

COMPANIES' PARTICIPATION IN EMAS: THE INFLUENCE OF THE PUBLIC REGULATOR



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When adopted in 1993, the European Union's Eco-Management and Audit Scheme (EMAS) was viewed as emblematic of a new policy approach involving more flexible and market-based environmental instruments. A few years after coming into force, EMAS does not appear to be a tremendous success in terms of industrial participation. Apart from in Germany and Austria, participation is insignificant and comparatively very far behind that in ISO 14001, the environmental management standard of the International Organization for Standardization. The paper seeks to explain this modest result. It focuses on the influence of the European and national regulators on industrial participation. Using a comparative analysis of the implementation of EMAS in France, Germany, the Netherlands and the United Kingdom, it argues that the most powerful participation leverage has been the

granting of regulatory relief for registered companies. This leads one to be pessimistic as to the future of EMAS. The possibility and scope for a lighter regulatory touch are primarily nationally specific since they are related to the national regulatory traditions. Consequently, the systematic and comprehensive use of this leverage is unlikely to generalize. Copyright © 2002 John Wiley & Sons, Ltd and ERP Environment.

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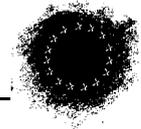
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INTRODUCTION

European environmental policy was greatly modified in the 1990s. The best account of the change is probably given in the Fifth EU Environmental Action Programme adopted in 1992. In recognizing the limits of traditional command and control approaches, the programme placed emphasis on broadening the mix of policy instruments through the use of more flexible voluntary

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approaches and market-based instruments. Based on the voluntary commitments of companies, the European Union's Eco-Management and Audit Scheme (EMAS) adopted in 1993 was clearly emblematic of the new trend.

Now that it has been in force for a few years, the first results obtained can be evaluated. Yet if industrial participation is anything to go by, EMAS does not seem to be a tremendous success. In April 2000 total registrations throughout the EU totalled just 3325. As three-quarters of the registered companies come from Germany, participation in most other member states is insignificant. For instance, merely 36 companies were registered in April 2000 in France. Furthermore EMAS participation is, with the exception of Germany and Austria, lower everywhere than participation in ISO 14001, the environmental management standard of the International Organization for Standardization, launched one and a half years after EMAS started. The goal of this paper is to explain this very modest result by focusing on the influence of the public regulator on EMAS participation and to think of possible solutions available to the regulator to foster the diffusion of the standard. Public regulator is a generic term to designate those public bodies at the European and national level in charge of regulating, implementing and promoting the EMAS standard¹.

One crucial aspect of EMAS is its voluntary nature. It makes public regulators rely on the voluntary participation of private companies. Assuming that companies are rational, profit-maximizing entities, low participation figures reflect the fact that the vast majority of industry considered the participation costs to be higher than the benefits they could obtain from being EMAS registered². However, participation costs and benefits are not exogenously

given to the regulator. Instead, he sets the requirements and the advantages attached to EMAS participation, which directly determine participation costs and benefits for companies. From a public policy perspective, the question is thus whether the regulator sets EMAS requirements and premiums appropriately, i.e. in order to achieve a satisfactory level of participation. In order to shed some light on this issue, this paper presents a comparative study of France, Germany, the Netherlands and the United Kingdom in which the number of participants and the reasons explaining the particular participation rates are analysed. As we shall see below, these countries are in fact very different in terms of both participation patterns and the policy choices taken.

The focus on policy variables introduces a new perspective into the literature about certified environmental management systems. So far, research on EMAS and environmental management systems in general has been largely tackled from a management point of view (see for instance Sheldon and Yoxon, 1999; Starkey, 1999). Gabel and Sinclair-Desgagné (1998) explain the function of an environmental management system from an economic perspective, emphasizing its role in the reduction of transaction costs within a company. Karl and Orwat (1999) interpret the environmental statement from an economic angle as a means to mitigate market failure by reducing asymmetric information between companies and their customers as well as suppliers. Although some literature deals with the implementation of EMAS in Europe (Gouldson and Murphy, 1998; Hillary, 1998; Wätzold and Bültmann, 2001a), none of this research has systematically analysed the role of the public regulator in explaining participation in environmental management systems.

The question of the paper does not presuppose that promoting EMAS participation is a good thing. In fact we do not have a

¹ It does not usually coincide with the regulator who is in charge of traditional regulation (permitting and so forth). One exception is France, where EMAS is run by the Ministry for the Environment.

² In the rest of the paper, we use the term registration for both EMAS and ISO 14001 to simplify since it designates basically the same thing in the two systems. However, each system has

developed a specific terminology and the term for registering under ISO 14001 is 'certification'.



clear answer to this. Our paper is not a general evaluation of EMAS and thus does not address this issue. Instead, we arbitrarily take the policy objective of maximizing EMAS participation as given and concentrate our analysis on finding more adequate ways of reaching the target. Also, the focus in the paper on participation in EMAS does not mean that we consider that the regulator should prefer EMAS to ISO 14001. Answering this question would require a comprehensive cost-benefit analysis of the various effects of companies' participation in each scheme, and this goes beyond the scope of this paper. It is worth mentioning that the available empirical evaluation studies that investigate the effects of the two environmental management standards do not bring definite results in this regard. They either concentrate on EMAS (Hillary, 1998; UBA, 1998a, 1998b) or ISO 14001 (Sheldon, 1997; Dyllick and Hamschmidt, 2000), or they do not distinguish between the two standards (Unternehmerinstitut, 1997) or focus on single effects (Alpers, 1997; Selent, 1997; Krut and Gleckman, 1998).

The paper is organized as follows. The second section presents the participation rates in the four countries in both EMAS and ISO 14001. The third section introduces the analytical framework, which will be subsequently used to analyse these figures. The three following sections discuss the three tools that have been used by the regulator to influence participation in environmental management standards: the development of compatibility rules between the two competing standards, EMAS and ISO 14001, public subsidies available for participation and regulatory relief options for participating companies, respectively. The last section concludes with comments on the future of EMAS.

PRESENTATION OF THE PROBLEM

The principle of both EMAS and ISO 14001 is simple. Both are environmental management system standards, which define certain

requirements that the particular environmental management system of a company should meet. Requirements include obligations to review the company's environmental impacts, to design a company-specific programme for improving current environmental performance etc. These are all procedural requirements as opposed to substantial commitments setting specified levels of environmental performance. Of course, it is expected that meeting the procedural requirements will ultimately bring about environmental improvements. Once a company meets these requirements, it can apply to external bodies (different for EMAS and ISO 14001) for certification (ISO 14001) or registration (EMAS). Certification and registration basically mean being officially recognized as fulfilling the standard requirements. Once certified or registered, the company can exploit this recognition for external or internal communication purposes. One difference between EMAS and ISO 14001 is that, in addition to an environmental management system, EMAS requires a validated statement of environmental performances.

A key feature of both systems is that they are voluntary, i.e. individual companies are totally free to participate or not. This creates a new challenge for the regulator in comparison with conventional policy approaches for encouraging industrial participation, since a voluntary programme can only benefit the environment if at least a number of companies participate. Table 1 provides participation figures in the EU countries. It is immediately clear that the level of participation in EMAS is very low except in Austria and Germany, and to a lesser extent in certain Nordic countries (Sweden, Denmark and Norway). A second statement is the fact that participation in ISO 14001 is higher than in EMAS everywhere except Germany and Austria. This is further reinforced by the fact that EMAS is site specific while ISO 14001 can certify (multi-site) companies.

Table 2 presents more precise statistics on the four countries, which constitutes the core empirical basis for this paper. In order to



Table 1. EMAS and ISO 14001 participation numbers of EU member states in April 2000

	France	Germany	The Netherlands	United Kingdom	Austria	Sweden	Denmark	Norway	Spain	Finland	Italy	Belgium	Ireland	Portugal	Luxemburg	Greece	All EU member states
EMAS	36	2432	26	73	262	180	125	63	52	30	26	9	7	2	1	1	3325
ISO 14001	550	1950	606	1014	223	1038	350	129	430	347	246	130	96	15	6	10	7140

Source: www.iwoe.unisg.ch/forschung/14001/weltweit.htm [16 June 2000].

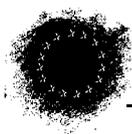


Table 2. EMAS and ISO 14001 participation rates in April 2000

	France	Germany	The Netherlands	United Kingdom	All EU member states
Number of registered sites or organizations					
EMAS	36	2432	26	73	3325
ISO 14001	550	1950	606	1014	7140
Ratio of participating companies and potential participants*					
(1) EMAS	0.15	6.5	0.4	0.25	–
(2) ISO 14001	2.2	5.2	9.5	3.4	–
Ratio of ISO 14001 and EMAS participation rates					
(2)/(1) = ISO/EMAS	14.9	0.8	23.1	13.7	–

* As a proxy we take companies in manufacturing industry with more than 20 employees as a base for potential participants. This is only a rough measure as EMAS has so far been applied to sites (and not to complete firms) and as ISO is not restricted to industry. Source: Wätzold *et al.*, 2001 (based on Eurostat – New Cronos Datenbank 12/98 and www.iwoe.unisg.ch/forschung/14001/weltweit.htm [16 June 2000]); own calculations.

account for the different sizes of the countries' economies, the participation figures are divided by the number of potential participants. As regards EMAS, there is a striking difference between Germany and the other countries. While France, the Netherlands and the UK have participation rates below 0.5%, 6.5% of German companies are EMAS registered. By contrast, participation rates in ISO 14001 are more comparable, ranging from 2.2% in France to 9.5% in the Netherlands. In fact the differences between the countries can be summarized as follows. Germany is characterized by a high EMAS participation rate and is the only country with more EMAS than ISO 14001 participants (ISO/EMAS ratio below one)³. France, the UK and the Netherlands are characterized by an insignificant EMAS participation rate, while boasting higher participation in ISO 14001 (ISO/EMAS ratio above one). There are however differences within this group. In terms of the diffusion of the ISO 14001 standard, the Netherlands is far more advanced than France, with the UK holding an intermediate position. How can these differences be explained?

³ However, ISO 14001 has caught up quickly over recent months.

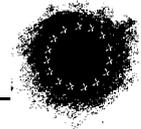
THE NET PARTICIPATION BENEFIT FUNCTION

Our analysis is based on the key assumption that companies are rational and self interested⁴. Given that participation in environmental management systems is voluntary, companies only decide to participate if the benefits related to such a system exceed the participation costs. In order to explain participation rates we thus need to evaluate the potential net benefit for the EMAS or ISO 14001 participant. At the level of a company, a net participation benefit function NBEN can be expressed as follows:

$$\text{NBEN} = (B_{\text{EMS}} - C_{\text{EMS}}) + (B_{\text{IMAGE}} - C_{\text{IMAGE}}) + \text{SUBS} + \text{REG}$$

B_{EMS} are the direct benefits for the company brought about by introducing an environmental management system such as the detection of cost-saving opportunities by reducing water or energy consumption. C_{EMS} are the costs the company bears for installing and running the

⁴ This assumption does not mean that we believe companies are fully rational in reality in these matters. This assumption is mainly made here for keeping the analysis workable.



environmental management system. As certified environmental management systems are also tools for external communication, the net benefit function includes B_{IMAGE} , which is the benefit associated with image gains. We interpret image gains in a broad sense including aspects such as positive reactions among the general public and preferential treatment by clients. C_{IMAGE} are the costs incurred in the external communication measures, i.e. in the case of ISO 14001 the certification and in the case of EMAS the registration and publication of a validated environmental statement.

The two last variables, REG and SUBS, are the ones that are most directly under national regulators' control. REG are benefits attached to regulatory relief, which may be offered by the regulator to the company. Regulatory relief consists in relaxing certain regulatory requirements (generally monitoring or reporting provisions) for firms being EMAS and/or ISO registered. The general line of reasoning why companies with an environmental management system should be granted less frequent inspections is that they are better informed about environmental legislation, better organized to appropriately deal with it and better motivated to do so than other companies (Dasgupta *et al.*, 2000). The rationale for less reporting is that implementing environmental management systems *de facto* requires the registered company to monitor their environmental impacts and – in the case of EMAS – to process and disseminate the information. Relaxing reporting provisions thus avoids duplication of efforts. At the same time it reduces the regulatory burden incurred by the company and thus positively affects its net participation benefit function. SUBS are public subsidies participating companies might receive.

A preliminary and rough comparison of the net participation benefits brought about by EMAS or ISO 14001 participation indicates that EMAS is structurally disadvantaged. If we firstly consider benefits and costs related to the environmental management system, B_{EMS} and C_{EMS} , the differences between EMAS and

ISO 14001 are likely to be small. While some companies appreciate that ISO 14001 is closer to ISO 9000, a system with which they are familiar (Wätzold and Bültmann, 2001a), most procedures are very similar. Turning now to image considerations, C_{IMAGE} is clearly higher for EMAS companies because it is the only standard to prescribe the publication of an environmental statement. As far as B_{IMAGE} is concerned, the two schemes provide different kinds of benefit. While EMAS participants can gain image effects from the certificate and the environmental report, ISO 14001 participants only have the certificate. However, whether this theoretical advantage of EMAS over ISO 14001 actually has any effect is questionable. According to a company survey analysed by Wätzold and Bültmann (2001a), most German and Dutch companies consider the advantage of the environmental statement as merely limited; some are even disappointed by the communication effects. French and UK companies often completely reject the idea of giving the public detailed information about their environmental record. On the other hand, ISO 14001 has the clear advantage of being internationally recognized and thus allows for international recognition useful on world markets whereas EMAS is only a European standard. All in all, ISO 14001 is very likely to provide higher net image benefits than EMAS.

Leaving aside the policy variables SUBS and REG that will be studied in the rest of the paper, this preliminary discussion suggests that opting for ISO 14001 has a clear advantage over EMAS. Has the regulators' action been capable of reversing the balance of these costs and benefits? The statistics suggest that this has only been the case in Germany, but in all the countries the national regulator has attempted to influence the net participation benefit function in environmental management standards through three main channels.

- (i) *Designing compatibility rules between the competing standards, that is, establishing*



and facilitating the conditions a company already registered with one standard has to fulfil to obtain its registration with the other standard. These rules have been of particular importance with respect to enhancing the compatibility between EMAS's and ISO's environmental management system and thus directly affect their implementation costs (C_{EMS}).

- (ii) *Setting up public subsidy schemes for participation*, thus adding a benefit (SUBS) for participating companies.
- (iii) *Granting regulatory relief for participating firms*, another additional benefit (REG).

The next three sections describe how the four countries have exploited these three routes. As will emerge below, very different national strategies largely explain the differences observed in terms of participation rates. It should be pointed out that non-policy variables might also have influenced the participation benefit function. For instance, the corporate culture was suggested as another explanatory variable. The implementation of environmental management systems may have been viewed by German companies as mitigating some of the disadvantages of the engineer-based German culture (Bültmann and Wätzold, 2000). This may have contributed to the high industrial participation in this country. Other variables could be the degree of internationalization of industry (with a high degree encouraging participation in ISO 14001) and the share of SMEs throughout industry as a whole (given that, all other things being equal, participation is more costly for an SME because the cost of registration is partly a fixed cost). These variables are not analysed in the rest of the paper in view of our priority of deriving policy implications.

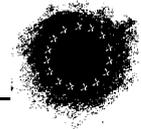
SHAPING COMPATIBILITY BETWEEN THE COMPETING STANDARDS

The EMAS Regulation was expected to be fully in force in the member states by April

1995, i.e. about one and a half years before the ISO 14001 standard's final agreement in September 1996. Nevertheless, it soon emerged that ISO 14001 had become more widespread than EMAS in many countries. In response, the regulators at both national and European levels in charge of applying EMAS endeavoured to boost compatibility between the two standards. Following similar decisions by several member states, the European Commission decided on 16 April 1997⁵ to recognize the ISO 14001 standard as fulfilling the environmental management system provisions of EMAS. This recognition includes a clear statement of the requirements ISO 14001-certified companies have to fulfil to become EMAS registered, including registration, the publication of a validated environmental statement, compliance with other environmental regulations and the specific environmental aspects to be addressed in the environmental review and audits.

This recognition has considerably lowered the costs of EMAS registration for companies already registered under ISO 14001 and vice versa. Whether this compatibility has proved to be an advantage for EMAS or for ISO 14001 depends on which standard most companies initially preferred. In this regard, the case of Germany is specific. Right from the start more companies were already EMAS registered, and compatibility might have helped ISO 14001 to catch up with EMAS (from April 1999 to April 2000 the number of EMAS-registered companies rose by only 412 or 20.4% whereas the number of ISO 14001 increased by 650 or 50%). In the other countries, most companies have obtained an ISO 14001 certification first. There compatibility has thus promoted EMAS registration. It has also reduced the costs of joint EMAS and ISO 14001 certification. As a result, almost all EMAS-registered companies in these countries are also ISO 14001 certified. This corresponds to a classical case of the economic theory of standard competition (David, 1995). Laggards in the diffusion race, i.e. EMAS in

⁵ Published in the *Official Journal of the European Community* on 22 April 1997.



comparison with ISO 14001 in most countries, generally seek compatibility with the leading standard to avoid being *de facto* pushed off the market.

Compatibility was achieved without significant problems in most countries. France decided to recognize the ISO 14001 standard shortly before the European Commission did so as well, and Germany applied the Commission's decision. In the Netherlands it was decided that the Dutch interpretation of ISO 14001 should follow EMAS. This means that the only additional requirement of EMAS beyond ISO 14001 is the publication of a validated environmental statement. Thus harmonization in the Netherlands made the ISO 14001 standard more demanding than in other countries (Lulofs, 2000).

The only case where harmonization attempts raised a problem was the UK. In 1992, the UK had launched its own domestic environmental management standard (BS 7750), which subsequently served as a basis for defining the ISO 14001 standard. Considering BS 7750 registration as a stepping stone to EMAS, the British government hoped that EMAS could profit from the rapid development of the domestic standard. The UK government quickly applied to the European Commission for BS 7750 to be recognized as equivalent to EMAS. With Germany blocking BS 7750 recognition in 1995, demanding prior agreement on an international standard, the British Standard's recognition was delayed until February 1996, when its days seemed numbered due to the development of ISO 14001 (Eames, 2000).

All in all, compatibility between EMAS and ISO 14001 was achieved rather rapidly. Clear compatibility rules between the standards have not helped EMAS to take the lead in the countries where participation in the EU scheme lagged behind. Nevertheless, we can assume that it prevented EMAS from falling even further behind ISO 14001 in France, the Netherlands and the UK. By contrast, compatibility has promoted the diffusion of the ISO standard in Germany.

SUBSIDY SCHEMES FOR PARTICIPATION

An alternative way of increasing net participation benefit consists in subsidizing participation. Following this way the EMAS Regulation asks EU member states to encourage participation of companies, particularly of small and medium-sized enterprises. Three of the four case study countries actually decided to provide financial assistance.

In Germany, financial support for EMAS participation is mainly granted at the level of the federal states (*Bundesländer*) in the form of general subsidies. It is estimated that at least 30% of all EMAS participants received financial support and that the average subsidy was approximately 38 000 DM (Bültmann and Wätzold, 2000; Wätzold and Bültmann, 2001b). General subsidies were exclusively granted to SMEs. While EMAS participation was supported in all German states, subsidies for ISO 14001 participants were only available in a few states and generally lower than the support for EMAS.

In France, the central government grants no subsidies. Instead, there have been various promotional schemes at a local level, which have been supported by various actors, again with an emphasis on SMEs. However, one key difference compared with Germany is that financial support is usually not specifically directed towards EMAS participation. Other environmental management standards such as ISO 14001 are equally subsidized. The percentage of subsidized companies is said to be very low (Schucht, 2000).

Neither the United Kingdom nor the Netherlands offer national subsidies to EMAS or ISO 14001 participants. While the Dutch policy has not changed in this respect over time, the British Department of the Environment had made an effort to subsidize EMAS participation through the Small Company Environmental and Energy Management Assistance Scheme (SCHEEMAS). Established in November 1995, the scheme's objective was to encourage SMEs'



participation in EMAS. Owing to poor uptake it was abolished in July 1997. By that time the scheme had received only 270 applications and only seven subsidized firms had completed the process of obtaining EMAS registration (Eames, 2000).

The variety of approaches ranges from no subsidies for environmental management systems to funding focused on EMAS and subsidy schemes orientated towards all kinds of environmental management standards. There is one feature all the countries' subsidy schemes have in common: following the European Commission's recommendation, they primarily focus on SMEs. Germany is the only country distinguishing between EMAS and ISO 14001 participation. The fact that subsidies for EMAS participants are more frequently available and generally higher may be one of the reasons why EMAS has so far outweighed ISO 14001 participation in Germany.

REGULATORY RELIEF FOR PARTICIPATING COMPANIES

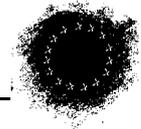
Granting regulatory relief is another way of increasing participation. How did the four countries under review use this option? Once again, national responses prove to be very different.

In the Netherlands, deregulation plays a strong role. Environmental pro-active enterprises are granted preferential treatment with respect to permitting, monitoring and enforcement. With respect to plant permitting, goals are used instead of detailed rules in order to decrease the level of details in permits and to increase the firm's flexibility. Regulatory relief is not granted for participation in certified environmental management systems *per se*, but only if companies have a good environmental record. However, these management systems are considered as tools to implement self-regulation and to produce the documents necessary to convince the authorities of the firm's environmentally pro-active stance. One

key point is that participation in EMAS and ISO 14001 is equally considered.

In Germany, several *Bundesländer* took the initiative to create options for deregulation. The most far-reaching approach was taken in Bavaria, where a voluntary agreement between state government and business representatives was established as early as in 1995. In this agreement industry committed itself to environmental improvements (such as reducing emissions, increasing the share of products transported by rail) and to achieve a certain number of EMAS participants. In return the Bavarian government promised to grant subsidies for environmental technology and EMAS participation as well as a decrease in reporting obligations and controls and faster licensing procedures. By contrast, in the German Bundesland North Rhine-Westfalia EMAS participants were granted much lesser regulatory relief than in Bavaria and the measures were not integrated into a comprehensive voluntary agreement. Comparison of the number of EMAS registered companies in Bavaria (548 companies reflecting 8.17% of potential participants) and NRW (467 companies reflecting 5.00% of potential participants) suggests that the Bavarian approach was more successful. Currently, regulatory relief in Germany is only granted to EMAS participants. However, some states have recently begun to question this position and to consider deregulation also for ISO 14001-certified companies (Wätzold *et al.*, 2001).

In France and the United Kingdom, regulatory relief for EMAS and ISO 14001 firms is basically non-existent. In France, there is a non-binding statement on this issue laid down in a *circulaire* of 28 February 1997. It signals local regulatory authorities the possibility to use their discretionary power, and to take EMAS registration or ISO 14001 certification into account when deciding the frequency of controls and firms' reporting requirements. However, as this discretionary power existed *de facto* before, the *circulaire* has thus not changed the regulatory practices. Regulatory relief options



granted for EMS certification in the UK have so far been limited and are rather similar to France. A possible shift in the Environmental Agency's regulatory approach towards self-monitoring by firms and a reduced emphasis on technology-based regulation was under discussion at the time this article was written (Wätzold *et al.*, 2001).

What can explain these substantial differences in the deregulation approaches taken in the four countries? The answer is complex. For instance, explanations in terms of national 'policy styles' are not helpful. As a matter of fact, the French policy style is known as flexible and informal in comparison with the German policy style. It leaves a lot of discretionary power to street-level enforcers who use it in informal bargaining processes to lead polluters to comply with regulation (Knill, 1998). Hence, in France, one could have expected important regulatory relief since this would well match the general environmental policy practice, whereas the more command and control orientated German regulatory tradition ought to have hindered this evolution, but in fact the opposite has been observed.

To explain such differences in national approaches, it should be borne in mind that granting regulatory relief has possibly two objectives. The first is to provide firms with an incentive to participate in a standard environmental management scheme. Yet it can also be a tool in a wider regulatory reform, allowing the administrative burden of the regulation to be reduced, or the traditional relationship between companies and regulators to be altered. This latter objective has been central in Bavaria and in the Netherlands.

This role of environmental management systems in a more general regulatory reform is crucial for explaining national differences. The argument can be developed through comparison of the Dutch and French cases. The French government's view has always been to consider environmental regulation and EMAS as two distinct policy approaches. EMAS is seen as a purely 'promotional'

scheme to be used by companies in the market place. In this perspective, the role of public bodies in the scheme is mainly restricted to ascertaining information, based on which a company obtains registration. In this context, EMAS is in no way an element in the regulatory reform. By contrast, in the Netherlands environmental management standards and regulation have been considered in an integrated way right from the beginning. Explicitly stated in a memorandum negotiated with industry in 1989, certified environmental management systems are along with so-called covenants a key tool for shifting towards more integrated and simple operating permits. In this perspective, regulatory relief corresponds to the use of EMAS and ISO 14001 in a policy mix aiming at a broader regulatory reform.

Here lies the reason why explanations in terms of national policy style do not apply in this particular case. By definition, regulatory reform consists in changing the pre-existing policy style. Consequently, what determines the way EMAS and ISO 14001 are used is not the pre-existing regulatory style, but whether the regulator considers that this style needs to be changed. In the Netherlands, there was a consensus on the necessity of regulatory reform, i.e. the necessity to change the policy style. In France, such diagnosis has not (yet?) been established and there is no explicit linkage between environmental management system certification and regulation.

GENERAL DISCUSSION

Table 3 summarizes the political variables affecting the net participation benefit in the four countries. They appear very much in line with the participation rates of Table 1. German policy has been marked by a strong policy selectively promoting participation in EMAS. The fact that Germany is the only country where EMAS participation is higher than ISO 14001 participation is fully consistent with this. In the other countries, the measures supporting



Table 3. Political variables influencing participation in environmental management standard programmes in four countries

	France	Germany	Netherlands	UK
Availability of subsidies	Low	High	No	Temporary from 1995 to 1997
EMAS restricted?	No	No, but EMAS focused	No	Yes
Compatibility rules	Yes	Yes, albeit following an EU resolution	Yes	Yes, but with some delays
Regulatory relief	Possible in principle, not in practice	Yes, in many <i>Länder</i>	Yes, highly developed	Little
EMAS restricted?	No	Yes	No	No

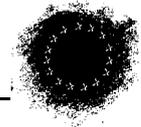
participation were not EMAS specific with one exception: the British subsidy scheme, which was terminated owing to the lack of response. The relative success of ISO 14001 over EMAS in these countries is therefore not surprising.

It is also noticeable that the Netherlands, where significant deregulation options for companies participating in certified environmental management programmes are available, boasts higher participation rates in ISO 14001 than the United Kingdom and France. The fact that public subsidies were hardly available in this country also suggests that they are less efficient in sustaining participation than regulatory relief. Finally, the option of increasing compatibility between the competing standards was exploited early on and to a large extent in all four countries. It has helped to stop EMAS from falling further behind ISO 14001 certification in the countries where EMAS registration was already lagging. Moreover, the delays faced by the United Kingdom as regards compatibility between its domestic standard BS 7750 and EMAS probably made this country lose the first mover advantage the early establishment of a domestic standard might have presented.

What policy lessons can be drawn about the future of these environmental management standards in Europe? If policy-makers want to increase participation in EMAS, there is only one route that is still open: granting regulatory

relief. As a matter of fact, the potential of compatibility rules has already been exploited and subsidies did not appear in the past as a very effective solution. Moreover, subsidy schemes appear less legitimate given the scarcity of public funds. The current key issue for 'saving' EMAS is thus regulatory relief and deregulation. By encouraging member states to consider regulatory relief for participants, the revision of EMAS, EMAS II, is therefore going in the right direction. Nevertheless, national regulatory styles are very diverse and the precise contents of deregulation can thus only be tackled at the national level. A related point concerns the implementation of the IPPC Directive. This is likely to be one regulatory driver in favour of EMAS in some countries (e.g. the United Kingdom) but not in others such as France, where the Directive's impact on the administrative structure is marginal.

Furthermore, when considering past national experience, the role of EMAS *vis-à-vis* ISO 14001 is an unresolved issue. Apart maybe from Germany, EMAS and ISO 14001 will most probably continue to be treated equally by the national regulators. EMAS's net participation benefits will then remain lower than those of ISO 14001 without the possibility of catching up. As a result, EMAS participation will remain much lower than participation in ISO 14001. Is this a scenario we should be concerned about? As we do not know what environmental



improvements EMAS and ISO 14001 bring about at the company level, we are not able to give a definite answer to this question.

A final point refers to the preferences of the national regulator *vis-à-vis* the different environmental management systems. Our analysis was focused on firms' preferences, but why has the German regulator expressed such preferences for EMAS whereas others have not? This is again a subject for a future paper.

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