

**Cross scale issues in European Environmental
policies towards industry**

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Cross scale issues in European Environmental Policies towards Industry.

The European Directives 89/369/EEC, 89/429/EEC and 88/609/EEC and Council Regulation 1836/93 reviewed.

K.R.D. Lulofs et al.¹⁾

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1. Introduction

This paper describes European initiatives to reach for a more sustainable industry in European member states. Broadly two issues are addressed. *The first one being the issue how the dynamics of those initiatives in the European context can be understood. The second one addresses the question whether recent EU policy and the presented empirical data can be linked to the theory of ecological modernization.*

This theory has emerged in reaction to developments in some European countries. Basically it proclaims that an ecological sphere of 'comparable' influence has emerged next to the political and the economic spheres, especially in northwest European countries. It is elaborated whether a claim for a new environmental sphere in European Unions decision-making can be supported or has to be rejected.

The story line in this paper is that section 2 globally describes the theory of ecological modernization and how elements of it can be found in the most recent European fifth Environmental Action Program. In section 3 some attention is given to the institutions of the European Union and the institutional decision-making rules. In this paper empirical data are presented on four European member states. Some benchmarks that indicate environmental pressure are given in section 4. These benchmarks will not be able to explain totally the empirical findings, however can make understandable that the four countries are in different stages of awakening towards the sustainability issue.

In section 5 the key empirical findings on policy dynamics in the four countries are presented. This is done in a perspective that links them to European environmental policy processes. In section 6 some preliminary concluding remarks

will be presented.

Outlook on the empirical findings

EU environmental policies towards industry arrive in a dynamic, multi level situation in which the policy is only one factor in between other forces. To assume beforehand that a top-down or a bottom-up or a technocratic conceptual framework would be adequate to understand both EU-policymaking and EU-policy implementation would fail to understand the appearing dynamics. Contrary to prevailing ideas, also the implementation proves to be a highly interactive process that is strongly interrelated to the dynamics in contextual drivers and contextual policies in individual member states. The emerging events described by the theory of ecological modernization can be found to some extent, however events can perfectly be explained by more traditional theories on the interaction between the 'political spheres' and the 'economic spheres'.

2. A new environmental sphere?

Serious environmental policy started in most OECD countries in the early seventies (Jänicke and Weidner 1996: 316). Traditionally environmental policy was largely based on command-and-control strategies with different laws for different environmental sectors. Recent approaches in some countries in northwestern European countries leave much more discretionary space to the companies (Andersen and Liefferink 1997, Glasbergen 1998). This change was based on the assumption that the transition to sustainability requires co-operation between various stakeholders who negotiate over a shared vision of the future and co-ordinate their resources to reach common goals (Hartman et al, 1999). The development from command-and-control to shared responsibility is adopted within the strategic lines of environmental policy making within the European Union. Since the publication of the first Environmental Action Program-document, one can speak of an environmental policy of the EU. The first two decades merely produced the well-known story of technical standards (Lévêque 1996: 12). Within the fifth Environmental Action Program (5EAP) the focus also included some preference for cooperation and shared

responsibility across social scales. Instead of a focus on problems 5EAP (CEC 1993) focuses on sectors and activities with an emphasis on changing current patterns of development by cooperation based on shared responsibility. The involvement of partners such as national governments, business and consumers is seen as crucial. In this respect '5EAP' speaks of *shared responsibilities* between governments, business and the general public. Out of the understanding that the ultimate goal of sustainable development can only be achieved by concerted action on the part of the relevant actors working together in partnership, 5EAP aims at a mixing of actors and instruments at the appropriate levels (CEC 1993: 113). The action program seeks to integrate environmental considerations into other policy areas and to develop partnerships with shared responsibilities. So next to more traditional instruments 5EAP aims at building institutional capacity among industry and public groups.

The European technocrats were not the only group that absorbed the new ideas on environmental policy introduced by the northwestern European countries. Scientists deducted from the events in the individual countries some new theoretical frameworks. A central assumption is that when such arrangements work, a new ecological sphere must have emerged in national arenas that were traditionally dominated by political and economic spheres. The new theoretical frameworks are usually referred to as the 'theory of ecological modernization'. The general idea is that in the end of the 80s and in the 90s during the latest wave of environmental concern, the growing importance of environmental interests and environmental ideology institutionalized the environment in social practices and institutions. Mol describes the core of ecological modernization theory as follows: "At an abstract level, ecological modernization theory analyses the consequences of the growing maturation of environmental discourses, interests and reforms for the core concepts of dominant social theories, pointing an the need to take also account of the environmental conceptually and theoretically. At a less abstract level, and more relevant for actual environmental policy, ecological modernization theory analyses the changes in modern society's institutions and practices that are relevant in safeguarding the sustenance base..."(Mol 1999: 170). Five changes across social scales are enumerated by Mol: First State intervention strategies move away from hierarchical command and control and increasingly entail more decentralized, consensual negotiations, partial self-regulation (often within strict legal boundaries) and the use of market

mechanisms and instruments. Secondly, changing state-market relations result in an activation of economic agents and mechanisms in environmental reform. Producers, consumers/customers, suppliers, insurance companies, certification organizations, auditor and accountancy firms and other private actors appear on the state of environmental reform. Third the ideologies, strategies and positions of mainstream environmental non-governmental organizations (NGOs) have changed dramatically, resulting in a development towards one-issue movement. Fourthly a shift is interpreted in the environmentally relevant technological paradigms and trajectories in production, products and large technical systems, paralleled by shifting ideologies in the environmental arena with respect to the role technological innovations can play in environmental reform. Fifthly, continuing transnationalization or globalization changes the social dynamics behind environmental deterioration and environmental reform, the nation state no longer being the only level of analysis environment-informed transformations (Mol 1999: 170--171).

3. European decision making rules

Liefferink and Anderson (1997) concluded that power resources in the EU are spread over many actors. The *European Commission*, commissioners that broadly can be compared with a council of ministers covering several fields, has the formal right of initiative and some influence over the agenda, for instance illustrated by the EAPs. However, without the support of -most of- the Member States gathered in the *Council*, Europeans' most influential decision-making body, the European Commission is powerless. Since the Maastricht Treaty of 1993, voting in the Council is either by unanimity or by qualified majority voting. Unless an ambitious coalition is large, the only power base is by blocking decision-making. This might at the end even work in the advantage of those countries that don't want no legislation at all. The position of *European Parliament* has been discussed over and over again. Since the Maastricht Treaty, a co-decision procedure applies to the important category on internal market harmonizing measures decisions, including a number of decisions related to the environment. These powers only pertain to draft legislation. The European Parliament has the right to reject the outcome of the negotiations in the so-called

Conciliation Committee. This Committee consists of representatives of the Parliament and of the Council and is a forum to negotiate in case of conflicts between these two institutions. The European Parliament has the right to reject the outcome of these negotiations by majority voting. The European Commission and the European Council can easily neglect the other instruments of the European Parliament. However the European Parliament has a considerable progressive image in the environmental field (1997: 20-23). The conclusion can only be that the center of gravity lays at the European Council, the European Commission has the initiative right, well known to be dominated by issues handed by high civil servants staff, the European Parliament is struggling in order to realize marginal influence.

Does 5EAP supports the claim of Ecological modernization?

On paper there are elements of the theory of ecological modernization in 5EAP. The shift from more hierarchical style towards a more consensual style is for instance present. The aim to raise capacity and support for ecological change among companies and public groups is an another phenomenon that is present in 5EAP. However the traditional gap between strategic documents and real political life has to be faced in order to put such a claim in perspective immediately. The 5EAP is a document that is only weakly related to the actual environmental politics, policies and regulations. The content of the plan is strongly allied with the Dutch implementation strategy for environmental policy towards industry, however without noticing that the assumed willingness to collaborate is not a natural given situation. National pressure on Dutch industrial associations and industry to enter into agreements is large. The process can be best understood of leading to a 'negotiated agreement' instead of 'voluntary agreements', the gains for the sector of industry is to fence of the threat of regulation and to be secured of the enforcement of free-riding companies (Lévêque 1996, Börkey and Lévêque 1998). Another gain for industry is the decentralized decision-making that make more cost-efficient solutions possible. However within the European Union only in the Netherlands the number of legally binding agreements were found to be large, 90% (Öko-institut, 1998). The willingness to act in favor of the environment is to a large extent enforced by the Dutch government and thus by the political sphere. Having explained the institution decision-making rules within the European Union previously, the a priori suspicion has to be that European environmental policy towards industry cannot be characterized by a command and

control policy style but has to be a consensual style. Enough questions to justify an in depth assessment of some case of European environmental policymaking towards industry. What are the forces in use? Did industry show ecological engagement? What was the role of public groups?

4. A sample of European Member States introduced

In section 5 we will elaborate some concrete environmental measures to see what actually happens in decision-making situations that brings along substantial consequences for sectors of industry. Empirical data were collected for France, Germany, the Netherlands and the United Kingdom. In general Germany and the Netherlands are thought of as relatively pro-active, environmental friendly countries whereas France and the United Kingdom are thought of as somewhat lax and less strict in their environmental policies towards industry. These general landscapes are supported by discourse-analytical studies. Weale concluded that Germany and the Netherlands have an ideological and institutional setting that favors the idea of sustainable development and the necessary policy-action connected to that. Other countries like the United Kingdom and especially France were believed to stick to their traditional environmental discourse of the 70s and 80s using avoidance strategies choosing minimal repair strategies and facing continuing clashes between economic and environmental interests (Weale 1992, Mol 1999). Where in France the monitoring and enforcement is well known to be especially lax (Schucht 2000). Hajer concluded in his comparative discourse analysis that the ecological modernization gained an increasingly dominant role in individual OECD countries among which Germany, the Netherlands and the United Kingdom were mentioned. Another conclusion was that the major transformation in environmental discourse was not followed by equal radical institutional changes due to power struggles in arenas (1995). These kinds of discourse analysis do however not explain why the discourse on one country is different from another country. All four countries more or less belong to the northwestern European countries. A very basic notion is that the national triangle industry-associations of industry-governments face issues of different nature in several arenas. A plausible hypothesis is that the priority given to handling

environmental issues will be related to the subjective environmental pressure. This concept reflects two dimensions. Firstly it reflects the attitudes towards environmental issues in the political sphere, determined by factors as (1) the information on environmental problems, (2) the political power distribution among political parties with different political paradigms, (3) the level of environmental awareness of the electorate, (4) the presence and level of activity of environmental groups and organizations and (5) the presence of contextual issues and contextual policies. Secondly it reflects the attitudes towards environmental issues in the economic sphere, determined by (1) the abatement costs, (2) the allocation of abatement costs over individual sources, (3) the cost efficiency (4) the characteristics of markets towards the variable whether environmental costs can be passed on, (5) the relative importance to react to 'green' consumers profile and (6) the incentives from 'green' supply chain management in the national and international context. We will take this framework into the empirical analysis. The entrance in the relevant national policy arenas will, of course, therefor not be limited to the facts only, nevertheless some benchmarks on objective environmental pressure are presented in table 1.

	FR	GE	NL	UK	Can	USA	JPN
Total area (x 1000 km ²)	552	357	37	245	9976	9373	378
Population density (inh./km ²)	104	224	407	236	3	27	329
Nitrogenous fertilizer use (ton/ km ² arable land)	13	14	42	23	3	4	13
SO ₂ emissions (kg./cap.)	23	56	11	62	122	82	7
NOx emissions (kg./cap.)	27	37	36	48	73	74	12
CO ₂ emissions (kg./cap.)	7	11	11	10	16	19	9
Municipal waste (kg./cap.)	358	351	504	348	601	710	408

Table 1: Some environmental relevant benchmarks for four EU countries, Canada, the USA and Japan

5. European environmental policies analyzed

The empirical analysis in this paper is based on data retrieved from the European IMPOL-project¹. *Objects of study* were cases of European environmental regulatory processes towards industry. Three cases will be discussed: (1) the case concerning European regulation on air emissions from domestic waste incineration plants (2) the case concerning European regulation on the air emissions from large combustion plants, and (3) the case concerning European regulation on the Environmental Management and Audit Scheme. Within the IMPOL project evaluation approaches of political scientists and economic scientists were integrated. The interrelations between bargaining and implementation characteristics, goal attainment, efficiency and administrative costs were studied. This led to a research design focussed on structured in-depth analysis of the mentioned three cases in four countries. The nature of the research design enabled us to anatomize the different layers of European policymaking.

5.1 European Directives on air emissions from municipal waste incineration plants

Although not the oldest European Directive that we assessed, the Directives regulating air-emissions from existing and new municipal waste incinerators (EEC 89/429 and EEC 89/369) reflect the most old fashioned kind of European Environmental policy. This traditional regulatory approach proclaims emission limits for a number of pollutants. The European Directive 89/369/EEC of June, 8st 1989 and 89/429/EEC of, June 21st 1989 aimed at reducing and monitoring air emissions from domestic waste incinerators. Municipal waste is domestic waste and comparable waste from markets and companies. The European Directive 89/369/EEC sets standards for so-called *new* incinerators, being permitted after December 1st 1990. The Directive 89/429/EEC regulated the *existing* incinerators, being permitted before December 1st 1990. Starting December 1st 1995, the *new* incinerators had to comply with the limits set by the European Union. For the *existing* incinerators 89/429/EEC required compliance to predominantly the same emission standards as applied to new incinerators, *if* the capacity of the plant is more than 6 tons waste an hour. For *existing*

¹ In full: The Implementation of EU Environmental Policies: Efficiency Issues, funded by the European Commission DGXII, Fourth Framework Programme: Environment and Climate / ENV4-CT97-0569, duration: April 1998 - March 2000

incinerators with a capacity of less than 6 tons waste an hour there is a transitional arrangement until December 2000 with an important step taken December 1st, 1995. As from December 2000 those incinerators have to meet the same requirements as new incinerators.

Some studies indicated that the European emission limits on municipal waste incineration plants were set almost effortlessly, no substantial opposition from industry was assessed. This was explained by the fact that the large firms and industrial associations dominantly presented industry in combination with the fact that retrofitting makes the incineration sector more sensitive to economies of scale. The potential losers, the small incineration plants, were not presented well in the regulatory arena (Brusco, Bertossi and Cottica, 1996). However, we came to different conclusions (Bültman and Wätzold 2000, Eames 2000, Lulofs, 1999 and Schucht 2000). The bargaining outcomes can be considered as a melt pot of national interest in both the political spheres and the economic spheres. What were the essential features of the patchwork? It is indeed true that the directives came into force after a relative short period of negotiation. However Germany and the Netherlands bargained for much stricter limits that also included NO_x and especially dioxins. The emissions of dioxins were big issues in the Netherlands and Germany. In the eighties it became known in that up to 70 % of the dioxin emissions were produced by municipal waste incineration. A fact that was not recognized by the UK for years and became only a policy issue in France in 1998 when a new left wing cabinet had taken over the political sphere and some research was done.

In the *Netherlands* there were already incidents with municipal waste incinerators reported in the late 80s when dioxins were found in dairy products from cows grazing near incineration plants. The awareness of the risks of waste incineration became high both in the political sphere as among public. A domestic problem was that the alternative landfill, also gained a bad reputation. Costly large cases of land contamination due to landfills were arguments for Dutch government to aim at structural shift in waste treatment from landfill towards incineration. From the mid-90s there was a ban on landfill if incineration was possible. Public awareness of the dangers of waste incineration was a blocking factor for the necessary increase of incineration capacity in order to implement the Dutch waste policy. It was clear that the expansion of incineration capacity was politically only possible when strict emission limits were issued. In Germany and to a lesser extend the Netherlands and

the United Kingdom, environmental organizations, grass roots groups and individuals actually blocked new incinerators and overhauls of existing waste incinerators by using all the possibilities of the administrative justice system for postponing. This could lead to delays of more than six years. For Germany this also endangered the implementation of the waste policy. In Germany and the Netherlands already substantial prior national regulation was issued in the 80s. The German and Dutch issues were basically *up-scaled* in to the European Union and bargaining started.

A closer look at the bargaining process reveals that France was part of coalition that tried to reduce the ambition of the European Directives by objecting to some proposed limits. Opposition also aimed at the proposed deadlines for bringing the existing plants into compliance, efforts were to differentiate the deadlines depending on the plant capacity. This in order to be able to spread investment costs, often to be incurred by de-central governments, over a longer period of time. All this led to *differentiated emission standards according to the age and capacity* of the plant. The *structure of the national incineration sectors and cost-efficiency of retrofitting* were important explaining factors. There were 400 'existing' incinerators in the IMPOL countries. In Germany, the Netherlands and the United Kingdom the 140 incinerators were almost all large. Out of 260 incinerators in France, 190 were small incinerators. In *France* the incineration sector was *not* a big public issue. Indeed: *Landfill* was believed to be problematic, *waste incineration* was believed to be 'clean'. Totally blocking the European regulation was not attractive for France because of their own national waste policy. The concept 'ultimate waste only' was introduced for landfill, which was interpreted as incineration residuals only, starting from 2002 onwards. The fact that an European regulation on the recycling of packaging waste was prepared was also a factor of some influence. Energy recovery could be an alternative to meet the European packaging demands. In France incineration with energy recovery was assessed equal to recycling. The same holds true for the United Kingdom.

European Directives are binding for Member States. The Member States had to integrate the requirements into national legislation and by that establish legal consequences for the regulated firms. Of course there is always the possibility to avoid the costs by not having waste incineration or at least not have it done in 'plants'. The situation in Germany and the Netherlands was dominated by national and more ambitious policies. The much stricter and more comprehensive national emission

limits were mandatory for all incinerators, regardless of size or age. *Environmental awareness, the public pressure and some contextual policies* were the drivers. The needed packages of technology were therefore more advanced and subsequently more costly. Achieved reduction of regulated substances in the years 1990-1996 were ranging from 80 to 99 %, leading to over-compliance even the stricter and more comprehensive national limits. Incineration capacity was stable or increased. Some incinerators were closed or totally rebuilt, most 'existing' incinerators were retrofitted. Retrofitting was twice as expensive as the European Directives required, it often included SCR/NSCR techniques and techniques for abatement of dioxins. The *monitoring and enforcement system* in Germany is very tight for most plants. It is done telemetric by modern computer systems enabling authorities to check the plants whenever they want. Although a little less high-tech, the Dutch plants have advanced emission registration and the monitoring and enforcement by authorities is tight. Tariffs for incineration were raised by about 50%. Still there was not a lot of pressure from industry to impose the same costs in other EU countries. The way *markets were institutionalized* is an important explaining factor in these events. The plants operated in regional monopolies in Germany and the Netherlands, this made it easy to pass on costs. Furthermore there was no competition with other incinerators or other waste treatment options.

In *France and the United Kingdom* the cheap landfill option was still available. The level of prior regulation in France and the United Kingdom was less demanding for the incinerators. In France serious prior regulation was only valid for new incinerators, although it was a little less strict compared to the European Directives. In the United Kingdom the regulatory situation was even worse. An attempt to issue serious regulation stranded. Strikingly the United Kingdom showed more ambition while integrating the European Demands in national law. The explaining factor was the emerging attention for dioxins as an issue. In the UK an additional limits was issued on dioxins, although ten times more lax than the German and Dutch limits on dioxins. Still, giving up of the possibility for a transitional arrangement until December 2000 proclaimed a short-term kiss of death for almost all incinerators in the United Kingdom. And that was just what happened in the UK. Out of 37 plants only 4 were not closed. The *availability of cheap-landfill capacity*, not hindered by waste policy, influenced local decision-making that faced the constraint of the contextual tight budget policy introduced by the conservative cabinet of Thatcher. The remaining

plants were all large and were all equipped with energy-recovery technology. Explanation for this was an UK contextual policy to promote non-fossil fuels. Energy recovery in municipal waste incineration plants contributes to less dependency on fossil fuels. Therefore UK electricity companies have to pay premium prices for electricity generated in incineration plants, based on long-term contracts. Only the plants with energy recovery technology survived. *France* integrated only the minimal requirements into French national law, distinguished according to the capacity of the incineration plant and the age of the incineration plant. In France only 50% of the incinerators were retrofitted in time. Between 1997 and 2000 the other large incinerators moved into a position of late-compliance. The smaller incinerators are not in a position of compliance. In France the general picture is that large incinerators are complying, the small incinerators are not complying even with the lax limits in the transitional arrangement. Explanation for this is the de-centralized monitoring and enforcement decisions. Basically the *elected* mayor whose position is very interwoven makes it difficult. Closing the incinerator will lead to problems and costs, retrofitting will lead to extreme costs for the local population. It is expected that in the end the small not complying plants will be closed. It has to be noted that France was the only country that introduced substantial subsidies for the retrofitting. Only very recently a new left-wing Minister ordered strict monitoring and enforcement for large incinerators.

So in Germany and the Netherlands, the political sphere, also pressed by public awareness were important, while costly implementing measures were possible due to the absence of competitive markets. In France and the UK the economic sphere was more dominant.

5.2 European Directives on SO₂ and NO_x emissions from municipal waste incineration plants

The European directive regulating emissions of Large Combustion Plants (LCP) is the oldest (EEC 88/609) in this analysis. The SO₂ and NO₂ emissions were linked to acid rain and forest dieback in the 1970s and 1980s, more recently the CO₂ emissions are integrated in the policy, linked to the problem of climate change. Thoughts are also about introducing an *energytax on fossil fuels*, a more *innovative market based instrument*. This proposal was first introduced in 1992, changed in 1995 and so far unsuccessful. By the bargaining story on EEC 88/609 it becomes clear why it is that

difficult, structural differences in national LCP sectors and the differentiated use of fossil fuels as input in LCPs explain it.

The directive 88/609 affects fossil fuel-fired power plants (not gas turbines), petroleum refineries and large industrial activities. The directive contains emission limits (mg/m^3) for new plants and national emission targets through the year 2003 for the existing plants. We concentrate on the *existing* large combustion plants (Bültman and Wätzold 1999, Eames 1999, Lulofs, 1999 and Schucht 1999). The emissions of large combustion plants had to be reduced compared to the 1980 level. It was left to the Member States on how these targets were going to be reached. The emission targets were set on an aggregate level that enabled member states to choose the most suitable policy instruments and in principle, enables cost-efficient allocation of abatement costs.

Unlike the Directives on air emissions from Municipal Waste Incineration (section 5.1), the negotiations on the Large Combustion Plants were very lengthy and sluggish. The story starts in Germany that *up-scaled* their problem, pressed by the German industry. Already in 1978 strict regulation for existing and new combustion plants was proposed in Germany. Acid rain and forest dieback experienced in Central Europe in 1981-1983 accelerated things. In 1982 a German law became valid that implied retrofitting of power-plants by 1988. German industry claimed that *competitiveness* would drop, the power sector feared outside competition. Industry lost the battle due to the large public and political awareness of the acidification and forest die-back issue. Industry however pressed the German Federal government to promote similar rules at the European level. In 1983 the European Commission presented the first draft of the LCP Directive. The goal of German industry was to remove the competitive disadvantage they faced, the German government stressed the environmental issue. However the German governments struggled also with the *contextual national energy and labor policies* that promoted the use of domestic coal in order to preserve the mines and the employment of miners. The *Netherlands* supported the German request and the proposal by the European Union, understandable given the level of acidification, forest die-back and public attention for these problems. The SO₂ and NO_x emissions were already a Dutch policy theme since 1983, in 1987 strict regulation was issued. *France* was not a very active player, France was about to make a *strategic move towards nuclear energy*. The *energy*

policy, aimed at reducing the dependence on fossil fuels. This simplified compliance for France considerable and implied no or small abatement costs. It was the *United Kingdom* that opposed strongly to the proposals of the European Commission. The proposal was basically that the emissions from existing plants should be decreased in 1995 by 60 % compared to 1980 emissions where SO₂ is at stake. The UK electricity sector was at that time confronted with a one year long coal miners strike. In 1985 the electricity sector and the Prime Minister Mrs. Thatcher decided to oppose the European proposals. *Officially* the argument was the lack of scientific evidence of the hazardous character of the UK SO₂ emissions. *Unofficial* it was believed that the European Directive could be perceived as an anti-coal measure. Besides a general dislike of regulation imposed from outside in the United Kingdom. However, at the UK Department of energy it was believed that emissions were going to drop fast anyway because of an increasing share of nuclear power plants (Ikwue and Skea, 1996: 88-89).

Initially the European Commission tried to isolate the UK from other opposing countries by offering the other countries compensation. Next step in the negotiation was to replace uniform reduction targets by non-uniform ones. The UK government announced in 1987 that it intended to *privatize* the electricity sector, breaking the *monopoly power* of the electricity sector. Without clear and certain financial prospects the electricity sector was not sellable. This made it necessary to conclude negotiations on the European Directives (Ikwue and Skea, 1996: 88-89).

The outcomes were non-uniform emission reductions for SO₂ emissions, Germany, France and the Netherlands decreasing 50% in 1996 compared to 1980, the UK decreasing 30%. The actual achieved reduction was 80% in France, 78% in the Netherlands, 70 % in Germany and 62 % in the United Kingdom.

Germany kept on to its coal priority and did a major, costly, retrofitting program. The Netherlands also implemented a rigorous retrofitting program. In both countries the programs were driven by prior domestic policy initiatives underpinned by the high public and political profile of acidification and environmental issues in general. So the European Directives did not introduce additional efforts. An important factor in this was the fact that until recently, the *highly coordinated oligopolic market structures* of the electricity sectors in both Germany and the Netherlands allowed producers to pass on their abatement costs, with little or no incentive to cut their operating costs by

minimizing their over-compliance. In the Netherlands cross-company subsidies played a role. In the French case, the *reduction of classic thermal electricity* production and related emissions since the 80s that resulted from the expansion of nuclear power was sufficient to comply to the European requirements. In the UK, while *privatization* the electricity generating sector, it became clear that it was not possible to sell the nuclear plants because of the liability problem. Plans to build more coal-capacity were withdrawn, there was a 'dash for gas'. Some of the coal-fired plants that are retrofitted are shut down from time to time in because they became uneconomic in the *liberalized* UK electricity market (Ikwue and Skea, 1996: 93).

5.3 Eco Management and Audit Scheme

The Council Regulation (EEC 1836/93) on the Community eco-management and audit scheme (EMAS) is one of the *market-based instruments* that have been introduced by the European Commission in the context of its 5th Action Programme. Being a voluntary scheme the success of EMAS depends primarily on the decisions of companies to join it.

The EMAS-regulation is an environmental management standard for companies operating one or several industrial sites. EMAS encompasses requirements for a certification system with independent environmental verifiers and registration bodies. Participation in EMAS is voluntary for companies, the national implementation of institutional structures is not voluntary for the governments. The most important demands of EMAS: (1) a compulsory (so not like in ISO 14001 advised) and comprehensive environmental review/assessment; (2) the compulsory preparation of an environmental statement that includes the environmental assessment, a summary of the figures on emissions, waste generation, consumption of raw materials, energy, water, noise and other significant environmental aspects, the companies environmental policy, environmental program and management system implemented; (3) the verification of environmental policy, program, management system, audit-procedure and environmental statement; (4) forward the validated environmental statement to the competent body and registration of the validated site.

The first idea of a European Eco-Management and Audit Scheme emerged in the European Commission in 1990. This measure can be perceived as a serious go on the

core-belief of the 5EAP. It led to the publication of a consultation document in December 1990 which demanded a *mandatory* participation of companies in the Scheme. We concluded that industry responded strongly and homogeneously (Bültman and Wätzold 1999, Eames 2000, Lulofs, 2000 and Schucht 2000). It targeted its main *criticism* at the *mandatory approach* as it felt that it was an undue interference on the part of the government to prescribe which management tool a company should use. The strong resistance of industry led the Commission to accept a voluntary approach and it published a new proposal in March, 1992. The Dutch and France industry did at least no longer oppose EMAS. The industries of Germany and the United Kingdom kept on lobbying. They defended however completely different interests. The *United Kingdom* industry supported EMAS most active. They hoped to gain a competitive advantage. The industry in the United Kingdom worked already with the BS7750, a kind of predecessor of ISO 14001. The UK's conservative government was keen to promote voluntary environmental action by industry as part of its wider *deregulatory and market driven philosophy*.

Very surprisingly *Germany* was the most obstructive country where EMAS was at stake. Opposition was also raised by German industry towards the fact that EMAS required compliance to national environmental regulation. German industry believed that the German standards were the most ambitious. So the perception was that higher costs would be allocated to German industry compared with industry in other parts of the European Union. There was also a strong cultural issue at stake. German industry was 'engineer-driven'. Implementing management tools to improve environmental performance was an alien culture to the technology oriented German industry. At the Environmental Council Meeting in March 1993 it was already known that the final ratification of the 'Maastricht Treaty' would enable EMAS to be ratified by majority voting. Therefore Germany gave in because all other members were in favor of EMAS.

Where implementation is at stake the *French industry* had pointed out clearly that it would only get involved in EMAS at large scale if its efforts were rewarded with respect to regulatory relief. *Deregulation* was also an issue in other countries with respect to the adoption of EMAS. Deregulation proved to be a difficult and slow issue. However the expected deregulation was an important factor that convinced a lot of companies in Germany, together with extensive promotional schemes including

subsidies for companies adopting EMAS. Resulting participation figures differ greatly in the EU-Member States. In Germany 2.238 companies have been registered with EMAS in September 1999, the figures for the UK (71), France (34) and the Netherlands (23) are much lower, also relatively as is expressed by table 2. An important factor in Germany was the traditional engineering oriented culture in general and towards environmental issue especially, German governments perceived the promotion of EMAS as an instrument to change this culture and invested large efforts. Contrary, environmental management systems were already well known in the Netherlands and to some extent in the United Kingdom. BS 7750 and its successor ISO 14001 already took a leading position. In the Netherlands and the United Kingdom almost all companies that are EMAS registered were already BS 7750 or ISO 14001 registered or at least adopted an environmental management system. The fact that German companies had neglected the importance of environmental management systems now led them to profit most from EMAS. Still it was up to the individual company to decide whether the gains were large enough to invest the costs.

	No of companies with more than 20 employees in the manufacturing sector (1995)	No of industrial sites registered with EMAS	% of companies that participated in EMAS	No of organisations certified with ISO 14001	% of organisations certified with ISO 14001
France	24.671	32	0.13 %	365	1.48 %
Germany	37.413	2,238	5.98 %	1,450	3.87 %
Netherlands	6.404	23	0.36 %	475	7.42 %
UK	29.608	71	0.24 %	1,009	3.41 %
All 15 EU Member States	-	3,016	-	5,521	-

Table 2: EMAS and ISO 14001 registered sites in September 1999

Source: Eurostat – New Cronos Datenbank 12/98 and

www.iwoe.unisg.ch/forschung/14001/weltweit.htm (15 January 2000)

The explanation for small *French* participation in both EMAS and ISO 14001 is one of national culture. In France the assumption made by public is that a company that participates in EMAS or ISO 14001 must be a very environmental unfriendly, polluting company. Why otherwise participate? If a company is not polluting then French public opinion perceives no sound reason to take those kind of efforts. In the

other countries transparency as such is judged positively. In the Netherlands and the United Kingdom ISO 14001 was preferred because of its international character. Recently also German companies pick up ISO 14001 and become less willing to participate in EMAS for the same arguments. Given the voluntary character of EMAS, it is clear that the 'economic sphere' is dominant where the effects of EMAS have to be explained. For a lot of companies the gains did not outweighed the costs connected to EMAS.

6. Preliminary concluding remarks

In section 5 we assessed some European cases of environmental regulation towards industry. The case of regulating the municipal waste incineration sector was a case in which traditional emission limits were imposed on companies on individual basis. In the case of transforming the existing large combustion plants, emission targets on the aggregate level of national LCP sectors were issued. In the case of EMAS a voluntary scheme was issued towards industry. The cases were presented in the order from being more traditional towards being more innovative. We cannot conclude that convincing proxies of a new influential ecological sphere have been found in the studied European environmental policy making and implementation. From in-depth study of the relevant processes we got the impression that the sequence of events during bargaining and implementation was not very influenced by the nature of the policy instrument in use. We didn't find convincing evidence for a more ecological oriented attitude from industry or its representing trade organizations.

Even in the assumed environmental pro-active countries Germany and the Netherlands, concern about the allocation of costs, competitiveness and costs/benefits also stayed key drivers. The position of German industry in the EMAS case was surprising. The fact that quite a large number of German firms finally participated in EMAS can only be explained by the assumption that the proportions between costs and gains were positive on the level of the individual participating company. Still a massive majority of companies did not participate.

The fact that Germany and the Netherlands exposed a high level of ambition can only be explained by interactions between the 'political sphere' and the 'economic

sphere'. The decisive factor that influenced the 'political sphere' is the large public environmental awareness. The monopolistic and coordinated oligopolistic markets further determined the balance between the national 'political spheres' and the national 'economic spheres' in Germany and the Netherlands. This argument is supported by the fact that now markets recently are opening up, pollution in these sectors increase simultaneously. . Industry did however not succeed in imposing the same costs on similar industry in less pro-active EU member states. The institutional decision-making rules within the European Union clearly explain this. For France and the UK the actual abatement costs have been reduced, either by bargaining in the European level, by structural shift to avoid abatement costs and in one case, MWI in France, by non-compliance.

The theory of ecological modernization assumed a new environmental sphere next to the political and economic sphere. On the issue whether such a new sphere appeared at the scale of the European Union, the preliminary answer has to be that there is no convincing evidence found. It proved that bargaining in the European arena, the member states take positions that can to a large extent be explained by their expectations on the outcomes of the policy, when it becomes official. Different sorts of outcomes are evaluated ex-ante: the legitimacy of the policy, the environmental effects and effectiveness of the policy and cost efficiency. Which kind of evaluation proxies are found to be decisive is largely influenced by national forces like contextual policies and contextual drivers from industry and public groups. Instead of speaking of a theory of 'ecological modernization', it might be an idea to stick to the traditional theories that explain positions in the 'political sphere' and in the 'economic sphere'. This argument does however not deny that in the interaction between both spheres, in pro-active countries like Germany and the Netherlands new institutional developments have emerged that are described by the 'theory of ecological modernization'. These developments reflect however a new temporary equilibrium between the 'political sphere' and the 'economic sphere' and might be strengthened or weakened by the national forces that were described in this paper.

The verdict on the European environmental policy towards industry is mixed. It is not surprising that given the large structural differences between Member States the bargaining on environmental regulation towards industry can be time-consuming and

viscous. The EU-policy arrives in a dynamic situation, characterized by a high level of interaction between national specific characteristics. This implies that EU measures have to be sensitive and adjusted to other contextual policies and drivers. For instance the allocation of abatement costs is largely determined by national characteristics of EU member states individually. Having a one shot and having an uniform implementation strategy does not take into account the empirical events. The idea that European bureaucrats can anticipate all factors, is wishful thinking. Therefore a learning oriented approach that opens the possibility to react to positive or negative dynamics would be a better approach to drive industry towards sustainability. If we extend the story-lines as presented for some years up to 2000, landscapes change fast. One important economic factor that explains the sharp decrease of emissions from municipal waste incineration plants and power plants in Germany and the Netherlands was the fact that they were operated in monopolistic or coordinated oligopolistic markets. The low level of competition made it possible to retrofit broadminded and costly, costs were easily passed on to the customers. This all changed due to privatization and European Unions' and national free trade policies in the late 90s. In fact there are empirical signals that these emissions actually face an upward pressure. Cost-optimization seems to be the new driving force. Simultaneously the dioxin issue has reached France and a new left wing government actually raised the monitoring and enforcement pressure on non complying plants. Where the only EMAS success case Germany is addressed, since the late 90s German companies also prefer the internationally recognized ISO 14001 standard. These events show dynamics between the political sphere and the economic sphere that will lead to new temporary national equilibrium's.

The effect of the Maastricht Treaty that introduced in 1993 qualified majority voting is not easily forecasted. Europe is on the edge of expanding the European Union with several new Member States. Those states normally are certainly not the most pro-active on environmental regulation and often combine this with a national economy of limited strength. The emphasis on free trade has to lead to a less willing industry in the more pro-active countries unless the same level of ambition and costs are induced on the other countries, the fact that national cost characteristics were found to differ strongly complicates things. The new Member States have to catch up before the industrial environmental regulation can proceed. The outcome might well be that the

level of ambition towards industry will be reduced in the pro-active countries or at least not increased. Whether the emphasis on shared responsibility and voluntary approaches in 5EAP will be able to initiate more positive developments is a question we are not able to answer yet. Next to the perception and absorption of the objective environmental pressure in the EU countries into the 'political sphere' to some extent driven by public groups, expectations based on *micro economic analysis* of the behavior of individual companies and the behavior of associations of industry covers the absorption of market incentives by customers. It cannot be denied that in some fields German and Dutch customers are becoming a bit 'greener' consumers. If this penetration of ecological arguments into the 'economic sphere' appears to be lasting and expanding to other EU countries, this might well be causing a new equilibrium between the 'political sphere' and the 'economic sphere'. To bet on these events, like 5EAP to a large extent does, and not to put effort only in the slow viscous bargaining between EU countries within the European arenas, could well be a sound strategy to move towards a more sustainable industry in EU countries. By that 5EAP might not push European decision-making forward directly, at least it takes the decisive importance of changing the national arena's in account. By this, public environmental groups and the consumers might play a decisive role. This might be considered as the 'ecological modernization' of the EU environmental policy towards industry.

Notes

ⁱ Dr. K.R.D. Lulofs is a senior researcher at the Center for Clean Technology and Environmental Policy, University of Twente, the Netherlands. This paper submitted 'et al' is based on empirical material that was gathered by four research teams in four European countries in the so called IMPOL project (link to information on internet: [CERNA, Programmes Europeens. IMPOL <http://www.ensmp.fr/Fr/CERNA/CERNA/Progeuropeens/IMPOL/index.html>](http://www.ensmp.fr/Fr/CERNA/CERNA/Progeuropeens/IMPOL/index.html)). Within the research team some agreements were made on the dissemination of results and co-authorship's. For conference papers we act individually. In other cases we offer co-authorship to the relevant researchers whose efforts are co-exploited. The other researcher are enumerated on the internet site mentioned above.

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