde evidentie aangenomen. Ondertussen zijn we vier woonplaatsen, dito bureaus en ups en dows verder. Evenzeer als een wetenschappelijk onderzoek, is een doctoraatsparcours een persoonlijke zoektocht. Niet enkel moet men zelf de pedalen ronddraaien, er staan ook slechts een beperkt aantal wegwijzers om het correcte parcours te tonen, mocht dit al bestaan. Misschien maar best dat dit niet te nadrukkelijk op voorhand was aangegeven. Doch zoals vaak is de lastigheidgraad van de tocht evenredig met de voldoening de eindmeet te halen. Maar zelfs de eenzame fietser rijdt nooit helemaal alleen.

In de eerste plaats denk ik aan Marc. Hij reikte me de kans en het onderzoeksthema aan. Zijn uitgebreid netwerk bracht me in contact met andere onderzoekers en bood opportuniteiten om onderzoeksprojecten en publicaties te behalen. Bovendien vond hij steeds een gaatje in zijn drukke agenda om mijn vorderingen te bekijken en mijn werk bij te sturen. Hetzelfde geldt ook zeker voor de andere leden van de begeleidingscommissie, Hans en Jan Jaap. Naast deze algemene sturing ben ik ook erkentelijk tegenover Johan en Tom, twee collega's die hun doctoraat behaalden tijdens mijn eerste jaren als assistent. Ze voerden, onbewust, hun voorbeeldfunctie met bravoure uit. Beide hebben tevens als coauteur meegewerkt aan twee papers die in dit doctoraat zijn opgenomen.

Vervolgens dank ik alle collega's voor de fijne werksfeer die ik in de loop der jaren mocht ervaren. Ik denk dan vooral aan mijn mede-assistenten Matthias, Delphine, Stefan, Alexei, Carmen en Elke. De verschillende taken werden niet in de weegschaal afgewogen maar in een ongedwongen en gezamenlijke aanpak tot een goed einde gebracht.

Tot slot dank ik mijn naaste familie en vriendenkring. Ze stonden steeds weer paraat om het moreel op te krikken indien nodig en hun pogingen om het doctoraat even uit de gedachten te doen verdwijnen, waren zeker niet altijd vruchteloos. De eervolle vermelding gaat zonder twijfel naar mijn ouders. Zonder hun inzet en steun zou mijn studietraject nooit zover hebben gereikt. Ook het doorzettings- en relativiseringsvermogen dat ik van hen meekreeg, hebben zeker geholpen. Afsluiten doe ik echter met Marjan die me op alle mogelijke manieren in topvorm wist en weet te houden.

Roeland

Niet-technische Nederlandse samenvatting

Het beeld van de beleidsmaker die zijn wil oplegt aan maatschappelijke actoren wordt meer en meer in vraag gesteld. De overheid wordt niet langer automatisch erkend als oppermachtig orgaan dat vanuit de ivoren toren de maatschappelijke welvaart maximaliseert. Daarnaast groeit bij publieke instellingen het besef dat hun middelen beperkt zijn in termen van financiën, kennis en mankracht. Steeds meer maatschappelijke groeperingen (bv. milieubewegingen, mensenrechtenorganisaties, bedrijven, sectorverenigingen) eisen een grotere betrokkenheid bij het beleid en vallen de monopoliepositie van de overheid aan. Bovendien voelen vooral bedrijven een steeds grotere druk om hun maatschappelijke verantwoordelijkheid op te nemen met betrekking tot economische, sociale, en ecologische impact van hun activiteiten. Onder het motto van ‘zelfsturing is beter dan gestuurd worden’ ontwikkelen ze op zelfstandige basis of in samenwerking met andere maatschappelijke actoren alternatieven voor overheidsregulering. We evolueren dus naar een beleid dat tot stand komt op basis van initiatieven en interacties tussen sociale actoren. In dit netwerkidee staat de overheid niet meer boven de maatschappij, maar opereert de overheid als een speler in het beleidsveld waar vele actoren actief zijn. In het milieubeleid hanteert men de term ‘vrijwillige initiatieven’ om de veelheid aan instrumenten die in dit kader zijn ontstaan, te bundelen. In tegenstelling tot de meer klassieke beleidsinstrumenten die afkomstig zijn van de academische tekentafel en verspreid werden onder impuls van multinationale instellingen zoals de VN, de OESO, en de EU, kennen deze vrijwillige initiatieven geen eenduidig ontwerp. Dit leidt ertoe dat er een grote diversiteit aan instrumenten is ontwikkeld waarbij de specifieke kenmerken in sterke mate bepaald worden door de institutionele context waarin ze worden ontwikkeld en ingezet. Die link tussen de institutionele context enerzijds en de verspreiding, de kenmerken en de performantie van vrijwillige initiatieven anderzijds, vormt het onderwerp van dit doctoraat.

In de eerste bijdrage bekijken we welke factoren een bepalende rol speelden in de keuze van bedrijven om EMAS te implementeren. EMAS is een standaard voor milieumanagementsystemen ontwikkeld door de Europese Commissie. Het vormt een bewijs van goede praktijk op vlak van milieubeleid en bedrijven kunnen vrijblijvend beslissen of ze hiernaar streven of niet. We leveren dus een empirische bijdrage aan het onderzoek naar de kenmerken van ‘groene’ bedrijven. Uit ons onderzoek blijkt dat de beslissing positief wordt beïnvloed door de solvabiliteitsratio, de loonkosten en zowel de absolute bedrijfsgrootte als de relatieve grootte van een bedrijf ten opzichte van bedrijven uit dezelfde sector. De winstgevendheidsgraad heeft een negatieve invloed. Daarnaast vinden we dat een gunstige institutionele omgeving, gemeten aan de hand van de houding van de overheid inzake EMAS, de introductie bevordert.

De tweede bijdrage gaat dieper in op deze laatste bevinding. Een logisch gevolg van de invloed van de institutionele context waarin bedrijven opereren is dat het aantal bedrijven dat een gecertificeerd milieumanagementsysteem heeft, sterk verschilt tussen landen. De tweede paper onderzoekt waarom landen al dan niet getypeerd kunnen worden als een gunstige institutionele omgeving. We onderscheiden landen van elkaar zowel op basis van de wijze waarop de overheid is georganiseerd als op basis van de maatschappelijke organisatie. Via deze typologie trachten we dan verschillen in de opname van de twee belangrijkste standaarden voor milieumanagement (ISO 14001 en EMAS) tussen landen te verklaren.

Daar waar vorige twee bijdragen keken naar gestandaardiseerde instrumenten, handelen de laatste twee bijdrages over milieubeleidsvereenkomsten gesloten tussen de overheid en sectororganisaties. In de derde bijdrage analyseren we de impact van een wetgeving die in Vlaanderen is ingevoerd om dergelijke overeenkomsten juridisch meer bindend te maken. Hierbij focussen we op de verschillen in de kenmerken van de overeenkomsten en op de manier waarop ze door beleidsmakers worden gebruikt in het milieubeleid. Hieruit wordt besloten dat de wetgeving heeft geleid tot meer formele en gestandaardiseerde overeenkomsten, die vanuit een weloverwogen visie worden ingezet in het beleid. Dit komt echter tegen de prijs van een verlaagd enthousiasme bij de bedrijven, zeker in de beginjaren. Bovendien beknot deze wetgeving de snelheid, de flexibiliteit en de creativiteit, die echter algemeen beschouwd worden als de grote voordelen van dit instrument ten opzichte van klassieke regelgeving.

In laatste bijdrage koppelen we de institutionele context aan de resultaten die werden behaald met milieubeleidsvereenkomsten. Meer bepaald onderzoeken we de verklaringskracht van de traditionele beleidscultuur, de aanwezigheid van een alternatief instrument, de sectorstructuur en de competitieve structuur op de performantie van 12 overeenkomsten. Vooral de sectorstructuur en de aanwezigheid van een alternatief instrument blijken een bepalende invloed te hebben in onze cases. Het evaluatieschema kan tevens een belangrijke rol spelen in de instrumentkeuze van beleidsmakers. Daarbij is het van belang op te merken dat twee factoren, namelijk de beleidscultuur als de aanwezigheid van een alternatief instrument, in sterke mate kunnen gemanipuleerd worden door de beleidsmakers om een gunstige context te scheppen voor het gebruik van milieubeleidsvereenkomsten.

Preface

This dissertation aims to provide insight into the use of voluntary approaches in environmental policy. In strict sense, the contribution of this dissertation is limited to the four research papers presented in appendix to this work.

- ***What determines the decision to implement EMAS? A European firm level study*** (Bracke, Verbeke and Dejonckheere, 2008)
Published in *Environmental and Resource economics*, 2008, forthcoming
- ***Competing environmental management standards: How ISO 14001 outnumbered EMAS in Germany, France, Sweden and the UK*** (Bracke and Albrecht, 2007)
Published in *Environment and Planning C: Government and Policy*, 25, 611-627.
- ***Twenty years of negotiated environmental agreements in Belgium: from gentlemen's agreements to binding contracts*** (Bracke and De Clercq, 2007)
This paper builds on two research projects carried out for the Belgian and Flemish government, which resulted in the following publication: *Milieurapport Vlaanderen: Beleidsevaluatie* (MIRA-BE 2003), hoofdstuk 4: Milieubeleidsovereenkomsten ter uitvoering van de aanvaardingsplicht, 125-162. An adapted version of this study was published as chapter in the *Handbook of Environmental Voluntary Agreements* by E. Croci (ed.), Springer, 179-202.
- ***On the assessment of environmental voluntary agreements in Europe: lessons to be learned from a comparative case study analysis*** (De Clercq and Bracke, 2005)
Published as chapter in the *Handbook of Environmental Voluntary Agreements* by E. Croci (ed.), Springer, 239-260.

These research papers are the result of research efforts on the overall theme of this dissertation. However, each paper puts forward a distinct research question and can be read on its own. The articles differ with respect to the subject covered as well as with respect to the research methodology used.

In order to put the research papers in the perspective of the literature on voluntary approaches, we choose to provide a lead-text. This text has multiple objectives. First, it serves as an umbrella under which the stand-alone papers are embedded. To do so, the papers are introduced in a textbox when the lead-text discusses the “stylised facts” on the overall background of the theme. The textboxes might be seen as a sort of hyperlink for a detailed analysis of a specific research question. For instance, when

the lead-text discusses the geographical diffusion of voluntary approaches, the research paper on the geography of ISO 14001 and EMAS (Research paper 2) will be introduced and the interested reader is invited to consult this work. Second, the lead-text introduces the necessary background for the reader with a limited knowledge on the subject. Finally, this text aims to serve as a synthesis of the literature on voluntary approaches. It can be consulted as a general overview by anyone who wishes to be introduced in the subject.

The lead-text consists of 5 chapters. The first chapter introduces voluntary approaches as an instrument in environmental policy and discusses what distinguishes them from more traditional policy tools. The second chapter highlights the main drivers that explain why these new instruments have emerged. Chapter three deals with the uptake and geographical diffusion of voluntary approaches. The following chapter analyses the literature on the evaluation of this alternative policy instrument. Finally, chapter five concludes with an overview of the main findings of the research papers. The dissertation however starts with a preliminary chapter that outlines the research topic and the general methodological approach. We choose to label this chapter as preliminary as it is not a necessary condition to start the reading of the main text.

Preliminary chapter - Research topic and methodological approach

“In a country with many laws, chaos must be great”

Confucius

Before kicking-off with the lead-text, this preliminary chapter outlines the research topic of the dissertation and introduces the main methodological approach. The emergence of an alternative mode of governance in environmental policy-making, based on soft steering instead of harsh coercing, called our attention. The introduction of voluntary approaches is to be understood in this broader trend and forms the research topic of this dissertation. This topic is restricted in two ways. First, only those voluntary approaches that involve the business community are incorporated. Second, we largely leave aside the analysis of firm-specific initiatives taken in the context of their environmental management strategy. Regarding the methodological approach, this dissertation especially builds on the insights delivered by institutional economics. Within this broad school, we especially focus on the influence exerted by the institutional context on the uptake, the characteristics and the performance of voluntary approaches. This chapter is organized into the following two sections. The first section introduces the research topic, indicates the relevance of the subject and sets some boundaries. Section two introduces institutional economics, which provides the main theoretical and methodological background of this dissertation. This section ends with an overview of the research papers presented in this dissertation.

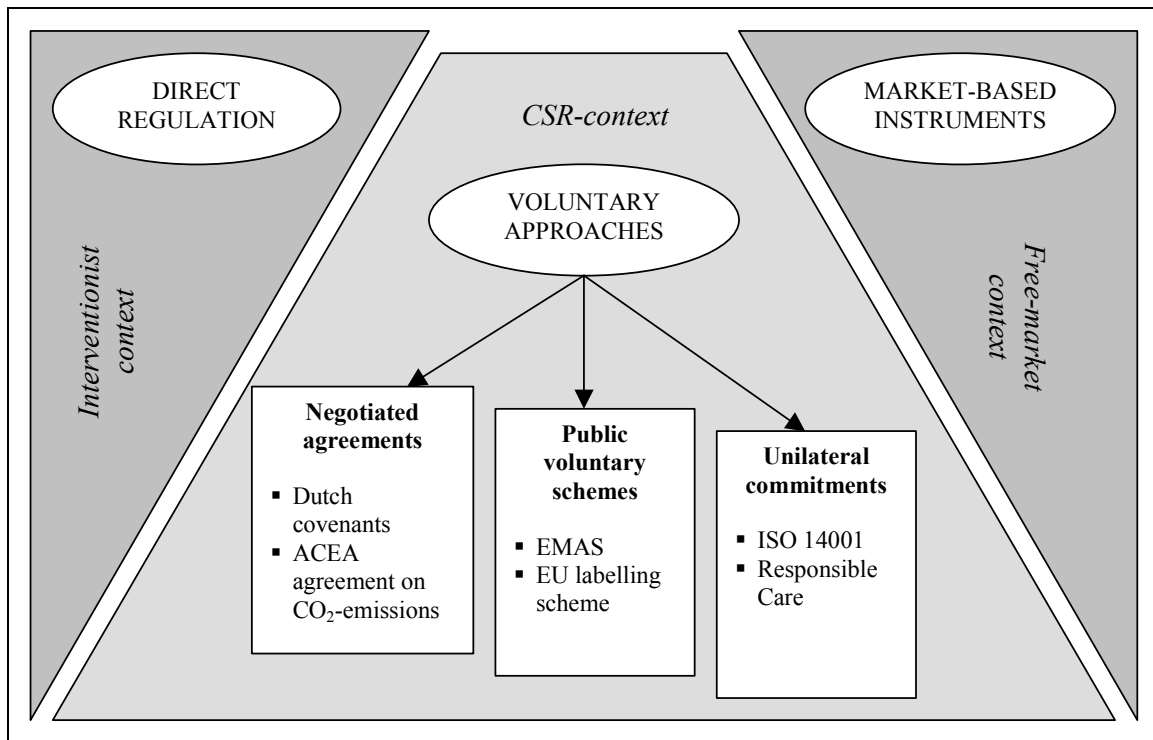
1. Research topic

1.1. Introducing the research topic

More and more, the choice of instruments occupies a central place in the study of government regulation, as is shown e.g. in Hill (1997). It is by the selection of instruments that the government steers actors' behaviour. The instrument that is selected determines the incentives polluters are confronted with. Moreover, different instruments entail diverging distributions of the costs and benefits of policy making among the actors involved in a policy setting. The instrument-choice perspective on government regulation has been described as one of the dominant approaches in the study of government regulation in Canada and the US (Hill, 1997).

Environmental policy has traditionally relied on the command-and-control type of direct regulation. In the eighties, market-based instruments (e.g. taxes, emission trading systems, subsidies) were added to the regulators’ toolbox. More recently, various types of voluntary approaches have further widened the set of instruments at the disposal of policy makers. Traditionally, voluntary approaches are classified into three categories: unilateral commitments, public voluntary schemes and negotiated agreements (see chapter 1). Figure I presents a diagram of the research topic and gives some examples for each category of voluntary approaches.

Figure I: Diagram of the research subject



In the diagram, voluntary approaches are consciously placed in between direct regulation and market-based instruments on the one hand and at a somewhat lower level on the other hand. First, we have put voluntary approaches in between the other instrument types. When the regulator resorts to the use of direct regulation, he constrains the behaviour of the regulated actors directly. The contrary holds for market-based instruments. Hereby actors are free to choose how they react to the policy intervention. The government simply defines property rights, introduces eco-taxes or subsidies and leaves the rest up to the market. Voluntary approaches hold an intermediate position. They rely both on spontaneous market-based reactions as well as on a subtle and non-coercive but nevertheless steering intervention of the government. Placing voluntary approaches on a lower level reflects the fact that, in contrast to the other two instrument groups, policy-makers do not unilaterally impose voluntary approaches. Rather they are developed through interactive processes between regulators, regulated and other

stakeholders. The degree of involvement of various parties varies for different sorts of voluntary approaches. Negotiated agreements for instance, frequently rely on strong government involvement and regulatory pressure. As such, they bear close resemblance to direct regulation. Unilateral commitments on the other hand are rather initiated by companies themselves and are situated more on the market-based instruments' side. Such initiatives come very close to spontaneous self-regulation. De Clercq (2002) claims that the voluntary character of voluntary approaches should be nuanced in two ways (De Clercq, 2002):

- In many cases the voluntary character is relative as companies voluntarily take such initiatives to alleviate regulatory or market-related pressures. By acting pro-actively, companies seek to prevent government intervention or seek to avoid actions by stakeholders that are deemed more damaging to their interests.
- Often the voluntary character is limited to certain aspects of the voluntary approach. Sometimes the government unilaterally determines the program and the voluntary aspect only concerns the decision whether to participate or not. In other cases, part of the action has to be negotiated with the government or only concerns the way in which formally established targets would be met.

The diagram also depicts the context in which the different instruments operate. Direct regulation is linked with an *interventionist* way of thinking. As firms are expected to ignore environmental considerations, legislative intervention is deemed necessary. This interventionist-ideology lives on within economic instruments. However, the idea that a more efficient and less prescriptive way of regulating is possible, gains support. Environmental problems that result from market failure should be tackled using market mechanisms. *Free-market* thinking becomes central. For voluntary approaches, however, this interventionist thinking is losing its dominant position. *Corporate Social Responsibility* (CSR) is the context wherein these approaches thrive. CSR captures the notion that multiple actors, e.g. companies, social groups, trade unions and government institutions, increasingly consider the wider interests of society in all aspects of their operations. Actors believe they should take responsibility for the impacts of their activities on their stakeholders. In such a context, interventionist action becomes less significant. Policy-makers rather encourage CSR-thinking in society. They “pick-up and stimulate” activities that are going on within and between private and non-governmental actors. The development of environmental management standards forms a nice example in this regard. Some pro-active companies have started to draw up environmental management systems. Subsequently, a wide range of actors including business associations, environmental pressure groups and government bodies have, in cooperation, developed general standards for environmental management. Finally, policy-makers have begun to encourage the uptake of these standards by companies. The top-down

approach of government intervention is more and more substituted by a bottom-up approach building on societal initiatives.

Within the broad spectre of voluntary approaches, we restrict the subject in two ways:

- First, only approaches that involve the business community (companies or industrial organisations) are considered. Communication and incentive-based measures targeted at the public at large, like campaigns to stimulate insulation, to promote the adoption of solar-based heating systems or programs aiming at waste prevention, are thus outside the scope of our research. In addition, we exclude voluntary initiatives between public authorities (e.g. agreements between the central government and municipalities). This business community focus is motivated by the fact that voluntary pollution abatement is generally regarded as contradictory to companies' profit maximising purpose. This makes the existence of voluntary abatement initiatives puzzling. Besides, the growing dominance of the business community in modern economies implies firms are essential actors to be involved when setting up a transformation process towards a sustainable society.
- Second, we pay only limited attention to firm-specific initiatives (e.g. environmental and social reporting) initiated under their green management strategy. Within the diagram, these initiatives fall under the denominator of unilateral commitments. Within this group we limit ourselves to industry- or business wide initiatives like the chemical industry's Responsible Care Program or the ISO 14001 environmental management standard. Rather than taking a strategic and managerial company perspective, we analyse voluntary approaches within the context of public policy and mostly focus on the approaches in which the government still plays a pivotal position, i.e. public voluntary schemes and negotiated agreements. In other words, this dissertation does not aim to assist the environmental manager in developing a concrete CSR strategy for his company.

1.2. Relevance of the research topic

Why is the study of voluntary approaches a relevant subject for a doctoral dissertation? At the bottom line, the answer lies in the fact that this type of non-mandatory governance is gaining importance in contemporary environmental policy making, especially in developed countries. Voluntary approaches are said to form the third wave of environmental policy making (Crocchi, 2005). The first wave consists of direct regulation; the second concerns the introduction of market-based instruments. The last decennia, a shift has been noticed from hard governance models to types of soft steering. It should nevertheless be emphasized that neither the direct regulation approach nor the market-based one has

decreased in significance (Jordan et al, 2003). As such, it may be more appropriate to speak of a downstream that supplements the other two waves. A downstream of which the roots are situated in society rather than within autonomous government bodies.

Especially in the beginning of the nineties, a significant increase has been noted in the use of voluntary approaches (OECD, 1999). However, for negotiated agreements, the earliest example already goes back as early as the year 1964 when the Japanese city of Yokohama and the electric power company (Electric Source Development Corporation) signed an agreement in which the corporation committed itself to comply with more stringent pollution control measures than the existing national emission standards (OECD, 1999). In Europe, the first agreement is found in France, signed in 1971 between the cement industry and the Ministry of the Environment (OECD, 1999). The first Belgian agreement dates from 1988. The agreement was concluded with the battery industry and aimed to reduce the amount of mercury in primary batteries sold in Belgium.

Since these early examples of voluntary approaches, multiple governments and international organisations have begun to promote this type of governance. In the Netherlands, negotiated agreements between government and industry representatives are considered the key instrument for implementing the ambitious goals set out in the National Environmental Policy Plan of 1989 (Glasbergen, 1998). In 1994, the German government declared she had a general preference for voluntary agreements above traditional regulatory instruments (Wurzel et al., 2003). Supplementing regulatory measures by other policy instruments, such as agreements with industry, was one of the key objectives of the European Commission's fifth Environmental Action Programme of 1992. Agreements were thought to promote a pro-active attitude on the part of industry, to provide cost-effective, tailor-made solutions and to allow for a quicker and smoother achievement of environmental objectives. In 1996 the Commission produced a Communication on the use of such agreements, which included a number of general guidelines that were intended to ensure their effectiveness, credibility and transparency (EC, 1996). This focus on cooperative approaches with industry is repeated in the sixth Environmental Action Programme of 2002, especially for managing complex risks where knowledge on the scale of the problem and on the availability of solutions is limited (Knill and Lenschow, 2003).

Next to the mere observation of the growing use of this instrument (see chapter 3 for illustrations of this trend), the relevance of studying voluntary approaches especially lies in the fact that there is still lively debate on their merits for environmental protection. The pros and cons of this instrument are still incompletely mapped out. One of the main reasons for this lies in the fact that voluntary approaches are developed by practitioners in order to cope with the increasing costs and obstacles met

when introducing traditional policy instruments. Voluntary approaches, so to say, ‘developed spontaneously’ as a pragmatic response to overcome political, social or economic constraints in environmental policy-making. Consequently, voluntary approaches have appeared in a high diversity of formats and subtypes. However, to a large extent the same holds for other policy instruments. Many instrument are implemented as a quick response to rising issues or as the result of a coincidence of contingencies that occurred in a specific context rather than as the result of a well-considered element in a long-term policy strategy. In Belgium, for instance, the introduction of green taxes is explained as an unintended side effect of the State Reform of 1993 (De Clercq, 1996). What however differs is that compared to direct regulation and market-based instruments, for which theory to some extent preceded practice, theory and practice have developed simultaneously for voluntary approaches (OECD, 1999). Maybe this explains why in contrast to direct regulation and market-based instruments, the theoretical analysis of voluntary approaches is not that developed.

The on-going debate on the merits of this new type of governance partly results from the notion of voluntarism, which contrasts with the simplicity of the coercive regulatory model. This latter model builds on a unilateral relation between the policy maker who commands and the private sector who obeys (although in practice this model often involves rather intense consultations with the private sector making the label ‘negotiated regulation’ maybe more appropriate). Moreover, this latter model entails an attractive appeal by implying a moral rejection of polluting behaviour. Whereas direct regulation is considered as a strong signal from a powerful regulator, voluntary approaches are situated somewhere between public policy and corporate strategy. On the one hand, government involvement in many voluntary approaches is intense by limiting the voluntary aspect only to the decision whether to participate or not or to the way in which a given target is met. On the other hand, the involvement and approval by the business community imply that these instruments cannot be placed on the same line with traditional policy instruments. Voluntary approaches may be used as an element in the wider corporate social responsibility strategy of a company. Are regulators influencing companies by soft signals or are companies influencing regulators and the public at large by adopting pro-active strategies to create an image of trust and belief in corporations? Are voluntary approaches serving public or rather private interests?

1.3. Voluntary approaches compared to traditional policy instruments

The observation of the growing interest in and use of voluntary approaches raises the question: why is this happening? In many textbooks on environmental economics (e.g. Tietenberg, 2003) voluntary approaches are hardly mentioned. In fact, in a perfect world, there are no convincing arguments for

using voluntary approaches instead of command and control policy or economic instruments. The standard approach is to consider the government as a single, rational actor with perfect information and without costs in decision-making or enforcement. First, the optimal abatement level is determined as the point where the marginal abatement cost equals the marginal damage cost. Consequently, the government issues a regulation mandating this emission level. Alternatively, the government can impose a tax on pollution. The level of the tax should reflect the intersection of the marginal abatement cost and the marginal damage curve. Independent of the instrument put in place, if they are adequately implemented and controlled; the optimal level of pollution will be achieved (Barde, 2000). Economists generally express their preference for taxes as these have an additional advantage over the command and control approach. This is the fact that taxes are cost-efficient, i.e. they reach a certain abatement level at minimal cost.

So how to explain the current interest in voluntary approaches? In other words, why do command and control regulations or MBIs sometimes fail? In short, the answer is because theory does not equal practice. In an imperfect world, all instruments are imperfect. In this setting, the choice of instrument should be based on a comparison of an imperfect solution within a specific context with another imperfect solution and sort out which is to be preferred (OECD, 1999). There are two important constraints. First, governments are often confronted with *limited information*. Command and control regulation often comes in the way of prescribing certain emission standards, process standards or product standards. This places a high information burden on governments to gather all the necessary information and to keep up with scientific and technological progress. What is the optimal level of sulphur dioxide in the atmosphere? How many sources emit sulphur dioxide? Which abatement technology exists? At what cost? These are just a few questions the policy maker must answer. Market-based instruments require somewhat less information as the question of how emissions are to be reduced, is left to be solved by the companies. The question of the level of the environmental tax however remains. For environmental taxes to be optimal, their level should equal the marginal social cost of pollution. This is a difficult question to answer. The future ecological damage of greenhouse gases or SO₂ and NO_x, for instance is very difficult to estimate (Albrecht, 2006). In addition, optimal taxes need to be differentiated according to the different pollutants, the mix of pollutants, the sources of pollution and their location, the amount of pollution and the timing of the pollution (Albrecht, 2006). As this information burden on governments (for command and control as well as economic instruments) increases with the number of environmental problems and emission sources, it might become a prohibitive obstacle. Often this is referred to as the diminishing returns of regulation. Once the major sources are tackled, the additional gain from new regulations declines. In addition, more and more it is acknowledged that there is neither the need nor the possibility to impose indefinitely more

and more stringent standards to address different forms of pollution. The same is true for economic instruments (Drente, 1995).

The second important constraint for a proper introduction of direct regulations or market-based instruments concerns the existence of various *implementation problems*. These problems thus arise even if the government is perfectly informed e.g. about the optimal abatement technology, emission standard or environmental tax level. For command and control policy, a major issue is the need for control and enforcement of the regulation. This especially holds when the number of pollution sources is high, sources are mobile and diffuse. Barde (2000) claims that it is generally acknowledged that the level of enforcement is weak, mainly owing to the low number of controls, and the great number of administrative requirements, staff and legal procedures in case of non-compliance. Looking at economic instruments, a recurrent implementation barrier is the fact that the proper tax base must be measurable at reasonable cost. Albrecht (2006) attributes the lack of pollution taxes in Europe simply because emissions of toxic pollutants are not widely measured. As such, implementing pollution taxes requires strong initial investments in monitoring infrastructures. Pigou himself even assumed that in real life the administrative costs of taxes could outweigh the benefits from externality reduction. In addition, Pigou was also critical of the bureaucracy and openly sceptical of the abilities of local authorities to undertake effective market intervention (Andersen, 1994).

Next to the information and implementation problems that often occur with traditional instruments, there are a number of disadvantages that are related to the instruments themselves. Command and control regulation lacks incentives for technological progress (Tietenberg, 2003). In addition, when technological progress occurs, it takes a long time before it is embodied in new regulations and standards (Barde, 2000). Besides, there is a delicate trade off between adapting standards to technological innovation on the one hand and providing sufficient stability for companies on the other (Tietenberg, 2003). Concerning economic instruments, the main additional barrier is of political nature. Industry largely remains opposing environmental taxes based on competitiveness grounds and prefers regulations (Barde, 2000; Albrecht, 2006). Another disadvantage is that it might lead to the creation of hot spots as the abatement reductions are allocated based on economic instead of ecological criteria.

Voluntary approaches have some potential to reduce both the information and the implementation problem. Regarding the lack of information, voluntary approaches contribute because of the business involvement in their development. Besides, many voluntary approaches are relatively vague. Negotiated agreements, for instance, often only define an industry-wide target for the reduction of some emission within a number of years. Another example are environmental management systems, which require companies to monitor and improve the environmental impact of their activities. As such,

these systems shift the responsibility for gathering information to companies. In the same manner, many implementation issues are shifted to the companies. The companies themselves are free to determine how they will comply with the target of the voluntary approach and periodically report to the government concerning the progress made. In many cases, business associations and external private companies (auditing companies, certification bureaus, consultants etc.) take over tasks related to coordination and monitoring which otherwise fall under the responsibility of public agencies and policy-makers. Basically, the government only needs to check the outcomes of the voluntary approaches.

Finally, voluntary approaches better fit in a policy that is oriented towards sustainability. Traditional regulation rather departs from what Tietenberg (2003) calls a toxicological policy approach. It departs from the idea that emissions above a certain threshold level result in welfare losses and should therefore be avoided. This way, policy-making is reduced to a fragmented and technical exercise. Voluntary approaches on the other hand actively involve businesses and encourage corporate responsibility. This is more in line with the notion of sustainable development compared to installing some kind of end-of-pipe technology. Many unilateral commitments and public schemes (e.g. management systems; energy labels) emphasize such a holistic approach instead of the fragmented approach of traditional instruments.

2. Methodological approach

2.1. Institutional economics in a nutshell

In their recent bestseller ‘Freakonomics’, Levitt and Dubner (2005) claim that economics should be ‘brought back to its roots’, which is, the study of how people react on incentives. Despite growing complexity and downright deceit, it is argued, the modern world is not impenetrable or unknowable. All it takes is a new way of looking. Economics should study how the world actually works, not how it ought to work. Levitt and Dubner (2005) acknowledge that prices provide strong incentives to steer behaviour. However, they are not the sole drivers of behaviour. Social acceptance, rules, shared values or common beliefs also provide pillars on which people rely to make choices. In a way, this is the core belief of institutional economists.

Institutional economics has been developed around the turn of the 19th to the 20th century. The first institutional economists challenged mainstream (neo-)classical economics and dominated American economics in the beginning of the twentieth century (Hodgson, 2000). The basic assumptions of

classical economics were considered too abstract and rationalistic, and as such, inadequate to grasp the complexities of reality. Keynes' inspiring work took over the leading role in post-war economic thinking. However, by the works of, amongst others, Coase, Williamson and North, the institutional perspective has revitalised under the denominator of 'new institutional economics', labelled as such by Williamson in 1975.

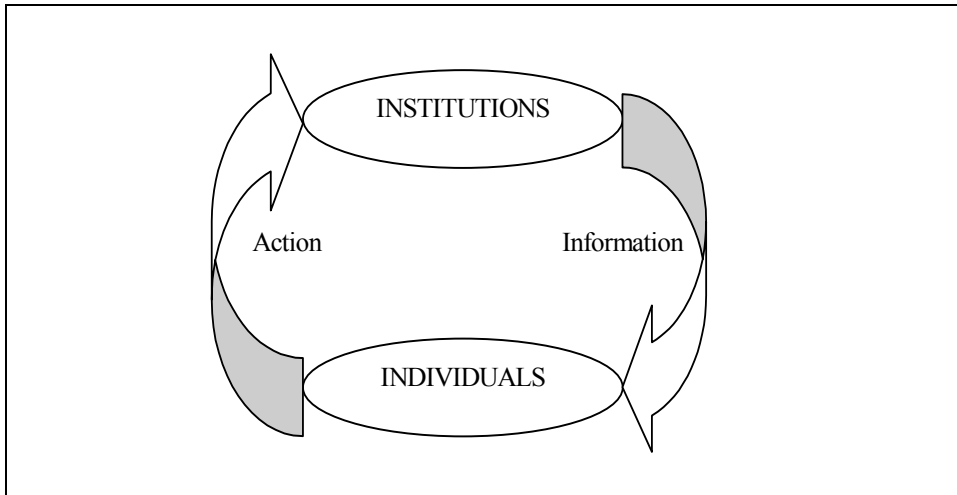
Institutional economics departs from the idea that behaviour is to be explained by the influence exerted by institutions rather than by the assumption of the homo-economicus. In 1919, Hamilton argued the most important defect of neo-classical economics is that: "*it neglected the influence exercised over conduct by the scheme of institutions under which one lives and must seek his good*" (cited in Hodgson, 2000, p. 324). Institutionalism does not take the individual as a given, holistic entity that is completely rational and only seeks to maximise his personal welfare. Rather, individuals are affected by their institutional and cultural situation. People's actions are driven by habits and rules rather than by purely rationalist thinking (Hodgson, 1998). These habits show persistence over time as they are to a large extent guided by institutions. After all, people are born into and socialized within a world of pre-existing institutions. Institutions provide stability by buffering and constraining the diverse and variable actions of many agents (Hodgson, 1998).

Typical for institutionalistic thinking is that it defines institutions broadly. A commonly adopted definition is the one from North who defines institutions as "*the humanly devised constraints that shape human interaction*" (North 1990 p.3). Institutions involve both formal (e.g. constitutions, laws, agreements, contracts) and informal (e.g. habits, social conventions, beliefs, norms, codes of conduct) constraints. They encompass organizations (banks, corporations, universities...) but also integrated and systematic social entities such as money, language, and law (Hodgson, 1998). These institutions lay down the 'rules of the game' that govern individual behaviour and structure social interaction. Thereby institutions are interpreted much broader than government bodies or their outputs in the form of laws and regulations. Even if the state is absent, people rely on customs, cultural and social norms, routines and conventions to guide their actions.

It is important to notice that at its core, institutional economics does not simply postulates that 'institutions matter'. More fundamental is the premise that there is a strong interaction between individuals and institutions, as shown in figure II. The imitation and emulation of behaviour leads to the spread of habits, and to the emergence or reinforcement of formal or informal institutions. Institutions are formed and changed by individuals. In turn, institutions foster and underline particular behaviours and habits, and help transmit them to new members of the group. Individuals are influenced and constrained by institutions. Through this mutual dependence of institutions upon

individuals and the moulding of individuals by institutions, institutions are endowed with a stable and inert quality (Hodgson, 1998). Individual habits both reinforce and are reinforced by institutions.

Figure II: The institutionalist action-information loop



Source: Hodgson, 1998

Institutional economics does however not adopt a static perspective. Institutional economics focuses on learning and evolution rather than assuming stable preferences and general equilibrium. In essence, institutional economics questions why certain institutions have been developed and not others, how they evolve and eventually might disappear (Menard and Shirley, 2005). The important notions of inertia and path-dependency do not rule out change. Habits and routines may adapt slowly as agents seek new ways to improve living conditions in a continuously changing world. Institutional arrangements on their side have to compete with alternative coordination mechanisms and have to adapt to changing circumstances or will become obsolete. As institutions are evoked to fulfil a role in society, they ought to change with changes in society (Hazeu, 2000). As such, institutionalism is sometimes described as “evolutionary economics” (Hodgson, 1998). Change is however expected to be incremental: it will occur by small steps and is path dependent. Path dependency refers to the fact that choices made in the past constrain the options for the future. This is explained by adaptation costs that go along with institutional change. Given the internally generated stability, breaking lock-in situations often requires exogenous pressures in the form of external shocks or crises (e.g. technological breakthroughs, social movements or environmental disasters) (Unruh, 2002).

2.2. Methodological approach in institutional economics

The mainstream neoclassical economic approach, which relies on developing mathematical models aiming to maximise profits, utility or welfare, is only partly suited as methodological approach for institutional economics. The usual critique to modelling holds: simplifications and limiting assumptions create discrepancies between the model and reality. In addition, the emphasis on institutions as driver of behaviour rather than assuming perfectly informed rational agents limits the usefulness of the classical modelling technique. However, institutionalists have no powerful alternative to offer. Institutional economics has no general theory (Hodgson, 2000), nor a single, agreed set of definitive methodological guidelines (Manson and Shirley, 2005). Nevertheless, Hodgson (1998) gives some elements that distinguish institutional economics from the mainstream economic approach:

- An emphasis on institutional and cultural factors;
- The interdisciplinary character of analysis, recognizing insights from politics, sociology, psychology, and other sciences;
- Belief in habit as driver of behaviour next to the rational, utility-maximizing agent;
- The analysis starts from stylized facts and theoretical conjectures concerning causal mechanisms instead of mathematical models;
- Extensive use of historical and comparative empirical material concerning socio-economic institutions.

An important characteristic of institutional research is the multidisciplinary approach. Institutional analysts adapt useful concepts and methodologies from political science, sociology, law, anthropology, cognitive science, evolutionary biology and any other discipline that sheds light on the norms, rules and beliefs that govern human interactions in the process of production and exchange (Hodgson, 2000). Hazeu (2000) claims that institutional economics foremost brings along new concepts: ways of thinking about issues, explaining their existence, providing insight on the world etc. Consequently, the institutional approach is not the sole territory of economists but is adopted by a wide range of scholars including sociologists, legal, public and political scientists and historians. Their research has produced a wide spectrum of studies bound to a specific historical and institutional context. These studies especially provide ex-post explanations for existing phenomena (Hazeu, 2000). They are mostly descriptive in nature and aim to provide insight on underlying causal correlations. Hodgson (1998) states that this approach is arguably of more operational value than seeking to develop an all-embracing general theory.

2.3. Voluntary approaches from an institutional economic perspective

Mainstream economic considerations were largely unable to explain the instrument choice that has occurred in environmental policy making. From an economic perspective, the limited use of market-based instruments, for instance, is puzzling. We believe that an institutional economic perspective might contribute to our understanding of the instrument selection process. After all, instruments are not chosen and developed by economists but rather by legal scholars, technicians and bureaucrats, which may have idiosyncratic objectives that divert from social welfare. Hahn (1989) states that decisions of policy makers should be regarded from their primal tendency of acquiring political support from the various actors in a policy setting. This is not saying that the “wrong” people are shaping politics but rather that a purely welfare-based approach might be incomplete. As Bressers and Huitema (1999 p. 175) state “*it’s not a question of “good science” versus “bad politics”, but a recognition that politics has a rationality of its own.*” Further they claim that a combination of insights from political economy and political science can produce more adequate explanations concerning the choice of instrument compared to classical rational choice models. In other words, policy-making is an independent arena that requires its own mode of scientific analysis rather than a classical economic approach. One of the main arguments put forward is that next to cost-effectiveness, a number of additional criteria are taken in account by policy makers, e.g. the impacts on competitiveness, distribution effects, the “implementability”, the correspondence with existing regulations and regulating traditions and the flexibility of the instrument (Bressers and Huitema, 1999). Besides, whereas institutional economics originally focused especially on industrial organisation, interest in public or governance questions is growing (Hazeu, 2000). In the following two subsections, we will first explain voluntary approaches from a transaction cost perspective and then discuss the importance of trust on transaction costs.

2.3.1. Transaction costs and coordination mechanisms

Institutional economists point to the existence of alternative ways for solving coordination problems in society, i.e. ways to organise social interactions and cooperation in order to increase social welfare. The following three systems are distinguished (Matthijs, et al., 2005):

- **Hierarchy**: consists of coordination mechanisms based on a bureaucracy or administration from which central decisions, embodied in enforceable rules are taken. The application of the rules is guaranteed by control and enforcement. In this system, information costs are carried by the hierarchical system.
- **Markets**: depend on decentralised decision-making whereby buyers and sellers take decisions based on prices and contracts. In this system, the individual actors in the market carry the

information costs. The actors require information about potential products, suppliers, prices, quality etc.

- **Networks:** consist of a horizontal coordination mechanism whereby actors rely on loyalty, trust and reciprocity to achieve cooperative and consensus-minded patterns of interaction and decisions. Networks refer to a multitude of coordination systems that cannot be classified as hierarchic or market-based (e.g. families, social groups, sector associations etc.). Interactions between members of the network are based on persuasion, information-sharing and personal contacts leading to mutual trust and loyalty.

These three coordination mechanisms correspond to a great extent with the tripartite classification of policy instruments introduced in section 1.1. (direct regulation, MBIs and voluntary approaches). This match is however not perfect. Voluntary approaches, for instance, can be found in market systems (e.g. eco-labels) and networks (e.g. negotiated agreements).

As such, there are three alternative ways to solve coordination problems in society. In deciding which system is to be preferred, the transaction costs that are associated with each system are crucial. Transaction costs are costs needed to bring about transactions, e.g. searching sellers/buyers, negotiating contracts, considering alternative products based on price and quality, controlling the compliance of the transactions etc. The argument that the level of transaction costs determines which coordination mechanisms is to be preferred, is familiar to economists since Coase (1937) used it to explain the existence of firms. According to Coase, firms, which are a hierarchic system, exist because they involve lower transaction costs than when all their activities would have to be carried out by market transactions. This reasoning can also be used to explain related issues as the scale of a company (make-or-buy decision) or the degree of product differentiation within a company. This perspective explains e.g. why large companies moved from conglomerates back to their core business in the last decennia. The transaction costs associated with using the market have decreased as markets have become more efficient and transparent due to for instance, the formation of the single European market, the Internet and the market orientation of former communist countries. The key point is that the question which coordination system one should use is a contingent decision: it depends on the circumstances as these determine the related transaction costs. Consequently, the way of organizing is inherently dynamic. Transactions will shift between markets, hierarchic systems or even networks as a function of the transaction costs under these alternatives (Douma and Schreuder, 1991).

A similar reasoning can be applied to policy-making questions. As circumstances change, alternatives to direct regulation (hierarchic mode) might become more appropriate. Hazeu (1999) claims that in general terms, markets and market-like mechanisms are becoming increasingly more efficient whereas

hierarchical regulation is becoming a less efficient solution. In explaining the causes of this shift, Hazeu points to the development of ICT technology and the increasing pluralism of society (e.g. increasing number of pressure groups). For environmental issues, we can certainly add the high complexity of contemporary environmental problems leading to increasing information costs. As argued, there is an important information difference between hierarchic systems on the one hand and markets and networks on the other. In the former, information costs are to be carried solely by the hierarchic authority whereas the costs are shared in the latter systems. When resorting to a direct regulatory policy, it is the policy-makers' task to gather the necessary information. In addition, the government needs to set up agencies that will administer the regulatory system. In other words, intervention comes at the expense of transaction costs. When transaction costs are high (e.g. information is hard to get for policy-makers), implementing an optimal policy response will be costly. In fact, the recognition of transaction costs implies that government measures cannot be designed perfectly *ex ante*: it would be prohibitively costly to do so (Williamson, 1985). Therefore, policy responses are likely to be sub-optimal. They are developed with limited information in a context of bounded rationality and increasing the policy capacities comes at the expense of transaction costs. Besides, it is impossible to incorporate all possible contingencies. As such, government measures are likely to miss some prevailing interdependencies and fail to anticipate emerging ones.

Confronted with the rising transaction costs of traditional policy-making due to increasing complexity of environmental problems and the number of involved actors (polluters as well as pressure groups), alternative coordination systems become more attractive. They might succeed in limiting transaction costs by sharing the responsibility with other actors in society that are in a better position to obtain the necessary information. The development of environmental management standards or eco-labels for instance, is in many occasions shared with the business community and environmental organizations in order to overcome the high information costs for government. The government simply had insufficient knowledge on how these schemes should look like.

2.3.2. Trust and transaction costs

Next to information costs, costs associated with uncertainty are an important element of transaction costs and might be relevant for understanding the policy shift towards network-based policy-making. In fact, uncertainty results from incomplete information. A major topic in institutional economics is the study of incomplete contracts due to limited and asymmetric information (Williamson, 1985). The latter imply uncertainty for the contracting parties. Reducing this uncertainty requires resources from the contracting parties (Hazeu, 2000). Sellers have to invest in signalling the attributes of their product, buyers need to screen products and producers to ensure themselves of the price-quality ratio.

Besides, both need to invest to get the contract “waterproof”, e.g. by including enforcement mechanisms and sanctioning stipulations in case one of the parties brakes the contract. In this regard, trust between the parties is very important as trust reduces the need for such investments that aim to reduce the uncertainty involved in transactions. The more trust between the parties, the less they need to check the quality of the products, the less they need to make sure the other will comply etc. As such, trust smoothens transactions and thus stimulates economic growth. “*Money makes the world go round*” so the saying goes. Institutional economists grant a similar function to trust and some go as far as to claim that trust is highly important in explaining long-term economic growth differences between countries (e.g. Knack and Keefer, 1997; North, 1990). To conclude, the higher the level of trust, the less the parties have to resort to a contractual, legalistic approach for concluding transactions. In other words, by being based on mutual trust, network-based coordination mechanisms reduce transaction costs associated with contractual arrangements.

This leads to the question how trust is developed. At the bottom line, it is by repeated and positive interactions between parties that trust is build over time (North, 1990). This might explain why trust is higher in modern market-based economies compared to former communist or low developed economies. Modern market-based economies rely heavily on numerous transactions conducted between rather unfamiliar parties i.e. parties that are not linked to each other by friendly or familial bonds. These numerous interactions can only occur in a climate of trust and this will, over time, increase the level of trust. This also fits with the observation that voluntary approaches in environmental policy are especially popular in modern market-based economies.

The notion of trust and social capital refers to the accumulation of trust that exists between the members of a society. Social capital refers to trust between members of society and trust in institutions (Hazeu, 2000). We believe this social capital perspective can also be applied to explain the existence of voluntary approaches in environmental policy. As explained above, trust between actors involved in the policy-making process lessens the need to rely on a legalistic approach. The importance of environmental policy has grown steadily since the sixties-seventies in modern economies. Consequently, repeated interaction between the different players in this arena through consultation and negotiation enabled trust to be built. The resulting social capital, in turn, has paved the way for a more voluntary and less legalistic policy-making approach. The fact that social capital facilitates the conclusion of contracts might be an important condition for a successful use of voluntary approaches. As voluntary approaches often have neither the force of law nor do they provide the juridical enforcement options of private contracts, trust among partners is essential. The fact that solving environmental conflicts is usually a long-lasting process involving multiple interactions between concerned actors increases this importance. After all, trust is hard to develop but easily broken down.

The importance of social capital can also be approached from the principle-agent problem. How can the principal (the government) ensure that the agent (the companies) to which he delegated a task will devote sufficient effort to it? Institutional economics learns that the harder it is to control the outcome (e.g. difficult to monitor, hard to specify quantitative targets, no available indicators) the more it pays to invest in the creation of a common culture and shared values (Hazeu, 2000). The principal should convince the agent that they share a common objective. In many occasions, voluntary approaches are implemented in such circumstances: complex environmental problems for which limited knowledge on the way to proceed is available.

2.4. The theoretical perspective adopted in this dissertation

After the elementary introduction into institutional economics and the institutional explanation of the emergence of voluntary approaches, this section discusses the main institutional elements we adopt in our research papers. The primal focus of the research papers concerns the influence of the institutional context upon the uptake, the characteristics and the performance of voluntary approaches. The papers thus depart from the basic assumption that *institutions matter* for explaining the outcomes of decision-making processes of agents. This is not to say that we abolish the idea of rational behaviour. We acknowledge important institutional concepts like habit formation, limited cognitive decision-making abilities and bounded rationality. However, we believe in the dominant influence of a rational cost-benefit analysis in decision-making processes. In our view, the institutional setting yields an important influence by altering the costs and benefits of a certain action. Institutions result in incentive structures that alter agents' preferences on alternatives through their influence of the related costs and benefits. For instance, the cost of failing to comply with a negotiated agreement will be much higher for a company that has a tradition of close and cooperative relations with the state.

As a consequence of the focus on the role of the institutional setting on the outcomes of decision-making processes, the research papers pay attention to factors of the institutional environment that may be important for understanding the uptake, characteristics and performance of voluntary approaches. Thereby we considered a wide range of elements from the formal juridical setting in which a certain voluntary instrument is implemented to informal elements like the traditional policy style of a country or the general organization of society. To do so, we will mostly rely on a descriptive-comparative case study analysis in which we pay attention to legal, economic and political aspects. Both the focus on the role of institutions as well as the methodological approach are two basic characteristics of institutional economic research.

Before we proceed with a more detailed presentation of the research papers, we first briefly discuss an alternative theoretical perspective for analysing voluntary approaches: public choice. *Public choice theory* seeks to explain political actions based on the self-interests of the actors in the policy field: voters, policy-makers, pressure groups and public servants. Public choice offers an explanation why voluntary approaches, which are often considered as second-best solutions, might be selected as a policy instrument. Kirchgässner and Schneider (2003) argue that voluntary agreements can be seen as a sort of symbolic policy in the sense that they only establish business-as-usual trends. For both parties however, the advance lies in the fact that the agreement can be sold to the public as a success. For policy-makers it might offer a possibility to 'score'. Without jeopardizing good relations with powerful industrial players, they can present a solution to the public by pointing to the voluntary approach. In this regard, it is important to note that voluntary approaches are usually much faster to realise and easier to implement compared to regulatory instruments. In addition, voluntary approaches often to some extent surpass parliament and as such can be claimed totally by the regulator. Besides, voluntary approaches may be attractive for policy-makers who pursue their own interests instead of public interests (OECD, 1999). From the perspective of business pressure groups, voluntary approaches might be preferred above traditional regulation and especially above market-based instruments as the business involvement and the voluntary character offers more opportunities to bring the policy-making more in line with their interests (Kirchgässner and Schneider, 2003). Notions like regulatory capture and rent seeking are frequently mentioned in this regard.

Whereas the public choice perspective offers an interesting approach to the subject, we have opted not to take it as a basic assumption based on a number of arguments. First, we believe the public choice theory does not really correspond with the idea of corporate social responsibility, which is largely acknowledged as the context in which voluntary approaches occur. As Hazeu (2000) we believe the institutional perspective offers a richer scope for the study of governance questions compared to the public choice theory as this latter departs from a narrow assumption on agents' behaviour (e.g. politicians maximising votes, bureaucrats seeking budget maximisation). Second, we believe the public choice perspective might offer valuable explanatory insights on the instrument choice question (Kirchgässner and Schneider, 2003), but less on the basic research question we adopted, i.e. the influence of the institutional setting in the uptake, characteristics and performance of voluntary approaches.

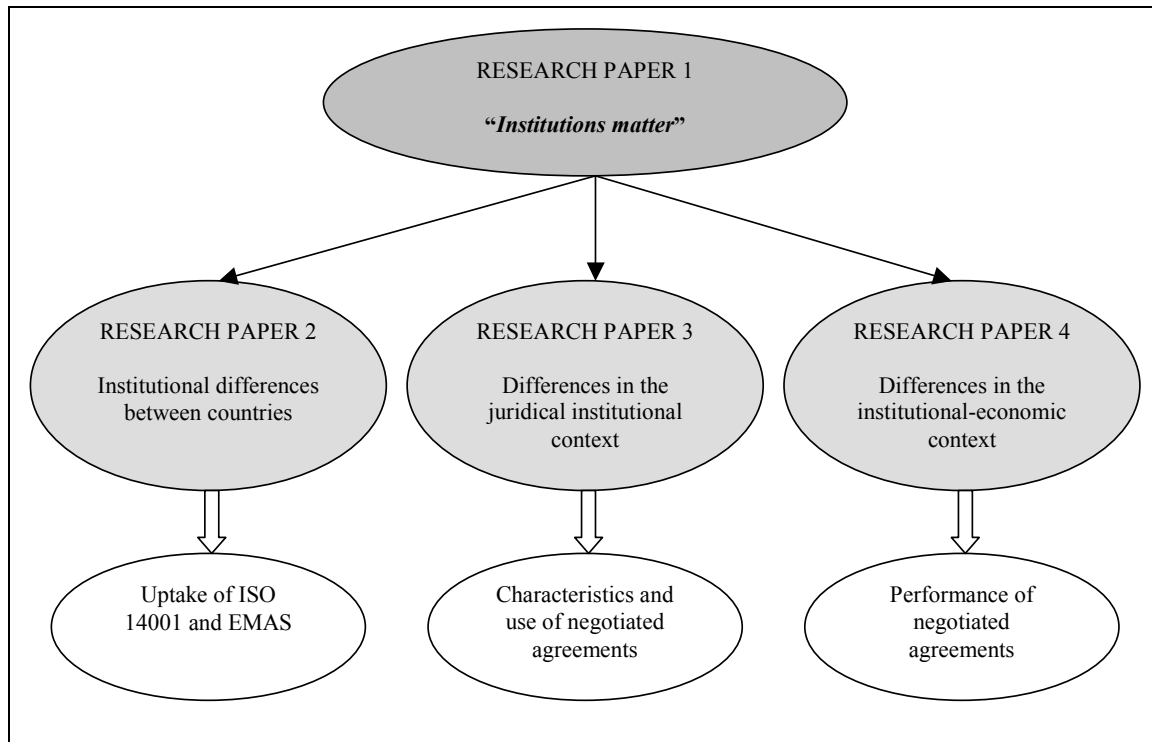
2.5. Introduction to the research papers

To conclude this chapter, we provide a schematic overview of the institutional approach adopted in the research papers as well as a description of the link between the research papers. The main lesson we adopt from the institutional perspective is the idea that ‘institutions matter’. Decisions are not taken in a frictionless vacuum but are rather contingent upon institutions, ranging from constitutional prescriptions to informal norms. Our primal focus concerns the influence of institutions upon the uptake, the characteristics and the performance of voluntary approaches. More specifically, we formulate the following general research questions:

- *Does the institutional setting influence a company’s decision whether to participate actively in voluntary approaches?*
- *How do differences in countries’ institutional setting influence the diffusion of voluntary approaches?*
- *Can policy makers change the institutional context to alter the characteristics and use of voluntary approaches?*
- *Which characteristics of the institutional setting influence the performance of voluntary approaches?*

These general research questions are further specified in the research papers. As such, each research paper provides a partial answer to one of the general research questions listed above. Figure III provides a basic overview of the link between the papers. In short, the first paper empirically proves that institutions matter. Subsequently, the following papers investigate how and why institutions matter. The second paper looks how institutional differences between countries matter for explaining the uptake of environmental management systems. Paper three discusses how a juridical institutional shift influenced the characteristics and use of negotiated agreements in Belgium. Finally, the last paper analyses the link between the institutional context and the performance of negotiated agreements.

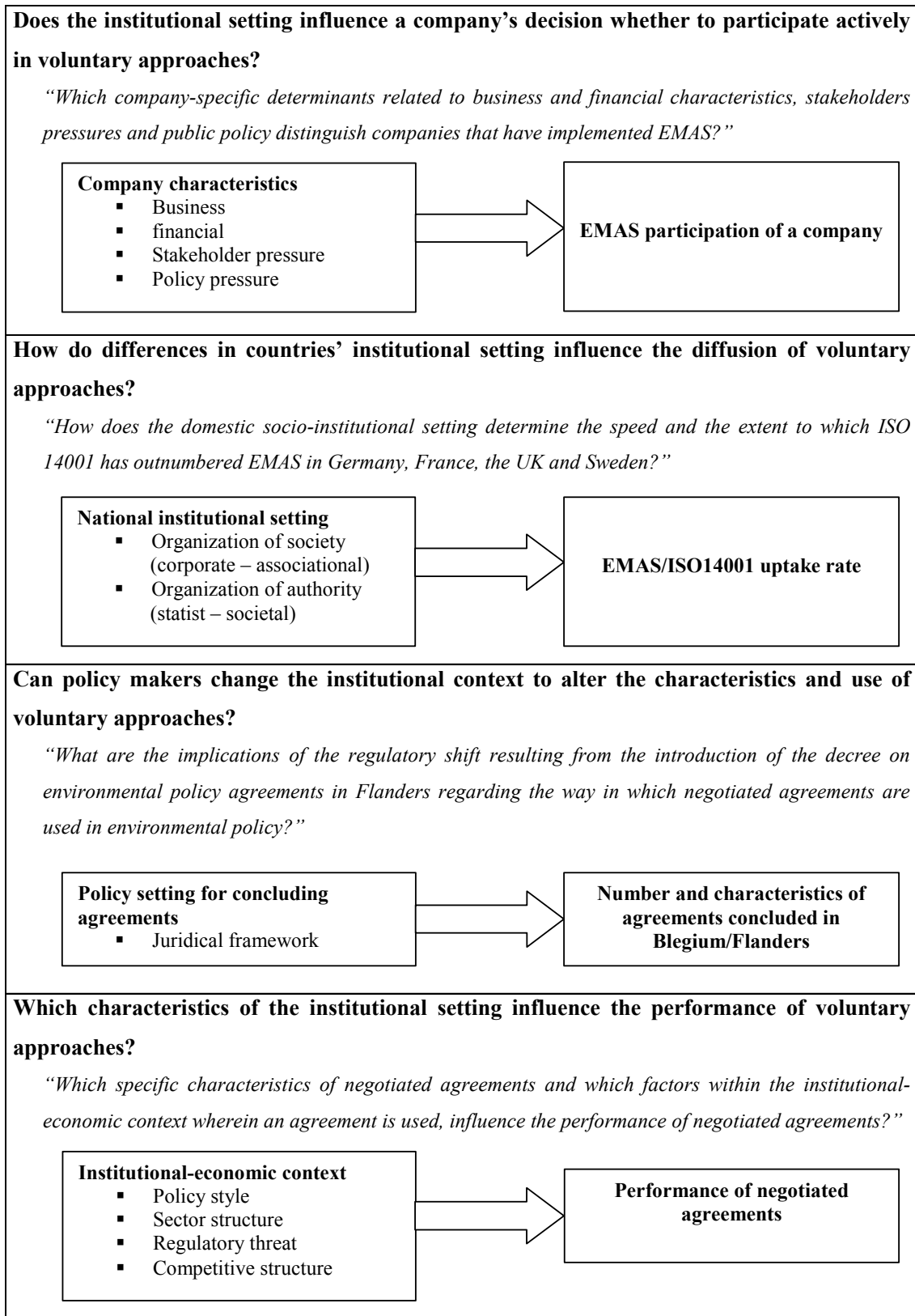
Figure III: Basic overview of the research papers



A more detailed overview of the research papers is provided based on figure IV. For each research paper, the figure depicts the general as well as the specified research question. Next, it shows which institutions are taken in account for analysing the topic we seek to explain.

The first research paper, which analyses the determinants that distinguish EMAS registered companies from non-registered companies, employs an econometric approach (logit estimation). This paper has two links with institutional economics. First, the paper is developed around the observation that related research on the characteristics of green firms has focussed on the US and Japanese companies. As the European institutional context differs from the legalistic and individualistic US context and the highly corporatist Japanese one, other determinants might prove to be important in Europe. Second, some factors related to the institutional environment (stakeholder pressures and public policy) are included in the regression. In short, this paper seeks to determine which company characteristics distinguish EMAS participants from non-participants and to check whether the institutional context in which a company operates influences this participation decision. Anticipating on the results, it is found, amongst others, that the country location of the company is a significant explanatory variable through the influence of the national government. If the company is located in a country of which the government actively encourages EMAS participation, the company has a higher likelihood of participation. As such, we conclude that ‘institutions matter’.

Figure IV: The institutional approach of and the link between the research papers



The first paper showed that the institutional context, specified as the government's policy stance towards EMAS, matters. The second paper builds on this finding and seeks to explain why some governments choose to encourage environmental management systems whereas others take a rather passive approach. More specifically, the paper analyses the diffusion of EMAS as well as ISO 14001 in four European countries. The paper departs from the observation that the uptake rate of both environmental management standards differs between countries. Next, it is assumed that this difference might be (partly) attributable to differences in the socio-institutional context. Based on a country typology from Jepperson (2002), which distinguishes countries based on the organization of society (corporatist versus associational) and the organization of authority (statist versus societal), four different polity types are distinguished. For each polity type, a country that is identified as a prototype example was selected. Subsequently, a case study was conducted for each country. Finally, conclusions were drawn based on a comparative analysis of the four case studies. As such, this paper uses the national institutional setting to explain differences in participation rates of voluntary approaches between countries.

The third research paper links the institutional context with the characteristics and the use of negotiated agreements. However, instead of focusing on differences in the institutional context between countries, the paper takes a dynamic perspective. This paper looks at the impact of the institutional shift that was induced by the introduction of a legal framework for concluding negotiated environmental agreements in Flanders. The paper thus compares two points in time rather than different countries at the same point in time. The paper discusses how this legal framework changed the 'rules of the game' (the incentive structure) and clearly points to the differences between agreements concluded before and after this legal framework was introduced. Besides, this paper pays attention to behavioural changes of companies and other involved actors that were induced by the legal framework.

The previous two papers have pointed to the influence of the institutional context for explaining uptake rates of voluntary approaches as well as for explaining the characteristics of the approaches that are adopted. Finally, the last paper links the institutional context with the performance of negotiated agreements. The main goal of this study was to identify which specific characteristics of negotiated agreements and which factors within the institutional-economic context wherein a negotiated agreement is used, influence the performance of negotiated agreements. This was done based on a comparative case study analysis of twelve negotiated environmental agreements. With respect to the institutional economic context, the study looks at (i) the general environmental policy style in a country, (ii) the existence of an alternative policy instrument that is used as a background

threat, (iii) the industrial organisation of the sector involved and (iv) the extent to which firms can gain competitive advantages by participating in the agreement due to green consumer pressure.

3. Summary

This dissertation studies the newest innovation in environmental policy making: voluntary approaches. Voluntary approaches fit in the more general trend from hierarchical, coercive governance models to more horizontal and soft governance models that is observed in developed countries. The voluntary character sets them apart from tradition policy instruments that are unilaterally developed by policy-makers and imposed on polluters. Voluntary approaches are rather developed through interaction between multiple societal actors, sometimes even without government involvement. These approaches are concrete manifestations developed in the context labelled as social corporate responsibility in which societal actors consider the wider interests of society in all aspects of their operations. We restrict this subject in two ways. First, we only consider initiatives that involve the business community. Second, we largely leave aside the analysis of firm-specific initiatives taken in the context their environmental management strategy. In other words, we focus on voluntary approaches in which the government is actively involved and we take a public welfare perspective rather than a strategic company management one.

Each research paper presented in this dissertation departs from a specific research question and employs the preferred methodology to answer this question. Nevertheless, regarding the general theoretical and methodological approach, this dissertation mostly builds on the insights from the institutional economic school. Institutional economics is concerned with how institutions emerge and evolve and with the interactive processes between institutions and the actors that shaped them. Institutional economics diverts from mainstream neo-classical economic analysis by questioning some basic assumptions like complete information and perfect rationality. Institutional economics rather starts from a critical and in-depth observation of reality to uncover underlying causal relations. Hereby, it acknowledges hard to grasp notions like confidence, social capital, transaction costs and builds on insight gained from other disciplines like psychology, sociology or political sciences. In a way, the institutional school de-abstracts economics and brings it closer to reality. The primal focus of this dissertation is on the influence of the institutional setting on the uptake, the characteristics and the performance of voluntary approaches.

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Chapter 1 - Voluntary approaches in environmental policy

“Calling education, information, and voluntary measures new tools is something of a misnomer. Certainly, command-and-control and economic instruments are very old, dating to the earliest states. But the “new tools” based on education, the provision of incentives, reputation, and peer pressure are even older. Before the state emerged, humans lived in groups with relatively little hierarchy, and the market was not a feature of daily social life. Societies of food foragers and early horticulturalists usually had no permanent political leadership and traded mostly for things not produced locally. Governance involved discussion, ritual, tradition, and peer pressure. Although debate continues about how well pre-agricultural societies managed the parts of the environment that supported their lives, the management tools they used were surely closer to what we are calling “new tools” than to the “old tools” of command-and-control and market incentives. Thus, although these approaches may be considered innovations in the contemporary policy system, they have an ancient lineage.”

Dietz and Stern (2002) *New Tools for Environmental Protection: Education, Information and Voluntary Measures*, p. 6-7.

This first chapter introduces voluntary approaches as an instrument in environmental policy. Voluntary approaches will be presented as a denominator that groups a wide range of environmental policy initiatives. These initiatives can be seen as concrete manifestations that are taken in the broader context labelled as social corporate responsibility. CSR captures the notion that multiple actors, e.g. companies, social groups, trade unions and government institutions, increasingly consider the wider interests of society in all aspects of their operations. First, voluntary approaches are distinguished from other policy instruments in a classical threefold typology. The second section subdivides voluntary approaches in three groups depending on the level of government involvement.

1. A typology of environmental policy instruments

1.1. The classical threefold typology

Rational decisions from the perspective of economic agents might be sub-optimal from a societal point of view due to a welfare loss caused by environmental degradation. In a market economy, government intervention may be helpful to curb these welfare losses resulting from externalities or imperfect

information (Henriques and Sadorsky, 1996). Externalities arise when an agent does not bear the full consequences of his or her decision, resulting in a welfare loss for some other agent(s). Imperfect information on the other hand, hinders agents' ability to make rational choices. However, due to rent-seeking behaviour of interest groups resulting in sub-optimal regulations, the political system might also be a source of environmental pollution (Tietenberg, 2003).

Commonly, environmental policy instruments are categorised based on the degree of authoritative force involved in the governance. Here we present the distinction as suggested by the OECD (1994) into the following three groups:

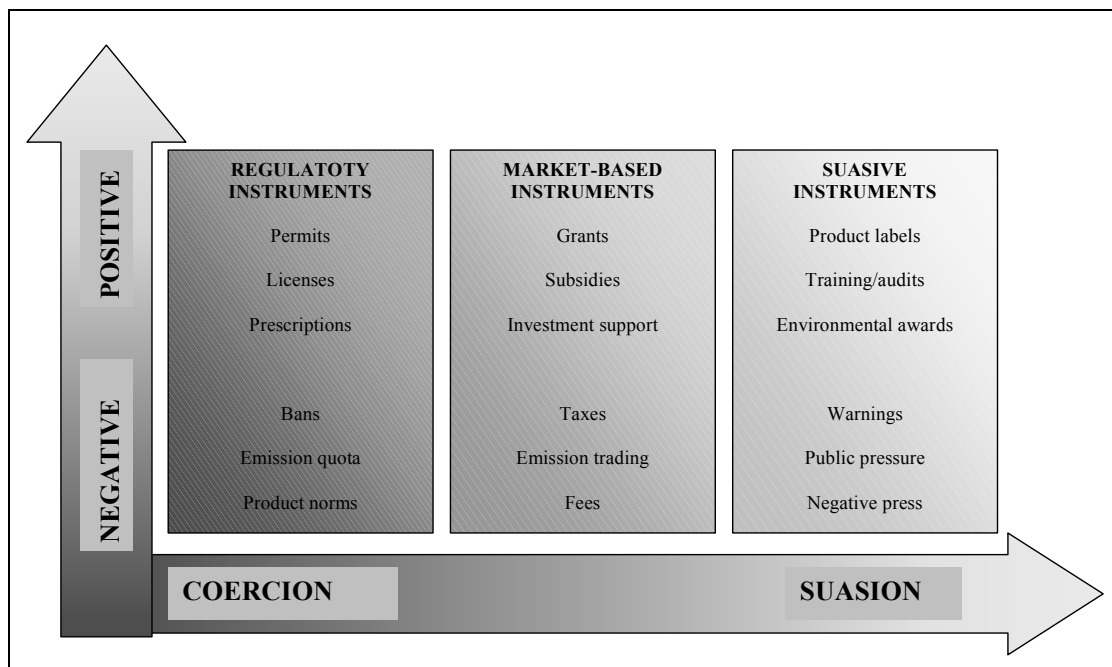
- **Direct regulation:** is often described as “*command-and-control policy*”. This approach typically specifies standards with which the regulated must comply (‘the command’). If not, he is penalized (‘the control’) (Gunningham and Sinclair, 2002). These standards determine e.g. technologies to be used or avoided; amounts of pollutant that can be emitted from a particular waste pipe, smokestack, or factory; and/or the amounts or kinds of resources that may be extracted from a common pool such as a fishery or forest (Dietz and Stern, 2002).
- **Market-based instruments:** provide financial incentives to discourage (taxes) or promote (subsidies) certain behaviour, instead of penalising or prescribing certain actions directly. Next to taxes and subsidies, MBIs also include more sophisticated tools like emission trading schemes. Market-based instruments seek to incorporate the external environmental cost in the market price of a good or service. Confronted with the appropriate price signal, the polluter is pushed to reduce emissions in the most efficient way, up to the point where it is more rational to pay for the pollution, i.e. where the marginal abatement cost equals the pollution tax.
- **Suasive instruments:** are used as an umbrella-term encompassing a wide range of instruments that try to alter behaviour by moral persuasion. These instruments are often referred to as “*new or soft instruments*”. Voluntary approaches (e.g. ISO 14001, EMAS, eco-labels) and information-based instruments (e.g. EPA’s Toxic Release Inventory, obligatory environmental reporting) fit in this category (OECD, 1994). Here we distinguish *voluntary approaches* from other suasive instruments like information and communication because the former requires some kind of business involvement. In contrast to voluntary approaches, the regulator can implement informative instruments unilaterally.

Whereas there is a rather widespread consensus on the distinction between direct regulation and MBIs, the grouping of policy tools that do not fit into these categories differs to some extent in other classification-typologies. Dietz and Stern (2002) propose a fivefold classification between: (i) command-and-control; (ii) market-based policies; (iii) education; (iv) provision of information and (v) voluntary measures. However, they claim a strict taxonomy of environmental policy tools is not

possible and use the notion of “new tools” to encompass the last three approaches. Kaufmann-Hayoz et al. (2001) suggest a parallel fivefold classification between: (i) command and control, (ii) economic, (iii) service and infrastructure, (iv) collaborative agreements, and (v) communication and diffusion policies. The last two categories can be labelled suasive. An overview of other public policy instrument classifications can be found in Vedung (1998). Vedung (1998) suggests distinguishing between regulation, economic instruments and information. Interesting is the fact that Vedung does not consider voluntary approaches as policy instruments in their own right but as an instrument mix tending to embody one or more of the three fundamental categories. Given the lack of consensus on the classification of policy instruments, section 1.2 will discuss the key element used for distinguishing the threefold classification we choose.

Another popular way of classifying policy tools is to distinguish between positive and negative instruments. Each instrument might be formulated either in the affirmative way to prescribe or encourage or in the negative to prohibit or deter an action. This distinction goes back to the general distinction between reward or punishment, carrot or stick. Figure 1-1 gives some examples of instruments along both dimensions: the degree of authoritative force on the horizontal axis and the way of formulation on the vertical.

Figure 1-1: A typology of environmental policy instruments



Before we proceed with the next paragraph, we first refer to the work of Bressers et al. who consider these kinds of instrument typologies deceptive and confusing. Rather than focussing the analysis on

certain types of instruments like subsidies or licenses, it is claimed that the focus should be placed on a basic set of characteristics of a particular instrument (see e.g. Bressers and O’Toole, 2005; Bressers and O’Toole, 1998). Bressers and O’Toole refer to the following characteristics: the degree to which the instrument involves the provision/withdrawal of resources, the freedom to opt for/against application, bi/multilaterality, normative appeal, proportionality, and the role of government in policy implementation. It is not the instrument type as such that is “coercive” or “suasive”, but rather the way it is specified and implemented in a particular policy context. The same instrument might have different characteristics depending on the policy context in which it is to wield an impact (for a detailed description of the relation between instrument characteristics and networked context see Bressers and O’Toole, 1998). A product norm that excludes the use of a hazardous substance (e.g. CFCs) for which a viable alternative exists might be considered as less coercive than an informative product label on the energy effectiveness of certain household goods or a negotiated agreement that has been negotiated under severe regulatory pressure.

Another downside of the instrument typology as presented in figure 1-1 is that it gives the deceive impression that instruments are simply options waiting to be selected by policy makers (Bressers and O’Toole, 2005). Modern theories on public administration however point to the complexity of the administrative context due to e.g. multiple involved actors, diverging interests and many related issues (Kleijn et al., 1998). As the complexity increases, the role of the government shifts to a more process-oriented director (Bogason and Toonen, 1998). Especially voluntary approaches are not instruments developed and implemented at the discretion of the policy-maker. Rather, they are developed by or in cooperation with social actors. The image of policy making as a top-down exercise with an isolated government on top is to be replaced by an image of bottom-up policy-making in which the government is just one among the many actors in the policy process. Bogason and Toonen (1998) claim that policy-making will become an external rather than an internal activity. Hierarchical control is increasingly replaced by continuing processes of bargaining among interested parties. The changing role of the government is further elaborated in the second section of the following chapter.

1.2. Influencing behaviour: hard law or soft steering

1.2.1. Incentives for behavioural change: the degree of constraint

In order to have an impact, a policy instruments must alter an agent’s behaviour. We consider behaviour as the outcome of a decision-making process in which agents compare costs and benefits of alternative actions. As such, behaviour is the outcome of a decision based on a function of prices, the

lure of economic opportunities, the threat of sanctions, the availability of useful information, concern with reputation, and various intrinsic motivations. The way in which a policy instrument influences this decision-making process is the central element of the instrument taxonomy proposed above. Basically, three options exist:

- a. alter the set of actions open to agents (direct regulation);
- b. alter the costs-benefit ratio of different actions directly by external intervention (MBIs);
- c. alter the costs-benefit ratio of different actions by changing the internal value structure of the agent (suasive instruments).

Direct regulation simply *limits the set of feasible actions* by prescribing or prohibiting certain actions. Direct regulation restricts an agent's freedom of choice. MBIs on the other hand do not limit the set of actions but *alter the costs and benefits of feasible actions* with the aim to change the preference ranking in such a way that environmentally beneficial actions become more attractive. The motivation relied upon here is that if more appropriate behaviour is made rewarding in the eyes of the agents involved, attitudes and behaviour will 'automatically' shift in favour of these socially more desirable alternatives. In contrast to direct regulations, MBIs allow agents the freedom to respond to certain stimuli in a way they themselves think is most beneficial. The final approach seeks to *change the perceptions and priorities within the agent's decision framework*. A full internalisation of environmental considerations within the preference structure of the agent is aimed at. For this, more subtle and soft persuasion or deterrence strategies such as education, information, labelling, training, negotiation or public blaming are used. As with MBIs the set of possible actions is not altered. It is the ordering of the alternatives that might change. In contrast to MBIs however, the altering of options is achieved by altering the agent's (internal) value structure. Alberini and Segerson (2002) argue the main difference between suasive instruments and the other categories is the (in)ability to impose unwanted costs on polluters of the latter.

Each taxonomy, however, is to some extent artificial. Bressers and O'Toole (1998) even attribute the limited theoretical advance in the study of policy instruments partly to an exaggerated interest in the proliferation of overlapping and somewhat incompatible instrument typologies. Labelling an instrument as command and control, market-based or suasive, although useful analytically, overlooks the fact that every tool is actually a hybrid of all these forms (Dietz and Stern, 2002). Legal instruments are often accompanied by financial sanctions, while economic instruments are anchored in legal regulations (Bressers and Klok, 1988). Regulations can be non-complied with depending on the cost between compliance and non-compliance. The strictness of the enforcement policy (e.g. the amount of controls, the level of sanctions) determines the cost-benefit ratio of compliance versus non-compliance. Implementing MBIs also involves regulation-like actions like designing institutions that

will implement tradable permits or pollution taxes, determining the level of pollution allowed, the tax rate or penalties for breaking the rules. On the other hand, drawing up command-and-control regulations or MBIs has some persuasive impact as well. Moreover, regulations and MBI are normally accompanied by public information campaigns to inform the target group of their existence and content. Using subsidies as an example, Bressers and O’Toole (2005) claim that next to economic incentives, communication, support for existing rules and the activation of the networking among and with the target groups are all potential impacts of the instrument on the target group. Systematic investigation of the Dutch effluent charges shows that about half of the impact of this economic instrument can be attributed to the communicative modes of operation such as: communication about the policy problem and possible solutions, a disruption of habitual behaviour, the encouragement of more legitimacy for environmental-rule enforcers and the activation of others in the network (Bresers and Lulofs, 2004). Many voluntary approaches in turn are developed against the backdrop of future regulation. Some types specify emission targets or recycling targets to be met. As such these hardly differ from command-and-control-like regulations. Sinclair (1997) claims that the theoretical distinction between command and control and self-regulation is highly blurred in practice. Rather than focussing on the content of a specific policy tool, the pivotal question is how the behavioural change is aimed at. Table 1-1 presents an alternative typology of policy instruments based on who determines the ends and means of policy (Jordan et al., 2005). It clearly reveals the extensive overlap between main sub-types of policy instruments. For instance, forms of regulation are found in three of the four cells.

Table 1-1: A simple typology of instrument types

	The state specifies the goal to be achieved	The state does not specify the goals to be achieved
The state specifies how the goal is to be achieved	Regulation (e.g. linking an emission target to the use of a certain type of technology); fiscal incentives (e.g. tax reductions for a less polluting technology)	Technology-based regulatory standards (e.g. BAT)
Non-state actors specify how the goal is to be achieved	Most negotiated agreements; some MBIs; some regulations (e.g. environmental quality objectives)	Environmental management systems; most MBIs; some negotiated agreements; eco-labels

Source: Jordan et al. (2005)

1.2.2. *Internal or external motivation*

The suasive technique that aims to modify agents' internal value structure is frequently considered as little effective. There is no obligation involved; the regulated is left free whether to respond to the reasoned argument and moral persuasion of the government or not. Suasion is the softest and most lenient instrument in the government's tool-kit. Especially when it comes to abating environmental pollution where free lunches are seldom, advocates are blamed to have a naïve belief in corporations. Profit maximisation, it is stated, is the inherent *raison d'être* of companies and voluntary pollution abatement does not fit in here. As such coercion, in the shape of regulations or economic instruments, is needed to change behaviour. Moral appeals will not induce behavioural changes within profit maximising entities.

The suasive approach however entails the advantage that it changes the internal preference structure of the agent. The agent is internally motivated instead of externally. This implies that the change in behaviour is likely to be consistent and holistic. With *consistent* we mean that the change in behaviour that results from a new perspective on the norms and values of an agent is likely to stay, even when the instrument is removed. This in contrast with a behavioural change induced by a regulation or a MBI that will only remain as long as the external stimuli is in place. *Holistic* implies that the behavioural change might not be limited to the change induced by the instrument. A subsidy on the insulation of houses will bring down the emissions of greenhouse gasses due to heating and cooling. An information campaign on inefficient heating and cooling might however invoke a number of reactions: people might invest in new heating/cooling systems, insulate their house, install double glass windows, turn down the indoor temperature... Besides it might trigger awareness on issues as energy consumption, lightening, water use and other environmental impacts. This in contrast with the aforementioned subsidy on insulation of which the result might even be countered by a rebound effect. The rebound effect points to the fact that people might cool or heat more as the cost of additional heating or cooling is diminished. The gain in efficiency is countered by an increase in the activity level.

The pessimistic view on suasive instruments is inherently built on a narrow view on the motivations of a corporation. Without doubt, achieving a sufficiently high profit rate is primordial to survive in the long run. However, companies have a diversity of motivations and it should not be assumed that deterrence is the principal weapon available to regulators. Other motivational drivers might be equally important (see e.g. Gunningham and Rees, 1997). These include the effects of negative publicity, informal sanctions and shaming, incentives provided by various third parties, the significance for private enterprise of maintaining legitimacy, and the necessity to maintain co-operation and trust. Each

organisation has its own order and logic. It also has its own values, core beliefs, and institutional memory.

However, the assumption that companies need to have at least some sense of social consciousness is no condition sine qua non for suasive instruments to have any impact. Instruments like labels, information, or awareness campaigns might be attractive for companies from a purely economic viewpoint. They might attract green consumers and investors or reveal the existence of profitable environmental investments. Concluding, suasion might even work in an a-ethical environment.

1.3. Are voluntary approaches policy instruments?

Given the central element of voluntarism, one might question whether voluntary approaches are in fact policy instruments. Vedung (1998) defines policy instruments as “the set of techniques by which governmental authorities wield their power in attempting to ensure support and effect social change”. If a company voluntarily chooses to design its product according to the requirements of an environmental product label or to publish an environmental report for its stakeholders, there is no government involvement in these actions. Should we label these actions as policy measures?

For a number of approaches (public schemes and negotiated agreements; see section 2) the answer is clearly affirmative as public regulators play an active role in their development. Agreements that are negotiated between regulators and industry representatives are a straightforward example, just as environmental management standards that have been written and are verified by environmental agencies. In a number of cases, an obvious link with politics is however absent, as in the example of the environmental report. In this case, there is only an indirect link and perhaps the label “policy instrument” is not appropriate here. We call upon the Coase theorem for a discussion on this issue.

An important feature of the Coase theorem is that it stresses the reciprocity of environmental problems between polluters and victims. Environmental resources have alternative uses. When a polluter uses a river to dispose of some residuals of his production process, this limits the use of the river by other actors. The fact that the latter might claim to be entitled to benefit from a non-polluted river, however, also affects the polluter. As such, a field of tension between polluters and victims is created. Basically, there are two ways to smooth out this conflict situation: with or without government intervention.

Coase (1960) states that the optimal level of pollution (abatement) can be the outcome of a bargaining process between polluters and victims. Two conditions are necessary: the absence of transaction costs

and the existence of properly defined property rights. Depending on the party that holds the rights, the polluter could compensate the victim for the damage caused or the victim could pay the polluter to reduce the environmental damage. In each case, this will be done up to the point where the marginal abatement cost for the polluter equals the marginal benefit of avoided pollution for the victim. According to Coase, as long as property rights are defined, there is an automatic tendency to move towards the social optimum, independent of the initial allocation of the property rights. As such, the Coase theorem serves as an argument against policy intervention.

Unfortunately, the real world is pervaded with transaction costs and free-bargaining situations are highly unlikely. Examples of transaction costs include information costs on the nature and extent of environmental damage, costs of identifying, finding and addressing the relevant parties, the cost of litigation, negotiation costs, etc. Many of these costs are bound to the collective character of most pollution problems. As such, policy intervention becomes inevitable when the level of transactions costs obstructs a bargaining solution to arise. The trade off between polluters' and victims' interests now takes place in the hands of democratically chosen representatives. Policy makers are assumed to approximate social optimum based on estimates of marginal damage costs and marginal abatement costs. The government acts as a democratically legitimized responsive mediator between interests.

Concluding, environmental policy instruments can be regarded as remedies for situations with high transaction costs, hindering voluntary negotiation between polluters and victims. Examples of binding contracts concluded between polluters and victims are seldom. However, voluntary approaches can be considered as variants to binding contracts. If a company implements a certified environmental management system it takes an action to smoothen the slumbering conflict with a number of stakeholders (local community, environmental organisations, employees...). This reduces the probability that the conflict will escalate. At the same time, the probability that victims will push the government to take action declines. In this perspective voluntary approaches can be considered as alternatives to policy instruments; self-regulation to obviate policy regulation.

2. The many shapes of voluntary approaches

Within the threefold typology presented in the previous section, voluntary approaches were grouped within the suasive category. These approaches only depart from moral persuasion to induce behavioural change but have some attractive appeal due to their consistent and holistic impact. Finally, we argued that notwithstanding the central element of voluntarism, they can be considered as policy instruments for achieving public objectives or at least as close substitutes.

This section will provide some more background on voluntary approaches. We closely follow the classical taxonomy of voluntary approaches suggested by Lévêque (1998). Based on the degree of the public sector's involvement, voluntary approaches are grouped into unilateral commitments, public voluntary schemes and negotiated agreements. In addition, some examples are offered to better grasp the differences between the subtypes of voluntary agreements.

2.1. Unilateral commitments

Unilateral commitments consist of environmental improvement programmes established by firms or business associations and communicated to their stakeholders. In these “self-regulatory” initiatives, firms have total discretion in the design of the programme. While the authorities can applaud and assess these efforts, the targets as well as the way they will be met and controlled are determined without the involvement of the authorities. In many cases, the objectives are qualitative instead of quantitative, including codes of conduct and communication initiatives. The freedom companies have in developing these programs, gives rise to a wide variety of commitments implemented as is shown in textbox 1 below.

Textbox 1: Examples of unilateral commitments

A well-known example is without doubt the Chemical Industry's Responsible Care Program. The initiative was started in 1985 and focuses on improving performance, communication and accountability. Responsible care companies commit to work together to continuously improve the health, safety and environmental performance of their products and processes. The program helps companies by identifying and spreading good management practices and promotes mutual support between companies and associations through experience sharing and peer pressure.

(www.responsiblecare.org)

Volvo Europe Truck situated in Ghent has announced that it will become the first CO₂-free company in Belgium. A new heating system on biomass will be installed and the existing system will be adapted for burning bio-fuel. Next, three windmills will be installed to produce energy for the company. The project is carried out together with Electrabel, a major electricity producer in Belgium. The project will be implemented in 2007 and the investment costs is estimated at about 10 million euro.

(www.volvo.com)

Global Ethics is a company that produces One water. The company commits that all profits from the sales of One water bottles are used to build PlayPumps. A PlayPump is a water pumping system that

works by children playing on a roundabout that pumps fresh clean water from underground into storage tanks for the local community. Currently each 14 days a pump is installed in Africa.

(www.we-are-one.org.uk)

In fact unilateral commitments are pledges from companies without any legal enforceability. Firms can withdraw from their commitments at any time only risking some cost in the form of reputation loss. Not surprisingly, various stakeholders look upon these initiatives with suspicion. Unilateral commitments are considered by them as mere public relation exercises involving only communications of no-regret initiatives or business as usual prognoses without any added value. They argue that targets are set at the lowest common denominator, are hardly measurable and their enforcement is weak or non-existent.

Self-regulation lacks many of the virtues of conventional state regulations in terms of visibility, credibility, accountability and compulsory application. These claims might however be countered. As a major motivation is to protect a company's reputation, credibility is crucial. Involving stakeholders in the self-regulatory process or seeking external verification or validation of compliance with the program will enhance its credibility. Firms may delegate monitoring and dispute resolution to a third party in order to strengthen the trustworthiness and the environmental effectiveness of their commitments. Communication about the project is another important point to increase transparency and reliability. As the Chemical industry puts it in their Responsible Care Program: "don't trust us, tack us". Especially when the targets are easy to check, as in the example of Volvo and One water, this might help to convince critics.

2.2. Public voluntary schemes

Within this type of voluntary approach participating firms agree to standards that have been developed by public bodies such as environmental agencies. Whereas companies are free to participate or not, the criteria for membership are unilaterally defined by the public body. These schemes consist of "take-it-or-leave-it"-options. In order to stimulate companies to choose 'take-it', benefits in the form of R&D subsidies, technical assistance or reputation incentives (ecological logo or certification symbol) are often provided. Especially this latter function of signalling a company's environmental behaviour is appealing as the credibility of such programs is high due to the public character of the initiator. This clearly contrasts with unilateral commitments. The eligible program criteria might take the form of technology, performance or management prescriptions. Some examples are provided in textbox 2.

Textbox 2: Examples of public voluntary schemes

The EU Eco-Management and Audit Scheme (EMAS) was launched by the Council Regulation No 1836/93 of 29 June 1993 and is open for company registration since 1995. EMAS draws up standards for a company's environmental management system. It also requires companies to establish an environmental policy and to publish externally validated environmental statements on its environmental performance. By 2007 over 5000 sites were EMAS registered.

(<http://ec.europa.eu/environment/emas>)

The US 33/50 Program targeted 17 priority chemicals of the chemicals to be reported by companies to the Toxic Release Inventory (TRI). The Program's goal is a 33% reduction in the releases and transfers of these chemicals by 1992 and a 50% reduction by 1995, measured against a 1988 baseline. The Environmental Protection Agency asked companies to participate on a voluntary basis in this national effort to reduce the releases and transfers of these chemicals. Companies were asked to draw up their own goals. Nearly 1300 companies (13% of all eligible companies) participated and their facilities accounted for more than 60% of the releases and transfers of the 33/50 chemicals reported to the TRI in 1988. The program achieved its goal in 1994, one year ahead of schedule.

(EPA (1999) 33/50 Program: The Final Record; www.epa.gov/oppt/3350)

As Prakash and Potoski (2006) point out, these schemes act in a similar way as club goods, offering members the rewards of affiliating with the club's brand reputation from which non-members are excluded. There is some ambiguity with respect to the nature of the external body developing these kinds of schemes. Does the nominator public imply the initiator is part the government carrying authoritative force or is this not necessary? What to do with similar schemes developed for instance by non-governmental organisations or not-for-profit organisations like the Fair Trade label from the Fairtrade Labelling Organizations International (FLO), certifications programs from the Forest Stewardship Council, the Rainforest Alliance or even the ISO 14001 standard developed by the International Organization for Standardization? Many Member States of the EU give the similar incentives in the form of regulatory flexibility, public procurement, support funding or technical assistance to EMAS as well as ISO 14001 certified companies (EC, 2004). These initiatives cannot be considered as typical unilateral commitments as they are not developed by the discretion of participating companies. Besides, in this era of growing mistrust in government bodies, public's credibility towards various non-governmental organisations is expanding.

Including these non-governmental schemes in this category however has two drawbacks. First, as they are by nature non-governmental, they are harder to classify as policy instrument. Second, it blurs the distinction between public schemes and unilateral commitments, especially since there is a trend to

base unilateral commitments on external guidelines (like the Global Reporting Initiative for environmental reporting) and to include third party verification (e.g. more and more common in Responsible Care). Based on these considerations we will consider these types of similar schemes as unilateral commitments and reserve the denominator of public voluntary schemes for programs developed by government bodies. However, it should be stressed that the distinction between the different types of voluntary approaches is sometimes blurred. In fact it implies that similar initiatives like e.g. environmental management standards (EMAS or ISO 14001) are grouped in different categories.

2.3. Negotiated agreements

The European Commission (1996a) adopted the following definition for describing negotiated agreements: ‘agreements between industry and public authorities on the achievement of environmental objectives’. Such agreements can be considered as private contracts between two parties, of which one carries authoritative force, with an eye on achieving public goals. Usually, the industry commits itself to meet the environmental target that has been set by negotiation with public authorities. The public authority on the other hand usually commits itself to do nothing, which should be understood as not to introduce new legislation unless the voluntary action fails to meet the target. In fact, most agreements are entered into against such a backdrop of threatened legislation. The regulator’s obligation might also include providing specified financial or technical assistance, granting a particular permit, creating supportive legislation, granting flexibility etc. Such agreements are frequently signed with an industry sector, although agreements with individual firms are also possible. Nevertheless, there is great variety on other aspects such as the legal character, the liability rules, the environmental objective etc. One example is presented in textbox 3.

Textbox 3: Example of a negotiated agreement: Agreement concerning the use of CFCs as propellant in aerosols

This agreement was signed in 1988 between the Belgian federal State Secretary for the Environment and the Belgian Aerosol Association. The agreement was concluded against the background of rising concern on the negative influence of CFCs on the ozone layer and the Protocol of Montreal concluded in this regard. The industry admitted that it was technically and economically feasible to substitute CFCs by less polluting alternatives. The policy-makers on the other hand favoured a voluntary solution partly because direct regulation like product norms were hard to establish at federal level due to poorly defined responsibilities between the federal level and the regions as a consequence of subsequent State reforms.

By the agreement, the Belgian Aerosol Association committed itself to decrease the amount of CFCs in aerosols in order to achieve a reduction of 90% by 1990 compared to the level of 1976.

From the three subtypes, this voluntary instrument bears the closest resemblance to traditional regulation. The time when direct regulation was unilaterally imposed upon business without a certain extent of discretion in the implementation has faded. Industry participates in the policy process of design and implementation, as well in the form of formal consultation as in the form of lobbying. Rather than being two distinct ways of policy making, they are specific manifestations along a continuum. In this picture, negotiated agreements are discussed in an open-minded atmosphere between co-operative players that acknowledge their responsibility allowing a smoother achievement of environmental objectives. This contrasts with the conflict-ridden route of legislation developed in a mistrustful atmosphere between partners with conflicting interests. In fact, each concrete policy act, be it a negotiated agreement or a regulation, holds an idiosyncratic place on this continuum. Some regulations are easily acceptable whereas some agreements have only been concluded after a long-lasting and hard bargaining process.

Next to the process in which the instrument is developed, the juridical character of the output of the policy process could be called the distinctive difference between a regulation (legislation under public law) and an agreement (contract between parties). However, this should also be nuanced. Some countries or regions like Denmark and Flanders for instance have developed a juridical framework for negotiated agreements giving them a legally binding status (Barth and Dette, 2001). In the Netherlands, agreements are characterised by individual liability and legal binding status (De Clercq et al. 2001). Agreements have the status of contracts of civil law (Delmas and Terlaak, 2002). This is achieved by linking the agreements to the local permit system. This “theoretical” enforceability should however be nuanced when looking at the actual practice. According to an evaluation study on the Dutch covenants carried out by Bressers et al. (forthcoming) there are serious doubts about the motivation of local authorities to really implement this formal safeguard via the licensing system. In some agreements free-riding occurred, which seems to indicate that local authorities applaud companies that adhere to the stricter standards put forward in the covenants rather than strictly obliging them. The close relationship between local authorities and the companies on their territory might explain this rather lenient enforcement approach. At the same time it is needless to point to the fact that the willingness as well as the capabilities to enforce all existing environmental regulations is absent in many countries.

Concluding, neither the nature of the policy process nor the actual output of the process clearly distinguishes negotiated agreements from direct regulation. The creation of negotiated agreements as a

distinct policy instrument is rather a manifestation in a global trend from vertical to horizontal policy making. Horizontal policy making refers to the fact that the regulator less and less acts as an insulated and dominant initiator of regulations. Instead, a wide range of actors are actively encouraged to participate formally and informally in the policy-making process (cfr. Chapter 2, section 2.3). This remark especially holds for countries where negotiated agreements fulfil a crucial role in environmental policy like Germany and The Netherlands (EC, 1996b).

3. Summary

Within the large amount of instruments that are in the regulator's toolkit, voluntary approaches are considered as a new and distinct subcategory. Voluntary approaches differ from other policy instruments by the fact that they rely on a certain degree of voluntary business participation. Voluntary approaches are grouped into the category of suasive instruments. Suasive instruments depart from a lenient technique to influence behaviour by altering agents' internal norms and values. By aiming at internally motivated behavioural change, the attractiveness of voluntary instruments is their ability to induce a consistent and holistic impact. This means the behavioural change is expected to become firmly embedded in the actors' behaviour and might serve as a catalyst for additional self-regulatory initiatives. This expectation results from the fact that companies voluntarily agreed to and actively participated in such initiatives. This contrasts with the more coercive modes of intervention by market-based-instruments and especially command-and-control regulation, which are often met with frustration by the business community.

The notion "voluntary approaches" should be considered an umbrella term encompassing a wide range of different initiatives with the common characteristic being that some level of voluntary business involvement is required. However, the voluntary aspect might be limited to the decision to participate or might to a large extent be induced by the regulatory or other stakeholders pressures. Commonly, a distinction is made depending on the degree of involvement by public regulator. In unilateral commitments the goals and contents are totally determined at the discretion of a company or a business association. On the contrary, public voluntary schemes are developed unilaterally by a public body and a company can only choose to participate or not. Negotiated agreements on the other hand, are the result of a negotiation process between public and private actors.

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Chapter 2: Explaining the introduction of voluntary approaches

“We will not solve environmental problems by simply adding a few new directives every year to our existing 270 or so pieces of European environmental law, especially if we discover later on that these directives are not implemented by the Member States... We need a broader range of instruments to tackle ever more diffuse sources of environmental pressures.”

European Commissioner for the Environment M. Wallström at the presentation of the 6th EU Action Plan (http://ec.europa.eu/environment/emas/about/enviro_en.htm)

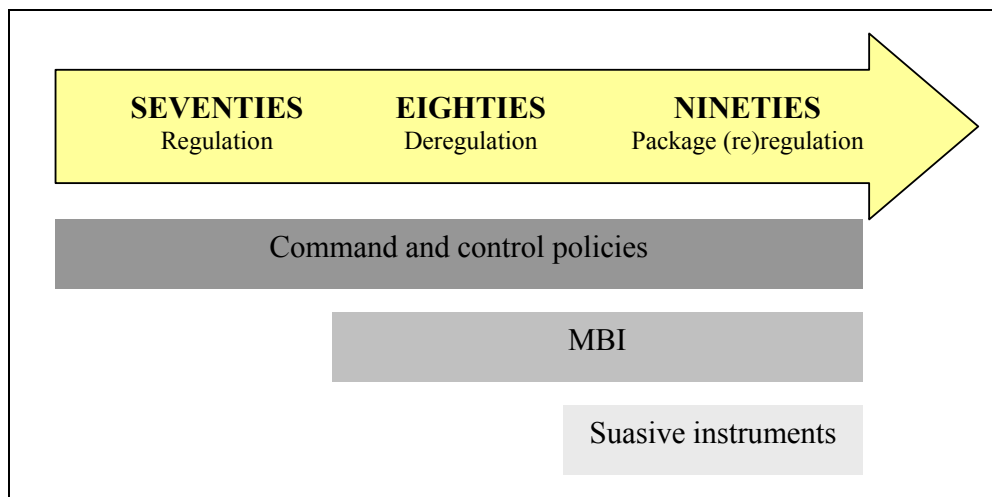
Voluntary approaches are said to be invented by practitioners rather than by theorists. Many have developed spontaneously as a pragmatic response to complex situations for which no straightforward solution was at hand. This chapter offers three different perspectives on the introduction of voluntary approaches in environmental policy. The first section takes an instrumental perspective. It explains the creation of voluntary approaches from a pragmatic viewpoint. It departs from the observation that the results achieved with direct regulation and market-based instruments are in some cases limited which creates incentives for the development of new instruments. The second section focuses on the role of the government. It claims that policy making is evolving towards a multi-actor process. Instruments like voluntary approaches are supposed to fit into this trend away from unilateral governance. Next a corporate perspective is provided in section three. We present a stakeholder view on company behaviour to explain why some might voluntarily choose to over comply with existing environmental regulations. Finally, section four shows, based on the regulation dilemma, how a cooperative stance from government and companies along the lines discussed in the previous sections, might be beneficial to both parties.

1. An instrumental perspective: looking for optimal policy mixes

Voluntary approaches are said to form the third wave of environmental policy (Croci, 2005). The first wave consists of direct regulations, the second of MBIs. As shown in figure 2-1, these waves fit in more general (economic) policy trends that occurred in the post-war period in western countries (e.g. Lemaire, 1998). Keynesian-inspired governments dominated the first period and deemed regulatory intervention necessary to correct market failures. Calls from the neo-classical monetarist and liberalist movement on regulatory failure and market efficiency lead to a deregulation movement in the eighties.

By the nineties improved (re)regulation became the general mind-set. Concerns on national competitiveness in a global economy and prominent public pressure movements pushed policy makers to new ways of intervention.

Figure 2-1: Overall trends in environmental policy making



1.1. From command and control policies...

The first rise in environmental regulations is situated in the seventies (Prakash and Potoski, 2006). The regulatory framework was gradually expanded in the subsequent years. Regulations were media-specific (air, water and soil) and especially targeted the most prominent polluters. That policy makers resorted to direct regulation is straightforward. First, regulation was the prominent mode of intervention at that time and a legislative framework was needed as a starting point. Next, regulation is a very effective mode of policy intervention, especially as the environmental emissions were easy to spot and attributed to large, stationary polluters. In addition, regulations have the advantage of giving a clear signal of no tolerance and strong action. In an era of growing environmental concern (“Silent spring” published in 1962, “Limits to growth” in 1972) and social mobilisation (the World Wild Fund for nature was set up in 1961, Greenpeace in 1971), an authoritative government answer was needed. The regulatory move was based on the assumption that without detailed orders from the government, firms are likely to sacrifice a cleaner environment for their own profits (Prakash and Potoski, 2006). Command and control regulations achieved considerable success, especially in terms of reducing air and water pollution and improving the quality of the natural environment (Cole and Grossman, 1999).

However, while regulations were successful in securing the first tranche of emission reductions from previously unregulated industries, more than two decades after their introduction they are now viewed

as increasingly burdensome. The regulatory approach has been criticised, particularly by economists, for inhibiting innovation, high compliance costs and inflexibility (Jaffe et al., 1995; Stavins and Whitehead, 1997). Industry bemoans the financial costs such regulations impose as well as the intrusiveness of the process, which often dictates their technology choice. Regulators on their side bear the burden of keeping abreast of technological developments in many different industries. The fragmentation to media (water, air...) and class (climate, pesticides, hazardous substances...) created an overly complex and vast system that moved beyond the management capacities of the authorities (Powers and Chertow, 1997; Fiorino, 1999). One of the final weaknesses of existing regulations is that they have focused on the big fishes, i.e. large and easy to identify sources, both because these were obvious targets, but also to minimise the information, monitoring and measurement burdens on regulators (Gunningham and Sinclair, 2002). Moreover, regulations especially relied on end-of-pipe solutions.

As the focus turned from large polluters to dispersed, non-stationary pollution sources and complex environmental problems, the diminishing returns of command and control became more obvious. Such policy settings exacerbate the weaknesses of command and control policy: writing regulations finely nuanced for pollution problems that are highly variable, technical and diffuse is quite burdensome and monitoring and inspecting these dispersed sources is yet more expensive and onerous (Prakash and Potoski, 2006).

1.2. ... complemented with some market-based instruments...

Economists advocate the use of MBIs as an alternative for direct regulation (e.g. Buchanan and Tullock, 1975; Baumol and Oates, 1988). In 1972, the OECD adopted the “Polluter-Pays-Principle” as background economic principle for environmental policy. Most importantly, economic theory argues that MBIs enable a pollution abatement target to be met at lower overall costs compared to traditional regulations. Economic instruments also allow for a more hands-off regulation and decentralized decision-making, giving greater freedom to the regulated agents. Austin (1999) denotes three key advantages of market-based instruments over direct regulation:

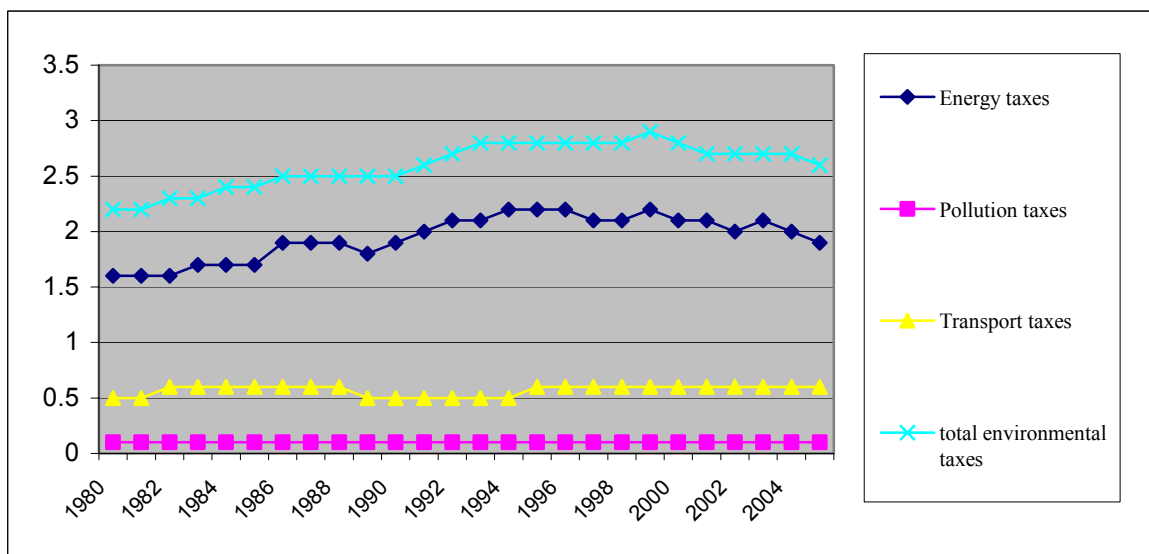
- ***Static efficiency***: implies the overall cost of achieving pollution reduction is minimized by creating a framework that allows for differential responses by companies depending on their ability to make reductions. Marginal abatement costs between firms are equalised.

- **Dynamic efficiency:** stresses that by placing a price on pollution, companies have an ongoing incentive to make further emission reductions over time. As such market-based instruments accelerate the innovation of new abatement technologies.
- **Revenue raising:** implies the regulator raises funds which can be used to support environmental, social or economic goals. This advantage brings along a distribution issue. A popular theme in this regard is the double dividend argument, which proposes a (revenue neutral) tax shift from labour ('the good') to environmental pollution ('the bad'). This way two objectives may be reached simultaneously: reducing pollution and increasing employment.

In addition, economic instruments may provide greater flexibility in dealing with smaller and diffuse emissions sources which collectively contribute large amounts of pollution, but which until now have been largely ignored in favour of controlling the pollution from more obvious sources (Austin, 1999).

The total number of MBIs used in OECD countries has grown steadily since the early 1970s (OECD, 1997). The diversity now extends from ordinary subsidies and emission charges to more complex tradable permit systems. About 100 market-based instruments were in place in 14 OECD countries by 1987, rising to 150 by 1993 (OECD, 1997). In 2007, the OECD/EEA database counts about 375 environmentally related taxes and some 250 environmentally related fees and charges (OECD, 2007). However, two comments should be made. First, their use shows signs of stabilisation from the mid-nineties (Eurostat, 2007). Figure 2-2 shows the revenue from environmental taxes as a percentage of GDP. One notices that the level has slightly increased until the mid-nineties. Next, the level stabilized for some years but shows a declining trend in the last years. It should be noted that the level of the energy taxes largely determines the trend of environmental taxes. Second, many of the MBIs implemented were of little significance and most of them were not really intended to have an allocative impact but were imposed rather with an eye on boosting the government's overall revenue (Austin, 1999). In 2005 the shares of different environmental taxes were as follows: energy taxes (74%), transport taxes (23%) and pollution and resource taxes (3%) (Eurostat 2007). This points to the financial instead of the incentive function of environmental taxes. The OECD/EEA database shows that environmentally related taxes are levied almost exclusively on households and the transport sector (OECD, 2007). The OECD report on MBI of 1989 concludes that: "*environmental policies in the OECD Member countries were basically command-and-control policies with some financial and economic add-ons but one should not be deluded into thinking that OECD countries employed market based instruments on any significant scale*". Figure 2-2 reveals that this conclusion might still hold for the current situation and as such motivates the search for new policy instruments.

Figure 2-2: Environmental taxes in the EU (1980-2005) as percentage of GDP



Source: Eurostat, 2003 and Eurostat, 2007

Figure 2-2 supports the picture that MBIs somewhat failed to deliver. To some extent the EU wide CO₂-tax proposal of 1992 marks the turning point. The tax would serve as a materialisation of Europe's leadership in environmental policy, but the Member States failed to agree on the proposal (Padilla and Roca, 2004). Moreover, Bressers and Huitema (1999) claim that even when economic instruments are implemented, they are usually not shaped according the prescriptions made by economic theory.

Several arguments are put forward to explain the implementation failure of MBIs. Largely, all are related to one of the following evaluation-criteria for environmental instruments: effectiveness, efficiency and legitimacy. Regulations are considered more *effective* in reaching established targets. The results of MBIs depend on the actions they trigger by the ones addressed. Especially in cases where marginal damage costs raise fast after a certain threshold level, command-and-control measures are favoured. Second, whereas *efficiency* considerations give the advantage to MBIs, one should not solely focus on abatement costs, but also consider administrative costs. MBIs are in many cases difficult to implement and enforce due to e.g. measurement and monitoring complexities or difficulties in choosing the proper tax base or setting the tax rate at the right level. Finally, there is the issue of *legitimacy*, which encompasses amongst others, the acceptability of the instrument. As indicated by the public-choice theory, the interests of those who are subjected to the instruments must be taken into account. The OECD report of 2007 points to the fear of losing international competitiveness in explaining the limited use of MBIs. This explains the use of numerous exemptions to environmental taxes granted to the most polluting sectors. In addition, left-wing parties and environmentalists have opposed taxes and charges for a long time, as they may be perceived as legitimating or condoning

environmentally harmful behaviour. It would be ethically wrong to allow polluters to buy themselves free to pollute our common amenities.

1.3. ... to policy packages including voluntary approaches

The discussion on the optimal instrument choice has long been an “or-or” discussion (e.g. Baumol, 1972, Weitzman, 1974; Buchanan and Tullock, 1975). Reasons for preferring one instrument over the other might involve ideological, political, legal, social, administrative, information, monitoring, enforcement or other considerations. Efficiency considerations make some point to MBIs as first best while others believe the effectiveness of regulations is decisive. However, instruments are usually analysed in ideal form and in a generic fashion. In practice, the complexities of the interactions between environmental, political and economic processes, as well as the dynamics of innovation prelude straightforward and simple broad-brush recommendations on instruments (Rist, 1998). Put differently, the effects of a policy are context-specific and depend on the way an instrument is put in operation (Bressers and O’Toole, 2005). As such, the discussion has turned from “or-or” to finding the appropriate combination of instruments to tackle a specific issue. The OECD (1994) concludes that

‘Partly based on empirical studies, there is much less dogmatism or rhetoric in the dialogue on environmental policy instruments. A pragmatic approach is beginning to prevail, in which one no longer is categorically in favour of or against certain types of instruments, and in which the interest is in realistic assessments of the pros and cons of different mixes of instruments in the specific policy contexts and applications contexts within which they are to operate.’ (OECD, 1994)

According to Bemelmans-Videc (1998) good governance implies the following evaluation criteria should play a role when selecting an instrument: effectiveness, efficiency, legality, democracy and legitimacy. *Effectiveness* refers to the degree of goal-realization. *Efficiency* refers to cost at which a certain objective is reached. *Legality* refers to the accordance with formal rules. *Democracy* refers to the correspondence with accepted norms in society and *legitimacy* refers to the degree to which government choices are perceived as “just and lawful”. These criteria however often compete or conflict, i.e. instruments that score high on one criterion often score low on other criteria. In this light, the idea of combining instruments is the consequence of the search for optimum solutions. Each policy tool has its vulnerabilities. Policy packages are needed which balance one instrument’s weaknesses against another’s strengths.

Moreover, Rist (1998) notices that policymakers usually face a situation where the problem is not well understood, where the choice of instruments is constrained and the consequences not all that predictable, and where the policy objectives are multiple, perhaps vague, and even at cross purposes. In practice, the complexity and interdependence makes that putting all hope on just one instrument is blunt. What is needed is a tailor-made policy package that consists of a number of instruments to overcome the disadvantages of another instrument or to reinforce another instrument's effectiveness. Effective regulatory design involves tailoring a particular combination of policy instruments to particular circumstances. Moreover, as much of our knowledge about policy instruments and in particular about what works and when, is tentative, contingent and uncertain, the optimal package will not be developed overnight. This suggests the need for adaptive learning, and for treating policies as experiments from which we can learn and which in turn can help shape the next generation of instruments (Gunningham and Sinclair, 2002).

Examples of instrument packages are multiple. In transport policy, governments combine taxation of vehicles and automotive fuels with vehicle and fuel efficiency standards, weight limits on heavy vehicles and speed limits. In waste policy, many governments combine landfill taxation with regulations on separate collection of waste fractions and recycling targets. In Flanders, negotiated agreements are concluded to organise the collection and treatment of waste fractions that introduce a levy to be paid when purchasing a new product (see research paper 3). In Denmark, concessions on a CO₂-tax have been granted to industries on the condition that they enter a negotiated agreement with the government to increase energy efficiency. The UK offers an 80% discount for energy intensive sectors that sign energy efficiency agreements with the government. In such packages the government uses the iron fist together with the silk glove. The negotiated agreements contribute to the acceptability confronted with industries' opposition on the tax. Another interesting observation is that the Netherlands and Denmark have highest percentage of pollution and resource tax revenues of total environmental tax revenue in the EU (Eurostat, 2003) and that these countries are also very active in the voluntary approaches area. Especially voluntary approaches are most viewed as complements to traditional policy instruments instead of as pure substitutes (Prakash and Potoski, 2006).

1.4. Pragmatism or rationalism

We presented this instrumental perspective from the underlying idea of pragmatism. We departed from the observation that the results achieved with direct regulation and MBI are in some cases limited which creates incentives for the development of new instruments. It turned out that voluntary approaches (combined with other policy instruments) might deliver a preferable outcome balancing

between effectiveness, efficiency and legitimacy concerns. As such, our pragmatic viewpoint not necessarily corresponds with a sub-optimal connotation.

The transaction cost perspective for explaining voluntary approaches, presented in the preliminary chapter, already revealed that in certain occasions it might be rational to seek alternatives to hierarchical policy-making. For instance, when information is hard to get for the policy-maker, it might be rational to shift the responsibility to the actors who are in a better position to assemble the necessary information. A common example is the development of environmental management standards, a task that the government has ‘outsourced’ to the business community. We have also claimed that higher levels of trust between social actors and the government reduce the need to resort to highly detailed and extensive contractual arrangements which go along with the hierarchical mode of solving coordination problems. As such, in policy networks with high levels of interconnectedness and trust between the actors, voluntary approaches might be a far more efficient and fast way of policy-making.

2. A governmental perspective: towards multi-actor governance

2.1. Advantages of voluntary approaches

By resorting to voluntary approaches, the government to some extent forgoes from its public responsibility. The government neglects the task of safeguarding a clean and healthy environment. Which advantages could motivate the government to hand some of its power to the business community? We present some arguments often found in the literature that could have an impact on the following evaluation criteria for environmental instruments, but also point to some dangers:

- **Effectiveness:** Voluntary approaches could contribute to the effectiveness of environmental policy in at least two ways. First, non-compliance problems might be reduced as one can expect an increased internal motivation from business. Moreover, limited resources can be invested more rationally by focussing on companies that do not participate in voluntary initiatives like self-audits or EMS. Second, time lags in traditional environmental policy making might be overcome by surpassing the often time-consuming legislative route. Besides a more flexible approach enables to adapt quickly to changing circumstances. Transferring some responsibility to the business sector on the other hand brings along the danger of regulatory capture: industry might exploit this opportunity to bring down environmental targets. Moreover, industry might use voluntary approaches to create an image of ‘green enlightenment’ that diminishes citizens’ request for stricter environmental regulations.

- **Efficiency:** Especially compared to the command-and-control type of regulation, voluntary approaches present an opportunity to increase efficiency. When companies are left to choose their own route to improved environmental performance, one can expect they will opt for a cost-minimizing route to pollution abatement and target achievement. Besides, voluntary approaches might promote cooperation amongst companies whereas traditional instruments only evoke responses on an individual company basis. This is important when economies of scale, learning effects or synergies can be exploited. Governments on their side may save on administrative and control costs. It should however be emphasized that these efficiency gains are not automatically materialised. A burden sharing mechanism at sector level, for instance, is not frequently developed within negotiated agreements.
- **Legitimacy/acceptability:** As business is involved in the policy-making process, the acceptance of voluntary approaches is likely to be high. For other interested parties like trade unions or environmental pressure groups, the acceptance might however shrink, as it may be perceived as a withdrawal of the government as a protector of public interests and a freeway for firms to pollute.

2.2. Government failure

Welfare economics argues state intervention is needed (and should be limited) to correct rather well defined categories of market failure, such as those arriving from monopolies, externalities, insufficient provision of public goods and imperfect information (Trebilcock, 2005). As public choice theory however pointed out, one should not consider the authority as some enlightened officialdom with only social welfare in mind. On the contrary, politicians as well as bureaucrats are self-interested people: politicians' first interest is to attain or retain office; bureaucrats will be motivated to promote policies that maximise their power, pay and prestige. Related to this, Bressers and Huitema (1999) claim that government action should be understood from its idiosyncratic characteristics rather than from an economic-social welfare point of view. The overall driver of policy-makers is to obtain political support from various target and interest groups. As such, policy makers often have to take a multitude of decision criteria in account (e.g. cost effectiveness, competitiveness concerns, equity concerns, distribution effects etc.).

In addition to the somewhat provocative considerations above, many question whether government regulation is a panacea for solving all problems (Coase, 1960; Ostrom, 1990). After all, governments themselves sometimes have a tendency to fail (Wolf, 1979; Le Grand, 1991, Dollery and Worthington, 1996). There is no assurance that politicians and bureaucrats will draft and enforce the optimal law

given the complexity of many environmental problems and the available resources at hand. In fact, solving environmental problems would be easy if government officials had perfect information and there were no transaction costs associated with developing, monitoring and enforcing policy decisions. Unfortunately, real-world complexities and uncertainties exceed the government's ability to perfectly predict future events, specify policies for all circumstances, and devise low-cost mechanisms to ensure that the policy outcomes match specified objectives. Scarce resources with respect to information, time, finances, expertise etc. imply that bounded rationality is the highest one can aim for.

Webb (2005) points to the following “new realities” that governments face in the twenty-first century:

- Factors that highlight some of *the limits of the state*, such as the increasing significance of international influences beyond the control of national and sub-national governments, the continuous calls on governments for “no new taxes”, industry pressures to minimize regulatory burden and thereby enhance their capacity to compete, and the rise in importance of technological issues.
- Recognition that *actors other than the state* have both an interest in and a capacity to carry out governing functions, be they industry associations, nongovernmental organizations, communities or individual citizens.

Bressers and O'Toole (1998, p. 215) claim that the surge of interest in policy networks “*has been fuelled partly by recognition of the complex array of actors involved in policy choices as well as the inability of contemporary government to move unilaterally without incorporating the constraints, preferences and resources of other social actors*”.

2.3. Horizontal policy-making in a multi-actor network

Janicke and Weidner (1997) argue that nations in similar stages of development face similar issues and move through comparable phases in environmental problem solving. Glasbergen (1996) developed a learning model to explain policy change as an effort to develop three kinds of capacities for policy learning:

- **Technical learning:** consist of a search for new policy instruments in the context of fixed policy objectives. Change occurs without fundamental discussion of objectives or basic strategies. Policy makers respond to demand for change with “more of the same” kinds of solutions: more regulation, oversight and enforcement. Technical learning is characterised by a high degree of technical and legal proficiency, but also narrow problem definitions, institutional fragmentation, and adversarial relations among actors.

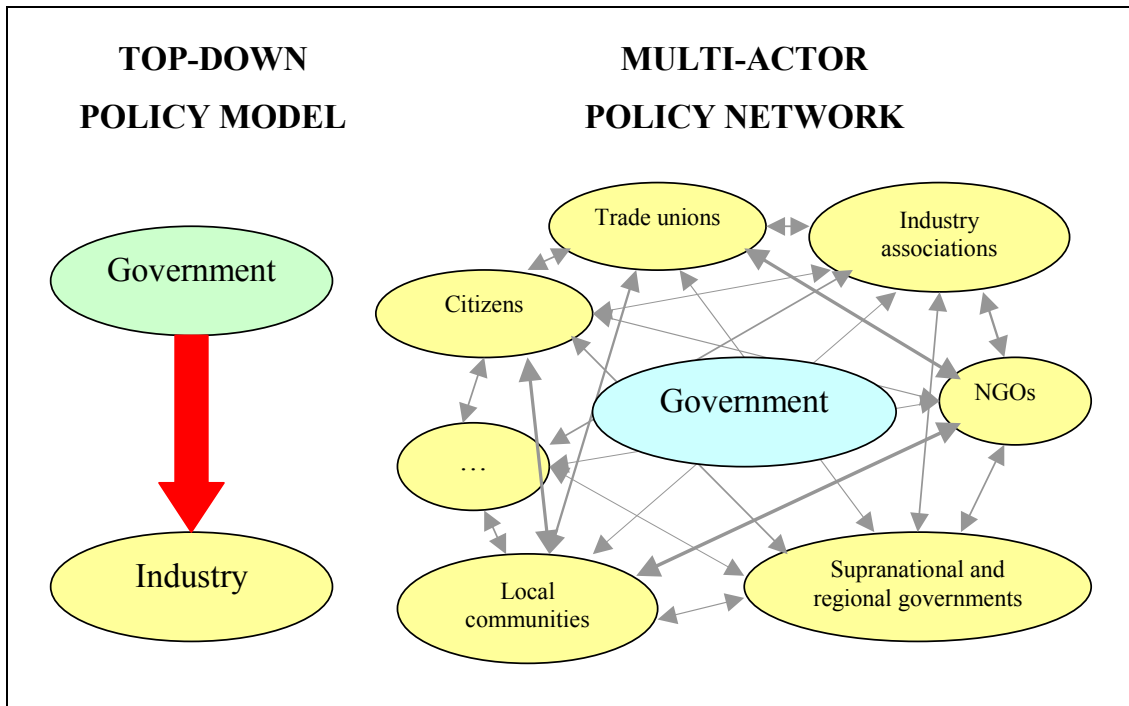
- **Conceptual learning:** is a process of redefining policy goals and adjusting problem definitions and strategies. Growing recognition of deficiencies in technical learning led to a search for new goals, strategies and policy instruments. New concepts (pollution prevention, ecological modernization, sustainability) enter the lexicon.
- **Social learning:** stresses communication and interaction among actors. Continued dissatisfaction with aspects of environmental regulation, especially adversarial relationships and a lack of capacity for cooperative problem-solving, led to efforts to innovate through social learning

The need for social learning recognises that governments achieve public purposes by steering a complex network of public and private actors, institutions, ideas and policy instruments. As Salmons (2002) has expressed it: *‘governance has moved - or is moving - from reliance on vertical, or hierarchically based instruments to network based regulations and the adoption of new indirect tools of government.’* Webb (2005) adopts a view of governance as *‘the sum of the many ways individuals and institutions, public and private, manage their common affairs’*.

Figure 2-3 tentatively illustrates the vertical and horizontal perspective on policy making. The left hand side of the figure pictures the old-fashioned policy model. In this setting, the government is not considered as a part of society but rather as an enlightened intelligence that unilaterally imposes its will upon society based on coercive power. It can only be hoped that representatives are inspired by the belief in social instead of personal welfare. Social interactions are the result of a hierarchical top-down approach. Industry’s role is that of a passive actor that obediently submits.

In a horizontal, multi-actor network, the government is recognised as forming a part of society at large. Society comprises all actors involved, individuals as well as social groups and institutions that developed and the interactions between these actors. These interactions may take on several shapes, from mutual dependency to vague interest in others. The diverging boldness of the lines indicates the difference in intensity of the relationship between the different actors (without stating that the boldness of the lines in our picture reveals the true intensity). The government is seen as a mediator between the interests of social actors instead of as a coercive actor imposing its will on a unilateral basis. The vertical-horizontal representation corresponds with the distinction between the notions of ‘government’ versus ‘governance’. As Jordan et al. (2003) note, these should not be treated as fixed entities but rather as two poles on a continuum of different governing types. If the extreme form of government was ‘the strong state’ in the are of ‘big government’ then the equally extreme form of governance is an essentially self governing network of social actors.

Figure 2-3: Vertical versus horizontal policy model



The government is consciously placed in the middle of the interactions as the government still takes on a unique position due to its coercive power. Notwithstanding the government is no longer on top of the system, it still has an unequivocal power to steer interactions between and conducts of actors. Government must enjoy some independence from industry influence if it is to maintain pressure for improved environmental performance. At the same time, there must be a reasonable degree of trust, potential for collaboration, sharing of information, and respect for mutual competence among government and industry to sustain the level of dialogue needed to support innovation (Wallace 1995). Regarding voluntary approaches, this especially holds for negotiated agreements and public schemes but less for unilateral commitments. In the latter, the government is no longer pivotal in the middle, but should rather be positioned at the periphery of societal actors. In these occasions, the government only plays a secondary role at best and societal self-regulation comes in. The environmental management standard ISO 14001 for instance is developed by the International Organization for Standardization, with only limited government involvement. Companies implementing this standard are audited by private companies. It involves agreements concluded between environmental pressure groups and large corporations (e.g. the better banana project between Chiquita and the Rainforest Alliance; agreement between KLM and WWF to compensate 4 million tons of CO₂). We believe there is still huge potential in involving third parties in the governance, especially non-for-profit organisations that have great trust by citizens. It is well known that politicians are viewed with more and more scrutiny by the public opinion. Governments are acknowledging this fact and have reacted

accordingly by getting parts of their administrations certified with ISO 14001 or EMAS or having their forest management certified by the Forest Stewardship Council (FSC).

Bressers and O'Toole have investigated the implications of a network-based perspective of the social and political context in which policy makers have to work. Bressers and O'Toole (2005) claim that instruments should be considered as potential shifters of ongoing processes of interaction among interested parties. They acknowledge that the selection of policy instruments is constrained by the political context in which they are to operate. Instruments that reshape the distribution of costs and benefits at the disadvantage of powerful actors are unlikely to be implemented. Bressers and O'Toole (1998) claim the instrument selection is largely determined and thus constrained by the distribution of information in a policy setting, the interests and objectives of the actors involved and the level of interaction they have become accustomed to. As such they point to the fact that policy makers are constrained by and dependent on the social and political context in which they seek to achieve policy objectives.

Aggeri (1999) describes the new role for the state as follows: *“Once collective innovation is regarded as the chief means of achieving ambitious environmental targets, with the authorities forced to abandon their traditional role of unilaterally imposing a regulatory framework because they lack the necessary knowledge, we consider that the issue of public intervention is no longer one of defining, implementing and controlling measures, but rather one of coordinating innovation.”*

Important to notice that social learning and the resulting policy model implies a different, though not necessary lesser role for the state (Fiorino, 2001). Indeed, Wallace (1995) gives credit to the Netherlands, Denmark and Sweden for sustaining an independent, authoritative government that maintains pressure on industry while also creating the conditions that foster a productive dialogue. In fact, none of these countries is known to have small government impact on society. Jordan et al. (2003) also claim that new instruments may involve more state involvement. This especially holds for the central government when compared to the days when most regulation was implemented and enforced at a fairly local level. They refer to the UK where the environmental ministry devoted 17 person years to negotiate just 42 climate change agreements.

3. A corporate perspective: a stakeholder view on company behaviour

3.1. Advantages of voluntary approaches

Why would a company volunteer to exceed environmental performance standards set by regulators? Investing in pollution abatement entails costs and the resources spent cannot be used for other activities such as marketing, research, or shareholder premiums. Generally, most arguments can be categorised in the following three motivations:

- **Cost savings:** may be the result of environmental improvements, due to e.g. reduced use of raw materials or energy, lower environmental tax bills or less waste to be disposed. These improvements are also known as ‘no-regret actions’. This potential exists as companies are confronted with imperfect information, cognitive limits and inappropriate organisational structures (Porter and van der Linde, 1995). Voluntary programs might help companies to discover these gains and to pick up “the low hanging fruits”.
- **Regulatory gains:** are savings that result from the avoidance of public regulation. Regulatory gains may come in two forms (Higley et al., 2001). Adopting a voluntary action might result in the setting of a lower environmental standard or might shape future regulations. Moreover, voluntary action might reduce compliance costs by allowing greater flexibility compared to a regulation with a similar target level. Besides, governments sometimes grant benefits like technical assistance or financial subsidies to companies adopting voluntary approaches.
- **Green reputation building:** departs from the premise that some consumers are prepared to pay a premium for green products. Recent consumer and marketing research has pointed to the importance of the brand image in explaining consumption behaviour. Consumers choose between products because they want to identify with the brand and related role models rather than looking at price differentials (Klein, 2000). The choice between fair trade coffee or traditional brands is rather explained by the norms and values of a consumer instead of by price-quality comparisons. In order to build this reputation companies often require similar environmental standards from their suppliers and subcontractors. A good company reputation might also be beneficial to attract new employees, create goodwill with a large area of stakeholders like the local community, environmental pressure groups, the government etc.

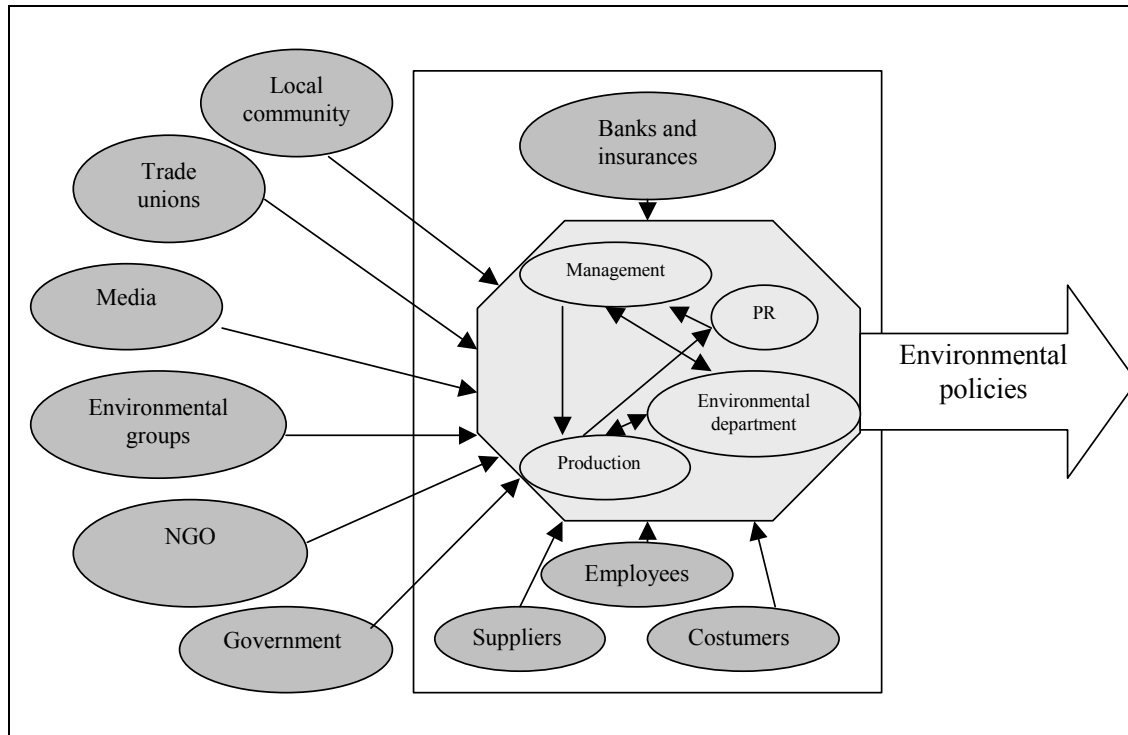
3.2. A stakeholder view on company behaviour

Just as the government in the previous section, the stakeholder view on corporate behaviour takes the company out of its isolation and explicitly views the company as an actor in society. Nowadays, companies have enormous economic power and social impact. Decisions they make not only impact their internal stakeholders (employees, shareholders, suppliers, costumers etc.) but also a large range of external stakeholders such as regulators, the media, environmental groups, the public at large etc. They were successful in expanding widthways (e.g. Eastern Europe, South-East Asia) and in depth into social life influencing the goods we consume, the panorama of our cities, the media we consult, public policy making etc (Klein, 2000). Consequently, public expectations about the role and responsibility of companies within society have changed. The company no longer operates in a social vacuum but at the centre of a network of actors, commonly called stakeholders. The modern corporation is the centre of a network of interdependent interests and constituents, each contributing to its performance, and each anticipating benefits (or at least no uncompensated harm) as a result of the corporation's activities. There is a continuous interaction between the company and stakeholders of which the company's long-term survival depends. Effective stakeholder management develops and utilizes relationships between a corporation and its stakeholders for mutual benefit. Ignoring their interests will in the long term undermine the company's '*social licence to operate*' (Post et al. 2002). Social acceptance is a necessary resource just like employees, raw material and money. This modern perspective on company behaviour is captured in the notion of "*corporate social responsibility*" which is situated at the junction between the activities of a company, how it considers and implements its responsibilities and the expectations in this regard of society and stakeholders in particular (Wood, 1991, Klok, 2003). This modern view holds a rejection of the conventional 'ownership' model that places primary emphasis on investors' return (Post et al, 2002).

Figure 2-4 draws an image to enable a better comprehension of how stakeholder pressures influence company decisions. At the left a number of external stakeholders (who involuntary impact the company) are pictured, in the larger square in the middle contains some internal stakeholders (who voluntary associate with the company). Both provide inputs (e.g. pressure, regulations, product requirements, information requests) in the company's decision process. As argued by Neumann (1995) there is no straightforward way of how these inputs will be turned into an output, i.e. environmental policies. In contrast, the decision-making process is complex en context-specific. No two companies will react exactly similar on identical stakeholder requests. The small arrows within the company square resemble this complexity. As well company structures as cultures explain such differences. Is there a separate environmental division or are environmental responsibilities integrated in other management functions? Is the company structured centralized, bureaucratic and hierarchic or rather

decentralized, cooperative and horizontal? Is the company an open and learning organization, is there a culture of innovation, is top management fully committed?

Figure 2-4: Stakeholder perspective on a company's environmental policy



The differences in which companies respond to these challenges is being captured in environmental strategy models. Companies are classified from re-active (defensive, compliance) to pro-active (offensive or excellence). An interesting model is provided by Roome (1994).

The model combines companies' environmental strategies with organizational change models. When a company only pursues compliance, a mere follow up of new technologies to keep up with tightening environmental regulations suffices. A company that takes an additional step and searches for new management systems or structures to re-organise the decision-making process, is classified as 'compliance plus'. To achieve excellence, the company needs to re-identify itself; it needs to reconsider its values and culture in correspondence with stakeholder requests. The previous step only influences ways of doing, the third step involves a reconsideration of underlying motivations. It is about creating new values, beliefs, cultures that penetrate the structures of companies that steer behaviour.

Table 2-1: Environmental strategies and organizational change

	Excellence	Compliance plus	Compliance
First-order Techniques and greener technology	X	X	X
Second-order Management systems and structures	X	X	
Third-order Organization and individual values/culture	X		

Source: Room (1994)

Research paper 1

What determines the decision to implement EMAS? A European firm level study

R. Bracke, T. Verbeke and V. Dejonckheere

Section 3.2. indicated that the environmental strategy of companies ranges from defensive to proactive. Voluntary approaches are to be expected especially within the subset of environmental leading companies. The question that emerges is what distinguishes proactive companies from companies that seem to prefer a defensive strategy? This first research paper contributes to the related literature by empirically analysing the determinants of companies' participation decision in EMAS based on a sample of large, publicly quoted companies. As well the subject under study, EMAS, as well as the European scope of the research distinguish this paper from related literature and both are elements that could point to diverging results from previous studies.

***Abstract.** Empirical research on the characteristics of environmentally responsive companies has focussed on US and Japanese firms. For Europe, which is commonly considered as the greenest of the three major markets, similar research is lacking. This paper seeks to fill this gap by empirically investigating business and financial characteristics, stakeholder pressures and public policies to distinguish companies that have implemented the European Eco-Management and Audit System (EMAS) from a unique firm-level dataset of European publicly quoted companies. We find that the EMAS participation decision is positively influenced by the solvency ratio, the share of non-current liabilities, the average labour cost and the absolute company size as well as the relative size of a company compared to its sector average. The profit margin exerts a negative influence. We further find that companies whose headquarters is located in a country that actively encourages EMAS have a higher probability of participation. Finally, this paper suggests that whereas a favourable institutional context has little influence on the kind of companies that participate, it influences the amount of similar companies that participate.*

4. The regulation dilemma

Both the network-oriented government perspective as the stakeholder view on companies merge naturally. By shaping the playing field in which companies may operate, the government becomes an important stakeholder for the company. The enormous (economic) power and social impact of companies on the other hand makes their interests and concerns an important input in the government's policymaking task. The regulation dilemma shows the potential benefits for both parties if they take on an open and responsive stance to each others requests.

The regulation dilemma was developed by Scholz (1991) and is used by Potoski and Prakash (2004) to analyse potential gains of voluntary approaches and regulatory relief programs. It shows how governments and firms can avoid lose-lose conflict and instead achieve win-win cooperation. Drawing on a simple prisoners' dilemma game to illustrate the regulation dilemma, Potoski and Prakash (2004) suggest how to transform a deterrence-based regulation into a cooperation-based one. An example with hypothetical payoffs is shown in table 2-2 below (the numbers on the left indicate the firm's payoff; the numbers on the right that of the government).

Table 2-2: The regulation dilemma

		GOVERNMENT	
		<i>Deterrence</i>	<i>Flexible</i>
FIRM	<i>Evasion</i>	(2,2)	(5,1)
	<i>Self-policing</i>	(1,5)	(4,4)

Source: Potoski and Prakash (2004)

The game is played as follows. The government can choose between adopting a deterrence enforcement style or a flexible approach. In a deterrence strategy, governments strive to inspect and audit every firm in order to discover and fully punish every violation. This is the prominent approach to go with traditional command-and-control policy. Problems, as seen, include the complexity of regulations, limited resources, creating adversarial relations etc. In the flexible approach, regulators neither rigidly interpret the law nor penalize firms for every violation. Instead, regulators forgo punishing self-discovered violations, particularly minor ones, reduce the level of sanctioning and provide positive incentives such as technical assistance to help firms achieve compliance (Scholz, 1991).

Firms on their side can choose their compliance style: evasion or self-policing. In the evasion approach, firms look for opportunities to skirt environmental regulations to save on compliance costs. In the self-policing approach, firms monitor their environmental activities and report and promptly correct violations, hoping the regulator takes a lenient view towards (minor) violations.

The dilemma consists in the fact that both firms and governments have incentives to behave opportunistically creating lose-lose interactions. The Nash-equilibrium is situated in the upper-left corner where the firm plays evasion and the government plays deterrence. No matter which approach the company chooses, the government is always better off choosing deterrence. If the company plays evasion, a flexible approach from the government would play in the company's cards leading to major non-compliance. Thus governments should play deterrence to increase their payoff from 1 to 2. If the company self-polices, government's payoff equals 4 if a flexible approach is adopted as only minor non-compliance, which is promptly corrected, occurs. A deterrence strategy is however more beneficial as governments can exploit firms' self-policing by fully punishing regulatory violations that are voluntarily disclosed in good faith.

Companies on the other hand are always better off evading. Companies may exploit governments' regulatory relief by evading regulations even more effectively under more lax monitoring. Obviously, in case the government plays deterrence, there is no use for the company to voluntarily report non-compliances. In addition, critical citizens and environmental groups might criticize the government's flexible enforcement style as granting a permit to pollute or might fiercely attack firms that voluntarily disclose violations. Thus, the Nash equilibrium occurs when the government plays deterrence and the company chooses evasion. No party has an incentive to deviate and both know the other party has no incentive to deviate. Consequently, mutual suspicion about the other party's opportunistic incentive undermines cooperation. Once trapped in, there is no (easy) way out. Unfortunately, this outcome is sub-optimal. Command and control pits regulators and firms in a contentious stance, resulting in more lawsuits and larger societal costs. Rigidly enforcing regulations and "going by the book" increases firms' compliance costs, and creates incentives for firms to evade regulations. In a vicious cycle, regulators may respond with more monitoring, stricter enforcement and harsher penalties.

The dilemma described above is the expected game theoretical outcome of the game, especially when it is considered as a one-shot game. Clearly, the outcome in which government regulators choose the flexible enforcement style and firms adopt self-policing compliance strategies would be preferential. Regulators win because self-policing lightens their enforcement burden while achieving superior environmental outcomes. Firms win because the regulatory incentives that governments provide under cooperation (forgiveness for minor violations, technical assistance, flexibility with meeting standards) make compliance easier and improve bottom-line profits. This outcome will only occur if each actor is

confident the other side will cooperate. Each however has an incentive to cheat and above, both know the other has a good reason (at least in the short run) to deviate. For cooperation to occur, both actors need to credibly assure the other they will not behave opportunistically. Both firms and regulators must find ways to credibly signal to the other that their cooperative intentions are genuine. Incentives to cooperate increase when players engage in long-term, face-to-face, repeated interactions that become informally institutionalized in players' reputation. Because reputation building takes time and is expensive, the desire to benefit from an existing trustworthy reputation may create incentives to shun short-term opportunism. Moreover, as trust begets more trust over time and good reputations become solidified, a virtuous circle of cooperation may evolve. Whereas repeated interaction and reputation will probably keep players in the cooperative solution, concrete proves might be needed to get them there in the first place. Fortunately, real world solutions exist and are available to firms and regulators. Regulators can establish regulatory relief programs and environmental audit policies that grant significant immunity to companies' violations discovered through self-audits. Firms on their part can establish credible commitments by participating in voluntary approaches such as ISO 14001, EMAS or Responsible Care requiring self-policing and being audited by external parties. Bressers and O'Toole (1998) describe how the Dutch environmental policy style changed from legalistic to more cooperative during the 1980s. By establishing intermediary organizations, intensifying contacts, creating a government with a high likelihood of a cohesive relationship with target groups, the preferred policy tools switched from legal instruments to covenants. This example proves that a the policy context can be manipulated to achieve the cooperative outcome.

In fact, we believe that in real-world settings this outcome is rather likely to occur for a number of reasons. First of all, one of the main lessons from game theory is that communication between the two players might result in the preferential outcome. Unlike the prisoners' dilemma, communication between the government and the firm is very likely. Bressers and O'Toole (2005) describe policy making as ongoing interactive processes between policy makers and interest groups. Authorities and target groups often exert influence on each other before – sometimes long before – the policy that is to be implemented is introduced. In addition, they often meet each other not only on a certain environmental issue but also in other social and economic arenas. Related to this is the lesson from game theory that when a game is played multiple times, the more likely it is that the cooperative outcome will be played. Environmental policy-making can certainly not be regarded as a one shot game. Finally, it should be reckoned that the bottom-right cell is the long-term optimal situation for both parties. Deviating will only result in short-term gains. When the firm knows the government will play “flexible”, it might consider playing evasion to increase the pay off from 4 to 5. However, in the next stage of the game the government is likely to switch her strategy to deterrence in order to increase the pay off from 1 to 2. This results in the dilemma situation in which both the firm and the

government are worse off. As such, it can be concluded that if both players are rational and adopt a long-term perspective, they will refrain from short-term opportunistic behavior. To conclude, the (social) optimal situation results even if the players only look at their own long-term benefit. And as claimed above, in many political settings, the probability that players adopt a long-term vision is high.

5. Summary

The rather spontaneous development of voluntary approaches as an alternative to more traditional modes of environmental policy making raises the question on the underlying drivers of their introduction. This chapter offered three, mutually complementary, explanations. The instrumental perspective primarily points to the disadvantages of command-and-control and MBI in pursuing environmental goals. It departs from a disillusioned premise on these instruments; the costs and limitations of these instruments triggered the introduction of alternative instruments. As such, voluntary approaches are considered as pragmatic responses to problems faced in the practice of drawing environmental regulations.

Both the government as the business perspective presents a modern view on the most prominent actors that shape environmental policies. The government is pictured as the centre of a network of actors aiming at societal change. Horizontal governance by cooperation replaces the vertical governance model in which the government unilaterally imposes regulations by cooperation and consultation. Companies on their side are seen as institutions aiming to create wealth for a large array of stakeholders. Incorporating stakeholders' requests on environmental issues becomes a strategic opportunity that might be crucial for a company's long-term survival. Finally, the regulation dilemma shows how an environmental policy conducted along the perspectives described in this chapter might be beneficial both for the regulator as for the companies involved.

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Chapter 3 - The diffusion of voluntary approaches

“Although the countries share a common set of drivers, the resulting pattern of NEPI (New Environmental Policy Instruments) use is highly differentiated across and within countries and sectors. States have used different NEPIs for different reasons, in different contexts, at different times... There is a continuing debate whether national policies are converging towards a common model. To the extent that states used to apply different variants of the same instrument (regulation) but now apply different variants of different instruments, national environmental policies have probably diverged in the last 30 years in spite of the EU’s attempts to promote greater harmonisation and hence convergence.”

Jordan, Wurzel and Zito (2003), *‘New’ Instruments of Environmental Governance? National Experiences and Prospects*, p. 220.

This chapter presents an overview of the worldwide uptake of voluntary approaches and the geographical diffusion thereof. The first section starts by showing some examples of the growing interest in self-regulatory and cooperative initiatives over the last decades. Section 2 examines the geographical diffusion of voluntary approaches. First, an overview of the interest in these substitutes to traditional environmental regulation in different countries is provided. It highlights that different countries have embraced these new modes of soft regulation with varying intensity. Moreover, in their search for alternatives to overcome the disadvantages of the traditional environmental policy approach, each jurisdiction followed its idiosyncratic pathway. Some types of voluntary approaches are adopted with enthusiasm while other types are largely absent. Next, we provide an institutional perspective to explain the diverging diffusion patterns that were identified in the first part of this section. Section 3 draws the attention to a qualitative shift concerning the way voluntary approaches, and especially negotiated agreements, have been implemented in European countries. Section 4 resumes the findings of this chapter.

1. The growing interest in voluntary approaches over time

Over the last decades, governments and businesses throughout the world have expressed growing interest in various forms of soft environmental regulation. A sharp increase has occurred since the beginning of the 1990s (OECD, 1999). The drivers of this increase have been discussed in the previous chapter. Here we start by depicting some prominent examples of the growing popularity of

voluntary approaches over time: (1) voluntary environmental reporting; (2) ISO 14001 certificates; (3) fair-trade certified producer organizations; (4) participation in EPA’s voluntary programs and (5) negotiated environmental agreements in the EU.

1.1. Voluntary environmental reporting

Since 1993 KPMG reports, on a triennial basis, on the frequency of corporate responsibility (CR) reporting amongst major companies. The 2005 report includes the top 250 companies of the Fortune 500 list (G250) and the top 100 companies in 16 countries (N100). As such, it provides a global picture of non-financial reporting trends over the last decade. Table 3-1 shows the results of these studies. The results clearly illustrate the growing interest in voluntary reporting social and environmental performance data to stakeholders and the general public. It appears that by the year 2005, over half of the G250 companies published a separate corporate responsibility report. For the N100 sample, the percentage has risen from 13% in 1993 to 33% in 2005.

Table 3-1: Evolution of corporate responsibility reporting

	1993	1996	1999	2002	2005
Sample	10 countries	13 countries	11 countries + G250	19 countries + G250	16 countries + G250
N100 <i>(% of companies with CR report)</i>	13%	17%	24%	23% <i>(28% for 11 countries of 1999)</i>	33% <i>(41% including CR information in annual reports)</i>
G250 <i>(% of companies with CR report)</i>			35%	45%	52% <i>(64% including CR information in annual reports)</i>

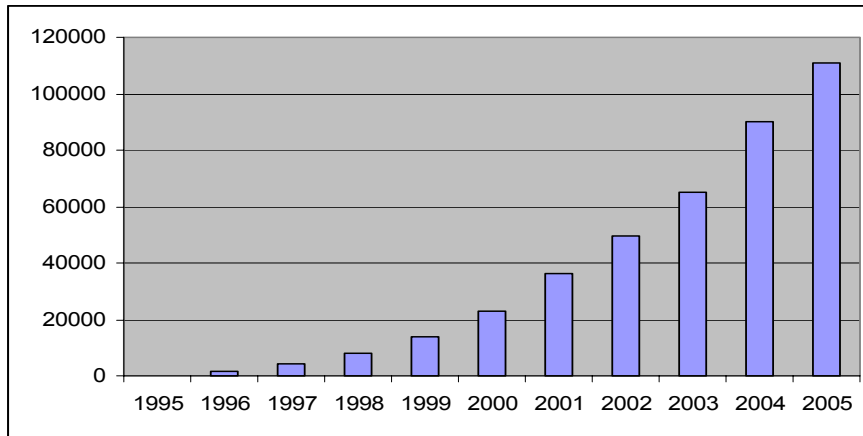
Source: KPMG (2005)

1.2. ISO 14001 certificates

Developed in 1996 by the International Organization for Standardization, ISO 14001 has become the worldwide standard for environmental management. The uptake of the standard is high with over 110.000 certified organizations in 138 countries by the end of 2005 (see figure 3-1). In a growing number of industrial sectors, ISO 14001 is becoming a prerequisite for doing business. A number of multinational corporations like IBM, Xerox, Honda, Toyota, Bristol-Myers have encouraged their

suppliers to become ISO 14001 certified. Ford Motor Company and General Motors required all their suppliers to be certified by 2003 (Bansal and Bogner, 2002).

Figure 3-1: Worldwide number of ISO 14001 certificates



Source: 1995-2000: ISO (2001); 2001-2005: ISO (2006)

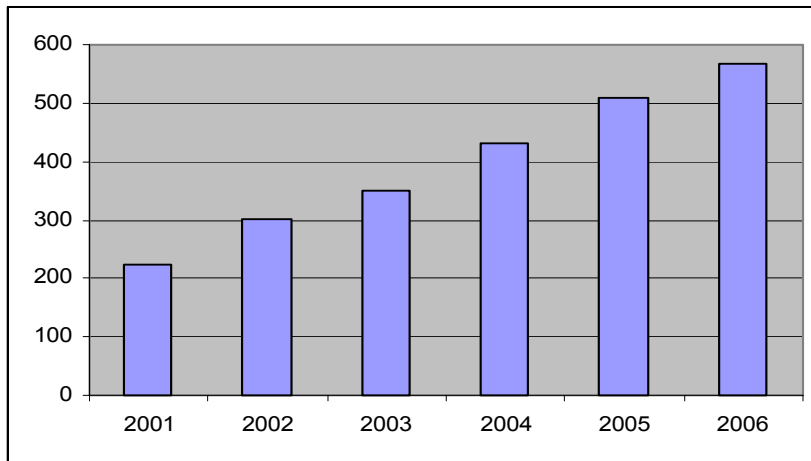
The number of sites that have registered under the Eco-Management and Audit Scheme (EMAS), the European counterpart to ISO 14001 developed by the European commission, has reached its highest number ever in the beginning of 2007 with over 5,500 registered sites¹. However, it should be acknowledged that the diffusion of EMAS is almost negligible compared to ISO 14001 (an in-depth analysis of the diffusion of both standards can be found in research paper 2 presented further in this chapter).

1.3. Fair-trade certified producer organizations

The growing success of fair-trade labeled products provides another indicator of changing consumers' and producers' conduct. Fair-trade standards establish requirements for producers and traders but also include requirements to continuously improve working conditions, environmental sustainability and organizational development for workers and small farmers. In 2006, consumers worldwide bought 1,6 billion Euros worth of fair-trade certified products, a rise of 42% compared to the year before. Between 2004 and 2006 the growth in the number of licensees (companies selling certified fair-trade products) was 68% (Fairtrade Labelling Organizations International, 2007). An increasing number of 'mainstream' companies and major supermarkets are embracing the fair-trade concept (e.g. Sainsbury, Marks&Spencer, Scandic and Hilton Hotels, Ryanair and Air Berlin). Figure 3-2 shows the evolution of the number of fair-trade certified producer organizations.

¹ http://ec.europa.eu/environment/emas/documents/articles_en.htm#statistic

Figure 3-2: Evolution of the number of fair-trade certified producer organizations

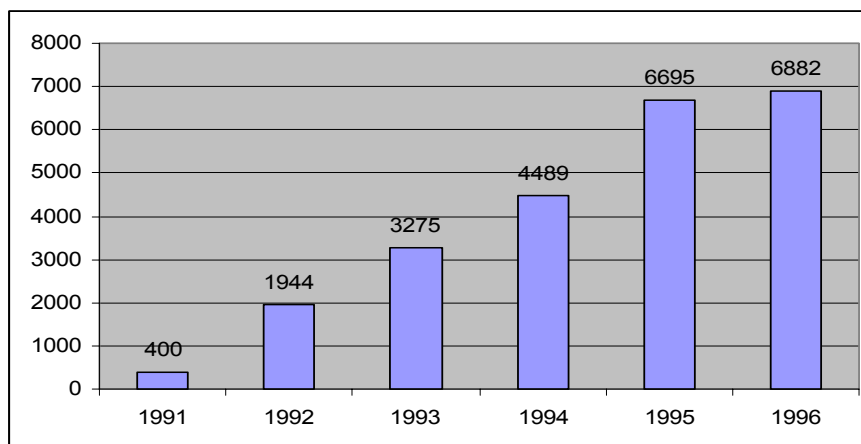


Source: International Labelling Organizations International (2007)

1.4. Participation in EPA’s voluntary programs.

By 1996, 31 public voluntary programs were initiated by the EPA in the US. Companies are invited to participate in these programs that aim to improve their environmental performance. Public recognition and technical assistance by the state are the major drivers to induce company-participation. Some examples are Green Lights, Climate Wise, Energy Star, Waste Wise and the 33/50 program. As Figure 3-3 shows, these programs are successful in terms of company participation with about 7.000 participants in 1996 (Mazurek, 2002). EPA estimates the total number of partners in 2002 to be about 11.000 (Mazurek, 2002).

Figure 3-3: Number of firms participating in EPA’s voluntary programs

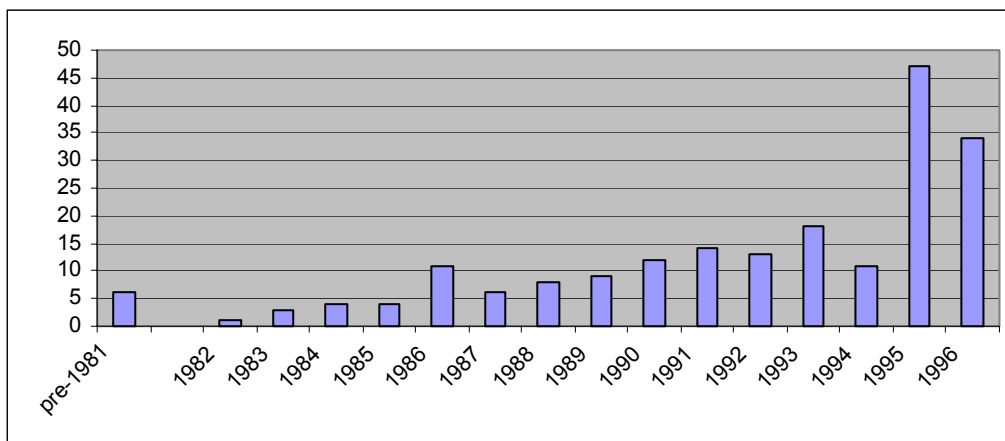


Source: Mazurek (2002)

1.5. Negotiated agreements in the EU-15

Negotiated agreements signed between public authorities and branch organisations are the most popular type of voluntary approach used in the EU (OECD, 1999). In 1996 an inventory made by the European Commission estimated the number of negotiated agreements at 305 (EC, 1996a). The actual number was however higher as agreements concluded at sub-national level were not included and because the informal character hindered the collection of data. As figure 3-4 shows, the amount of agreements concluded was on the rise since the beginning of the nineties. The average number of agreements signed annually was less than 5 in the period 1980-1985. The average became 12 in the period 1986-1994 and the numbers were 47 and 34 for 1995 and 1996 (EEA, 1997). Unfortunately, no encompassing inventory studies have been undertaken after 1996, so it is difficult to confirm whether this trend has carried on after 1996. An attempt has been made by Jordan et al. (2003) for eight countries: Australia, Austria, Finland, France, Germany, Ireland, the Netherlands and the UK. However, for many countries they do not really provide new information but refer to the sources indicated above. Nevertheless the picture that emerges is that countries where negotiated agreements have become popular in the eighties and nineties, like the Netherlands and Germany, continue to use this instrument (see also Bressers et al. forthcoming). In countries like Ireland, France or Finland where negotiated agreements only played a minor role, there are no signs that the use of negotiated agreements is accelerating. As such, there is growing divergence instead of convergence with respect to the use of negotiated agreements in Europe.

Figure 3-4: New environmental agreements in EU member states by year



Source: EC (1996a)

The fact that negotiated agreements operate in the shadow of law in many countries makes it difficult to obtain reliable data. In addition, in many countries agreements are also concluded at lower government levels (e.g. regions or provinces). The OECD/EEA database on economic and voluntary

instruments (<http://www2.oecd.org/ecoinst/queries/index.htm>) provides a good example of the lack of reliable data. As well for Germany as for the Netherlands only one negotiated agreements can be found, whereas almost all other sources report these countries as having implemented over a hundred agreements.

2. The geographical diffusion of voluntary approaches

2.1. A worldwide diffusion pattern

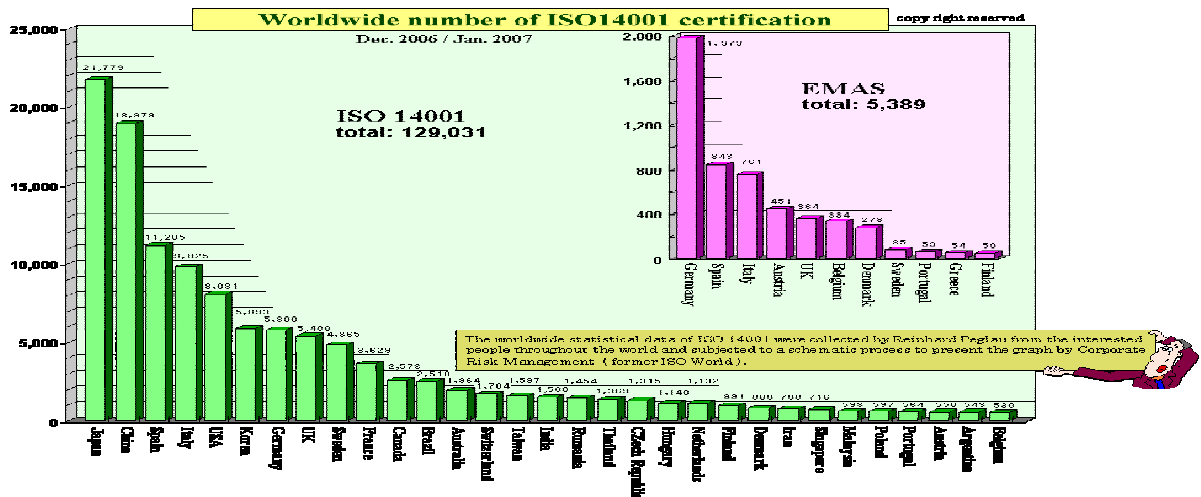
The previous section presented some illustrations of the growing interest in various forms of business self-regulatory initiatives and negotiated rulemaking. However, there are huge differences in the extent to which this trend has occurred in different countries over the globe. Moreover, one notices profound divergence with respect to the types of voluntary approaches that are adopted within different countries. However, in fact the opposite observation (i.e. equal adoption among countries) would come as much more astonishing surprise. Countries simply differ with respect to institutional setting, socio-economic context, informal habits, norms, values etc. As such, it is to be expected that they differ regarding the preferred instrument mix in environmental policy as well. Capturing some of these determining differences will be the aim of section 2.2. As yet, we give a snapshot of the geographical diffusion of voluntary approaches.

To our knowledge, the most encompassing study on the worldwide use of voluntary approaches is still the OECD report of 1999, which provides a useful starting point. The report concludes that the US predominantly uses public voluntary programs developed by the EPA, whereas negotiated agreements dominate in Europe and Japan. In Japan, the agreements are especially concluded at the local level as a means to overcome the lack of regulatory competences of the local authorities. In Europe, most agreements are concluded at the national level between the regulator and a branch organisation in the context of a regulatory reform seeking for improved efficiency of environmental policy. In the upcoming subsections we will discuss the main findings of the OECD report and add some complementary information found in the literature along our threefold categorisation of voluntary approaches. Regarding unilateral commitments we limit the scope to ISO 14001.

2.1.1. Unilateral commitments: the worldwide uptake of ISO 14001

The ISO 14001 environmental management standard is by far the most popular form of self-regulation to which companies can voluntarily engage. In contrast to many other unilateral commitments, which are by their nature very diverse, ISO 14001 is uniform all over the world and this makes it an interesting case to consider regarding the international diffusion of voluntary approaches. Figure 3-5 shows the top-31 countries with respect to the number of ISO 14001 certified companies. The figure shows that the uptake is virtually worldwide. With the exception of Africa, all continents have representatives in the top 31. Moreover, also less-developed countries like Iran, Brazil, Rumania, India and China occur in the list.

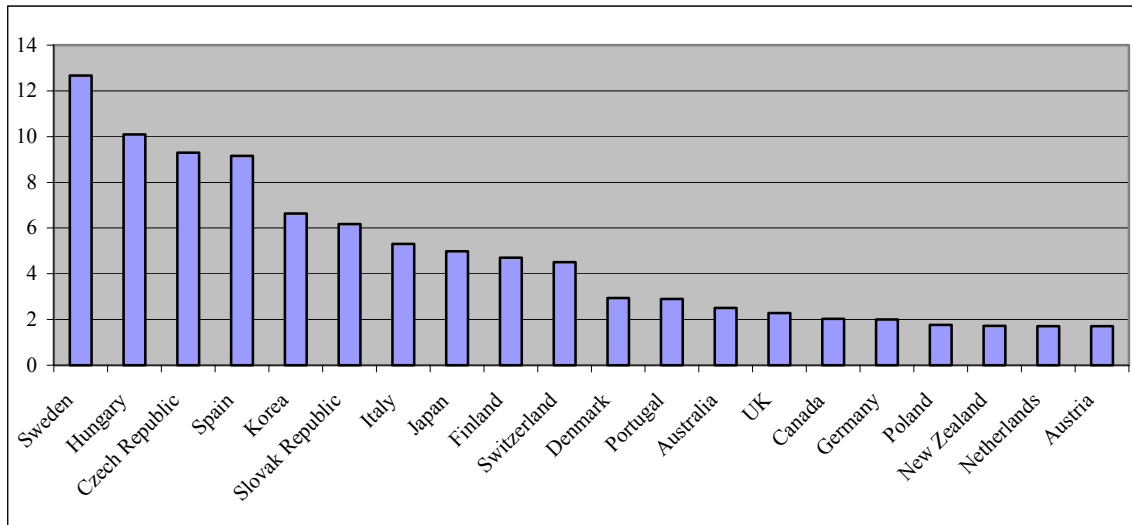
Figure 3-5: The uptake of ISO 14001 certificates (top-31)



Source: <http://www.ecology.or.jp/isoworld/english/analy14k.htm>

Of course, the list above is influenced by the size of a country. Nevertheless, the list includes smaller countries like Sweden, Finland, the Czech Republic, Austria and Belgium. Russia on the other hand is not amongst the top-31. A more interesting picture emerges when the certification numbers are corrected for the size of the economy. Figure 3-6 shows the top-20 of the OECD countries when GDP is used as a proxy for the country size. One notices that two major economies, the US and France, are not on the list. Less-developed countries like Hungary, the Czech and the Slovak Republic surpass them. Moreover, these countries list above some countries that are known to be environmental forerunners like the Netherlands, Germany, Denmark and Finland. The same holds for Spain and Italy.

Figure 3-6: ISO 14001 certificates/GDP: the OECD top-20



Source: ISO 14001 certificates from <http://www.ecology.or.jp/isoworld/english/analy14k.htm> ;
GDP (2006, at current process and exchange rates) from OECD Main Economic Indicators, July, 2007.

This distribution pattern has drawn the attention of many researchers (see e.g. Delmas, 2002; Kollman and Prakash, 2002; Corbett and Kirsch, 2004; Potoski and Prakash, 2004; Vastag, 2004; Moon and Deleon, 2005; Prakash and Potoski, 2006). Before we move on trying to provide a more encompassing explanation of the geographical diffusion of voluntary approaches in subsection 2.2., we point to some results from the literature referred to above. First, large sample econometric analysis revealed the significance of determinants like export ratio, economic structure (e.g. industry or services), the number of ISO 9001 certificates, public pressure and government's adherence to sustainable development. Second, there is some "anecdotic" evidence (see e.g. Klok, 2000). The huge uptake in Japan could be explained by the negative economic impact resulting from the refusal of Japanese companies to adopt ISO 9001 in the beginning of the 1990s. The Japanese were convinced they possessed leading quality management practices and had little faith that they could learn from the ISO standards developed largely under the influence of their American competitors. Without stating that ISO 9001 is the better standard, companies all over the world adopted the standard that soon became a necessary asset for doing business. The eager to avoid a similar negative impact on their exports in the wake of the introduction of ISO 14001 resulted in a wide business uptake and government support in Japan. The low uptake rate in the US on the other hand is partly attributed to the litigious atmosphere; giving information on environmental impacts and legal non-conformities of the company is dangerous there (Klok, 2000).

2.1.2. Public voluntary schemes: EPA voluntary programs and EMAS

This subcategory of voluntary approaches is especially popular in the US. The OECD inventory of 1999 identified 42 voluntary approaches in the US, of which 31 were public programs, 9 unilateral commitments by industry organisations and only 2 negotiated agreements (the Common Sense Initiative (1994) and Project XL (1995)). The EPA administers these public programs. The EPA typically uses this approach when the agency has no statutory authority to take formal regulatory actions. They appear as a complement to existing regulations. The agency attracts business participation by offering technical information and/or public recognition.

Of the public voluntary schemes, the majority arose from the Clinton Administration's Climate Change Action Plan (e.g. Green Lights, Climate Wise, Motor Challenge and Energy Star Buildings). Lyon and Maxwell (2003) characterise them with the following features: (1) they can be implemented at little or no cost to at least some subset of firms; (2) they arose in an era in which the regulatory authorities did not have a statutory mandate to require any actions; and (3) the heterogeneity of the offenders would have made command and control regulation complex and costly for regulators to administer.

In Europe there are two well-known voluntary schemes: EMAS and the Eco-labelling Scheme. None of either is unanimously considered a success. Especially the Eco-labelling scheme has failed to attract company participation. EMAS (see figure 3-5 above) is somewhat more popular in terms of participation. Compared to the private counterpart ISO 14001, however, the uptake is minor with only 1 EMAS registered site for every 7 ISO 14001 certifications in the EU-15 (see research paper 2 introduced further in this chapter for an in depth analysis of the uptake of ISO 14001 compared to EMAS in the EU). The top 5 consists of Germany, Spain, Italy, Austria and the UK. On Japan, the OECD report (1999) does not contain any information. It only refers to the use of eco-labels. Most probably, public voluntary schemes will not play a dominant role like in the US.

2.1.3. Negotiated agreements

Concerning negotiated agreements, Japan clearly takes the lead. It has a long experience in implementing so-called Environment and Pollution Control Agreements. The first agreement was signed in 1964 between the city of Yokohama and the Electric Source Development Corporation (OECD, 1999). Tstutsumi (2001) reports that 31.074 agreements have been signed by 1996. They are generally concluded at the local level between the local authorities and businesses. In many cases they only involve just one company. They were originally developed as tools to overcome the lack of

regulatory powers of local authorities confronted with severe pollution problems. The expectation was that the agreements were implemented as a temporary measure to be superseded by national environmental laws and regulations in a latter stage. However, the agreements became institutionalised as a policy tool in many local contexts, going far beyond their original bridging function (Tsutsumi, 2001).

An inventory from the European Commission (1996a) counted 305 negotiated agreements in the EU-15. The spread within the union is however very uneven with about two-thirds situated in Germany (93) and the Netherlands (107). Roughly stated, the inventory shows that agreements are more popular in the Nordic part with Austria taking the third place with 20 agreements, followed by Denmark (20) and Sweden (11). Exceptions to this observation are Finland with only 2 agreements and to some extent Italy with 11 agreements and Portugal with 10. All other EU-15 members have less than ten agreements but on the other hand each member state has made use of this policy tool at least once. The North-South observation comes with little surprise (also noted by e.g. Grepperud, 2002; and Grepperud and Pedersen, 2003) as it is a well-established fact the Scandinavian countries together with The Netherlands and Germany are known for their advanced environmental policies.

More recent data are scarce and fragmented, but confirm the above picture that The Netherlands, Germany and the Scandinavian countries are pioneers in the use of negotiated agreements. Jordan et al. (2001) estimate the number for Germany at 130 by 2001. Austria had adopted some 30 agreements by 2000 (Brückner, 2001). Most studies on Britain put the number somewhere between 10 and 20 by the late 1990s (Jordan, 2001). The agreements concluded in Europe share in common that they are usually signed between the regulator and a branch organisation against the threat of future legislation. The dissimilarities however might be even more profound with some member states using them as non-binding gentlemen's agreements in anticipation of or as an alternative to legislation whereas others aim at binding agreements to support existing environmental regulations. We will deal with this point in the following section.

2.2. An encompassing view on the diffusion pattern

2.2.1. The institutional perspective

We already hinted to some fragmental explanations for the (lack of) popularity of some voluntary approaches in some countries (e.g. the litigious climate of the US hindering companies to adopt ISO 14001; the economic impact of the refusal to adopt ISO 9001 in Japan). The aim of this subsection is

to offer a more encompassing ‘macro’ perspective in which these ‘micro’ explanations might be better understood. Why do certain explanations reveal themselves in some countries and not in others?

One of the prominent conclusions of the literature on policy innovation and diffusion is the influence of a country’s institutional structure on the diffusion of policy instruments. “*Institutions are the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (Sanctions, taboos, customs, traditions, and codes of conduct) and formal rules (constitutions, laws, property rights)* (North, 1991, p 97). In other words, the formal and informal rules that guide the interaction between executive, legislative, judiciary, industry, and NGOs shape a country’s institutional structure. Institutions show resistance to change, preferring incremental alterations to substantial change. This leads to the notion of *path dependency*, which suggests that past decisions shape new outcomes in a way that maintains existing arrangements. As such, instruments that fit into the institutional structure of a country (including routines and policy styles) are more likely to be adopted than those that challenge these norms and structures (Tews et al., 2003). Governments looking to substitute or supplement the command-and-control type of regulation with new instruments based on voluntarism and cooperation will be attracted by those instrument-types that suit their institutional context (the “*goodness-of-fit*” concept). In Bressers and O’Toole (1998), a theory is developed that links the selection of instruments by policy makers with policy networks. They argue that the degree to which several instrument characteristics match with network features influences their likelihood of being implemented. In addition, the transfer of policy instruments is likely to be limited to those aspects that ‘fit’ and instruments will be implemented differently in different countries while convergence around the same policy instrument mix in different jurisdictions is the exception rather than the rule. As such, policy innovations are likely to take place only gradually and unevenly (Jordan et al., 2003).

Given the voluntary character of the policy instruments under study, this might especially hold. As Tews et al. (2003) argue, the special features of a policy innovation can either facilitate or hinder its widespread adoption. They show the case of the energy/carbon taxes that spread difficultly despite their support by international organisations like the OECD, the UN and the EU and their widely recognised effectiveness. The lack of political feasibility due to energy-intensive industry’s protests and national competitive concerns is a major implementation barrier. National environmental policy plans and strategies for sustainable development on the other hand diffuse rather easily as they can easily be added to existing environmental policies and do not necessarily induce any fundamental policy change. The same goes for eco-labels, which spread relatively quickly as well (Tews et al., 2003)

Next to the econometric literature on the diffusion of ISO 14001 referred to in subsection 2.1, there are a number of case studies focussing on the institutional, political or socio-economic context to explain the diffusion of some subtypes of voluntary approaches in some countries. Delmas (2002) analyses the regulatory, normative and cognitive aspects of the institutional environment in explaining the difference in ISO 14001 adoptions in the US compared to Europe. Kollman and Prakash (2002) look at the diffusion of ISO 14001 and EMAS in Germany, the UK and the US. Perkins and Neumayer (2004) investigate the uptake of EMAS in the EU-15. With respect to negotiated agreements, Delmas and Terlaak (2002) analyse the institutional features that facilitate or hamper the implementation in the US, Germany, The Netherlands and France. Welch and Hibiki (2002) focus on the regulatory and non-regulatory bargaining context in Japan, and include a comparison with voluntary policies in the US and the Netherlands. Jordan et al. (2003) take on a more challenging approach by studying the diffusion of ecotaxes, tradable permits, voluntary agreements, eco-labels, environmental management systems and regulation in seven EU-Member States (Austria, Finland, France, Germany, Ireland, The Netherlands and the UK) and Australia. These studies deliver interesting understandings on how country differences favour or hinder the uptake of the voluntary instruments studied.

By presenting a short description of the findings of each study, we risk to obtain only a fragmented understanding of the research question at hand. Instead, we choose to integrate the findings of these studies in a country typology distinguishing four different institutional settings. This typology will be used as an encompassing framework for grasping the diffusion pattern of voluntary approaches. The country typology is drawn from Jepperson (2002). This typology is also used in research paper 2 (introduced at the end of this section) to analyse the uptake of ISO 14001 and EMAS in Germany, the Sweden, France and the UK. Here, we take on a more general approach and use this typology to develop expectations on the difference in the uptake of voluntary approaches in different countries.

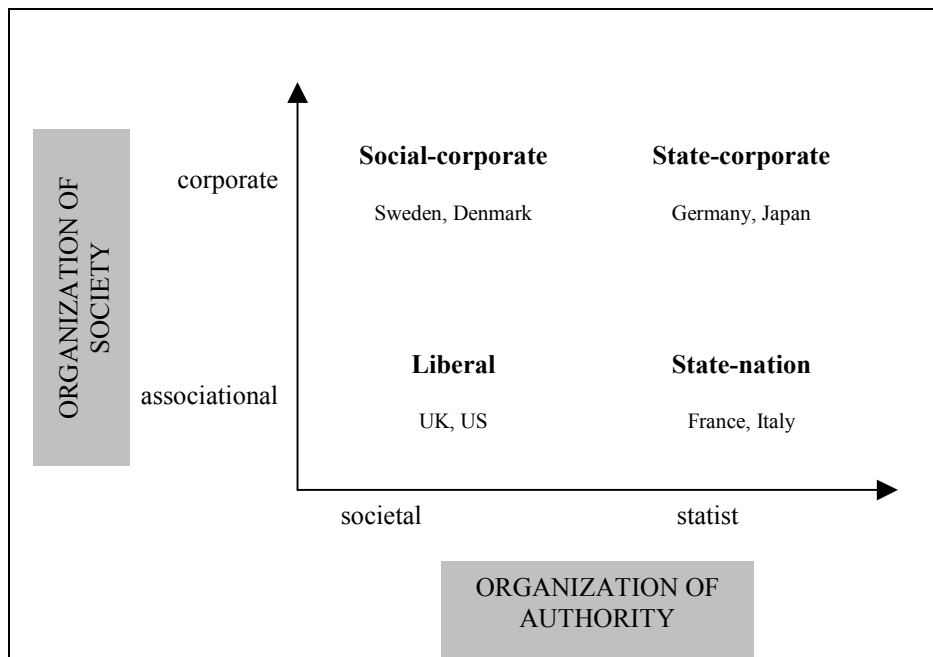
2.2.2. Jepperson's country typology

Drawing on the literature on state polity formation, Jepperson (2002) makes a distinction between countries based on two dimensions: the organisation of society and the organisation of authority. Disentangling and then cross-classifying them yields four distinct polity models (see figure 3-7): state-corporate, liberal, state-nation and social-corporate. These polity models correspond quite well with the political cultures of respectively Germanic, Anglo, French and Nordic orbits.

The horizontal axis focuses on the organization of collective authority and contrasts statist from societal models. Societal visions locate purpose and authority in society at large, with government seen as an instrument and expression of society. Interest groups can actively engage in, and their

opinions are incorporated into, the policy-making process. As such, these countries feature more imagery of thinking, interest formation, representation and bargaining. The UK is a classic example. Statist visions, in contrast, locate collective authority in a differentiated, insulated, and charismatic organizational state apparatus. They take on an image of a steering government, an inspired officialdom. Governments possess autonomous authority over interest groups (or societal actors) to produce policies. There is more organizational integration of administrative, parliamentary, juridical, executive, and planning powers. Germany and France typically fit into this category. Regarding voluntary approaches, negotiated agreements correspond most with the statist model as such agreements are closest to traditional regulations (Jordan et al., 2003). In societal models more differentiated alternatives to traditional command-and-control policies might be expected as the involvement of third parties in the policy making process might be provocative to more radical policy innovations and opens the road to modes of self-governing initiatives by social actors.

Figure 3-7: Jepperson’s country typology



Source: Jepperson (2002)

The vertical axis represents the organization of society and distinguishes between corporate and associational models. In associational visions of society, society is looked upon as a system of action generated by subunit “actors”. Social structure is pictured as arising from their communications and exchanges. *“A large number of interest groups compete for influencing the policy agenda. Individual organizations having different levels of resources and information compete to gain access to the policy-making process. Multiple organizational interests prevent government from easily accessing and negotiating with the organizations in the policy-making process. Relations between government*

and interest groups are rather adversarial; interest groups do not act as policy participants, rather, they act as issue advocates. Government agencies are independently responsible for making policies, that is, to balance the competitive demands inherent in pluralism” (Moon and Deleon, 2005, p. 42). Jepperson (2002) labels Britain, the US and France as typically associational. In corporate models a communal order of differentiated roles and collective functions is established. Social organization is envisioned as rational and planned, rather than natural and emergent as it is depicted in associational models. In corporate models, the sub-elements of society are typically themselves groupings or orders, with group rights accorded to them, like a sort of delegated polities. *“In corporatism, interest groups’ concerns are organized and represented by a small number of national interest representations, called peak organizations. The monopolistic organizations, whose activities are divided along functional interests (e.g. sectors, class), have hierarchical structures of their constituents, and their leaders have a strong control over them. The organizations in these authoritative structures can effectively coordinate and represent interests of their members in the policy-making process. The represented interests can help the government to negotiate and reach agreement with the organizations. Government generally recognizes monopolistic organizations as an official venue through which interest groups pursue their favour. In exchange, government acquires a comprehensive agreement with the organizations in terms of accessing specialized information and obtaining political support. The result is cooperative and exchanging relationship between interest groups and government”* (Moon and Deleon, 2005, p. 41). Germanic central Europe, Scandinavian Europe and parts of southern Europe produced the modern corporate system based on a functional theory of society. With respect to voluntary approaches, corporatist features will provide a fertile ground for implementing negotiated agreements. In contrast, instruments relying on individual company participation like public schemes are more compatible with associational models.

We believe this country classification offers valuable insights on the way in which the institutional context influences the reaction of a country’s policy makers, companies and society at large to the introduction of voluntary approaches. As such we adopt the ‘goodness of fit’ concept from the new-institutionalist school. According to this concept the correspondence between an instrument on the one hand and the institutional structures of a country on the other determines the varying level of implementation in countries. In the following, we give a short description of each polity model and integrate the knowledge on the use of voluntary approaches in countries that are typical examples of the specific model.

- *The state-corporate model*

This model combines an authoritative government with a corporatist organization of society. The government acts as an enlightened officialdom that determines policy objectives and instruments to achieve them based on a normative interpretation of common welfare with corporations acting as (often state-financed) mediators between the state and the public. Society is organised in a small number of corporate groups with hierarchical structures and leaders with strong control over their members. These groups can effectively coordinate and represent interests of their members in the policy-making process. Public participation is limited to some privileged groupings that receive a rather large extent of influence in policy making on the condition that they support the policies. Government generally recognizes these organizations as an official venue through which interest groups pursue their favors. In exchange, government acquires a comprehensive agreement with the organizations in terms of accessing specialized information and obtaining political support (Moon and Deleon, 2005). The result is a cooperative and exchanging relationship between corporate groups and government.

When looking at the evidence of voluntary approaches, we notice that both in Germany and Japan, two typical examples of state-corporate models, negotiated agreements are popular instruments. The existence of strong industry branch organisations and a history of close contacts between public and private actors are major explanations in this regard for Germany (Jordan et al., 2001) and Japan (Imura, 1998). Another interesting finding is that in both countries, the agreements are implemented as gentlemen's agreements (Tsustumi, 2001, OECD, 1999). Apparently, the tradition of institutionalised bargaining and the fact that corporations acknowledge their responsibilities enables compliance with non-binding arrangements. Finally, a common characteristic is the usual exclusion of third party involvement in the negotiation and the limited information provided on the results (Welch and Hibiki, 2002; Öko-Institut, 1998).

The observation that the uptake of ISO 14001 is high in both countries does not fit nicely in this framework. As figure 3-6 however pointed out, when relating the certification numbers to the GDP, Japan and certainly Germany are not 'top-adopters'. In addition, it is worth pointing out that governments play a crucial role in creating a fertile ground for ISO 14001 implementation by companies. Both in Germany and Japan the government actively stimulates ISO 14001 implementation by providing regulatory relief and technical as well as financial assistance (e.g. Delmas, 2002; Kollman and Prakash, 2002). Moon and Deleon's (2005) empirical results show that corporatist policy networks are an important determinant influencing a company's decision to certify ISO 14001. A long and successful cooperative government-business interaction creates confidence

about governments' commitments for ISO 14001 adopters. Finally, the high number of registered EMAS sites reveals that in a European perspective, Austria and Germany seem to prefer the government-led environmental management standard to its private alternative, ISO 14001 (see also research paper 2). The German government offers greater incentives to companies joining EMAS compared to those that choose ISO 14001 (Clausen et al., 2002).

- *The social-corporate model*

The social-corporate model is close to the previous one. It employs extensive governmental activity but this is envisioned as intermediating the organized interest of society rather than steering society according to the government's vision. Government is seen as a useful instrument, created to coordinate, facilitate and motivate social change. Policymaking is based on an ideology of consensus. Extended participation is encouraged but with emphasis on incorporating voices into a harmonious community discussion, not a pluralist system in which interest groups battle to get their interests on the policy agenda. The corporate organization is rationalized and functional rather than hierarchical and historically grounded as in the state-corporate model.

Negotiated agreements fit nicely in this model due to the corporatist setting and the cooperative policy making climate. This is confirmed by the observation in the previous subsection that the Nordic European countries are forerunners, especially when we incorporate the Netherlands in this model². In this regard, Grepperud (2002) points to the history and the institutionalisation of bargaining, over a wide range of policy issues, between labour unions, producer organisations, and government in the Netherlands and the Nordic countries. When contrasting the German with the Dutch agreements, there are important qualitative differences. In contrast to the almost secretive and closed-door way of implementing negotiated agreements in Germany, the Dutch system is open and democratic with many organised access points for third party interests. The agreements are systematically planned and integrated in a long-term policy strategy resulting in binding agreements. The approach is formally organised and supported by society at large. In Germany, the agreements stem from friendly government-business partnerships and are used as pragmatic ad hoc policy solutions; which creates third party frustration. Also in Denmark, the government created a legal framework for concluding negotiated environmental agreements in 1992 with the aim to formalise the implementation of agreements and to create third party access and support. These characteristics correspond nicely to the differences in these two polity models.

² Jepperson places the Netherlands rather in the liberal model. However by the introduction of the National Environmental Policy Plan in 1989 and the corresponding emphasis on target group policies and covenants, we believe that, especially for environmental policy, it corresponds more with the Scandinavian countries.

In addition, the Scandinavian countries and The Netherlands are known to be pioneers with respect to environmental policy innovations. Jordan et al. (2003) found that new environmental policy instruments are most popular in the Netherlands and Finland (and Germany). They have a high implementation rate of ISO 14001 certificates, the 'statist' EMAS is implemented remarkably lower, except in Denmark. Tews et al. (2003) attribute the first big rise in the use of eco-labels to "the Nordic Swan", the first multinational label developed by the four Scandinavian countries in 1989, although it must be mentioned that Germany pioneered with the Blue Angel already in 1977. With respect to other instrumental innovations, these countries are ahead in implementing eco-taxes. The Netherlands and Denmark had the highest share of environmental tax revenues on total revenues from taxes and social contributions in the EU-15 in 2001 (Eurostat, 2003). Moreover, pollution and resource taxes were most pronounced in these countries. These observations point to the 'imaginary of thinking' described to this polity model as well as the ability to implement them due to the cooperative stance from public and private actors.

- *The liberal model*

The liberal model combines a societal authority and an associational organization of society. State intervention in the model is to be kept to a minimum; there is distaste for officialdom and bureaucracy. Notions such as free capitalism, individual rights and economic liberalism are central. The interaction between public and private actors is characterised as adversarial and legalistic instead of cooperative and informal as in the previous models. Jurisdiction has an important role to play. Citizens can easily challenge government and its rules in court. Freedom of speech and information are emphasized. Interest differentiation is thought to be natural and is highly legitimated. Policymaking is reactive making it interesting for groups to lobby for their interests into the policy arena. There are multiple access points, not only for privileged corporations, resulting in a pluralistic system in which interest groups are in a constant struggle to influence the policy level.

With only 2 agreements in the US (Mazurek 1998) and between 10 and 20 in the UK (Jordan, 2001), negotiated agreements are rather seldom. First explanation is found in the associational organization of business. Vogel (1986) argues that the notions of free capitalism and the individualistic ethos of the American business culture severely limit the role of trade associations as a vehicle for industry self-regulation and collective commitments. Second, Delmas and Terlaak (2002) point to the adversarial attitudes between US business and authorities to explain why many companies are reluctant to engage in collaborative actions. Finally, the fragmentation resulting from a complex overlay of federal, state and local laws together with the wide range of opportunities to challenge decisions in court hinder policy-makers to credibly commit themselves or to provide regulatory flexibility in an informal

manner (Delmas and Terlaak, 2002). Regarding the UK, Jordan (2001) claims British negotiated agreements are usually non-binding and often more akin to codes of best practice than formally negotiated agreements between the government and industry. Britain's pluralistic interest group system with weak industry-wide or sector-wide umbrella organisations is sometimes seen as an important explanatory variable for the low adoption of agreements within this jurisdiction.

Voluntary approaches in the form of take-it-or-leave options for individual firms are more in line with an associational society and are more popular compared to negotiated agreements. Almost all approaches in the US are of the 'public scheme'-type and one negotiated agreement (Project XL) requires companies to sign in on an individual basis (Muzarek, 1998). The UK has been a forerunner in environmental management with its BS7500, but takes only the fourteenth place on the ISO14001/GDP ranking of OECD countries. The cradle of environmental auditing is situated in the US (Watson and Emery, 2004a) but currently the US leave only Iceland and Mexico behind in our ranking. Delmas (2002) claims the US institutional environment seems acting as a deterrent to ISO 14001 adoption as US companies are fearful of the certification process which lays their performance open to public scrutiny. Third parties can easily obtain environmental reports and easy access to courts enables juridical actions.

Next to the voluntary approaches adoption pattern that seems in line with the expectations resulting from the institutional setting, these countries took some market-based environmental policy innovations that are in line with the focus on economic liberalism. Well-known examples are the US emission-trading scheme for SO₂ (1990) and the Toxic Release Inventory (1986) obliging companies to publicly report emissions of toxic substances. Jordan et al. (2003) indicate that the UK is especially enthusiastic about tradable permits but fairly uninterested in other new environmental policy instruments. A recent example of the UK's preference for market-based instruments is the climate change levy introduced in 2001.

- ***The state-nation model***

Our last model combines a centralist, statist government with an associational organization of society. Combining both results in public-private rivalry. State officials operate in a vacuum isolated from society. Their acts are driven for the 'sake of the nation', which does not necessarily correspond with public interests. The higher civil servants see themselves as representing third party interests because they act for the state and the state acts for the general interest. In fact, public participation in the policymaking is limited as much as possible and interest group formation is discouraged. Citizens are not granted extensive access to information or cannot easily challenge government decisions in court

as in the previous model. Consultation is said to take place so that the administration can explain its decisions to the groups affected by them. Demands for participation are interpreted as interference and depicted as irresponsible protest. The authority is hierarchically structured with emphasis on formal rules and titles. Besides, the state has a large stake in major corporations and this gives rise to a culture of collaboration between a limited number of industry and government top-elites.

Not many studies focussed on the use of voluntary approaches and the institutional setting in France or other semi-typical state-nation countries (Italy, Belgium). All in all, it is quite safe to state that negotiated agreements are not that popular in these countries with 8 in France, 6 in Belgium and 11 in Italy (EC, 1996a). In France, agreements serve as a basis for the development of national legislation and standards in a latter stage to replace the agreements (Jordan et al, 2001). For some issues the government needs business cooperation as it lacks information to draw up legislation from scratch. This was the case for the end-of-life vehicles agreement (Aggeri, 1999). Like in ‘statist’ Germany, agreements are non-binding and third parties are largely excluded from the development process (Delmas and Terlaak, 2002). Italy is quite active in EMAS as well as in ISO 14001 certification, France and Belgium not. However, research on these observations is too limited to attach institutional explanations to these observations.

Concluding, state-nation countries did not took a lead in developing or implementing voluntary approaches. This corresponds with the picture of a steering government that has more interest in suppressing social action than in encouraging voluntary self-regulatory initiatives. Some negotiated agreements can be identified which are used to prepare coming legislation and especially in sectors of major economic interest where the boundaries between public and private are blurred due to the close relations of the authoritative and business elites in these milieus.

Research paper 2

**Competing environmental management standards: How ISO 14001 outnumbered EMAS
in Germany, the UK, France and Sweden**

R. Bracke and J. Albrecht

The previous section pointed to the importance of the socio-institutional context of a country in explaining the popularity of different types of voluntary approaches. A country typology developed by Jepperson was introduced in this regard. The research paper presented here builds on this background to analyse the differences in the uptake rate between the two most common environmental management standards (ISO 14001 and EMAS) in four European countries:

Germany, the UK, France and Sweden. Each country provides a prototype example of the four distinct polity models.

***Abstract.** In the middle of the nineties two international environmental management standards became available for European companies: the European Eco-Management and Audit Scheme (EMAS) and the International Organization for Standardization's ISO 14001. Companies that wanted to implement a standardized environmental management system were confronted with the choice between their national standard, the European or the international one. In the past decennium, the national standards have been abolished and the number of ISO 14001 certified companies has outnumbered the number of EMAS registered organisations. The speed at which and the extent to which ISO 14001 has outnumbered EMAS however differs between countries in the EU-15. We argue that a country classification based on the degree of statism of the collective agency on the one hand and the degree of corporatism of society's organization on the other, offers a valuable perspective for analysing the evolution of the uptake of both standards in a country. We present the case of Germany, the UK, France and Sweden and conclude that in countries characterised by a more societal organisation of authority, private alternatives for national regulations like ISO 14001 are welcomed and adopted with enthusiasm. In countries characterised by a rather statist organisation, such alternatives are looked upon with more suspicion resulting in a delayed take-up. Whereas ISO 14001 is a purely private initiative, voluntary registration to the EMAS regulation creates a link between the company and the authorities. In contrast to corporatist settings, this frightens off business participation in associational countries.*

2.2.3. Explanatory value of the Jepperson's country typology

Some observations found when linking the literature on the diffusion of voluntary approaches with Jepperson's country typology in the previous section, matched nicely with the predictions that result from the typology e.g. the high number of negotiated agreements in corporatist settings, the informal character of such agreements in the state-corporate countries compared to the social-corporate countries, the preference for "individualistic" approaches (EMS, EPA's public schemes) in liberal countries and the rather low uptake of voluntary approaches in state-nations. However, likewise it is possible to point to some observations that do not correspond with expectations. Whereas eco-labels would rather be expected in liberal countries, the first eco-label was introduced in Germany (Blue Angel in 1977) and the most successful scheme, the Nordic Swan, runs in the Scandinavian countries. A somewhat similar remark can be made with respect to EMS. Whereas they, as expected, originated in the liberal countries many corporatist countries have surpassed them when it comes to uptake rates. Regarding negotiated agreements, it is puzzling that the first agreement in Europe has been signed in

France, which has now become a laggard when it comes to the use of negotiated agreements. These observations point to the fact that our institutional approach (i.e.. Jepperson's typology) is unable to fully explain the differences in the geographical uptake of voluntary approaches.

The finding that the suggested country typology only partly enables to explain the geographical diffusion of voluntary approaches is however not that surprising. The Jepperson typology distinguishes countries based on two dimensions: the organization of authority (societal versus statist) and the organization of society (associational versus corporate). This results in an interesting but nevertheless quite general and basic country typology that takes into account only a limited number of institutional characteristics. Accordingly, for a number of countries (e.g. the Netherlands, Belgium, Italy) there is discussion amongst academics about where these countries fit in. One critique is that the framework ignores *internal* and *temporal* differences within countries. Regarding the internal differences, evidence suggests large variation in style across sectors within a given nation (for instance, Howlett, 1991; Howlett and Ramesh, 1993). Furthermore, the typology fails to acknowledge shifts in instruments *over time*. Sometimes these occur over relatively brief periods (Bressers and O'Toole, 1998). They refer to the introduction of negotiated agreements in the Netherlands. Furthermore, empirical case studies point to the fact that the introduction or non-introduction of a certain instrument is certainly not always the results of a well considered policy choice (see Jordan et al., 2003 for some examples). Sometimes the political party or person that is in charge of the environmental Ministry determines the instrument selection or sometimes instruments are pushed on the national agenda by some exogenous factor like the European Commission. Finally, Tews et al. (2003) claim that the diffusion of policy instruments is largely influenced by the characteristics of the instrument at hand. Instruments like national sustainability plans, that do not really affect the core of a countries policy making, spread rather easily, but the reverse holds for instruments that deeply affect national routines e.g. eco-taxes.

Basically, there are two schools of thought that try to explain the diffusion of policy instruments: the institutional perspective and the policy leaning perspective. The Jepperson typology is an application of the institutional perspective. In short, this perspective claims that only those instruments that fit into the existing institutional and political characteristics are likely to be adopted. (see 2.2.1). The second perspective emphasises the importance of policy learning (see e.g. Hall, 1993). Ideational theories regard shifts in ideas and interests as the most prominent drivers of policy development and policy instrument selection. Ideational theories assume that policy makers are fairly unencumbered by institutional constrains and rationally oriented in their objectives (Jordan et al., 2003). The instrument choice results from an understanding of how a certain policy problem should be tackled, i.e. the suitability of particular instruments to act as solutions. There is a cognitive struggle between social

groups to become the dominant paradigm. When certain instruments fail to work properly or if new ideas emerge and become dominant, the repertoire of instruments will be adjusted accordingly. The introduction of MBI for instance can be understood from this perspective (support by OECD, EU, UN and academics has overcome initial scepticism of environmental pressure groups). Similarly, the breakthrough of new ideas like sustainable development, pollution prevention pays etc. had an impact on the general thinking about which instruments should be implemented.

Regarding the diffusion of voluntary approaches, ideational theories would point to a rather wholesale switch to voluntary approaches on the condition that these are supported by a transnational community of experts and organizations. In addition these theories call for a rather uniform adoption among countries where these experts are dominant. The institutionalist perspective rather predicts the overall pattern of use will be fairly heterogeneous, reflecting the resilience and longevity of national institutional traditions.

Jordan et al. (2003) tested the validity of both theories based on a comparative case study analysis of four new environmental policy instruments (NEPI) (i.e. eco-taxes, tradable permits, voluntary agreements and eco-labels) in eight countries: Australia, Austria, Finland, Germany, France, Ireland, The Netherlands and the UK. In line with our finding, they conclude that none of both can adequately explain the diffusion pattern that is observed. Ideational theories struggle to explain the highly differential pattern of NEPI use. Second, they struggle to explain the difficulty of replacing regulations with NEPIs. Third, the pattern of change in many countries was far more chaotic and chance-like than ideational theories might imply. Concerning the institutional theories, they claim that these cannot explain that whereas countries are not responding to NEPI in precisely the same manner, they nevertheless are proceeding along broadly similar tracks which suggests some exogenous factor is at work in pushing adoption. Second, institutional theories offer an insufficient explanation for the direction in which change is occurring. Finally, they claim that a number of factors at work are rather political (e.g. the weaknesses of environmental political parties and pressure groups) than entirely institutional. As such they conclude that (p. 219)

“neither perspective offers an entirely satisfactory explanation for the pattern of NEPI use revealed by our case studies. Ideational theories are better at explaining the motives and dynamics of change, whereas institutional theories concentrate more upon the filtering effect of national institutional forms.”

3. The changing nature of negotiated agreements

The first section of this chapter pointed to the quantitative growth of voluntary approaches in the last decades. The cross sectional analysis of the second section highlighted that countries adopt different approaches in varying levels. In this final section, we will point to a general, qualitative shift that has occurred over time but, as Aggeri (1999) noted, to which only little attention is paid in the literature.

Whereas in the beginning voluntary approaches were rather flexible, informal policy arrangements, there is a shift towards a more formal approach in the use of this instrument. This especially holds for the subcategory of negotiated agreements and concerns aspects such as the legal status, the contents, the legitimacy and the problems dealt with (Aggeri, 1999). Regarding the *legal status* there is a move from non-binding gentlemen's agreements towards binding agreements. It is reckoned that only in Denmark and Flanders a legislative framework enabling the authorities to sign binding agreements is installed (Barth and Dette, 2001). However, also in other jurisdictions there is a trend to back agreements with sanctions in case of non-compliance. Besides, instead of negotiating agreements based on a lenient legislative threat, more and more agreements are integrated within existing regulatory schemes. Both the UK climate change agreements (Ekins and Etheridge, 2006) and the Danish scheme on greenhouse gas emission (Wier et al., 2005) for instance, are implemented in tandem with a tax system. Participating companies are granted a discount in the tax on the condition that they meet the agreed upon targets. Moreover, as companies had to sign in on an individual basis, free-riding problems associated with collective liability systems are avoided. Second, in drawing negotiated agreements, more attention is given to *the contents* of the document with respect to clearly defined targets, responsibilities, monitoring and reporting requirements. Strengthening the design of environmental agreements was one of the main aims of the guidelines set out in the Communication on Negotiated Agreements from the European Commission (EC, 1996b). Thirdly, *legitimacy* concerns that were raised in the beginning are being dealt with. Increased transparency on and formality of the negotiation, the implementation and the results of negotiated agreements are set forward to gain support from critical policy observers like environmental organisations and trade unions. In addition, the European Commission supports this way of governance and in the Netherlands negotiated agreements are the key instrument to achieve the long-term objectives set forward in the National Environmental Policy Plans. Finally, concerning the *problems dealt with*, there is a shift from acute and localised pollution from easy identifiable polluters towards more complex and diffuse problems. There is a move from implementation-oriented agreements aiming to diffuse BAT towards innovation-oriented agreements with a focus on collective learning and awareness raising (Aggeri, 1999).

Without doubt, the most well-known illustration of this trend can be found in the Netherlands. As in the rest of Europe, the agreements concluded in the 1980s were non-binding, ad hoc arrangements characterised as gentlemen's agreements (Jordan et al., 2001). However, in the 1990s, the Dutch negotiated agreements, called covenants, were transformed into legally binding agreements that are negotiated within a relatively transparent decision-making process (Mol et al., 2000; Zito, 2001). The National Environmental Policy Plan of 1989 marks the turning point. This plan set out long-term targets based on a broad consensus of industry, national and local regulators and environmental and political groups. The methods and timetables to achieve these targets are negotiated with industry. Companies enter into these covenants on an individual basis by signing binding contracts that are enforceable under civil law. In addition, the covenants are tightly linked to the permit system as follows. Each company has to draft a Company Environmental Plan in co-operation with the local permit authorities. These plans indicate the pollution abatement targets, their time schedule and the measures for implementation. These plans are eventually integrated into the permit requirements and revised every four years. As such, individual monitoring and sanctioning of firms in the covenant scheme is executed via the permit system (OECD, 1999). Companies producing acceptable plans are granted flexibility in permitting procedures; companies drafting unacceptable plans are penalized through increased stringency of operation licenses (Khanna, 2001). Bressers et al. (forthcoming) however play down this "theoretical" enforceability when looking at the actual practice. According to their evaluation study on the Dutch covenants there are serious doubts about the motivation of local authorities to really implement this formal safeguard via the licensing system. In general however, they conclude that most actors are rather positive towards the results of the covenants. Maybe this makes that there is only little pressure to adopt a strict stance in the permitting process by local authorities.

Another, yet less known, example of a clear shift in the way negotiated agreements are implemented in environmental policy is found in Belgium/Flanders. The transfer of environmental competences from the federal level to the regions in the wake of the state reform of 1993 and the subsequent legal framework for environmental agreements that was implemented in Flanders in 1994 are pivotal in this regard. Apart from Denmark, Flanders is the only jurisdiction where a legal framework for the use of negotiated agreements was installed. We refer to the third research paper, presented below, for an in-depth analysis of this case.

To conclude, this section claims that a shift towards more formal and stringent negotiated agreements is taking place. In a way, negotiated agreements are moving in the direction of public voluntary schemes in which targets are determined to a large extent by the government and to which individual companies can subsequently subscribe. The Danish scheme on greenhouse gas emissions, the UK

climate change agreements, the Dutch covenants or the Flemish Benchmarking agreements are just some examples of this trend. Similar trends can be spotted within the so-called unilateral commitments. There is a lively debate whether corporate social responsibility (CSR) should be left totally to the discretion of individual corporations or whether there is a need for involvement of multinational organisations to develop guidelines, set basic requirements and to monitor progress (see e.g. Christmann and Taylor, 2002; Warhurst, 2005; Jenkins, 2005; Clapp, 2005). As the KPMG report (2005) notices, more and more corporations are following external guidelines for developing their CSR policy in general and their voluntary sustainability or environmental reports in particular. Some of the leading initiatives include the United Nation's Global Compact (a framework for business operations and strategies related to human rights, labour, the environment and anti-corruption), the OECD guidelines for multinational organisations and the Global Reporting Initiative (GRI). Moreover the report notices that companies have growing interest in seeking external validation of the reported non-financial data. The number of sustainability reports with a formal assurance statement has increased slightly between 2002 and 2005 both for the G250 and the N100 companies (KPMG, 2005). The OECD report on voluntary approaches notices the same for the chemical industry's Responsible Care Program. Over the years the provisions for monitoring and sanctioning in the program have been strengthened in order to render the initiative more credible by including third party participation in monitoring procedures and the possibility to exclude deviators from the professional association (OECD, 1999). Finally, the success of ISO 14001 is another indicator of the progress towards more uniformity and formality within voluntary approaches. Environmental management and auditing practices already started in the 1980s when industries and individual businesses created systems that suited their own needs (Watson and Emery, 2004a,b). They were created to cope with the fast growing environmental legislations at that time. Again, standardization and formalisation of these practices occurred by the introduction of widely recognised standards like BS7500, ISO 14001 and EMAS and the external validation thereof.

Research paper 3

Twenty years of negotiated environmental agreements in Belgium: from gentlemen's agreements to binding contracts

R. Bracke and M. De Clercq

This third research paper presents the evolution of the use of negotiated environmental agreements in Belgium and Flanders. Due to changing institutional arrangements with regard to environmental policy competences, the use of negotiated agreements has shifted from the federal to the regional level. Besides a general overview of negotiated environmental agreements in

Belgium/Flanders, this paper focuses on the implications from the changing character of the agreements due to the implementation of a legal framework for the use negotiated agreements in Flanders. It contrasts the rather loose ‘gentlemen’s agreements’ that were concluded in the beginning at the federal level to the binding contracts that the Flemish level aims at.

This paper builds heavily from the insights gained during two research projects. The first “*The use of voluntary instruments for the realisation of a sustainable development*” was financed by the Federal Science Policy Office and carried out in the framework of the Scientific Support Plan for a Sustainable Development Policy (see De Clercq et al. 2001b). This project was carried out between 1997 and 2001 and evaluated all agreements concluded in Belgium and Flanders. The project ran parallel to the European NEAPOL project (Negotiated Environmental Agreements in Europe: Policy Lessons to be Learned from a Comparative Case Study Analysis; see De Clercq 2002) funded by the European Commission. The second “*The implementation of the duty of acceptance in Flemish waste policy: the role of negotiated agreements*” was financed by the Flemish Environmental Agency (VMM) in the framework of the MIRA-BE 2003 project (Report on Nature and the Environment: Policy Evaluation) (see De Clercq and Bracke 2005). Here we studied a group of waste management agreements that were concluded under the legislative framework.

***Abstract.** When negotiated environmental agreements entered the policy arena they were characterised as gentlemen’s agreements containing only vague targets, little monitoring provisions and hardly any sanctions in case of non-compliance. This brought about much criticism towards the effectiveness and legality of this instrument and led to the development of guidelines towards more enforceable agreements. As this reduced the attractiveness for industry, this policy shift is questioned. Flanders is one of the few jurisdictions where a legislative framework was introduced and provides an illustrative case. The implications of the swing from gentlemen’s agreements to binding contracts were not limited to the legal status, but also affected the perspectives of the actors involved and the institutional context in which agreements are concluded and implemented. Whereas at first the policy shift resulted in a deadlock, the second-generation agreements now seem to deliver the improvements hoped for.*

4. Summary

After looking at the drivers of new governance patterns in the previous chapter, this chapter provided some data on the use of voluntary approaches. The first section presented indications of the growing popularity of voluntary environmental reporting, fair trade, EPA's voluntary programs, ISO 14001 certification and negotiated agreements in the European Union. With regard to the use of negotiated agreements we also pointed to a qualitative trend that prominently manifested itself in some countries (e.g. the Netherlands, Denmark, Belgium): whereas agreements were used formerly used as non-binding, ad hoc policy arrangements, more recent agreements are embedded in a long-term policy strategy and contain provisions to ensure their environmental effectiveness.

When looking at the geographical diffusion of voluntary approaches, it appeared that their uptake differs significantly between countries. More specifically, the picture that different countries seem to prefer different sorts of voluntary approaches emerged. Japan has a large number of negotiated agreements concluded at the local level and is the worldwide number one in terms of ISO 14001 certification (in absolute numbers). In the US, both ISO 14001 and negotiated agreements are rather seldom, but voluntary public schemes are quite popular. In Europe negotiated agreements concluded at the national and regional level with industrial branch organisations are frequently implemented. However, they spread unevenly. Fewer agreements are concluded in the South and two-thirds are concluded in Germany and the Netherlands. Finally, it is worth pointing to the fact that there are major differences between the German and the Dutch agreements.

In search of alternatives to overcome the problems of command-and-control regulation, each country clearly follows an idiosyncratic trajectory. The final aim of this chapter was to shed some insight on the determinants that can explain the difference in these trajectories. We took the institutional 'goodness of fit' concept from the literature on policy diffusion, which states that the correspondence between a policy instrument on the one hand and domestic institutional, economic and social structures on the other determines the varying level of implementation in countries. Four polity models were distinguished depending on the organization of collective authority on the one hand and on the organization of society on the other. In corporatist settings, negotiated agreements were rather widespread but differed in nature. In state-corporate models non-binding agreements are concluded without much transparency. In the social-corporate model on the contrary, there is more third party involvement and policy consideration when concluding negotiated agreements that contain stringent enforcement provisions. In addition, other approaches like ISO 14001, eco-labels and MBIs are implemented more often. In associational settings, negotiated agreements occur less, especially in the liberal model. The existence of negotiated agreements in the state-nations could be due to intertwined

relationships between the authoritative and business elites in industries with a major economic importance. In the liberal model, approaches relying on individual participation like public schemes and environmental management systems are more popular. Additionally, they have been pioneers with respect to some market-based environmental policy instruments. Whereas the institutional perspective we adopted provides an interesting way to look at the diffusion of voluntary approaches between different countries, it is acknowledged that not all observations fit nicely within the expectations resulting from the theoretical framework. One important limitation of using a country typology is that it cannot account for differences that occur within countries due to for instance variations of policy style across sectors or changes in the preferred instrument type due to a change of the parties in power or pressures from multinational governments and think tanks like the EU or the OECD.

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Chapter 4 - Evaluating Voluntary Approaches

“You can fool some people sometimes, but you can’t fool all the people all the time”

Bob Marley (Get up, Stand up)

This chapter evaluates the merits and drawbacks of voluntary approaches from a societal point of view. Section one starts by raising two basic issues in the evaluation of policy instruments: the evaluation criteria to be used and the reference against which to estimate the impacts of an instrument. Next, we will present an overview of the theoretical as well as the empirical literature structured along the classic tripartite classification: unilateral commitments, public voluntary programs and negotiated agreements. Section two summarises the main findings of the literature review along the three “E’s” evaluation criteria: effectiveness, efficiency and equity. As this leads to a rather disappointing picture, this summary is followed by some background considerations that should be taken into account before judging on the appropriateness of voluntary approaches to reach environmental objectives. Finally, section two questions whether voluntary approaches offer a promising strategy in striving towards a long-term transition to a sustainable society. It is argued that if voluntary approaches are implemented in this regard, there might be a need for new evaluation frameworks that take into account the crucial criterion of creating a base for future advances. Again, the last section summarizes the main findings of this chapter.

1. The literature on the evaluation of voluntary approaches

1.1. Key issues in evaluating policy instruments

When evaluating the impact of a policy instrument, two key questions should be raised: by *which criteria* should one evaluate the outcome of the instrument and against *which baseline* should the evaluation be carried out?

For the evaluation of environmental policy instruments, there is no widely accepted set of evaluation criteria (Mickwitz, 2003). Mickwitz (2003) makes a distinction between three groups of criteria: general criteria (relevance, impact, effectiveness, persistence, flexibility and predictability) economic criteria (cost-benefit efficiency and cost-effectiveness) and democracy-related criteria (legitimacy,

transparency and equity). Mickwitz (2003) acknowledges that this list does not form an inclusive list of possible criteria, but believes these criteria are generally the most important ones. The instrument that is to be evaluated might also influence the selection of evaluation criteria. In its evaluation of voluntary approaches, the OECD (1999) uses seven criteria (see table 4-1). These criteria somewhat differ from the ones the OECD (1997) used for evaluating market-based instruments. Here the criterion ‘revenues’ is added to the list and the criterion ‘viability and feasibility’ is dropped. Besides, some other criteria (competitiveness implication, innovation and learning effects) are interpreted slightly different.

Table 4-1: Evaluation criteria for voluntary approaches used by the OECD

Evaluation criteria	Description
<ul style="list-style-type: none"> ▪ Environmental effectiveness 	<ul style="list-style-type: none"> ▪ Refers to the goal attainment of the environmental target and the environmental impact thereof.
<ul style="list-style-type: none"> ▪ Economic efficiency 	<ul style="list-style-type: none"> ▪ Refers to the level of economic costs incurred to achieve the target.
<ul style="list-style-type: none"> ▪ Administration and compliance costs 	<ul style="list-style-type: none"> ▪ Refers to the organisational costs necessary for devising and implementing the policy.
<ul style="list-style-type: none"> ▪ Competitiveness implications 	<ul style="list-style-type: none"> ▪ Refers to anti-competitive impacts due to e.g. collusion in domestic markets or erecting non-tariff barriers to trade in international markets
<ul style="list-style-type: none"> ▪ Soft effects 	<ul style="list-style-type: none"> ▪ Refers to behavioural changes that stem from a voluntary approach
<ul style="list-style-type: none"> ▪ Innovation and learning effects 	<ul style="list-style-type: none"> ▪ Refers to the incentives of the voluntary approach on innovation and the diffusion of innovations
<ul style="list-style-type: none"> ▪ Viability and feasibility 	<ul style="list-style-type: none"> ▪ Refers to the political and social acceptance of voluntary approaches

Source: OECD (1999)

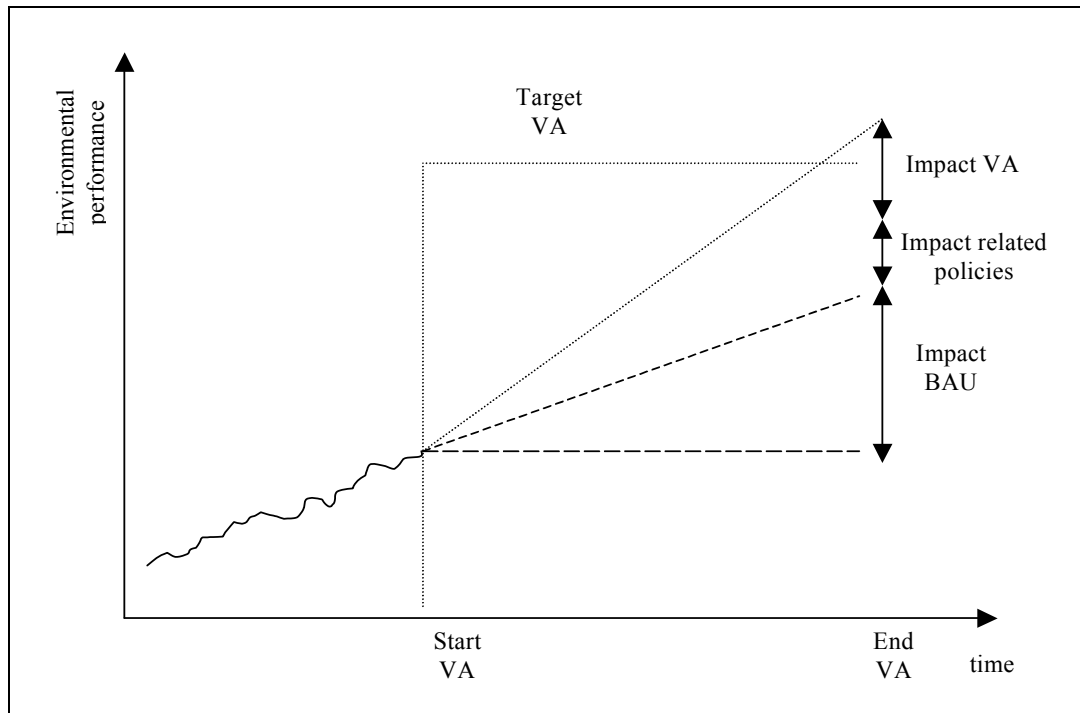
In this overview, we choose to limit the number of evaluation criteria by focussing on the three *Evaluation criteria*: effectiveness, efficiency and equity. When considering these criteria with respect to voluntary environmental approaches, we can describe them as follows. *Effectiveness* refers to the extent to which the environmental objective, for which the instrument was implemented, has been reached. *Efficiency* concerns the costs associated with the way in which the target was achieved. At best, these should be minimized. *Equity* is harder to define but in general it concerns providing a minimum level of benefits (or a maximum level of costs) across persons, groups, or places that are affected by the instrument. According to Mickwitz (2003), equity also refers to the degree in which all participants have equal opportunities to take part in and to influence the processes used by the administrators.

Compared to the OECD (1999) we thus use a limited number of evaluation criteria. The evaluation framework for voluntary agreements developed by Cabugueira (2001) however also only includes

these three criteria. On the one hand we believe that environmental effectiveness and economic efficiency are highly important criteria for the evaluation of policy instruments. The last criterion, equity, is especially relevant for voluntary approaches as they are developed with less third party involvement and in a less institutionalised setting. On the other hand, we think that, depending on the specification of these criteria, many other evaluation criteria can be seen as sub-elements of these three. Practical feasibility which concerns administrative ease and costs is actually a part of the efficiency question, impacts on competition are linked to the equity criterion, dynamic effects and innovation incentives can be considered with regard to the effectiveness and so on. The analyses in this section will primary focus on the environmental effectiveness of voluntary approaches, as we believe this to be most important and controversial.

Now we know on what to determine our judgement, we need a *reference* for our judgement. From which level can one say that an instrument scores well with respect to the efficiency criterion? Against what do we need to compare the effectiveness of an instrument? Do we compare with the situation before the implementation of the instrument, with the expected evolution without the instrument (the so-called business-as-usual scenario) or with the expected evolution in case another instrument would have been applied? Figure 4-1 gives an impression of the issue with respect to the environmental effectiveness criterion. It pictures the imaginary evolution of the performance of an environmental indicator before the start of a voluntary approach and presents three different trends from the start of the approach. The dotted line below just keeps the environmental performance constant from the moment when the instrument was put in place. The line in the middle presents the business-as-usual scenario. This is the best estimate of the evolution that would have occurred in case the instrument would not have been implemented. It is not a straightforward extrapolation of the historical trend, but it incorporates all additional information and expectations to predict the future evolution. The upper line presents the actual evolution of the environmental indicator over time.

Figure 4-1: Measuring the environmental effectiveness of a voluntary approach



This already provides four scenarios against which to analyse the environmental impact of the instrument:

- *the stand-still scenario*: measures the difference between the actual performance at the end of the voluntary approach and the level at the beginning. It should however be reckoned that many environmental parameters have an inherent (stochastic) trend. CO₂-emissions of a company, for instance, fluctuate over time with changes in the energy demand due to new production techniques, substitutions of energy drivers, changes in the output level due to business cycle fluctuations, the average outside temperature etc. Given this trend the stand-still scenario makes as rather poor reference standard. However, its ease of use makes it a very common reference. The targets of many voluntary approaches are expressed this way.
- *the target scenario*: measures the difference between the actual performance and the target of the instrument. Figure 4-1 pictures a situation of overcompliance. Of course, a situation of full compliance or undercompliance is also possible. It might however be the case that the environmental improvement of an approach with an unambitious target that was achieved is actually below the improvement of an approach with a more ambitious target that was not complied with. As such, this approach only provides an incomplete picture. It is however often used in evaluation studies.
- *the business-as-usual scenario*: measures the difference between the actual performance and the level that would have occurred without the voluntary approach. This offers a better estimate of the actual impact that is attributable to the voluntary approach. Unfortunately, in

contrast to the above, this reference is hard to determine and to some extent always hypothetical.

- *the related instruments scenario*: is relevant when the voluntary approach is implemented as a part of a policy mix. In many cases voluntary approaches are used in tandem with other (regulatory) instruments. In this case the related instruments scenario measures the difference between the actual performance and the level that would have occurred when the voluntary approach would not have been included in the instrument mix. This scenario is even harder to estimate compared to the business-as-usual scenario.

Finally, one more reference scenario exists:

- *the first-best scenario*: measures the difference between the actual performance and the level that would have been achieved in case the first-best policy instrument would have been implemented.¹ This is relevant when a voluntary approach was selected as second-best solution. The first-best option might have been considered infeasible due to e.g. political or economic constraints. This reference probably provides the best picture of the actual impact of the voluntary approach but its estimation is difficult and accompanied with more uncertainty compared to the previous scenarios. First, one has to determine what the first-best instrument would look like and second, one has to assess its expected impact.

Before the researcher can proceed, he needs to answer these two issues: the evaluation criteria and the evaluation baseline. In contrast to the latter, the researcher has quite some discretion to choose on which criteria he would like to focus. This might depend on his personal interest or be bound to the instrument itself. For instance, an agreement aiming at the diffusion of BAT in an industry should be judged on different criteria compared to an agreement that aims to provide incentives to innovate. The second question is rather determined by the availability of data and the resources of the project. The limitedness of both explains why many evaluation studies focus on the target or the stand-still scenario. Studies aiming to provide insight on the business-as-usual, the related instruments or the first-best scenario are commonly only able to provide answers within a certain margin of error. A valuable compromise and practical solution might be to use multiple evaluation baselines. Bressers et al. (forthcoming) for instance use this technique when evaluating the Dutch covenants. Instead of estimating the environmental impact, they ask referents to judge (agree-disagree) various statements on the environmental effectiveness like ‘the objectives were clearly beyond business as usual’; ‘the

¹ In case the voluntary approach is considered first-best, one can compare the results with the results that would have been achieved under the second-best option to get an impression of the additional benefits of the voluntary approach.

objectives are attained in time’; ‘the agreement led to a positive break with the past in the environmental performance’. Especially when a quantitative evaluation proves difficult, such an approach delivers interesting information on the environmental performance of the voluntary approach.

1.2. Theoretical literature

Below, an overview of the theoretical literature on voluntary approaches in environmental policy is presented. Theoretical work can be considered as an *ex ante* evaluation that departs from a limited amount of assumptions and reaches conclusions based on rational deduction. The next section discusses empirical work which can be seen as an *ex post* evaluation of the theoretical expectations. In this review we restrict ourselves to the studies we believe are most important. We mainly look for articles that are often cited and are published in peer-reviewed journals or books. Furthermore, we are most interested in studies that draw some implications on the impacts of voluntary approaches on social welfare rather than studies on business strategy or management. After a short description of the studies, we present a short summary of the main findings.

1.2.1. Unilateral commitments

Arora and Gangopadhyay (1995) analyse how low- and high-quality firms react to the imposition of minimum quality standards. They assume a situation in which consumers value environmental quality but differ in their willingness to pay depending on their income level. Full information enables the consumers to distinguish the “green” product from the other. Firms play a two-stage duopoly game where they first choose their levels of cleaning technology and next engage in price competition. Their theoretical analysis shows that if the government imposes a minimum standard that is not too high (i.e. that keeps both firms in business), the dirty firm will meet the standard exactly while the cleaner firm will improve its performance over the mandated standard level. The intuition behind this finding is that the additional cost of increasing environmental performance does not outweigh the positive impact of product differentiation and higher prices. As such, they explain the growth in overcompliance by changes in consumers’ preferences combined with the increasing availability of environmental information.

Lutz et al. (2000) however cast doubts on the benefits of pro-active environmental leadership. In contrast to *Arora and Gangopadhyay (1995)* they develop a model in which the firms do not react to the imposition of minimum standards but move first. They also use a duopoly model where products

are vertically differentiated, but the companies can choose their level of (environmental) quality before the government adopts minimal quality standards. It is shown that if the high-quality firm can commit to a quality level before regulations are promulgated, this firm will strategically exceed the anticipated standards by a limited amount and as such induce the regulator to set a lower minimum quality standard. This results in a situation where both firms produce a lower quality than if the government had adopted minimal quality standards first. While this results in higher profits for them, it lowers consumers' welfare and results in lower social welfare. As such, they conclude that substantial delays in the regulatory process of standard setting can be damaging to social welfare as this creates opportunities for firms to move first and negatively influence the minimum quality standard.

Maxwell et al. (2000) present a model in which companies in an oligopoly might opt to self-regulate in order to pre-empt consumer groups from lobbying for more stringent government regulation. Their model shows that self-regulation occurs depending on the coordination and lobbying costs. Industry as well as consumers are better off in the self-regulation case as both save on lobbying costs and consumers get some level of pollution abatement on top. Despite the fact that the abatement level is sub-optimal, it Pareto dominates the social welfare that would have arisen if the government had issued mandatory regulations driven by both consumers and industry lobby activities.

Whereas the welfare implications found by Maxwell et al. (2000) are rather positive, those of Lutz et al. (2000) are not. Lutz et al. (2000) point to the difference between the welfare effects of corporate quality leadership that pre-empts mandatory regulations and leadership that shapes regulations that cannot be pre-empted. Maxwell et al. (2000) found that pre-emptive self-regulation can have socially beneficial, but not optimal, effects. This is because self-regulation eliminates the transaction costs of using the regulatory process. Once new standards have been legislatively mandated, however, these costs can no longer be avoided, and this explains the socially detrimental outcome of Lutz et al. (2000). Their model also results in a sub-optimal environmental protection level without saving on the costs involved in the regulatory process. Arora and Gangopadhyay (1995) provide a theoretical model of overcompliance, but their study does not include social welfare implications.

1.2.2. Public voluntary schemes

Stranlund (1995) builds a model to compare two regimes to support compliance to an environmental norm: a mandatory regime supported by a fine and a voluntary program supported by government efforts to reduce compliance costs. He shows that the voluntary program is superior depending on whether the public effort is rival, the degree of excludability of public effort and the relative prices of private and public effort. Stranlund concludes that voluntary policies will be most effective when they

provide nonrival efforts such as technical information about pollution abatement technologies. This is because it avoids wasteful duplication of this effort that occurs when each company needs to collect the information on its own. If, however, public effort is rival in nature and non-excludable, then a mandatory program can achieve a higher social welfare. The mandatory program is more efficient because public efforts are not wasted on those who will not comply under the voluntary regime. In this case a voluntary program will dominate only if the cost of public effort is significantly lower than the cost of private effort. Stranlund builds this model in the context of a voluntary recycling program. Applied in this context, the paper concludes that a voluntary approach is welfare improving if the public effort is nonrival (e.g. information) and excludable (e.g. recycling bins are not to be paid for people that will not recycle) and the cost of the public effort is lower (e.g. government can purchase the bins at a lower price compared to individuals).

Segerson (1998) develops a model to analyse the use of a policy that combines a voluntary, cost-sharing program designed to induce farmers to undertake pollution control measures with a background threat of mandatory controls or taxes to reduce nonpoint pollution. The results suggest that depending on (i) the magnitude of the transaction costs associated with implementing a first-best mandatory instrument, (ii) the likelihood that a mandatory approach would be imposed if there is no voluntary approach or if the voluntary approach is unsuccessful and (iii) the social cost of funds used to finance any subsidy that is paid for participation in a voluntary approach, a subsidy-based voluntary program might be more efficient and thus preferable for a welfare-maximising regulator compared to a pure regulatory approach. The idea is that by inducing voluntary participation, the regulator saves on information and transaction costs incurred when having to design a first-best mandatory approach. This is especially relevant for nonpoint and heterogeneous pollution sources as cost-minimizing abatement levels vary across firms making first-best policy approaches information intensive.

Wu and Babcock (1999) analyse the relative efficiency of a mandatory regulation and a voluntary program that grants technical and financial assistance to producers who adopt a land conservation practice. They found that the voluntary program is more efficient if the deadweight losses of government expenditures bound to the voluntary approach are below the difference between the private and public costs of government services plus the additional implementation costs of the mandatory program. The model shows that this is more likely when (i) the deadweight loss from raising government revenue is zero or small, (ii) government services are less rival, (iii) the costs of government services are lower than what farmers would have to pay for equivalent private services, (iv) the number of farms in the program is large, and (v) the saving in implementation costs under the voluntary program is large and increases rapidly with program acreage. These conclusions are in the line of those found by Stranlund (1995) and again point to the importance of nonrival benefits in

voluntary schemes. Logically, these benefits increase with the number of participants and the additional costs to obtain these benefits by private effort.

Lyon and Maxwell (2003) develop a model in which both unilateral actions as well as public voluntary programs can be analysed. More specifically, in the first stage, firms choose a level of unilateral abatement. After observing this level, the regulator chooses whether to impose a welfare-maximising pollution tax that is passed with some probability. If the tax proposal is not approved, the regulator has the option of proposing a voluntary program that subsidizes firms' technology adoptions. The results are quite positive for unilateral actions but negative for public programs. They find that when unilateral action occurs, it pre-empts taxation but enhances social welfare. A voluntary program on the other hand can reduce welfare by increasing industry resistance to socially beneficial tax proposals and by discouraging welfare-enhancing self-regulation by firms so as to not pre-empt the subsidies resulting from the voluntary program. Taxation is superior to the voluntary program because taxation induces inefficient firms to exit while subsidizing under the voluntary program does not. Political opposition to taxation might however create a situation where unilateral actions pre-empt taxation. However, when there is a possibility of a voluntary program, no unilateral action will be undertaken. As such, they come up with a very sceptical view on voluntary public programs.

Maxwell and Decker (2006) look at self-regulation in the form of voluntary environmental investments. In fact, they analyse a sort of public program in which the regulator commits to reduce enforcement oversight on the condition that the firm engages in some voluntary environmental investments. They find that such investments unambiguously increase when the enforcement regulator acts "responsive", i.e. takes into consideration companies' voluntary investments in establishing monitoring and enforcement effort. The firm is motivated to voluntarily invest as this will cause the regulator to reduce the frequency with which he monitors the firm leading to a reduction in the firm's expected fine. Both the regulator and the firm benefit from the increase in the voluntary investment.

Again the results of different studies provide a mixed picture. *Stranlund (1995)*, *Segerson (1998)* and *Wu and Babcock (1999)* draw up a rather positive picture, more recently, *Lyon and Maxwell (2003)* however reach a negative conclusion on voluntary public schemes. The latter is explained because the mere possibility that a public program might be offered increases the opposition to the imposition of taxation by firms and decreases their incentives to initiate unilateral commitments. One should however point to the crucial assumption that the public program is modelled as a subsidy for participants in reaching this conclusion. In the former mentioned studies, public programs might entail beneficial effects depending on some conditions to be met. These occur especially when the probability that a first-best mandatory approach will be implemented is low or when it is expected to

be expensive to implement (Segerson, 1998) and when the benefits of the voluntary public program have characteristics similar to public goods, e.g. the provision of non-rival technical information on pollution abatement technologies.

1.2.3. *Negotiated agreements*

Segerson and Miceli (1998) draw up a model to evaluate the impact on environmental quality of voluntary agreements where polluters are induced to participate either by a mandatory threat or by cost-sharing subsidies. The results suggest that the impact can be positive or negative depending on the allocation of bargaining power, the magnitude of the background threat and the social cost of funds. As they assume the agreement to have lower abatement and transaction costs, they find an agreement is the likely outcome of the interaction game between a polluter and a regulator. Not surprising, they find the level of abatement is positively correlated with the strength of the background threat and the bargaining power of the regulator (this is also found in Segerson and Miceli, 1999). The assumed cost-efficiency however creates the possibility that an abatement level is reached higher than the one that would have been imposed by law. In any case, the abatement target is higher than the expected level under the legislative threat. Including subsidies in the model to induce participation in the agreement increases the acceptable abatement level. This is especially useful when the background threat is weak and the social cost of subsidies low. To conclude, voluntary agreements might enhance social welfare if the regulator has substantial bargaining power, the background legislative threat is strong and the cost of using subsidies low. A crucial assumption for this conclusion to hold is the efficiency advantage of negotiated agreements on pollution abatement and transaction/administrative costs. If these conditions are not met, the welfare implications are expected to be negative.

Schmelzer (1999) takes on a similar approach. He models the interaction between an industry and a regulator in which an emission tax is used as alternative threat. Similar to Segerson and Miceli (1998) the agreement is preferred to the tax but in this case this is explained by avoided costs of monitoring and delays in the regulatory approach. The results suggest an agreement is the likely outcome of the bargaining process if the regulatory threat is credible. The emission level of this agreement however will always be below the one that occurs by the imposition of the tax. This is explained by the strategic advantage of the industry as it controls the emissions. Nonetheless, social welfare under the agreements might be superior insofar as the more limited reductions in emissions are traded against the efficiency gains of avoiding financial and non-financial regulatory costs.

Hansen (1999) develops a model in which the regulator and the legislator might have different objectives. The model suggests that if the regulator is biased towards promoting the interests of the

industry, this might result in weak voluntary agreements that preempt regulations that would have a superior effect on social welfare. The agreement however is concluded as it offers benefits to the firms and the regulator. This is however rather trivial as two parties would never sign an agreement on a voluntary basis if it did not entail a net benefit for them. The model yields no conclusions with regard to social welfare. Next, counter primary intuition, Hansen shows that when environmental interest groups are included in the model, this can reduce environmental quality relative to the level that would have been obtained under a regulatory policy. This occurs because the pressure from environmental interest groups increases the incentives of policy makers to sign agreements. As such, he concludes the analysis is consistent with the view that voluntary agreements are policy instruments used by less environmentally concerned regulators and industries who are faced with increasing public concern for the environment.

Grepperud (2002) departs from a similar approach by assuming that the regulator has preferences over employment due to the presence of layoff costs. In the model, industry and regulators negotiate over pollution abatement targets under the background threat of introducing emission licenses. It is shown that agreements provide gains for both industry and the regulator relative to the use of licenses, but at the expense of lower environmental objectives within the agreement solution. In fact, the regulator makes concessions with respect to pollution abatement in return for more employment from industry. Whereas both parties in the agreement are better off, the paper holds no conclusion with regard to overall social welfare. This will depend on the valuation of environmental compared to employment concerns. *Grepperud (2002)* argues that the reluctance to accept layoffs may produce inefficiencies, especially in the long run. It is however argued that next to environmental effectiveness and efficiency, a range of motivations like competitiveness and employment concerns might provide better explanatory factors for the instrument choice that has occurred in the history of environmental regulation.

Golombek and Moen (2002) model a negotiated agreement between government and industry against the background of imposing emission taxes if the agreement fails. More specifically, the authors model the coordination game of dividing the aggregate abatement target between the firms in the industry to investigate whether emissions are allocated efficiently between firms. As such, they investigate the effects of industry-wide negotiated agreements on the behaviour of individual firms. The paper shows that such agreements are possible in the sense that all firms have an incentive to reduce emissions in response to the taxation threat. However, if firms differ in size this is not achieved in a cost-efficient way. Large firms stand for a disproportionately large part of the reductions in emissions. The intuition behind this result is that small firms that do not reduce emissions only contribute marginally to the increased risk of the imposition of industry wide taxes. Smaller firms thus

have a greater incentive to free-ride on the results of larger companies. This cost-inefficiency leads to conclude that environmental agreements are inferior to environmental taxes. The authors however point to the fact that this is only the case for taxes imposed on emissions and implemented without administrative costs. If firm-specific emissions are hard to measure in contrast to aggregate industry emissions (e.g. by judging water quality), this might plead in the advantage of negotiated agreements with industry-wide targets.

Grepperud and Pedersen (2003) build a model in which the authorities and industry bargain over a negotiated agreement with emission licenses as a background threat. The paper focuses on the initial positions both parties can take to strengthen their bargaining position. Both parties, the authorities by signalling the nature of the emission licenses and the industry by lobbying, can increase the share of voters that prefers voluntary agreements over emission licenses, making it politically costly for the authorities to regulate by law. The authors find that the most likely situation is the one where the authorities signal a moderate threat, causing the industry to select a low level of lobbying. In this case, social welfare increases compared to the initial situation without regulations but the emission level of the agreement will be below the first-best, implying a loss of social welfare compared to this reference. Concluding, they provide evidence on negotiated agreements as suboptimal policy solutions.

Manzini and Mariotti (2003) model firm-regulator negotiations in an oligopoly focussing on the bargaining process. They claim their main finding is the fact that the ‘toughest firm principle’ holds: the outcome of the negotiations is essentially determined by the firm with the most aggressive attitude towards environmental control. Interestingly, *Manzini and Mariotti (2003)* challenge the conclusion from previous studies that stricter threats lead to more ambitious negotiated targets. In their view, an increase in the probability of legislative intervention makes firms more eager to agree with more stringent voluntary abatement targets. However, this is counteracted by the fact that the increased threat also makes the regulator keener to agree with the voluntary approach.

Hansen (2005) presents a model that offers three explanations for the existence of negotiated agreements: the efficiency explanation (lower abatement costs), the policy disagreement explanation (the regulator and legislator have different policy priorities) and the responsibility shifting explanation (the government wants to avoid criticism from green pressure groups). Only the first explanation leads to unambiguous welfare improvements relative to a mandatory approach. Based on a meta analysis of case studies, Hansen argues that negotiated agreements are chosen most frequently in order to shift responsibility for implementation to industrial organizations that are less sensitive to criticism from powerful environmental interest groups. In this case the model predicts a reduction in social welfare as

the agreement will be less cost effective and achieve lower environmental performance than the traditional regulatory alternative.

Glachant (2005) analyses whether a negotiated agreement concluded under the threat of a pollution quota is able to deliver an efficient level of pollution abatement. In the model, the threat is endogenously determined resulting from a rent-seeking contest between a green and a polluter lobby group influencing the legislator. *Glachant* finds that the outcome of the game results in the emergence of a negotiated agreement. The agreement achieves a more efficient level of pollution abatement compared to the politically distorted pollution quota but also that this level is below the first-best abatement level. The underlying intuition is that the polluter is ready to accept an agreement that is more stringent than the legislative quota as the agreement allows polluters to avoid rent-seeking costs.

Finally, *Glachant* (2007) examined whether non-binding voluntary agreements concluded under the legislative threat of a pollution quota, are able to achieve an efficient level of environmental protection. The outcome of the model shows that agreements can improve social welfare relative to legislative intervention when lobbying is very effective and when the polluter and the regulator do not discount futures costs and benefits heavily. The latter condition is needed because it may take several years before non-compliance to the voluntary agreement is discovered and the legislative threat installed. The former condition favours the agreement by the fact that effective lobbying strongly reduces the strictness of the legislative quota to be implemented. *Glachant* shows that when the legislative threat is credible (i.e. lobbying is ineffective) negotiated agreements are inferior to the mandatory quota. This finding nuances the recurrent policy recommendation that agreements should be developed under credible legislative or regulatory threats. According to *Glachant* there is no reason to resort to voluntary agreements when a credible regulatory threat exists. The regulation should be implemented instead of the agreement. Concluding, the key message of the paper is that non-enforceable agreements are weak instruments, which are potentially useful in adverse political contexts.

The overview shows there is lively debate on the relative merits of negotiated environmental agreements compared to other instruments. Table 4-2 presents an overview of the studies described above. We distinguish three categories. The first column groups studies in which the negotiated agreement results in some improvement of the environmental performance compared to the situation at beginning of the agreement. Commonly, in these studies the agreements occur because the regulator is biased towards industrial interests, employment or competitiveness concerns. In these settings, the environmental impact is below the one that would occur under the legislative alternative. Whether social welfare increases is usually not investigated. This will depend on the weight that is given to the

different objectives (e.g. employment, environmental protection, competitiveness) in the welfare function.

The middle column incorporates studies where negotiated agreements are preferred above the legislative alternative. However, the agreements do not achieve a first best level of environmental protection. Rather, an agreement is superior as the regulatory alternative is hindered by political (Glachant, 2005 and 2007) or administrative constraints (Schmelzer, 1999).

The last column groups studies which conclude that negotiated agreements are the first-best policy option in the sense that the regulatory alternative implemented without hindrances would only achieve inferior results. This is only found by Segerson and Miceli (1998) and is explained by the assumption of lower abatement and administrative costs under the negotiated approach. To conclude, table 4-2 shows that the stricter the baseline against which negotiated agreements are assessed, the lower the number of studies in support for negotiated agreements.

Table 4-2: Theoretical studies on the evaluation of negotiated agreements

Some environmental improvement	Preferred above regulatory alternative	Negotiated agreement as first-best
Hansen (1999) Grepperud (2002) Grepperud and Pedersen (2003) Golombek and Moen (2003) Hansen (2005)	Schmelzer (1999) Glachant (2005) Glachant (2007)	Segerson and Miceli (1998)

Table 4-2 should be interpreted with caution. First, when a study reaches diverging conclusions, depending on the values of different parameters in the model, we classified it according to its best result with regard to negotiated agreements. The superior outcome of Segerson and Miceli (1998), for instance, only holds given that (i) the regulator has strong bargaining power, (ii) there exists a stringent regulatory threat and (iii) the social cost of government funds is low. If these conditions do not hold, they come to inferior conclusions. Second, one should be aware of the context in which these conclusions occur. In Schmelzer (1999), for example, the agreement is preferred over the tax due to avoided monitoring and control costs but results in a lower level of environmental protection. Finally, the fact that a negotiated agreement results in some environmental improvement not necessarily legitimates its use. As pointed by Lyon and Maxwell (2003) the mere possibility of a voluntary approach being initiated, might jeopardize the probability of better instruments being implemented.

1.2.4. *Final remarks on the theoretical literature*

The picture emerging from the overview of theoretical articles is mixed and only modestly positive at best. We find three arguments that frequently recur to explain why voluntary approaches might nevertheless be the preferred policy instrument:

- **Abatement efficiency gains:** this argument claims that voluntary approaches are flexible in nature and this allows industry to exploit gains from reduced abatement costs compared to mandatory approaches (e.g. Segerson and Miceli, 1998).
- **Regulatory gains:** claims that the political or administrative costs of alternative instruments might be too high to legitimate their implementation. Voluntary approaches might present an advantageous route to avoid these costs (e.g. Maxwell and Lyon, 2000; Schmelzer, 1999; Glachant, 2005). Another argument is that the voluntary approach delivers non-rival benefits (e.g. information) which is not the case in the legislative alternative (e.g. Stranlund, 1995; Wu and Babcock, 1999)
- **Regulatory bias:** In this case, a public choice perspective is adopted and the regulator is not fully committed to achieve the socially optimal level of environmental protection. Next to genuine competitiveness or employment concerns, the regulator might be influenced by industry or other lobby groups' initiatives (e.g. Hansen, 1999; Grepperud, 2002; Grepperud and Pedersen, 2003).

Rather than being disillusioned with the different conclusions found in the literature, one should regard these studies as a collection of different settings resulting in different outcomes. The articles reach different conclusions because the conditions under which they study voluntary agreements differ. In other words, the outcomes differ as they result from different assumptions (e.g. is there a legislative threat?; who has the bargaining power?; is free-riding considered?; is the regulator biased towards industry interests?; does the voluntary approach offer lower abatement cost?; does the voluntary approach create additional benefits like public recognition?; is the sector homogenous or heterogeneous?; competitive or oligopolistic?; is product differentiation considered?; is there one single abatement technology or a range of possibilities?; do costumers have green preferences? etc.). On similar issues, most studies reach converging conclusions. For instance, most agree that the strength of the threat increases the effectiveness of the voluntary approach or that if a MBI can be implemented with little difficulties, it is likely to lead to a higher level of social welfare.

1.3. Empirical literature

The review of the theoretical literature learned that there is, *ex ante*, no consensus on the expected merits of voluntary approaches. As is the case with modelling exercises, the outcomes are strongly influenced by the assumptions made by the researcher. Whereas it is the aim to set assumptions that correspond to reality as closely as possible, to a large extent they remain arbitrary set by the researcher and represent his or her idiosyncratic view on the organisation of society (e.g. government maximising social welfare or public choice perspective). Besides, reality is far too complex to capture in a theoretical model, no matter how numerous the assumptions or advanced the methodology. Finally, there might be a discrepancy between the theoretical predictions and the actual outcome of a policy instrument due to the impact of the implementation phase. Given these inherent restrictions of theoretical analysis, *ex post* empirical analysis might be valuable to shed some additional light on the desirability of voluntary approaches in environmental policy. Again, we only present some of the most prominent evaluation studies.

1.3.1. *Unilateral commitments*

Firm specific unilateral commitments established in the context of corporate social responsibility are hard to evaluate. Such initiatives vary significantly between companies and frequently only contain qualitative objectives (e.g. codes of conduct). Moreover, the information advantage of the companies concerned and the confidential character of much of the information make that even in an in-depth case study analysis it might prove difficult to reach incontestable conclusions. There is however some evidence that companies which face higher stakeholder pressure (e.g. situated near cities, wealthier neighbourhoods, regions with larger environmental pressure groups), regulatory pressures or have a poor environmental performance record are more likely to take initiatives and reduce pollution (e.g. see Alberini and Segerson, 2002 or Lyon and Maxwell, 2004 for an overview). We will not consider these kinds of initiatives here.

Industry- or business wide initiatives like Responsible Care or ISO 14001 on the other hand provide testable cases of unilateral commitments by comparing the environmental performance of participants with non-participants. Ideally, one employs a two-stage methodology in which the first stage predicts the probability a given firm participates in the program, and the second stage estimates the firm's environmental performance controlling for the likelihood of participation derived in the first stage. This method avoids the self-selection bias that arises if one simply includes program participation as a variable without controlling for the antecedents that explain participation. In other words, the decision

to participate in a voluntary initiative and the performance outcome are endogenously determined and likely to be influenced by the same observable and unobservable factors.

King and Lenox (2000) evaluate the results of the chemical industry's Responsible Care program based on a sample of 3,606 US facilities and the data on the emissions of 246 chemicals between 1987 and 1996 as reported in the Toxic Release Inventory. They conclude that participants in the program did not reduce emissions more rapidly than non-participants. In fact, they find evidence that participants are improving their emissions more slowly than facilities not participating in Responsible Care. In addition, the data suggests that the program attracted a disproportionate number of dirty companies. On the other hand, they find that the environmental performance of the facilities in the sample improved faster after the adoption of the Responsible Care program. However, this holds even more for non-participants. To conclude, King and Lenox cast doubt on the effectiveness of Responsible Care and question whether it might serve as a smokescreen that reduces companies' incentives to reduce emissions.

Dasgupta et al. (2000) analyse the impact of companies' environmental strategies on their compliance record. They use data gathered through a survey of 236 Mexican firms in the food, chemical, non-metallic mineral and metal industry. The results show that plants that adopted an ISO 14001-type of environmental management system exhibit a superior (self-reported) compliance status. *Potoski and Prakash (2005)* reach the same conclusion for a sample of 3,709 facilities in the US. They found that adopting ISO 14001 reduces facilities' time spent out of compliance by about 7%, or about 25 days a year.

Anton et al. (2004) investigate the impact of the comprehensiveness of a firm's environmental management system (EMS) on the intensity of toxic releases in the US. The sample consists of the S&P 500 companies and they use data from the Toxic Release Inventory of 1994 and 1995. This results in 313 observations. The comprehensiveness of a company's EMS is measured based on a survey inquiry in which companies were asked whether they adopted 13 different environmental management practices (e.g. the firm has a formal written policy; the firm evaluates its environmental risks when selecting its clients; the firm conducts audits etc.). The econometric tests show that the extent of EMS adoption has a significant negative impact on the intensity of toxic emissions and that this impact is greater on firms that have inferior past environmental records. As such, they conclude that promoting the adoption of EMSs can be considered as an effective policy tool.

1.3.2. Public voluntary schemes

The possibility to compare the performance of participants with non-participants makes public voluntary programs very suitable for empirical evaluation. This especially holds for the US since the EPA has initiated a high number of voluntary programs (see chapter 3) and the Toxic Release Inventory provides publicly available data on the environmental performance on company-level. This explains why there are quite some evaluation studies available. We provide a short overview in table 4-3.

Table 4-3: Empirical evaluation studies on public voluntary programs

Authors	Program evaluated	Main conclusion	Positive impact
Khanna and Damon (1999)	33/50	Participants reduced emissions between 1991 and 1993 significantly more than non-participants.	Yes
Gamper-Rabindran (2005)	33/50	Relative to non-participants, participants do not reduce their health-indexed emissions of target chemicals in several key industries.	No/moderate
Vidovic and Khanna (2007)	33/50	Found that participation had no impact on emission reductions between 1991 and 1995. They explain the contradiction with Khanna and Damon's (1999) finding by emission reductions in the two years before the inception of the program in 1991.	No
Welch et al. (2000)	Climate Challenge Program	Participation had no impact on CO ₂ emission reductions; some results even suggest a detrimental impact.	No
Morgenstern et al. (2007)	Climate Wise program	A transient effect on fuel use and emissions, with the best estimate being a 3% reduction during the program's initial phase. There is some evidence that participants actually increased their electricity use.	No/moderate
Rivera and de Leon (2004)	Sustainable Slopes Program	Participating ski areas appear to be correlated with lower third-part environmental performance ratings.	No
Rivera et al. (2006)	Sustainable Slopes Program	Participating ski areas show a significant positive correlation for only one out of five environmental performance criteria (natural resource conservation)	No/moderate

All in all, the balance bends to the negative side. Only one study (Khanna and Damon, 1999) firmly concludes that participants of the 33/50 program significantly reduced their emissions compared to

non-participants. This result is however not confirmed by subsequent studies of the same program. It could however be the case that the initiation of a voluntary program contributes to the general awareness and willingness to address an environmental issue that stretches beyond the participants or the program targets. For instance, Khanna and Damon (1999) find that the 33/50 program leads to a significant impact on releases not targeted by the 33/50 program. Maxwell and Lyon (2007) elaborate this point and argue that when these programs enhance the diffusion of cost-effective techniques for pollution abatement that is not competitively sensitive (which is often the case in EPA's programs), it may be difficult to identify the results of these programs econometrically as the effects are likely to diffuse to non-participants in a latter stage. As such, even for successful programs, it becomes impossible to detect a difference in the performance of participants and non-participants. In their review of the literature, they conclude that most empirical studies find that either participation made no difference in environmental performance or that any difference occurred only in early periods and quickly disappeared. This line of thinking might explain the difference between the results on the 33/50 program. In the early stage of the program, a significant effect was found by Khanna and Damon (1999) but as the information about best-practices spread to non-participants, latter studies like Gamper-Rabindran (2005) and Vidovic and Khanna (2007) were unable confirm this observation.

1.3.3. Negotiated agreements

Finally, we present some prominent evaluation studies of negotiated agreements. As agreements are commonly implemented at sector level, the evaluation of negotiated agreements requires a different methodological approach. Here, it is not possible to compare the performance of participants with non-participants by econometric methods in order to estimate the impact of the instrument. For negotiated agreements the most promising road is to conduct in-depth case studies. Ideally, one should assess the environmental effectiveness against the first-best scenario (see 1.1.). Unfortunately, due to the speculative character of this scenario and the prevalent lack of data, one often has to resort to other reference scenarios. Moreover, it is difficult to draw general conclusions on the appropriateness of the instrument due to large variation in terms of objectives and obligations as well as variations in the institutional, social and economic context in which the agreements are applied. Finally, as agreements are usually concluded as part of a larger policy package or against the threat of legislation, it is hard to disentangle the effect that can be attributed to the agreement (EEA, 1997).

The report from the European Environmental Agency (EEA, 1997) was one of the first attempts to evaluate a number of agreements along a common assessment framework. The results are shown in table 4-4. Six agreements from different European countries were included and the effectiveness was compared to the situation at the start of the agreement (called environmental improvement; second

column) and to the business as usual scenario (called environmental effectiveness, third column). As turns out from table 4-4, in only two cases the EEA was able to find a clear environmental improvement compared to the situation prior to the agreement. In only one of the six cases there is limited evidence that the agreement pushed the environmental performance above the trend scenario. The fact that all cases entailed additional benefits such as raising awareness, enhancing co-operation and trust, increasing information exchange etc., throws in weight at the positive side of the balance.

Table 4-4: Environmental effectiveness of six negotiated agreements evaluated by the EEA

Negotiated agreement	Environmental improvement	Environmental effectiveness	Technical change
▪ French end of life vehicles	?	?	+
▪ German CO ₂ -emissions	?	?	0/?
▪ Swedish packaging waste	+/?	?	?
▪ Dutch chemicals	+++	+/?	+
▪ Portuguese pulp paper	++	?	+
▪ Danish transport packaging waste	+/?	?	+/?

+/?/+++ = slightly positive / positive / very positive

0 = absent or negligible

? = uncertain outcome (no data available, unknown effect)

Source: EEA (1997)

In 1998, the Environmental Law Network International (ELNI) published the book 'Environmental Agreements: The Role and Effect of Environmental Agreements in Environmental Policies', in which some hypotheses are tested based on 8 case studies from Belgium, the Netherlands, Germany and the US². Regarding the evaluation of whether the targets have been met, it should be noted that some agreements were still running at the time they were evaluated. In these cases, the evaluation was made against interim targets when available. The evaluation of the environmental effectiveness is shown in table 4-5. With two agreements in each evaluation category (low, medium, high) the results are clearly mixed. The authors conclude that based on the results from the case studies, they were unable to reject or confirm the postulated hypothesis that "*environmental agreements lead to a higher level of environmental protection than other especially regulatory instruments*". A more negative evaluation

² We will not discuss the results from the 2 US cases here, as they do not really fit in our typology of voluntary approaches. The 33/50-program case is rather a public voluntary program and the Alcoa agreement case considers an agreement between a single company and an NGO and thus does not really correspond to the negotiated agreements we are considering.

was found on the second hypothesis, which stated that, “*environmental agreements are more cost-effective than other instruments of environmental protection*”. It is stated that the scarce data available as well as theoretical considerations provide no evidence to support this hypothesis.

Table 4-5: Evaluation of negotiated agreements by ELNI

	Germany		Belgium		Netherlands	
	<i>EDTA</i>	<i>Batteries</i>	<i>River</i>	<i>Cement</i>	<i>SUBAT</i>	<i>Ceramics</i>
▪ Targets reached	<i>No</i>	<i>Partly</i>	<i>Partly*</i>	<i>Not*</i>	<i>Partly</i>	<i>Partly</i>
▪ Ambition of targets relative to potential	<i>No assessment possible</i>	<i>Neutral</i>	<i>Low</i>	<i>Low</i>	<i>High</i>	<i>High</i>
▪ Ambition of targets relative to baseline	<i>Nil (controversial)</i>	<i>Nil</i>	<i>Positive</i>	<i>Negative (controversial)</i>	<i>Positive</i>	<i>Positive</i>
Overall effectiveness	Low	Medium	Medium	Low	High	High

* in process

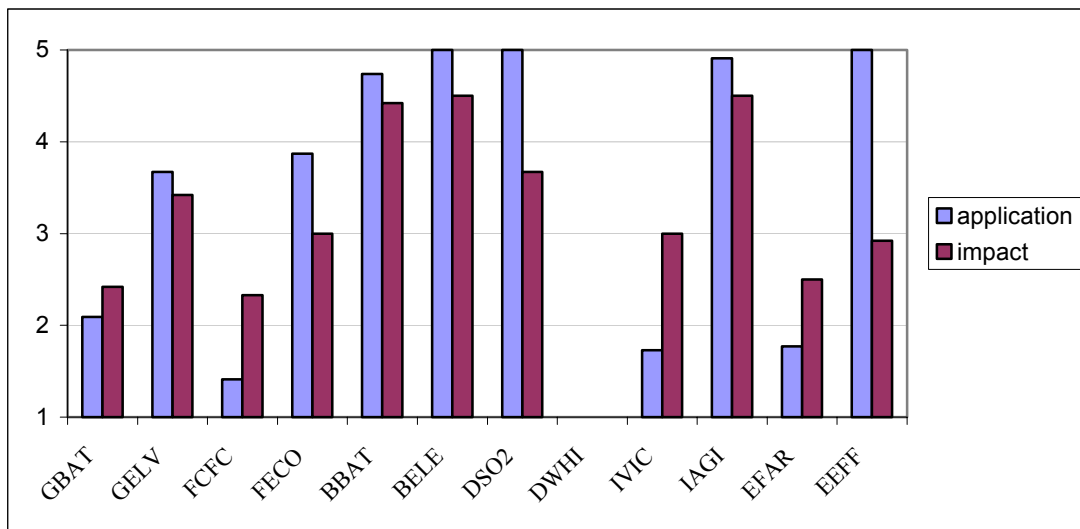
Source: ELNI, 1998

The “Voluntary Agreements Implementation and Efficiency” (VAIE) research project investigated the impact of five different agreement schemes as a means of promoting industrial energy efficiency and reducing greenhouse gas emissions (the French Voluntary Agreements on CO₂ Reductions; the Danish Agreements on Industrial Energy Efficiency; the Declaration of German Industry on Global Warming Prevention; the Swedish ECO-Energy Programme; and the Dutch Long-Term Agreements on Energy Efficiency). The review of Krarup and Ramesohl (2002) holds two main conclusions. First, whereas the objectives of the agreements have been reached almost completely, the agreements generally had only a limited impact on investment criteria. The agreements rarely represented the decisive initial impulse to introduce energy efficient management practices. Raising general awareness and increasing management motivation are indicated as the most significant impacts. Second, they point to a positive correlation between the implementation costs and the effectiveness. Most effective agreements are quite costly in terms of administrative effort and the provision of an appropriate policy background. Krarup and Ramesohl (2002) conclude that agreements should be effectively integrated within a structured climate policy mix with attention given to the availability of strong incentives for compliance, backed by a process of monitoring and evaluation. This typically imposes significant institutional demands and requires lengthy preparations.

In the “Negotiated Environmental Agreements: Policy Lessons to be learned from a comparative case study analysis” (NEAPOL) project, twelve negotiated agreements were assessed on a 1 to 5 scale against four evaluation criteria: specification, application, impact and resource development (for an in depth description see De Clercq, 2002 or research paper 4 presented below). Figure 4-2 presents the

results of two criteria: the application and the impact of an agreement. The application criterion refers to the compliance with respect to the targets and obligations of an agreement. The impact criterion refers to the environmental impact compared to the business as usual scenario and to the economic efficiency of an agreement. As figure 4-2 shows, the study contained successful as well as unsuccessful agreements. The average of the twelve agreements on the application and the impact dimension was 3.35 and 3.14 respectively. This indicates that the overall conclusion on the performance of the agreements was moderately above the neutral (3) score.

Figure 4-2: The performance of negotiated agreements in the NEAPOL project



Source: De Clercq (2002)

Research paper 4

On the assessment of environmental voluntary agreements in Europe: Lessons to be learned from a comparative case study analysis

M. De Clercq and R. Bracke

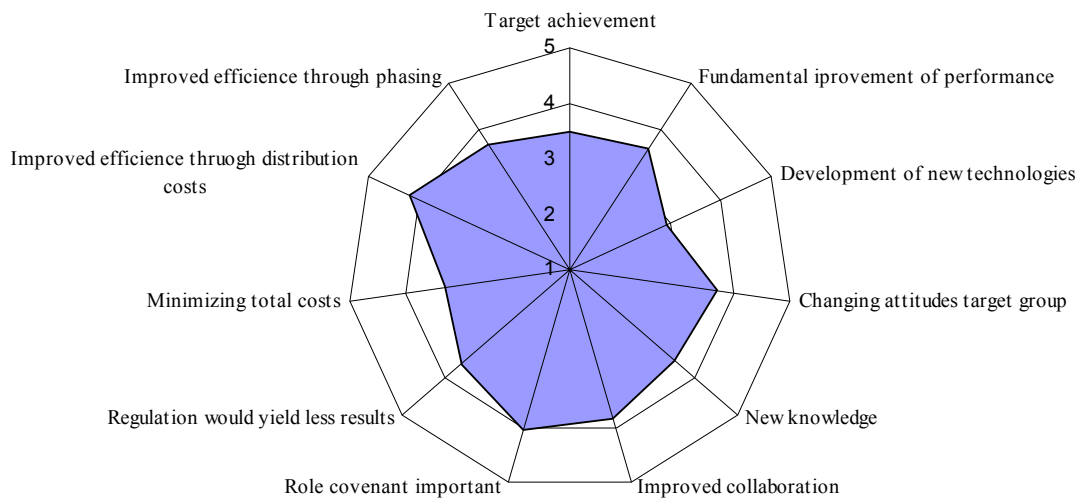
Evaluating environmental policy instruments is not an easy task. The impact is context dependent, partly determined by changing circumstances and hard to distinguish from other evolutions taking place. To complicate the exercise, instruments and especially negotiated agreements are hardly ever used in isolation from other instruments. Consequently, the literature on the evaluation of voluntary agreements shows mixed results and these results are hard to compare due to the different socio-economic context in which they were concluded and due to different internal characteristics of the agreements.

This research paper presents the results of a quite unique evaluation study of negotiated agreements as 12 agreements in six European countries have been evaluated according to a common evaluation framework. In addition, the paper points to four socio-economic factors that influence the performance of the agreements. The paper results from a broader research exercise carried out under the NEAPOL-project (Negotiated Environment Agreements: Policy Lessons to be learned from a comparative case study analysis). NEAPOL is a research project financed by the European Commission – DG XII, and is part of the EC Environment and Climate Research Programme (1994-1998) – Research Theme 4: Human Dimensions of Environmental Change (project number ENV4- CT97-0560). For further information see *Negotiating Environmental Agreements in Europe: Critical Factors for Success*, 2002, Edward Elgar Publishing Ltd. edited by M. De Clercq.

***Abstract.** The aim of this study is to gain insight on the factors leading to success or failure of environmental voluntary agreements. To do this we relied on a comparative case study covering twelve voluntary agreements from six different European countries. First, a general evaluation framework for assessing the performance of environmental voluntary agreements is presented. This framework takes into account three different evaluation dimensions: application, impact and resource development. Second, we focus on the factors explaining the level of performance. Four external preconditions for success were identified: the general policy style, the readiness to use severe alternative instruments in case of non-compliance with the agreement, the potential of the sector to negotiate and act as one collective actor and the potential for market success triggered of by the implementation of the agreement. Next to these external factors related to the institutional-economic context wherein a negotiated agreement is used, the specification of an agreement is considered to be an internal factor influencing the performance. The comparative case study shows that taken individually each of the factors is not as such a necessary condition for the success of an environmental voluntary agreement. Rather it is the combination of these success factors that is ultimately decisive for the performance of an agreement.*

De Bruijn et al. (2003) report on their evaluation study carried out in 2002/2003 on the effectiveness of negotiated agreements (covenants) in the Netherlands. By including 59 covenants it is the most encompassing evaluation study we are aware of. An overview of the main results is provided in figure 4-3 below. Overall, the conclusion on the use and effects of covenants is quite positive. Almost all scores are above the neutral zone (score 3).

Figure 4-3: Overview of the results of the Dutch Covenants by de Bruijn et al.



Source: De Bruijn et al. (2003)

In the related article Bressers et al. (forthcoming) confirm the positive results regarding *environmental effectiveness* in terms of ambition, compliance, goal attainment and environmental behavioural change. Remarkable is the finding that on average, a high level of ambition of the targets did not result in a lower level of compliance. More ambition seems to provide at least as much a stimulating challenge rather than a de-motivating hurdle. Also interesting is the fact that only one quarter of the respondents to the study thought that direct regulation could have led to comparable results. The fact that the agreements did not really lead to clear orientation towards radical innovations, throws in weight at the other side of the balance. Next to the positive evaluation on multiple criteria for environmental effectiveness, the authors stress the importance of efficiency and side effects including learning and more general resource development effects. *Efficiency*, in terms of cost minimisation of total costs, turned out less positive than environmental effectiveness. This is especially due to bureaucratic and administrative costs and the limited incentives to develop new methods and technology. Finally, the study points to the importance of *side effects*, i.e. the improvement of the initial position for a further development of environmental benefits. The great majority of the respondents had a positive view on nearly all side-effects (e.g. improved target group attitude, mutual understanding, more knowledge). The authors point to the importance of follow-up consultations in this regard. The authors conclude that “*given that the environmental results of negotiated agreements can be characterised as reasonably successful, but not creating radical innovations, these resource building side-effects is where the main long term advantage of negotiated agreements over other government instruments can be sought.*”

Important to notice is that it is claimed that the implementation context (including accompanying policy instruments) is highly relevant in explaining the relatively positive conclusion on the Dutch covenants. In fact the Dutch context is quite unique (see also 3.2). The tradition of negotiation and co-operation with target groups, the corporatist institutional setting and the linkage of the covenants with the permit system are important in explaining why negotiated agreements are in no country more embedded in environmental policy making than in the Netherlands.

A similar picture emerges from the evaluation of the Dutch negotiated agreements on industrial energy efficiency (Bressers et al., 2007). Most respondents were positive towards the use of these agreements as a policy strategy. Regarding environmental effectiveness, it turned out that participating companies had significantly earlier, quicker and more gains in energy efficiency during the period 1998-2002 than companies in the same sectors that did not. Again the support for the statement that the agreements cause real innovations is weakest. The same holds for the, so-called, expansion themes (sustainable products, sustainable industrial estates, sustainable transport and logistics and sustainable energy) of the second generation of agreements on energy efficiency. In addition, the study paid attention to the importance of side effects. The responses on various statements in this regard confirm the overall support for the idea that all kinds of positive side effects occur that improve the opportunities for follow-up successes in later phases like raising responsibility of companies; building mutual understanding and trust, improved collaboration and knowledge. An important role is played by the consultation groups on energy efficiency. These groups work as communication platforms to guide the actual implementation process and discuss the general targets, the monitoring by companies, the reporting of results etc. About 85% of interviewed participants label the atmosphere as 'constructive cooperation'.

2. Towards a synthesis

Our overview of the theoretical and empirical literature shows that there is still lively debate on the relative merits of voluntary approaches. Positive signals alternate with less bright ones. This contrasts strongly with the other two broad categories of environmental policy instruments, especially regarding the theoretical analysis. For various types of direct regulation as well as for market-based instruments, the pro's and contra's have been mapped out quite clearly regarding a wide range of impacts like e.g. economic efficiency, environmental effectiveness, technological innovation etc. From a theoretical perspective, not many question the preference for market-based instruments. Market-based instruments are able to achieve a similar level of environmental protection as direct regulation at a lower abatement cost. Moreover, they provide an ongoing incentive for technological innovation and

shift responsibility to the polluter who is stimulated to put in question his day-to-day operations and his long-term strategy. Evaluation studies of real world examples might somewhat deviate from the theoretical expectations but this is usually attributed to implementation deficiencies like insufficient control and enforcement efforts, technological difficulties to monitor emissions at source or the political inability to design the optimal instrument out of competitiveness concerns. At this point of the story, voluntary approaches come in. In the coming subsection, we will try to synthesize the main findings of our literature review along the three E's evaluation criteria.

2.1. Evaluating voluntary approaches on the three E's

2.1.1. Effectiveness

On average, voluntary approaches appear *able to deliver moderate results*. However, there are few theoretical studies stating that they might achieve more than alternative instruments. Often these studies come to this conclusion because they start from the premise that voluntary approaches allow more efficient political-administrative (e.g. Schmelzer, 1999; Glachant, 2005) or pollution abatement processes (e.g. Segerson and Miceli, 1998). This argument is however not really confirmed by empirical work. This work rather points to a positive correlation between political effort and environmental effectiveness (e.g. Krarup and Ramesohl, 2002; De Clercq, 2002; De Bruijn et al. 2003; Bressers et al., 2007; Bressers et al., forthcoming). In other words, most successful voluntary approaches require considerable political and administrative resources related to e.g. negotiating, implementing, controlling, monitoring and evaluating these programs. Moreover, the fact that business is more intensively involved in the policy implementation points at the direction of inferior environmental performance compared to hierarchical political modes. Business involvement implies they can influence the environmental target levels more easily. Again, this assumption is not supported in all empirical work. In the evaluation of the Dutch negotiated agreements for instance, Bressers et al. (forthcoming) found that most respondents believed that the same results would not have been achieved by regulatory means.

The literature offers little examples of initiatives that completely failed but provides a number of studies that were unable to identify a superior performance of participants compared to non-participants of public voluntary schemes in the US (e.g. Welch et al. 2000; Rivera and de Leon, 2004; Vidovic and Khanna, 2007). This might be explained by the fact that these programs attract a disproportional level of worse performers (e.g. Khanna, 2001; Alberini and Segerson, 2002) or because the programs also stimulates non-participants (Maxwell and Lyon, 2007). Besides, there is evidence

that companies which face higher stakeholder pressure (e.g. situated near cities, wealthier neighbourhoods, regions with larger environmental pressure groups), face higher regulatory pressures or have a poor environmental performance record are more likely to take initiatives and reduce pollution without any formal established programs (e.g. see Alberini and Segerson, 2002; Lyon and Maxwell, 2004). Finally, programs that failed completely are more often than not followed by new regulatory initiatives.

To sum up, properly designed voluntary approaches are capable to deliver environmental improvements that, however, often do not much deviate from business as usual expectations. The OECD (2003) report concludes with *'There are only a few cases where such approaches have been found to contribute to environmental improvements significantly different from what would have happened anyway'*. Whereas voluntary approaches seem able to achieve what is fairly feasible, they are certainly not the panacea many hoped for. Whether they ought to be applauded for achieving intermediate environmental results depends on ones' perspective. On the one hand, one might value every step towards a sustainable society no matter how small. This especially holds when the government has little power to impose alternative instruments. On the other hand, one might argue that what is needed is a giant leap forward and that voluntary approaches are a business strategy that retards or keeps off urgently necessary business transitions. In this perspective it is argued that voluntary approaches only provide lip services to the environment and are used by companies to greenwash their operations in order to restore public trust in corporations that was undermined due to a number of environmental disasters like the Bhopal incident, the Chernobyl nuclear accident or the Exxon Valdez oil spill. In this regard voluntary instruments aim to influence the behaviour of environmental activists, legislators and regulators rather than firm behaviour.

2.1.2. Efficiency

With respect to pollution abatement, there are some considerations that point to increased efficiency. Voluntary approaches provide opportunities to grant flexibility in pursuing environmental targets. Companies might be offered more freedom to choose the means to achieve a given pollution reduction goals. This is important since companies have an information advantage on their pollution abatement possibilities compared to the regulator. Economic theory predicts this will lead to cost-minimization, since abatement strategies can be tailored to the specific characteristics of the firm. We will call this *firm-level efficiency*. While the rationale behind this reasoning is quite convincing, empirical verification is needed to confirm this claim. Unfortunately, data and methodological limitations make this task extremely difficult and to our knowledge there is little literature available. For negotiated

agreements some efforts can be mentioned like the EEA study (1997) or De Clercq (2002) but they were not able to reach solid conclusions on the superiority of this instrument in this regard.

Moreover, the argument above only holds compared to some forms of command-and-control regulation. After all, regulations can be designed to reach the same kind of firm-level efficiency (e.g. by establishing emission ceilings instead of prescribing technologies). Market-based instruments on their side are known to possess this firm-level efficiency feature and besides they can deliver *sectorial efficiency* or even *macro-economic efficiency* by allocating pollution abatement efforts between companies (and sectors) until marginal costs are equalised. Voluntary approaches that rely on individual company participation are in principle unable to deliver this outcome and in negotiated agreements a burden sharing mechanism that might achieve such an allocation is often lacking. Moreover, there is no argument to explain why such a mechanism (e.g. bargaining between companies under the supervision of the industrial association?) would be more effective in doing this than a market system. Thus, whereas voluntary approaches are able to deliver firm-level efficiency, much higher expectations are not build on solid grounds.

Another argument put forward by advocates of voluntary approaches is increased efficiency of the regulatory process as the flexibility attached to this instrument enables faster and smoother policymaking. Economic theory has little to offer on this view and as mentioned above, our reading of empirical work points to the opposite direction: implementing successful voluntary programs requests considerable political and bureaucratic resources. For instance, the UK environment ministry apparently devoted an incredible 17 person years to negotiate forty-two climate change agreements (Jordan et al., 2003). Ashford and Caldart (2001) refer to a study of Coglianese (1997) which concluded that on average, the promulgation of EPA rules through negotiated rulemaking took no less time than did the promulgation of a “control” group of similar EPA rules through traditional notice and comment rulemaking. Just as for the Netherlands, Welch and Hibiki (2002) conclude that a strong government involvement is crucial in explaining the success of the Japanese negotiated agreements. Finally, the next paragraph argues that saving on policy transaction costs probably comes at the expense of equity considerations.

2.1.3. Equity

Neither the theoretical nor the empirical economic literature has much dealt with this issue. Nevertheless, some important issues regarding the equity aspect can be raised from the more general work published on voluntary approaches as a policy instrument. Most importantly, one might expect that voluntary approaches especially *favour the business community* while causing concerns for the

public at large. In the evaluation study of Bressers et al. (forthcoming), for instance, it is found that negotiated agreements work well in terms of legitimacy among the business community. Compared to traditional legislation, voluntary approaches offer fewer possibilities for third party involvement in the implementation process. Unilateral commitments are established at the discretion of companies or business associations and in many countries, negotiated agreements are signed without parliamentary control. Increased flexibility with voluntary environmental regulation comes at the expense of participation and transparency on the design and on the results if monitoring and control requirements are inadequately designed. Basic democratic principles are surpassed to develop alternative regulatory modes in line with business' requests. Consequently, NGO's like trade unions, environmental pressure groups and consumer organisations regard these initiatives with suspicion (e.g. EEA, 1997; WWF, 2000). Of course, much of these concerns can be tackled by establishing procedures and guidelines on their implementation (e.g. EC, 1996; OECD, 1999). This would add to the much-needed credibility of this instrument but might jeopardise some important advantages and brings them closer to traditional regulation.

Also within the business community, the advantages of voluntary approaches might be distributed unevenly. First of all, small and medium sized companies can be expected to possess less financial and non-financial resources to invest in convincing politicians and the public that voluntary approaches offer valuable alternatives to traditional regulations. As such, they are less likely to be able to influence or even avoid additional regulations compared to large corporations and powerful industrial associations. Second, to the extent that voluntary approaches are an easy strategy to greenwash a company's environmental operations, firms with inferior performance records are offered an easy way out of increasing stakeholder pressure. Moreover, as the amount of voluntary initiatives and their participation rates keep rising, they become less suitable for leading companies to signal their superior environmental behaviour. In this regard, there is quite some evidence that companies with a worse environmental track record volunteered disproportional in environmental programs (e.g. King and Lenox, 2000). However, this is likely to be largely due to the design of the program itself (e.g. targets expressed against past environmental performance like the 33/50 program are more easily achieved by laggards). To conclude, the *large actors in the business community* and especially those seeking an easy solution have the highest potential gain. It will require sufficient political and administrative effort combined with critical public scrutiny to prevent this gain being fetched in easily.

2.1.4. Background considerations

A rather disappointing view evolves from the reading of this chapter up till now. Before sending the reader home with a very sceptical view on the merits of voluntary approaches, we would like to draw his attention to the following background considerations. Just as it seems unfair to praise the superiority of market-based instruments on theoretical grounds without pointing to the rather disappointing results they achieved so far, some extenuating circumstances should be taken in account when judging the merits of voluntary approaches.

□ **Match up expectations**

We refer once again to the question raised at the beginning of this chapter on the reference against what to compare the impact of voluntary approaches with. If one takes achieving sustainable development as a reference, it is no surprise that a rather nebulous picture emerges. On the other hand, if one asks the question on what would have been achieved with alternative policy actions, the results will certainly look brighter. Bringing down the initial expectation pattern is however a cheap way to polish the results achieved and can be used in many contexts. However, regarding voluntary approaches we believe there is something to say for this argument.

The reason par excellence is that voluntary approaches are in most cases implemented as second-best solutions where preferable alternatives proved impossible due to technical, political or economic constraints. Examples are numerous. In Europe, negotiated agreements on climate change emerged after it proved impossible to reach an agreement between the Member States on the CO₂-tax proposal. Negotiated agreements on waste management on the other hand originated in the fact that regulators did not possess the necessary technical information to promulgate legislative initiatives (OECD, 1999). Lyon and Maxwell (2003) claim that the US Climate Change Action Plan spawned numerous public voluntary agreements because the political will for mandatory controls did not exist. More often than not, voluntary approaches are used for a set of more specific tasks like filling ‘cracks’ in regulation, tackling emerging or complex issues, encouraging best practice, rewarding pro-active behaviour or stimulating innovation (Jordan et al., 2003).

Realising that voluntary approaches were not created as ultimate solutions, but rather as a pragmatic response to escalating political and resource costs of creating and enforcing traditional command-and-control regulations sheds a different light at their merits. As has been mentioned by many, there are simply little arguments to justify the belief that voluntary approaches might be more effective than

regulations. However, rather than settling the score on environmental achievements solely, it should be recognised that they are especially initiated to reconcile environmental, social and economic concerns.

□ **Intertwined instruments share gains and pains**

The notion ‘voluntary’ approaches is somewhat deceptive in the sense that government involvement in most of them is intense, from negotiating the precise content of a negotiated agreement over determining ecolabelling criteria to establishing institutions to award companies with an EMAS registration. Next, voluntary approaches are not often used in isolation. Rather they are part of a broader policy mix, working in tandem with a set of regulatory, market-based and communicative prescriptions to steer actors’ behaviour. At the limit, they are implemented against the threat of regulatory or non-regulatory forces. Substantial problems arise at this point as it is difficult to separate the individual effect of each instrument in the policy mix and to estimate how industry would have performed without the voluntary approach. As such, whereas voluntary approaches should be stringently assessed on their merits, they should not be condemned for a total immobilism on a certain policy theme. Or as Bressers and de Bruijn (2005) put it: *‘in the end the question is not whether the covenant is effective or not; it is whether the policy system as a whole is effective or not’*.

□ **Context matters**

Both the internal and external context in which voluntary approaches are used differs enormously. With internal context we refer to the many different subtypes and to the distinct design of each element within each of those categories. No two agreements are identical, nor are two ecolabelling schemes. As is shown in De Clercq (2002), the specification of a negotiated agreement is a critical success factor. To sum up, voluntary approaches make up such a diverse spectrum that it is impossible to come up with a single statement on their merits.

Next to the internal context, the external context in which a voluntary initiative is installed influences its performance. The external context considers, amongst others, the political context referred to in the previous point. In chapter three we discussed, for instance, the difference in which agreements are concluded in Germany and the Netherlands. The institutional setting and the bureaucratic capacity are often mentioned for explaining the relative successful use of the Dutch covenants. Next to politics, the existence of potential competitive gains when going green, the structure of the sector (homogeneous or heterogeneous), the number of players etc. all determine the probability that a certain voluntary approach is successful. As such, the question becomes, *under which circumstances* can certain voluntary instruments be expected to achieve positive impacts? The fourth research paper presented in

this dissertation gives some answers to this question for negotiated agreements. It suggests that the following factors might contribute to the success of a negotiated agreement:

- *The general policy style*: public environmental policy should evolve in a tradition and climate of consensus seeking, joint problem solving, mutual respect and trust;
- *The regulatory threat*: policy makers should show the readiness to use alternative policy instruments, as a stick behind the door to deal with environmental problems, in case the agreement would fail;
- *The sector structure*: the industry sector involved should be homogeneous, have a small number of players or should have a powerful industry association that can speak for all its members;
- *The existence of consumer pressure*: industry involved should be close to the final markets and environmental behaviour should be rewarded due to the existence of consumer pressure.

The same evaluation framework was used by Bressers et al. (forthcoming) for the evaluation of the Dutch covenants. In this study, the above hypotheses were (re)tested on a broader sample of 59 Dutch agreements. This replication confirmed the validity of these factors for explaining the success or failure of negotiated agreements. This is especially relevant for the last factor, as this hypothesis was not supported in the NEAPOL research project. De Clercq et al. (2001) have used the same methodology on a sample of about 20 negotiated agreements in Belgium and come to similar conclusions.

□ **Target matters**

We believe the nature of a problem partly determines the outcome of a policy intervention, independent of the instrument put in place. Encouraging results have been achieved by command-and-control regulations but these have been achieved mostly in a context of local pollution, easily identifiable pollution sources and available technical solutions (Aggeri, 1999). Under such circumstances, voluntary approaches might have been able to deliver similar results. Many negotiated agreements on CFC's concluded in the aftermath of the Montreal protocol faced such conditions and have delivered. The same holds for most other product-related agreements concluded in Belgium (see research paper 2). However, most and especially more recent voluntary approaches are developed to cope with complex environmental problems involving numerous and diffuse pollution sources, shared uncertainties, the need for innovation and no consensus on the road ahead. Climate change and waste management are the most prominent examples in this regard. In such circumstances, environmental results are so much harder to achieve and elements like increasing knowledge, reducing uncertainty,

collective learning, raising awareness, building networks and trust amongst partners might be of a higher importance (Aggeri, 1999). As such, different types of instruments risk to be judged on unequal grounds: command-and-control regulation is applauded for picking up the easy gains whereas voluntary approaches are condemned, as they have to delve much deeper.

2.2. Voluntary approaches to escape the techno-institutional complex as the way ahead?

Up till now, environmental policy-making has focussed on optimising inefficiencies of existing production processes within the techno-institutional complex. Due to this focus, the existing government policy is partially responsible for this inertia to profound technological change. When truly aiming at sustainability, a shift away from incremental corrective optimisation-oriented public and private policies that reinforce lock-in conditions to evolutionary policies that foster restructuring of industries and technological change is needed (Könnölä et al., 2006). The development of alternative technological pathways for a discontinuity type of change to escape lock-in conditions requires continuous learning among a diverse set of actors, including actors from outside the existing techno-institutional complex in order to stimulate technical and organisational innovations.

The objective of breaking with the techno-institutional complex and the background considerations mentioned above indicate that the traditional evaluation criteria on which the literature has concentrated so far, might be only partly suited to judge the merits of policy instruments. The criteria effectiveness, efficiency and to a lesser extent equity are commonly understood in the context of corrective, short-term measures. Maybe new evaluation frameworks are needed for instruments that have to cope with situations of great uncertainty, involving long periods of time and involving the wide range of actors and controversial issues typical of contemporary environmental problems (Aggeri, 1999). The contribution the instrument makes in terms of shaping the necessary conditions for such transitions to occur comes to the forefront for these complex environmental issues. Factors like collective learning, building networks and partnerships and increasing awareness and mutual trust that enable alternative pathways to develop in the long run might be more important. Special attention to such criteria is paid in the evaluation studies of Bressers et al. (2007; forthcoming).

There is some belief that voluntary instruments, by relying on horizontal modes of governance, are preferable for such challenges. Consequently, it has been observed that voluntary approaches have been selected to a disproportional degree for these challenges (e.g. climate change and waste management agreements). Alberini and Segerson (2002) state for example that

“the EEA’s evaluation of the German CO2 agreement suggests at best a cautious applause if one views the agreement as an end in and of itself. However, the German government viewed the agreement as the beginning of a dynamic process of interaction and cooperation between industry and government to improve environmental quality. Clearly, this perspective implies a very different set of criteria for use in evaluating the agreement’s success.”

Based on their study of the Dutch covenants, Bressers and de Bruijn (2005) claim that the main benefit of covenant-building is found in the concomitant processes. Though these processes mutual trust is strengthened, new knowledge is developed, and partners have the option of building their relationship in a constructive manner.

It should however be reckoned that most voluntary initiatives have paid only limited attention to the generation of alternative pathways and vision-building for the implementation of discontinuity innovations. Paton (2001) for instance argues that voluntary approaches may be especially effective to overcome existing, but unknown, inefficiencies within firms. Könnölä et al. (2006) consider voluntary approaches and especially unilateral initiatives and public programmes as rather contributing to continuity change (incremental improvements) rather than to vision-building, technological, social or physical changes. Negotiated agreements are considered to offer some more promises in that there are more incentives to initiate collective learning processes and to build trust among private and public actors. Up till now, however, negotiated agreements have typically aimed at optimisation of environmental and economic performance within present production systems. Könnölä et al. (2006) justify this claim by the following arguments. First, stakeholder involvement is limited as it is typically considered a burden by complicating the negotiations rather than a learning opportunity. Second, the objectives tend to be defined at the outset of the process, leaving little space for learning and vision-building. Finally, negotiated agreements are constrained by current institutional pressures and thus prone to succumb to regulatory capture.

Consequently, Könnölä et al. (2006) propose a new type of negotiated agreements called prospective voluntary agreements, which they describe as:

“When confronted by high complexity and uncertainty on the technological and institutional advances related to desired discontinuity changes, authorities may broadly engage stakeholders in a systematic, future-oriented intelligence gathering and medium-to-long-term vision-building process. This process is aimed at creating an agreement between contracting parties, in particular between authorities and industry, to facilitate collaborative action directed towards the creation of (i) a diversity of technological

options, and (ii) a vision for the implementation of technological alternatives that facilitate (iii) desired changes in the physical and social networks. The outcome will ultimately defined long-term targets, responsibilities, monitoring, rules and possible sanctions in case of incompliance.

In fact, this is in line with the notion of “innovation-oriented agreements” introduced by Aggeri in 1999. Both consider agreements as a platform in which a wide range of stakeholders are involved. Rather than negotiating concrete short-term targets, the agreements should initiate cycles of learning leading to specific actions for escaping lock-in. The focus is on commitment and effort of stakeholders rather than on results. The agreement itself, however, is no more than a formal point in an on-going process that commits key stakeholders to desired action. The agreement should be seen as a confirmation and reinforcement of the value of the emerged cooperation (Könnölä et al., 2006).

The question can be raised why negotiated agreements would be more suitable to initiate such transition management processes compared to more coercive governance modes. In their research, Bressers and De Bruijn (2005) found that the indicator that is judged most negatively is the development of new technologies (that is technologies that are not already indicated in the agreement). As such, they claim there is little evidence to hope for agreements to achieve fundamental innovations. Coercive governance modes contain strong mechanisms to alter existing routines. Direct regulations might prohibit the use of a specific input, substances, products or technology. Market-based instruments have the ability to force companies or industries to exit when the tax is higher than adjustment cost and above former profit levels. Voluntary approaches on the other have to rely on softer mechanisms. What pleads in their advantage is that they have the ability to initiate collective action amongst industry as well as with external partners. Moreover, they have the ability to point a direction for change. Finally, Bressers et al. (forthcoming) claim that the main long-term advantage of negotiated agreements over other government instruments is in their ability to create side effects that improve the initial position for a further development of environmental benefits. The process of negotiating an agreement ensures co-ordination of the actors’ opinions and views, both in government and private sector. As such, the negotiated agreement approach is an element of interactive governance that fits policy situations that require learning and consultation (Bressers et al., forthcoming). A new type of negotiated agreement along the lines described by Könnölä et al. (2006) and Aggeri (1999) might however be necessary to fully exploit these possibilities and to overcome the conclusion found by Bressers and De Bruijn (2005). Table 4-6 resumes the main difference between “traditional” and “new” negotiated agreements.

Table 4-6: Traditional versus prospective negotiated agreements

Dimensions	Negotiated agreement	Prospective voluntary agreement
▪ Collaboration	Negotiation and decision-making	Cycles of learning, negotiation and decision-making
▪ Stakeholder engagement	Limited to industry and authorities	Structured stakeholder engagement
▪ Process management	Negotiated and mediation	Facilitation and mediation
▪ Outcomes	Commitment to action	Vision and commitment to action

Source: Könnölä et al. (2006)

Both Könnölä et al. (2006) and Aggeri (1999) refer to the French End-of-Life vehicles agreement as an illustrative example. Our third research paper presents some corresponding examples of waste management agreements concluded in Flanders. In these agreements, a large range of actors are involved (e.g. re-use centres, retail companies, recycling companies, producers and importers). The agreements have caused a profound change in the waste management system by shifting the responsibility from local authorities to the private sector. Next to short-term collection and recycling targets, the agreements are initiated to be ‘ever-lasting’ and provide opportunities for collective learning processes to develop knowledge on e.g. new waste treatment techniques, market opportunities for recycled materials, eco-designed products and the organisation of waste collection (see Bracke and De Clercq, 2005 for an analysis of these agreements).

3. Summary

In the discussion on the merits of voluntary approaches, they often start with a disadvantage resulting from the perception of limited commitment that arises from the label ‘voluntary’. Basic economic theory offers no valuable explanation why voluntary approaches would achieve a higher level of environmental performance than the level resulting from regulatory or market incentives. This provides the sceptical observer with powerful ammunition. It also contrasts with the attractiveness of the simplicity of the direct regulation model that also performs a highly symbolic function through moral emphasis on penalising polluters. Neither theoretical analysis nor empirical evaluation studies have been able to provide sufficient convincing evidence to overthrow the scepticism on the merits of voluntary approaches. We summarised the main literature findings around the three E’s evaluation criteria. The environmental effectiveness was found moderate at best and there is little evidence to support the proposition that significant steps have been taken towards an increased efficiency of pollution abatement or environmental policymaking. Regarding the equity criterion, two critical observations were made. First, larger companies with rather poor environmental track records seem to

have the highest potential gain with voluntary approaches. Participating in voluntary approaches might provide an easy way to respond to growing public criticism for such companies. Second, informal policy making by negotiated agreements or self-regulatory initiatives by companies might set aside basic democratic principles like transparency, parliamentary oversight and public participation. Regarding negotiated agreements for instance, it is often the case that these are concluded behind closed doors between regulators and industry representatives without parliamentary control or third party involvement.

Before rendering superfluous all efforts from the last decennia to convert the traditional policy paradigm to more horizontal and cooperative policy models, we have pointed to some background considerations that should be taken in account when judging the merits of voluntary approaches. First, voluntary approaches are usually implemented as second-best solution compromising environmental with social and economic requests. Second, more often than not these approaches are part of a broader policy mix targeting a certain environmental issue. Third, both the internal and external context heavily influences the performance of a particular initiative. Finally, voluntary approaches often have to deal with complex environmental issues for which there are simply no easy solutions at hand. These considerations indicate that the traditional evaluation criteria on which the literature has concentrated so far, might be only partly suited to judge to merits of these new policy instruments. Elements like awareness raising, collective learning to reduce shared uncertainties and building partnerships might in the long run prove to be more important than short-term environmental improvements. However, for these advantages to be optimally harvested, a new type of negotiated agreement might have to be applied. Such agreements should be regarded as a learning process and should involve a large number of committed stakeholders. These agreements should have long-term strategic objectives facilitating technical and social change.

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Chapter 5 - Conclusions

The growing importance of voluntary approaches is said to be one of the most remarkable developments in modern environmental policy making. Often, voluntary approaches are labelled as the third wave next to command and control policy and market-based instruments. This change in the instrument preference builds on two trends of contemporary environmental policy making.

- Firstly, there is growing disbelief in the strong and interventionist government model. As the 'easy to fix' pollution sources have been regulated, policy makers become more and more confronted with their restrictions in terms of e.g. information, knowledge, management capacities, enforcement resources and political support. Besides, people's trust in the benevolent politician is fading. In turn, hope is put on social organisations like fair trade organisations, civil rights movements, environmental pressure groups and even on the business community. The government is requested to limit its degree of intervention on economic and social issues. This request is formulated by the business community and various social organizations that claim a higher degree of involvement in the policy-making process. In addition, many of these social actors are willing to take up responsibility and initiate self-regulatory actions. The government's role should shift to promoting, fostering and stimulating such actions. However, as when the former communist economies turned to market economies, this does, in essence, not imply de-regulation but rather *re-regulation*. Instead of prescribing behaviour, regulation is needed to define the boundaries, to develop a legislative framework (e.g. creating a market for emission trading, defining liability rules) in which societal actors receive a higher degree of freedom and flexibility.
- Secondly, there is a trend towards a thematic organization of environmental policy. At first, environmental policy was media-specific (air, soil, water). Next, an integrated approach was put forward (e.g. integrated product labels, environmental management systems). Currently, a thematic approach (e.g. climate change, biodiversity, resource depletion, ozone layer depletion, waste) is gaining importance. This focus on themes facilitates the creation of public support for environmental issues. In addition, the thematic approach supports the acknowledgement that many environmental problems are extremely complex. A multitude of drivers contribute to e.g. the problem of global warming (e.g. industry, households, services, transport) which affects the characteristics of the air, the water and the soil. Next to the structure, the goal of environmental policy switched. Our common objective is now sustainable development, which combines environmental with economic and social concerns. In this context, it is more and more recognized that the current practice of short-term oriented

environmental policy-making that aims to correct inefficiencies of current practices, will not suffice. Instead, a fundamental and profound shift is required not only in terms of conventional consumption and production processes, but also in terms of the existing policy structures and the nature of interaction between government, industry and the community. Next to short-term oriented product and process innovations there is a growing need for system innovations. System innovations seek to escape lock-in situations by initiating more fundamental transformation processes.

Voluntary approaches can be seen as new instruments that have developed against this background. Voluntary environmental approaches are however just one manifestation of a larger trend observed in many modern societies. That is the trend from hierarchical and coercive governance models to more horizontal and soft governance models. Instead of a government prescribing technical requirements to which companies passively submit, instruments that stimulate corporate responsibility, cooperation and joint-action are being developed. These instruments create ownership of the environmental problem within the business community. This ownership in turn initiates responsive actions. The government's role changes from a mere regulator of existing behaviour to a facilitator of social change. The government is seen as a mediator of a complex network of social actors.

Some prominent examples of voluntary approaches include environmental management standards or ecolabels that can be adopted by companies. Some of these have been developed by private organisations, others by public bodies or by cooperative public-private initiatives. Negotiated agreements form another example. In such agreements, government and business representatives engage in a partnership relation in order to achieve certain environmental targets. In contrast to traditional environmental policy instruments, these kinds of initiatives have emerged rather spontaneously. In fact, the image in which voluntary approaches are depicted as a third category of environmental instruments next to direct regulation and market-based instruments is somewhat misleading. Contrary to the traditional instruments, voluntary approaches are not simply options waiting to be implemented by policy-makers. To a much higher degree, social actors are involved in the design and implementation of such approaches. Rather than a government-push strategy, they build on initiatives that originate within society. In many cases, the regulator only plays a secondary role: acknowledging societal initiatives, stimulating uptake, bringing actors together etc. Actually, the idea that *the* government selects an instrument is deceptive. The government is not a single-unit actor. The discretion of national governments for instance is constrained by multinational, regional and local authorities. Besides, policy-makers are influenced internally by their administrations and public agencies and externally by pressure groups. As such, the choice of instrument is highly determined by the policy setting in which multiple actors with diverging interests operate.

This dissertation adopts an institutional perspective to analyse voluntary approaches. An institutional economic perspective offers a rationale for the integration of voluntary approaches to the regulator's toolbox. In many cases, transactions costs resulting from incomplete or asymmetric information hinder the incorporation of external costs in the market system. This results in a sub-optimal allocation of resources. Instead of a regulator aiming to gather all the necessary information, it might be a more rational option to shift the responsibility to the actors who are in a better position to find the information. This explains for instance why governments passed on the task of establishing environmental management standards to the business community or why governments support product certification schemes from non-governmental organisations. By the notion of trust, institutional economics also explains why this occurs more in modern and developed societies. Trust is a highly valuable assets needed to facilitate transactions among parties. The more trust, the less one has to invest in resources to guarantee the proper execution of the transaction, e.g. screening the contracting party or incorporating enforcement provisions into contracts etc. In other words, the more trust the less one needs to rely on legislative and juridical mechanisms. As trust is build up over time and through repetitive interactions, it is more likely to develop in modern societies where the number of economic transactions, often between parties that hardly know one another, is continuously on the rise.

The institutional theory also emphasises that the existing setting largely influences the mechanisms that people develop to facilitate social interaction. These mechanisms, called institutions, may take various forms ranging from formal organisations, constitutions, and laws to informal values, norms and habits. This structural and historical deterministic perspective also implies that institutions are relatively stable and that institutional innovation is path dependent. Path dependency refers to the need for innovations to fit into the existing institutional infrastructure and to be in line with the objective of the most powerful organisations. As such, the institutional perspective explains the observation why voluntary approaches developed differently in various countries. The choice of adopting an institutional economic perspective on the research topic, voluntary approaches, led to the formulation of the following four general research questions.

RESEARCH QUESTIONS

Does the institutional setting influence a company's decision whether to participate actively in voluntary approaches?

"Which company-specific determinants related to business and financial characteristics, stakeholders pressures and public policy distinguish companies that have implemented EMAS?"

How do differences in countries' institutional setting influence the diffusion of voluntary approaches?

"How does the domestic socio-institutional setting determine the speed and the extent to which ISO 14001 has outnumbered EMAS in Germany, France, the UK and Sweden?"

Can policy makers change the institutional context to alter the characteristics and use of voluntary approaches?

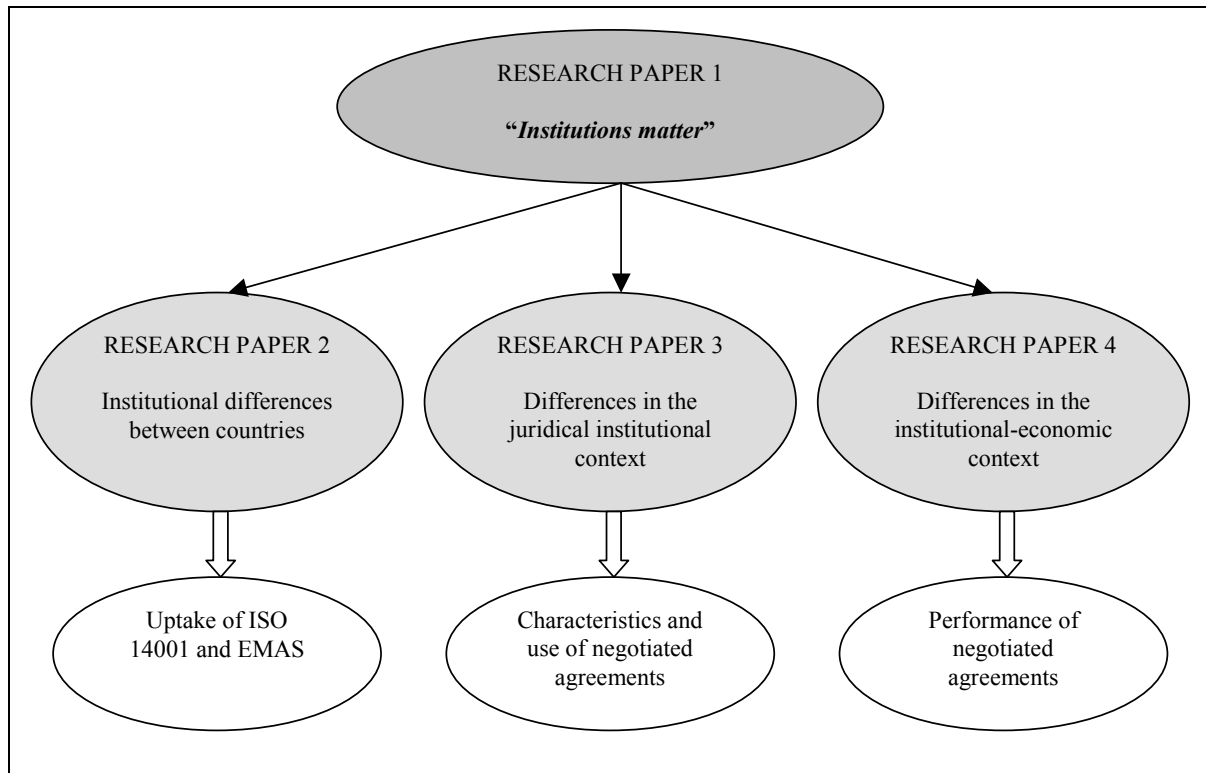
"What are the implications of the regulatory shift resulting from the introduction of the decree on environmental policy agreements in Flanders regarding the way in which negotiated agreements are used in environmental policy?"

Which characteristics of the institutional setting influence the performance of voluntary approaches?

"Which specific characteristics of negotiated agreements and which factors within the institutional-economic context wherein an agreement is used, influence the performance of negotiated agreements?"

In the research papers, these general research questions are further specified with respect to a more confined case study context. As such, the findings in the research papers should only be regarded as a partial answer to the more general research questions. For a more solid answer to these questions, additional research is needed to confirm and complement our findings. The figure below presents a broad overview of the link between the papers. In short, the first paper empirically shows that institutions matter in the sense that they influence a company's decision to implement EMAS. The following papers seek to explain why and how institutions matter for explaining the uptake, the characteristics and the performance of voluntary approaches. The second paper looks how institutional differences between countries matter for explaining the uptake of ISO 14001 and EMAS. Paper three discusses how a juridical institutional shift influenced the characteristics and use of negotiated agreements in Belgium. Finally, the last paper analyses the link between the institutional context and the performance of negotiated agreements. The most important conclusions of the research papers are presented in the section 1. The second section discusses the contribution of our research findings to the literature. Finally, the last section offers some perspectives for future research.

OVERVIEW OF THE RESEARCH PAPERS



1. Research findings

1.1. Does the institutional setting influence a company's decision to participate actively in voluntary approaches?

The research paper on the characteristics of EMAS participants departs from the observation that not all companies have embraced the new governance models to the same extent. Whereas responding proactively to growing environmental pressure from stakeholders is becoming a widespread trend, the level of commitment ranges from environmental leaders to defensive companies. Based on a sample of 436 European companies from the Dow Jones Stoxx 600, we analysed the decision to participate in EMAS. EMAS is commonly considered as the most stringent environmental management standard. By empirical analysis, we found that the participation decision is positively influenced by the solvency ratio, the share of non-current liabilities, the average labour cost and the absolute as well as the relative size of a company compared to the sector average. The profit margin on the other hand exerts a negative influence. We further found that companies whose headquarters are located in a country that actively encourages EMAS have a higher probability to participate. Consequently, this research paper points to company characteristics as well as to internal and external sources of pressure for

identifying environmental forerunners. EMAS participants are especially large companies with a solid financial structure that have a strong position in their sector. This is not surprising since acquiring an environmental management certificate requires considerable resources. The absolute and relative size variable might also point to the fact that large companies are more in the public spotlight and as such more likely to be blamed for environmental misconduct. Besides, the positive influence of the non-current liabilities, the labour costs as well as the company location might point to the importance of external pressure exerted from respectively financial institutions, employees and the government. The negative influence of the profit margin on the other hand might imply that profitable companies are less internally motivated and less urged by investors to put in question their daily routines. To conclude, these sources of pressure might determine the requests that a company gets to become certified whereas the internal factors point to the necessary conditions to be able to answer to these requests.

Regarding the general research question, this paper points to the importance of the institutional context in explaining the uptake of EMAS by companies. More specifically, the variable ‘public policy’ was included in the regression and turned out to be significant. The variable was constructed as a dummy that took the value 1 if the country in which a company’s headquarters was located, had adopted a rather high amount of supportive measures for EMAS certified companies and the value 0 otherwise. This however is a very blunt way to proxy the influence of the political-institutional setting. Moreover, the mere amount of supportive measures taken by a government sheds no insight on the factors that explain why some governments resort to an active strategy to induce EMAS certification by companies while others choose not to. The following research paper takes on this challenge of explaining why different countries react in a distinct manner to the introduction of environmental management standards.

1.2. How do differences in countries’ institutional setting influence the diffusion of voluntary approaches?

The *research paper on the diffusion of ISO 14001 and EMAS* aims to deepen our understanding of the influence exerted by the institutional setting on the voluntary choice of companies whether to get certified with an environmental management standard. To do this, we analysed the adoption rate of ISO 14001 and EMAS in four European countries: Germany, the UK, France and Sweden. Both standards for environmental management were in operation by the middle of the nineties. Which of both would become the dominant standard was hard to forecast. ISO 14001 had the international character, the popularity of the related quality standard ISO 9001 and the private nature at its

advantage; EMAS on the other hand was largely encouraged by the European Commission and could benefit from the first mover advantage. Meanwhile, it turned out that ISO 14001 has gained. However, the extent to which and the speed at which ISO 14001 has outnumbered EMAS differs significantly between countries. Based on a comparative case study analysis, we investigated the explanatory power of the socio-institutional setting of a country in this regard. According to expectations, we found evidence to support the hypothesis that environmental management standards are more widely supported in societal countries. In societal countries, the collective authority is seen as an expression of societal interests. This contrasts with statist countries in which the collective authority is located in an insulated state apparatus. It turned out that the societal countries studied, Sweden and the UK, welcomed such alternatives to traditional regulation. This is seen from the easy implementation of the EMAS regulation and the high uptake of ISO 14001. Concerning the hypothesis stating that environmental management standards are more widely supported in associational countries compared to corporatist countries, the information did not clearly point in one direction so the hypothesis could neither be supported nor rejected. In fact, when we would only take EMAS uptake as an indicator, the hypothesis needs to be rejected, as EMAS was only successful in corporatist countries. This is explained by the fact that EMAS creates a link between the company and the authorities. In corporatist settings, the institutional and historic ties between industry and government are better developed, resulting in a climate of trust and partnership that creates a fertile ground for the uptake of EMAS. The general policy recommendation of this research paper is that the recognition of the link between the institutional setting and environmental policy instruments might assist policy makers in the instrument selection stage of the polity cycle. It implies that copying best practices from other countries or regions is not just a simple 'cut-and-paste' exercise. In other words, the chosen approach needs to fit in the existing policy structures and policy styles.

1.3. Can policy makers change the institutional context to alter the characteristics and use of voluntary approaches?

The second paper investigated differences in the institutional setting between countries and the explanatory power thereof for explaining ISO 14001 and EMAS uptake rates. As these management systems are standardized instruments, we could focus simply on the number of certified companies. The third research paper however, focuses on negotiated agreements, which appear in various formats. As such, this paper analyses the influence of the institutional setting on the characteristics and the way negotiated agreements are used in environmental policy. Instead of a cross-sectional approach as in the second research paper, the third paper takes a dynamic perspective by comparing two periods that are separated by the introduction of a juridical framework for voluntary approaches in Flanders.

The *research paper on the legislative framework for negotiated agreements in Flanders* examines an exercise of institutional change that was initiated to increase the effectiveness of negotiated agreements. When the first negotiated agreements entered the policy arena, the bargaining power was to a great extent in the hands of industry. Agreements were characterised as gentlemen's agreements and were criticized for the lack of transparency and third party involvement, the vagueness of the environmental targets, the limited attention paid to monitoring provisions and the lack of sanctions in case of non-compliance. Not surprisingly, evaluation studies were not very positive on the results achieved by these agreements. Consequently, a trend has occurred in Europe in which regulators have sought to increase the effectiveness of negotiated agreements by changing the circumstances in which agreements are negotiated. This can be done formally, e.g. by adopting regulations or administrative guidelines on the juridical nature and implementation process of negotiated agreements. This can also be done informally e.g. by building a climate of trust, developing platforms for engaging actors or formulating long-term goals.

The Flemish regulators choose the juridical approach. They modified 'the rules of the game'. The Decree, amongst others, introduces a veto right for parliament, a public inspection period of 30 days, a non-binding advice of socio-economic public bodies (SERV and MiNa-Raad), the option to convert an agreement into regulations, annual reporting obligations to the Parliament and sanctions in case of non-compliance. The research paper describes the impact of this legal framework by comparing the number and characteristics of the agreements concluded before and after the Decree in terms of average length, negotiation time, environmental objective, legislative pressure etc. The opinion from diverse observers on the agreements concluded under the legislative framework is rather positive. Important to notice, however, is that it took considerable time and profound political and administrative resources to get these agreements signed by industry.

One of the main conclusions in this research paper is the fact that creating favourable circumstances involves a delicate balance between inducing participation and ensuring environmental effectiveness. It seems that the regulators had insufficiently considered the response of industry on the legal framework. Changing the rules of the game also changes the players' behaviour. Different incentive structures result in distortions of the costs and benefits of alternative actions. By the Decree, the distribution of the costs and benefits when using negotiated agreements has shifted at the disadvantage of industry. Consequently, their willingness to engage in such agreements had faded. In contrast to the motivation with which the framework was introduced, it nearly ended the negotiated agreements strategy as a feasible strategy of environmental policy. Consequently, the regulator had to increase the legislative pressure to induce participation. This was done by the introduction of the duty of acceptance in the Flemish legislation. The duty of acceptance shifts the responsibility for end-of-life

products from local authorities to the producers. This explains why it took about 4 years before the first agreement under the legislative framework was concluded and why the scope of environmental issues targeted is restricted to waste management.

1.4. Which characteristics of the institutional setting influence the performance of voluntary approaches?

The previous two papers looked at the influence of the institutional setting on the uptake and characteristics of voluntary approaches. The final paper shifts our attention to the performance of voluntary approaches. If there is one conclusion to be drawn from the literature on the evaluation of voluntary approaches, it is that their performance is context dependent. Several factors related to the institutional context in which voluntary approaches are to operate, might positively or negatively influence their performance. Consequently, research should focus on identifying the circumstances under which voluntary approaches are expected to be effective.

The *research paper on the success factors of negotiated agreements* takes up this challenge. The aim of the study was to gain insight on the factors leading to success or failure of negotiated agreements. This was done based on a comparative case study analysis covering twelve negotiated agreements from six different European countries. More specifically, the paper investigates the influence of four factors related to the socio-economic context on the performance of negotiated environmental agreements. The following external factors were identified: the general policy style (the policy hypothesis), the readiness to use severe alternative instruments in case of non-compliance with the agreement (the instrumental hypothesis), the potential of the sector to negotiate and act as one collective actor (the sector hypothesis) and the potential for market success triggered of by the implementation of the agreement (the competitive hypothesis). The instrumental and the sector hypotheses are supported by the agreements studied. The policy hypothesis and especially the competitive hypothesis are not really supported. However, important to notice is the fact that the absence of the expected relation between a socio-economic factor and the performance of an agreement can be due to the fact that the performance is positively or negatively influenced by another aspect, diluting the influence of the first. When all factors are taken together, a clear positive relation between the combined institutional-economic context and the performance of the agreements studied occurs. This leads to the conclusion that the favourability of each of the external factors studied is not a necessary condition for a negotiated agreement to be successful. Rather it is the combined context that determines the performance of the agreements studied. This is important because two factors – the sector structure and the competitive structure – are exogenously given. These factors should play an

important role in the instrument choice of policy makers. But even if these factors are not favourable, the use of negotiated agreements should not necessarily be ruled out in advance. This because the other two factors – the general policy style and the alternative instrument – are under control of the policy maker and can thus be manipulated to create a more favourable environment for negotiated agreements. For the latter factor, this might be a relatively easy exercise compared to the former, as the policy style is actually the result of a two-sided interactive process. However, notwithstanding the fact that it will probably imply more effort and resources, also the policy style is to some extent variable in time and can be ameliorated to achieve a more cooperative stance by e.g. establishing communication platforms, appointing target group managers, supporting sector associations and jointly developing a long-term vision for the sector.

2. Contribution of our research to the literature

2.1. Contributions with respect to the data studied

The first research paper on the characteristics of EMAS participants differs from related research on the characteristics of green companies by the voluntary approach studied (EMAS) and the European scope of the sample. Previous research has especially focussed on ISO 14001 and public schemes initiated by the US Environmental Protection Agency. Besides, previous research has mainly looked at US or Japanese companies. The differences in the data are relevant as the institutional setting of the EU is quite different from that of Japan and the US. As such, it could be expected that other characteristics of environmentally pro-active companies are important in Europe. Overall, the results of our study are in line with related research. As such, our study to a large extent confirms previous research: environmental leading companies are especially large companies with a solid financial structure and a highly skilled labour force. Moreover, the European scope of the sample implies that companies located in different countries are included. This enabled us to look at the influence of a country's political stance towards EMAS. We found that the national institutional context significantly influences company participation. Combining this result with the previous finding that the characteristics of pro-active companies are rather independent from the institutional context, leads to the conclusion that the institutional setting especially enables to attract 'more of the same kind' of companies rather than to convince 'other kinds' of companies to participate in voluntary approaches.

The second contribution with respect to data gathering is the fact that a number of new case studies on negotiated agreements were conducted. From a scientific viewpoint the exercise of gathering empiric data is a valuable step to develop theories. This especially holds for new research topics like voluntary

approaches. Moreover, when theory is developed, empirical data gathering enables to test the predictions of the theoretical model. Research paper three and four build on an in-depth study of about 25, respectively 12 negotiated environmental agreements. In the former research paper, the cases are used to analyse the implications of the institutional shift in the way negotiated agreements are used in Belgium/Flanders. In the latter research paper, the cases are used to test four hypotheses with respect to the influence of the socio-economic context on the performance of negotiated agreements.

2.2. Contributions with respect to the methodological approach

Next to the study of new data, research can contribute to the existing literature by studying existing data with an alternative methodological approach. We believe the second and fourth research paper distinguish themselves from related research in this manner. Research paper two contributes to the literature on the geographical diffusion of environmental management standards by (i) considering both management standards (ISO 14001 and EMAS) together and by (ii) taking a more dynamic and comparative research methodology. First, a large part of similar research has taken a static and econometric approach and focuses on only one standard. As such, this literature identifies the determinants that explain why countries have a high or low number of EMS certified companies. However, this research disregards the fact that the uptake of both standards is disproportional in some countries: some countries have a rather high adoption level ISO 14001 but a low uptake of EMAS or vice versa (e.g. UK, Austria or Germany). As such, this kind of research only partly explains the country characteristics that create a fertile ground for EMS uptake. Second, our methodological approach is dynamic and comparative and can be situated between a large scale econometric and an in-depth case study analysis. The country typology used as a framework for our comparative analysis enables to grasp evolutions in time. Next to static differences that stem out of differences in the organisation of society and authority, the typology also points how evolutions might evolve due to differences in the way ongoing interactive processes between regulators and societal actors are organised. This might for instance result in different expectations on the speed at which certain innovations will spread in society. We believe that our research, which links existing case study information to differences in the way countries are organised, delivers a more general understanding of the diffusion of environmental management systems. By looking at the institutional design of a country, we are able to explain why certain drivers of a specific EMS-standard (ISO 14001 or EMAS) reveal themselves in some countries and not in another.

Our final research paper has contributed to the literature by seeking to identify the circumstances under which negotiated agreements are expected to be effective. With respect to methodological

issues, the first contribution consists in the fact that a framework for the evaluation of the performance of negotiated agreements is developed. The evaluation framework includes efficiency, effectiveness and policy resource issues. Next, we developed hypotheses on the socio-economic context that might explain differences in the performance. The following step was the development of a framework for assessing these hypotheses. The approach was quite unique by studying negotiated agreements from six different countries along a common case study design.

The second research paper, which focuses on the implications of the institutional swing in Belgium/Flanders, does not really employ a novel methodological approach. However, the research paper is unique as it takes a dynamic perspective by studying the way negotiated agreements are used over a long-term period. Besides, the introduction of a legislative framework for the conclusion of negotiated agreements in Flanders enriches this case study. Together with Denmark, Flanders is the only jurisdiction that has adopted a legislative framework for negotiated agreements.

3. Future research

As voluntary approaches are relatively new phenomena in environmental policy and because their importance is growing many modern societies, they have become an interesting research topic. The findings on the research questions posed in the papers provide an answer to the four general questions raised in this dissertation. However, addition research is needed to supplement our knowledge and understanding of the issues raised. Besides, we did not explicitly take up the challenge to come up with a broad evaluation of voluntary approaches compared to alternative instruments. As such, there is clearly a need for additional research on this area to enrich our understanding of this instrument. We believe this research would benefit by focussing on the identification of best practices in a country-comparative setting. Moreover, this kind of research should follow a multidisciplinary approach.

We believe the identification of good examples is a promising route for future research. All in all, the evidence on the evaluation of voluntary approaches does not call for a huge swing in environmental policy-making. However, at the same time, many share the belief that turning back to traditional coercive policy models is not the road to follow. Besides, there are a number of examples of voluntary approaches that delivered good results. As such, learning from these examples might deliver valuable information for the future implementation of new voluntary approaches. First of all, this kind of research should focus on the identification of the factors that explain the success of these examples. Our research clearly pointed to the fact that the performance of voluntary approaches is highly context dependent. Consequently, implementing best-practices from other countries is not a simple ‘cut-and-

paste' exercise. Therefore, this kind of research would benefit much from a cross-country approach. A comparison of results of similar approaches in different countries would assist researchers to identify important drivers of the success or failure of certain voluntary approaches. Secondly, there is a need for a profound and long-term oriented analysis of the merits of successful voluntary approaches. Do voluntary approaches especially deliver improvements in the form of the continuity type of change, i.e. improvements in current production processes or products; or do voluntary approaches contribute to the discontinuity type of change? It may be argued that instruments like environmental management systems or ecolabels enforce current practices and as such strengthen lock-in situations.

In addition, there is a need for concerted research on the institutional design that is most appropriate to integrate the macro-level of governance with the micro-level, which consists of the multiple actors that possess most information and are responsible for taking actions. A more intensified involvement of societal actors in the policy-making process within traditional government structures might not suffice. The lacking success of EMAS might be an illustrative example where the government did not succeed in adequately translating business expectations on environmental management systems. The European eco-label and the Flemish legislative framework for negotiated agreements are other examples. As such, we call for research that focuses on the institutional setting in which voluntary approaches are developed and implemented. In this regard, multi-stakeholder organisations like the Global Reporting Initiative might have an important role to play. In such settings, it might be easier to create a sense of a common objective compared to settings in which government, business and social organisations come together with the main aim to defend their own interests.

Finally, we think this kind of research should be conducted by multidisciplinary teams. In many cases, policy makers are confronted with multiple considerations when choosing policy instruments. Instruments should for instance be environmentally effective but at the same time economically efficient and should be socially acceptable for a diverse range of stakeholders. As such, policy makers are required to make holistic choices. At the same time, the scientific input policy makers receive is fragmented. Rather than having political scientists, economists and legal scientists producing studies on environmental policy-making from different perspectives, much could be gained when their insights would be integrated. Moreover, as interactive processes between societal actors are an important element in horizontal policy models, this might also call to bring in insights from scientists like psychologists, philosophers and sociologists.

We believe it is worth investing in such large-scaled and profound research efforts. As voluntary approaches are becoming more and more embedded in environmental policy making, the question shifts from whether voluntary approaches should be used to how we should design and implement

them in order to optimize their results. There is certainly scope to improve our understanding of this latter question.

APPENDIX

What determines the decision to implement EMAS? A European firm level study^{1,2}

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Abstract. Empirical research on the characteristics of environmentally responsive companies has focussed on US and Japanese companies. For Europe, which is commonly considered as the greenest of the three major markets, similar research is lacking. This paper seeks to fill this gap by empirically investigating business and financial characteristics, stakeholder pressures and public policies to distinguish companies that have implemented the European Eco-Management and Audit System (EMAS) from a unique firm-level dataset of European publicly quoted companies. We find that the EMAS participation decision is positively influenced by the solvency ratio, the share of non-current liabilities, the average labour cost and the absolute company size as well as the relative size of a company compared to its sector average. The profit margin exerts a negative influence. We further find that companies whose headquarters is located in a country that actively encourages EMAS have a higher probability of participation. Finally, this paper suggests that rather than attracting other kinds of companies, a favourable institutional context succeeds in convincing more of the same kind of companies to participate.

1. Introduction

In response to increasing stakeholder pressure, companies are embracing the “corporate social responsibility” concept evermore tightly. Social, environmental and sustainability reports are being published at an accelerating pace. Participation in voluntary environmental approaches is a straightforward manner to show a corporation’s involvement. Within the wide scope of voluntary approaches, public voluntary programmes have an attractive appeal. In such programmes participating firms agree to standards that have been developed by public bodies such as environmental agencies (OECD 1999). Well-known examples include environmental management systems (EMS) like the worldwide ISO 14001 standard and the European Eco-Management and Audit Scheme (EMAS), programmes developed by the US Environmental Protection Agency (EPA) such as Energy Star, Green Lights, and 33/50 and numerous environmental or social product labels. The appealing

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character lies in the fact that the credibility of these programmes is guaranteed by the initiators' public function and/or the external validation of a company's compliance with the programme. As most programmes allow the use of a logo, they are attractive instruments for companies to signal their proactive stance to various stakeholders. Furthermore, some programmes provide participants with regulatory relief, subsidies or information sharing initiatives.

Not surprisingly, participation rates are booming. The number of ISO 14001 certified companies has risen from 14,106 in December 1999 to 111,162 in five years time (ISO 2006). Participation in EMAS has tripled to 3,389 organisations between 1997 and 2006⁵. A growth of 127% of the number of fairtrade certified producers has been experienced between 2001 and 2005 (Fairtrade Labelling Organizations International 2006).

The question that emerges, "what causes some companies to pursue a pro-active strategy by participating in these programs whereas other companies seem to prefer a defensive strategy?" has received considerable attention in the literature. A wide range of internal characteristics (e.g. capital intensity, size, profitability and financial structure) as well as external drivers (e.g. pressure from regulators, consumers, investors and local community) has been examined. As a literature survey of Alberini and Segerson (2002) however points out, the evidence on many determinants is not conclusive. Our research seeks to contribute to this line of research in two ways: the focus on EMAS and the European scope of the sample.

First, we analyse company participation in EMAS. Related research focused on ISO 14001 (Nakamura et al. 2001; Hibiky et al. 2003; Potoski and Prakash 2005) or on the comprehensiveness of environmental management practices implemented within firms (Dasgupta et al. 2000; Khanna and Anton 2002; Anton et al. 2004; Cole et al. 2006). Other papers focussed on the participation decision towards several US EPA's voluntary programmes such as the 33/50 program (Arora and Cason 1995, 1996; Khanna and Damon 1999; Videras and Alberini 2000), Green Lights (DeCanio and Watkins 1998; Videras and Alberini 2000) and Waste Wi\$e (Videras and Alberini 2000). King and Lenox (2000) studied companies' participation decision in the Chemical Industry's Responsible Care Program. Finally, Henriques and Sadorsky (1996) examined the motivations explaining firms' formulation of an environmental plan.

The focus on EMAS is relevant in two regards. First, EMAS is a program developed by the European Commission (Council Regulation No 1836/93 of June 1993 and replaced in March 2001 by Regulation

⁵ http://ec.europa.eu/environment/emas/documents/articles_en.htm

No 761/2001) and is administered by the Union's Member States. Compared to other voluntary approaches like ISO 14001 or Responsible Care, which are private sector initiatives, EMAS is a public regulation to which companies can voluntarily subscribe. As such, it can be situated at the junction between voluntary initiatives and public regulations. As a result one might expect that other determinants become relevant for explaining the uptake compared to private initiatives like ISO 14001. Benefits might rather relate to aspects like stakeholder communication, regulatory flexibility or gaining regulator's trust whereas ISO 14001 might rather be rewarded in the market place. As such, financial and business characteristics might become less influential here. Second, as EMAS is perceived as being more demanding than ISO 14001, it may present a better picture of environmental responsiveness. In addition to the general requirements of installing an ISO 14001-like EMS, EMAS places special attention to the following elements: legal compliance, improvement of environmental performance, external communication and employee involvement. EMAS is considered as the standard of environmental excellence and is more stringent and demanding than ISO 14001 (e.g. Kollman and Prakash 2002; Watson and Emery 2004). As a result, it can be expected that implementing EMAS is more costly than ISO 14001. Consequently, the number of EMAS registered companies is rather small compared to the number of ISO 14001 certified ones. In December 2005, ISO 14001 outnumbered EMAS by a factor 10 in the EU-15. As such, it can be argued that the decision to participate in EMAS is taken more thoughtfully.

The second distinguishing feature is the European sample. This is the first study on the characteristics of green companies that uses a European firm-level dataset. Previous research has focused principally on US companies for the EPA's voluntary programmes (see above for references). Studies on ISO 14001 are mainly based on a sample of Japanese companies (see above for references). Henriques and Sadorsky (1996) took a sample of Canadian companies and Mexican companies were the subjects of the study of Dasgupta et al. (2000).

The focus on European companies might deliver new insights as the institutional context is different from that in the US or Japan. Japan is known to possess highly corporatist business structures, and the local regulators have an important role in environmental policy making that is based on legal informality and business responsibility (Welch and Hibiki 2002). The US on the other hand is characterised by an individualistic ethos and free capitalism (Vogel 1986). The environmental policy is legalistic and centralised resulting in adversarial private-public relationships (Delmas and Terlaak 2002). Europe takes a position somewhere in the middle. Environmental policy is rather characterised as cooperative with consensus-based consultations entailing many access points for public organisations. Especially for voluntary approaches, which are said to produce mainly soft benefits

(OECD 1999), these differences could be of some importance. Again one might conclude that sheer financial and business drivers will be less important for explaining EMAS uptake.

Within the wide range of potential determinants for environmentally responsive behaviour, this paper focuses on business and financial indicators, stakeholder pressures and public policy. The results indicate that a company's financial structure, profitability, size and average labour cost are significant drivers of EMAS registration. We also find that the type of a firm's activities and the location of its headquarters influence the likelihood of participation.

The paper is structured in the following sections. Section two presents the data and the model. The hypotheses and variables are discussed in section three. Section four presents the estimation results and section five concludes.

2. Data and methodology

This paper merges two firm-level datasets that, as far as we are aware, have not previously been combined. The first, the Amadeus database (Bureau van Dijk Electronic Publishing, update 131, August 2005), provides company-level data. Amadeus (Analyse Major Databases from European Sources) is a comprehensive, pan-European database containing financial information on approximately 8 million private and public companies in 38 European Countries.

The second consists of the list of EMAS registered organisations (received from the EMAS helpdesk on the 25th of October, 2005). Both databases were linked using a company's ISIN (International Securities Identification Number) number. The ISIN number is a code that uniquely identifies a specific security and is accepted as standard by virtually all countries. EMAS is an environmental management standard that seeks to assist firms in evaluating, reporting and improving their environmental performance (Honkasalo, 1998). In short, a company seeking EMAS registration must comply with the following steps: (1) conduct an environmental review; (2) establish an environmental management system; (3) carry out an environmental audit and (4) publish an environmental statement on the company's environmental performance⁶. Each step has to be approved by an accredited verifier. As such, EMAS requires companies to evaluate their environmental impacts and to set targets for improvement on a continuous basis. The cost of implementing EMAS might be considerable. Steger (2000), for example, reports that the costs of acquiring the standard generally lie in the range €50,000-100,000. Clausen et al. (2002) report figures for companies with over 500 employees. The estimates

⁶ Further information can be found at http://ec.europa.eu/environment/emas/index_en.htm

range from € 85.000 up to € 322.000. Furthermore, a firm also incurs costs for maintaining the environmental management system and follow-up audits.

Our sample consists of the companies listed in the Dow Jones STOXX 600 Monthly Selection list of November 2005⁷. This list registers the largest publicly quoted companies from the EU-15, Norway and Switzerland. In November 2005 there were 968 companies on this list 74 of which were marked as EMAS registered⁸. From this list, we excluded a number of companies⁹. First, we eliminated holding companies (Nace Revision 1.1 codes 7414 and 7415) because we believe their idiosyncratic characteristics might distort the results. Second, due to data limitations, we did not include companies not covered in Amadeus (especially banks and insurance companies) or companies with missing values on some items. Third, companies with less than 500 employees were eliminated¹⁰. This resulted in a final sample of 436 observations of which 38 (8,7%) are EMAS participants. The number of participants in the total sample (8,7%) is low, but in line with some similar research (e.g. Arora and Cason 1996; King and Lenox 2000; Potoski and Prakash 2005). The sample consists of large and publicly quoted companies. Due to their visibility it is quite plausible to assume that all of them face at least some public scrutiny, receive a lot of cover in the financial press and face financial analysts who track and evaluate their performance on a daily basis. Probably most of these companies have several environmental and/or social projects running, publish sustainability reports and have, to some extent, implemented environmental management practices. Presumably a rather high percentage is ISO 14001 certified. It should be noted that whereas ISO 14001 and EMAS could, in theory, be considered as substitutes, this is often not the case in practice. Although, in contrast to EMAS, data on ISO 14001 certified companies in the European Union is not available, it is safe to assume that a considerable number of companies have implemented both standards¹¹. In June 1998, close to half of the companies that were EMAS-registered also held an ISO 14001 certificate, while another third intended to go for ISO 14001 certification (Hillary 1998). Moreover, with the revision of the EMAS regulation of 2001, ISO 14001 is considered as fulfilling the management system element of EMAS. This was done with the explicit aim to induce ISO 14001 certified companies to take an additional effort to become

⁷ Available at www.stoxx.com/info/reports/selection2005.html

⁸ The EMAS helpdesk lists all organisations at facility level. Our sample however consists of companies at group level. As such, following Nakamura et al. (2001) and Hibiki et al. (2003), an organisation was marked as an EMAS participant if at least one of its facilities was registered.

⁹ The results presented in this paper do not substantially differ from the results without the sample restrictions. These results are available from the authors.

¹⁰ This was done due to our doubts on the accuracy of these data. 53 companies were lost.

¹¹ A quick scan of the websites of the EMAS registered companies in our sample reveals that the overwhelming majority also has subsidiaries that are certified according to ISO 14001.

EMAS. As such, our analysis might reveal the characteristics identifying those companies that have taken the extra step.

As EMAS is a voluntary scheme, companies' participation decision will follow from a comparison of the monetary and non-monetary costs and benefits. The cost estimates referred to above, indicate that adopting EMAS imposes nontrivial costs. Moreover, costs are not limited to the implementation process. EMAS is likely to continuously impose costs as it requires greater coordination of activities within the company and imposes costs of employee training, environmental auditing and product and process improvements (Khanna and Anton 2002). Potoski and Prakash (2005) consider certified EMSs as club goods. In return for the costs, participants receive private benefits, i.e. non-participants are excluded from these benefits. Benefits might include increased operational efficiency, regulatory relief, technical information, and easier access to funds or less tangible rewards such as goodwill from consumers, environmental organisations and regulators. As Dasgupta et al. (2000) point out, regulatory initiatives to encourage EMS adoption might be a policy option worth considering. They argue that EMSs bring down companies' marginal abatement costs. If the downward shift of the marginal abatement curve is sufficiently strong, it might result in a lower level of emissions compared to an increase in the control and enforcement budget. Due to heterogeneity of company characteristics, the costs and benefits associated with EMAS adoption are likely to vary across companies (Khanna and Anton 2002). This explains why some companies have adopted EMAS and why others choose not to.

Assume that both discounted monetary and non-monetary costs (C) and benefits (B) are influenced by the business characteristics (b) of the firm, the financial characteristics (f) as well as stakeholder pressure and public policy (s), i.e. $C = C(b,f,s)$ and $B = B(b,f,s)$. One would expect that a firm would implement EMAS if the profits (P) from doing so are positive, i.e. if $P(b,f,s) = B(b,f,s) - C(b,f,s) > 0$. However, a company's net benefit from EMAS implementation is not directly observed. We only observe the participation decision. However, if we assume that for all EMAS registered companies discounted benefits outweigh discounted costs whereas for all non-registered companies profits from EMAS implementation are negative, we can create a binary choice variable ($D(EMAS)$) as

$$D(EMAS)_i = \begin{cases} 1 & \text{if } P_i(b, f, s) > 0 \\ 0 & \text{otherwise} \end{cases} \quad (1)$$

This variable takes the value 1 if the i -th company was EMAS registered on October 25, 2005 and we assume that for these companies the discounted benefits outweigh the discounted costs whereas the

opposite holds for all other companies for whom the EMAS variable equals 0. To examine which characteristics are important, we use a binary response model and estimate

$$P[EMAS = 1] = \Lambda(\beta x) \quad (2)$$

where Λ is either the cumulative logistic function (logit model) or normal distribution function (probit model), β is a vector of parameters to be estimated and x are the characteristics of the firm influencing the costs and benefits of EMAS and hence, the decision to implement it.

3. Determinants of environmentally responsive companies

In this section we outline our main hypotheses and define the related independent variables. The European scope of the sample limits the independent variables we were able to include and thus the hypotheses to be tested. Next to Amadeus, the availability of comparable company-level data in Europe is limited. Moreover, the almost non-existence of comparable firm-level environmental performance data in Europe hinders testing whether EMAS participants prove superior environmental performance.

We found inspiration for the majority of our independent variables in the literature. We used averages over a 7-year period (1998-2004) to measure most of the variables. Over 90% of all EMAS registered companies implemented EMAS in this period. A 7-year average was not relevant for the sector and country dummies and not available for the number of shareholders and subsidiaries. For these variables we used data of 2004. In a perfect world one would take the data from year(s) preceding a company's registration to EMAS. However, this might also create a bias as the implementation time differs considerably between companies. Based on 140 EMAS sites in 12 Member States, Hillary (1998) found it takes some companies over two years while others get registered within 6 months. Moreover one would need to make artificial choices about the year(s) to select for the variables of companies that have not (yet) implemented EMAS. Finally, 7-year averages might help to control for business cycle fluctuations that could influence some variables.

3.1. Business characteristics

Companies with a high number of facilities will face more difficulties in coordinating and monitoring all individual plants. As such, the number of subsidiaries might be a determinant of the need for

standardisation of a company's environmental policy and operating procedures. An EMS serves as an instrument to structure the inflow of information and to monitor the implementation of the corporation's policy. A higher number of subsidiaries also serves as a proxy for the visibility of the company. Finally, companies with a larger number of facilities have a greater likelihood of participation since a company was considered a participant if at least one of its facilities volunteered to join. The variable (SUBSIDIARIES) measures the number of subsidiaries in 2004. The number of subsidiaries was previously examined by Arora and Cason (1996) and Dasgupta et al. (2000).

It is commonly hypothesised that the size of a company positively influences the participation decision. Possible explanations include the following. First, larger companies are more visible and face greater scrutiny from various stakeholders (Henriques and Sadorsky 1996; Videras and Alberini 2000; Cole et al. 2006). However, since all the firms in this analysis are publicly quoted and face scrutiny in the financial press, this reason might not be as important in our analysis. Second, the key role of management is to ensure coordination of all actions of the many individuals and subgroups in the organisation. Larger companies face higher coordination costs, as there are more people and activities to coordinate. As such, the need for formal structures and procedures to ensure that all employees are focussing their efforts towards the goals set by the management rises (Henriques and Sadorky 1996). An EMS might serve as an instrument to reduce these coordination costs. Third, large companies presumably have more financial and intellectual resources and experience with management standards like ISO 9001 (Nakamura et al. 2001; Hibiki et al. 2003; Cole et al. 2006). Here, we measure company size in 2 different ways. First, we use the average number of employees in the period 1998-2004 (EMPLOYEES). Second, we also created an additional size-variable (RELATIVE SIZE) that grasps the relative size of a company compared to the sector average. To do this, we divided the number of employees of a specific company by the average number of employees in all companies in the same 4 digit NACE category in the sample. As such, this variable compares the size of the company to that of its sector-competitors.

Next, we hypothesise that the higher the average labour costs of a company, the more likely it is to have implemented EMAS. Higher average labour costs might represent a higher educated workforce or might refer to rather unsafe working conditions (e.g. higher wages in the nuclear or chemical sector). In the latter explanation, it is obvious that these employees have higher incentives to exert pressure on top management for safe working conditions and pollution abatement efforts. The proposition that a higher educated workforce values sound environmental practices might relate to the fact that higher educated people have a higher environmental awareness and are more capable to exert pressure on top management. Moreover, a highly skilled workforce will make it easier to implement a complex management system as they are generally more trainable, adaptable, and less resistant to

change. We took the average costs of employees and averaged it over the years 1998-2004. We will denote this variable with LABOUR COST.

A measure for capital intensity was included under the premise that capital-intensive companies have more complex production technologies; require more energy and raw materials input and hence have higher emission levels (Cole et al. 2006). This induces the need for mechanisms to control these complex and highly polluting processes and in turn provides greater opportunities and scope for the introduction of clean technologies. The variable (CAPITAL INTENSITY) is measured by the ratio fixed assets per employee. Again the average over the years 1998-2004 is taken.

Table 1: Sector dummies

Dummy	NACE	Description	Number of companies	EMAS
Sector A	C	▪ Mining and quarrying	16	2
	D	▪ Manufacturing	160	21
	F	▪ Construction	32	0
Sector B	E	▪ Electricity, gas and water supply	25	10
Sector C	G	▪ Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	51	0
	H	▪ Hotels and restaurants	13	1
	I	▪ Transport, storage and communication	50	1
Sector D	J	▪ Financial intermediation	15	0
	K	▪ Real estate, renting and business activities	56	2
Sector E	O	▪ Other community, social and personal service activities	18	1

Note: For the other NACE classes there were no companies in the sample

Finally, industry sector dummies are included to take into account industry-specific characteristics (e.g. Henriques and Sadorsky 1996; Videras and Alberini 2000; Hibiki et al. 2003). As such, industry-wide differences with respect to, for instance, pollution intensity, regulatory burden and public concern are controlled for. Also, it controls for the differences with respect to the possibility to implement EMAS. As already noted, some firms were only able to implement it after the revision in 2001. A company's activity was grouped based on the NACE classification Revision 1.1 and grouped into five industry dummies (SECTOR) shown in table 1. Most companies are found in sector A (mining and quarrying; manufacturing and construction) and C (wholesale and retail trade, repair of motor vehicles, motorcycles and household goods; hotels and restaurants; transport, storage and

communication). Regarding EMAS registered companies, most are situated in sector A. However, in relative terms, sector B (electricity, gas and water supply) has the highest proportion of registered companies. Sectors C, D (financial intermediation; real estate, renting and business activities) and E (other community, social and personal service activities) count a lower absolute number of EMAS registered companies. In our empirical test, the mining and quarrying, manufacturing and construction sector (sector A) is the omitted dummy. In the sensitivity analysis at the end of section 4, we present some analysis on the influence of the sector dummy specification on our results.

3.2. Financial characteristics

Implementing an EMS can be considered as a voluntary investment in an intangible asset, which is more likely to occur in companies with a sound financial structure (Videras and Alberini 2000). It should be noted that the primal objective of an EMS is not to increase short-term profits. In fact, the opposite might be the case. The costs are immediate but the benefits might only materialise in the long run.

First, we include the profit margin as a measure for a company's profitability. More profitable companies are supposed to have easy access to funds, by retained profits or capital markets (Nakamura et al. 2001). The variable (PROFITABILITY) is measured by the average profit margin, defined as profit before taxation on turnover, over the period 1998-2004. Second, we include the solvency ratio (SOLVENCY) and expect a positive sign. The solvency ratio is calculated as shareholders funds on total assets and we use averages over 1998-2004.

3.3. Stakeholders and public policy

Within the wide range of stakeholders, shareholders and creditors may be important groups requesting the company to adopt a certified EMS. Both may require an EMS as a guarantee of good management in general and environmental risk minimization in particular to safeguard their invested funds. We hypothesize that the higher the number of shareholders the more pressure they will exert. Small shareholders have less influence on and knowledge about the company's operations and strategy compared to major shareholders. As a result, they have more interest in external verification of good management to minimize the risk of future environmental liability. The variable (SHAREHOLDERS) reports the number of shareholders in 2004. A shareholder is reported if he holds at least 1% of the shares.

The pressure that emanates from creditors is measured by the average of the ratio of non-current liabilities on total liabilities over the period 1998-2004 (NON-CURRENT LIABILITIES). The variable only reflects the interests of long-term creditors as we believe short-term creditors do not have an incentive to push the company's policy towards immediate costs for long-term objectives.

Finally, we include the country in which the company's headquarters is located. EMAS participation rates differ significantly from country to country. The national institutional context and the government's policy in particular is supposed to play a pivotal role in this regard by e.g. facilitating access to information, granting support funds or shaping attractive public procurement guidelines (e.g. Perkins and Neumayer 2004; Delmas 2002; Kollman and Prakash 2002). The variable is created as dummy variable (COUNRTY) that takes the value 1 if a company's headquarters is located in a Member State that actively encourages EMAS registration. The classification is based on the number of incentives (regulatory flexibility, public procurement, support funding and technical assistance/information support measures) for registered organisations provided by each country as reported by the European Commission (2004). For companies in Germany (17 measures), Italy (15), Spain (13) and Austria (12) the variable takes the value 1. All other countries in the sample have eight or less incentive measures and are considered as less supportive. Table 2 presents descriptive data on the country breakdown of the companies in our sample.

Due to the country breakdown of our sample, i.e. the Dow Jones STOXX 600 list, and the data availability in our databases, the country breakdown does not reflect the relative economic size of a country in the EU. It can be seen that about half of our companies' headquarters are located in the UK. From column four and five it appears that the percentage of EMAS companies in our sample is relatively high for the countries that have a higher number of supportive measures as reflected in our country dummy variable.

Table 2: Descriptive data on country breakdown

Country	Companies in the sample	EMAS companies in the sample	% EMAS companies	Support measures ^a
UK	210	10	4.76%	6
Germany	43	10	23.26%	17
Netherlands	34	1	2.94%	6
Spain	34	6	17.65%	13
Italy	24	3	12.50%	15
France	24	0	0%	4
Finland	16	5	31.25%	4
Belgium	14	1	7.14%	8
Sweden	10	0	0%	2
Denmark	6	0	0%	8
Switzerland	6	1	16.67%	/
Ireland	5	0	0%	2
Austria	4	1	25%	12
Norway	3	0	0%	7
Luxembourg	3	0	0%	4
	436	38	8.72%	

^a As reported by the European Commission (2004)

Table 3 provides descriptive statistics on the variables and suggests that EMAS registered companies have a higher number of subsidiaries, more employees, are big compared to their average sector size and, to a lesser extent, have a higher number of shareholders and a larger share of non-current liabilities compared to non-registered companies. Also, the location of the companies headquarters and sector dummies B, C and D seem to play a distinctive role. Table A1 in appendix shows that our variables are not too correlated. In the sensitivity analysis, we check whether the results are sensitive for correlations amongst explanatory variables.

Table 3: Descriptive statistics (means and standard deviations)

Variable	Unit	Total sample	EMAS companies	Non-EMAS companies
Business characteristics				
Subsidiaries	Number	72.99 (121.1)	156.05 (265.30)	65.06 (93.68)
Employees	Number *1000	25.49 (52.12)	63.66 (102.68)	21.84 (42.91)
Relative size	Ratio	1.085 (1.06)	1.914 (1.46)	1.006 (0.98)
Labour cost	Thousand euro	44.68 (20.67)	51.51 (13.41)	44.03 (21.13)
Capital intensity	Million euro	0.47 (1,57)	0.54 (0.71)	0.46 (1.63)
Financial characteristics				
Profitability	Percentage	8.89 (10.29)	8.83 (8.19)	8.90 (10.48)
Solvency	Percentage	38.63 (17.72)	39.12 (11.77)	38.58 (18.20)
Stakeholders and public policy				
Shareholders	Number	15.70 (18.94)	19.42 (22.09)	15.35 (18.60)
Non-current liabilities	Percentage	43.74 (20.66)	56.61 (15.01)	42.51 (20.72)
Country	Dummy	0.24 (0.43)	0.53 (0.51)	0.21 (0.41)
Sector dummies				
Sector A	Dummy	0.48 (0.50)	0.61 (0.50)	0.46 (0.50)
Sector B	Dummy	0.05 (0.23)	0.26 (0.45)	0.03 (0.19)
Sector C	Dummy	0.26 (0.44)	0.05 (0.23)	0.28 (0.45)
Sector D	Dummy	0.16 (0.37)	0.05 (0.23)	0.17 (0.37)
Sector E	Dummy	0.04 (0.20)	0.03 (0.26)	0.04 (0.20)

4. Results

4.1. Results of the basic specification

The first column of table 4 presents the parameter estimates for the logit model. The corresponding probability values are presented between parentheses. As a robustness check, the last column shows the probit results. The results of both estimations are in line. In the following we concentrate on the logit model. The goodness of fit measure count R^2 , defined as the percentage correctly classified observations with the estimated equation is 92.43%. Due to the low number of EMAS registered companies in the sample, this is however only slightly above the percentage estimated with a constant probability measured by simply dividing the number of non-certified companies by the total sample number (91.28%). The McFadden R^2 value is 0.34 and as the likelihood ratio statistic equals 87.67, the null hypothesis that all coefficients are zero is rejected at the 1% significance level. However, it should

be noted that in binary regressand models the goodness of fit is of secondary importance. The sign of the estimated coefficients and their significance is what matters (Gujarati 2003). This especially holds for the research question at hand.

Table 4: Estimation results for EMAS participation

Variable	Logit estimation	% increase in odds	% increase in probability	Probit estimation
Business characteristics				
Subsidiaries	0.0002 (0.9005)	0.020	0.002	0.0003 (0.7012)
Employees	0.0092 (0.0219)**	0.928	0.074	0.0042 (0.0523)*
Relative size	0.4820 (0.0032)***	61.938	4.675	0.2467 (0.0052)***
Labour cost	0.0270 (0.0108)**	2.733	0.217	0.0122 (0.0243)**
Capital intensity	-0.0078 (0.9734)	-0.780	-0.062	-0.0118 (0.9155)
Financial characteristics				
Profitability	-0.0432 (0.0587)*	-4.224	-0.337	-0.0193 (0.0920)*
Solvency	0.0376 (0.0228)**	3.830	0.304	0.0175 (0.0353)**
Stakeholders and public policy				
Shareholders	0.0062 (0.4339)	0.626	0.050	0.0033 (0.4426)
Non-current liabilities	0.0341 (0.0107)**	3.469	0.275	0.0157 (0.0162)**
Country	0.7267 (0.0990)*	106.829	7.775	0.4491 (0.0531)*
Sector dummies				
Sector B	1.6637 (0.0048)***	427.862	24.795	0.9469 (0.0037)***
Sector C	-2.6096 (0.0066)***	-92.634	-8.018	-1.0831 (0.0068)***
Sector D	-2.4951 (0.0137)**	-91.752	-7.934	-0.9916 (0.0255)**
Sector E	-0.4496 (0.6826)	-36.210	-2.975	-0.2604 (0.6342)
Constant	-7.4391 (0.0000)***			-3.7660 (0.0000)***
N	436			436
Log-likelihood	-85.1787			-86.4427
Rest. Log-likelihood	-129.0158			-129.0158
LR statistic (14)	85.6744***			85.1463***
Prob. (LR statistic)	(0.0000)			(0.0000)
% correctly classified	92.43%			92.43%
McFadden R ²	0.3398			0.3299

*, ** and *** indicate the coefficient is significant at the 10%, 5% and 1% level respectively

Note. Probability values are shown in parentheses. LR statistic is a chi-square test for all slope coefficients jointly equal to zero.

The second column shows (for the logit model) the change in odds ratio due to an increase in the independent variable by one unit. For instance, the coefficient for the variable employees equals 0.0092. The corresponding odds ratio ($e^{0.0092}$) is 1.0092. Then we may say that when the independent variable increases one unit, the odds that the dependent equals 1 increase by a factor of 1.0092, when other variables are controlled for. The closer the odds ratio is to 1, the less influence the independent variable exerts on the dependent variable. Equally, one can say that when the variable employees increase by one unit (1000 employees) the odds of being EMAS registered increase by 0.92%. The third column shows the percent increase in the probability of being certified for a one-unit increase in the independent variable, controlling for the other variables in the model.

Next, we turn to the significance of the estimated coefficients. The estimated coefficients of the number of subsidiaries, the capital intensity, number of shareholders and the sector dummy E are not significant. The insignificance of the number of subsidiaries corresponds with Arora and Cason (1996) but contradicts with Dasgupta et al. (2000) who found that being a multi-plant company was the most influential variable. Whereas the theoretical arguments for the capital intensity variable were appealing, our unexpected result is also found by Cole et al. (2006). In their paper, it even turned out significantly negative for some measures of a company's environmental awareness. Note however that three sector dummy variables are significant. These dummies may partly capture differences in capital intensiveness among companies. Compared to the mining and quarrying, manufacturing and construction sector (sector A), companies involved in electricity, gas or water supply (sector B) are more frequently registered. Companies in the services sectors C (trade, hotels, restaurants, logistics and communication) and D (financial intermediation, real estate and business activities) participate significantly less frequent in EMAS. Notwithstanding this finding was expected as on average manufacturing companies face higher environmental risks, it should be taken in account that it was only in April 2001 when the renewed EMAS scheme was implemented that companies in the service sector were allowed to participate. Finally, other community, social and personal service activities (sector E) have no significantly different participation rates compared to the mining, quarrying, manufacturing and construction sector.

The estimated coefficient of the size of a company, measured by the number of employees, is significant at the 5% level. Controlling for the absolute number of employees, the estimated coefficient of the relative size of a company compared to its sector average turns out positive and significant at 1%. When the relative size ratio increases one unit, the odds of being EMAS registered increase by 61.94%, the probability increases by 4.68%. These results confirm the expectation that larger companies are more likely to have implemented EMAS even when controlling for the number of facilities.

Labour cost's influence on the probability of EMAS implementation is positive and highly significant. This implies that companies with a highly skilled workforce or with unsafe working conditions have a higher probability of having implemented EMAS. This corresponds to some extent with Dasgupta et al.'s (2000) finding that companies in which a higher proportion of employees followed postsecondary education, have a significantly more comprehensive EMS.

When looking at the financial variables, it turns out that the estimated coefficient of the profitability measure is significant at the 10% level, but has a negative coefficient. This is in contrast with our a priori expectations, but consistent with the diverging results of related research. On the one hand, Cole et al. (2006) found a negative influence whereas Hibiki et al. (2003) found it to be positive. In the results of De Canio and Watkins (1998), Arora and Cason (1995) and Nakamura et al. (2001) profits do not seem to have a significant influence on a company's environmental responsiveness. This leads to conclude that profit levels do not seem to exert a decisive (positive) impact on this issue. A possible explanation for the negative coefficient may be that the need to differentiate from competitors is higher in more competitive markets where profit margins are generally rather moderate.

The estimated coefficient of the solvency ratio is positive and significant. As the second column shows, an increase in the solvency ratio by 1 percentage point increases the odds of being registered by 3.83%. Furthermore, the higher the share of non-current liabilities the higher the probability a company is EMAS registered. Both confirm that a solid financial structure on the long term is favourable for implementing EMAS. The positive sign of non-current liabilities may also point to the pressure exerted from long-term creditors for the company to demonstrate that it minimises its (environmental) risks. While the estimated coefficient of the number of shareholders was positive but not significant, the coefficient of the non-current liabilities was. This seems to suggest that pressure from external stakeholders is especially relevant for those who provide long-term debt. With respect to debt variables, the results reported in the literature are mixed. The debt ratio turns out negative and significant in Nakamura et al. (2001) and Cole et al. (2006) but insignificant in Arora and Cason (1995), DeCanio and Watkins (1998) and Hibiki et al. (2003). Finally, a stimulating government policy, as reflected by the country dummy variable, provokes a positive and significant influence. The probability of being registered are 7.78% higher for companies whose headquarters is located in Germany, Italy, Spain or Austria compared to the other companies in the sample.

4.2. Sensitivity analysis

In order to check the robustness of our findings in the basic specification discussed above, we conducted a number of sensitivity analyses, which also might help us with the interpretation of our basic results. A first problem could be due to multicollinearity between our explanatory variables. Highly correlated variables make it difficult to separate the influence of these variables on the dependent variable. It could, for instance, be argued that large firms are more likely to pay higher wages and are more capital intensive. In order to check for potential biases in our results due to multicollinearity, we estimated the regression several times dropping each individual variable once at a time. The estimation output of this exercise is provided in appendix (table A2). This exercise shows that the results found in the basic specification are quite robust. The most notable change concerns the size of the company as measured with employees, which becomes insignificant when the sector dummy variables are dropped. Also, the profitability variable and the country dummy lose their significance in two out of eleven specifications. This is in line with the finding that these variables were only significant at the 10% level in the basic specification.

Specification 7 and 9 provide some further analysis on the influence of a company's financial structure. Specification 9 excludes the non-current liabilities variable. The coefficient on the solvency variable stays positive and significant. As the debt ratio, defined as the current and non-current liabilities on total assets, equals 1 minus the solvency ratio, this finding also implies that the higher the debt ratio of a company, the less likely the company will seek EMAS registration. The results in our basis analysis as well as those presented in table A2 show that the composition of the debt matters. In both specifications the coefficient on the non-current liabilities variable is positive and significant. This leads to the conclusion that whereas debt has a negative influence, the share of non-current liabilities in this debt positively influences the probability of participation in EMAS. Consequently, the share of current liabilities exerts a negative influence. This suggests that companies with access to stable long-term debt markets are more inclined to adopt EMAS.

Specification 10 excludes the country dummy variable and can be used to further grasp the influence of the institutional context. The results with respect to the other variables are confirmed: all variables that were significant, remain significant, the others stay insignificant. Only the significance level of the non-current liabilities variable changes from 5% to 1%. The determinants of company participation in EMAS do not respond to differences in the institutional context. The same conclusion stems from subsection 4.1 where we discussed our results with respect to related literature on US and Japanese companies. Nevertheless, studies like Delmas (2002) and Kollman and Prakash (2002) have pointed to the explanatory value for grasping international cross-country differences in ISO 14001 uptake.

Corresponding results were found by Perkins and Neumayer (2004) in explaining the geography of EMAS in the European Union. These seemingly contradicting findings might point to the fact that whereas the institutional context has little influence on the kind of companies that participate in these voluntary schemes, it influences the amount of these companies that participate. Rather than attracting other kinds of companies, a fertile formal and informal environment succeeds in attracting more of the same group of companies. It gets more companies out of the target group rather than enlarging the target group.

The second sensitivity analysis further focuses on the influence of the country dummy variable. The basic specification revealed that the country dummy variable was significant at the 10% level. Some additional analysis, shown in appendix (table A3), points out that this result is not robust. First, specification 1 only includes those companies that are situated in a country that has at least one EMAS registered company. This limits the sample to 385 companies. The country dummy variable is no longer significant in this specification. In the second specification, we included separate dummy variables for the countries that are indicated as supportive based on the number of supportive measures initiated by the government. In this case, we reset the sample at its basic level of 436 companies. The results show that whereas the coefficients of the country dummies have the expected positive sign, only companies whose headquarters is located in Spain have a significantly higher probability of EMAS registration compared to companies located in the less supportive countries. To conclude, the significance of the country dummy variable might be driven by Spain.

The third sensitivity analysis focuses on the influence of the sector dummies on the estimation results. The results are presented in appendix (table A4). As a first exercise, we excluded sector B. Sector B includes the electricity, gas and water supply companies. This sector is highly capital intensive and has a monopolistic structure. Besides, these companies are highly profitable and likely to be under government and public pressure. The rather high proportion of EMAS registered companies can be explained in this regard and this is likely to skew the results. The results of the first specification where firms in sector B are dropped from the analysis, confirm our basic findings. The variable on profitability and the country dummy are no longer significant, but the other conclusions hold. In the second specification, we additionally dropped firms from sectors C, D and E because of the low amount of EMAS registered companies in these sectors. Again, the profitability variable and the country dummy lose their significance. In the last specification, we further limited the sample to a subset of firms within sector A. More specifically we only included the manufacturing sector. This subsector is rather competitive and counts a relatively high amount of EMAS as well as non-EMAS registered companies. Besides, until 2001 EMAS was only open for companies in the manufacturing

sector. With the exception of relative size that is no longer significant, the basic results are unaffected. Note however that in this case the sample is restricted to only 160 companies.

As a final sensitivity analysis we estimated the regression with some alternative variable specifications. The results are shown in appendix (table A5). The second column shows the result of our basic specification and is included as a benchmark for comparison. In the second specification, we measured the absolute and relative size of a company based on turnover. The corresponding coefficients are positive and significant at the 1% respectively 10% level. In specification 3, we define the variable capital intensity as total assets per employee instead of fixed assets per employee. This does not substantially alter the results of the basic specification. When the return on total assets is used as an alternative measure for profitability of a company instead of the profit margin (specification 4), the estimated coefficient also turn out negative but insignificant. This result again shows that the conclusion on the negative influence of the profitability on EMAS registration is not that robust. The same picture stems from specification 5 in which the four alternative variable specifications discussed above are included. Finally, we point to the fact that the country dummy variable is not significant in any of the alternative specifications.

All in all, our sensitivity analyses clearly suggest that the results obtained in the basic specification are quite robust. Across various specifications that we have tested, both the significance as well as the sign of most variables is unaffected compared to the basic results. The same holds for alternative ways to calculate a number of our variables.

5. Conclusions

Responding proactively to growing environmental pressure is becoming a widespread trend among companies. It goes without saying that the level of commitment however is uneven ranging from environmental leaders to defensive companies. Empirical research on the characteristics of environmentally responsive companies has focussed almost exclusively on US and Japanese firms. For Europe, which is commonly considered as the greenest of the three major developed economic markets, similar research is lacking. This paper seeks to contribute by empirically investigating the business and financial characteristics, stakeholder pressure and public policies distinguishing companies that have implemented EMAS. A logistic regression analysis was carried out on a sample of 436 European companies listed on the Dow Jones Stoxx 600 selection list. Our results indicate that large companies with a sound financial structure and high average labour costs have a higher likelihood of participating in EMAS. Also the relative size of a company compared to its sector

average increases the likelihood of participation. The profitability on the other hand exerts a negative influence. Also, the location of a company's headquarters, which should capture differences in the institutional context, and the industrial sector determine the likelihood of EMAS participation. However, the exclusion of the country variable did not influence the determinants of EMAS participants.

Both the fact that EMAS has a closer relationship with public regulators compared to private initiatives like ISO 14001 and Responsible care as well as diverging formal and informal institutions in the European Union compared to US and Japan suggested that the results might differ from previous studies on the characteristics of environmental leading companies. Overall however, our conclusions are in line with related findings from research carried out in the US and Japan. Although evidence is still limited, this might point to a rather moderate influence of the institutional context when it comes to distinguishing the characteristics of environmentally leading companies. The literature on the geographical diffusion of EMS on the other hand points to the decisive role of institutional-related aspects to explain the diverging adoption rates between countries. We believe these seemingly contradicting results can be reconciled. Rather than attracting companies with other characteristics, a favourable institutional context seems to be able to convince more companies from the target group. Linking these two findings further might be a challenging task for future research.

Another issue that calls for further exploration is the question whether the adoption of voluntary initiatives makes companies outperform others on environmental abatement. Clear signals of added value above business-as-usual assessments are required to justify that many voluntary initiatives provide benefits for participants in the form of decreased regulatory pressure, subsidies or positive publicity. Increasing the amount of and reliability of environmental information is crucial to enhance transparency and enable public monitoring efforts. The Toxic Release Inventory in the US is a forerunner in this regard and has enabled this kind of research. For now, the findings do not permit an incontestable answer. Unfortunately, comparable firm level environmental performance data is lacking in Europe. A database on firm level CO₂-emissions created in the wake of the recent emission-trading directive on greenhouse gas emissions might provide us with a promising indicator in this regard.

Appendix – Table A1: Correlation matrix

	EMAS	Subsidiaries	Employees	Relative Size	Labour cost	Capital intensity	Profitability	Solvency	Shareholders	Non-current liabilities
EMAS	1.00									
Subsidiaries	0.21	1.00								
Employees	0.23	0.54	1.00							
Relative size	0.24	0.30	0.42	1.00						
Labour cost	0.10	0.05	-0.12	0.00	1.00					
Capital intensity	0.01	-0.05	-0.09	-0.02	0.16	1.00				
Profitability	-0.00	-0.10	-0.10	-0.09	0.11	0.33	1.00			
Solvency	0.01	-0.13	-0.18	-0.17	0.02	0.11	0.23	1.00		
Shareholders	0.06	0.02	-0.05	0.03	-0.07	0.02	0.06	-0.03	1.00	
Non-current liabilities	0.19	0.05	0.13	0.07	-0.00	0.27	0.14	-0.10	0.01	1.00

Appendix – Table A2: Sensitivity analysis on multicollinearity

	1	2	3	4	5	6	7	8	9	10	11
Business charact.											
Subsidiaries	X	0.014	0.006	0.004	0.002	0.004	-0.001	0.002	0.002	0.001	0.012
Employees	0.075**	X	0.097***	0.061**	0.074**	0.067**	0.056*	0.070**	0.076**	0.079**	0.038
Relative Size	4.700***	5.682***	X	4.797***	4.677***	4.814***	4.267***	4.776***	4.798***	5.108***	3.324**
Labour Cost	0.218***	0.198**	0.219***	X	0.217**	0.211***	0.212***	0.213**	0.222***	0.213**	0.142**
Capital intensity	-0.059	-0.144	-0.161	0.339	X	-0.659	0.465	0.094	0.238	-0.482	-0.803
Financial charact.											
Profitability	-0.340*	-0.296*	-0.349**	-0.359**	-0.338*	X	-0.237	-0.327*	-0.301	-0.320*	-0.125
Solvency	0.302**	0.251*	0.266**	0.302**	0.303**	0.238*	X	0.297**	0.239*	0.316**	0.192*
Stakeholders and public policy											
Shareholders	0.051	0.029	0.058	0.036	0.050	0.038	0.038	X	0.025	0.069	0.075
Non-current liabilities	0.0275**	0.279***	0.284***	0.304***	0.274***	0.252**	0.234**	0.264**	X	0.311***	0.315***
country	7.739*	9.414*	10.167**	7.228	7.804*	7.014	8.746*	8.399*	10.960**	X	7.958*
Sector dummies											
Sector B	24.731***	21.059***	22.166***	24.790***	24.707***	21.143**	20.399**	25.827***	31.580***	27.544***	X
Sector C	-8.032***	-7.630**	-8.079***	-8.056***	-8.020***	-7.792**	-7.933***	-7.983***	7.799**	-7.999***	X
Sector D	-7.943**	-8.065***	-7.225**	-7.508**	-7.939**	-7.878**	-7.782**	-7.974**	-8.155***	-7.769**	X
Sector E	-2.998	-4.110	-2.913	-3.145	-2.987	-2.268	-4.016	-3.262	-3.959	-2.437	X
Constant	-8.710***	-8.706***	-8.706***	-8.698***	-8.710***	-8.709***	-8.682***	-8.709***	-8.682***	-8.711***	-8.708***

*, ** and *** indicate the coefficient is significant at the 10%, 5% and 1% level respectively

Note: The numbers reported are the percent increase in probability due to an increase in the explanatory variable by 1 unit. An ‘X’ refers to the fact that this variable is not included in the specification

Appendix – Table A3: Sensitivity analysis on the country dummy variable

	Specification 1 (N=385)	Specification 2 (N=436)
Business characteristics		
Subsidiaries	0.003	0.000
Employees	0.069**	0.083**
Relative size	5.408***	4.794***
Labour cost	0.241***	-0.229***
Capital intensity	0.497	-0.425
Financial characteristics		
Profitability	-0.334*	-0.364**
Solvency	0.285**	0.317**
Stakeholders and public policy		
Shareholders	0.042	0.010
Non-current liabilities	0.256**	0.322**
Country	5.850	X
<i>Austria</i>		15.810
<i>Germany</i>		2.749
<i>Italy</i>		6.799
<i>Spain</i>		22.985*
Sector dummies		
Sector B	21.884**	20.796**
Sector C	-8.048***	-8.132***
Sector D	-8.185***	-7.916**
Sector E	-2.568	-3.471
Constant	-8.709***	-8.711***

* , ** and *** indicate the coefficient is significant at the 10%, 5% and 1% level respectively

Note. The numbers reported are the percent increase in probability due an increase in the explanatory variable by 1 unit. An “X” refers to the fact that this variable is not included in the specification.

Appendix - Table A4: Sensitivity analysis on the sector dummies

	Sample excl. sector B (N=411)	Sector A (N=208)	Manufacturing (N=160)
Business characteristics			
Subsidiaries	0.007	0.000	-0.002
Employees	0.074**	0.126***	0.154***
Relative size	4.782***	7.468***	5.792
Labour cost	0.202**	0.548***	0.682***
Capital intensity	-0.209	-5.743	-4.442
Financial characteristics			
Profitability	-0.244	-0.167	0.065
Solvency	0.395***	0.487**	0.438*
Stakeholders and public policy			
Shareholders	0.063	0.123	0.164
Non-current liabilities	0.401***	0.696***	0.822***
Country	5.968	0.972	-2.351
Sector dummies			
Sector C	-8.050***		
Sector D	-7.915**		
Sector E	-1.961		
Constant	-8.714***	-8.716	-8.716***

* , ** and *** indicate the coefficient is significant at the 10%, 5% and 1% level respectively

Note. The numbers reported are the percent increase in probability due an increase in the explanatory variable by 1 unit.

Appendix – Table A5: Sensitivity analysis on alternative variable specifications

	Specific. 1	Specific. 2	Specific. 3	Specific. 4	Specific. 5
Business characteristics					
Subsidiaries	0.002	-0.006	0.002	0.003	-0.007
Employees	0.074**		0.076**	0.068**	
Turnover		0.001***			0.001***
Relative size	4.675***		4.496***	4.791***	
Relative size on turnover		3.340*			3.281*
Labour cost	0.217**	0.117	0.241***	0.216***	0.159*
Capital intensity	-0.062	-1.484		-0.746	
Total assets per employee			-0.672		-0.252
Financial characteristics					
Profitability	-0.337*	-0.333*	-0.343*		
Return on total assets				-0.124	-0.326
Solvency	0.304**	0.345**	0.328**	0.251*	0.339**
Stakeholders and public policy					
Shareholders	0.050	0.0328	0.054	0.038	0.029
Non-current liabilities	0.275**	0.300***	0.284***	0.246**	0.264**
Country	7.775*	6.306	7.399	7.255	5.792
Sector dummies					
Sector B	24.795***	30.121***	26.180***	20.619**	27.046***
Sector C	-8.018***	-8.057***	-8.041***	-7.849**	-7.933***
Sector D	-7.934**	-6.969*	-7.798**	-7.893**	-6.703*
Sector E	-2.975	-1.255	-2.838	-2.385	-0.201
Constant	-8.710***	-8.709***	-8.711***	-8.708***	-8.708***

* , ** and *** indicate the coefficient is significant at the 10%, 5% and 1% level respectively

Note. The numbers reported are the percent increase in probability due an increase in the explanatory variable by 1 unit.

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Competing environmental management standards: How ISO 14001 outnumbered EMAS in Germany, the UK, France and Sweden¹

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Abstract. In the middle of the 1990s two international environmental management standards became available for European companies: the European Eco-Management and Audit Scheme (EMAS) and the International Organization for Standardization's ISO 14001. Companies that wanted to implement a standardized environmental management system were confronted with the choice between their national standard, the European standard or the international one. In the past decennium, the national standards have been abolished and the number of ISO 14001 certified companies has outnumbered the number of EMAS-registered organizations. The speed at which and the extent to which ISO 14001 has outnumbered EMAS differs, however, between countries in the EU-15. We argue that a country classification based on the degree of statism of the collective agency on the one hand, and the degree of corporatism of society's organization on the other, offers a valuable perspective for analysing the evolution of the uptake of both standards in a country. We present the case of Germany, the UK, France and Sweden, and conclude that in countries characterised by a more societal organization of authority, private alternatives for national regulations like ISO 14001 are welcomed and adopted with enthusiasm. In countries characterised by a rather statist organization, such alternatives are looked upon with more suspicion resulting in delayed uptake. Whereas ISO 14001 is a purely private initiative, voluntary registration to the EMAS regulation creates a link between the company and the authorities. In contrast to corporatist settings, this frightens off business participation in associational countries.

1. Introduction

Environmental auditing and management began in North America in the 1970s in response to the stringent and fast-growing environmental legislation. At first, industries and individual businesses created systems that suited their own needs. Pretty soon, attempts to develop more standardized and widely applicable systems arose at sectoral, national and even multinational levels. The first formally adopted standard for environmental management - BS7750 - was developed in 1992 by the British Standards Institution (BSI). Denmark and The Netherlands adopted BS7750 as their national environmental management standard, while other countries developed their own (although strongly

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based on BS7750) national standard, such as the French X30-200, the Irish IS 31° or the Spanish UNE77-801 (Krut and Gleckman, 1998).

The emergence of distinct national environmental management systems confronted with the demands of a globalizing economy, and by the early 1990s there was growing support for the establishment of internationally recognised auditing procedures (Watson and Emery, 2004). On 29 June 1993, EMAS was established by the adoption of the Eco-management and Audit Regulation (1836/93/EC) by the European Council of Ministers. EMAS was ready for company registration in April 1995. Meanwhile the International Organization for Standardization (ISO) was working on its own standard that was published in September 1996. ISO defines an environmental management system as “the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing, and maintaining, the environmental policy” (Johnson 1997, p. 65).

As such, European companies that wanted to implement a standardized environmental management system had to choose between their national standard, the European standard or the international standard. Confronted with the emergence of international standards, interest was soon lost in national standards. The most important national standard, BS7750 was withdrawn and replaced by ISO 14001 in March 1997 (Baumast, 2002), leaving only EMAS and ISO 14001 in competition.

In this paper we focus on the introduction of ISO 14001 and EMAS in the policy arena and try to answer the following research question: how does the domestic socio-institutional setting determine the speed at which and the extent to which adoption of ISO 14001 has exceeded that of EMAS in different countries. For this purpose, we conducted a comparative case-study analysis of four countries based on a country classification introduced by Jepperson (2002). Jepperson distinguishes countries based on the degree of statism of the collective agency on the one hand, and the degree of corporatism of society’s organization on the other hand. Combining these two dimensions results in four different polity typologies. With Germany, the UK, France and Sweden we include a prototype of each polity type in our comparative analysis.

The article is organized as follows. In the next section we present a brief history of the competition between ISO 14001 and EMAS. In section 3 we discuss the literature on the diffusion of environmental management standards. In section 4 we introduce the Jepperson country classification. The country case studies are presented in section 5, and in section 6 we draw up a comparative analysis. Finally, some concluding remarks are presented in the last section.

2. Brief history on the competition between ISO 14001 and EMAS

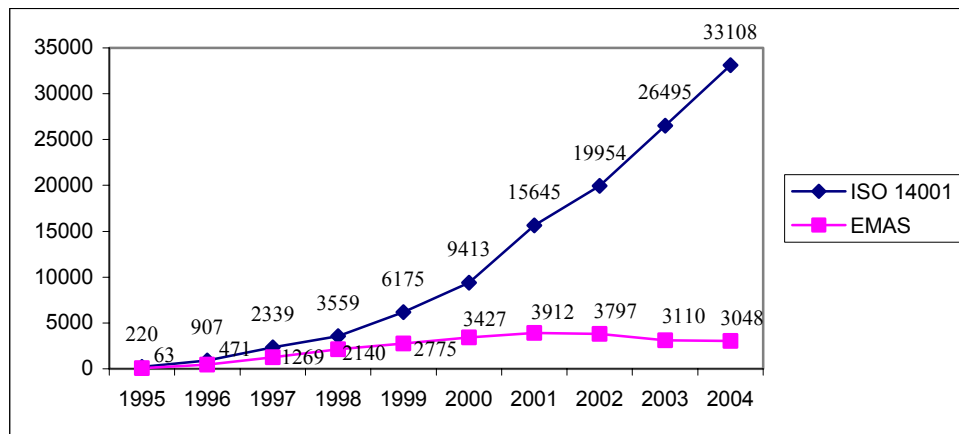
Notwithstanding the fact that ISO 14001 and EMAS are often presented as substitutes for each other, there are a number of important differences between these standards (Watson and Emery, 2004). EMAS is based on a European regulation, and the standard is governed by the Commission and the member states. For implementation of this regulation, the EU member countries are required to set up organizations and procedures for the accreditation of environmental verifiers and for the registration of organizations. ISO 14001 was created by an international industry association and the participating national standards-setting bodies. Certification bureaus are accredited by national standard bodies, but self-declaration of conformance to the standard is also possible. EMAS is more rigorous compared to ISO 14001. It requires the improvement of environmental *performance*, whereas ISO 14001 only asks improvement of the *management* system. EMAS-registered companies must *assure* regulatory compliance; ISO 14001 only requires a *commitment* to regulatory compliance. In addition, EMAS requires the publication of an environmental statement validated by an accredited environmental verifier. Whereas EMAS is a standard of environmental excellence, ISO 14001 is a method of standardization (Krut and Gleckman, 1998). ISO 14001 is essentially a formal conformance standard: that is, it is concerned with whether an organization's management procedures are consistent with its environmental policy.

Figure 1 shows the uptake of ISO 14001 certificates and EMAS registrations by companies in the EU-15. It can be seen that until 1998-99, the growth rate as well as the absolute numbers did not differ that much. It should be taken in account that before the revised EMAS II was adopted in March 2001, only companies in the manufacturing sectors could participate. For ISO 14001, all sectors could participate from the beginning. From 1999-2000 on, however, ISO 14001 certification was characterised by continuously strong growth. By December 2004 there were 33.108 ISO companies in the EU-15 (ISO, 2005). The number of EMAS registrations, on the other hand, peaked in 2001 at 3.912 organizations and has declined since then to 3.048 in December 2004³. As such, it is fair to state that in just a few years, ISO 14001 has outnumbered EMAS and become the dominant international environmental standard in the EU-15. The European Commission tried to counter this trend by adopting the revised EMAS II. In this, EMAS was opened for participation to all industries and ISO 14001 integrated as

³ Data received from the EMAS helpdesk (email 26/10/2005). It should be noted that under EMAS II (since April 2001) corporate registrations are possible. As such organizations that had registered several sites under EMAS I can gather all their sites under one registration number. The number of sites has risen from 3.901 in April 2004 to 4.253 by the end of September 2005. However, compared to the number and growth rate of ISO 14001 certificates our statement holds. In the rest of this paper we will only use the data on registered organizations, as these data were available from 1995 on and for all EU-15 countries.

fulfilling the management-system part of the EMAS regulation. The objective was to promote EMAS as the standard for environmental excellence and to revitalize participation by attracting ISO 14001 certified companies⁴.

Figure 1: The uptake of ISO 14001 and EMAS in EU member states



Sources: data on EMAS received from the EMAS helpdesk (email 26/10/2005). Data on ISO 14001 for the years 1995-1998 from (ISO, 2001) and for the years 1999-2004 from (ISO, 2005).

With the benefit of hindsight, it can be claimed that predicting the victory of ISO 14001 was a safe bet because of the combination of the international perspective and the fact that ISO 14001 is the logical next step after ISO 9001. However, there are a couple of observations that trouble this claim.

Firstly, the link between ISO 9001 and ISO 14001 is not that obvious. In March 1995, before ISO 14001 was available, 68,971 companies were already certified to ISO 9001 in the EU-15 - a number that ISO 14001 has still not reached. By December 2004 the number of ISO 9001 certificates reached 261,425, almost eight times the number of ISO 14001 certificates. It seems that only a limited proportion of companies consider ISO 14001 as the logical extension to ISO 9001. In addition, the correlation coefficient between the number of ISO 14001 certificates per country divided by GDP and the number of ISO 9001 certificates per country divided by GDP for the EU-15 countries is only 0,205. This shows that countries with a high number of ISO 9001 do not necessarily have many ISO 14001 certificates.

⁴ Although there are no official numbers it can be stated that a number of companies have implemented both standards. In June 1998, close to half of the companies that were EMAS-registered also held ISO 14001 certificate, while another third intended to go for ISO 14001 certification (Hillary, 1998).

Secondly, in the beginning, there was a rather strong expectation that EMAS could become the dominant standard in Europe. The competition between the two standards had already started before their actual adoption. Within the ISO technical committee, US delegates in particular put Europe under pressure to cancel plans for EMAS and embrace instead the international standard that was under development (Ward, 1994). The US favoured a more flexible standard, and especially opposed the mandatory public disclosure of environmental information verified by a third party as this might lead to litigation problems for US firms. The European policymakers, on the other hand, wanted a stringent standard, in particular because the standard might become an important element for giving regulatory relief to registered companies. Because of the fact that registration to EMAS could provide an opportunity for regulatory relief, and the rather strong belief that EMAS might become compulsory if the voluntary participation remained low, EMAS attracted more business attention than ISO 14001 (Begley, 1996; Roberts, 1995). In addition, because of the uncertainty about how EMAS and ISO 14001 would relate, most companies focussed on EMAS as they assumed that if they met the requirements for EMAS, certification to the less prescriptive ISO 14001 would be mainly a formality (Roberts, 1995). By the end of 1997, however, the atmosphere had changed and several important business federations explicitly stated their preference for ISO 14001:

“VCI, the German chemical industry – once a vociferous supporter of EMAS – now believes its best chance of developing and promoting the industry in Germany is with ISO 14001... In Italy, Federchimica, the Italian chemical federation has reached the conclusion that ISO 14001 is the standard for its members.” (Scott, 1997)

Thirdly, the time it took for ISO 14001 certifications to outnumbered EMAS registrations as the number-one environmental management standards differs between countries. Germany and Austria are outliers as it was only at the end of 2001 and 2002, respectively, that they had more ISO 14001 certified than EMAS-registered companies. In no other EU-15 country at any point in time has EMAS ever come close to dominating ISO 14001. Another curious observation is that, although the number of EMAS registrations has declined or stagnated since 2001, a remarkable growth can be seen in Italy and Spain. Between 2001 and March 2006, the number of EMAS-registered organizations rose from 74 to 435 in Italy and from 165 to 535 in Spain⁵.

⁵ Numbers from the EMAS website (<http://europa.eu.int/comm/environment/emas/>) (accessed on 4/6/2006)

3. The international diffusion of environmental management standards

A large part of the literature on the diffusion of environmental management systems takes a cross-sectional approach to explain the geographical diffusion at a certain point in time. There are a number of empirical studies on the international diffusion of ISO 14001 certificates (e.g. Corbett and Kirsch, 2001, 2004; Delmas, 2003; Potoski and Prakash, 2004; Prakash and Potoski, 2006; Vastag, 2004). Perkins and Neumayer (2004) empirically analysed the diffusion of EMAS registrations. Three of these studies include one or more explanatory variables that try to capture the institutional characteristics of a country in their model. Delmas (2003) found that the government's commitment to environmental goals has a positive influence on the uptake of ISO 14001 by companies. A higher level of litigation, measured by the number of environmental law firms in a country, has a negative influence on this. Potoski and Prakash (2004) found that ISO 14001 adoption rates are likely to be higher in countries whose governments flexibly enforce stringent environmental regulations. In their most recent work, Prakash and Potoski (2006), however, found that the domestic variables - government consumption and regulation - were not significant. Perkins and Neumayer (2004) found that EMAS registrations are higher in member states with less interventionist, burdensome styles of regulation but doubt the reliability of this conclusion since neither Germany nor Austria - the two countries with the highest per capita EMAS counts- have a particularly low regulatory burden.

This econometric-based research provides only limited information for our research question. Firstly, these studies focus on only one standard but the diffusion pattern of the two standards is quite different. The correlation coefficient between the ratio of ISO 14001 certificates divided by GDP and the ratio of EMAS registrations divided by GDP in 2004 in the EU-15 was only 0,252. Secondly, these studies are mainly cross-sectional in nature whereas answering our research question needs a combination of cross-section and longitudinal analysis. Thirdly, these studies are based on large-sample research. This has proven to be very useful for identifying general trends when the values of the variables differ significantly between the countries in the sample. However, we believe that this approach offers only limited explanatory power for explaining rather subtle differences between quite comparable countries, as is the case for this study.

In addition to empirical work, there is some research - usually in the form of comparative analysis between a limited number of countries - which concentrates on differences in culture, values, beliefs and institutions of the countries in explaining the geography of EMAS and ISO 14001 adoptions. Delmas (2002) distinguishes the regulatory, normative and cognitive aspects of the national environment that affect the costs and benefits of ISO 14001 adoption, and thus the differences in adoption across countries. The cases of Europe and the United States are used to illustrate the

influence of the institutional framework. She concludes, amongst other things, that the US institutional environment seems to act as a deterrent to ISO 14001 adoption as US companies are fearful of a certification process which lays their performance open to public scrutiny. The opposite is true in Europe, where governments have encouraged the adoption of environmental management standards by setting up a trusted certification system and providing technical assistance to potential adopters. Kollman and Prakash (2002) conducted an in-dept comparative case study of the adoption of ISO 14001 and EMAS in the UK, the US and Germany. They claim that the perception of the costs and benefits are largely determined by domestic factors. These perceptions are shaped by how environmental management standards are promoted, how information about them is disseminated in each country (supply aspects), and how the stakeholders support their introduction (demand aspects). Steger et al. (2002) investigated the influence of national culture, conditions, and incentives on EMAS registrations in Germany, France and Spain. Glachant et al. (2002) analyze companies' participation in EMAS by focusing on the influence of the public regulator, based on in-depth case studies of France, the UK, the Netherlands, and Germany. Others (for example, De Bruijn, 2002; Knill and Lehmkuhl, 1999; Knill and Lenschow, 1998) have analysed the geography with the 'goodness-of-fit' concept from the new-institutionalist school. According to this concept, the correspondence between supranational regulation on the one hand and domestic structures, policy style and policy content on the other determines the varying level of implementation in countries.

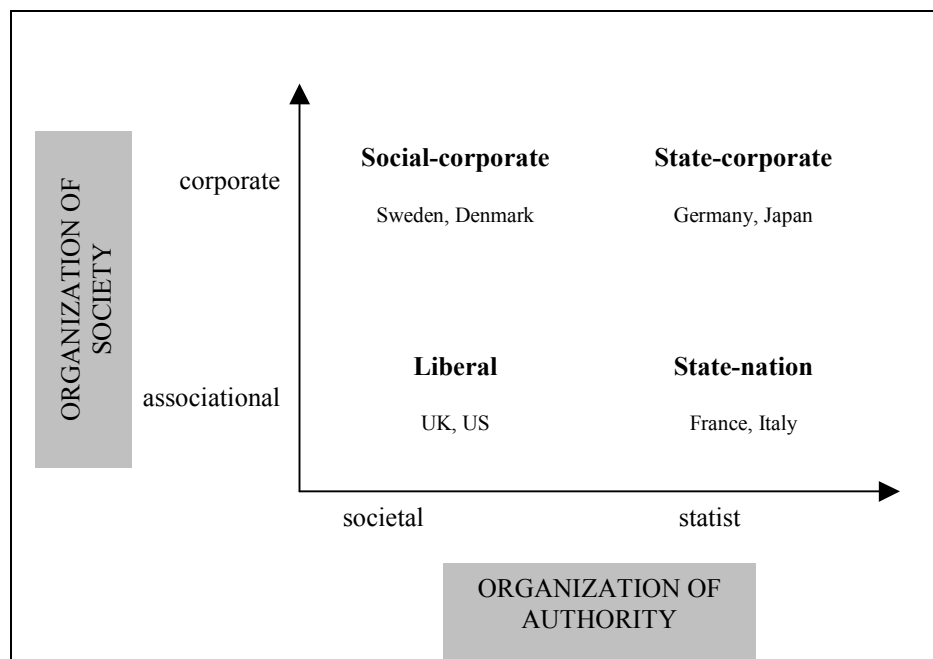
While there is quite some literature on the geographical diffusion at a certain moment in time, research on the evolution of the diffusion of, and the competition between, the two standards in time is more limited. In this paper we try to make a contribution in this direction and focuses on the influence of the socio-institutional context.

The decision to adopt a certifiable environmental management system is a voluntary choice for companies which, however, experience strong external factors. Along with others (for example, Delmas, 2002; Glachant et al, 2002; Kollman and Prakash, 2002; Prakash and Potoski, 2006; Steger et al., 2002) we believe that the national environment (national values, norms, habits, institutions, beliefs, etc) partly shapes this external context. Within the wide range of possible determinants, we focus primarily on a country's socio-institutional setting to shed some light on the research question at hand. A relevant policy distinction is presented in the next section.

4. A typology of polity models

Drawing on the literature on state polity formation, Jepperson (2002) distinguishes countries based on two dimensions: the organization of society, and the organization of authority. Disentangling and then cross-classifying them yields four distinct polity models (see figure 2): state-corporate, liberal, state-nation and social-corporate. These polity models correspond quite well with the political cultures of Germanic, Anglo, French and Nordic orbits, respectively.

Figure 2: A typology of polity models



Source: Jepperson (2002)

The horizontal axis focuses on the organization of collective authority and contrasts statist from societal models. Societal visions locate purpose and authority in society at large, with government seen as an instrument and expression of society. As such, these countries feature more imagery of thinking, interest formation, representation, and bargaining. The UK is a classic example. Statist visions, in contrast, locate collective authority in a differentiated, insulated, and charismatic organizational state apparatus. They take on an image of a steering government, an inspired officialdom. There is more organizational integration of administrative, parliamentary, juridical, policing, executive, and planning powers. Germany and France typically fit into this category.

The vertical axis represents the organization of society and distinguishes between corporate and associational models. In associational visions of society, society is imagined as a system of action generated by subunit 'actors'. Social structure is pictured as arising from their communications and

exchanges. Whereas collective requirements (agreements) and duties are stressed under corporate organization, rights and choices are dramatized here. Jepperson (2002) labels Britain, the US and France as typically associational. In corporate models a communal order of differentiated roles and collective functions is established. Social organization is envisioned as rational and planned, rather than natural and emergent as it is depicted in associational imagery. In corporate models, the subelements of society are typically groupings or orders themselves, with group rights accorded to them like a sort of delegated polities. Germanic central Europe, Scandinavian Europe and parts of southern Europe produced the modern corporate system based on a functional theory of society.

We believe this country classification might offer valuable insights on the way in which the socio-institutional context influences the reaction of a country's policy makers, companies, and society at large to the introduction of international environmental management standards. Alongside this cross-sectional approach, we believe this classification is also able to provide insights for the longitudinal analysis of the evolution of both standards in a country since it points to the way in which interactions between social actors and authorities take place and to the different ways in which policies are drawn up. We do not restrict ourselves to a static interpretation in which different settings might explain a diverging position with regard to environmental management standards, but widen our view to see how these settings might trigger dynamic interactive processes that change perspectives on the advantages of implementing an environmental management system. With regard to the two dimensions discussed above, we postulate the following hypotheses.

(i) Hypothesis concerning the organization of collective authority:

'Environmental management standards will be more widely supported in societal countries as the characteristics of this instrument correspond better with a societal organization of authority.'

Within the wide range of environmental policy instruments, environmental management standards belong to the category of 'voluntary instruments'. Characteristics like voluntarism, self-regulation, and flexibility more closely fit with a societal model of collective authority. The fact that most environmental management standards are mainly developed by business initiatives strongly contrasts with the statist vision of a steering, enlightened authority. When we distinguish between EMAS and ISO 14001 it is obvious that EMAS which is developed and monitored by policy makers, is more in line with the statist type, whereas the more flexible ISO 14001, which is developed by the private sector, fits the societal type more closely.

(ii) Hypothesis concerning the organization of society:

‘Environmental management standards will be more widely supported in associational countries as the characteristics of this instrument correspond better with an associational organization of society’

Within the category of voluntary instruments, environmental management standards are distinguished from others through their binary and individualistic character. An environmental management standard is a take-it-or-leave-it option for every individual company, and does not establish environmental performance targets. These characteristics especially distinguish environmental management standards from other voluntary instruments, such as negotiated agreements with targets based on a compromise between industry associations and policy makers and where the agreement usually applies for a whole industry sector. Governments looking to substitute or supplement command-and-control type regulation with new instruments based on voluntarism and cooperation will be attracted by the instrument type that suits their socio-institutional context. As such, in corporatist environments, with powerful industry associations seen as a sort of delegated polities, negotiated agreements fit best. In associational settings, negotiated agreements are less feasible as the ties within social organizations and between private and public actors are rather weak. Above all, the importance of individual free choice in these countries corresponds more closely with the voluntary-instrument subtype of environmental management standards. We return to these hypotheses after the case studies are presented in the next section.

5. Case studies

In order to investigate the influence of a country’s socio-institutional setting on the adoption of environmental management standards, four case studies are presented: Germany, the UK, France and Sweden. These countries are selected because they can be considered as the prototype for the four polity modes, and because information about the adoption of both environmental management standards was available. Table 1 presents some basic information for each country. Rather than giving the values of the variables, we have decided instead to offer a qualitative weighting based on the position of the country in the EU-15 ranking (1-5: high; 5-10: middle; 11-15: Low). In other words, the descriptors allow comparisons to be made between the countries within a particular column, rather than the other way round. In parentheses, we add the actual position of the country in the EU-15 ranking. The data on ISO 9001 are included as an indicator of the general popularity of management systems in a country. The last column presents information on the degree to which member states have

promoted EMAS (and, to a lesser extent, ISO 14001) by providing regulatory incentives to registered organizations.

Table 1: The uptake of ISO 14001, EMAS and ISO 9001 in 2004

	Polity type	ISO 14001*	EMAS*	ISO 9001*	EMAS/ISO 14001	Government incentives**
Germany	State-corporate	Low (12)	High (2)	Low (11)	High (2)	High (1)
The UK	Liberal	High (5)	Low (13)	High (3)	Low (14)	Middle (7,5****)
France	State-nation	Low (13)	Low (15)	High (5)	Low (15)	Low (11****)
Sweden	Social-corporate	High (1)	High (4)	High (4)	Middle (10)	Low (14,5****)

* The number of certified/registered organizations is divided by GDP; data on ISO 14001 and ISO 9001 from ISO (2005); data on EMAS received from the EMAS helpdesk by email 26/10/2005

** Number of regulatory incentives for companies registered to EMAS as reported by the European Commission (2004). Some of these incentives also apply for certification to ISO 14001.

*** This is the average ranking, meaning that a number of countries have the same numbers of measures

5.1. Germany: a game of panicky play

Germany takes the second place in the EMAS ranking and has by far the most EMAS-registered organizations in absolute numbers. The number peaked in September 2001, at 2.674, but thereafter declined steadily to 1.499 in February 2006⁶. For ISO 9001, as well as for ISO 14001, Germany ranks low down the pack. This indicates that (environmental) management systems are not really popular in Germany, and also explains the high EMAS/ISO 14001 ratio.

The situation of Germany can be split into three periods: (i) strong opposition to the development of EMAS, which turned into (ii) strong enthusiasm in the middle of the 1990s, and ended in (iii) disillusionment with EMAS and growing interest for ISO 14001.

Firstly, during the development of EMAS, Germany strongly opposed the idea. Germany was the only country to oppose the second version of the EC draft regulation (Bültmann and Watzold, 2000). This attitude is explained by the fact that the idea of self-regulation and flexibility did not match Germany's environmental policy, which is traditionally presented as strongly dependent on state-driven technical regulation combined with direct controls of companies by public institutions (Bültmann and Wätzold,

⁶ This decline cannot be completely due to the new registration system introduced with EMAS II in April 2001 as the number of registered sites (1.967) in February 2006 is also below the peak in registered organizations and has a declining trend.

2000; Wurzel, 2004). In addition, German industry opposed to the public's access to environmental and company-related information. German business associations feared the discovery of trade secrets by rivals and the resulting damaging consequences for their competitiveness. In addition, they argued that legal compliance would be harder for German firms because of the high national standards compared with those of other European countries (Becke, 2004).

However, by the time EMAS was available for registration, the German government as well as the German industry had become enthusiastic supporters. The switch in the German government's perception is explained by their recognition that they were losing their role as an 'uploader' of national policies to the European level (Börzel, 2000, 2002; Pehle, 1997). This stimulated the recognition of the need for a change in policy style (Wurzel, 2002). Especially at the European level, there was the growing enthusiasm for incentive-based policy instruments. In face of implementation problems (Glachant, 2001; Jordan 1999) and inefficiency attributed to the regulatory approach, the European Commission looked for alternative, more flexible environmental policy concepts and instruments (Wurzel, 2002). The Fifth Environmental Action Plan of the European Commission, which saw an important role for EMAS, is considered a turning point in this regard (Weale, 1996). The former 'coalition' countries of Germany like the Netherlands – the Dutch National Environmental Policy Plan inspired the Fifth European Action Programme (Lieverink and Andersen, 1998) - and Denmark, already supported the new direction. In a way Germany, which was used to being a leader quite suddenly started to panic that it was missing the boat and would become a tailender.

By 1993-94 German industry also began to see EMAS as an opportunity rather than a threat. Companies started to believe that EMAS would improve stakeholder relationships and could create an opportunity to show their high environmental performance levels (Becke 2004). Many companies did not want to miss the opportunity of gaining regulatory relief that the government had promised. In addition, as German companies already had a high level of in-company environmental protection, the effort required to achieve EMAS registration was expected to be comparatively lower than for companies with lower environmental protection levels.

Another important element here is the way in which the accreditation and registration system is set up. This process was initially characterized by a conflict between the Federal Ministry of the Environment and environmental groups on the one hand, and the Federal Ministry of Economics and business associations on the other, over the amount of influence which industry should have in the system (Bültmann and Wältzold, 2000). The situation resulted in a deadlock that lasted for almost two years. Finally, a compromise was reached by the foundation of DAU (Deutsche Akkreditierungs- und Zulassungsgesellschaft für Umweltgutachter) as accreditation body and the chambers of industry and

commerce and chambers of crafts as competent bodies. As such, a lot of responsibility was granted to the private sector. This long and intense implementation process, however, attracted attention: public and private actors became ‘EMAS-minded’. Registration by companies was strongly promoted by information campaigns and financial support organized by federal and regional governments as well as affiliated public agencies and the chambers of commerce and industry or the chambers of crafts (Wätzold and Bültmann, 2000). Above all, the chambers of industry and crafts had a particular interest in high participation rates as they had sought responsibility for the registration system (Delmas, 2002). Also, most German states responded positively to the firms’ request for regulatory relief and financial support for participating firms. Germany takes the first place in the ranking on government support measures. In this support system, greater incentives are offered to firms that join EMAS in preference of the ISO 14001 scheme (Clausen et al., 2002).

By the end of the 1990s, the atmosphere had, however, changed again as can be seen in the declining number of EMAS-registered companies from 2001 on. How can we explain this sudden turnabout? Baumast (2002) gives two reasons. On the one hand, business had expected more recognition from the government in the form of regulatory relief. The government attracted many companies with this prospect, but failed to keep its promises in many counties (Länder). On the other hand, recognition from other stakeholders was limited, certainly as in almost every other country, companies were busy getting certified to ISO 14001. Because the additional cost of implementing the more stringent EMAS instead of ISO 14001 did not pay off in terms of stakeholder recognition, EMAS became less popular.

5.2. The UK: a path dependency story

The UK has quite a high level of ISO 14001 companies but almost no EMAS registrations. The UK can be characterised as one of the countries most committed to management systems. Already in January 1993 the EU-15 counted 22.550 ISO 9001 certified companies of which 18.577 (82.4%) were situated in the UK. For ISO 14001 the numbers are less impressive, but nevertheless in 2004 the UK was placed fifth in the EU-15. By virtue of the BS7750 standard, the UK is considered the cradle of environmental management standards (Delmas, 2002).

In historic perspective, the non-adoption of EMAS in the UK might seem puzzling. The UK government was a heavy promoter of EMAS from the start of the policy process. The UK’s national environmental policy is characterized as rather liberal and flexible based, on company-oriented self-regulation approaches (Fairbrass and Jordan, 2001). As such, The UK strongly criticised the prevailing strategy of centralised regulatory mechanisms of environmental European law as being inefficient,

inflexible, and neglecting the specific national institutional settings (Becke, 2004; Rittberger and Richardson, 2003) and favoured the European Commission's shift to more flexible environmental policy concepts and instruments (Wurzel, 2002). EMAS was considered as an important element in this new strategy. The UK government hoped that national industries would gain a competitive advantage as management systems in general and the national environmental management system BS7750 especially, were strongly supported and implemented by UK industry (Wätzold and Bültmann, 2000). After the publication of BS7750 in March 1992, the standard was subjected to a two-year pilot implementation program involving almost 500 participants, including 230 implementing organizations (Delmas, 2002). The modified standard was finalized in January 2004 and the sales of the standard proved very successful. It faced the highest demand for any BSI document ever (Baumast, 2002).

How to explain the lack of EMAS registrations in this context? Two elements are crucial: the popularity of ISO 9001 and the lack of government support. The high numbers of ISO 9001 certified companies might have created a path dependency towards ISO 14001 certification. The role the government played in the UK is completely opposite to the German situation. The UK government strongly influenced the development of the standard, but took a passive position with respect to its actual implementation by companies. In its opinion, (environmental) management standards are a private sector instrument in which the government is not involved. The fact that the success of ISO 9001 and the establishment of BS7750 were achieved without much government involvement must have supported this belief. The process of setting up an accreditation and registration system went smoothly as the UK was able to build on administrative structures already in place to implement national environmental management based on BS7750 and the ISO 9000 quality-management system (Knill, 2001). The drawback of such smooth implementation is the fact that it does not attract the attention of the parties involved (for example, government, environmental organizations, business associations, certification bureaus, national standard bodies) as was the case in Germany.

In addition, Baumast (2002) also points to the fact that the UK is somewhat opposed to more European regulation. Industry considered EMAS as a centralized and stringent European 'thing', and preferred the more flexible and international ISO 14001 standard.

5.3. France: government dominance frightens business

Although the quality management system ISO 9001 is quite popular in France, French companies have a very low interest in environmental management systems compared with other EU-15 countries.

France holds the 13th place in the ISO 14001 ranking and the last place in the EMAS ranking. As such, the competition between the two standards is of little interest in this country.

With regard to the EMAS regulation, France took a rather indifferent position at the European level. This is explained by the lack of experience with environmental management and the voluntary nature of the regulation (Schucht, 2000). Nevertheless, when the accreditation and registration system had to be set up, the authorities took the lead. As in Germany, this process was characterized by a battle between actors such as the authorities, business associations, the national accreditation bureau, certification bureaus, and environmental pressure groups, to get as much involvement as possible in the system. As can be expected for a state-nation, in the end it was the Ministry of the Environment that dominated the accreditation and registration of the system. Schucht (2000) states that, with the benefit from hindsight, the Ministry of the Environment wanted strong control on the system of registration and accreditation right from the start, but needed to collaborate with other interest groups in pilot phases to gain information on the subject as they had very little experience of environmental management at the beginning.

This clearly contrasts with the German case, where a long and difficult process resulted in an outcome that was supported by government as well as those business associations which attained a dominant position in the system. In France, dominance of the authorities was rejected by the business associations (Delmas, 2002). Unlike Germany, the institutional structures and the tradition of public-private cooperation are lacking in France and conflicts are solved by unilateral government intervention. As such, the implementation of the EMAS regulation did not create a momentum for EMAS registration by companies such as occurred in Germany. The French Ministry of the Environment has always seen EMAS more as a promotional than as a regulatory instrument: business requests for deregulation for participants are left unanswered, and technical and financial support initiatives are scarce (Schucht, 2000). France is at the bottom of the rankings of political support measures in table 1. Companies were left frustrated and turned their back on EMAS, making it very easy for ISO 14001 to become the number-one standard in this country from the beginning. Why the number of ISO 14001 registered companies lags so clearly behind the number of ISO 9001 companies, however, is puzzling.

5.4. Sweden: where ISO 14001 is the bottom line

Within the other polity types, choosing the prototype country was rather straightforward. The Scandinavian countries, labelled as social-corporate by Jepperson, are typically considered to be a

quite homogeneous group. As such, the choice of Sweden was rather arbitrary. However, against the choice of Norway was the fact that it is not a member of the EU-15. Denmark, in turn, is believed to be just a little closer to state-corporate model than Sweden; and Finland's peripheral position in the EU-15 and its historic ties with Russia made us choose Sweden as prototype country.

Whereas environmental concern on political and business levels has a long history in Sweden, it did not play a pivotal role in the development of environmental management systems as in the case of the UK. However, after the publication of ISO 14001 and EMAS interest and uptake rose quite spectacularly. For ISO 9001, ISO 14001, and EMAS, Sweden ranks amongst the top countries. For the ratio ISO 14001/GDP Sweden is ranked highest and the value of the ratio is over twice that of the second country, Spain. This high value explains the rather low value of the EMAS/ISO 14001 ratio. This makes the position of EMAS somewhat puzzling. From a European perspective Sweden is a forerunner, but domestically the number of EMAS registered organizations is negligible compared with the number of ISO 14001 certificates. Another interesting fact is that the number of EMAS-registered organizations peaked in 2001 on 212 and had fallen back quite drastically to 100 by February 2006.

Baumast (2002) gives two explanations for the relatively limited amount of EMAS-registered organizations. First, there is the lack of political support for EMAS. Sweden shares the last place with Ireland in the ranking on government support measures. The only advantage to be gained is that firms who are obliged to publish an environmental report can substitute an EMAS statement (which in fact is an environmental report) (Clausen et al, 2002). As such, experts and company representatives see no added value in EMAS if an ISO 14001 is already achieved. In contrast to Germany, where many companies went for ISO 14001 after their EMAS registration, ISO 14001 is generally regarded as the main standard in Sweden. The interest in EMAS comes mostly from companies with important markets in Germany. The second explanation is economic: Sweden is the only country in the EU where the competent body for EMAS registration is an independent company that needs to finance itself through validation and registration fees - which are, consequently, the highest in Europe. Both the lack of supporting measures and the statute of the competent body point to the fact that the government does not want to interfere in companies' decisions choosing between ISO 14001 and EMAS.

How can we explain the popularity of ISO 14001? Firstly, public concern for the environment is very high in Sweden. As a consequence, environmental policy both of government and of businesses has been regarded as a front runner. Implementing an environmental management system is considered to be a useful element in companies' environmental policy and enables them to demonstrate their

environmental dedication - especially to customers. This is perceived as the principal benefit for companies. A remarkable finding is that the number of ISO 14001 certified companies comes close to the number of ISO 9001 certificates. The ratio is 74% compared to only 16% in Germany, 12% in the UK and, 11% in France. Over the last few years, interest has been shifting from pure environmental management systems to integrated, sustainability-oriented systems focussing on economic, social, and environmental aspects. Second, the fact that having a certified environmental management system is an important element in public procurement is claimed to be an important explanatory factor (Baumast, 2002). Finally, Baumast sees a kind of bandwagon effect in the sense that ISO 14001 has reached the critical level where certification has become a must. Instead of drawing attention to the fact of being certified, in Sweden a company might attract attention if it is not certified.

6. Comparative case-study analysis

In this section we aim to check whether the information gained in the case studies on the development of ISO 14001 and EMAS is in line with the intuition that stems from the Jepperson country classification and the resulting hypotheses postulated in section 3. At first sight the case studies point to the decisive role of specific factors in explaining the (lack of) success of the standards, such as the swings in the German government's enthusiasm, or the high registration cost in Sweden, and do not necessarily show a direct or obvious link with the socio-institutional setting. Nevertheless, we think that the fact that certain elements occur or have an important influence in certain countries is not determined by fate or accident but is bound to the socio-institutional setting and the resulting policy culture of that country. We thus take a deterministic rather than stochastic perspective.

Figure 3 presents a summary of the case studies from the perspective of the Jepperson typology. For each country a short statement summarizes the initial position towards the introduction of environmental management standards (IN), the implementation of the EMAS regulation (IMP) and the uptake of ISO 14001 and EMAS (UP).

Figure 3: Case-study summary

<i>corporate</i>	Sweden	Germany
	IN: supportive IMP: fast; private sector dominance UP: EMAS uptake rate declined fast in favour of high ISO 14001 uptake	IN: suspicious IMP: difficult and conflicting but resulting in a supported compromise UP: high but declining EMAS uptake; low ISO 14001 uptake
<i>associational</i>	The UK	France
	IN: very supportive IMP: fast; private sector dominance UP: low for EMAS; high ISO 14001 uptake	IN: indifferent IMP: difficult and conflicting, resulting in business aversion UP: low, especially for EMAS
	<i>societal</i>	<i>statist</i>

Regarding the initial position concerning the introduction of environmental management standards, the intuition from the Jepperson typology seems to be confirmed. According to the hypotheses a more positive stance was expected from countries with a more societal organization of authority and a more associational organization of society. The supportive UK and the rather negative German position support our hypotheses. The mixed typologies of France and Sweden are harder to judge: with Sweden rather positive and France rather negative, the hypothesis concerning the organization of authority seems the most important.

Also, the way in which the EMAS regulation is implemented seems in line with expectations. Previous research has shown that formal incorporation of EU policy by member states rarely implies homogeneity in patterns of implementation (Bailey, 2002; Liefferink and Jordan, 2002). This is also agreed by Steger et al. (2002) who, in their qualitative, interview-based study of EMAS participation in Germany, France and Spain, conclude that national culture and competitive situation both have an impact on the way EMAS is interpreted and validated in different countries. The case studies point to important differences, especially concerning the system for registration of companies and for accreditation of environmental verifiers. As expected, the societal countries, Sweden and the UK, enjoyed a smooth implementation process. The government gave the responsibility for the registration and accreditation system to a large extent to the private sector. The fact that these countries had

already some experience in (environmental) management standards facilitated this process, and is in line with the expectation that societal countries are more open to alternatives for national regulations. In statist Germany and France, the implementation process was characterised as difficult because of private-public conflicts. Again, the difference between statist and societal countries proves more important than the distinction between corporatist and associational countries. Comparing the case of France with Germany, however, might reveal the influence of this second dimension. In Germany a widely supported compromise was finally reached. Industry federations have a high responsibility; and the institutional and historic ties, which are such that these federations are almost considered part of the government, facilitated such an outcome. France, in contrast, lacks this kind of partnership thinking and the outcome in which the government dominated the system met with frustration and was rejected by industry.

In addition, the uptake of the standards provides some evidence that supports the hypotheses postulated. The uptake of ISO 14001 in the four countries again points to the overriding importance of the hypothesis concerning the organization of authority: high in Sweden and the UK; low in Germany and France. For EMAS uptake and the EMAS/ISO 14001 ratio, however, the hypothesis concerning the organization of society seems confirmed: Germany and Sweden rank high, France and the UK low. Presumably the differences between EMAS and ISO 14001 provide an element of explanation. Whereas certification to ISO 14001 only links a company to other private actors (for example, certification bureaus, costumers, insurance companies, etc), EMAS registration also creates a link between the company and the authorities (EMAS is a European regulation). In corporatist settings, structures and links between business associations and authorities are more developed than in associational settings. As such, companies in corporatist countries might be much more open to participation in such initiatives whereas this might frighten off companies in associational countries.

7. Conclusion

With EMAS and ISO 14001, two international environmental management standards became available in the middle of the 1990s. Companies of the EU-15 seeking to implement a standardised environmental management system faced a choice between their national standard, the European standard or the international standard. Although at the beginning there was some doubt as to which standard would become most popular, at the start of the 21st century EMAS fell behind ISO 14001. The speed at which and the extent to which ISO 14001 certificates outnumbered EMAS registrations, however, differs between countries. In this paper we attempt to shed some insights on this diverging diffusion pattern by focussing on the distinct national socio-institutional context.

Jepperson's polity typology is taken as a starting point. This typology distinguishes countries on two dimensions: the degree of statism and the degree of corporatism. Combining these two dimensions produces four polity types. For each polity type a prototype country was selected and a case study was conducted. A comparative analysis of the four cases was used to test two hypotheses concerning the two dimensions of the polity typologies. The hypotheses were checked against the information gathered concerning the initial position towards the introduction of environmental management standards, the implementation of the EMAS regulation, and the actual uptake of both standards. The hypotheses were to a large extent supported by the case studies.

The hypothesis stating that societal countries are expected to be more supportive compared with more statist countries was confirmed for the introduction of environmental management systems, for the implementation of the EMAS regulation and for the uptake of ISO 14001. With regard to the hypothesis stating that associational countries can be expected to be more supportive compared with more corporatist countries, only limited information was found so the hypothesis cannot be supported nor rejected. A clear example of the influence of this difference in the organization of society was, however, found in the ways the registration and accreditation system was set up in Germany and France. In Germany, strong institutional and historic ties between government and industry federations meant a conflicting process resulted in a commonly supported compromise. In France, however, this tradition of partnership is lacking and the resulting governmental dominance in the system was met with frustration by industry. Above all, the uptake of EMAS could be explained in this regard when considering the fact that EMAS registration creates a link between the company and the authorities.

All in all, structural differences and the processes that took place in the four case studies correspond quite nicely with the intuitive expectations that stem from the polity typologies. This theoretical perspective might also offer interesting insights for our understanding of the diffusion of environmental policy instruments in general, and especially for the emergence of new instruments that are to some extent based on voluntarism, such as negotiated agreements or information and reporting systems. Enhancing knowledge concerning the link between socio-institutional setting and environmental policy instruments might steer policy makers in the instrument-selection stage of the policy cycle. If polity typologies to some extent determine the success of an instrument, this implies that copying best practices from other countries or regions is not just a 'cut and paste' exercise.

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Twenty years of negotiated environmental agreements in Belgium: from gentlemen's agreements to binding contracts

Roeland Bracke - Marc De Clercq¹

Abstract. When negotiated environmental agreements entered the policy arena they were characterised as gentlemen's agreements containing only vague targets, little monitoring provisions and hardly any sanctions in case of non-compliance. This brought about much criticism towards the effectiveness and legality of this instrument and led to the development of guidelines towards more enforceable agreements. As this reduced the attractiveness for industry, this policy shift is questioned. Flanders is one of the few jurisdictions where a legislative framework was introduced and provides an illustrative case. The implications of the swing from gentlemen's agreements to binding contracts were not limited to the legal status, but also affected the perspectives of the actors involved and the institutional context in which agreements are concluded and implemented. Whereas at first the policy shift resulted in a deadlock, the second-generation agreements now seem to deliver the improvements hoped for.

1. Introduction

The emergence of negotiated environmental agreements was welcomed with enthusiasm by policy-makers, industry and academics. Supplementing regulatory measures by other policy instruments, such as agreements with industry, was one of the key objectives of the European Commission's Fifth Environmental Action Programme of 1992. Agreements were thought to promote a pro-active attitude on the part of industry, to provide cost-effective, tailor-made solutions and allow for a quicker and smoother achievement of environmental objectives. However, evaluation studies could not really demonstrate significant environmental improvements and the atmosphere gradually deteriorated (e.g. EEA 1997; ELNI 1998; OECD 1999 and 2003). Environmental organisations criticised negotiated agreements as non-transparent, closed-door arrangements neglecting third party interests (e.g. EEB 1997; WWF 2000). Accordingly, a number of researchers concluded that instruments based on voluntarism were only capable of picking the low-hanging fruits (e.g. Khanna and Damon 1999; Alberini and Segerson 2002). Lyon and Maxwell (2003) even claim the mere existence of voluntary approaches might create welfare losses as they reduce the probability of better instruments being implemented.

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Introducing a background legislative threat and strengthening the design of negotiated agreements are recurring policy recommendations (EC 1996b; OECD 1999; De Clercq 2002). In contrast to the latter, the legislative threat option has received much attention in the literature (Segerson and Miceli 1998 and 1999; Hansen 1999; Maxwell et al. 2000). These papers study the welfare effects of negotiated agreements compared to regulatory instruments. Typically, this literature abstracts from design-issues, focuses on the target-level of an agreement and assumes full compliance. Empirical research however has shown that non-compliance is rather widespread and partly attributed to design issues (e.g. EEA 1997; OECD 1999; De Clercq 2002). The first generation of negotiated agreements were characterised as non-binding, gentlemen's agreements (ELNI 1998). Such agreements do not provide for sanctions in case of non-compliance but only consist of a moral obligation on the actors to abide by their commitments. In addition they often contained only vague, non-quantified targets and lacked credible and efficient monitoring and reporting requirements (OECD 1999).

In a communication on negotiated agreements, the European Commission (EC 1996b) called for a shift towards 'second-generation' agreements that are legally binding and contain clearly defined quantitative targets backed with transparent monitoring, reporting and enforcement mechanisms. This however requires that Member States develop a clear policy strategy and an institutional framework for the use of this instrument. In the beginning of the nineties, a number of countries like Denmark, Flanders², The Netherlands and Portugal developed initiatives in this regard. The experiences of the shift towards more formal negotiated agreements in these countries is however questionable (Sauer et al. 2001). Any attempt to safeguard the effectiveness of environmental agreements reduces their attractiveness for industry. The most comprehensive legal framework on environmental agreements is developed in Flanders that, as such, provides an interesting case. We show that the framework caused a profound shift in the way agreements are used and enables to distinguish first-generation and second-generation agreements.

The paper is organized into the following sections. Section two shortly resumes some prominent trends in the use of negotiated environmental agreements. The Belgian case is presented in section three. Section four compares the first and the second generation of environmental agreements in Belgium and section five concludes.

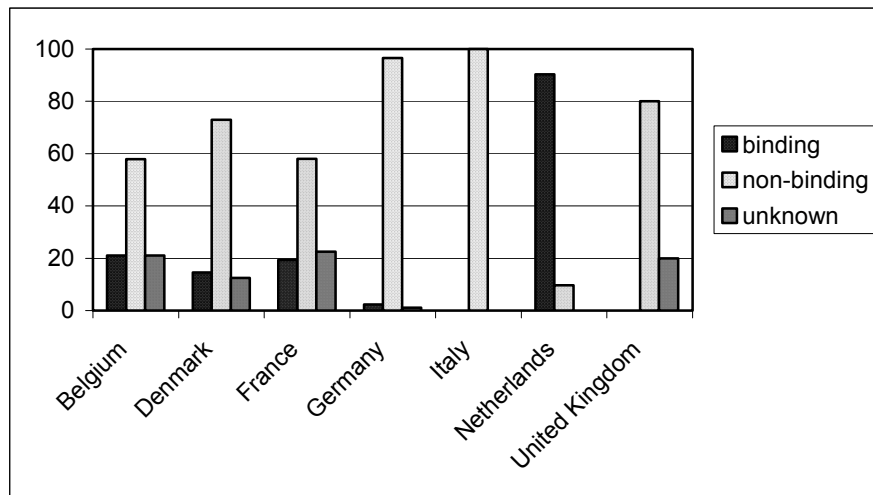
² Belgium is a federal state composed of three regions (Flanders, Brussels and the Walloon Region). During several state reforms competences were shifted from the federal level to the regions, that have become mainly competent for territory related matters (e.g. economy, housing, infrastructure, land use planning, environment). Flanders is the largest region with about 60% of total population and GDP.

2. Negotiated environmental agreements in environmental policy

The first environmental agreements appeared already in the 1960s in Japan and the 1970s in Europe. In Japan, the first agreement was signed in 1964 between the city of Yokohama and the Electric Source Development Corporation, an electric power plant. The company committed to comply with pollution control measures that exceeded the rather lax national emission standards (Imura, 1998). In Japan, such agreements are typically concluded at the local level as a means to overcome the lack of regulatory powers of local authorities on environmental issues. Before the turning of the millennium, over 30,000 of these kinds of agreements have been signed in Japan (OECD 1999). In Europe, the first agreement was signed by the French Ministry of the Environment and the cement industry in 1971. The industry committed to achieve more stringent standards than those required by the 1961 law on air emissions. In return, the Ministry granted relief from sanctions to firms that were not in compliance with these standards (OECD 1999).

There is neither a unique label nor definition of this policy instrument that has been called, amongst others, negotiated agreements, covenants, voluntary agreements, environmental agreements or industry commitments. Typically, they are concluded between public authorities and industry associations at national or regional level in which the public authority refrains from implementing certain legislation on the condition that industry achieves the environmental target agreed upon in the agreement. Whereas the input of the authorities may seem negligible, it is especially this consensus-based involvement that distinguishes these agreements from other types of voluntary approaches such as unilateral commitments and public schemes (Glasbergen 1998). De Clercq et al. (2001a) point to the following typical characteristics of negotiated agreements in the European Union: (i) the support (i.e. to support or implement existing command-and-control regulation) or/and bridging function (i.e. to anticipate on upcoming environmental regulation); (ii) the collective liability of industry towards the fulfilment of the agreement and (iii) the legally non-binding status. Notwithstanding these general characteristics, the actual agreements differ largely with respect to the number of participants, liability rules, legal status etc. (OECD 1999).

Figure 1 shows that binding agreements are rather exceptional in the European Union. The only member state where agreements are systematically binding is the Netherlands. Enforceability is achieved by means of an individual contract with each individual firm joining the agreement. This contract implies a firm's liability in a civil court. Above, the pollution reduction targets set in the agreements are linked to the permit system. Each company has to draft an Environmental Plan consistent with the targets of the covenants. The permit authorities evaluate these plans and if these plans are repeatedly rejected, the company will be subject to stricter requirements (Glasbergen 1998).

Figure 1: Share of legally binding agreements

Source: Öko-Institut, 1998

An inventory made up by the European Commission in 1996 (EC 1996a) counted over 300 negotiated agreements in Europe. The total number however is higher as regional agreements are not taken in account and because the making of an inventory is difficult due to diverging definitions in the Member States and the informal character of many agreements. Although every member state had at least one agreement, this instrument was especially used in The Netherlands and Germany with each about 100 agreements. The most prominent rise in the use of agreements was noted in the beginning of the nineties. In 1995 alone, nearly the same amount of agreements has been concluded compared to the time period from 1986 to 1990. Negotiated agreements were considered to fit seamlessly in the policy trend towards public deregulation, public-private co-operation and industry self-regulation as advocated by the fifth Environmental Action Programme of the European Union.

Next to the rise in the amount of agreements concluded, a qualitative shift from ad hoc arrangements on isolated themes towards more structured negotiations supported by a broader policy strategy took place in the nineties. While the instrument at first was used without a formal institutional framework, several EU member states now have enacted regulations regarding voluntary agreements (Barth and Dette 2001). This shift was advocated as disappointing experiences from the past were attributed partly to the central role of industry in the target-setting process, the dubious legal status, the lack of quantified targets and the resulting lack of monitoring and enforcement possibilities (e.g. EC 1996b; EEA 1997; OECD 1999). Next to the limited effectiveness, the non-democratic character of the instrument was questioned, especially by non-governmental organisations (e.g. EEB 1997; WWF

2000)³. Negotiated agreements were criticised due to the exclusion of third parties (including parliament) and the lack of transparency of the policy process. They claim targets should be set by Parliament based on consultation with interested parties and accessible to the public rather than negotiated behind closed-doors between government and industry representatives.

In 1996 the European Commission issued a communication on negotiated agreements that sets guidelines for their effective use. Key elements are prior consultation with interested parties, a binding form, quantified and staged targets, the monitoring of results as well as the publication of the agreement and the results obtained. Some Member States took corresponding measures. Denmark (Article 10 of the Danish Environmental Protection Act of 1992) and Flanders (the Flemish Decree on Environmental Agreements of 1994) have codified basic rules; Portugal (Protocol for the Conclusion of Sectoral Voluntary Agreements of 1995) and The Netherlands (Codes of Conduct issued in 1996 and adapted in 2003) have elaborated official recommendations without legal status (ELNI 1998). The outcome of the shift towards more formal negotiated agreements in these countries is however questionable (Sauer et al. 2001). The number of agreements concluded after the introduction of these regulations declined remarkably in Denmark and Flanders (ELNI 1998). The rather stringent requirements seem to have reduced the attractiveness of the instrument for industry. In the following we present the case of Flanders, which is illustrative as it is one of the few jurisdictions that has installed a legislative framework. Above it is probably the most encompassing framework developed and its implementation produced a significant swing in the use of this instrument.

Two research projects on negotiated agreements in Belgium provided the authors with in depth information. The first “*The use of voluntary instruments for the realisation of a sustainable development*” was financed by the Federal Science Policy Office and carried out in the framework of the Scientific Support Plan for a Sustainable Development Policy (see De Clercq et al. 2001b). This project was carried out between 1997 and 2001 and evaluated all agreements concluded in Belgium and Flanders. The project ran parallel to the European NEAPOL project (Negotiated Environmental Agreements in Europe: Policy Lessons to be Learned from a Comparative Case Study Analysis; see De Clercq 2002) funded by the European Commission. The second “*The implementation of the duty of acceptance in Flemish waste policy: the role of negotiated agreements*” was financed by the Flemish Environmental Agency (VMM) in the framework of the MIRA-BE 2003 project (Report on Nature and the Environment: Policy Evaluation) (see De Clercq and Bracke 2005). Here we studied a group of waste management agreements that were concluded under the legislative framework.

³ The report on environmental agreements from the European Environmental Agency (EEA, 1997) provides an overview of the views of different stakeholders.

3. Negotiated environmental agreements in Belgium

Appendix A shows a list of all negotiated agreements concluded in Belgium. When going through the history of negotiated agreements in Belgium, three periods can be distinguished. First, between 1988 and 1992 we get a period in which about a dozen agreements were concluded on an informal basis for some prominent environmental issues. Next, a legislative framework was developed and implemented in Flanders to create a solid ground for more effective agreements. However, due to the uncertainty resulting from this policy shift, only two agreements were signed in this period (1993–1997). In 1998 the first agreement under the framework was signed and the use of the instrument has been picked up steadily from then. Up till now, 13 agreements have been signed in this third period (1998-2006).

3.1. The first period (1988-1992): agreements as ad hoc policies

Rather than being the formal outcome of an encompassing policy strategy, negotiated agreements entered promptly in Belgium's environmental policy. Subsequent state reforms in the eighties and nineties in which powers were shifted from the national to the regional level had resulted in a complex and even inconsistent environmental product policy. The lack of an elaborated juridical foundation for a national product policy, due to a poorly demarked division of authority on this issue, was one of the prime drivers to implement negotiated agreements as a pragmatic response (Flemish Council for the Environment and Nature (MiNa-Raad) 1992). Motivated policy makers had no choice but to resort to informal policy instruments.

Against this background, the first agreement was signed in 1988 and their number increased fast. Within two years, five similar agreements (A1-A5) were concluded by the federal Ministry of the Environment: one agreement to reduce the mercury content in batteries, one agreement to bring phosphates-free washing powders on the market and three agreements to reduce the amount of CFCs in aerosols, cooling equipment and synthetics. The level of compliance with these agreements was high (three agreements were renewed within two years to sharpen the objectives), and the instrument was stretched to tackle other environmental issues. At the federal level two additional agreements were signed: one concerning the export of pesticides (A9) and one to reduce SO₂ and NO_x emissions from power plants (A10). The Flemish government followed suit and concluded two agreements concerning packaging waste (A6 and A7), an agreement with the chemical company BASF (A8) and an agreement concerning the storage of oil for the heating of houses (A12). Above one agreement was concluded jointly with the Brussels and Walloon Region to recycle aluminium waste (A11). As such, within just a few years time, the environmental policy was supplemented by about a dozen agreements

that varied with respect to the environmental target as well as with respect to the representative government authority. The agreement concerning the use mercury in primary batteries is described in the box below as an example of an agreement from this period.

Example 1: Code of conduct to reduce the amount of mercury in primary batteries on the Belgian market (A1)

This agreement was the first in Belgium and was called a code of conduct. In the introductory stipulations, the parties recognise the aim to reduce the use of heavy metals, among which mercury, by measures that are technically and economically feasible. Next, they point to the fact that a regulation from the European Community might take some time and refer to the decision of the European association of primary batteries producers (Europile) on this issue.

The industry agrees to bring down the amount of mercury in alkaline batteries from 1% to 0.3% in 1988 and from 0.3% to 0.15% in 1990 (Art. 1). Above they commit themselves to continue research to further reduce the mercury-content after 1990 (Art. 2). If asked, industry will report on the progress of these commitments to the government (Art. 3). Next, industry will advance the replacement of mercuric oxide batteries by other systems under the condition that it is technologically feasible (Art. 4). If one of the parties feels that the fulfilment of the agreement is unsatisfactory, consultations will be organised (Art. 5).

With respect to compliance, most agreements were evaluated rather positive (Bocket et al. 1994; De Clercq et al. 2001b). It should however be noted that in a number of cases (A1, A2, A5, A8 and A10) the targets were achieved surprisingly fast and considerably before the time limit set in the agreements. This might point to a limited level of ambition. De Clercq et al. (2001b) conclude that for these agreements the environmental impact above business-as-usual is hard to determine. Especially with respect to the five product-standard agreements one can question the agreements' contribution. These agreements were concluded on issues that were on the policy agenda at European or international level (e.g. the protocol of Montreal on CFCs, mercury in batteries at the European level). By concluding a negotiated agreement, the government wanted to present a quick response to these upcoming challenges and were able to conclude agreements that exceeded the international compromise (MiNa-Raad 1992). The extent to which the Belgian government can influence European, or even internationally organised, industries on these issues seems however limited. Products like batteries and aerosols are rather produced for the world market and not for the Belgian market. The Belgian market represents only a fraction of their total turnover. It is hard to imagine that an informal agreement with Belgian policy makers will change the international-oriented product design of multinational companies with production plants all over the world. Above, similar agreements had been signed in neighbouring countries like the Netherlands and Germany. Concerning the Dutch battery agreement, Klok (1989) states that the agreement did not imply any change of conduct on the

part of the industry as the technology already existed and as in fact the objectives were already agreed within the European batteries producers association Europile.

Other agreements (A6, A7, A11 and A12) were rather examples of non-compliance. This is explained, amongst others, by the lack of concrete action-programmes and enforcement mechanisms in the agreements and uncertainties due to changing regulatory circumstances in the policy arena (Seyad et al. 1996).

Next to the limited environmental impact or even partial non-compliance, questions were raised about the opportunity of negotiated agreements as policy instrument. The Flemish Social and Economic Council (SERV) (1997) points to the following three elements. First is the lack of democratic control. The executive power is able to by-pass parliamentary control and to neglect third party interests. Especially agreements with a single company (A8) in which concessions about the level of future environmental taxes were made, was severely criticised (MiNa-Raad 1992). To some extent transparency and public consultation might overcome this issue, but this is hardly organised. It is mainly by the media and notifications of debates in competent parliamentary commissions that the essential content of these agreements is known (Van Oevelen 1991). In contrast to traditional regulation, there is no official system of publication for negotiated agreements and several agreements never appeared in any official publication. The second critique concerns the lack of enforceability due to the dubious legal character and the lack of sanctions. Based on an inquiry with representatives from business associations and regulators, Bocken et al. (1994) confirm the uncertainty about the juridical binding character of these agreements. Several times it turned out that different representatives from industry, even with regard to the same agreement, gave a different answer concerning the juridical binding character. One business association catalogues the agreement as a gentlemen's agreement whereas another calls the agreement binding. Van Oevelen (1991) states that due to the practically total lack of adequate control and enforcement arrangements, the sanctions in case of non-compliance are rather of psychological (e.g. loss of reputation, negative press) than of juridical nature. Third, the lack of monitoring and reporting on the implementation of the agreements is contested.

Notwithstanding the enthusiasm of the former federal Environmental Minister M. Smet (Smet 1991) it was acknowledged that in the absence of a legal framework, environmental agreements are prone to a number of faults, both at the policy level and in legal terms (Bocken et al. 1994). Above the MiNa-Raad (1992) states there appears to be limited reflection and insight on the opportunity of negotiated agreements within the government departments involved. However, most observers believe a juridical framework that stipulates some instructions and limiting conditions can counter most disadvantages.

3.2. The second period (1993-1997): introducing a legislative framework

After the fourth stage of the state reform in 1993, most environmental competences had been transferred to the regional level. As such it was the Flemish parliament that took the initiative to develop a legislative framework for negotiated agreements. With the Decree of 15 June 1994 on environmental policy agreements, the regional legislator sought to solve a number of legal problems and to create a solid ground for the appropriate use of agreements in the future. The Decree is based on preparatory work carried out by the Interuniversity Commission for the Revision of Environmental Law in the Flemish Region (Bocken and Ryckborst 1996).

We will present the main elements of the Decree below, a more extensive analysis can be found in Lavrysen (2000). Agreements are called environmental policy agreements and defined as “*any agreement between the Flemish Region, represented by the Flemish Government, on the one hand, and one or several umbrella organisations representing enterprises on the other, for the purpose of preventing environmental pollution, limiting or removing the consequences thereof, or of promoting effective conservation of the environment*”. Industry associations need to have legal status and must prove to be representative for a sector or a group of companies confronted with a common environmental problem. Above they should carry an explicit mandate from their members to conclude such agreements. Environmental agreements cannot replace existing legislations nor depart from them in lenient way. The agreements are binding on the parties.

A summary of the draft agreement has to be published in the Belgian Official Journal and the complete draft must be available for inspection during 30 days. Any person can submit objections in writing to the designated authority that, after an assessment by the authority, will be communicated to the other party. The draft is also communicated to public bodies (the Flemish Social and Economic Council (SERV) and the Flemish Council for the Environment and Nature (MiNa-Raad)). These bodies are obliged to issue a well-reasoned, non-binding opinion within 30 days after receipt. Finally, the draft and all above-mentioned opinions are sent to the President of the Flemish Parliament that has the right to veto an agreement within 45 days. Otherwise the agreement will be concluded and published in the Belgian Official Journal. If the agreement is concluded despite a negative opinion of the SERV and/or MiNa-Raad, the Flemish Region must, in a report to be attached to the published version of the agreement, justify its decision to conclude the agreement. The agreement becomes effective ten days after publication in the Belgian Official Journal.

During the period of validity of the environmental agreement, the Flemish Region cannot issue any regulation in connection with subjects dealt with by the agreement, with reservation for cases of

urgency or obligations imposed by EU or international law. The Flemish Region can convert an agreement, wholly or partially, into regulations even during the period of validity. This power is intended to secure equal treatment of non-affiliated enterprises. An agreement must lay down procedures for verification of compliance with its stipulations. The parties ought to report annually on the progress of the agreement to the Flemish Parliament. If within 45 days after receipt of the report, the Flemish Parliament objects to the environmental agreement by resolution or by a well-reasoned motion, the Region will terminate the agreement. In case of non-compliance, each party has the right to demand the compulsory performance in kind or by equivalent. An agreement is concluded for a specified period that may not exceed five years and cannot be extended tacitly. The agreement terminates either by common agreement between the parties, by the expiry of the period or by cancellation.

Whereas the legislative framework was installed to stimulate the use of this instrument, the opposite was the case in the first years after it came into force. The juridical framework was harshly criticised for hindering the realisation of environmental agreements (SERV, 1997). It took four years until the first agreement (C1) was concluded under this framework. Above, between 1994 and 1997, two agreements (B1 and B2) were signed outside this framework⁴ on the explicit request of the industry associations (De Clercq et al. 2001b). The legislative framework however also entails some advantages for industry. There is the guarantee that the government will not issue new regulations. This creates a stable climate to plan long-term investments and strategies. The government gets more instruments to control free-riders and industry's public image might profit from larger public recognition due to increased involvement of third parties and transparency. The disadvantages however seemed to outweigh and the initial enthusiasm that industry had displayed quickly faded as soon as it turned out that they were expected to enter into legally binding and enforceable agreements. Above, the fairly complicated procedure and the observation that few business federations were empowered under their by-laws to negotiate environmental agreement on behalf of their members had an inhibiting effect (Lavrysen 2000).

The Flemish government on the other hand advocated the use of negotiated agreements in a number of policy letters and policy plans issued in the mid-nineties, especially for some waste management objectives (SERV 1997). Preparatory negotiations however proved that industry was reluctant to go along with the shift towards more stringent agreements (SERV 1997). In a way the equilibrium was disturbed. In the first period, agreements could be reached quite easily against a rather vague background legislative pressure, as they were only voluntary commitments on expected trends. Above, in a worst-case scenario, non-compliance with the agreement seemed to have limited (i.e. non-

⁴ Both were later replaced by similar agreements under the decree on environmental agreements.

juridical) consequences. The stringent juridical character introduced by the Decree however sharply changed industry's perception on the non-compliance cost. Consequently, a more thorough legislative threat was needed to convince industry to enter into the agreements that government representatives had in mind (Wille 2000). This was solved by the introduction of the duty of acceptance in the Flemish waste policy that marks the start of the third period.

3.3. The third period (1998-2006): agreements as institutional arrangements

The duty of acceptance obliges producers to take back products they have put on the market at the end of their life cycle. From 1998 on, certain waste streams (e.g. tyres, batteries, accumulators, cars, electronic equipment...) became subject to this regulation. Next to the general principle, the regulation includes specified collection and recycling targets for different waste fractions. Negotiated agreements with industry associations are to be concluded to implement this duty. If no agreement is reached, each company has to draw up a waste management plan in which is describes how to comply with the duty of acceptance. The same holds for companies that prefer not to participate with the agreement. The negotiations concern only the practical organisation of the collection and waste treatment system, not the environmental targets to be achieved (De Clercq and Bracke 2005). Until mid-2006, 10 agreements have been concluded in this regard: batteries, paper, cars, tyres, electric and electronic appliances, accumulators, medicines, frying oils and fats and photographic chemicals. Additionally, two agreements from the first period have been renewed: the agreement on oil storage tanks for heating buildings (C6) and the agreement on NO_x and SO₂ emissions from power stations (C11). Besides an agreement to introduce an environmental management system for soil sanitation was concluded (C10). As such, the spectrum is almost exclusively limited to waste management objectives because a legislative treat instrument is at hand.

Whereas these numbers might give the opposite impression, the take-off phase was difficult. The first agreements that were negotiated were both agreements on waste paper (C2 and C3). The negotiations took many years and both the SERV and the MiNa-raad negatively advised on the draft agreements, which were however concluded without many corrections anyway. Above, environmental organisations and municipalities criticised the agreements and their results (De Clercq and Bracke 2005). A lot was however learned from these first experiences and as more agreements on the acceptance duty were negotiated and concluded, the implementation process became somewhat smoother. At first, industries' primer goal was to prevent or at least bring down the implementation of the duty. However, as more and more products are submitted, the acceptance of industry associations enhances and a more positive stance is taken. The prime objective has become the development of a

manageable collection and recycling network (De Clercq and Bracke 2005). In 2004, a reference document on negotiated agreements has been developed by the Public Waste Agency of Flanders (OVAM) together with representatives from the other regions, the municipalities, the SERV, the MiNa-raad, business federations, and diverse actors from the recycling and waste treatment industry (OVAM 2004). The document serves as the standard reference against which every future agreement should be checked and as a manual during the negotiations. This should further smoothen the implementation of future agreements with respect to the duty of acceptance.

Except for the agreements on waste paper, the agreements are evaluated rather positive. This is confirmed by an evaluation study of the agreements C2-C6 (De Clercq and Bracke 2005), in the advices of the SERV and the MiNa-raad and the annual evaluations in the Flemish parliament. Subsequently, two agreements have been renewed (C4 and C5), some are being revised (C2, C3 and C7) and new agreements on other waste products are being negotiated. The following box presents a typical example of an agreement from this group.

Example 2: Agreement concerning waste electric and electronic appliances (WEEA) (B6)

This agreement is one of ten agreements concluded so far to implement the duty of acceptance as stipulated in the Flemish waste policy. Although the agreement was only concluded the 1st of June 2001, the first explorative consultations were already held in 1995. The lack of a legal framework for getting all involved actors aboard resulted in a deadlock that was resolved by the introduction of the duty of acceptance for WEEA that took off on the 1st of July 1999. Based on a report of 1999 from the study-group BELELEC with representatives of the industry, the distribution sector and the government, negotiations were resumed and finally resulted into this agreement that is signed by eleven industry associations as well as the association of reuse centres. The problematic negotiation process induced a policy of tolerance that lasted for about two years.

As the recycling and recovery targets with regard to WEEA are laid down in the Flemish waste regulation, the agreement's goal is to develop a collection and recycling network. The primary objective is to establish organisational structures and working processes. Therefore Recupel was set up as a not-for-profit organisation by the sector. Recupel collects the fees from all producers, selects and controls the partners responsible for the collection and recovery of WEEA and reports to the government on the agreement. Recupel already employs about 30 employees and market research points out that 86% of the Belgian consumers know the Recupel contribution that is to be paid on all EEA. In general the agreement is responsible for a significant shift in the way WEEA is handled and is evaluated quite positive. As well the sector as the government like to present the Recupel case as a forerunner to other European member states and for other waste streams. (www.recupel.be)

The two agreements described present a nice example of the difference in use of negotiated agreements in both periods. Whereas the first agreement is merely an industry engagement that is used

as an ad-hoc intermediate policy instrument which lasted less than three years, the second agreement groups producers, importers, distributors, retailers, electricians and reuse centres resulting in an institutional setting that is able to address a complex environmental issue for years to come.

4. First versus second-generation agreements in Belgium

The previous section revealed the shift in the use of negotiated agreements in Belgium due to the introduction of the Decree on environmental policy agreements in 1994. The first group was used as ad hoc policy arrangements containing a number of weaknesses in their design (SERV, 1997). The second generation of agreements on the other hand were embedded in a clear policy strategy and concluded in a legal framework making them look like formal contracts instead of non-binding industrial commitments. Table 2 sums up some of the key differences between the characteristics of the agreements from the first period and the third period. Given the inherent diversity between negotiated agreements, the statements in table 2 rather hold for each group in general than being perfectly valid for each individual agreement.

Table 2: Key differences between agreements from the first and third period

	First period	Third period
Average length	4.7 pages	8.7 pages
Negotiation time	Some months/years	Several years
Legislative pressure	Vague/up-coming	Existing legislation
Function	Bridging to regulation	Implementing legislation
Environmental theme	Diverse	Waste management
Environmental objective	Speed up or assure business as usual trends	Shift financial and organizational responsibility
Government representative	Ministry of the Environment	Public Waste Agency
Execution of the agreement	By the individual members	Collective organisation is set up
Follow-up policy	Limited reporting	Annual report and discussion in the Flemish Parliament
Enforceability	Sanctions especially of psychological nature	Compulsory execution in kind or by equivalent is possible

First, the more formal approach emerges from the *average length* of the agreements. The first group of agreements counts on average 4.7 pages whereas the second group has on average 8.7 pages. As the first group of agreements was not officially published in the Belgian Official Journal, a bias in this measure is inherent as the front and spacing vary within the first group and between the first and the

second group. If one would take this in account and measure the average amount of words, the difference would be even more pronounced. The more formal approach also appears when one looks at the *negotiation time*. Again the negotiation time is not formally recorded for each agreement, but some indications are made in various sources (e.g. MiNa-raad 1992; SERV 1997; De Clercq et al 2001b; De Clercq and Bracke 2005). In the first group there are examples of agreements that were negotiated within just a few months (e.g. A2, A4, A5, A8, A9) as well as agreements where the negotiation phase took much longer (e.g. A6, A7, A11). With some exceptions for agreements that were a revised version of previous agreements (e.g. C1, C9), most second-generation agreements knew a long-lasting negotiation phase. For some agreements the first explorative contacts already date before the mid-nineties resulting in a negotiation time of up to five years or more (e.g. C4, C5, C7).

A third difference is the existence of a strong *legislative pressure* for the agreements from the third period. In the first period the treat was rather the fact that an environmental theme was on the policy agenda. The agreements on mercury, CFCs and phosphates served as a resort in cases where implementing regulation was hampered due to the lack of an elaborated juridical foundation for a national product policy. Most agreements of the third period were concluded in the wake of the regulation on duty of acceptance, which was introduced in the Flemish waste policy. The agreements are established with the sole goal to implement and execute the legal duty of acceptance. This also contrasts with the first group whose *function* was rather to serve as a short-term solution in attending future regulation. As a result the *environmental theme* for almost all second-generation agreements is limited to waste management whereas in the first group it was a more heterogeneous mixture of product and process objectives. When there is no back-up legislation, industry is no longer willing to enter into the second-generation agreements. Related, the *environmental objective* changed. The first agreements, especially the product-standards agreements, aimed to speed up or at least assure business-as-usual progress. The waste management agreements on the other hand induced a system innovation. Whereas the collection and treatment of these waste fractions used to be a public task, as well the financial as the organizational responsibility is shifted to the producers and importers.

The actor who takes on the function as *government representative* is another important difference. For the first group the Ministry of the Environment at federal or regional played an important role in negotiating and following-up the agreements. Consequently, the stance of the Minister largely determined how and whether the instrument was used. Within the second group this task is shifted almost completely to an executive public agency (OVAM). As such, the agreements are, to some extent, decoupled from the turbulent political scenery, and get embedded in institutions that have a close and long-term connection with the industrial target groups.

For most agreements in the second group the industry associations have set up a not-for-profit organisation for the *execution of the agreement*. This organisation is the centre of a network of involved actors such as producers, distributors, retailers, government representatives, waste collectors, recyclers and reuse centres. As such an individual duty (acceptance) is collectively implemented. For the agreements of the first group, the individual companies had to implement measures to achieve the environmental target. This gives rise to liability problems in case of non-compliance by only a number of participating companies. With regard to the *follow-up policy*, we already indicated that in the first period there were only limited reporting requirements whereas for agreements from the third period an extensive report is required for the annual evaluation in the Flemish Parliament. Above, the not-for-profit organisations report on the results of the agreements in their annual reports and on their websites. Finally, the *enforceability* of the most recent agreements is higher as the legislative framework explicitly provides the opportunity to claim the execution in kind or by equivalent in case of non-compliance.

5. Conclusions

When the first negotiated agreements emerged in the policy arena, they were characterised as non-binding agreements. Moreover, most agreements had only vague targets, little provisions concerning monitoring and control and hardly any sanctions in case of non-compliance. This has given way to much criticism towards the effectiveness and legality of this instrument. In time, the European Commission and several EU member states have enacted guidelines or regulations, resulting in a more formal approach towards negotiated agreements. The most comprehensive legal framework has been implemented in Flanders with the Decree on environmental policy agreements of 1994.

The paper showed how the introduction of the legal framework caused a shift in the way agreements were used. The agreements concluded before were characterised as pragmatic, ad hoc political arrangements with short-term objectives on issues for which regulation was hampered due to badly designed regulatory powers. Above, the agreements showed a number of deficiencies in terms of design and juridical nature, making them prone to the label of gentlemen's agreement. The Decree of 1994 marks a turning point. At first it was criticised as being too stringent and formalistic, jeopardising the attractiveness of this voluntary instrument. Whereas it took several years before the first agreement under this framework was concluded, by the year 2000 the negotiated agreements are becoming pivotal instruments in the Flemish waste policy. The agreements are an essential part of a clear policy strategy and backed by existing legislation. With regard to the agreements as a document, the legislative framework has turned them from non-binding industrial commitments to formal contracts.

The Flemish case points to the delicate balance policy makers have to take in account. Negotiated agreements might be attractive policy instruments due to their informal and flexible nature. However, these characteristics seem to limit their environmental effectiveness due to free riders, non-compliance and business as usual targets. Any attempt to establish safeguards de facto complexities these arrangements, brings them closer to traditional regulatory solutions and makes them less appealing for industry. Finding a right balance between environmental effectiveness and attracting industry's involvement is not an easy task for policy makers.

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Appendix A: Negotiated environmental agreements in Belgium (until September 2006)

	Agreement	Year	Pages
A1	Gedragcode tot het verminderen van de hoeveelheid kwik in primaire batterijen die in België op de markt worden gebracht <i>Agreement to reduce the amount of mercury in batteries</i>	1988 (1990)	4
A2	Overeenkomst betreffende het gebruik van CFK's als drijfgas in aërosolen <i>Agreement concerning the use of CFCs as propellant in aerosols</i>	1988 (1989)	3
A3	Overeenkomst tussen de Belgische Staat en de Belgische Vereniging van verwerkers van oliën en vetten voor technische doeleinden <i>Agreement to reduce the amount of phosphates in washing-powders</i>	1988	3
A4	Overeenkomst tussen de Belgische Staat en de Belgische Unie voor koeltechniek en luchtconditionering <i>Agreement to reduce the use of CFCs in cooling equipment</i>	1989	3
A5	Overeenkomst tussen de Belgische Staat en Fechiplast <i>Agreement to reduce the use of CFCs with the synthetic industry</i>	1989 (1991)	3
A6	Basisovereenkomst verpakkingsafval <i>Basic agreement concerning packaging waste</i>	1990	8
A7	Convenant verpakkingsafval <i>Covenant concerning packaging waste</i>	1991	9
A8	Overeenkomst met de BASF Antwerpen n.v. inzake de beperking en voorkoming van milieuverontreiniging aan de bron <i>Agreement with BASF to reduce and prevent environmental pollution at the source</i>	1991	4
A9	Overeenkomst betreffende de export van pesticiden onderworpen aan de PIC (Prior Informed Consent) procedure <i>Agreement concerning the export of pesticides subject to the PIC procedure</i>	1991	4
A10	Overeenkomst betreffende emissiereducties van SO ₂ en NO _x afkomstig van elektriciteitsproductie-installaties <i>Agreement to reduce SO₂ and NO_x emissions from power stations</i>	1991	8
A11	Protocolakkoord tussen het Waalse Gewest, het Brusselse Gewest, het Vlaamse Gewest en de Belgian Aluminium Association <i>Agreement to recycle aluminium waste</i>	1991	3
A12	Milieubeleidsovereenkomst met de bedrijfssector inzake de opslag van huishoudbrandolie bij particuliere verbruikers voor de verwarming van gebouwen <i>Agreement concerning the storage of oil for the heating of private houses</i>	1992	4

B1	Milieubeleidsvereenkomst betreffende de selectieve inzameling van oude en vervallen geneesmiddelen <i>Agreement concerning the waste medicines</i>	1994 (1996)	n.a.
B2	Protocolovereenkomst betreffende de selectieve inzameling en verwerking van gebruikte batterijen <i>Agreement concerning waste batteries</i>	1997	n.a.
C1	Milieubeleidsvereenkomst betreffende de selectieve inzameling van oude en vervallen geneesmiddelen <i>Agreement concerning the waste medicines</i>	1998	8
C2	Milieubeleidsvereenkomst betreffende de uitvoering van de VLAREA-aanvaardingsplicht drukwerkafvalstoffen (periodieke pers) <i>Agreement concerning waste paper (periodic press)</i>	1998	4
C3	Milieubeleidsvereenkomst betreffende de uitvoering van de VLAREA-aanvaardingsplicht drukwerkafvalstoffen (reclamedrukwerk) <i>Agreement concerning waste paper (advertising sector)</i>	1998	4
C4	Milieubeleidsvereenkomst betreffende de uitvoering van de VLAREA-aanvaardingsplicht afgedankte voertuigen <i>Agreement concerning waste cars</i>	1999 (2005)	12
C5	Milieubeleidsvereenkomst betreffende de uitvoering van de VLAREA-aanvaardingsplicht afvalbanden <i>Agreement concerning waste tyres</i>	1999 (2003)	11
C6	Milieubeleidsvereenkomst betreffende gasolietanks voor de verwarming van gebouwen <i>Agreement concerning oil storage tanks for heating buildings</i>	2000	7
C7	Milieubeleidsvereenkomst betreffende de uitvoering van de VLAREA-aanvaardingsplicht afgedankte elektrische en elektronische apparatuur <i>Agreement concerning waste electric and electronic appliances</i>	2001	16
C8	Milieubeleidsvereenkomst betreffende de uitvoering van de VLAREA-aanvaardingsplicht afvalloodstartbatterijen <i>Agreement concerning waste accumulators</i>	2003	11
C9	Milieubeleidsvereenkomst betreffende de uitvoering van de VLAREA-aanvaardingsplicht afvalbatterijen <i>Agreement concerning waste batteries</i>	2003	11
C10	Milieubeleidsvereenkomst betreffende de invoering van een milieuzorgsysteem in het kader van bodemsaneringswerken <i>Agreement concerning environmental management systems for soil sanitation</i>	2004	10
C11	Milieubeleidsvereenkomst betreffende de vermindering van de SO ₂ - en NO _x -emissies afkomstig van installaties van elektriciteitsproducenten <i>Agreement to reduce SO₂ and NO_x emissions from power stations</i>	2004	4

- C12 Milieubeleidsvereenkomst betreffende de uitvoering van de VLAREA- 2004 9
aanvaardingsplicht van afvalfotochemicaliën
Agreement concerning waste photographic chemicals
- C13 Milieubeleidsvereenkomst betreffende de uitvoering van de VLAREA- 2006 7
aanvaardingsplicht voor gebruikte eetbare oliën en vetten die voor het frituren
an voedingsmiddelen gebruikt kunnen worden
Agreement concerning frying oils and fats

Source: A1-A12: Bocken et al. (1994) ; B1-B2: De Clercq et al. (2001); C1-13 Belgian Official Journal

On the assessment of environmental voluntary agreements in Europe: Lessons to be learned from a comparative case study analysis^{1,2}

Marc De Clercq³ - Roeland Bracke

Abstract. The aim of this study is to gain insight on the factors leading to success or failure of environmental voluntary agreements. To do this we relied on a comparative case study covering twelve voluntary agreements from six different European countries. First, a general evaluation framework for assessing the performance of environmental voluntary agreements is presented. This framework takes into account three different evaluation dimensions: application, impact and resource development. Second, we focus on the factors explaining the level of performance. Four external preconditions for success were identified: the general policy style, the readiness to use severe alternative instruments in case of non-compliance with the agreement, the potential of the sector to negotiate and act as one collective actor and the potential for market success triggered of by the implementation of the agreement. Next to these external factors related to the institutional-economic context wherein a negotiated agreement is used, the specification of an agreement is considered to be an internal factor influencing the performance. The comparative case study shows that taken individually each of the factors is not as such a necessary condition for the success of an environmental voluntary agreement. Rather it is the combination of these success factors that is ultimately decisive for the performance of an agreement.

1. Introduction

Interest in the use of voluntary approaches as an alternative to regulatory and economic instruments has grown rapidly in the European Union since the publication of the Fifth Environmental Action Programme in 1992, which advocated broadening the range of environmental policy instruments. Within the broad range of voluntary approaches, particular attention has focused on the use of environmental voluntary agreements. In 1996 the Commission produced a Communication on the use of such agreements, which included a number of general guidelines that were intended to ensure their effectiveness, credibility and transparency. Despite the enthusiasm expressed for this new policy

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instrument, little attention has been paid to the evaluation of environmental voluntary agreements, either in terms of developing a coherent evaluation framework, or in terms of performing ex post analysis of actual agreements.

In 1999, the OECD made an overview of available information on the assessment of voluntary approaches. It states that the evaluation of voluntary approaches, and particularly of environmental voluntary agreements, is hindered by the newness of the approaches and by the fact that practitioners created them. The latter affects the availability of theoretical analysis on their performances, the former constraints empirical investigation.

Nevertheless, the existing literature on the evaluation of environmental voluntary agreements can be divided into two groups. First of all, some authors focus on the development of a theoretical evaluation framework that allows identifying factors that influence the performance of voluntary agreements (see for example EEA 1997; Segerson and Miceli 1998; OECD 1999; Burritt 2002a and Cabugueira 2002). The common feature and also the merits of these works are that they indicate a number of aspects that must be taken into account when assessing the performance of environmental voluntary agreements. On the other hand there exists a rather limited number of ex post case studies on the assessment of one or a few agreements (see for example Klok 1989; Storey et al. 1997; Lehmann 2000; Immerzeel-Brand 2002 and Burritt 2002b). Only Klok (1989), who discusses eight voluntary agreements in the Netherlands, and Storey et al. (1997), who analyse five agreements to reduce greenhouse gas emissions, have taken up the challenge to assess in a systematic way the performance of a selected sample of environmental voluntary agreements. Although the aim was a systematic evaluation, a great part of their analysis sticks to the descriptive phase. Elements defined important for the performance of environmental voluntary agreements are discussed for each agreement individually, but an in dept comparison of the different cases is lacking. Storey et al. (1997, p.19) conclude that ‘there is a lack of clear and established methodologies for evaluating the performance of environmental voluntary agreements’.

This paper is the result of the European Commission sponsored NEAPOL project, which stands for ‘Negotiated Environmental Agreements: Policy Lessons to be Learned from a Comparative Case Study’. Negotiated agreements were defined in this research project as: ‘agreements between public (national, federal or regional) authorities and industry, wherein both parties commit themselves to realise the environmental goals stated in the negotiated agreement’. The aim of the project was to introduce a general evaluation framework that tries to answer the following research question: Which specific characteristics of environmental voluntary agreements and which factors within the institutional-economic context within which an agreement is used, influence the performance of

environmental voluntary agreements? This knowledge can be very useful to policy makers in two different stages of the policy cycle. First, in the phase of the instrument choice, an assessment of the appropriateness of the institutional-economic context could be very helpful when deciding whether to use an agreement or an alternative policy instrument, like a regulation or a tax. Secondly, when an environmental voluntary agreement is preferred, insight in the specific characteristics of voluntary agreements can enhance the effectiveness when implementing the agreement.

In order to reach relevant policy recommendations, we relied on a comparative case study analysis covering twelve environmental voluntary agreements from six different European countries. The analysis consists of three well-defined stages. First a general framework for assessing the performance is developed which can be applied to a broad range of environmental voluntary agreements. The aggregated performance measure is defined as a mixture of the degree of application, the environmental and economic impact and the development of the policy resource base.

Next, five factors influencing the performance of an environmental voluntary agreement were identified: the specification of the agreement, the general policy style, the regulatory threat, the sector structure and the competitive structure. The first one is related to the agreement itself, whereas the other four are related to the institutional-economic context wherein the agreement is negotiated and applied.

Finally, a comparative analysis of twelve agreements in six European countries was carried out. The individual case studies are compared with respect to their performance and with respect to the specification and the institutional-economic context. This stage allowed us to test the importance of the factors assumed to influence the performance. Once this was done, an evaluation was made and policy conclusions were drawn. The analysis distinguishes itself from previous work by the systematic evaluation method allowing a comparative analysis of the cases. Moreover, the broadness of the sample, although still limited looked upon from a positive research methodological point of view, is remarkable.

The paper is structured as follows. Next, section two presents the measure of performance used to evaluate the selected environmental voluntary agreements. The factors we believe to influence this performance are discussed in the following section. Finally, section four presents the comparative case study analysis from which conclusions and policy recommendations were drawn.

2. The performance of environmental voluntary agreements

In this section a general evaluation framework for assessing the performance of voluntary agreements is presented. This framework has two important characteristics. First, it can be applied to a broad range of environmental voluntary agreements irrespective of the parties involved or the environmental problem targeted. Second, the evaluation framework assigns a specific performance score to each agreement. Although it is not the aim to make a decisive report of the cases studied by means of one score, this allows ranking of the agreements according to their performance which will be very helpful for the comparative analysis in section four. The framework takes into account three different evaluation dimensions: application, impact and resource development. These dimensions are explained below. This section ends with a discussion of the presented performance measure.

2.1. Application

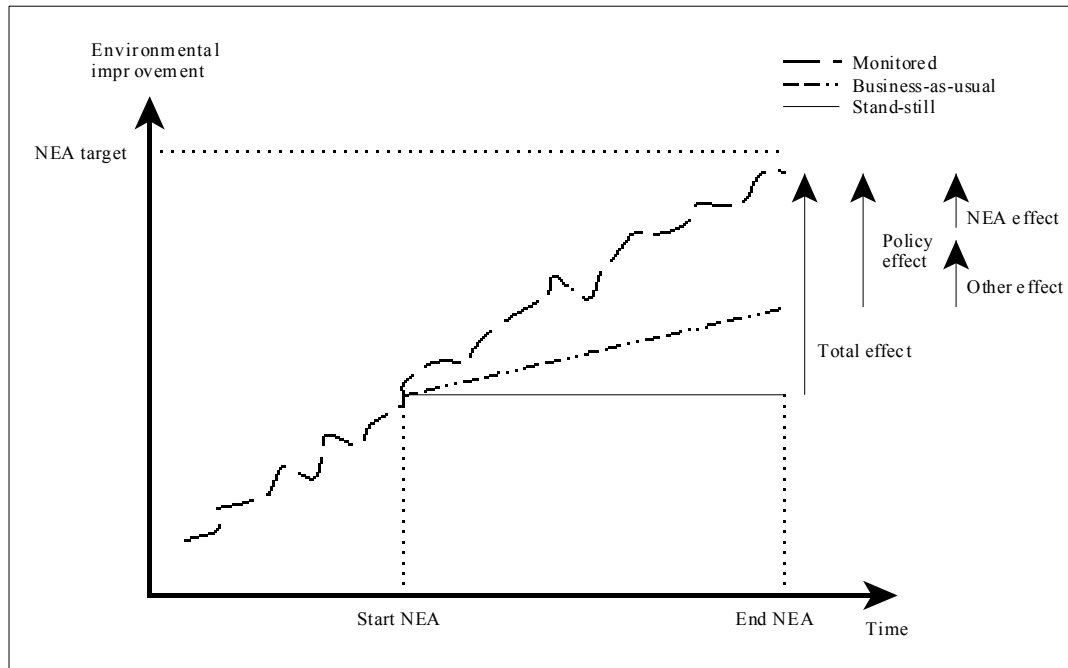
The application of the agreement refers to the compliance of the parties with respect to the targets and obligations specified in the agreement. An agreement is considered successful when on the one hand the environmental targets defined in the agreement are reached and on the other hand when all individual obligations of the parties are fulfilled. A distinction between the ‘targets’ and the ‘obligations’ should be made: a good performance on the environmental targets defined in the agreement can influence the environment, while the performance on the other obligations (such as reporting, monitoring,) can for example, influence the cost-effectiveness and the policy resource base, and not the environment.

2.2. Impact

Because the level of ambition of the environmental targets in an agreement could be rather low or because the targets could be rather vague and qualitative, the degree of application is not the only thing that matters when evaluating the performance of an agreement. This leads us to the ‘impact’ dimension: did the existence of the agreement lead to a substantial environmental impact? Taking into account the environmental impact when assessing the performance of an agreement is crucial because it is the environmental impact of the agreement that matters in the end. If environmental voluntary agreements are just an institutionalisation of business-as-usual scenarios (see, for example, Börkey and Glachant 1998), this will result in a low score for this dimension.

Contrary to the application dimension, the assessment of the impact of an agreement is a complicated problem. Figure 1 draws a clear picture of the methodological problems that arise (Rietbergen and Blok 1999).

Figure 1: Methodological problems for assessing the impact dimension



First, the environmental improvement due to technological or operational changes in the absence of the agreement and other environmental policy instruments is difficult to determine. In other words a good and reliable business-as-usual scenario is often lacking. Second, other policy instruments can influence the difference between the monitored and the estimated business-as-usual environmental improvement. The way we tried to assess the impact dimension is as follows. First, the situation and evolution of the environmental target before the agreement existed were studied. Next, a critical comparison of this trend and the monitored environmental situation at the end of the agreement was made, taking into account the possible effect of other policy instruments and other structural changes, like output changes due to changing consumer demands. The fact that the sample of agreements studied has different environmental goals, from arranging the collection and recycling of end-of-life vehicles in Germany to regulating the reduction of sulphur dioxide and nitrogen oxide emissions by the power generation industry in the Netherlands, entails an additional difficulty. This is the problem of inter agreement comparison, which will be discussed at the end of this section.

2.3. Resource Development

The resource development refers to the improvements in the policy resource base resulting from negotiating and implementing the agreement. The policy resource base comprises the prevailing institutional network (both formal and informal), the political, economic, legal and cognitive resources of the various actors involved in the policy process, the state of relations between these actors; and the actors' perceptions of the scale of the problem, the need for action and the validity of different policy instruments. In particular, the resource base includes the state of knowledge of the actors (both collectively and individually) encapsulating both the total 'amount' of knowledge, and also the 'distribution' of knowledge among the various actors. As such, it can accommodate the important informational concepts of shared uncertainties and information asymmetries (Aggeri 1999).

Due to the nebulous character of the policy resource base, it is difficult to identify general evaluation criteria for resource development. Nonetheless, there are three aspects of resource development that may be expected to have a general relevance: learning, relations between actors and general awareness and attitudes. Learning can lead to a reduction in the overall cost of achieving the target set in the agreement. An improvement in relations between actors is claimed to be one of the major advantages for voluntary agreements over other instruments (European Commission, 1996). Moreover, the fact that industry is confronted with its environmental impact when negotiating an agreement can bring a positive influence on its general awareness and attitudes along. This dimension clearly reveals the importance of the so-called 'soft-effects' of learning and awareness building (OECD 1999).

Positive resource development thus includes for example: the improvement of relations between actors resulting from increased mutual respect and trust, the generation of new and innovative information about the problem and potential solutions and the dissemination of knowledge amongst the actors. As such, resource development can reflect either an increase in the total quantity of resources (for example a reduction in shared uncertainties), or a decrease in the inequality of existing resource distribution between actors (for example a reduction in information asymmetries).

2.4. The aggregate performance measure

Each of these three evaluation dimensions (the application, the impact and the resource development) is considered relevant for assessing the performance of environmental voluntary agreements. Each dimension plays a certain, but different role in the performance of an agreement. Often, there will be an interaction between them, although this is not necessary the case. For example, the fact that an

agreement has a good application with respect to its environmental target does not necessarily mean that there will be an actual impact on the environment. On the other hand, an agreement with a good environmental and economic impact can be considered inferior to an agreement with the same impacts but with a better development of the resource base.

Of the three dimensions, clearly the impact and the resource development in the end determine the performance of an agreement. The application dimension only is too narrow as a judgement base. However, it gives a clear picture of the motivation of the actors and it provides a good estimate of the impact and the resource development that are more difficult to measure.

Therefore, the application, the impact and the resource development of each agreement were measured and aggregated to obtain a total performance score. The assessment of the different evaluation dimensions is done by means of a grading scale technique. Therefore a group of statements was set up for each evaluation dimension (see table 1).

Table 1: Statements for assessing the aggregated performance

<i>Evaluation dimension</i>	<i>Statements</i>
Application	<ul style="list-style-type: none"> ▪ Compliance with the environmental performance targets is good. ▪ The target did not break down or eroded substantially during its intended life span. ▪ Compliance with the individual obligations is good.
Impact	<ul style="list-style-type: none"> ▪ There is a significant improvement on the target environmental variable, compared to the business as usual scenario. ▪ The application of the agreement is cost-efficient with respect to compliance. ▪ The administration cost of the agreement is fairly low.
Resource development	<ul style="list-style-type: none"> ▪ The agreement led to an important improvement in the attitudes of the parties concerning environmental issues. ▪ The agreement led to an important improvement in learning. ▪ The agreement has led to substantial innovation in policy making in this area. ▪ The agreement has led to greater trust and more productive relationships between parties. ▪ The agreement has generated product- or process-related innovations and/or market opportunities.

These statements had to be assessed for each agreement by giving them a grade from 1 to 5, showing to what extent the statement is valid. The statements were accompanied by a scoring guide and some explanatory notes to enhance the objectiveness of the assessment. To obtain the average performance

of each agreement, we have taken the arithmetic mean of the scores on the three evaluation dimensions: application, impact and resource development.

In order to enhance the objectiveness of assessing the statements, the following procedure, based on the Delphi method, was followed. In each country, a team of two specialists in environmental voluntary agreements was selected with the task of studying the selected agreements in their country intensively, writing a case study report and assessing the statements. First, each specialist assessed the statements individually. Then the scores were compared and discussed in order to give one score on each statement. Next, each case study was passed on to a research partner from another country in order to check the scores on the statements. The German specialists e.g. controlled the French case studies, the German case studies were checked by the Italian specialists and so on. Finally, a discussion session on the assessment of the statements between all project partners was organised.

2.5. Discussion

It should be emphasised that the main goal of this study is to determine factors that influence the performance of environmental voluntary agreements in order to draw relevant policy recommendations. To do this we relied on a comparative case study analysis. In order to reach solid policy recommendations, the European Commission obliged us to take diverging agreements in the sample. The selection of the cases was based on five criteria. First, enough information on the agreement was needed. Second, the agreement had to be significant for the environmental problem it deals with. Third, the period during which the agreement has been used should be long enough in order to enable a performance evaluation. Fourth, the sample must consist of both successful and unsuccessful cases. Finally, the economic context of the different industrial sectors involved must be diversified.

Of course, the diverging scope of the sample did not make the task of comparing the performance of these agreements easier. Questions like how to compare a radical shift in the collection and recycling of end-of-life vehicles in Germany to a similar, or why not a minor, reduction of sulphur dioxide and nitrogen oxide emissions from the power generation industry in the Netherlands can not be answered with the given state of knowledge. Consequently, this kind of intra agreement comparison is not taken in account when measuring the performance of the negotiated agreements. Thus when we assessed for example the impact of an agreement we only took into account the improvement compared to a reliable business-as-usual trend without trying to compare this improvement to the impact of another agreement with another environmental target. This sort of inter sector comparison problems can be an

interesting subject for future research as it might help policy makers to decide where action is needed most urgently.

3. Critical factors for success

After assessing the performance of the agreements, we now focus on the factors explaining the level of performance. Knowing these factors and their influence on the performance of environmental voluntary agreements is especially interesting for policy makers as it can help them with the instrument choice and with the actual implementation of agreements. Five factors are identified. Four of these are related to the institutional-economic context wherein an agreement is negotiated and applied, the other one is related to the agreement itself. First we turn to the institutional-economic context.

3.1. The institutional-economic context

Four hypotheses were postulated regarding the relation between the different institutional-economic aspects and their expected influence on the performance of the environmental voluntary agreements. All of our hypotheses are supported by other theoretical research on this subject (see, for example, Alberini and Segerson 2002; Arora and Gangopahdyay 1995; Garvie 1999; Glasbergen 1998; Hansen 1997; Klok and Kuks 1994; Maxwell at al. 1998; Segerson and Miceli 1998; Van de Peppel and Herweijer 1994). Below, the hypotheses are presented accompanied with some explanation.

3.1.1. The policy hypothesis

“The fact that public environmental policy evolves in a tradition and climate of consensus seeking, joint problem solving, mutual respect and trust is a crucial positive factor for the performance of environmental voluntary agreements.”

Environmental voluntary agreements can be seen as a sort of a transaction. Transactions thrive best in a climate of trust. Such a climate is built on positive experiences in the past. The authorities need to trust that the industry will not erode the environmental objectives or cheat by not complying with the agreement. The industry must trust that the authorities will not resort to additional regulations.

3.2.1. The instrumental hypothesis

“The fact that public policy makers show the readiness to use alternative policy instruments, as a stick behind the door to deal with the environmental problems, in case the negotiated agreement fails, is a crucial positive factor for the performance of environmental voluntary agreements.”

This hypothesis concentrates on the readiness of the policy makers to use an alternative instrument in case of non-compliance to the agreement by the private parties. The readiness of the policy makers however has to be combined with the severity of this alternative when applied. When the threat of the alternative instrument is credible and this instrument has more stringent or costly consequences for the companies involved, they should have a bigger incentive to make the agreement succeed. In this regard, ‘speak softly and carry a big stick’ is an old adage.

This hypothesis can be considered as a reformulation of the regulatory gains argument, also called the ‘stick’ approach, which is used in most of the literature for explaining the existence of voluntary approaches (see, for example, Segerson and Miceli 1998). The advantage from the signing of an environmental voluntary agreement would consist of the avoided costs of a public regulation aimed at addressing the same environmental problem.

3.1.3. The sector hypothesis

“The fact that the industry involved is homogeneous, has a small number of players and is dominated by one or two players, or has a powerful industry association that can speak for all its members, is a crucial positive factor for the performance of environmental voluntary agreements.”

The structure of the target group can influence the performance of an agreement in the negotiating and execution phase. Negotiations will be more efficient if there is a big company or an industrial organisation that can speak for the whole sector. A small number of players can also increase the degree of application because monitoring will be easier and the possibility of free-riding companies diminishes.

3.1.4. The competitive hypothesis

“The fact that industries are close to the final market is a crucial positive factor for the performance of environmental voluntary agreements, due to consumer pressure.”

Besides the negative incentives arising from the instrumental hypothesis, polluters can also recognise positive incentives to strive for more environmental protection. Literature on voluntary agreements calls this the reputation enhancing argument, or the ‘carrot’ approach (see, for example, Börkey and Glachant 1998). Voluntary agreements would be an answer to the demand pressure for firm’s environmental performance leading to higher demand and profit. The central idea behind this hypothesis is that an agreement will be more feasible when the companies have a certain competitive incentive vis-à-vis the other companies in the area covered by the agreement, to distinguish themselves, for example through a green image. As such, voluntary agreements might be considered a part of firms’ public relation activities (Arora and Cason 1996).

Another way of looking at this hypothesis focuses on the increased risk of bad impacts for industries performing badly when there is a high degree of closeness between the final markets and consumers. Due to the salience of the produced brand, the chance of being criticised increases, with the possible effects on both sales to consumers and on the toughness of the provoked responses by authorities.

3.1.5. Assessing the institutional-economic context

To gain information on the institutional-economic context, we have carried out an analysis using the same technique as for the performance evaluation. Different statements on each hypothesis were postulated (see table 2) and then judged for each agreement, by giving them a one to five score.

Aggregation resulted in a score for each hypothesis. By these scores, we tried to measure how favourable each of the four institutional-economic aspects was with respect to the agreement’s performance. A high score for a certain hypothesis meant that the conditions described in the hypothesis were valid for this agreement and thus we expect a good performance.

Table 2: Statements for assessing the institutional-economic context

<i>Hypothesis</i>	<i>Statements</i>
Policy hypothesis	<ul style="list-style-type: none"> ▪ Environmental policy evolves in a tradition of consensus seeking and joint problem solving apart from the conclusion of the agreement. ▪ Apart from the process leading to the conclusion of the agreement, policy making in the area covered by the agreement is characterised by a climate of mutual trust. ▪ Apart from the process leading to the conclusion of the agreement, the private sector(s) covered by the agreement show(s) a clear readiness to self-responsibility with respect to the environmental problem.
Instrumental hypothesis	<ul style="list-style-type: none"> ▪ The chances that public authorities will use an alternative instrument in case of non-success or non-conclusion of the agreement are high. ▪ If applied, the alternative instrument has more severe consequences for the target group than those resulting from the application of the agreement.
Sector hypothesis	<ul style="list-style-type: none"> ▪ There is already a dominant interest of a major player/a small number of players or a powerful and representative industry association in the area covered by the agreement. ▪ The private parties to the agreement belong to the same industrial sector. ▪ The potential for significant free riding between the members of the targeted sector covered by the agreement, is low.
Competitive hypothesis	<ul style="list-style-type: none"> ▪ Buyers can distinguish the difference in environmental quality performance of the firms in the participating sector(s). ▪ Buyers value environmental sound products in the area covered by the agreement.

3.2. The specification of an agreements

Even when all institutional-economic factors are favourable to the conclusion and execution of an agreement, success is by no way automatically guaranteed. Success indeed depends also upon the creation of a number of internal preconditions. Those internal factors of success are captured under the heading of specification. Special attention should be given to the evaluation criteria for the specification of negotiated agreements presented in table 3. In practice, it may not be feasible for an agreement to compare well against all of the criteria. However, the criteria provide a useful benchmark against which to assess the specification of a particular agreement.

Table 3: Evaluation criteria for the specification of a negotiated agreement

<i>Evaluation criteria</i>	<i>Description</i>
Target	The inclusion of a clearly defined and quantified target is crucial for the success of an environmental agreement.
Burden sharing rule	An agreement that relies on individual actions by firms to meet a collective target is more likely to be successful when accountability is developed to individual firms. This is best achieved by the inclusion of an explicit ‘burden sharing’ rule, or a mechanism for appointing the collective target.
Monitoring mechanisms	The inclusion of adequate monitoring mechanisms is crucial for measuring the performance against the target. Ideally, the performance of an agreement would be monitored using information collected and collated by an independent body.
Additional guarantees or sanctions	The inclusion of additional guarantees or sanctions regarding the achievement of targets will considerably enhance the credibility of an agreement.
Contractual form	By providing a clear legal framework, that is enforceable through court decisions, a binding contract adds considerable force to a negotiated agreement.
Legal compliance	In addition to complying with the provisions of the national law under which the agreement falls, it must also comply with the requirements of the EC Treaty and its derived legislation.
General provisions	In order to avoid potential confusion and disputes during the operation of the agreement, it is important that a number of basic issues are clarified like the parties and their respective obligations, the duration of the agreement, the conditions under which it can be revised or terminated, the competent jurisdiction.

Well-specified agreements are important because they lead to a higher rate of application, impact and resource development. A clear description of the obligations of the parties combined with a sanction in case of non-compliance leads to a higher degree of application. Better application and more demanding objectives improve the impact on the target variables. The policy resource base also will be developed more when a credible monitoring mechanism and other reporting activities are included in the agreement. This leads us to postulate the following specification hypothesis:

“The fact that the agreement is well-specified, containing all important elements of table 3, is a crucial positive factor for the performance of environmental voluntary agreements.”

Again statements were postulated (see table 4) and then judged for each agreement. A well-specified agreement leads to a high score on these statements, indicating that a successful implementation and execution is expected.

Table 4: Statements for assessing the specification

<i>Specification dimension</i>	<i>Statements</i>
Environmental performance	<ul style="list-style-type: none"> ▪ The agreement contains a well-defined environmental performance objective. ▪ The objective represents a meaningful improvement in environmental performance ▪ The agreement contains a credible mechanism for achieving the environmental performance objective ▪ The agreement contains a credible system for monitoring performance against the specified objective.
Learning	<ul style="list-style-type: none"> ▪ The agreement contains a clear objective with respect to learning. ▪ The agreement contains a credible mechanism to support and encourage learning. ▪ The agreement contains an adequate monitoring system for co-ordinating learning activities.
Economic efficiency	<ul style="list-style-type: none"> ▪ The agreement contains a burden-sharing mechanism that is consistent with a cost-efficient outcome. ▪ The agreement contains a credible mechanism to prevent free riding by participants. ▪ The agreement does not create any barriers to new entrants.

4. Comparative evaluation

The final goal of this study was to gain a deeper understanding of the factors influencing the performance of environmental voluntary agreements based on a comparative evaluation of twelve individual case studies. To provide data for this comparative analysis, two agreements were selected in Belgium, The Netherlands, Italy, France, Germany and the UK, giving us a sample of twelve cases (see table 5). Although still limited looked upon from a positive research methodological point of view, it is the greatest sample of environmental voluntary agreements ever analysed in a systematic way. Moreover, the agreements were concluded in different countries and their respective environmental targets cover a wide area of environmental problems. This high diversity among the selected agreements gives a higher degree of validity to the conclusions drawn from the comparative

case study. Because these case studies had to be cross-compared, they were made up using a common case study design that links the data to be collected to the statements that need to be judged.

Table 5: The selected negotiated agreements

<i>Abbreviation</i>	<i>Country</i>	<i>Description of the agreement</i>
GBAT	Germany	Agreement to reduce the mercury-content in batteries and to collect used batteries separately.
GELV	Germany	Agreement to maximise the recycling rate of end-of-life vehicles.
FCFC	France	Agreement to eliminate the use of CFCs in the industry.
FECO	France	Agreement upon the collection and recycling of packaging waste.
BBAT	Belgium	Agreement upon the private separate collection and recycling of used batteries.
BELE	Belgium	Agreement to reduce the emissions of SO ₂ and NO _x in power plants.
DSO2	The Netherlands	Agreement upon the reduction of the SO ₂ -emissions of power plants.
DWHI	The Netherlands	Agreement upon the take back of worn household appliances by their producers.
IVIC	Italy	Regional agreement upon the improvement of the environmental quality in the province of Vicenza
IAGI	Italy	Agreement upon the improvement of gasoline quality
EFAR	UK	Agreement upon the collection from farms of waste plastic films used in the production.
EEFF	UK	Agreement to improve the energy efficiency in the chemical industry.

Having assessed all statements and doing the necessary aggregations, we obtained a score on the average performance, the specification, the policy style, the threat of an alternative instrument and the sector and competitive structure. These scores allowed testing whether there is in fact a positive relationship between the favourability of the conditions and the performance of the agreements in our sample. This has been done using a graphical representation. We already mentioned that the specification and the aspects of the institutional-economic context we studied could be a precondition for the performance of voluntary agreements. These aspects therefore functioned as independent variables that explained the dependent variable, that is the performance of an agreement. Thus the vertical axis measures the performance, the horizontal axis represents the different scores on the aspects considered to influence this performance. A trend line showing the relation between the independent variable and the performance is included in the figures. The hypotheses postulate that a

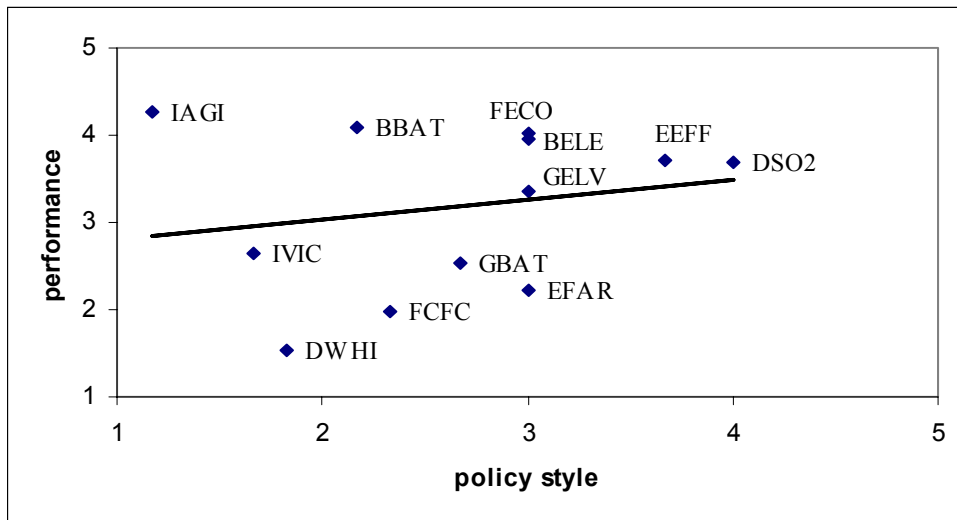
high score on the independent variables should lead to a successful agreement. So a hypothesis is supported if the trend line has a positive slope.

A second way of assessing the hypotheses was done by using Spearman's rank-order correlation test. Spearman's rank-order correlation coefficient, defined between -1 and 1 , gives an indication of the relationship between two variables. If the coefficient is negative, a negative relationship between the two variables exists. With a positive coefficient, a positive relationship exists. A coefficient close to zero indicates that there is no discernible relationship between the two variables. The greater the value of the coefficient, the more pronounced the relationship between the two variables. It is stressed that Spearman's rank-order correlation coefficient gives an indication on the strength of the relationship between two variables, but does not allow making conclusions on the causality.

In the correlation test, two hypotheses are postulated and judged. The null hypothesis says there is no correlation between the two variables, the alternative hypothesis states that a correlation exists. This way, the alternative hypothesis corresponds to the postulated hypotheses concerning the influence of the factors for success. In this research project, the null hypothesis was supported if the correlation coefficient is below the critical two-tailed r_s value at the 0.05 level of significance ($r_s .05=0.587$). If on the other hand the correlation coefficient was above 0.587, the null hypothesis has been rejected and the hypothesis tested was supported. However, one should keep in mind that because of the limited sample outliers can have a significant effect on the value of Spearman's rank-order correlation coefficient and thus on the results of this quantitative analysis.

4.1. The policy hypothesis

Figure 2 shows that except for the BBAT and the IAGI agreement, we can see a quite positive relation between the degree of consensus seeking, respect and trust in the policy making process and the performance of the agreement. The positive slope of the trend line is strongly affected by these two agreements. This brings Spearman's rank-order correlation coefficient close to zero ($r_s=0.059$), indicating that our hypothesis is rejected within a 95 per cent confidence interval.

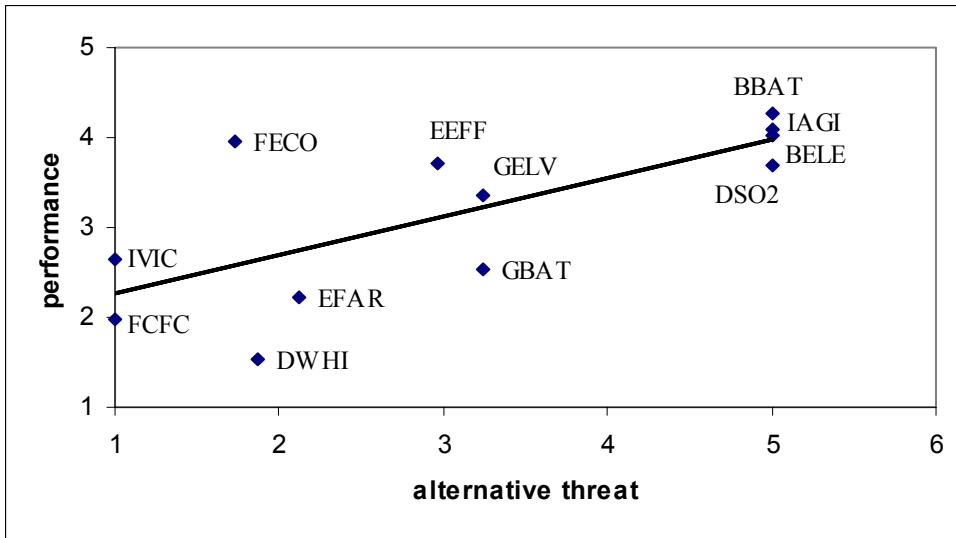
Figure 2: The relationship between the policy style and the performance

However, the fact that there are no scatter points in the lower right corner, rather confirms our hypothesis. This shows that there are no agreements concluded in a favourable policy style, which had a low measure of performance. Agreements situated in the upper left corner might be agreements that, despite the unfavourable policy climate, are successful because of other beneficial institutional-economic aspects. It is clear that the policy style is certainly not the only precondition for a successful implementation of environmental voluntary agreements. For that reason, other important features for successful agreements must exist.

4.2. The instrumental hypothesis

The trend line in figure 3 shows a clear positive relationship. Accordingly, Spearman's rank-order correlation coefficient is quite high ($r_s=0.668$), indicating that the instrumental hypothesis is supported. Four agreements were concluded in a context where there was a very strong and severe alternative threat (DSO2, BELE, BBAT and IAGI). All those cases were also evaluated as rather successful ones. Particularly these agreements support the validity of the instrumental hypothesis. Besides these successful agreements there are also two cases, which are assessed with the lowest possible grade (FCFC and IVIC). Accordingly, their performance score is lower than average. Again it is important to notice that the lower right part of the scatter graph remains almost empty. Here, this means that there are no low-performing agreements in the sample when a strong alternative treat was present. In the upper left area, we can detect some agreements that again contribute their high performance to another aspect. We can conclude by saying that, while a strong alternative threat is not necessary, it can clearly contribute to the performance of an agreement.

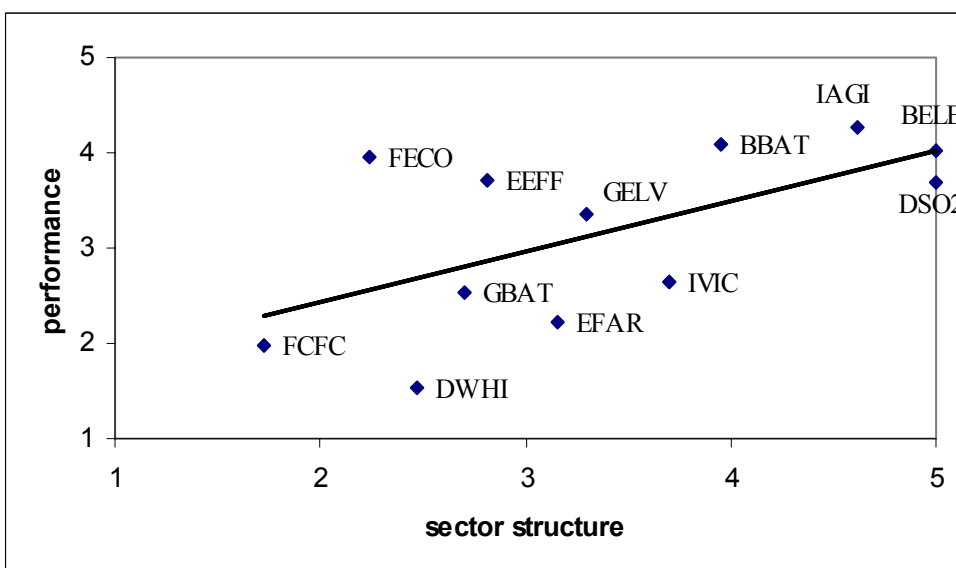
Figure 3: The relation between the existence of an alternative threat and the performance



4.3. The sector hypothesis

Again, a positive trend line and thus a positive relationship between the homogeneity of the sector and the performance emerge from figure 4. This hypothesis is also supported by Spaerman’s rank-order correlation coefficient test ($r_s=0.607$). Only two agreements break this positive trend, which are the British energy efficiency agreement (EEFF) and the French Eco-Emballages agreement (FEFCO). All other agreements seem to be in line with expectations.

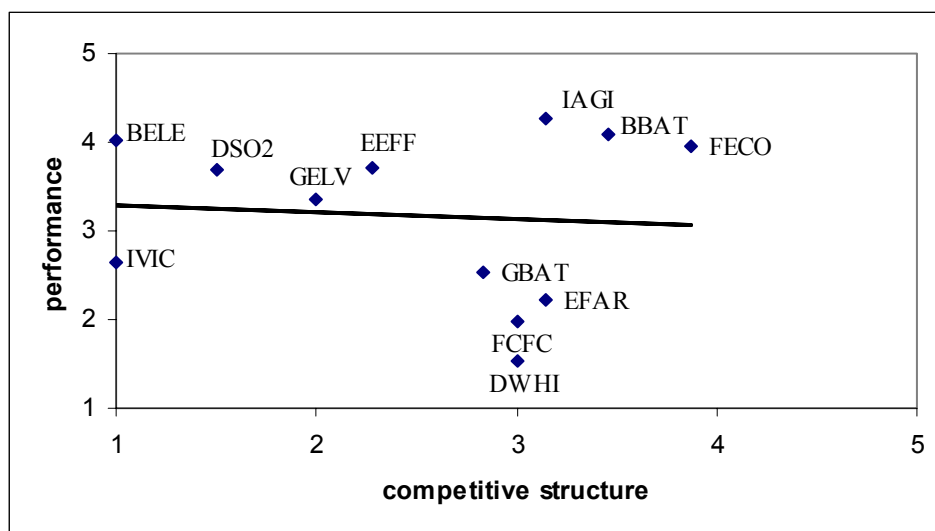
Figure 4: The relation between the sector structure and the performance



4.4. The competitive hypothesis

Whereas the previous three hypotheses seemed to be confirmed, there is less clarity here: the scatter points on figure 5 are dispersed throughout the entire graph. Not surprisingly, Spaerman's rank-order correlation coefficient is very low ($r_s=0.135$) and the competitive hypothesis is rejected. The negative slope of the trend line indicates that the theoretical idea that firms will be prone to a good environmental performance when there is demand pressure from green consumers is not confirmed by our agreements. On the one hand, we have a few agreements concluded with firms in sectors where there is demand pressure, that performed badly (DWHI, EFAR, FCFC), and on the other hand, we have agreements with a rather good performance in markets where demand pressure was not strong (DSO2, BELE, EEFF, GELV).

Figure 5: The relation between the competitive structure and the performance

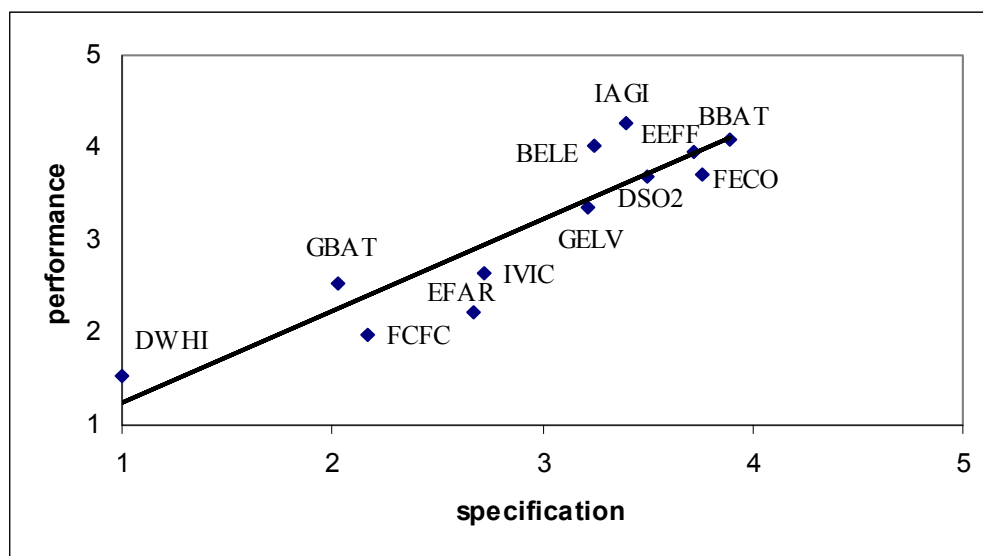


We can conclude that although the theoretical assumption beyond this hypothesis is quite convincing, this is not supported by our analysis. This could be an indication that when firms voluntarily undertake actions to improve their environmental record, they usually do not go much further than business-as-usual. The industry's information advantage over the environmental problem, the alternative abatement strategies and their associated costs, enable companies to fool consumers and government in believing that they are conscious of environmental problems whereas in reality they are only saying, but not doing this ('window dressing') (Alberini and Segerson 2002).

4.5. The specification hypothesis

Figure 6 clearly shows a positive relationship between the specification of an agreement and its performance. Spaeman's rank-order correlation coefficient is high ($r_s=0.839$) and supports the specification hypothesis. There are no agreements situated in the upper left corner or in the lower right corner. This shows what we already expected: the degree of specification is an important internal precondition for the performance of an agreement.

Figure 6: The relation between the specification and the performance



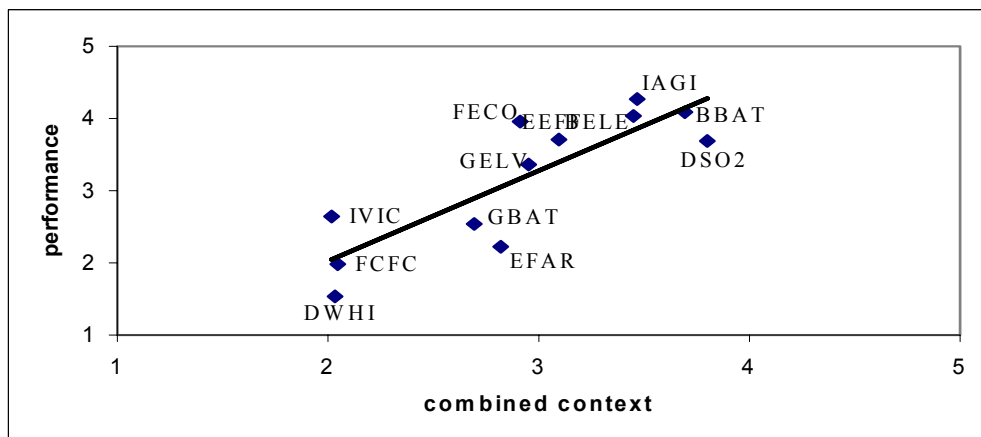
4.6. The combined institutional-economic context

When looking at the different hypotheses separately, we already mentioned that the absence of the expected relationship between one institutional-economic aspect and the performance of an agreement can be due to the fact that this performance is positively or negatively influenced by another aspect, diluting the influence of the first. The same holds for the specification of an agreement. Looking at the different hypotheses simultaneously can bring us insight in the possible existence of a 'combined (un)favourable institutional-economic context'. This has been done by defining the combined context as the arithmetic mean of the scores on the five hypotheses. Again a graphical representation with the trend line is presented in figure 7.

A clear positive relationship emerges. Also Spearman's rank-order correlation coefficient ($r_s=0.783$) supports the idea that a favourable institutional-economic context is positively correlated with the

performance of negotiated agreements. This leads us to conclude that the favourability of each of the institutional-economic aspects we studied is not a necessary condition for the performance of an environmental voluntary agreement. Rather it is the combined context that determines the performance of the agreements studied. The negative influence of an unfavourable factor can be totally outweighed by the positive influence of another aspect of the socio-economic context.

Figure 7: The relation between the combined institutional-economic context and the performance



5. Conclusion

The aim of this study was to gain insight on the factors leading to success or failure of environmental voluntary agreements. To do this we relied on a comparative case study covering twelve agreements from six different European countries.

First, a measure for the performance of voluntary agreements was developed. In our view, the performance of an agreement is a mixture of the degree of good application of the agreement, the degree of impact the agreement has on the environment and on the economic efficiency and the degree of resource development that occurs while negotiating and implementing the agreement. It is emphasised that taking into account only the application of the agreement would result in a very narrow definition of performance. Moreover, it is the impact on the environment and the development of the policy resource base the agreement brought about that matters in the end.

The theoretical as well as the empirical research point to a number of internal and external factors that influence this performance. Four external preconditions for success were identified: the general policy style, the readiness to use severe alternative instruments in case of non-compliance with the

agreement, the potential of the sector to negotiate and to act as one collective actor and the potential for market success triggered of by the implementation of the agreement. Next to these external factors related to the institutional-economic context wherein a voluntary agreement is used, the specification of an agreement is considered to be an internal factor influencing the performance.

In the cases studied, we found evidence that all factors could be important for enabling the success of an agreement. Only the evidence for the competitive hypothesis is less convincing for the twelve cases studied, although the theoretical arguments in favour of this hypothesis are quite robust. Notices that this could be an indication of the low (or wrong) motivation companies have when announcing voluntary actions to strive for a better environmental performance.

It should be emphasised that taken individually each of the factors is not as such a *conditio sine qua non* for the success of an environmental voluntary agreement. Rather it is the combination of the success factors that is ultimately decisive for the performance of an agreement. This is important because some of the success factors – the sector structure and to a large extent the competitive structure – are independent factors that cannot be manipulated by the government. These factors should play a crucial role in the instrument choice of policy makers. But even if these factors are not favourable to expect a successful agreement, the use of this instrument should not be ruled out in advance. This because the other three factors – the general policy style, the specification and certainly the alternative instrument – are under the control of the policy maker and can thus be manipulated to create a favourable environment for a voluntary agreement. These factors should play a crucial role when negotiating and implementing an agreement. So, next to the *ex post* analysis carried out in this paper, the questions used in this study could be used as a quick checklist to *ex ante* assess whether or not the environment is potentially favourable for the conclusion of a successful environmental voluntary agreement.

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