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Department of Economics

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**Explaining Differences in
Environmental Policy across Europe:
The Importance of Informal Institutions,
Incomplete Information and Path Dependence**

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Explaining Differences in Environmental Policy across Europe:

The Importance of Informal Institutions, Incomplete Information and Path Dependence

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Abstract

What factors shape environmental policies across Europe? In order to answer this question most economists would probably adopt a Public Choice approach. This approach has explained some aspects of environmental policies that exist in a similar fashion across Europe convincingly. But why do many environmental policies differ across European countries? This article argues that in order to understand differences in environmental policies in Europe North's analysis on institutions and institutional change is useful. It demonstrates the relevance of North's approach with a case study: the implementation of the EU's Eco-Management and Audit Scheme in Germany, the Netherlands and the UK. The starting point of the analysis is the observation that participation of companies in the scheme markedly differs between countries. It is shown that in order to understand these differences it is necessary to take into account some key concepts of North's institutional analysis, namely, differences in informal institutions, incomplete information of relevant actors, and path dependence. Recommendations for further research and for environmental policy are derived.

Key words: Environmental policy, informal institutions, incomplete information, path dependence, European policy, environmental management

1. Introduction

What factors shape environmental policies across Europe? In order to answer this question most economists would probably adopt a Public Choice approach. Typically, they would identify the different (groups of) actors which are engaged in environmental policy making, ask for their interest in the different policy options that could be applied, analyse the options that exists for them to advance their interests, and derive conclusions regarding environmental policy outcomes (e.g. Hansjürgens 2000, Schneider and Kirchgässner 2003). There is a substantial amount of studies that use the Public Choice approach to explain environmental policy outcomes, including some work that addresses environmental policy making in a European context. Examples of this work are Svendsen (2005) and Markussen and Svendsen (2005) who analyse how lobbyism influenced the design of the EU greenhouse emissions trading scheme and Glachant (2002) who uses a political economy analysis to explain why water effluent charges in France are comparatively low.

This research has contributed significantly to our understanding of the evolution and implementation of environmental policies. In particular, it has explained phenomena that exist in similar fashion across Europe convincingly. One prominent example is the only recently changing dominance of command and control policies over market based instruments, which is explained by the strong interest of dominant actors in such a policy (cf. Schneider and Kirchgässner 2003). From a Public Choice perspective the similarity of policies is not surprising because given similar interests of well-informed actors and similar options for action the outcome should be similar, too.

But why do many environmental policies differ across European countries? This article argues that in order to understand differences in environmental policies in Europe North's analysis on institutions and institutional change is useful (North 1990). According to North an analysis of institutional differences across societies requires correcting the rational actor model applied in most Public Choice studies. This model is based on the assumption that actors possess full information, are consequently able to identify all available options for action and choose the best alternative. North argues that economists should take into account instead that actors frequently must act on incomplete information, and that informal institutions such as conventions, norms and self-enforced codes of conduct differ among actors. Furthermore, informal institutions and incomplete information may lead to self-reinforcing dynamics which implies that institutional change is typically path-dependant.

North's approach has received considerable attention in economics, and has been used to analyse many policy areas. However, few authors applied North's approach to explain environmental policy outcomes. Exceptions include Hansjürgens (2000) who explains differences in German and US environmental policy with cultural differences, Söderholm (2001) who finds that a fundamental difficulty in implementing effective pollution charges in Russia is the enterprise tradition and behaviour inherited from the Communist past, and Woerdman (2004) who analyses institutional barriers (including informal institutions) to implementing market-based climate policy.

The aim of this paper is to illustrate the relevance of North's approach to explain differences in environmental policy making and implementation in Europe through a case study. The case study deals with European Union's Eco-Management and Audit Scheme (Council Regulation 1836/93 of 29 June 1993, in short EMAS) and its implementation in three Member States (Germany, the Netherlands, and the UK) until the year 2000¹. The striking feature of the EMAS implementation process is that participation of companies in EMAS markedly differs between the three countries with EMAS participation high in Germany and low in the Netherlands and the UK. It will be shown below that this difference cannot be satisfactorily explained within the Public Choice framework. Instead, one has to take into account incomplete information, differences in mental constructs of relevant actors, and path dependence.

The paper is structured as follows: Section Two provides the analytical background by outlining selected aspects of North's approach to explain institutional change, namely, informal institutions, incomplete information and path dependence. Section Three describes the evolution of EMAS and provides a short description of its content and of ISO14001, an environmental management systems standard, which companies may choose as an alternative to EMAS. Furthermore, participation figures are given for both standards in the three countries under review. In Section Four a first explanation of different participation figures based on profit maximisation of companies and different incentives set by the national regulators is provided. This explanation, however, leads to the question why the regulators set different incentives. This is explained in Section Five by referring to differences in informal institutions, incomplete information of relevant actors and path dependence. In Section Six further research questions are identified and policy recommendations derived.

¹ Knowledge about the case study is based on research from two EU-funded projects and resulting publications. Within the ERIC-project (see for an overview Lévêque 1996) the political evolution of EMAS was analysed and within the IMPOL-project (see for an overview Glachant 2001) the implementation of EMAS in the Member States until 2000.

2. Analytical framework

This section outlines selected parts of North's approach to explain the evolution and change of institutions. The section concentrates on those aspects that are relevant for the explanation of institutional differences leading to varying environmental policies across Europe. According to North (1990 and 1995) three aspects of human behaviour that are partly interlinked are essential to understand differences in institutions and institutional change across societies: (I) informal institutions, (II) incomplete information, and (III) path dependence.

(I) North distinguishes between organisations and institutions. In simple words, institutions are the rules of the game, organisations, the players. Organisations consist of a group of people bound together by some common objective (e.g., firms, NGOs, regulatory bodies). Institutions are the constraints that human beings impose on human interaction. North distinguishes between formal and informal institutions. The former include legal rules (e.g., constitutions, statute law, common law, regulations) and the latter informal constraints such as conventions, norms and self-enforced codes of conduct. North emphasises that in determining human behaviour informal institutions are as important as formal institutions. People make their choices based on their perceptions, which are a function of the way the mind interprets the information it receives. The 'mental constructs' that individuals form to explain and interpret the world around them are a result of their cultural heritage, of the local everyday problems they confront, and of non-local learning. This implies that individuals from different backgrounds will interpret the same evidence differently and may, in consequence, make different choices.

Applied to European environmental policy this approach draws attention to the fact that the policy process that accompanies the formulation of environmental policies at the European level is not only influenced by interests but also by different informal institutions of the actors coming from the different Member States and the EU Commission. The same applies to the implementation of European environmental policies in the Member States and the formulation of national policies. The mental constructs of the national regulators and other actors involved may significantly differ from one Member State to the next leading to different implementation choices. But why do actors in different Member States often not learn from each other in order to find the best implementation solution? To answer this question we turn to the issue of incomplete information.

(II) One of the basic assumptions of Public Choice theory is that human beings identify and choose the best option for their action. In contrast, North (1990, 22ff.) argues that this requires a high level of knowledge which may – at best – be available for repetitive actions and simple circumstances where human beings possess sufficient experience. He emphasises that incomplete information and the subjective processing of information often prevents human beings from identifying the best course of action. The more complex and unique a situation is the less knowledge about possible outcomes is available. This implies that it is uncertain that better outcomes are reached. Furthermore, as emphasised above human beings process the information they receive through their mental constructs. This may prevent them from interpreting the information they receive in a way that they learn about better alternatives. As North puts it: ‘Actors would certainly like to improve outcomes, but the information feedback may be so poor that the actor cannot identify better alternatives.’ North (1990, 24).

What does incomplete information for unique and complex situations and subjective processing of information imply for European environmental policy? We can expect that there will be different opinions about the evolution of new and complex policies among actors from different countries and the EU Commission that do not only result from different interests but also from different information levels. Similarly, we can expect differences in the implementation of EU policies in the Member States that, again, cannot be explained by different interests alone.

(III) The existence of informal institutions and incomplete information implies that institutional change is typically path-dependant. Path dependence means that policy outcomes depend on the (often coincidental) starting point and specific course of a historical decision-making process. The path dependence approach emphasises self-reinforcing dynamics, so that the dominance of a sub-optimal situation² in the presence of a superior alternative may persist for some time and an evolution to a better alternative does not necessarily occur. One essential reason for path dependence is that the perception of human beings of the existing institutional framework and the effects of possible efforts for change are based on mental constructs and information that are a result of this framework. Both these feedback processes and incomplete information on the consequences of an action imply that attempts to change the institutional framework do not necessarily lead to an improved situation. A further reason for the dominance of a sub-optimal situation may be that the incentive structure provided by

² For the purpose of this paper and in accordance with Woerdman (2004, p.57) optimality may be defined as minimising the cost/benefit ratio of running a process.

existing institutions led to the evolution of organisations which depend on the institutions for their profitability and viability. The activities that these organisations undertake, their complex web of interactions and other relationships are built on the existing institutional structure. Changes to these structures may therefore be costly to organisations and, as a consequence, opposed by them – an argument which is consistent with the Public Choice approach.

Applying the concept of path dependence to European environmental policy one may observe that a sub-optimal situation in Member States persists due to self-reinforcing dynamics despite efforts to reach a better situation. These dynamics arise because the existing framework determines actors' mental constructs and leads to the evolution of organisations which depend on it for their profit and existence and are therefore opposed to change.

3. Introduction to the EMAS case study

This section provides background knowledge for the case study, i.e., the application of North's approach to explain why the implementation of EMAS in Germany, the Netherlands and the UK led to different participation rates among companies. The Section starts with a brief description of the evolution of EMAS and the positions of relevant actors in the political process that preceded the adoption of EMAS. Furthermore, the environmental management systems standard of the International Standards Organisation, ISO14001, is briefly introduced. It provides an alternative to EMAS for companies, and differences in EMAS participation in the Member States may be largely explained by whether companies prefer EMAS or ISO14001.

3.1 The evolution of EMAS³

European environmental policy was greatly modified in the early 1990s. In recognising the limits of traditional command and control policies, the Fifth EU Environmental Action Programme adopted in 1992 emphasised broadening the range of policy instruments through the use of market based instruments and flexible, voluntary approaches. In this context the plan of an eco-management and audit scheme was developed inside the European Commission in 1990.

³ This section is based on Franke and Wätzold (1995), Eames (2000) and Wätzold and Bültmann (2001a).

The political process that accompanied the evolution of EMAS can be divided into two main phases. The first phase began with the release of a consultation document on EMAS by the Commission in late 1990. European industry was united in its rejection of the proposal and strongly criticised the mandatory nature of the proposed scheme. Confronted with industry's strong resistance, the Commission decided to adopt a voluntary approach.

The second phase began with the publication of a Commission proposal for a voluntary EMAS. Industry's response now differed in two ways. First, with the exception of German companies industry kept a lower profile on the matter than it did at the first stage, and, second, industry's response was divided. While the German industry supported by the government continued to oppose the scheme the attitude of industry and governments from other Member States was mostly supportive.

One important reason why German industry and government continued to oppose EMAS was that their approach towards environmental problems was different from that of EMAS. EMAS is management oriented. The idea of EMAS is to improve a company's environmental performance by establishing a good environmental management system and then have it audited. The approach of German industry was engineer driven and technology oriented. In order to improve its environmental performance a typical German company developed or purchased an improved environmental technology and implemented it. Similarly, in order to tackle an environmental problem the German regulator would implement or tighten a standard based on the "best available technology". The EMAS culture was therefore alien to German companies and regulators, and both groups could not see any benefits from EMAS. In addition, companies feared costs as they expected to be forced to take part in the scheme due to high public pressure in environmental matters in Germany at that time.

In contrast, the UK and the Dutch government were active supporters of EMAS. A management based approach to environmental problems was in line with the culture of UK industry. The UK was the first country to develop an environmental management systems standard, the BS (British Standard) 7750, and a significant number of companies were working to implement this standard. The UK conservative government saw environmental management schemes as an adequate instrument to promote voluntary environmental action by industry as part of its wider deregulatory and market-oriented philosophy. Similar to their UK counterparts, a significant number of Dutch companies had gathered considerable experience with environmental management systems, many of them using BS 7750.

Furthermore, the Dutch government and industry considered environmental management systems to play an important role in deregulation efforts in environmental policy.

In late 1992 it became obvious that all Member States except Germany were in favour of the regulation. As the final ratification of the Maastricht treaty would enable EMAS to be ratified with majority voting Germany gave in to the pressure of the other Member States and EMAS was adopted at the Environmental Council Meeting in June 1993. The striking feature of the policy process that preceded the EMAS regulation was that the different positions between Germany and the other Member States were largely a result of their hitherto different approaches on how to improve companies' environmental performance. As a representative of the German chemical industry in Bruxelles interviewed by the author in 1994 pointed out bluntly: "German companies did not understand what EMAS was about". In terms of North's approach; German actors had formed different "mental constructs" in terms of how to successfully improve companies' environmental performance than their Dutch and UK counterparts. Consequently, this influenced their behaviour in the policy process preceding the adoption of EMAS.

3.2 Companies' alternatives: EMAS and ISO14001

Almost parallel to the formulation of EMAS, the ISO (International Standards Organisation) prepared an international standard for an environmental management system. Preparations had begun against the background that a number of national organisations had already launched their own standards such as BS7750. The international environmental management system standard, ISO14001, was finally launched in September 1996.

EMAS and ISO14001 are based on the same principle. Both are environmental management system standards which define certain requirements that an environmental management system of a company ought to meet. These are in essence procedural requirements as opposed to commitments setting specified levels of environmental performance. Once a company meets these requirements it may apply to external bodies for certification (ISO14001) or registration (EMAS). Once certified or registered the company can use this recognition for its external or internal communication. One main difference between the two standards is that EMAS requires in addition to an environmental management system a validated environmental statement to inform the public. Next to this difference, EMAS is formally slightly more demanding for companies. E.g., in contrast to registration under EMAS, legal compliance is not a necessary condition for ISO14001 certification. Despite these differences

significant similarities exist between both standards, which imply that ISO14001 provides for companies an alternative to EMAS⁴. In order to understand participation rates in EMAS, it is, therefore, necessary to look at ISO14001 participation, as well.

The different positions of German, UK and Dutch industry and government in the policy process that preceded the adoption of EMAS might one lead to expect that participation rates in EMAS reflect these different opinions with the UK and the Netherlands being far ahead of Germany in terms of participation numbers. This expectation, however, was proven wrong. Table 1 shows the absolute participation rates in EMAS and ISO 14001 in the three countries in 2000, five years after EMAS came into force. In order to take into account that the countries' economies differ in size and structure the relative participation figures are also presented which are gained by dividing the participation figures with the number of potential participants.

Table 1: EMAS and ISO14001 participation rates in April 2000

	EMAS		ISO14001	
	No. of registered sites	In % of potential participants*	No. of certified organisations	In % of potential participants
Germany	2,432	6.50	1,950	5.21
Netherlands	26	0.41	606	9.46
UK	73	0.25	1,014	3.42

* Companies from the manufacturing sector with more than 20 employees are taken as a proxy for potential participants

Source: Wätzold and Bültmann (2001a, p.141), modified

The striking feature about EMAS participation is the comparatively high participation rate in Germany and the low participation rates in the Netherlands and the UK. Participation rates in ISO14001 are more comparable ranging from 3.42% in the UK to 9.46% in the Netherlands. Germany is the only country with more EMAS than ISO14001 participants whereas participation in ISO14001 is more than ten times higher than participation in EMAS in the

⁴ A description of EMAS and ISO14001 can be found in, e.g., Wätzold et al. (2001) and Wätzold and Bültmann

UK and even more than twenty times higher in the Netherlands. How can these differences in the participation rates been explained?

4. A first explanation of national differences in EMAS and ISO14001 participation

A first explanation based on different companies' benefits resulting from EMAS and ISO14001 participation is given by Glachant et al. (2002). However, different benefits are mainly a result from incentives set by the regulator, and at the end of this Section the question remains: Why did the regulator set different incentives? Glachant et al. (2002) start from the assumption that as participation in environmental management systems is voluntary, companies only decide to participate if the benefits related to such a system exceed the participation costs. If net benefits are positive for both standards companies chose the standard that generates the highest net benefits. In order to evaluate the potential net benefits from participation Glachant et al. identify several key factors that influence them: Benefits and costs of implementing an environmental management system, benefits and costs related to image gains arising from participation in EMAS or ISO14001, cost reductions through public subsidies that participating companies might receive and benefits from regulatory relief for EMAS registered or ISO14001 certified companies.

Companies derive direct benefits from implementing an environmental management system mainly because such a system systematically detects cost-saving opportunities such as saving of water, energy and waste (cf. Gabel and Sinclair-Desgagné (1998) and Wätzold and Bültmann (2001a)). For EMAS and ISO14001 benefits and costs related to the implementation of such a system are similar. Companies from all three countries under review cited cost-savings as the main reason for their participation. Especially German companies benefited from the advantages brought about by the implementation of an environmental management system because these companies had hitherto neglected environmental management issues. Ironically, the German technology oriented approach which had initially led German industry to reject EMAS was now one of the reasons for the success of environmental management systems in Germany.

Potentially, there may be a wide number of benefits from image gains for companies that participate in EMAS or ISO14001 such as positive reactions among the general public and preferential treatment by clients. EMAS participants may gain image benefits from the certificate of participation and the environmental statement. They are, however, limited to

(2001a).

Europe. ISO 14001 is an international standard, but ISO14001 participants only receive the certificate of participation. Most German and Dutch companies considered the advantage of the environmental statement as limited with some having even been disappointed about the communication effect. UK companies sometimes completely rejected the idea of giving the public information about their environmental performance.

Looking only at the costs and benefits related to image and implementing an environmental management system it can easily be explained why UK and Dutch companies preferred ISO14001 over EMAS. ISO14001 is an internationally recognised standard whereas EMAS is only European and ISO14001 is less costly because it does not require an environmental statement. The environmental statement in turn generates on average only little benefits. But why was EMAS in Germany more popular than ISO14001? Glachant et al. answered this question by comparing the influence of the two remaining factors that determine a company's net participation benefit in EMAS and ISO14001 in the three countries. These factors – subsidies and regulatory relief – are influenced by the regulator.⁵

In Germany, financial support for implementing an environmental management system was mainly granted in the form of financial subsidies. It was estimated that by 2000 between 30% and 60% of all EMAS participants had received financial support and that the average subsidy had been approximately 38,000 DM (=20,000€) (Wätzold and Bültmann 2001b, Glachant et al. 2002). Subsidies for EMAS participation were available in all German federal states whereas subsidies for ISO14001 participation existed only in a few states and were lower. Regulatory relief was granted to EMAS participants in several federal states but not to ISO14001 participants. The extent of regulatory relief differed among the states with Bavaria adopting the most far-reaching approach, where EMAS participation and regulatory relief were integrated in a voluntary agreement between industry and the Bavarian Government (see for details Wätzold et al. 2001).

There were no regular subsidies in the Netherlands for implementing an environmental management system but in 1989, the Dutch government had financed a 60 million Dutch guilders learning programme. The purpose of the programme was to stimulate the implementation of environmental management systems in companies and included the development of checklists, handbooks and training measures. Since the early 1990s, regulatory relief was granted to pro-active companies that internalise environmental values into their organisations. A certified environmental management system was considered a

necessary precondition to convince the authorities that a company is pro-active and can be treated differently from a “laggard” as far as monitoring, enforcement and licensing is concerned. The government considered participation in EMAS and ISO 14001 as equal signs that a company is pro-active.

The higher number of companies with a certified environmental management system in the Netherlands compared to the UK may be explained with the fact that regulatory relief for EMAS and ISO14001 participants was basically non-existent in the UK. Furthermore, apart from pilot studies no subsidies were available to support the participation of firms in ISO14001. There was only a programme to support EMAS participation which was addressed particularly at the participation of small and medium sized companies. The programme was abolished after one and a half years due to the poor uptake. The Government did not indicate to companies that it considered EMAS superior over ISO14001.

Taking into account subsidies and regulatory relief it can be explained why EMAS was more popular among German companies than ISO14001. The reason is that – in contrast to the UK and the Netherlands – the incentives set by the regulator in relation to subsidies and regulatory relief made EMAS for many companies more attractive than ISO14001. However, this finding leads to another question (Glachant et al. 2002, p.265). Why did the German regulator have such clear preferences for EMAS and the regulators in the other countries did not? The next section answers this question by applying North’s approach to the case study.

5. Relevance of informal institutions, incomplete information and path dependence

In order to explain why the German regulator preferred EMAS to ISO14001 and the other regulators treated both standards as equal the analysis now focuses on differences in informal institutions in the three countries, incomplete information of relevant actors and path dependence.⁶

5.1 UK: Environmental management systems as a mean for voluntary action by industry

In the UK, the government was committed to a market-oriented approach towards environmental problems with comparatively little government influence; it considered

⁵ A justification why the regulator may grant regulatory relief to companies is given in Wätzold et al. (2001) and why the regulator may subsidise companies in Wätzold and Bültmann (2001b).

⁶ The information about the policies in the three countries presented in this chapter is taken from Wätzold and Bültmann (2001a, chapter 3).

environmental management systems a suitable means for voluntary action by industry. Furthermore, the government was aware that environmental management systems were in line with the management-oriented attitudes of UK firms towards environmental problems. In the presence of such informal institutions on how to tackle environmental problems there was no reason why the UK government should prefer EMAS to ISO14001. Due to the development of BS7750 and its subsequent influence on EMAS and ISO14001, there was a high level of information about environmental management systems in the UK. This information, however, did not alter the government's opinion about treating EMAS and ISO14001 as equal. For the government the overall philosophy of environmental management systems was more important than differences regarding details.

5.2 Netherlands: Environmental management systems as a tool for deregulation

In the Netherlands the early 1980s were a period of little economic growth and government believed that over-regulation was one of the reasons. Subsequent deregulation efforts also included environmental policies, which hitherto had been dominated by a command and control approach. Industry perceived environmental management systems as one suitable tool for deregulation in the field of environmental regulation. Although the government was interested in environmental management systems it demanded that they should be trustworthy, uniform and of high standard. In order to reach that goal industry accepted some government involvement in standardisation and – once standards were developed – in certification of companies. To reach uniform and high quality standards it was decided to harmonise the requirements for certification with ISO14001 and EMAS registration. This implies that the Dutch NEN ISO14001 is slightly more demanding for companies than the original ISO14001. The only substantial requirement of EMAS on top of ISO14001 is the publication of a validated environmental statement. Similar to the UK, government and industry in the Netherlands had gathered significant experience with environmental management systems, and it can be assumed that they were well informed when making decisions.

Obviously, informal institutions in the Netherlands were different from those in the UK despite the fact that both countries treated EMAS and ISO14001 as equal in terms of subsidies and regulatory relief. While at the period under review the UK had a rather laissez-faire and market-based approach towards environmental policy the Dutch tradition was largely one of command and control. Strict regulation had brought the Netherlands significant

environmental improvements but was also considered as becoming too much of a burden to the economy. Therefore, regulation was considered as having benefits but being in need of modification in order to give industry more flexibility. From this perspective it was clear that governments should be involved in developing and implementing environmental management systems and that these should have a high standard. Given that in the Netherlands EMAS and ISO14001 were equally demanding, except that EMAS required an environmental statement in addition, there was no reason for the Dutch Government to prefer EMAS to ISO14001.

5.3 Germany: EMAS as the first environmental management system standard

The situation in Germany in terms of informal institutions and the level of information about environmental management systems was markedly different from the two other countries. Until the early 1990s, the technology oriented approach was the dominant response against environmental problems in Germany, and when EMAS evolved in the early 1990s, environmental management systems were considered a useless and costly addition to industry's technology based efforts. However, EMAS could not be neglected, as legal requirements demanded the development of national institutions and organisations⁷ to implement EMAS in the Member States. The process accompanying the design and implementation of these organisations and institutions was in two ways responsible for the increasing popularity of EMAS in Germany in the period under review.

First, government and industry had to acquaint themselves with EMAS more intensely. An overall learning process about EMAS started and pilot studies revealed that cost-savings and environmental improvements could be achieved at the same time. Because German companies had hitherto neglected the importance of environmental management systems, they now greatly benefitted from EMAS participation. The German technology oriented approach, which had initially led German companies to reject EMAS, was now one of the reasons for its success.

Secondly, there was a conflict about the design of institutions and organisations required for the implementation of EMAS in Germany. Industry, supported by the Ministry of Economics, argued for a system dominated by industry whereas environmental groups, supported by the Ministry of the Environment, pleaded for a system with strong state involvement. The

⁷ As an EU-Regulation EMAS is directly binding in the Member States. However, to make EMAS fully operational the Member States had to establish a system for the accreditation and supervision of independent environmental verifiers and to appoint a competent body for the registration of the companies participating in EMAS.

government realised that a system based on voluntary participation from companies requires the support of the industry, and a compromise was reached where the system is organised and run by industry with the state retaining only some control functions. E.g., responsibility for the registration of companies was placed on the local Chambers of Industry and Commerce and the Chambers of Craft. However, the registration procedure requires the Chambers to inform the enforcement bodies and to give them the opportunity to intervene should the company not comply with environmental legislation. As the compromise largely followed the demands of industry, industrial bodies felt that they were responsible for the success of EMAS in Germany and lobbied for companies' participation.

Before the adoption of EMAS at the European level there was little information about environmental management systems in Germany. The level of information significantly increased in the course of the EMAS implementation process. However, there was a marked difference between Germany and the other two countries. In the Netherlands and the UK learning had focused on the development of environmental management systems in general, whereas in Germany it focussed on EMAS. This implied that in Germany knowledge about ISO14001 was not available to the same extent as in the other countries, especially on the side of the regulator.

Given the lack of knowledge about ISO14001 and the fact that government still had some influence in the EMAS system compared to none in the ISO14001 scheme it is not surprising that government gave preferential treatment to EMAS participants with regard to subsidies and regulatory relief. Furthermore, due to its formally higher requirements many government officials felt that EMAS was a better choice in terms of environmental improvements.

Once EMAS had been implemented in Germany and become a popular system self-reinforcing dynamics that led to path dependence could be observed. First, the formal and informal institutions focussed the attention of actors on EMAS. As experience with EMAS was good, there was a positive feedback that encouraged more companies to participate in EMAS, further reinforcing the positive response. In such a situation – actors are not fully informed about the consequences of all alternatives and improvements compared to the Status Quo are being made – it is difficult for other even more positive alternatives to receive sufficient attention and, hence, they are often not realized.

Second, industrial bodies in general had an interest in the success of EMAS because of their involvement in the scheme and possible reputation losses. It would have strengthened the supporters of strict environmental legislation if a system to improve companies'

environmental performance failed where industry voluntarily carried responsibility. Particularly, the local Chambers of Commerce and Chambers of Craft had an interest in a high number of EMAS participants. The staff from these bodies employed for informing companies about EMAS and the registration of EMAS participants had to finance their work through the fees companies paid for their EMAS registration.

After having explained why the German regulator preferred EMAS to ISO14001 the question arises whether this choice is sub-optimal. From the point of view of environmental economic analysis giving higher (or exclusively) subsidies to EMAS participants is justified if EMAS leads to a significantly better environmental performance of companies than ISO14001 (Wätzold and Bültmann 2001b). However, it seems that companies improve their environmental performance mainly because of implementing an environmental management system (cf. Section 3.3). These systems are very similar for both schemes, which suggests that EMAS does not lead to more improvements than ISO14001. On an empirical level, this view is supported by existing studies that compare environmental benefits of EMAS and ISO14001 and do not find that participation in EMAS leads to a better environmental performance than participation in ISO14001 (cf. Wätzold and Bültmann 2001b).

Regarding regulatory relief it needs to be noted that EMAS is slightly more demanding in terms of requirements for improving legal compliance. One may argue that this leads to a higher level of compliance and hence justifies giving preferential treatment to EMAS participants in terms of regulatory relief. However, as pointed out in Section Four, companies derive higher net benefits from ISO14001 because participation costs are lower and it is an international standard. Giving EMAS preferential treatment, therefore, leads to higher costs and, respectively, foregone benefits for EMAS participants. With harmonizing the requirements for ISO14001 certification and EMAS registration the Dutch found an alternative to avoid these disadvantages while ensuring that ISO14001 certification leads to improvements of company's legal compliance equal to that of EMAS. Overall, we can therefore conclude that the German approach to EMAS and ISO14001 in terms of subsidies and regulatory relief is likely a sub-optimal choice.

6. Summary and Discussion

Public Choice is the dominant approach in economics to explain environmental policy outcomes. It has – inter alia – convincingly explained that environmental policy outcomes exist in a similar fashion across Europe. But why do different policies also exist? The aim of

this paper is to demonstrate by way of a case study that North's approach in explaining institutional change may be important in understanding differences in environmental policy across Europe. The case study deals with European Union's Eco-Management and Audit Scheme and its implementation in Germany, the Netherlands, and the UK. It has been shown that the high number of EMAS-participants in Germany and the low number in the Netherlands and the UK may be explained with different informal institutions, different levels of information and path dependence.

This result calls for more research in order to understand the importance of North's approach in explaining the evolution and implementation of environmental policies in general and in Europe in particular. Further research may address the question for what type of environmental policies, actor constellations or political and economic circumstances North's analysis of institutional change is relevant – and for what type, the Public Choice approach. The case study presented in this paper suggests that for novel and complex policies – like environmental management systems in the early 1990s – North's approach is likely to be important. For such policies the level of information may substantially differ between relevant actors or be low in general. Given different informal institutions such policies, therefore, may be particularly prone for varying interpretations.

The case study demonstrated that path dependence matters. It was possible to identify feedback-processes related to incomplete information reinforcing the existing – most likely sub-optimal – policy path. Furthermore, the existing institutions created organisations that depended on it for reasons of reputation and profitability and, hence, had an interest in their existence. However, institutions do change. This leads to the questions of what factors lead to a change of institutions from a particular path or as Woerdman put it to an institutional break-out. Further research in this field may be beneficial to understand the factors behind policy changes away from a particular path.

Obviously, North's approach helps to improve our understanding of environmental policy outcomes. However, in contrast to Public Choice, predicting environmental policy outcomes is difficult. Applying a Public Choice approach, i.e., identifying the relevant actors, their interests in the different potential environmental policies, and their options to further their interests, makes testable predictions about environmental policy outcomes possible. This seems much more difficult when considering informal institutions and incomplete information. For purpose of illustration consider the case study again: Who would have predicted in the early 1990s – and on what grounds – that, given the informal institutions in

Germany regarding technology oriented environmental policy, there would be so many German and so few UK and Dutch EMAS participants? On a more generic level, questions such as how relevant actors would behave in the presence of particular – to be properly identified – informal institutions and how an increase in information would alter their behaviour are difficult to answer.

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