Petrus Kautto

Who holds the reins in Integrated Product Policy?

An individual company as a target of regulation and as a policy maker

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To my dear family

Abstract

This thesis examines the interdependency and interaction of business and government in product-oriented environmental policy. The relationship of business and government is essential in order to comprehend the functioning of environmental politics and policy. However, the policy researchers frequently treat regulated companies as a homogenous group or overlook the role of business altogether. For its part, the management literature often treats the regulator as "an out-there stakeholder which technically and legally constrains business". Therefore, the present thesis explores and provides means to open these two black boxes. The starting point and main emphasis is on interventions by the governmental actors. However, interventions are not discussed as one-way relations because while interactions shape actors, actors also shape interactions. Three main questions have been addressed: "What kind of effects do product-oriented environmental policy instruments have on companies?", "How can these recently introduced policy instruments be evaluated?" and thirdly - and perhaps most importantly -, "How can an individual company influence the environmental policy making within a new field of policy?". In order to answer these questions, it is necessary to combine perspectives from different disciplines: the fields of evaluation research, organisation studies and political science offer the most essential sources of previous knowledge used in this thesis. The studies use diverse empirical materials and a combination of methods such as documentary analysis, interviews, descriptive statistics, survey, and participant observation. Most importantly, the results highlight the interdependency of the political institutions and even the most resourceful multinational companies. In all, it is evident that the interaction between the Commission and the business does not consist of just aggressive lobbying, as the popular media has suggested. Secondly, the results demonstrate that the shift in the focus of environmental policy from waste policy towards product-oriented environmental policy is needed in order to promote environmentally friendlier product development and products. In addition to drawing conclusions on the effects of these waste policy and product-oriented environmental policy instruments, this thesis highlights the usefulness of intervention theories in these early evaluations.

Keywords: corporate political activity, European Union, evaluation, interaction, lobbying, organisational responses, product-oriented environmental policy, waste policy

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Helsinki, December 12, 2008

Petrus Kautto

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Original publications

This thesis is based on the following articles, which are referred to by their Roman numerals in the text.

I Kautto, Petrus & Melanen, Matti: How does industry respond to waste policy instruments - Finnish experiences. *Journal of Cleaner Production*, 2004, Vol. 12, No 1, pp. 1-11.

II Kautto, Petrus & Similä, Jukka: Recently introduced policy instruments and intervention theories. *Evaluation*, 2005, Vol. 11, No 1, pp. 55-68.

III Kautto, Petrus: New instruments – old practices? The implications of environmental management systems and extended producer responsibility on design for the environment. *Business Strategy and the Environment*, 2006, Vol. 15, No 6, pp. 377-388.

IV Kautto, Petrus: Industry - government interaction in the preparation of a new directive: Nokia, industry associations and EuP. *European Environment*, 2007, Vol. 17, No 2, pp. 79-91.

V Kautto, Petrus: Nokia as an Environmental Policy Actor - Evolution of Collaborative Corporate Political Activity in a Multinational Company. *Journal of Common Market Studies*, 2009, Vol. 47, No 1, pp. 103-125.

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Author's contribution

Article I was written together with Research Professor Matti Melanen. Kautto and Melanen designed the study and collected the data jointly, while Kautto was mainly responsible for the analysis of data. Writing the paper was a collaborative effort.

Article II was written together with Senior Researcher Jukka Similä. The paper was designed jointly. Kautto was responsible for the section on Waste Tax Act and Similä contributed more to the section on Environmental Protection Act. Other sections were written jointly, though Kautto had the main responsibility for finalising the Article.

The author of this thesis is fully responsible for the Articles III, IV and V.

Acronyms

BAT	best available techniques
CEN	The European Committee for Standardization
CENELEC	The European Committee for Electrotechnical Standardization
COM	Commission of the European Communities
DFE	design for the environment
DG	Directorate-General
EEE draft directive	The draft directive on the impact on the environment of electrical and electronic equipment
EER draft directive	The draft directive on energy efficiency requirements for end use equipment
EICTA	European Information, Communications and Consumer Electronics Technology Industry Associations
EMS	environmental management systems
EPR	extended producer responsibility
EU	European Union
EuE draft directive	The draft proposal for a directive of the European Parliament and of the Council on establishing a framework for Eco-design of End Use Equipment
EuP Directive	The Directive 2005/32/EC on Establishing a Framework for the Setting of Ecodesign Requirements for Energy-using Products
IPPC	integrated pollution prevention and control
IPP	Integrated Product Policy
LCA	life cycle assessment
NGO	non-governmental organisation
Orgalime	The European Federation of National Industry Associations representing the European mechanical, electrical and electronic and metal articles industries
RoHS Directive	The Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electric and Electronic Equipment
WEEE Directive	The Directive 2002/96/EC on Waste Electrical and Electronic Equipment

1 INTRODUCTION: BUSINESS AND ENVIRONMENTAL POLICY

This thesis examines the interdependency and interaction of business and government in product-oriented environmental policy. The relationship of business and government is an essential element in order to comprehend the functioning of environmental politics and policy. However, the policy researchers frequently treat regulated companies as a homogenous group or overlook the role of business and consumers altogether (Coen 2005, 197; Hart 2002; Newell 2005). For its part, the management literature often treats the regulator as "an out-there stakeholder which technically and legally constrains business" (Fineman 1998, 954). Therefore, the present thesis explores and provides means to open these two black boxes.

The starting point and main emphasis of this thesis is on interventions by governmental actors. However, interventions are not discussed as one-way relations because while interactions shape actors, actors also shape interactions (Kooiman 2003, 8, 22 and 116). Companies play a key role in environmental issues e.g., as a source of various emissions, via resource and energy use, research and development, product development, product chain management, marketing, finance (Levy and Newell 2005, 1-9) and, traditionally as the most important target of regulation. Business's interest in environmental issues has grown remarkably since the beginning of the 1990s and various forms of industry cooperation (e.g., World Business Council for Sustainable Development, International Chamber of Commerce's Business Charter for Sustainable Development), corporate social responsibility and industry self-regulation have been widely adopted, discussed and studied. It has even been claimed that business has "hijacked environmentalism", i.e. has taken the more radical environmental debate "out of its traditional discourses and placing it in a liberal-productivist frame of reference" (Welford 1997). What has received much less attention is the role of individual companies in policy making, shaping environmental interventions by governments.

The context of this thesis, a shift from end-of-pipe and process-oriented environmental policies to product-oriented environmental policy (or Integrated Product Policy, IPP) is a radical, ongoing widening of the focus of environmental policy and management (Commission of the European Communities 2001; 2003a; Rubik and Scholl 2002; Scheer and Rubik 2006; Dalhammar 2007)[1]. The key principle behind product-oriented environmental policy is that products are increasingly viewed from a life cycle perspective: environmental burdens are considered from raw materials extraction to disposal of products. Thus, products may offer a leverage point to achieve environmental improvements at multiple stages in the production chain.

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[1] By referring to product-oriented environmental product policy I generally mean environmental policies that take the product and product life cycle as their starting point. Integrated Product Policy (IPP), for its part, refers to the product-oriented environmental policy developed within the European Union since the early 1990s. Both of these concepts are discussed in more detail in Chapter 2.

One of the characteristics of product-oriented environmental policy is the central role of companies and other stakeholders as policy makers. Companies are not solely seen as passive objects of public policy, but as active actors in target setting, formulation, implementation and monitoring. This interorganisational mode of governance (e.g., Glasbergen 1998; Gouldson and Bebbington 2007; Meadowcroft 1999; Kooiman 1993; 2003) and new instruments, approaches and models adopted by the governments emphasise the need to understand the roles and strategic responses selected by companies (Levy and Newell 2005, 5).

The general aim of this thesis is to deepen the understanding of the interactions between business and government. This is achieved by examining the following three main research questions within the context of product-oriented environmental policy[2] and politics[3]:

1) What kind of effects do product-oriented environmental policy instruments have on companies?
2) How can these, recently introduced policy instruments be evaluated?
3) How can an individual company influence the environmental policy making within a new field of policy?

In order to answer these questions, it is necessary to combine perspectives from different disciplines: the fields of evaluation research, organisation studies and political science offer the most essential sources of previous knowledge used in this thesis. The context in which the questions are examined is Finnish companies and the policy making at the European Union level. The unit of analysis is the individual organisation (company) and its operations and political activities (cf. Lang and Tenbuecken 2006).

This thesis consists of two parts: an introductory essay and five articles. The introductory essay is organised as follows: I will first present the concept and general development of product-oriented environmental policy and connect it to more general societal developments and governmental practices. Then, perspectives are presented from the fields of evaluation research, organisation studies and political science studies on

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[2] Lundqvist (1996, 16) has distinguished three different ways to define environmental policy based on function, institution and purpose. The function based approach (all policies that affect the natural environment are environmental policies) would not be appropriate here as in practice almost all policies that have effects on products, have effects on their environmental qualities. The institution based approach (policies adopted by certain institutions as environmental policies) would exclude perhaps the most important IPP measure, The Directive on Establishing a Framework for the Setting of Ecodesign Requirements for Energy-using Products (the EuP Directive), as it was mainly prepared by the Directorate-General (DG) Enterprise, not by the DG Environment of the Commission. Thus, I adopt a purpose-based definition of environmental policy as "courses of action which are intended to affect society – in terms of values and beliefs, action and organisation – in such a way as to improve, or to prevent the deterioration of, the quality of the natural environment" (cf. Mickwitz 2006, 11).

[3] Traditionally, policies are regarded as results of politics. However, these closely interact, overlap and are difficult to separate even analytically (Dror 2006, 81). Besides, like Hajer (2003, 88) has pointed out, "policy […] often creates a public domain, as a space in which people […] deliberate […] their relationship to the government".

individual companies as political actors as the main theoretical resources used in this thesis. Following this, I introduce the methods, data sources and data analysis techniques employed. After that, the results from the articles are briefly presented and discussed. Finally, conclusions are made concerning the implications for research, environmental policy and management in addition to further research needs.

Articles I and III focus mainly on analysing the responses of industrial companies to existing or forthcoming legislation at the level of environmental practices. In the articles, the tradition of evaluation research is taken as the starting point, but the aim is to overcome the top-down approach by looking at the situation from the point of view of the target of regulation. Article II is more methodologically orientated and its focus is on analysing the use of intervention theories in the evaluation of recently introduced policy instruments. Finally, in Articles IV and V a step further (or one back) is taken in the policy process as the preparation of forthcoming directives is examined through the responses of a multinational corporation, Nokia, and the organisations connected to it. Thus, the articles discuss how a resourceful multinational company anticipates legislation under preparation and how it has tried to influence the preparation process.

2 THE TRANSITION FROM WASTE POLICY TO PRODUCT-ORIENTED ENVIRONMENTAL POLICY

2.1 The main features of the product-oriented environmental policy

The context of this thesis and all the articles is an ongoing widening of the focus of environmental policy. The birth of (modern) environmental policies is usually placed in the 1960s, although some forms of environmental regulation and governance originate from much earlier times (Haila 1998; 2001, 21-46; Dryzek 2005; Hoffman 2001; Jamison 2001; on the development in the EU, e.g., Grant at al. 2000, 9-12). The aim was at first to control and limit the pollution from large industrial sources by media (e.g., air, water, waste) based on end-of-pipe measures. Although in certain areas (e.g., in limitation of air pollution, waste water discharges) these measures have been reasonably successful (e.g., Glasbergen 1998; Hildén et al. 2002; Mickwitz 2003; Similä 2002; 2007), the focus soon shifted to industrial processes as it was argued that more effective and cost-efficient improvements could be achieved through process-oriented policies. These aims are manifested in the idea of integrated pollution prevention and control (IPPC) and integrated permits (Article II) (Similä 2007, 163-195). Environmental product policies can be considered a further step in the direction of preventive environmental policy as the aim is to encourage the companies to take the environmental issues into consideration already when products are developed and designed. As a policy idea this transition emerged in the 1990s and has remarkably intensified during the past decade[4]. For various reasons, it is closely connected to more general regulatory reform.

In this chapter, I will first present the general development and some of the key principles of the product-oriented environmental policy. Then, the policy will be connected to broader developments in environmentalism and governance. Issues that emphasise the role of companies in the product-oriented environmental policy will be discussed, and finally, some remarks are made on the most important legislative measure in this policy field, i.e. the EuP Directive[5]. The basic idea behind the product-oriented environmental policy is to view products from a life cycle[6] perspective: environmental burdens are considered at various stages in the production chain - i.e., from raw materials extraction to disposal of products. Thus, products may also offer leverage points to achieve environmental improvements at multiple stages in the production chain (Figure 2.1).

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[4] It has also been argued that the "traditional environmental policies" are more or less used up their potential in industrialised countries (Järvinen 2004).

[5] The Directive 2005/32/EC on Establishing a Framework for the Setting of Ecodesign Requirements for Energy-using Products.

[6] As Dalhammar (2007, 3-4) points out, however, the product life cycle and life cycle thinking cannot be considered established or uncontroversial concepts.

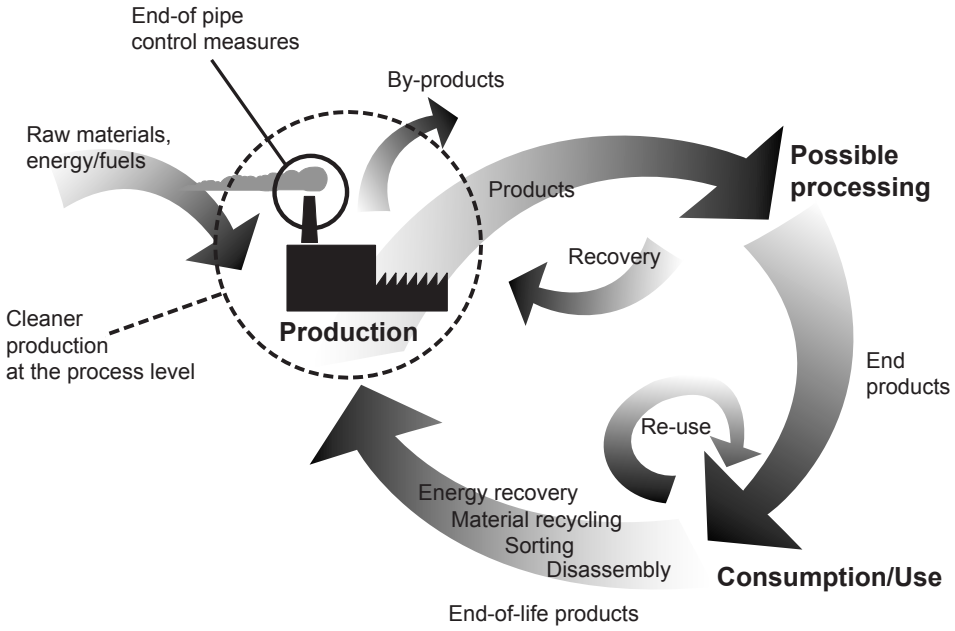

Figure 2.1. *Product life cycle from raw materials to end-of-life products.*

At least the following justifications have been given for product-orientation in environmental policy:

- The most important environmental impacts of a product often take place during its use or disposal, not during the manufacturing. Durable, energy-using products are typical examples of this (on mobile phones see Nokia 2005). Raw material extraction is often another stage with significant environmental impacts, e.g., LCAs done on food production from soil to kitchen often point to the significance of early phases of the life cycle (e.g., Grönroos and Seppälä 2000).
- All products have impacts on the environment during their production, use and/or disposal. In order to avoid the shift of these impacts from one part of the life cycle to another, an integrated approach is needed (Commission 2003a, 3).
- It has been estimated (Tischner et al. 2000) that more than 80 per cent of the environmental impacts of a product are defined during the product development phase. Thus, if the environmental issues are taken into consideration already when products are developed and designed, it can produce remarkable outcomes compared to aims to reduce the environmental impacts at later phases of a product life cycle. In other words, improvements in, e.g., waste management practices can sometimes reduce the environmental impacts greatly, but not eliminate them. However, through product development it may be possible to prevent the waste, for example through changes in the material use of the product. (Article I).

- Currently, the bulk of the environmental legislation regulates the manufacturing phase (the emissions from the plants, their waste management, chemicals that can be used, the best available techniques (BAT) used in production etc.) and that regulation has, in fact, produced some remarkable results. However, improvements made in the environmental management of manufacturing are often more and more costly, and thus it might be more cost efficient to govern the environmental improvements of other phases of product life cycle.
- It is often in the interest of the manufacturing industry to use energy and materials efficiently during manufacturing, but not necessarily during the whole product life cycle (e.g., to limit the energy use during the production but not during the product use, or to produce more from less but not to increase the durability of the products). Thus, there are grounds for governmental intervention.
- The manufacturing of the products is increasingly taking place outside Europe. Thus, in order to steer the manufacturing and to avoid the displacement of environmental deterioration, life cycle measures are needed (e.g., responsibilities for companies placing the product on the market within the EU).

In sum, the product approach is well grounded and easy to accept in principle. However, its implementation in practice is much more difficult. As the Commission (2003a, 3-4) points out, the product-oriented policies are facing continuous challenges as the overall quantity of products is increasing, their variety is increasing, new types of products are constantly created, products are traded globally, they are becoming more complex and although they may be designed perfectly, their inappropriate use and disposal may cause significant environmental impacts. Besides, one of the possible strategies for the product-oriented environmental policies (cf. Oosterhuis, Rubik and Scholl 1996), lowering the product throughput, is clearly excluded as politically unsuitable and in some cases conflicting with other pillars of sustainable development. As the press release of the Communication (Commission 2003b) put it: ”IPP is not attempting to reduce consumption; rather, it is seeking to reduce the environmental impact of increased consumption”[7].

The development of product-oriented environmental policies at the European level began in the early 1990s (see, e.g., Rubik and Scholl 1999; 2002; Rubik 2006; Scheer and Rubik 2006; Commission 2003a; Dalhammar 2007, 47-96). So far, the two most important steps have been the Green Paper on IPP (Commission 2001) and the Communication on IPP published in 2003 (Commission 2003a). The Communication (2003a, 6) stated that the main aim of IPP is “to reduce the environmental impacts from products throughout their life-cycle, harnessing, where possible, a market driven approach, within which competitiveness concerns are integrated”. The Communication presents five key principles that form the basis of the IPP approach. Life cycle thinking has already been briefly presented and can be regarded as “the principal paradigm of product-related environmental policy” (Scheer 2006, 48). According to Scheer (2006, 48-49), life cycle thinking aims to both generate

[7] However, as Dalhammar (2007, 7) has argued, product polices could “provide a bridge to the further development of consumption policies”.

and integrate knowledge. A great variety of tools (such as life cycle assessment (LCA), substance flow analysis, checklists) have been developed to manage product related data and support decision-making, but the results are often contested and fail to produce support for decisions (Heiskanen 1999; 2000; Scheer 2006, 49; Dalhammar 2007, 47-55; cf. also Nokia 2005).

The second principle of the IPP Communication (Commission 2003a, 5) is to use and stimulate the markets in order to "reward companies that are innovative, forward-thinking and committed to sustainable development." The aim is to encourage companies to innovate and thus, to create win-win solutions and competitive advantage for the European industries. However, with the possible exception of the EuP Directive, this has so far been mainly Lisbon[8] inspired rhetoric and e.g., during the IPP pilot project (Article V)[9], Nokia criticised the existing IPP approach for lack of incentives for "front runners" (Sormunen 2006)[10].

Thirdly, a product-oriented approach calls for the involvement and encouragement of a great number of stakeholders along the product life cycle. The role of the Commission is to create "the right economic and legal framework", "ideally with minimum government intervention" (Commission 2003a, 8). This differs to some extent from the traditional role of government in environment policy (Scheer 2006, 49-50) and will be discussed in more detail in section 2.2. However, as also this thesis aims to point out, this new role is not institutionalised and is currently very much under discussion. Besides, the role of the government is not only limited to rule making, as the aims to promote green public procurement represent a traditional tax-and-spend approach.

Fourthly, according to the Commission (2003a, 5), "IPP aims for a continuous improvement rather than setting a precise threshold to be attained". From the environmental point of view, this is necessary because while consumption increases continuously, it is necessary to improve the products faster in relation to the amount they increase by. From the governance point of view, this is, again, problematic.

Finally, the IPP will use "a number of different policy instruments because there are such a variety of products available and different stakeholders involved" (Commission 2003a, 5). Until recent years, the development of IPP has mainly occurred through more or less voluntary company initiatives and information based policy instruments such as

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[8] The Lisbon Strategy or Lisbon Process refers to economic, social and environmental renewal strategy originally adopted by the European Council in March 2000. Its aim is to make the European Union "the most competitive economy in the world and achieving full employment by 2010" (Europa 2008).

[9] In its Communication on Integrated Product Policy (2003a, 15-17), the Commission stated that it "will carry out a number of pilot projects to demonstrate the potential benefits of IPP in practice". In summer 2004, the Commission announced that it would launch two pilot projects, one of which centered on mobile phones and would be headed by Nokia (Commission 2004; Nokia 2004). The project started officially at the turn of 2004-2005, and its implementation ended at the beginning of 2008.

[10] During the preparation of the EuP Directive, there were some discussions on the possible use of a so called Top Runner approach as the basis for creating product based requirements (Dalhammar 2007, 253-254 and 266-268; on the Top Runner approach in general see Tojo 2005). This would have meant the use of top performing products as benchmarks and forcing other products within the product group to meet these standards in a given timeframe.

labelling and product panels (Rubik and Scholl 1999; 2002; Rubik 2006; Scheer and Rubik 2006; on regulatory approach in the IPP, see Dalhammar 2007). However, new directives (especially the EuP directive) and some national level initiatives such as the new Swedish permitting practices (see Dalhammar 2007, 319-369) take the institutionalisation of this development to a new level, into regulative structure (c.f. Mac 2002, 262). These include instruments developed or modified especially for the purposes of IPP (e.g., extended producer responsibility) as well as more traditional environmental policy instruments (e.g., ban and restricted use of certain hazardous substances).

2.2 Product-oriented environmental policy, environmentalism and governance

The rise of environmental product policy can also be seen as a part of broader development in environmentalism and governance. From the point of view of environmentalism, it is part of an "attempt to integrate ecology into a capitalist mode of production" that emerged in the course of the 1990s (Jamison 2001, 82 and 95-97; Jalas 2006). Especially the IPP approach adopted by the Commission (2003b) ("IPP is not attempting to reduce consumption; rather, it is seeking to reduce the environmental impact of increased consumption") is certainly something quite different from the gloomy rhetoric of the survivalism of the 1960s and 70s or from various forms of green radicalism (e.g., deep ecology) that take a very critical stance towards various forms of consumption and consumerism (cf. Dryzek 2005; Jalas 2006). Although it is not one of the main aims of this thesis to further analyse the background of IPP, it can be said that it is mainly based on reformist ideas labelled as sustainable development, ecological modernisation and eco-efficiency combined with the prevailing practice of administrative rationalism. Thus, it can be said that from the viewpoint of these ideas, there is no fundamental conflict between ecology and economic growth, and the environmental problems can be solved within the liberal capitalist framework of industrial societies. Economic growth itself is not to be opposed, but to be guided in an environmentally (and socially) benign direction, i.e. towards an "environmentally enlightened era" (cf. Dryzek 2005, 73, 86, 153-154 and 169).

The IPP also has connections to more general discussions on the role of the state in contemporary industrial societies. Some authors characterise the current development as a shift from government to *governance* (Rhodes 2007; Mayntz 2006; Scheer 2006, 53), some as a transition on the emphasis of the modes of governance from hierarchical mode towards co-governance and self-governance (Kooiman 1993; 2003) or as a transformation from the commanding state towards a regulatory state (Majone 1997). This is usually connected to criticism of the limitations of the traditional (regulatory) approach (Article III) (Similä 2007; Scheer 2006, 53), to shifting power relationships within state and society in order to overcome these limitations (Scheer 2006, 51-53) and thus to a response to diverse, dynamic, complex societal issues such as environmental problems (Glasbergen 1998; Gouldson and Bebbington 2007; Kooiman 2003; Meadowcroft 1999). Whereas in earlier analysis the state was emphasised, newer analyses focus on the interactions between state

and society (Kooiman 2003, 5). According to Scheer (2006, 64) "an outstanding feature of IPP is its involvement of state and civil-society co-operation" and "to very large extent, societal actors are involved in policy formulation and institutionalisation: that is, in a 'joint problem-solving' process." These governing interactions also shape the actors that relate into each other within them (Kooiman 2003, 11-25).

The adoption of less hierarchical modes of governance within the field of (product-oriented) environmental policy can be connected firstly to an understanding of the limited direct problem solving capacity of the state within that policy field, and secondly to a more general view that the state should not directly control companies and consumers (Scheer 2006, 49). The latter position is partly rooted in the libertarianism-inspired thoughts on deregulation and privatisation, and partly on more pragmatic views on the steering capacity of the state and the overgrown rule-intensity of modern societies (Kooiman 2003, 56 and 92; Mayntz 2006,19-20; Meadowcroft 1999). Instead of a hierarchical mode of governance, the aim to encourage co-governance and self-governance has been emphasised within the IPP. However, it has not meant deregulation within the more traditional environmental policies (cf. Similä 2007) or withdrawal from hierarchical patterns of governance within the IPP. For example, RoHS Directive[11] is mainly based on traditional regulatory instruments: bans and restrictions of certain substances (cf. also Kooiman 2003, 11 and 115). Besides, as Kooiman (2003, 79) points out, "much of what is sold as deregulation or advertised as self-regulation is better seen as forms of re-regulation or altering traditional forms of public control into 'steering at a distance'" (cf. also Mayntz 2006, 19). Thus, the IPP can even be seen as an expansion of governmental intervention into a new field and the aim seems rather to be the use of "better" (Commission 2002) or "smart" regulation (External Advisory Committee on Smart Regulation 2004) than solely to encourage self-regulation of other societal actors. This thesis, in fact, focuses on hierarchical governance in Integrated Product Policy. One of the main aims of the thesis is to show that even within a traditional hierarchical governance mode, there is much interaction between business and policy.

At least in such field as electronics, products are highly dynamic, complex and diverse subjects to govern. This limits the use of instruments like traditional regulation, as they usually take too long to prepare and something unexpected will probably take place during the implementation. Thus, more general ways of activating (mobilisation, guiding, support and R&D) societal actors have been presented as more suitable (Kooiman 2003, 57 and 122-124; Gouldson and Bebbington 2007). This is reflected in practice in the so called IPP pilot on mobile phones (Article V) and to some extent in the EuP Directive

[11] The Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electric and Electronic Equipment.

(Articles III, IV and V). Accordingly, the attempt is to overcome the diversity problem by the minimisation of the public element in governance and by steering at distance[12].

Thus, within that mode, new kinds of instruments have been adopted both at the national and EU level as means of implementing the IPP in practice (Scheer 2006, 62; Jordan et al. 2003). In this thesis, environment management systems (EMS), extended producer responsibility (EPR) and several instruments (e.g., supply chain management, use of standards, EMS) included in the EuP Directive[13] have been studied.

Finally, it should be kept in mind that the IPP is an ongoing process. The way to respond to the aim of "establishing the framework conditions for continuous environmental improvement" (Commission 2003a, 8) is still to a large extent under discussion.

2.3 Companies: objects or actors of the product-oriented environmental policy

As already pointed out, business is *a key target* of the most environmental policies: whether the aim is to regulate end-of-pipe emissions to water or air, or to require the use of cleaner, best available techniques or waste management practices. A number of more general societal reasons have strengthened the position of business as political actor in this policy area. These include issues such as high unemployment rates in the EU, the need to legitimise political decisions by competitiveness also within environmental policy (need to assess everything in relation to the Lisbon process) and a growing acceptance of the win-win rhetoric (cf. Coen and Grant 2006; Radaelli 2007). However, there are several specific issues that emphasise the importance of companies especially in the current product-oriented environmental policy, both as targets of policy and as policy makers.

Firstly, traditionally environmental legislation has regulated mainly the most polluting manufacturing industries such as pulp and paper, metal and chemical. However, as the IPP takes the product life cycle as its starting point, the amount of actors targeted increases considerably: instead of large industrial units, the whole product chain from raw materials extraction via manufactures, retailers and consumers to waste management can be made directly or indirectly responsible for the environmental protection. Besides, life cycle thinking may emphasise the environmental impacts of products that have not traditionally been considered as environmentally harmful: food, furniture and clothing[14]. In sum, this is reflected in the increased amount of companies (and other stakeholders) that are regulated, but also interested in the policy-making.

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[12] Other possibilities to govern the diversity suggested by Kooiman (2003, 58) are the use of general principles and diversified application, and decentralisation. The first two are, however, mainly not applicable in the case of product-oriented policies, as the products and their use are changing in many areas too quickly and there is a need for harmonised rules within the EU. Thus, the aim is to decentralise and encourage the self-governing capacities of different actors.

[13] See section 2.4.

[14] It may sound self-evident that these products have environmental impacts that possibly should be regulated, but it was not the case only ten years ago (Heiskanen 2000, 32).

Secondly, one of the publicly expressed characteristics of the IPP is "a shift from the old hierarchical model in which state authorities exert sovereign control over people to a basically non-hierarchical mode of governing, where non-state actors participate in the *formulation* and implementation of public policy" (Scheer 2006, 53). This is due to above mentioned life cycle thinking, but also because product development is in the core of business. It is very demanding and potentially both economically and environmentally hazardous for legislators to regulate product development, especially in dynamic business areas such as electronics (see also Dalhammar 2007, 14). Thus, in the product-oriented environmental policy, the information that only companies can offer to the policy making process is even more important than in policies regulating production, not to mention in the regulation of end-of-pipe technologies. In addition, stakeholder involvement is seen as a way to overcome some of the implementation deficit problems: companies and other actors tend to be more committed to implementing policies when they have been involved in the policy formulation process (Mayntz 2006, 19-20). In sum, companies are not solely seen as passive objects of public policy, but as active actors in it. As such, this is of course nothing new, but consultation, communication and stakeholder involvement in general are emphasised as crucial elements of the IPP (Scheer 2006, 50 and 64).

Thirdly, many of the policy instruments and voluntary approaches used or intended to be used in the IPP are based on the regulated self-regulation of companies and on increased interaction between companies, public authorities and other stakeholders (e.g., consumers and organisations). Such concepts as supply chain management, using environmental management systems for demonstrating compliance, eco labels, increased use of standards (i.e. the New Approach, see section 2.4) and the principle of producer responsibility are all typically applied IPP policy tools. One of the instruments that is increasingly popular in the IPP is the use of companies as "regulatory surrogates", i.e. making them responsible for their contract manufacturers and subcontractors (Gunningham and Sinclair 2002; Vedung 2000, 153), or de facto regulation by third parties like insurance companies (Gunningham and Sinclair 2002).

Fourthly, as the product-oriented policy tends to emphasise the environmental impacts of new previously "harmless" industries, the risk of becoming a target of environmental activism and consumer campaigns grows. This is the case especially with the brand owners of consumer products. However, the interest in environmental issues has not generally changed the consumer behaviour as much as some observers have expected.

Finally, the diversity of products limits the capacity of governments within the product-oriented policies even more than in the case of traditional environmental policies. Thus, improvements in products can be in most cases made only by encouraging companies to innovate and to change their practices.

2.4 The EuP Directive at the core of product-oriented environmental policy

The Directive on Establishing a Framework for the Setting of Ecodesign Requirements for Energy-using Products (the EuP Directive) is certainly the most important legislative measure implementing the principles of the IPP in practice and it has been characterised as "the IPP" Directive (Commission 2003c; Dalhammar 2005; 2007, 237; Kautto, Nissinen and Kosola 2007; Articles III, IV and V). In July 2008, the Commission highlighted the importance of the EuP Directive by releasing a proposal for the extension of the EuP Directive (Commission 2008a) and Communication on the Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan (Commission 2008b). According to these, the scope of the EuP Directive will be extended to cover all energy-related products, and other product-oriented instruments, especially product labelling, will be connected to it more explicitly.

The general aims of the EuP Directive are extensive: to ensure the free movement of energy-using products, to increase energy efficiency and the level of protection of the environment and to increase the security of the energy supply. The EuP Directive is a framework directive that defines how to prepare product group-specific implementation measures in further detail, what types of regulations they may include, and how product compliance is demonstrated. These product group-specific regulations may either be specific requirements or general ecodesign requirements. As pointed out in Articles IV and V, the EuP Directive has several novel characteristics. Firstly, it is the first directive requiring the incorporation of environmental considerations into product development (and thus it aims to stimulate improvements in the product's use or even its entire life cycle). Secondly, it introduces what are known as the New Approach and the Global Approach (see European Commission 2000) in the field of environmental legislation[15]. Finally, the companies placing energy-using products on the market are used as "regulatory surrogates", i.e. they are responsible for monitoring their subcontractors and their subcontractors (Gunningham and Sinclair 2002; Vedung 2000, 153; Roach Anleu et al. 2000).

Based on the framework directive, it is still difficult to forecast the significance of these changes. Quantified assessment of environmental impacts is possible only after the implementing measures have been adopted. The end result will depend on how well the implemented regulations can combine the specific requirements and the general product design requirements, how early and well the manufacturers and importers receive information about the requirements in order to be able to meet them, how well the supervision of compliance works, and how the entire system directs and encourages

[15] The main idea of the New Approach is to limit legislative harmonisation to essential requirements and set technical specifications in harmonised standards. The Commission mandates so-called standardisation bodies (e.g. CEN , CENELEC) to develop these standards. The Global Approach lays down the general guidelines for conformity assessment that are used in the New Approach directives. In the case of the EuP, a crucial role in conformity assessment is given to environmental management systems and self-assessment procedures.

independent improvement of environmental aspects. (Kautto and Nissinen and Kosola 2007; for a more sceptical appraisal see Dalhammar 2007, 313-318.)

To sum up, it can be said that although the assessment of the final significance of the EuP Directive and the IPP as a whole is still difficult, many expectations and promises have been linked to them especially by the Commission. At the same time they seem problematic, not least because of the complexities of the governance and approach adopted towards stakeholder involvement. Thus, there is a need for evaluation and analysis of this change, which is what the next chapters will focus on.

3 THEORETICAL PERSPECTIVES

One of the aims of this thesis is to use and combine resources from several fields of social science. In this chapter, the idea is to briefly describe the central theoretical perspectives used in this thesis and to highlight the connections between the articles and these theoretical discussions. A starting point for the articles has been the evaluation of recently introduced policy instruments in the area of waste, and later, Integrated Product Policies (Articles I, II and III). However, as the work proceeded, it brought me towards more interaction-based and interdependence-based perspectives on government-company relationship. As such, an extensive variety of theoretical approaches on government/state-companies/business relations have arisen over the past 150 years, ranging from individualistic or group perspectives to systemic and holistic ones (Lang and Tenbuecken 2006). This thesis uses mainly two of these perspectives, theories on organisational responses on external pressures and approaches on direct lobbying by individual companies. Both of these have an individualistic starting point, focusing on individual companies as autonomous actors. In addition, governance theories were briefly presented in Chapter 2. In all of these theoretical perspectives, features highlighting interdependence between government and companies are emphasised in this thesis. There are also other links between the theoretical strands. The evaluation research and institutional theories both have the responses of organisations/actors in their focus. Moreover, both the studies on political activity of individual companies and organisation theory stress the interactive, even symbiotic features of the government-company relationship.

3.1 Evaluation of recently introduced policy instruments

Following Scriven (1991, 139; cf. also Vedung 2000, 3), evaluation is often defined as "the process determining the merit, worth, or value of something, or the product of that process". The beginning of the evaluation of public policies and their impacts is usually placed in the 1960s (Vedung 2003; Pawson and Tilley 1997), and a large number of evaluations and research on evaluation have been carried out since. In recent years, the practice of evaluation has expanded exponentially as the demands for effective, evidence based policies and democratic and client-oriented but still efficient (new) public management have flourished. Within the field of environmental policies, evaluation is a more recent phenomenon that emerged only in the late 1990s (Mickwitz 2006; Knaap and Kim 1998a), the *ex post* evaluation of waste policies partly described in Article I being one of the first undertakings in this field in Finland (see also Melanen et al. 2002; Kautto et al. 2000; Hildén et al. 2002). However, the aim here is not to present evaluation generally or try to cover the extensive history of evaluation or even the evaluation of environmental policies, but to briefly describe just two starting points often used in evaluations (and also Articles I, II and to some extent Article III).

The first is the so called *input-output model* of policy interventions, a simplified continuum of initiation, preparation, decision, administration, output and outcome (Vedung

2000, 15-23). Especially within the EU context it has been widely used for practical reasons, partly because it was one of the starting points of the very influential evaluation guidelines published by the Commission in 1997 (European Commission 1997). Although it is often stressed that it does not provide an empirical description of any reality, it guides evaluators and their understanding on how and when the effects of interventions arise, overemphasising an idea of regulatory addressees responding to regulatory pressure. Thus, the active anticipatory work by the addressees, especially the aims to influence the content of legislative requirements, is often left unheeded. As a consequence, some of the impacts of the regulation are not taken into account and policies may not seem to have as much effects as they actually have (as the effects take place too early) and, on the other hand, some companies seem to adjust to legislative requirements rather easily (having influenced their content themselves) (Articles I-V; cf. also "Ex-post" evaluation of future policy interventions – the real effects of interventions that do not exist by Kautto and Hildén 2004).

The second theoretical starting point is the so called *intervention theory*[16]. The aim of an intervention theory is to describe how the policy is intended to be implemented and to function (Hildén et al. 2002, 16). It shows what measures are assumed to be taken, and in what order, and what is assumed to follow from the measures taken. Different kinds of normative and empirical assumptions are included in an intervention theory: assumptions on the impacts at different stages of the causal chain and their causal relationships, as well as assumptions on the relationship between impacts, goals, various actors and contextual factors (Vedung 2000; Chen 1990; Dahler-Larsen 2001, 336-340). One intervention is usually based on several intervention theories, e.g., since different actors have different expectations of an intervention (Vedung 2000, 301).

However, it should be kept in mind that although intervention theories show what measures are assumed to be taken, and in what order, and what is assumed to follow from the measures taken, they do not tell us much on the processes through which these measures have been adopted. Thus, if some addressees (e.g., companies) seem to adjust to legislative requirements rather easily, it might be because they have modified the content of these requirements themselves. This is especially evident in the case of policy instruments that enable negotiation on the content of the requirements during the implementation (e.g., environmental permits), but although this regulatory capture (Baldwin and Cave 1999, 36-37) is often connected to so called command and control regulation, it can take place on a different level with other kinds of instruments as well. This is illustrated in Articles IV and V, and the interactive nature of policymaking is discussed further in sections 3.2 and 3.3. For their part, Articles I, II and III highlight the point of view of the addressees as a part of the evaluation of the environmental policy instruments.

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[16] In other contexts it has been called policy theory (Hoogerwerf 1990), program theory (e.g., Chen 1990; Weiss 1997; Rossi, Freeman and Lipsey 1999; Rogers et al. 2000), program logic (Lenne and Cleland 1987), the program's theory of action (Patton 1997) and theory of change (Pawson 2003, 473).

3.2 Organisational responses to external pressures

The focus of organisation studies is mostly in economic, rather than political organisations (Olsen 2007, 2). Probably due to this, organisation theorists have not shown too much interest in regulation (Fineman 1998, 954; cf. also critique by McKay 2001, 625; Oliver 1991, 174; Pfeffer 2003, xxv; Baumann and Boons and Bragd 2002). However, organisational studies provide useful tools for the study of interdependent relationships between the government and companies. Most importantly from the point of view of this study, since the 1990s new institutionalism in organisation studies has stressed that at the same time while organisations are affected by their environments, they are also able to respond to these external[17] pressures actively (e.g., DiMaggio 1988; Scott 1995, 128-132; Oliver 1991; Garud et al. 2002; see also critique of International Relations/regime analysis by Newell 2005)[18]. Besides, the recent discussion within new institutionalism points out that the change is not driven only by external pressures and shocks, but there are also intra- and inter-institutional sources of change to explore (Olsen 2007, 9; Dacin et al. 2002). Thus, the relationship between organisation and its institutional environment is not unidirectional.

Here, an important starting point has been a study of McKay (2001) on strategic responses to governmental action selected by companies. McKay has further developed the typology of individual organisational responses to institutional pressures by Oliver (1991) and identified new strategies. In order to overcome some of the limitations of institutional theory, they both combine it with perspectives from resource dependency theory. Both of these theories emphasise the importance of organisations' environment and their need to reduce uncertainty and ensure survival, but whereas institutional theory stresses organisational isomorphism and conformity encouraged by external pressures (DiMaggio and Powell 1983; 1991; Meyer and Rowan 1977), resource dependency highlights the asymmetry of resources possessed by different actors and thus, their chances to actively exercise power (Pfeffer and Salancik 1978; Pfeffer 2003). Thus, the aim is to open slightly the iron cage of the institutional theory and pay attention to active agency within its framework (Oliver 1991, 145; cf. DiMaggio 1988; Dacin et al. 2002; Van de Ven and Hargrave 2004; Granqvist 2007).

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[17] These pressures are often described as environmental. However, due to context of this thesis, it is clearer to refer to environmental pressures only if they are related to environmental policies.

[18] From the point of view of this study, institutional theory could offer several interesting approaches to study organisational action. The transition from waste policy to product-oriented environmental policy and development of product-oriented environment policy in general are interesting examples of the institutionalisation process, institutional change and emergence of new field. However, these are subjects for further study. Finally, according to the theories of autogenesis or self-organising systems (see, e.g., King, 2000; Hoffman 2001), organisations may seem to continue to be the same but actually incrementally develop fundamentally new mindsets and strategies. From the point of view of evaluation of recently introduced policy instruments, this is problematic as it partially calls into question the possibility of this kind of evaluation. On the other hand, Halme (2002) illustrates how organisational learning takes place during the action, i.e. behavioral change can be simultaneous with (or may even partially advance) cognitive-level learning.

A synthesis of forms of organisational responses distinguished by Oliver (1991) and McKay (2001, 636-641) is briefly presented in Articles IV and V and summarised in Table 3.1 below. It can be said to proceed from purely conforming *acquiescence* to proactively external pressure encouraging *safeguarding*, and in a way, from more institutional theory inspired strategies to resource dependency inspired ones. From the point of view of this thesis, an important addition to Oliver's typology done by McKay (2001) is especially the strategy of safeguarding, as it adds a supportive strategic response to the variety of conforming and resisting ones presented by Oliver. Safeguarding refers to protection of an external regulatory pressure and encouraging the use of the pressure by stakeholders, i.e. the actions that organisations under regulatory pressure take to support the governmental action. In other words, there is not only organisational change within companies due to external (governmental) pressure, but also within governmental pressure (policy) due to external pressure from companies.

According to McKay (2001, 636-637 and 641), safeguarding can be used as a strategy even by less resourceful organisations. Like safeguarding, *pre-empting* is a strategy that assumes that external pressure will be established, but aims to limit the changes and surprises by taking anticipatory actions (McKay 2001, 636). Finally, *reshaping* is closely related to *manipulation* as a strategy that can be adopted only by resourceful and active organisations. Another important feature in McKay's additions (2001) is the emphasis on timing: the responses can be anticipatory, initial or long-term and one responsive strategy she identifies is *time-shifting*, changing the time frame either by delaying or accelerating it.

As already mentioned, the discussion on strategic responses is closely connected to the wider discussion that has emphasised the need to explain the change within the institutional framework (Dacin et al. 2002; Van de Ven and Hargrave 2004; Schneiberg 2007; Hoffman 1999). In addition to explaining organisational change through external pressures or shocks (Scott 1995; Articles I, II and III), the significance of agency has been stressed since the 1990s (DiMaggio 1988; see also Van de Ven and Hargrave 2004), e.g., through the above-mentioned analysis of strategic responses[19]. Recently, there has been some interest in corporate political activity and in aims to promote common standards within institutional studies (Garud et al. 2002). Also these studies highlight the importance of the positions of institutional entrepreneurs in networks and their ability to mobilise resources. Besides, resource dependency is emphasised by the studies on factors influencing the public affairs management and issues management within companies (e.g., Schuler 2002; Lamberg et. al. 2004; Windsor 2007)[20].

Finally, although the bulk of the public and often even academic (cf. Dryzek 2005, 9-10) discussion argues that companies categorically oppose (environmental) regulation,

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[19] This has sometimes led to stories of entrepreneurial heroes and trivialised the role of institutional factors, i.e. the core of institutional theory of organisations. In order to overcome these problems, structural resources within institutional systems have been introduced as an alternative way to explain change (Schneiberg 2007).

[20] The main aim of this thesis is not, however, to explain the factors behind the political activity of individual companies.

Table 3.1. A synthesis of forms of organisational responses distinguished by Oliver (1991) and McKay (2001).

← resourceful and active / resourceless and passive →	Strategy	Tactics and examples
	Acquiescence	Habit, unconscious intent to conform
		Imitate, conscious or unconscious mimicry
		Comply, conscious obedience
	Compromise	Balance, balancing the expectations of multiple constituents
		Pacify, placating and accommodating institutional elements
		Bargain, negotiating with institutional stakeholders
	Avoidance	Conceal, disguising nonconformity
		Buffer, loosening institutional attachments
		Escape, changing goals, activities, or domains
	Safeguarding	Protection of an external regulatory pressure and encouraging use of the pressure by stakeholders
	Pre-empting	Using two strategies concurrently, one within and one outside a regulation, to circumvent aspects of the regulation that constrain an organisation's decision-making latitude
	Time shifting	Delay, e.g. in order to diminish constituent awareness or to wear down opposition
		Accelerate, limiting the stake
	Reshaping	Modification of regulation to provide a closer fit with the organisation's needs and interests
	Defiance	Dismiss, ignoring explicit norms and values
		Challenge, contesting rules and requirements
		Attack, assaulting the sources of institutional patterns
	Manipulation	Co-opt, importing influential constituents
		Influence, importing influential constituents
		Control, dominating institutional constituents and processes

regulation has also been identified as an approach to combine environmental performance and competitive advantage (Reinhardt 2000, 60-77; Clapp 2005; Garcia-Johnson 2000; Lyon and Maxwell 2004; Mickwitz et al. 2008). This can done by restricting entry to the market, or by creating higher costs for (technically) less advanced companies. Reinhardt (2000, 61) does not, however, focus on lobbying for regulatory requirements, but on demonstrating "the feasibility of a particular technology".

3.3 Individual company as a policy maker in the EU

As Wilson (2006, 33) argues, "there are about a hundred political scientists studying parties and elections for every one studying business and politics". Likewise, Newell (2005, 21) states that "International Relations (IR) as a discipline has, on the whole, neglected the role of business in international affairs" and as a consequence, "we continue to lack both an understanding of the diverse ways in which firms contribute to the overall architecture of global environmental governance and a sophisticated comprehension of the reciprocal

relationship between corporate strategy and international environmental regulation" (Levy and Newell 2005, 2). In sum, although there has been a growing interest in business and politics in the past decades, it is still a minor field of interest within political science (Wilson 2006; Coen and Grant 2006; Hansen and Mitchell 2000; Hart 2002; Lang and Tenbuecken 2006; Schuler 2002). Most importantly, the relationship between companies and politics has been discussed within the research on interest group politics in democratic systems, focusing on the debate on pluralism and corporatism. The classical model, pluralism, assumes that different interest groups have open access to policy-making and can thus provide opposing views to each other and towards state officials. Pluralism considers business as just one interest group among others, mainly bypassing the differences in the resources at their disposal. The role of governmental officials is to promote public interest by acting as referees in this game. (Hix 2005, 209; Wilson 2006, 35). Pluralism has been challenged by corporatist, consociational and neopluralist models, each offering a different description of how societal interests are represented in policy making and how the government is assumed to mediate between them. The corporatist model has obviously been the most popular. It assumes that the main division in society is between business and labour, and that state officials, the leaders of the business community and the trade union movement build up consensus in closed tripartite meetings. (Hix 2005, 209-211).

All of these models offer valuable viewpoints into policy making. However, they all take an interest group as their starting point. The role of individual firms as policymakers has been analysed much less (cf. Coen and Grant 2006; Wilson 2006; Martin 2000; Schneider and Tenbuecken 2002). Some important studies have been done in the US especially by Vogel (1989) and in the UK by Grant (1981; 1993; 2000), but at the EU level interest in an individual firm as a policymaker began with a survey done by David Coen (1997; 1998) in the mid-1990s. Coen studied how large companies allocated their lobbying resources between European and national industry associations and highlighted the direct contacts between multinational companies and the Commission (Coen 1997; 1998; cf. Articles IV, V). Since the 1990s, very popular network analyses and studies on network society have to some extent shifted the focus from the use of such terms as interest groups and state, and have instead highlighted such concepts as networks, governance and complexity (cf. Hajer and Wagenaar 2003, 1). Although the concrete political activities of individual companies have not generally been the main emphasis in these studies, they have recognised individual companies as societal actors (Rhodes 2006; cf. Pollitt 2003, 64-67). Thus, it can be said that the interest in individual companies as policymakers has increased in recent years, but the number of empirical studies is still quite limited[21].

The transition of regulatory competencies from national to European level and the globalisation of the economy are mentioned as the main incentives for expansion of business interest to influence the policy making at Brussels (Hix 2005, 225-227; Coen and Grant 2006, 14). According to Hix (2005, 211-212)[22], there were up to 500 interest groups

[21] The same is true for the studies on corporate political activity, public affairs management and issues management mentioned in section 3.2 (e.g., Schuler 2002; Lamberg et. al. 2004; Windsor 2007).

[22] Calculated from data in Greenwood (2003).

with a representative office in Brussels in the mid 1980s, but more than 2,300 in 2001. Although labour interests are also represented at the EU level through several actors, their organisation at the European level has been much slower and weaker than that of business (Greenwood 2007, 94-115). Thus, although the corporatist model might still do well at national level (at least in the Nordic countries), it has lost some of its (explanatory) power at the European level (and at least in such a field as environmental policy).

At the same time, the shift from a commanding state to a regulatory state (Majone 1997) or from government to governance (Kooiman 2003, 120-121) briefly described in Chapter 2 has created new opportunities and interest to influence policy making. This is the case particularly at the EU level, since the EU capacity to distribute budgetary resources is rather limited compared to national states (Hix 2005, 235 and 271). Thus, rule making is the main instrument as well as the main area of political conflict (cf. Kooiman 2003, 121).

For its part, the Commission (the main political institution analysed in Articles IV and V) typically uses interest groups and companies as sources of information, support and legitimacy and the relationship between policy makers and interest groups is fundamentally *symbiotic* (Mazey and Richardson 2001). The Commission has also attempted to advance multilevel governance with interest groups, companies and regions in order to gain more independence in its relation towards the Member States (Hix 2005, 305). Taking this and the needs to legitimise decisions by competitiveness into account, a highly successful company is an example of a desired collaborator for the Commission[23].

From the point of view of companies and interest groups, the concept of *venue shopping* describes the decision making concerning which government institution to lobby and into which arena they try to shift the debate over public policy (Baumgartner and Jones 1991; Mazey and Richardson 2001). As an institutionalised form of multi-level governance, the EU system has created several new venues for lobbying (Coen 2005; Bouwen 2004a). Besides, the growing importance of the European Parliament possibly brought the Commission even closer to the interest groups as "it knows that groups have other, attractive, EU venues where they can influence the policy process" (Mazey and Richardson 2001, 229). However, the Commission is a relatively small bureaucracy[24], and this has led to lobbying overload. Thus, the Commission has institutionalised a system for the consultation of interest groups and increasingly, favoured certain groups and companies over others (Hix 2005, 223; Wilson 2006, 39; Coen 2007a; 2007b; 2007c; Articles IV and V). To sum up, the lobbying style or the relationship between companies and political institutions evolved in Brussels during the past 20 years can be characterised as *elite pluralism*. It highlights the importance of long-term, symbiotic relationships between companies and the Commission officials and, particularly, the importance of building trust and goodwill among them (Coen and Grant 2006, 21; Coen 2007c).

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[23] Radaelli (2007, 195) cites one Commission interviewee according to whom "everything that cannot be Lisbonized will be terminated".

[24] According to Hix (2005, 223), the COM is "highly understaffed and relies on officials and representatives from national constituencies […] to supply knowledge and information about existing national policy regimes and interests".

4 DATA AND RESEARCH METHODS

The purpose of this chapter is to describe the methods and data used in the articles and briefly justify the choices made in relation to data, research strategy and methods. This thesis is not a product of a single straightforward process, but emerged from four partially interlinked projects. These projects have primarily served the information needs of the Finnish environmental administration, but from the point of view of this thesis, the insights gained in the earlier projects are reflected in the latter ones. Generally, the methods used are – with the possible exception of participant observation - well-established methods in organisation studies and political science.

Articles I and III primarily aim to answer the first of the three main research questions posed in Chapter 1 (What kind of effects do product-oriented environmental policy instruments have on companies?), while the second question (How can these, recently introduced policy instruments be evaluated?) is highlighted in Article II. Finally, Articles IV and V aim to answer the third main research question (How can an individual company influence the environmental policy making within a new field of policy?). However, there are also other links between the articles and research questions, and e.g., the evaluations presented in Articles I and III illustrate the evaluation of recently introduced policy instruments.

Four of the articles (I, III, IV, V) in this thesis are essentially empirical, while one article (II) uses empirical material to illustrate the use of intervention theories in the evaluation of recently introduced policy instruments, i.e. to support the methodological argument made. The articles use *diverse empirical materials* and a combination of methodological approaches that are summarised in Table 4.1.

Article I is based on documents on material flows, wastes and waste management in 14 industrial companies and 26 interviews of top executives and managers responsible for environmental issues in these, mainly large, companies. This information was collected for a multiple-case study on industry's responses to waste policy as a part of an extensive research project on the effectiveness of waste policy instruments (WAPO Project, 1998–2000; see also Melanen et al. 2002; Kautto et al. 2000). In addition to the data used in Article I, the data from an analysis of the effectiveness of new environmental permits was used in Article II. That included interviews (27 representatives of environmental administration, companies and NGOs interviewed) and an analysis of 611 environmental permit decisions gathered during the evaluation project on the first two years of implementation of the Environmental Protection Act. The main results of this project were published in nine articles and are summarised in Hildén et al. (2003).

Article III is based on case studies of three large, globally operating companies (KONE, lifts; Nokia, mobile phones; Stora Enso, packaging boards). The main source of information was semi-structured interviews, but these were complemented by documents obtained from the companies and gathered from the Internet concerning the case companies' operations, organisations, strategies and their activities in environmental management and product development. This data was collected for a multiple-case study on product

Table 4.1. The sources of primary data used in the Articles.

	I: Kautto & Melanen	II: Kautto & Similä	III: Kautto	IV: Kautto	V: Kautto
Semi-structured interviews	32 company representatives, 26 interviews	Env. permit: 27 (representatives of authorities (15), companies (8) and associations (4)), 25 interviews; Waste tax[1)]: 26 interviews	8 company representatives	12 (representatives of Nokia, industry associations, ministries, the Commission etc.)	RoHS & WEEE[2)]: 4 interviews within Nokia; EuP[3)]: 12; IPP: 13 interviews within Nokia
Documents	Concerning material flows, wastes and waste management in the 14 companies	611 permit decisions; documents on material flows, wastes and waste management in the 14 companies[1)]	Concerning the case companies' operations, organisations and strategy, and their activities in environmental management and product development	Internal and public documents, personal e-mails	Internal and public documents, personal e-mails
Observation	-	-	-	A COM workshop on the EEE draft directive	A COM workshop on the EEE draft directive; 9 Nokia Project Group meetings in 2005-2006, final meeting of Nokia, COM and IPP pilot project stakeholder group in November 2007
Other data	-	National level statistics on the amounts of waste	A survey on the implementation of EMSs and DFE (90 member companies of the Federation of Finnish Electrical and Electronics Industry, the total number of questionnaires sent to 101, the response rate 53 per cent)	- Several shorter discussions - Stories published by the ENDS Environment Daily	- Several shorter discussions - Stories published by the ENDS Environment Daily -Participation in several meetings on the IPP pilot product exercise at the Finnish Environment Institute - Commenting of the draft reports of Nokia to the project manager

[1)] The same as in article I.
[2)] The Directive 2002/96/EC on Waste Electrical and Electronic Equipment.
[3)] The same materials as in article IV.

management and the interaction between product policy and management (WAPRO Project, 2000 – 2002; Kautto, Heiskanen and Melanen 2002). In addition, the results concerning the linkage between EMSs and DFE from a survey (Kärnä et al. 2004) on the implementation of EMSs and design for the Environment (DFE) in 90 member companies of the Federation of Finnish Electrical and Electronics Industry were used to reinforce the findings of the case studies.

Data for Articles IV and V was gathered during a two-year project on the Impact of Environmental Policy Instruments on Activities, Products and Environmental Capabilities in the Electrical and Electronics Industry (the YPSE project). The main results of this project are reported in Kautto and Kärnä (2006). Article V is based on partly the same data as Article IV, namely the (draft) EEE/EER/EuE/EuP directives and memos published by the Commission, formal and informal statements by the Commission and other organisations involved in the preparation, personal e-mails between industry representatives and officials and letters of some stakeholders and a series of interviews of officials and representatives of different organisations involved in the preparation process. In addition to documents and interviews, personal observations from a two-day workshop on EEE draft directive (Brussels, February 21-22, 2002) were used to strengthen the findings. Apart from the data used in Article IV, Article V is based on 17 interviews within Nokia (most of the interviews with the IPP Pilot Product Exercise project manager), observations of nine Nokia IPP Pilot Product Exercise Project Group meetings in 2005-2006 and the final meeting of Nokia, the Commission and the IPP pilot project stakeholder group in Brussels (November 6, 2007) as well as an extensive amount of internal and public documents made during the project. The study of the IPP Pilot Product Exercise included some features of participant observation or even action research, as I gave comments on the draft reports to the project manager during the process.

All the studies can (at least partly) be characterised as case studies (Yin 1994; Burnham et al. 2004, 53-55; Eisenhardt 1989; Eisenhardt and Graebner 2007; Flyvbjerg 2006; Gerring 2004; Siggelkow 2007; Stake 1995). Case study is more a *research strategy* or design than a method (cf. Burnham et al. 2004) and different methods can be used when doing case studies.

The main reasons for the use of a case study strategy were the following: firstly, the main aim of this thesis is to obtain in-depth information on the interaction of *individual* companies and government. Secondly, in all empirical Articles, but especially in Articles IV and V, the use of a case study strategy was well grounded as it otherwise would have been impossible to gain as nuanced a view of the policy processes (cf. Flyvbjerg 2006). The amount of documents analysed for one policy preparation process easily exceeds a few thousand pages of text. The use of participant observation is even more labour intensive. Besides, in order to have a permission to observe the policymaking process within a large multinational company, trust needs to be built between the observer and the observed (Burnham et al. 2004, 224-226). That often requires a lot of work; in my case it was largely made possible through a ten year co-operation process that had taken place between my colleague and Nokia's environmental experts. Thirdly, as seen in Chapter

2, the product-oriented environmental policy is an emerging policy field. Thus, it was justified to study the practices in presumably the most progressive companies (Articles I and III), since if there is e.g., no connection between environmental issues and product development in these companies, its wide-spread existence in other companies would be unlikely, as well (Flyvberg 2006, 423-426). Besides, organisations tend to imitate large and especially profitable organisations in their own field (Scott 1995, 123-124) and thus, it was reasonable to select such organisations for the case studies (Articles I and III). Fourthly, case studies are especially suitable for studies seeking answers for "how" and "why" questions (Eisenhardt and Graebner 2007, 26-27; Yin 1994, 4-9).

The question of generalisation is often considered critical for a case study as a research design as well as for qualitative methods. Silverman (2001, 248-254) distinguishes three ways to obtain generalisability within qualitative research: combining qualitative research with quantitative measures of populations, purposive sampling guided by time and resources and theoretical sampling. All of these have been used in the studies, although combining qualitative research with quantitative measures was used only to a limited extent in Article III, in which results from a survey (Kärnä et al. 2004) were used to reinforce the findings of the case studies. Theoretical sampling has been the main answer to the problem of generalisability. In Articles IV and V Nokia represents a successful and resourceful multinational company. For Articles I and III, large, progressive companies were selected as cases (Scott 1995, 123-124). Thus, as there was no linkage between EMSs and product development in the cases studied for Article III, it was unlikely to find that linkage in smaller and less progressive companies in the field. Later, the survey reinforced these findings.

Using the terminology of Burnham et al. (2004), (at least) the following *methods* have been used in the articles: documentary analysis (to some extent in all the articles), interviewing (all the articles), (simple) descriptive statistics (Articles I and II), survey (Article III), and participant observations (Articles IV and V). I do not believe that the methods selected were the only feasible ones, but there were certainly grounds for using them in these particular studies, i.e. the choice of method has depended "on the problem under study and its circumstances" (Flyvbjerg 2006, 226). E.g., in Article I, the problem was how to connect changes in waste generation and management to environmental policy instruments. At the national level, the time-series on waste were not generally available and the quality of available statistics was rather poor. Thus, the analysis was done based on plant level statistics concerning material flows, wastes and waste management. Explanations to changes were then sought using semi-structured interviews.

Almost all the methods used are well-established methods in social sciences, including organisation studies and political science. Their strengths and weaknesses are well known and thus, I will not discuss them here in detail. However, as participant observation is relatively seldom used especially in political science (Burnham et al. 2004, 223-224), it is justified to explain its use here. The basic idea of participant observation is to build "a many-sided and relatively long-term relationship" "for the purpose of understanding the behaviour of those engaged in the setting" (Loftland and Loftland 1984, 12). Observation

certainly has many advantages as a way of achieving in-depth information, despite its labour intensiveness. One of the main advantages is to get so called naturally occurring data (Silverman 2001, 159-192).

Participant observation is often loosely called ethnography, but my observatory work within Nokia certainly was not that. My aim was not to construct an insider's description, or "to learn to think almost as they think" (Burnham et al. 2004, 225). Although I attended the meetings of Nokia IPP Pilot Product Exercise Project Group for more than a year (from April 2005 till June 2006), I attended only nine meetings and thus, my presence was perhaps never taken for granted. Still, I don't believe that Nokia organised another IPP Pilot Product Exercise Project Group to discuss the issues in private or that the members of the group always considered their statements having my presence in mind. Thus, although I did not gain full access to political decision making in Nokia, it is evident that by observing I got information that would not have been possible to get through interviewing. I got access to draft documents that were never published and was allowed to record the meetings I attended.

At least in social science, which has realism as its epistemological starting point, it is considered that the use of several methods (and/or sources of data) instead of just one gives us a more complete view of reality and strengthens the findings (Scriven 1991, 364-365; Silverman 2001, 233-235 and 288). This so called triangulation is more or less used in all the articles: in Article I data acquired through interviewing was contrasted with documents and statistics, in Article II interviews and documents were complemented by a survey and in Articles IV and V interviewing, documentary analysis and participant observations were combined.

Finally, some notions on ethical questions regarding this study: In all articles, a part of the data used is confidential. For example, in Article IV, some personal e-mails that had been sent during the EuP preparation process provide essential complementary evidence. In order to gain access to the Nokia IPP Pilot Product Exercise Project Group, I had to sign a confidentiality agreement. This has to a limited extent restricted my freedom to report the names of the people involved in these processes. As far as I can see, it has not influenced the results reported (cf. Burnham et al. 2004, 226-227), but it has of course limited the transparency of my work to some extent.

5 RESULTS AND DISCUSSION

In this chapter, the aim is to summarise the key findings of the articles and try to connect these to each other and to ongoing discussions within different fields of environmental policy research. I do not present the results article by article, but a summary can be found in Table 5.1. In the text, the aim is rather to group the results under the main research questions presented in Chapter 1:

1) What kind of effects do product-oriented environmental policy instruments have on companies?
2) How can these, recently introduced policy instruments be evaluated?
3) How can an individual company influence the environmental policy making within a new field of policy?

Table 5.1. Key results of the articles summarised.

Article	Aims to answer research question(s)	Key research task(s) / question(s)	Key results
I	1) and to illustrate 2)	- To evaluate the effects and effectiveness of waste policy instruments on 14 large industrial companies - To examine the attitudes of the top executives and environmental managers of the companies towards the use of various policy measures	- The management response to waste policy in the firms is small. - From the perspective of the companies, the primary pressure to upgrade environmental performance seem to came from the customers. - The waste policy instruments were not considered to have contributed to waste prevention. - Although the costs of waste management were relatively low, the waste tax and waste charges have stimulated the increase of the recovery of waste. Much of this has been due to anticipation of future developments.
II	2)	- To examine problems in the retrospective evaluation of recently introduced policy instruments, and to explore the advantages of using intervention theories in these evaluations	- When evidence on final outcomes is largely unavailable, an intervention theory is a useful tool to overcome information problems. By using intervention theories, it is possible to identify observable prerequisites that precede intended, but not yet occurred, outcomes. - Two case studies, a reform of environmental permitting and waste tax, are used as examples.
III	1) and to illustrate 2)	- To evaluate how environmental management systems (EMSs) and extended producer responsibility (EPR) systems have influenced the emergence of greener products	- Both the case studies and the survey indicate that the link between EMSs and product development is either weak or completely missing. Therefore, the mere existence of an EMS can hardly be used as a convincing indicator of the implementation of an environmentally friendly design process. - The results regarding the EPR systems were more positive: the anticipation or implementation of EPR systems had speeded up the design for environment (DFE) activities.

IV	3)	- To inquire how a multinational corporation, Nokia, and related industry associations anticipated legislation under preparation and how they tried to influence the preparation process	- Illustrates the dependency of the Commission on companies and interest groups as sources of information. - Demonstrates which venues Nokia selected for lobbying and how other multinationals and the European industry associations co-operated with Nokia in order to influence the Commission. - The industry associations, Nokia and some other major companies thoroughly reformulated the proposal for EuP Directive using issue based strategies. The results go as far as to propose that the industry and DG Enterprise were able to capture product oriented environmental policy from DG Environment.
V	3)	- To inquire how a multinational corporation has anticipated legislative initiatives and how it has tried to influence policy development in interaction with industry associations and EU institutions	- Examines the evolution of collaborative political activity within Nokia and the interdependency of business and the Commission in policy making. - Nokia decided to break partly away from the industry's traditional cooperation within policymaking and adopt a more proactive and collaborative approach. Instead of challenging and attacking approaches, it has adopted more constructive strategies.

5.1 Impact of different policy instruments and initiatives: from acquiescence to pre-empting and beyond

Articles I, II and III offer empirical evidence on the effects and effectiveness of different waste and product-oriented environmental policy instruments currently in use. As Mickwitz (2006, 10) has pointed out, evaluation came to the field of environmental policies only at the end of the 1990s. Thus, these studies were some of the first conducted in the field. Articles I and II showed that the waste tax and municipal waste charges have increased recycling and recovery. However, the waste tax has not improved the prevention of waste, as the waste management costs at the company level were relatively low and the reduction of wastes was affected more by the raw material costs. Besides, the costs of waste management were low in relation to investments in cleaner technology, and thus, the waste tax is not effectively promoting waste reduction at source. As already stated, the management response to other waste policy instruments appeared to be small at the time of the study. In general, the results illustrated the limitations of waste policy as means to promote waste prevention, the primary objective of the present waste policy in the EU as well as in Finland.

In addition to a study on waste tax, Article II presented a reform of environmental permitting (the Integrated Pollution Prevention and Control permit, IPPC) as an example of the evaluation of recently introduced policy instruments. The introduction of integrated permitting was assumed to lead to the abolishment of the gaps between different permits,

to the reduction of detrimental side effects, to a new kind of prioritisation and finally to a technological change from end-of-pipe technology to process technology. However, our analysis showed that the permits did not evolve as assumed, at least not at the beginning of the implementation process, i.e. during the first two years of the implementation of the Act.

Since the EuP Directive is based on the use of the so called Global Approach (see European Commission 2000), environmental management systems (and self-assessment procedures) can be used for conformity assessment. However, all the case companies of Article III had set goals for DFE and developed their products towards an environmentally friendlier direction during the past years. Still, in all case companies the link between EMSs and product development is weak or completely missing and the survey confirms that this is a fairly common state of affairs. Thus, the mere existence of an EMS can hardly be used as a convincing indicator of the implementation of an environmentally friendly design process. The relatively high DFE performance in companies having EMS (van Hemel 1998, 217; Simon et al. 2000, 369) rather seems to be a simultaneous occurrence than a close, causal connection. In contrast, the study indicated that the anticipation or implementation of regulation, e.g., extended producer responsibility systems for packaging and packaging waste and for waste electrical and electronic equipment, had speeded up the DFE activities. Since then, extensive studies on the legal implementation of the WEEE Directive have shown that the Member States have practically watered down the DFE dimension of the Directive (e.g., Sandler et al. 2007).

One of the findings in the Articles I, II and III was that the case companies had a tendency to anticipate the requirements of forthcoming legislation before they entered into force. Forthcoming and anticipated changes in waste legislation were reflected in searching for new ways of recovery and other changes in the waste management practices, and later in the cases presented in Article III in adoption of new production technologies, by changes in product development and products, and in the development of material data management (cf. Kautto and Kärnä 2006, 11-20). Together, these studies pointed out that the experiences gained from such anticipatory activities influence companies' reactions to policy issues, and direct their voluntary environmental management efforts (cf. Kivimaa 2008; 53; Lyon and Maxwell 2004). All of these findings hinted at the importance of the legislation preparation stage and later led me to study the aims to influence the policy preparation at the European level.

This anticipatory effect is, however, often difficult to observe (cf. Kautto and Hildén 2004). In Article I, the interviewees referred to customers as the principal source of pressure for improving environmental performance. It is possible that it was because they were not able to identify public policy as the original source of demands or because their customers were environmentally aware.

5.2 How to evaluate recently introduced policy instruments?

The product-oriented environmental policy is an on-going process and the policy instruments to advance its goals have only been recently adopted. The same applies to the waste policy instruments and the reform of environmental permitting at the time of the studies presented in Articles I and II. Thus, the studies presented in Articles I, II and III are all examples of early evaluations. For various reasons (see Article II; cf. also Mickwitz 2006), there is often significant demand for these evaluations, but at the same time these evaluations of recently introduced policy instruments (RIPI evaluations) are especially problematic in terms of information availability.

Like Hildén (2009) has pointed out, evaluation literature has not paid very much attention to the question of the time horizon, although it is clearly important. In Article II it is argued that a retrospective evaluation of recently introduced policy instruments is possible and the use of intervention theory can help to overcome the information problems typical for early evaluations of policy instruments (see also Kautto and Hildén 2004). Although evidence on the final outcomes is not available, it is possible to identify observable prerequisites that precede intended, but not yet occurred, outcomes. Intervention theory can thus be a very helpful tool when conducting early evaluations.

Besides, Articles IV and V refer to a significant influence of industry associations and multinational companies in policy making at the European level. Together with other anticipatory actions, this also explains why goal-achievement of legislation is often successful as it is already in line with the industry's interests and thus rather easy to implement. Thus, initiating the preparation of a policy intervention is in itself an intervention that can have significant and also unforeseen effects (Kautto and Hildén 2004).

5.3 Individual company as a policy maker within a new field of policy?

Large, resourceful companies and other more influential actors often mobilise several strategies simultaneously and stress them differently during short and long periods of time or with respect to different levels of administration. One way of anticipating the forthcoming legislation is trying to influence the content of that legislation. Articles IV and V illustrate how a successful and resourceful multinational company can act as policymaker at the European level.

In Article IV, the preparation of the proposal for the EuP Directive concerning the interaction between the Commission and different stakeholders (e.g., representatives of large companies, industry associations and non-governmental organisations (NGOs), and Member States officials) is analysed. The process is mainly examined through the perspective of Nokia Corporation and related industry associations (EICTA[28] and

[28] European Information, Communications and Consumer Electronics Technology Industry Associations.

Orgalime[29]. The results show that the industry associations, Nokia and some other major companies were able to reformulate the proposal for EuP Directive using issue based strategies. The results go as far as to demonstrate that the industry and DG Enterprise succeeded in capturing product oriented environmental policy from DG Environment as there had been discussion and rumours on a forthcoming directive on eco-design by DG Environment before the first EEE[30] draft was released in 2000.

In Article V, the evolvement of Nokia into a proactive environmental policy actor at the EU level was examined using three cases of IPP preparation: (1) the preparation of the RoHS and WEEE Directives, (2) the preparation of the EuP Directive and (3) the IPP pilot project on mobile phones. Nokia's view on the industry's cooperation as insufficiently proactive during the RoHS and WEEE processes was reflected in later preparation processes. Instead of adopting attacking and challenging approaches towards the industrial associations, Nokia adopted (from the point of view of the Commission) more constructive strategies, such as reshaping, pre-empting and, to an increasing extent, safeguarding. This again enhanced the trust in Nokia within the Commission, which is especially important as the particular policy area is still under development. These strengthened ties with the Commission can be expected to bring further positive lobbying results for Nokia in the future.

Both in public and academic discussions it is often argued that companies categorically oppose (environmental) regulation and mainly use avoidance and defiance as strategies towards environmental politics. According to another argument, multinational companies manipulate political institutions, or "hijack environmentalism" (Welford 1997). The studies presented in Articles IV and V offer a more diverse, complex and especially interdependent image of environmental policy making. Even a resourceful multinational company such as Nokia uses several strategies, and sometimes even safeguards and encourages the use of the regulatory pressure by political institutions such as the Commission. Together, these studies illustrate how Nokia, the Commission and to some extent also the other analysed actors have become adopted into the lobbying style emerged in Brussels during the past 20 years, described as *elite pluralism* (Coen and Grant 2006; Coen 2007c). According to one characteristic of elite pluralism, the Commission is increasingly favouring certain groups and companies over the others due to lobbying overload (Hix 2005, 223; Wilson 2006, 39; Coen and Grant 2006). Thus, the building of legitimacy (e.g., by using constructive strategies) is particularly important for the companies in the long run. Although the case studies do not fully reveal how the interaction and negotiations between Nokia and the Commission proceeded, it seems evident that the interaction was not just aggressive lobbying suggested by the popular media (cf. Coen 2007c, 10). Instead, there were

[29] The European Federation of National Industry Associations representing the European mechanical, electrical and electronic and metal articles industries.
[30] The EEE draft directive (Draft directive on the impact on the environment of electrical and electronic equipment) preceded the proposal for EuP Directive.

elements of interdependent, collaborative policymaking such as reciprocity, building of new relationships and social capital, and mutual learning (cf. Innes and Booher 2003, 42-46)31. Thus, these governing interactions also shape the actors that relate into each other within them (Kooiman 2003, 11-25).

In this kind of situation, the question of access is crucial from the point of view of political influence of companies and interest groups. For political institutions, the possibility to limit the access is one of the key instruments for political control. As a resourceful multinational company Nokia has been able to provide three kinds of access goods (i.e., resources) identified by Bouwen (2004a, 476-477; 2004b, 340; cf. also Wilts 2006, 444): expert knowledge, information about the European encompassing interest and information about the domestic encompassing interest. The first one, expert knowledge, is typically provided by the companies, while the two latter are usually access goods provided by European or national associations that can claim to represent more aggregated interest. As Bouwen (2004a, 478) puts it, "most of these large European firms cannot claim to provide information about the European encompassing interest because they only have a relatively small market share in the single market". However, as Nokia is by far the largest European company within its industry (Forbes 2007) with a market share over 40% globally (Nokia 2008) and is a highly important client for many other companies in the electronics industry, it can be said to represent more aggregated interest. Finally, during the preparation of the EuP Directive (Articles IV and V), the European Commissioner for Enterprise and Information Society, Mr. Erkki Liikanen, and a part of his cabinet were Finnish. Thus, Nokia was also able to provide information concerning the domestic encompassing interest. In general, product-oriented environmental policies might include (technical) areas, where individual companies can have better access than wide-ranging industry associations.

Although the studies first and foremost highlight the symbiotic nature of the policy making in Brussels, they also seem to hint at the advantage that resourceful multinational companies can have in these political battles: if needed, they can mobilise in a short period of time a lot of expertise to engage in policy making within a limited policy area. On the basis of the preparation of the EuP Directive (Article IV), proactive, anticipatory institutional entrepreneurship seems to be worthwhile from the point of view of the company, even though it is not possible to always have predetermined strategies concerning the issues to be covered (and the issues – and related interests – are bound to change during the complicated processes). These studies also highlight the venue shopping done by Nokia and describe how the industry associations were sometimes a hindrance to Nokia and its interests, and sometimes an essential part of Nokia's attempts to influence the policy making. Nokia was also a venue for other multinationals and the European industry associations, as it was

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[31] Martin (2000, 38) points out that the studies on the government affairs departments of companies have shown that instead of protecting the company from "excessive regulation, [they] become the venue for co-optation by government".

known that Nokia had good contacts with the Commission. For its part, the Commission was able to connect Nokia and its counterparts more closely with the IPP processes.

In the public discussion, lobbying and political influence of multinational companies is often seen as suspicious and questionable. This study tries to avoid such a stance as a normative point of view. However, from time to time it is of course important to consider the challenges limited access and corporate political influence pose to democracy in this kind of elite pluralistic policymaking. The question of transparency is evidently crucial - although its effects are not as straightforward as one might assume (cf. Naurin 2007).

6 CONCLUSIONS

This thesis highlights the interactive, interdependent and symbiotic relationship between individual companies and the government in product-oriented environmental policy. Three main research questions have been addressed: "*What kind of effects do product-oriented environmental policy instruments have on companies?*", "*How can these, recently introduced policy instruments be evaluated?*" and thirdly - and perhaps most importantly -, "*How can an individual company influence the environmental policy making within a new field of policy?*"

Most importantly, this thesis emphasises the limitations of most of the management literature treating the regulator as "an out-there stakeholder" and most of the political science bypassing the business, especially individual companies as political actors. Even traditional regulation is a much more interactive process than most of the management studies propose, and companies are clearly more important and multifaceted policy makers than the research conducted in the field of political science suggests. Despite these limitations, organisation studies and political science provide useful tools to study these interactions between the government and companies. One important addition to the study of corporate political activity is combining perspectives from political science to resource dependency and institutional theories. Besides, this thesis illustrates that an individual company can use several strategies at a time, and even a very resourceful organisation may use such a strategy as safeguarding, which encourages the use of external regulatory pressure. This can be seen as a way of building trust and legitimacy among political institutions and as one way to maintain advantage in the competition. This highlights the interdependency of the political institutions and even the most resourceful multinational companies. In all, it is evident that interaction between the Commission and the business is not just aggressive lobbying as the popular media has suggested. In addition, the importance of information and personal contacts as access goods, and the use of other companies as venues for lobbying are emphasised. From the point of view of democracy, this lobbying style characterised as elite pluralism highlights the questions of (limited) access and transparency. Finally, with other anticipatory actions the influence of industry associations and multinational companies in policy-making explains why goal-achievement of legislation is often successful as it is already in line with the industry's interests.

Secondly, the results demonstrate that the shift in the focus of environmental policy from waste policy towards product-oriented environmental policy is needed in order to promote environmentally friendlier product development and products. Although the waste policy instruments in use had increased recycling and recovery, they had not been able to promote the primary objective of waste policies, waste prevention. Policy instruments focused at the end of life cycle (i.e., on waste and waste management) give too weak signals too late in order to promote changes in product development. Instead, product-oriented policy instruments may promote significant changes throughout the product life cycle and companies can be used as regulatory surrogates.

In this thesis, two new policy initiatives proposed to overcome the limitations of the traditional regulatory approach within product-oriented environmental policy were examined. The link between environmental management systems and product development was weak or completely missing, but the extended producer responsibility systems had speeded up ecodesign activities. The results of the weak connection between environmental management systems and product development demonstrated that the mere existence of an EMS could hardly be used as a convincing indicator of the implementation of an environmentally friendly design process. The link between extended producer responsibility systems and product development has been studied surprisingly little, and further investigation is needed. In addition to drawing conclusions on the effects of these instruments, this thesis highlights the usefulness of intervention theories in these early evaluations.

In the case of the EuP Directive, potentially the most significant IPP measure so far, the design of implementation measures will be essential. In order to win the political struggle regarding the content of these requirements, strategic alliances should increasingly be sought with individual, "progressive" companies instead of industry associations that often look for lowest-common-denominator solutions. It is also evident that the differences between the emergence of environmental impacts of different industries are considerable, and often significant results can be achieved with more traditional process or end-of-pipe oriented measures.

Although Nokia, the company in the main focus of this thesis and especially in the studies on the corporate political activity, is in many ways exceptional, it can also be an example of successful policy making from the perspective of companies. Firstly, due to lobbying overload, the Commission is increasingly favouring certain groups and companies over the others. In this kind of lobbying culture, adopting solely opposing and attacking strategies towards political institutions does not lead to success. Secondly, ad hoc alliance building with e.g., resourceful multinational companies can be a more successful way to promote one's particular interests than solely relying on industry associations. Thirdly, proactive, anticipatory action seems to be successful in policy making even though it is not possible to always have predetermined strategies on issues to be covered during the complicated processes. Finally, governance mode adopted in the IPP opens more opportunities for corporate political activity at multiple levels.

The evaluations presented in this thesis have to some extent been limited by the fact that their starting point has been the goals of policy instruments, i.e. effectiveness is used as the primary evaluation criterion. The use of multiple evaluation criteria would have been beneficial especially for the study of waste policy instruments. It should, however, be kept in mind that these studies were among the first studies conducted in the novel field of environmental policy evaluation. All the studies presented can be characterised as case studies. This research strategy has its own limitations, but as argued in Chapter 4, it was well grounded. Especially the questions of corporate political activity are in many ways sensitive, and it is evident that access to e.g., inter-company information is not always easy

to get. It should be noted that while these kinds of methods were not the only possible ones to use, through them it was possible to get information that was not otherwise available.

Finally, the studies presented in this thesis point out the need of further research within the fields of product-oriented environmental policy and corporate political activity. Firstly, the transition from waste policy to product-oriented environmental policy as an institutional change should be studied. Secondly, there is a need to further evaluate the policy instruments and initiatives for product-oriented environmental policies. E.g., voluntary approaches such as the IPP pilot project should be carefully assessed before taking as a starting point for further policy making in the field of product-oriented environmental policy. Thirdly, Nokia bypassed to a large extent the national level actors in its policy-making. This can reflect a difference between large and small member states and their assessed effectiveness as lobbying arenas in European policy making. Finally, the number of empirical studies on individual companies as political actors and on the interdependency between companies and political institutions is still quite limited, although this study has increased the understanding of the rein holders in Integrated Product Policy.

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Article I

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How does industry respond to waste policy instruments—Finnish experiences

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Abstract

This multiple-case study, which combined diverse data collection methods, evaluated the impacts of waste policy instruments on 14 mainly large Finnish industrial companies in the 1990s. The management response to waste policy in the firms appeared to be small and most of the interviewees felt that the primary pressure to upgrade environmental performance came from their customers. The waste policy instruments were not considered to have contributed to waste prevention in the case companies. In contrast, the recovery and safe final disposal of wastes had developed favourably. In order to promote the source reduction of waste, the scope of policy should be drastically shifted from waste management to society's overall cycles of materials and products.

Keywords: Waste; Policy instruments; Industry; Clean technology; Industrial ecology

1. Introduction

1.1. The position of industry in Finland

Industry plays a crucial role in the transition to sustainable society regarding both the economy and the environment. The position of industry in Finland is strong. In 1998 it generated 28% of the Finnish gross domestic product (GDP) [1]. The wood, pulp and paper industry, the electrical industry and the metal industry are the three most important sectors, which in the late 1990s yielded 61% (in 1998) of the value added in industrial production and 82% of the total exports of Finland (in 1999) [1]. Although the environmental performance of industry has substantially improved in recent decades and cleaner technologies have been adopted, industry continues to contribute to most of the major environmental problems in Finland.

Waste represents a loss of valuable resources, many of which are scarce. Approximately 16 million tonnes of industrial waste were produced annually in Finland in the late 1990s. This amount was one fourth of the gross national waste generation.[1] Almost two thirds of the industrial waste was recovered (Fig. 1).

1.2. Finnish waste policy

The first Act in Finland dealing specifically with waste was the Waste Management Act (673/1978) which came into force in 1979. Finland joined the European Union (EU) in 1995, since when the country has experienced a rapid expansion of waste regulation due to the implementation of Community waste legislation. More than 20 national waste ordinances have been issued since 1994, when the current Finnish Waste Act (1072/1993) and Waste Decree (1390/1993) came into force.

The Waste Act and the Waste Decree implemented the provisions of the Council Directive on Waste (75/442/EEC), the Council Directive on Hazardous Waste (91/689/EEC), and Council Regulation No.

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[1] The amount of waste by sectors in Finland in 1997 was as follows (in million tonnes): mining 21, agriculture 21, industry 16, municipalities 2.6, energy and water supply 1.3, construction (excluding earth masses) 1.1, hazardous waste 0.5 (sources: Finnish Environment Institute, Statistics Finland, Ministry of the Environment Finland, Technical Research Centre of Finland).

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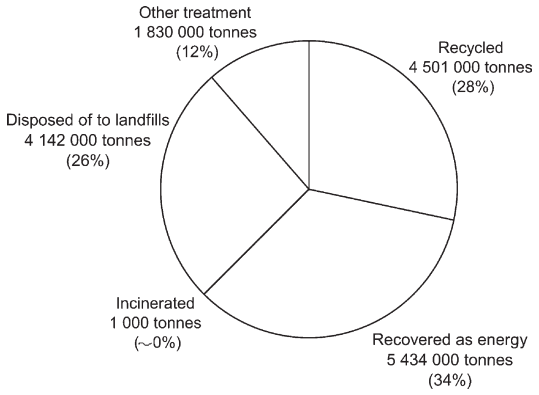

Fig. 1. Recovery and treatment of industrial waste in Finland in 1997 (source: Statistics Finland).

259/93 on the Supervision and Control of Transfrontier Shipments of Waste. The other European Community provisions on waste and waste management have been implemented through general regulations issued by the Government or the Ministry of the Environment.

According to the Finnish Waste Act, the ultimate goal of waste management is to support sustainable development by enhancing the rational use of natural resources, and to prevent and control hazards and harm to human health and the environment arising from wastes. The Finnish Waste Act also incorporates the waste hierarchy of the European Community, which gives preference first to waste prevention, then to waste recovery (with priority being given to material recovery, i.e., recycling), and lastly to waste disposal (landfilling and incineration without energy recovery).[2] Compared with the earlier Waste Management Act, the current Waste Act emphasises preventive measures for minimising the waste generated and decreasing the harmful properties of waste.

The European Union and Finland both apply the principle of extended producer responsibility to minimise the generation and enhance the recovery of certain types of waste. This principle was first incorporated into Finnish law through the Government Decisions on Discarded Tyres (1246/1996), Packaging and Packaging Waste (962/1997) and Wastepaper (883/1998).

Regulation (notably waste permits, prohibitions and emission norms) has formed the basis of waste policy in Finland. Economic instruments[3] are also applied to achieve waste policy aims, but their use has not hitherto been intensive. Table 1 indicates the most important current provisions on waste and waste management from the point of view of the industries relevant to this study.

As required by the EU, Finland also has a National Waste Plan [3] in which challenging goals have been specified by 2005 especially for the recovery of wastes. Targets have also been set for waste reduction: in most sectors, the amount of waste in 2005 should be 15% less than it would be on the basis of economic growth (decoupling of waste from economic activity). A background for these targets has been the fact that waste amounts have continually grown in Finland, as they have done in other parts of Europe.[4]

2. Aims of the study

In order to enhance our knowledge of the most appropriate roles for government in modern/postmodern society,[5] it is necessary to understand how industry perceives policy instruments and responds to them. If policy makers understand how environmental interventions and initiatives are adopted and reacted to in companies, they can make well-grounded choices on the use of policy instruments. However, little information on the real effects of waste policy and its instruments has hitherto been available in Finland, and ex-post evaluations of the effectiveness of environmental policy instruments are rare, in all.

Against this background, we carried out a case study involving 14 Finnish industrial companies of mainly large size. The principal aim of our study was to evaluate the effects and effectiveness of waste policy instruments on these companies in the 1990s. Another aim was to examine the attitudes of the top executives and environmental managers of the companies towards the use of various policy measures. Our study was a complemen-

[2] This management hierarchy is once more confirmed and stressed in the proposal presented by the Commission of the European Communities for a decision of the European Parliament and of the Council laying down the Community Environment Action Programme 2001–2010 [2]

[3] The instruments in use are: the municipal waste charge; the national waste tax, to be paid on waste deposited at landfills operated by a municipality or a body appointed by the municipality, or operated primarily for the purpose of receiving waste by another party; the tax system to encourage the re-use of disposable drink containers; the waste oil charge; the subsidies for R&D in environmental protection.

[4] According to information gathered by the European Environment Agency, the total amount of waste in the EU and the European Free Trade Association countries increased in 1990–1995 by nearly 10%, whereas the economic growth was 6.5% [4].

[5] In recent years, there has been considerable debate on whether transition from "modern society" to "postmodern society" in industrialised countries has already materialised or whether this is something still to come. According to Lash [5], dedifferentiation, transgression of boundaries, devaluation of meanings and emphasising the figural rather than discursive are characteristics of postmodern society in contrast to modern society. In any case, this transition may require new and more flexible approaches to regulation exercised by government.

Table 1
The main provisions on waste and waste management, relevant for the case companies of the study, issued in Finland in 1993 - 1998

Provision	In force since	Main contents
Waste Act (1072/1993)	1 January 1994	Contains provisions on waste prevention, waste management, littering, soil contamination, covering of costs and financing, authorities, waste planning, collection of information, inspection and supervision, coercive measures and sanctions. Determines the criteria for municipal waste charges. Determines the criteria for approval procedures (waste permit, notifications).
Waste Decree (1390/1993)	1 January 1994	Complements and specifies the provisions of the Waste Act.
Government Decision on Construction Waste (294/1997)	1 June 1997	In order to increase the recovery of construction waste, sorting into four main waste categories is required. An average of at least 50% of all construction waste, except for soil, rock and dredging waste, was to be recovered in 2000.
Government Decision on Landfills (861/1997)	1 October 1997	Contains provisions on the planning, establishment, construction, use, management, closure and aftercare of landfills.
Government Decision on Packaging and Packaging Waste (962/1997)	1 December 1997	The responsibility for preventing the generation of packaging waste and for the reuse of packaging and recovery of packaging waste is given to packers.
Government Decision on the Recovery of Wastepaper (883/1998)	1 January 1999	The responsibility for wastepaper management is given to producers.
Waste Tax Act (495/1996)	4 September 1996	A tax of 15 euros (approx. USD 15; 2 February 2001) is levied per tonne of waste on all waste transported to public landfills, with the exception of, for example, de-inking waste, fly ash from power plants and waste that can be utilised in landfill structures.

tary undertaking to another, concurrent study which concentrated on Finnish small and medium-sized companies (see Ilomäki and Melanen [6]).

3. Data and methods

3.1. Concepts

The Finnish Waste Act specifies *waste* as "any substance or object which the holder discards or intends, or is required, to discard", and this definition was applied in our study. In practice this broad definition is problematic and it may cover substances and materials that are defined as by-products or surpluses in legal systems outside the European Union.

Government uses *policy instruments* for achieving the objectives set out in a policy. As Vedung [7] points out, no uniform and generally accepted classification of policy instruments is found in the literature of public policy. In our study, we classified the government *waste policy instruments* into three main categories:

- regulation[6] (permits, prohibitions, etc.)
- economic instruments (charges, taxes, subsidies, etc.)
- informative instruments (information campaigns, ecolabels, etc.).

Regulation obliges people and companies to do what government tells them to do. Economic instruments involve remuneration or deprivation of material resources. However, economic instruments do not coerce companies to take specific measures. Information as a policy instrument aims at influencing people by the transfer of knowledge, argumentation or persuasion. [7] Regulation has been criticised as an ineffective and costly policy instrument, and especially in the 1980s, strong demands for deregulation were made. Many economists have favoured the use of economic instruments as more efficient tools for environmental policy. However, as Oosterhuis and de Savornin Lohman [8] point out, economic measures can be designed and implemented as imperfectly as regulation. Furthermore, various interest groups have raised concerns on the harmful effect of economic instruments on competitiveness. On the other hand, for example Porter and van der Linde [9,10] have argued that the use of environmental policy instruments has enhanced innovation in industry, and thus enhanced the competitiveness of companies in the countries using them.[7]

For various reasons, firms may improve their environmental performance beyond the existing regulatory requirements. This *self-regulation* can for example be exercised through initiatives launched by industry (e.g.,

[6] This definition is in contrast with various American definitions, which equate regulation with all forms of political control, see [7].

[7] The views of Porter and van der Linde [9,10] have also been criticised by, e.g., Wallace [11] and Kolk [12] for being based on scarce empirical evidence and only a few branches of industry.

Responsible Care) or through programmes led by standardisation organisations (e.g., ISO 14001) [13].

The principal aim of our study was to evaluate the effects and effectiveness of waste policy instruments. Rossi and Freeman [14] defined *effects (impacts)* as being net impacts of an intervention after the effects of other concurrent incidents have been eliminated. From the point of view of stated targets, the effects can be positive or negative, predicted or unpredicted. An intervention may also have a null effect [15]. In our study, this framework was adopted when assessing the effects of waste policy instruments. By *effectiveness* we have meant the extent to which a given target has been achieved.

3.2. Methodology

For several reasons, our research problem called for using the case study [16] as our research strategy. The case study was selected as the appropriate research strategy as our research questions dealt with *how* companies respond to policy measures, and the questions focused on a contemporary set of phenomena within their real-life context. [16,17] The case study strategy also enabled us to examine the use of waste policy instruments from the point of view of their target, the industry.[8]

Typically for a case study, we combined different methods of data collection. Documents on material flows, wastes and waste management in the 14 case companies were gathered and carefully analysed. On the basis of the document analysis, we were already able to reconstruct the development in most of the case companies in recent years. A top executive and a manager responsible for environmental issues were interviewed in each company. In some cases, other experts also took part in the interviews. Altogether, we interviewed 32 persons. The interviews were conducted between January and May, 1999.

Semi-structured interviews constituted the main source of the empirical data of our study. The interviews were not based on a formal schedule of questions to be asked word-by-word in a given order. Instead, we had a list of themes that were covered in the course of the interview; for the methodology, see, for example, [18,19].

To ensure construct validity (correct operational measures for the concepts being studied, see, for example, [16]) in our study, the effects of waste policy instruments were evaluated in relation to the targets set in legislation. Furthermore, we used multiple sources of evidence in data collection and the conclusions were not solely based on the interviews, but on the combination of the results from the document analysis and the interviews. In addition, parts of the study were reviewed by the interviewees. As Yin [16] and Silverman [19] point out, these are not, however, sufficient measures to ensure the validity of a research. Therefore, internal validity (justifiable causal statements) was enhanced by using the explanation-building tactics (see Yin [16]).[9] In this iterative process we formulated an initial statement about the policy and compared the findings of a case against this statement. Then, the statement was revised and compared against the findings of the case. The re-revised statement was finally compared with the findings of the other cases.

Due to the data and methods used, the results of our study cannot be statistically generalised to Finnish industry as a whole. Analytical generalisations can be made, as we strengthened the external validity (generalisability) of our study by selecting the cases using purposive sampling [20]. As described in Section 3.3., our sample of 14 cases was selected to include key features of companies that were the target of waste policy. Documentation of the investigation, transcription of the interviews, and maintenance of a data base were used to strengthen the reliability (reproducibility) of the study.

3.3. Case companies and their selection

Fourteen industrial firms were chosen as case companies for our study (Table 2). Regional Environment Centres were consulted for the selection process. However, the final selections were made by the researchers.

In their textbooks on case study research, both Yin [16] and Eisenhardt [20] emphasise the significance of theoretical categories as factors guiding the choice of cases. In our study, we used the following principal criteria when selecting the case companies:

- they should be large companies[10]
- they should have a special interest in environmental issues, for example an advanced environmental management structure or interest in developing one
- they should yield either a large amount of waste or some specific type of waste, i.e., the cases should be interesting from the point of view of waste policy.

Large companies were chosen because many policy instruments (e.g., waste permits) have in practice been targeted to them. They have also been more active in developing their environmental management than small

[8] Furthermore, a case study strategy is a good approach when events cannot be controlled as closely as in an experimental design.

[9] It is however worth emphasising that establishment of strong and explicit causal relationships in a study like ours, as in the social sciences in general, is difficult.

[10] In practice two of the case companies of the study belonged to the category of SMEs according to the definition used by the EU.

Table 2
Characteristics of the 14 case companies during the period of the study

Lines of business and characteristics of the companies	Number of employees	Business turnover in mill. euros/year
1. **Food products**	670	79.0
—prepared foods		
—meat products		
2. **Textiles**	450	26.4
—women's and men's casual wear		
3. **Particleboard mill**	165	23.5
—melamine-coated panels		
—components for fittings		
—waste/by-product as the principal raw material		
4. **Paper products**	930	504
—printing papers		
—certified ISO 14001		
—high-volume wastes		
5. **Paper products**	620	185
—tissue paper products		
—baking and cooking paper products		
—high-volume wastes		
6. **Printing**	130	13.1
—book printing		
7. **Chemicals**	70	20.2
—adhesives for the pulp and paper industry		
—participant in the Responsible Care initiative		
—certified ISO 14001		
8. **Rubber and plastics products**	185	17.5
—technical rubber products		
—polymer products		
—certified ISO 14001		
9. **Metal products**	255	28.7
—industrial workstations		
10. **Metal products**	35	3.0
—hot dip galvanising		
—relatively high amount of hazardous wastes		
11. **Engine shop**	700	113
—crushers		
—high-volume wastes		
12. **Electrical and electronic devices**	350	39.0
—energy metering systems		
13. **Energy production**	100	n.a.[a]
—power		
—heat		
—certified ISO 14001		
—high-volume wastes		
14. **Construction**	185	47.0
—new buildings and renovation		

[a] The company did not wish to divulge its business turnover.

enterprises. In brief, the case companies represented large firms that were the target of waste policy.

Half of the case companies were located in the province of Pirkanmaa (population 450 000) in southern Finland.[11] The other half were situated in the province of Central Finland (population 260 000).

[11] The total population of Finland at the end of 1999 was 5 171 300 [1].

3.4. Interview themes and specific research questions

We formulated the following main themes for the company interviews (displayed in more detail in Table 3):

- the effects of the practiced waste policy and its instruments on the companies (Theme 1)
- the views of the companies on effective and acceptable waste policy and policy instruments (Theme 2)
- the role and significance of waste policy compared with the other forms of public policy (Theme 3).

Table 3
The interview themes and research questions (Q 0.1–Q 3.1) of the study

Theme 0	**Background—change in the business environments and strategies of the companies in the 1990s**
Q 0.1	Which general factors have most contributed to the decisions and management of the companies?
Q 0.2	Which environmental issues in particular have had an impact on the operations of the companies?
Theme 1	**Effects of the practiced waste policy and its instruments on the companies**
Q 1.1	Have the waste policy instruments had an impact on material flows, production processes and products?
Q 1.2	What are the experiences of the companies on the used policy instruments and their implementation?
Q 1.3	What kinds of economic and side-effects have the policy instruments had?
Theme 2	**Views of the companies on effective and acceptable waste policy and policy instruments**
Q 2.1	Which policy instruments do the companies perceive as the most effective to them?
Q 2.2	Which policy instruments do the companies perceive as the most acceptable to them?
Q 2.3	What are the most severe obstacles to low-waste processes (clean technology) and products and to waste recovery?
Q 2.4	Should the application of extended producer responsibility (EPR) be broadened and under what terms?
Q 2.5	How do the companies see the application of taxation and other economic instruments?
Theme 3	**Environmental and waste policy versus other public policy (industrial policy, etc.)**
Q 3.1	In relation to environmental and waste policy, what has been the role of the other forms of public policy with regard to selection of products, raw materials and production processes?

As background information, the interviews also dealt with

- the key factors shaping the business environments and strategies of the companies in the 1990s (Theme 0).

On the basis of the interview themes, we also formulated 11 specific research questions for the study (Table 3). However, the questions presented in Table 3 were not presented as such in the interviews, but they were used as a checklist.

4. Findings and discussion

4.1. Summary of the responses of the case companies to waste policy measures

4.1.1. Business environment of the case companies

Finland experienced a deep economic recession in the early 1990s. Recovery took place in the mid-1990s, since when the national economy has grown vigorously. This situation formed an interesting background to our study. The economic depression and strategies for surviving it were mentioned as a major background factor in virtually all the case companies. According to the interviewees, other important developments affecting the strategies of the case companies in the 1990s had been the globalisation of markets and increasing competition, which had called for measures to increase cost-efficiency. Finland became a member of the European Union in 1995, but this was not perceived as a significant change in the case companies, as most of them had already operated in the European or global markets for a number of years, or even decades.

All of the interviewees acknowledged the increased role of environmental issues in the strategies and decision making of their companies. When the general changes on the companies' business environment were discussed, more than half of the interviewees spontaneously referred to customers as the principal source of pressure for improving environmental performance.

4.1.2. Effects of waste policy and views of the companies

With respect to the use of raw materials and to the total material flows, the waste policy practiced hitherto was perceived to have had few effects on the case companies. Only the prohibition of the use of some chemicals was mentioned to have led to the substitution of a few raw materials with less harmful ones. As an indirect consequence of the forthcoming EC directive on end-of-life vehicles, respondents in one of the case companies acting as a subcontractor to the car industry reported having made various changes in its use of raw materials. The classification of a waste fraction as hazardous waste was reported to have led to the substitution of a raw material with a less harmful and more expensive one in a case company producing industrial workstations. This was also justified by lower total expenses. In a case company manufacturing tissue, baking and cooking paper products, the possible future application of the national waste tax to industry-owned landfills[12] would, according to the interviewees, probably lead to reconsideration of de-inked pulp as the principal raw material of the company. Nevertheless, these were exceptions to the general

[12] The Finnish waste tax is EUR 15 (approx. USD 15; 2 February 2001) per tonne of waste. The tax is levied on all waste transported to public landfills, with the exception of, for example, de-inking waste, fly ash from power plants and waste which can be utilised in landfill structures. The waste tax is not levied on waste disposed of in private (industry-owned) landfills, which in principle distorts competition. Some large companies also transport their wastes to public (municipal) landfills and pay a charge for them, which includes the national waste tax.

rule that the effects of waste policy on materials use seemed to be small.

Some of the case companies reported having achieved improvements in materials intensity, i.e., the use of raw materials in relation to the product output or value added, had decreased. In these cases, cost savings in material supply were usually mentioned as the motivating factors. Due to the data used in our study, no reliable picture of the development of material efficiency could be drawn on the company level (neither was this one of the principal aims of the study).[13] Our impression however corresponded to the conclusions of Mäenpää et al. [21] who, using Total Material Requirement (TMR) as a measure, demonstrated that the efficiency of the use of natural resources on the macroeconomic level in Finland improved rather slowly during 1970–1997.[14]

Interviewees in the case companies were of the opinion that the waste policy instruments had not, in practice, stimulated the adoption of low-waste (clean) technologies or fostered product-oriented environmental management in the case companies. In the recent literature [9,10], examples have been presented of how well-targeted environmental regulation has enhanced innovation in industry and thus given competitive advantage to some companies. In our study, we found little evidence that the current Finnish waste policy would have such an impetus. The minor effect of the waste policy instruments on product management, for example in the form of design for the environment, may be partly explained by the lines of business of the case companies; rather than consumer products, many of the companies produce bulk or semifinished products for other companies. However, this does not explain the minor impact of life cycle assessments (LCAs) done in the case companies. Although LCAs had been carried out in more than half of the companies, the interviewees were of the opinion that they had not led to particularly significant changes in products.

The total amount of waste in the case companies had usually closely followed the volume of production.[15] Two of the companies had been able to considerably reduce their waste generation in relation to production. Fig. 2 illustrates the progress made regarding landfilled waste in one of these companies. This case also bears the typical characteristics of industrial ecology[16] in the form of collaboration between the case company, other manufacturers and a local power plant. The principal raw material of the case plant is a waste/by-product from its sister company and the bulk of its own waste is recovered as energy by the local power plant, which in return supplies the case plant with heat and process steam (for background information on this case, see Appendix).

The most significant and reliably verifiable effect of the waste policy instruments in the 1990s appears to have been the increase of waste recovery and recycling. The recovery of waste in relation to production had grown in twelve of the fourteen companies; the waste policy instruments were mentioned as a cause in nine of them. In two of the companies the increase in recovery was considerable (cf. Fig. 2).

One of the main findings of our company interviews was that the managers in the case companies considered the waste policy instruments to be of minor influence (to be discussed in more detail in Section 4.2). In contrast, the interviewees felt that the pressure from the customers and other stakeholders was the major driving force for the companies to improve their environmental performance. Moreover, although only a few of the interviewees regarded environmental protection as a competitive advantage, all considered it as an integral part of modern business strategy.

The experiences of the interviewees on waste permit-

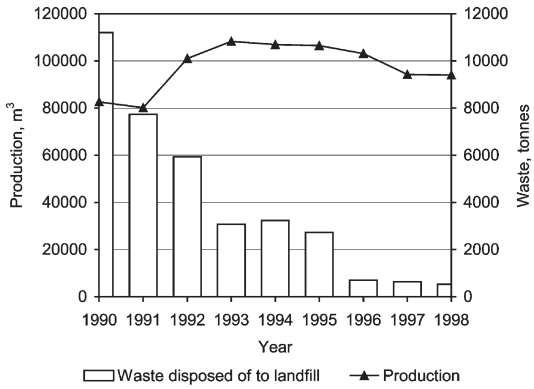

Fig. 2. The volume of production and the amount of waste disposed of to landfill in the 1990s at Case Plant No. 3, the Particleboard Mill Tiwi.

[13] Many of the case companies were reluctant to divulge precise quantitative data on the developments of their use of raw materials.

[14] In a deeper analysis, Mäenpää et al. [21] discovered that for a small open economy such as that of Finland, in which the share of foreign trade is large and continuously growing, the use of the ratio TMR/GDP as an efficiency indicator of the resource use is problematic. They therefore divided TMR into two parts: the total material requirement of the domestic final consumption (TMC) and the total material requirement of exports (TME). It was shown that with regard to TMC the material efficiency had improved, but remained on a high level with regard to TME.

[15] In half of the companies there was some indication of the decoupling of waste generation and growth of production in the sense that the amount of waste had increased more slowly than the production; however, this tentative finding needs to be verified in a deeper analysis covering a longer time period.

[16] As an already classical example of the practical application of industrial ecology, the industrial district at Kalundborg, Denmark, is often mentioned; see for example [22].

ting were positive.[17] The permitting process had proceeded in good collaboration with the authorities, albeit it was mentioned to have been slow in some cases. When analysing the documents at our disposal, we found that the direct effects of permitting were small. In particular this was true for source reduction of waste; hardly any provisions had been given on this item in the granted waste permits. This can mainly be explained by asymmetric information between government authorities and companies: the authorities seldom have enough information for identifying changes in processes or product design required for waste reduction. An extreme example of this information asymmetry between an authority and a case company was a case in which a permit drafted by the authority was completely revised by the company.

During the period of the interviews, four of the case companies had an environmental management system (EMS) certified according to ISO 14001. Seven of the companies were either preparing or planning an EMS. In the rest of the companies (three) an EMS had also been seriously considered and it was possible that it would be adopted in coming years.[18] The interviewees gave two major motives for adopting an EMS. Firstly, it was a way to respond to the demands of customers. Secondly, the EMS was seen to result in increased efficiency and in cost savings in both material supply and waste management. This motivation reveals an important difference between the companies in our study and the small and medium-sized enterprises (SMEs) studied by Ilomäki and Melanen [6]. When Ilomäki and Melanen analysed the use of environmental management systems in Finnish SMEs, they found that the pressure from customers, which were mostly large companies, and other stakeholders was the main—and in practice the only—driving force for SMEs to adopt EMSs; few cost savings were foreseen through their adoption in SMEs.

The use of economic instruments by the government and the municipalities had, according to the interviewees, stimulated the case companies to increase the recovery of waste, although in most cases the costs of waste management were relatively low. This finding on the impact of economic instruments is interesting because their use in the Finnish waste policy has not hitherto been intensive (cf. Section 1.2). The phenomenon can be at least partly explained by the fact that many of the companies were located in municipalities in which the municipal waste charges had traditionally been low. When the charges had grown relatively rapidly in the late 1990s and the national waste tax had been implemented in 1996, this had given the firms a signal concerning anticipated developments (e.g., see Appendix). During the period of the interviews, new ways for minimising wastes were thus actively sought in several of the case companies. Many of the interviewees also felt that taxation and other economic instruments are appropriate tools for enhancing eco-efficiency and sound waste management. As a top executive of one company put it, "money has a miraculous power".

According to the interviews, the application of waste policy instruments had caused neither excessive costs nor major negative side-effects in the case companies. However, several of the interviewees argued that the current waste policy—and more broadly the environmental policy—to some extent distorts competition in the European markets due to different implementation of the Community law in different EU member states. In discussions on this aspect, the interviewees were however unable to present any concrete examples in support of their arguments.

Regarding informative instruments, some of the interviewees pointed out that the foremost task of government should be to provide them with up-to-date information on the existing environmental legislation and, even more importantly, on foreseeable future developments.

As expected, the views on the most acceptable waste policy instruments varied. In three of the companies the interviewees were of the opinion that the current mixture of instruments (regulative, economic, informative, voluntary) in Finland is suitable. Several of the interviewees emphasised the role of self-regulation exercised by the companies themselves.[19]

With regard to waste prevention, the interviewees felt that the potentials offered by the current technologies had mainly been exhausted, and that further improvements will take place gradually along with the adoption of new cleaner technologies. Several of the interviewees considered that in the long run, motivating company personnel is perhaps the most important move for stimulating innovations that improve environmental performance. The lack of economically profitable recovery options for some waste materials, plastics in particular, was mentioned as an obstacle by most of the interviewees. An excessively meticulous interpretation of regulations was seen to hinder the recovery of the fly ash of power plants and the sludges of pulp and paper mills. The EC directive on waste incineration, under preparation during the study, was generally considered to be a threat to the Finnish practice of co-incinerating

[17] Seven of the companies were not, however, obliged to have a waste permit.

[18] Finland is one of the most active countries in the implementation of environmental management systems [23]. Other forms of self-regulation have been adopted more slowly.

[19] As far as the effects of self-regulation remain unclear [13,24,25], it can, however, hardly form the basis for waste policy.

selected organic wastes in industrial boilers for recovering energy.

Extended producer responsibility (EPR) [26] as a tool in waste policy has only recently been applied in Finland. During the time of the interviews, only the EPR system for packaging and packaging waste had relevance from the case companies' point of view. Nevertheless, it was not reported to have had any concrete effects in the case companies, so far. In principle, the interviewees welcomed EPR as an instrument in waste policy, albeit their interpretations of its contents varied.

On the basis of the interviews, it is difficult to assess the influence of environmental and waste policy when compared with other forms of public policy. The overall impression was however clear: the direct effect of public policy on products and raw materials is small.

4.2. Low management response to waste policy instruments

Although there were differences between the companies that we examined, the management response to waste policy instruments appeared to be low in all of them, except for the limited impact of the municipal waste charge and the national waste tax, which according to the interviewees had prompted waste recovery. Ilomäki and Melanen [6] reached a similar conclusion on the direct effect when they examined Finnish SMEs. This outcome provides an interesting contrast to the results of some other studies, for example the recent work by Clayton et al. [27], who claim that regulation and to some extent also economic instruments are the principal stimulus for firms to improve their environmental performance.

There are several explanations for the fact that the interviewees considered the effects of waste policy to be so small. The primary reason is probably that proactive, innovative companies strive to foresee changes in public policy, and have already achieved the required level when a new obligation enters into force. This highlights the importance of the legislation preparation stage.

The outcome can also be partly explained by assuming that the companies face the demands placed by public policy through the claims of customers and other stakeholders, and their original source, i.e., public policy, is not identified. As described in Section 4.1, many of the companies felt that their customers are a major source of environmental pressures.

Furthermore, the interviewees might, to some extent, have tried to mislead the interviewers and minimise the importance of public policy. This may be the case because the researchers work for the Finnish Environment Institute that is associated to environmental authorities.[20] Executives and managers responsible for environmental issues may also—consciously or unconsciously—have undermined the impact of policy instruments in order to emphasise their own role in promoting environmental improvements. However, this is contradicted by the way the interviewees stressed the role of economic instruments as drivers for waste recovery.

4.3. Waste policy hierarchy versus policy instruments

The current Finnish waste policy, which to a large extent has meant implementation of the waste legislation of the European Community, has advanced recovery and safe final disposal of waste in the case companies of our study. In contrast, the waste policy instruments have failed to support the first objective, waste prevention, of the waste policy of the Community and Finland. In other words, the effectiveness of waste policy in the case companies has not been very good in this sense. The instruments of waste policy should thus be seriously reconsidered if waste avoidance is genuinely regarded as the primary objective in the policy hierarchy. To some extent waste prevention does take place in the case companies, but the driving forces are other than waste policy instruments. As described earlier, authorities seldom have enough information to identify potential improvements in processes or product design. Therefore, waste reduction can hardly be promoted by the use of prohibitions, restrictions and permits.

The problem of ever growing waste amounts in Europe has been strongly emphasised by the European Environment Agency in its assessment of the state of the environment in the European Union at the turn of the century [4]. In order to curb this development, the Commission of the European Communities in its proposal for the Sixth Environment Action Programme of the European Community 2001–2010 [2] has specified waste reduction as one of the key areas of action ("… de-coupling of resource use from economic growth through significantly improved resource efficiency, dematerialisation of the economy, and waste prevention"). Waste prevention will also be an integral element of the integrated product policy (IPP) approach launched in the EU's IPP Green Paper [28]. It will be crucial that these policy principles—already stated in so many earlier programmes—are accompanied by concrete and effective implementation procedures.

5. Conclusions

According to the interviewees, the principal pressure for the case companies of our study to improve their

[20] The Finnish Environment Institute (SYKE) is the national environmental research and development centre of the Finnish environmental administration.

environmental performance and waste management has come from their customers. To some extent, this can be explained by customer-oriented business management and indirect, and therefore unidentified, effects of public policy. In all, this emphasises the need to evaluate the effectiveness of waste policy instruments within a wider policy framework.

The waste policy practiced hitherto in Finland has mainly contributed to increased recovery and safe final disposal of waste in the case companies. The municipal waste charge and the national waste tax, and the possibility that they will increase in the future, have prompted waste recovery in some companies. In contrast, the waste policy and the policy instruments applied have failed to enhance waste prevention, which is the primary objective in the hierarchy defined by the Finnish Waste Act and the waste policy of the European Community.

Waste reduction is closely connected to the design of products and production processes. Therefore, in order to advance waste avoidance, the scope of policy should be drastically shifted from wastes to society's overall cycles of materials and products. This transition from waste policy to product-related environmental policy needs to be further studied. A distinct research need can also be identified in self-regulation (the role and real influence of the voluntary environmental initiatives).

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Appendix

Case Plant No. 3: The Tiwi Unit of Finnforest Corporation, a Particleboard Mill

Finnforest is one of Europe's leading manufacturers and suppliers of plywood, sawn goods and other wood-based products. The principal user of Finnforest products is the building and construction industry. The majority of the corporation's production units are situated in Finland, but Finnforest has business locations in 18 countries. Finnforest Corporation is part of the Metsäliitto Group.

The Tiwi Unit of Finnforest manufactures particleboard at Keuruu, in Central Finland. Most of its production is supplied as melamine-coated panels or components for fittings. The Tiwi Mill uses wastes/by-products, sawdust and chips, produced by other mechanical wood-industry plants. Wood chips from sawmilling are made from the surface slabs of logs and from edgings. The particleboards are pressed at high temperature into a dense particleboard for furniture and fittings. In the process, the panels are sanded before applying the melamine coating. Part of the sanding dust is used as fuel in wood chip driers and the rest is delivered to a nearby power plant (Keuruun Voima Oy), which supplies the Tiwi Mill with all the heat and process steam it needs. About 95 per cent of the fuel used by the power plant is solid wood-based fuel.

After the economic recession of the early 1990s, the production of the Tiwi Mill was about 5% higher than currently. Most of the wastes of the Mill were dumped in a landfill site. To overcome the poor economic situation, a new kind of business mentality, total quality management, was developed at the Tiwi Mill, which emphasised product quality. The volume of production was slightly decreased in order to produce particleboards of better quality; technically this meant longer pressing times. The salaries of the personnel were linked to the quality of production. As a consequence, the wastage of materials decreased, the productivity of the Mill improved (through higher prices paid for better products) and customer satisfaction increased.

Because of increased landfill charges, attention was also paid to waste management. The most important points of the process generating waste in the Mill were identified, sorting of wastes was upgraded and new possibilities for their recovery were examined. The company responsible for the waste management operations was also included in the development process. As a result, the waste amount decreased by 50% in 1990–1998. The amount of waste disposed of to landfills in 1998 was only 4.7% of the corresponding amount in 1990, and the landfilled waste was only 6% of the total waste of the Mill. More than 90% of the wastes of Tiwi were recovered as energy; part of them were recovered on-site and the rest were sold to the nearby power plant. Recently, there have been plans to process part of the sanding dust to refuse-derived fuel (RDF).

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Article II

Evaluation

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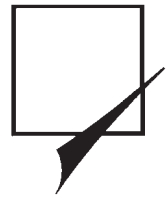

Recently Introduced Policy Instruments and Intervention Theories[1]

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Evaluation of recently introduced policy instruments (RIPIs) is especially problematic, because only some effects have occurred, and information on them is imperfect. Policy makers and the public at large are, however, particularly interested in early evaluations. This article examines problems with the retrospective evaluation of RIPIs, and explores the advantages of using intervention theories in these evaluations. Two case studies from the field of environmental policy instruments are used as examples. It is argued that when evidence on final outcomes is largely unavailable, an intervention theory is a useful tool to overcome information problems. By using intervention theories, it is possible to identify observable prerequisites that precede intended, but not yet occurred, outcomes.

KEYWORDS: policy instrument; program theory; 'recently introduced policy instruments' evaluation; regulation

The Importance of Early Evaluations

All retrospective evaluations of policy instruments face data problems. However, it can be argued with good reason that the nature and severity of the problems depend partly on the timing of the evaluation: the length of the time span between the introduction of a policy instrument and its evaluation. The amount of information available on the outcomes of a policy instrument introduced decades ago is inevitably much larger than that available on a policy instrument introduced, for example, a year ago. In this journal, Sidsel Sverdrup (2003) highlighted problems encountered when the long-term effects of laws and regulations are studied. If the problem of the evaluation of long-term effects is that observed outcomes may be caused by simultaneous events other than the policy instrument (Sverdrup, 2003: 333–8) then the problem of the early evaluations is that the outcomes have taken place only to a limited extent or not at all. Thus, an evaluation of recently introduced policy instruments (RIPIs) is especially problematic in terms of information availability.

However, policy makers, managers and the public at large are especially interested in having evaluations of these new policy instruments carried out. Besides

the particular charm of novelty, RIPIs are also interesting for many other reasons. First, it is not necessarily wise to wait for years or even decades before launching an evaluation of a policy instrument. This is especially the case with preventive action, i.e. policy instruments adopted to prevent a problem from occurring. In addition, experience has shown that the designers of a policy instrument are rarely able to take into account all factors relevant to the effects of that instrument (e.g. Braybrooke and Lindblom, 1963: 83–104; Rose and Karran, 1987: 101). The assumptions used in the design process may soon turn out to be defective. For example, the resource requirements may be underestimated or the economic development of different sectors affected by the policy instrument may not be considered. Besides, economic problems and other detrimental side-effects often accumulate as time goes by. Furthermore, as a policy instrument becomes more institutionalized, it is more difficult to change due to political inertia (Rose and Karran, 1987). It might therefore be easier to improve an intervening policy instrument at an earlier stage of implementation. In all, if evaluations are 'intended to play a role in future, practical action situations' (Vedung, 1997: 3; see also Pawson, 2002: 158), their timing is extremely important. Thus, there is a clear case for RIPIs evaluation.

Aims of this Article

The aim of this article is to show that a retrospective RIPIs evaluation is possible and that it is fruitful to use intervention theories as tools in early evaluations. From this position, many views appearing in the evaluation literature and policy papers are contradicted. For example Patton (1997: 218) claims that 'a program must have achieved a certain level of maturity to make added effort involved in theory-driven evaluation fruitful'. Furthermore, the European Commission (2003: 7) has been suspicious of RIPIs evaluation.

The article begins with a presentation of an input–output model of public policy. The model is used as a heuristic tool to identify the problems related to RIPIs. Following this, the time sensitivity of evaluation criteria is discussed. Then, we examine how intervention theory can help to overcome the problems of RIPIs evaluation. This is illustrated by two examples of the possibilities of using intervention theories in the evaluation of policy instruments that have produced some outputs, but only few, if any, outcomes. Finally, the advantages, inconveniences and limitations of using intervention theories for RIPIs evaluations are discussed more generally.

The Input–Output Model and Time Sensitivity of Evaluation Criteria

An input–output model of public policy is often utilized in evaluations. It is a heuristic tool, 'an instrument to support thinking' (Vedung and Román, 2002: 10). This simplified model captures the essential elements of public policy: inputs, administration, outputs and outcomes of these outputs. By outputs we mean items (e.g. permits, taxes) that are issued by government bodies and interface

with the target group (e.g. permit holders). Outcomes are the actions taken by the target group when they encounter the outputs, but also what occurs after that in the chain of influence. Outcomes can be immediate (e.g. measures taken by a holder of a permit due to permit conditions), intermediate (e.g. reduction of emissions, demand for environmental technology) and ultimate (e.g. improved quality of the environment, impact on employment) (e.g. Vedung, 1997: 4–5; Suchman, 1967).

There are several criteria available for evaluations (Hildén et al., 2002: 17–18; Mickwitz, 2003). Perhaps the most used criteria are *effectiveness* and *efficiency*. *Effectiveness* has many definitions, but here it refers to the degree of correspondence between achieved outcomes and intended policy goals. *Efficiency* can be defined, for example, as a cost–result criterion (do the results justify the resources used?) or as a cost–effectiveness criterion (could the results have been achieved with fewer resources?). As for the other criteria, one can mention *relevance* (do the goals of the policy instrument cover the key problems of environmental policy?) and *impact* (have the impacts occurred due to the policy instruments?). Different evaluation criteria link different stages of the input–output model. *Relevance* links the perception of environmental problems and the objectives, *effectiveness* the objectives and the outcomes, *efficiency* the inputs and outputs and/or outcomes, and *impact*, the outputs and outcomes (see Figure 1).

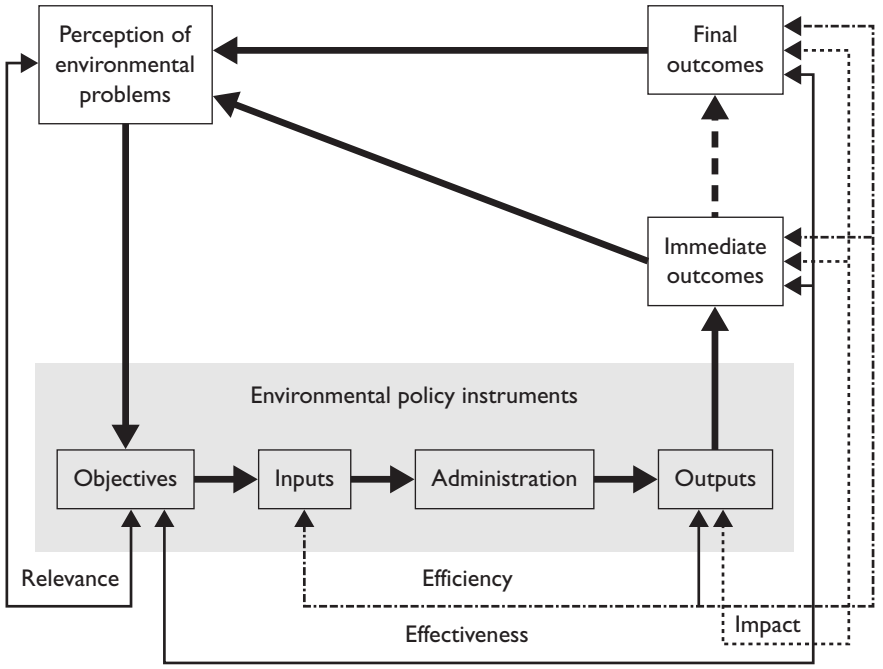

Figure 1. The Evaluation Criteria and Their Links to the Stages of the Input–Output Model (based on Hildén et al., 2002: 19; further inspired by Mickwitz, 2002)

In RIPIs evaluations, due to the short time span between the introduction of a policy instrument and the evaluation, either outcomes may not have occurred, or where they have, information about the outcomes is difficult to obtain. Depending on the time span and the nature of the policy instrument, it may be the case that the administration has only produced a small number of outputs. Thus, although the question of 'recency' varies from case to case, generally a policy instrument can be defined as being 'recent' in so far as it has, due to the short implementation period, produced only some of its outputs and generated a small proportion of its outcomes.

The implication of the lack of outcomes or incomplete information on them depends on the criteria used. The use of a criterion that links final outcomes to earlier stages of the input–output model is particularly problematic. However, the use of a criterion that connects, for example, the perception of environmental problems and the objectives (i.e. a relevance criterion) is not necessarily more difficult in the case of RIPIs than in the case of other instruments. There is no general reason to assume that there is not enough information available on these matters with respect to RIPIs. However, this does not mean that a relevance analysis is an identical endeavour in these two cases.

Although the usability of evaluation criteria for a retrospective evaluation always depends on contextual matters, the input–output model helps an evaluator to ask more precise questions while choosing the criteria for use in the evaluation.

The Use of Intervention Theory in Overcoming the Problems of RIPIs Evaluation

Even though a criterion may appear difficult to use in a retrospective evaluation due to the inherent information problems when evaluating RIPIs, this does not mean that the criterion should be rejected categorically. In this article, it is argued that intervention theory can aid the use of different criteria in a meaningful way, for example, in the case of RIPIs evaluation. The idea underlying the concept of intervention theory has become popular in recent years among evaluators and political scientists, although different authors use differing terms; for example, policy theory (Hoogerwerf, 1990), program theory (e.g. Chen, 1990; Weiss, 1997; Rossi et al., 1999; Rogers et al., 2000), program logic (Lenne and Cleland, 1987), the program's theory of action (Patton, 1997) and theory of change (Connell et al., 1995; Pawson, 2003: 473). The aim of an intervention theory is to describe how the policy is intended to be implemented and function (Hildén et al., 2002: 16). It shows what measures are assumed to be taken, in what order, and what is assumed to follow from these measures. An intervention theory includes different kinds of assumptions: assumptions about the impacts at different stages of the causal chain and their causal relationships, as well as assumptions about the relationship between impacts, goals, various actors and moderators, i.e. contextual factors (Vedung, 1997; Chen, 1990; Dahler-Larsen, 2001: 336–40).

Assumptions may change over time and this change may be of great significance for later retrospective evaluations. However from the perspective of RIPIs

evaluation, it is crucial to note that assumptions are formulated for the first time before the policy intervention. Thus, they are in existence – although not necessary well articulated – when the implementation of a new policy instrument begins. Different actors (e.g. politicians, ministries, implementing agencies, various interest and target groups) may hold different assumptions about the causal chains that lead from means (policy instruments) to the goals and other anticipated impacts, or even different assumptions about goals and other impacts. Therefore, it may be possible to construct several intervention theories in each case (Vedung, 1997: 139). In addition, different approaches and methods can be used to reconstruct an intervention theory. Patton (1997: 219–24) has distinguished three major approaches to theory construction: deductive, inductive and user-focused. The deductive approach utilizes scholarly social science theories and is often closer to research than evaluation. The inductive approach is based on the fieldwork of the evaluator and resembles the grounded theory approach introduced by Glaser and Strauss (1967). This means that the (intervention) theory and the data are generated at the same time. In the user-focused approach, the evaluator helps the intended users to articulate their intervention theories (or theories of action) (Patton, 1997: 219–22). For RIPIs evaluation each of the three different approaches identified by Patton may be useful. The deductive approach has the advantage that theoretical assumptions about causal relationships may – if the evidence for them arising from other studies is convincing enough – help to overcome problems related to lack of information. The inductive approach connects the intervention theory to the practice of the case studies so that empirical evaluation questions can easily be formulated. The user-focused approach helps people to understand their own assumptions. This might be useful even in cases in which the validity of these assumptions cannot be fully evaluated. Thus, the choice of an approach is to a large extent a matter of the general purpose of the evaluation.

A review of approaches to theory reconstruction has been presented by Leeuw (2003). He specifies three approaches: a policy-scientific approach, a strategic assessment approach and an elicitation methodology. Of these, the two latter are approaches for ex ante evaluations and therefore, the policy-scientific approach is the most useful for RIPIs evaluations. Briefly, the policy-scientific approach includes the following six steps (Leeuw, 2003: 7–8).

- Identify behavioural mechanisms expected to solve the problem.
- Link the mechanisms with the goals of the policy instrument under review.
- Reformulate the statements on the policy instrument in conditional 'if–then' propositions.
- Search for warrants, to identify missing links in or between different propositions through analysis of argumentation.
- Reformulate these warrants in terms of conditional 'if–then' propositions and draw a chart of the links.
- Evaluate the validity of the propositions.

Reconstructing an intervention theory according to the policy-scientific approach is often a good option for RIPIs evaluation. The speciality of RIPIs

evaluation becomes clear at the final step: it is one thing to evaluate the validity of assumptions about the basis of abundant information on outcomes, but quite another to evaluate their validity when only some outcomes have occurred. This issue will be discussed further in the last section.

However, whichever approach is selected, it is useful to remember 'that someone has done it before' (Pawson, 2003: 487): comparisons with earlier research and lessons learned in other evaluations are especially helpful in early retrospective evaluations as the information is particularly limited. Therefore, it might be worthwhile to apply features of the strategic assessment approach and the elicitation methodology (e.g. how they make use of existing research and approaches developed in other fields of social science) to RIPIs evaluations. Nevertheless, this is a task for future elaborations of RIPIs evaluation.

Two Examples of the Use of Intervention Theories in RIPIs Evaluation

In this section, we illustrate how intervention theories can be utilized as an analytical tool to cope with problems inherently related to a retrospective evaluation of RIPIs. Although the examples come from the field of environmental policy, these experiences can be applied in other fields of public policy and program evaluation. The value criterion used in both examples is the same, i.e. effectiveness. In the examples an approach has been utilized that is close to an inductive one. The intervention theories were constructed using legislative documents as the source of information.

Environmental Protection Act, 1999

In Finland, a major reform of environmental regulation was undertaken in the late 1990s. The main result of this was the Environmental Protection Act, as well as related laws and regulations, which came into force on 1 March 2000. Through the reform, the European Union's Directive 96/61 on Integrated Pollution Prevention and Control (IPPC) was transposed into the Finnish legal system. At the core of the reform was the integration of five different permits (air pollution, water pollution, waste management, protection of health and neighbourhood relations) into one environmental permit. In 2001, the Finnish Ministry of the Environment commissioned an evaluation of this Act from the Finnish Environment Institute and its collaborators. The evaluation covered the first two years of the implementation of the Act. The main results of the evaluation were published (e.g. Similä and Hildén, 2003; Hildén et al., 2003) just before the European Commission stated that it is still too early to evaluate the outcomes of the IPPC Directive (European Commission, 2003: 7).

The intervention theory of integrated permits was constructed using both European and national legislative documents. In these documents the benefits of integrated permits were defined in relative terms: integrated permits were assumed to be superior in comparison with a system of several sectoral permits. On the basis of the documents it was possible to identify assumed chains of

influence (i.e. assumptions) on which the superiority was based. The assumptions were the following.

1. Integration of permits will abolish the gaps between different permits.
2. Detrimental side-effects of environmental measures will be reduced, because pollution will no longer be transferred from one environmental medium (water, air, soil) to another.
3. Integration will enable a new kind of prioritization.
4. Integration of permits will result in technological change, from 'end-of-pipe' technologies to process technologies.[2]

After the formulation of the intervention theory of IPPC permits as part of the new regulations, it became possible to ask what kind of information was available to scrutinize whether theory-based assumptions hold true.

With regard to the first assumption, the outputs of administration, i.e. permits, provided a good basis to make observations. In fact, the essence of this assumption was that the IPPC permits would differ from the old permits (the gaps would be filled because the competencies of public authorities were extended). Thus, we could formulate a more precise question: do permits contain new kinds of provisions that regulate such environmental problems that were not regulated before? On the basis of interviews (27 representatives of environmental administration, companies and non-governmental organizations interviewed) and analysis of permit decisions (total: 611), we were able to conclude that the conditions set had changed very little. However, there were some exceptions (e.g. the biological waste originating from fish farming had been regulated by permits after the reform, but not before it). In sum, there was only weak evidence that this assumption held.

With respect to the second assumption, we were able to formulate a measurable question as follows: have the authorities taken account of side-effects like transferring emissions from one environmental medium to another as an argument when designing the content of the permits? On the basis of permit analysis as well as interviews, the answer was negative, i.e. the second assumption did not hold. In addition, it was possible to approach the issue of setting priorities on the basis of the decisions, because permit authorities are obliged to justify their decisions and this aspect certainly was one that needed to be justified. The permit documents confirmed that the argument had not been used. Additionally, the issue was cross-checked in the interviews, and this confirmed the result, with a modification: most of the interviewees were of the opinion that priority setting had not affected the design of permits. However, some interviewees pointed out that in individual cases a coherent timetable for different environmental measures relevant to different environmental media had been set up in order to direct the resources to the most urgent purposes. However, only very few examples were given. In addition, promoting integration by keeping different classes of investment separate only goes some of the way. Thus, priority setting with respect to the timetable was used, though to a minor extent. However, this was not meant to affect environmental outcome in the long term.

The fourth assumption concerned technological change. It was assumed that the IPPC permits will lead to a shift from 'end-of-pipe' technology to process technology.[3] However, the causal chain on how this impact will take place is not fully explained in the legislative documents. The regulatory authorities do not prescribe the technology that should be used. Instead, environmental requirements are set up in the form of emission limit values, based on the principle of best available technology (BAT). The use of emission limit values or the BAT principle is not a new approach, although the combination of them was assumed to have different results to those achieved before. This did not yet provide a sound basis for evaluation and it was necessary to continue the reconstruction of a more precise intervention theory, in order to explore whether there was anything in the causal chain of influence that could be monitored. To make the intervention theory more complete, two additional assumptions – or reformulated warrants, using Leeuw's terms – had to be formulated on the basis of an analytical reconstruction of the intervention theory:

4a. technological change will occur only if the activities concerned have impacts on more than one environmental media (air, water, land); and
4b. technological change is linked to the investment cycles of the plant concerned and regulatory authorities have only minor possibilities to affect these cycles. If the plant is not at the right stage of the investment cycle when applying for an environmental permit, it is unlikely that it will adopt new environmental technology to a significant extent.

These complements to the original assumption indicated what kinds of plants were potentially interesting. Very few plants, among the 611 permits studied, did have multiform emissions and were at the right stage of the investment cycle. No cases were found in which technological change could have taken place as assumed in the intervention theory. This does not prove that the assumed technological change could not occur in the future. However, the (reconstructed) intervention theory showed the relevance of the information available at the moment of evaluation.

Waste Tax Act, 1996

Our second example concerns the waste tax evaluation completed in 1998–9 (e.g. Melanen et al., 2002; Kautto and Melanen, 2004). According to the Finnish Waste Tax Act, a tax of €15 is levied per tonne of waste on all waste transported to public landfills, with the exception of, for example, de-inking waste, fly ash from power plants and waste that can be utilized in landfill structures. The waste tax is not levied on waste disposed of in private (industry-owned) landfills. Also, some large companies transport their waste to public (municipal) landfills and are thus obliged to pay the tax.

The intervention theory of the waste tax was reconstructed by the evaluators on the basis of official documents, particularly the Government Bill for the Waste Tax Act. According to the Bill, the Act has two types of objectives: fiscal and environmental. The evaluation was limited to the environmental objectives. According to the Bill, the environmental objective of the Act is to promote waste

prevention and waste recovery (with priority being given to material recovery, i.e. recycling) instead of landfilling and incineration without energy recovery. Here only the effectiveness of the Waste Tax Act in waste prevention is discussed.

Based on the above-mentioned documents, it was possible to reconstruct the main assumptions of waste prevention and the most important elements of the intervention theory. Compared with the case of the Environmental Protection Act, in this case the output (the incorporation of waste tax in municipal waste charges) occurred more immediately because the intervention was not modified case by case by administrative decisions.

The Government Bill states that the target groups avoid the rising costs most easily by reducing the amount of waste they produce. It is even emphasized in the document that this outcome is likely to occur soon. However, the top executives and environmental managers of the companies interviewed said that improvements in waste prevention occur primarily through the adoption of cleaner production technologies. On this basis, the intervention theory was once again reformulated into the form shown in Figure 2.

The material information available (statistics, interviews of 32 company representatives) indicated that the total amount of waste had not decreased either at

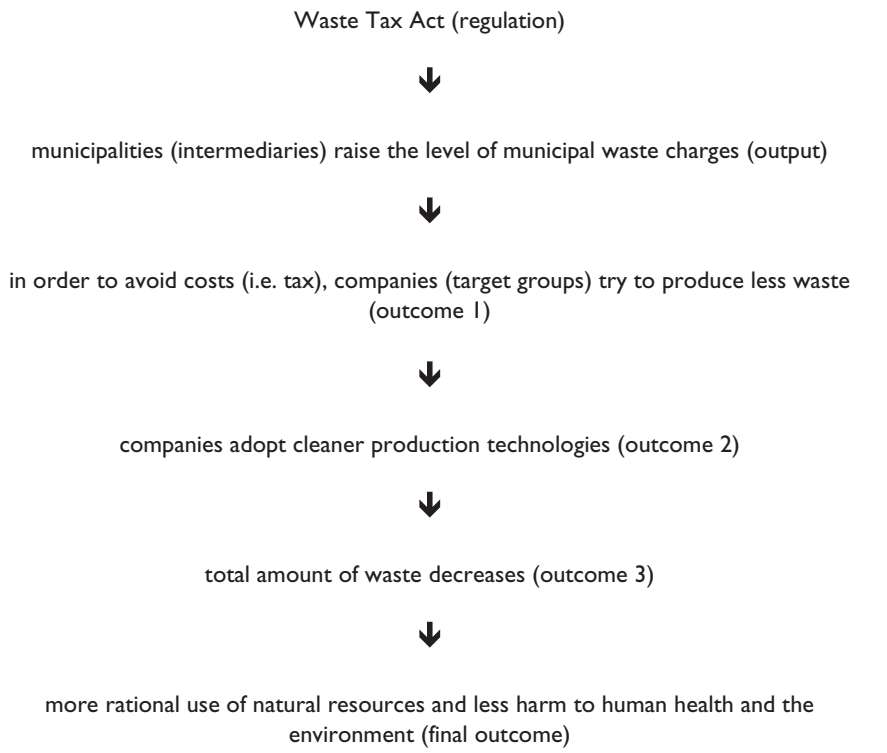

Figure 2. Reformulated Intervention Theory of the Waste Tax Act

the company or regional level. However, this new intervention theory led us to examine the evidence available two years after the adoption of the waste tax from a new perspective: the adoption of cleaner production technologies would probably take years. Alternatively, through studying the cost of waste management at the company level, the cost was found to be relatively low and the reduction of waste was driven more by the cost of raw materials. As the cost of waste management was low in relation to investment in cleaner technology, we concluded that the waste tax is not effectively promoting waste reduction at source.

Furthermore, based on statistics and the interviews, it was possible to conclude that the waste tax has been effective as a policy instrument promoting recycling and recovery. Thus, the increased recycling and recovery has probably been one reason for the ineffectiveness of the waste tax in waste prevention, as recycling and recovery were more cost-effective ways of avoiding the costs of raised municipal waste charges for most of the companies. This mutual interdependence of the decisions on waste prevention and/or recycling and recovery was also a part of the intervention theory that was not explicated in the Government Bill for the Waste Tax Act.

Implications for RIPIs Evaluations

The examples show some advantages of the use of intervention theories when evaluating RIPIs retrospectively. Intervention theories have been used to formulate the right questions, i.e. questions that can be empirically assessed. In the example concerning the Environmental Protection Act, the first three assumptions of the intervention theory can be connected to certain characteristics of the administration and outputs. Because more than 600 permits (i.e. outputs) had been granted during the first two years of the implementation of the Act, it was possible to assess whether the assumptions about the characteristics of the outputs held. This enabled us to say something important about the effectiveness despite the fact that the (final) outcomes had not yet occurred. Concurrently, it must be noted that while the permits have not been changed as assumed at the beginning of the implementation process, this does not mean that they will never be changed. The evaluation itself may have an impact on the implementation and as a result, or for other reasons, the authorities may place greater emphasis on gaps and priorities in the future. In this context, the intervention theory was not used to predict the future, but to guide the evaluation.

One interesting conclusion is that although an impact analysis (use of the *impact* criterion) is impossible because outcomes have not occurred, this does not necessarily mean that the use of *effectiveness* as a criterion is also impossible – thanks to the concept of an intervention theory. However, the exact content of the effectiveness criterion must be reformulated in order to do this. In the section on evaluation criteria, it was noted that effectiveness refers to the degree of correspondence between intended policy goals and achieved outcomes. If outcomes have not yet occurred, a comparison of the objectives and achieved outcomes is impossible. Instead, it is possible to ask whether the outputs (or

immediate outcomes) include features that are preconditions to the achievement of the goals according to the intervention theory. Any answer regarding effectiveness given on this basis is only indicative. However, it may be interesting and useful, e.g. for the administrators of the policy instrument.

A reconstruction of an intervention theory may be useful even when it does not lead to measurable questions. It was not possible to design a measurable question concerning technological change on the basis of the intervention theory used for the evaluation of the Environmental Protection Act. However, the reconstruction of the intervention theory supported the conclusion that the data available were insufficient. The intervention theory indicated certain characteristics of the plants that were most likely to adopt new kinds of technology. This made it possible to understand the results, although not to confirm the validity of the assumption. In addition, the intervention theory explicated links between outcomes and factors other than the policy instrument itself. Furthermore, an explicit intervention theory can help the authorities to guide information gathering in order to carry out another evaluation later (by themselves or by outsiders), when it is reasonable to assume that the relevant information is available.

As the waste tax example illustrated, only the search for warrants, identifying missing links in or between different propositions, can significantly add to our understanding of the effectiveness of policy instruments. Precisely because the designers of the policy instrument did not explicate the whole intervention theory, they had unrealistic expectations of the time frame within which the outcomes would occur and of the cost of waste prevention for the target groups of the policy instrument. These imperfections might be a consequence of political expediencies, or of the culture of law drafting. However, if the theory is incomplete or false, it is not surprising that the expected and publicly expressed outcomes do not occur.

Furthermore, it should be noted that RIPIs evaluation can shed light on the role of moderators (i.e. on contextual factors) that have not been taken into consideration when the intervention theory was originally constructed. Considering that these moderators (e.g. the implications of the effects of organizational cultures when integrating the different regulatory authorities that issue IPPC permits) can negate an otherwise sound intervention theory under a given set of circumstances (Dahler-Larsen, 2001: 337), this is an important additional argument for RIPIs evaluation.

Nevertheless, intervention theory is not a magic wand that produces information on something that has not yet occurred. A retrospective evaluation concerning RIPIs has its limitations, and proper use of intervention theory is not a solution to all those problems. If the outputs have not been produced or outcomes have not occurred, there is no information on them. In addition, it is possible that problems are due to the slow rate of data compilation and production by other parties, e.g. statistical authorities. Furthermore, if all the observations made confirm that everything takes place as is assumed in the intervention theory, this does not necessarily validate the whole intervention theory. Thus, the possibility of theory failure (i.e. the wrong idea underlying the intervention) should also be taken into account (Rossi et al., 1999). Further limitations on the

logic of RIPIs evaluation may be found in the theories of autogenesis or self-organizing systems (e.g. King, 2000; Hoffman, 2001). According to these theories, organizations may seem to continue to be the same but actually incrementally develop fundamentally new mindsets and strategies.

To conclude, there is extensive demand for early evaluations of policy instruments. Although the information on outcomes is often imperfect at this stage, the use of intervention theories facilitates an evaluation in these cases. This article concludes with five recommendations for those conducting ex-post evaluation of RIPIs. First, reconstruct the intervention theory utilizing a theory-based approach suitable for the evaluation (e.g. deductive, inductive, user-focused and/or policy-scientific). Second, select the criteria to be evaluated and define the links in the causal chain between the different criteria (see Figure 1). Third, identify those stages of the causal chains on which it is possible to obtain empirical findings and/or to make observations. Distinguish the evaluation criteria that can be fully used in the evaluation on the basis of the empirical material available. Fourth, regarding the rest of the criteria, consider whether it is possible to reformulate them so they can be linked to stages of the causal chain on which it is possible to make observations. If this is not possible, leave them out of the scope of the empirical evaluation. If these steps can be completed, you can carry out an evaluation, although the reformulation of the evaluation criteria may make it possible to construct only indicative results. This means that the conclusions based on the indicative results must be drawn with caution. Fifth, on the basis of social science theory, the likelihood of theory failure should be considered. The observations at the beginning of a causal chain do not necessarily reveal the existence of theory failure.

Notes

1. A draft of this article was presented at the 5th biennial conference of the European Evaluation Society, Seville, Spain, 10–12 October 2002 in parallel session A: Theory and capacity building for environmental policy: symposium, intervention theory in environmental policy evaluation. The authors wish to thank Evert Vedung, Per Mickwitz, Matti Melanen, Ari Nissinen and the two anonymous reviewers for their valuable comments on earlier versions of the article.
2. End-of-pipe technologies are technologies that reduce emissions of pollutants after they have been formed.
3. Integrated pollution prevention and control, by bringing environmental considerations together, therefore lead away from an approach based on 'end-of-pipe' technology (i.e. reacting to pollution once it occurs) to one in which environmental considerations are given greater priority at the design stage of an installation (European Commission, 1992).

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Article III

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New Instruments – Old Practices? The Implications of Environmental Management Systems and Extended Producer Responsibility for Design for the Environment

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ABSTRACT
As the focus of environmental policy and management is shifting from cleaner production at the process level towards greener products, there is a need for new kinds of policy instruments and initiatives. Environmental management systems (EMSs) and extended producer responsibility (EPR) systems are efforts to overcome the limitations of the traditional regulatory approach. In this paper, I illustrate how EMSs and EPR systems have influenced the emergence of greener products in three case companies. These case studies are complemented by results from a survey on design for the environment in the electrical and electronics industry. Both the case studies and the survey indicate that the linkage between EMSs and product development is weak or completely missing. Therefore, the mere existence of an EMS can hardly be used as a convincing indicator of the implementation of an environmentally friendly design process. The results regarding the EPR systems are more positive. Copyright © 2006 John Wiley & Sons, Ltd and ERP Environment.

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Introduction and the Aims of the Study

RECENT YEARS HAVE WITNESSED A PROGRESSIVE SHIFT IN THE FOCUS OF ENVIRONMENTAL POLICY and management. Policy makers and business managers have increasingly turned from end-of-pipe control measures to cleaner production at the process level. A further step in the direction of root causes is the emerging focus on products.

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Environmental product policy (or integrated product policy, IPP) is a totally new policy field based on a new mode of governance (see, e.g., Rubik and Scholl, 2002; Commission of the European Communities, 2001, 2003a). It can be seen as a part of broader development in environmentalism (Jamison, 2001, pp. 82, 95–97) and governance (see, e.g., Kooiman, 1993). The key principle behind environmental product policy is that products are increasingly viewed from a system, or life cycle, perspective: environmental burdens are considered at the various stages in the production chain (i.e. from raw materials extraction to disposal of products). Thus, products offer a leverage point to achieve environmental improvements at multiple stages in the production chain. Proponents of this policy have emphasized the need for new policy instruments and approaches, which are currently being tested in practice.

At the same time, companies have anticipated the new regulatory requirements and adopted various voluntary environmental initiatives. These include process-oriented approaches, such as certified environmental management systems (EMSs), but also product-oriented initiatives such as environmental life cycle assessment (LCA) and design for the environment (DFE). The amount of research in green product development has grown simultaneously. There is a wide range of research on external and internal factors that enhance or prevent DFE (e.g. Kärnä, 1999, pp. 34–43; van Hemel, 1998; Lenox and Ehrenfeld, 1997). However, according to an extensive, cross-disciplinary literature study by Baumann *et al.* (2002), one of the white spots of the green product development field is the lack of understanding how companies interact with other companies and public policies. The authors conclude that more information is needed on how policies are integrated into business processes in order to stimulate the development of green products. There is also a lack of empirical research on the relation between individual policy instruments and initiatives and environmentally oriented product development.

In this paper, I illustrate corporate responses to policy instruments in three case enterprises. The case studies are complemented by findings from a survey on design for the environment in electrical and electronics industry. The principal aim of this study is to evaluate *how environmental management systems and extended producer responsibility systems have influenced the emergence of greener products in individual companies*.

I will first present some of the limitations of traditional environmental policy instruments. EMSs and EPR systems are introduced as efforts to overcome these limitations in the area of environmental product policy. Following this, I briefly introduce the methods, data sources and data analysis used in this study. After that, the results from three case companies and from the survey are presented and discussed. Finally, conclusions are drawn on the implications of EMSs and EPR systems on design for the environment.

The Limitations of the Traditional Regulatory Approach

The basis for environmental policy in all developed societies is regulation, correcting failures of the market by setting emission norms, standards and prohibitions or permit systems for polluters.[1] Usually regulations are organized around the various media through which pollution travels. This approach is based on the idea of a manageable society, in which the role of government is to regulate society and its self-serving actors (Glasbergen, 1998, p. 5).

Taking into consideration the improvements in environmental quality in many respects, the regulatory model has been reasonably successful. However, as the persistency and complexity of environmental problems has become more evident, the limitations of the traditional regulation-based approach have also become clearer. The regulatory approach has been attacked for its inflexibility, cost-ineffectiveness,

[1] This definition is in contrast with various American definitions, which equate *regulation* with all forms of political control; see Vedung, 1998.

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poor capacity to resolve contradictions and difficulties in controlling small and medium-sized enterprises. It has been criticized for its reactive nature and for leaving many environmental problems outside its scope (Glasbergen, 1998, pp. 4–6; Gunningham and Sinclair, 2002, pp. 240–242; Meadowcroft, 1999; Coglianese and Nash, 2001b, pp. 7–9). In addition, it has been argued that technology standards tend to discourage the development and adoption of new, innovative technologies (Jaffe *et al.*, 2001, p. 23).

Economic instruments (charges, taxes and tradable permits) have been offered as a solution to overcome the problems of the traditional regulatory approach. However, the empirical basis of the superiority of economic instruments is often said to be insufficient (Glasbergen, 1998, p. 7; see, however, Andersen, 1994; Tietenberg, 1990) and setting the right prices is difficult. In addition, economic instruments often seem to face great political obstacles. Besides, they are based on a similar assumption of a manageable society as the traditional regulatory approach (Glasbergen, 1998, p. 7).

Moreover, it has been noted that in the field of environmental policy other forces are often much stronger than government, and that environmental policy is in many cases a correction to problems caused by other government policies (Glasbergen, 1998, p. 11). It has also been pointed out that legislation is not easy to change once it has been adopted (Coglianese and Nash, 2001b, p. 9; see also Rose and Karran, 1987) and it is therefore too slow as a mode of governance for rapidly changing societies.

New Generation Instruments for New Generation Problems?

As a response to the problems of the traditional regulatory approach, new self-regulative or collaborative and interactive policy models have been developed in recent years. These modes of governance are often based on the voluntary action of companies or on partnership, public–private cooperation and negotiated solutions. The role of government varies from stimulating private actors to collaborating and consensus building (Meadowcroft, 1999; Glasbergen, 1998, pp. 9–13; see also Boons *et al.*, 2000, pp. 34–36).

Environmental product policy is typically a policy field in which the limitations of the traditional regulatory approach are clear. Policy makers and managers are confronted with the scope and complexity of issues influencing products and their development. Regulators – and also environmental managers in companies – lack detailed information on the technological alternatives available for improving products. Besides, they are seldom powerful enough to force their views on others. Furthermore, many factors influence business decision making on products. A variety of signals and requirements are received from the market and the institutional environment, and translated in the various functions of the organization. Thus, it is difficult to predict what action an individual intervention will give rise to, and hence what consequences it will have for the environment. In addition, environmental product policy aims to influence a great number of companies and other actors. The use of a traditional regulatory approach would therefore require extensive resources for permitting, control and regulatory oversight. The solutions proposed – and to some extent used – for these problems are self-regulation or the use of third parties.[2]

As the need for new policy instruments and approaches has been emphasized, a wide range of them have been developed and implemented. In the environmental policy field, e.g. (voluntary) environmental agreements, environmental management systems (EMSs), extended producer responsibility (EPR)

[2] Basically the same thing has been called government by proxy (Vedung, 1997, p. 153), third party policing (Roach Anleu *et al.*, 2000) or the use of regulatory surrogates (Gunningham and Sinclair, 2002).

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systems and different environmental programmes of firms, trade associations etc. have been introduced. These new policy instruments and initiatives differ in many respects. However, they represent an effort to develop governance that is flexible and adaptive to different organizational needs. In this paper, I briefly present EMSs and EPR systems as specific new policy instruments in the area of environmental product policy.

During the last ten years, the *EMS* has been 'the dominant approach to managing environmental issues in most large companies' (Welford, 2002).[3] Policy makers, consultants and researchers have also received them with great interest. Unlike the traditional regulatory approach that views governments as key actors in environmental governance, 'EMS consists of a regulatory structure that arises from within an organization' as a cycle of continuous improvement (Coglianese and Nash, 2001b, p. 1). However, many (European) governments have promoted the adoption of EMSs in many ways, e.g. by subsidies, by granting regulatory relief for registered companies and by providing technical assistance (Glachant *et al.*, 2002, pp. 261–263; Delmas, 2002, pp. 101–106). In addition, the Commission of European Communities (2003b) has presented a proposal for a directive on establishing a framework for the setting of eco-design requirements for energy-using products (EuP) (known at the time of the case studies as the Directive on the Impact on the Environment of Electrical and Electronic Equipment (EEE)).

The EuP directive would be the first directive requiring the incorporation of life-cycle-based environmental considerations into the product development process. EMSs are likely to gain a central role in the implementation of the directive as a means for conformity assessment – i.e., there is an ongoing debate on the use of EMSs (or at least the EU Eco-Management and Audit Scheme, EMAS) as indicators of DFE.

The principle of *EPR* has also raised wide interest since the beginning of the 1990s, although ideas on the involvement of manufacturers and product developers in waste management have been formulated since the 1970s. Thomas Lindhqvist, who introduced the EPR principle, has defined it as 'a policy principle to promote total life cycle environmental improvements of product systems by extending the responsibilities of the manufacturer of the product to various parts of the entire life cycle of the product, and especially to the take-back, recycling and final disposal of the product' (Lindhqvist 2000, pp. v, 29). In Finland, this principle was first incorporated into Finnish law through the Government Decisions on Discarded Tyres (1996), Packaging and Packaging Waste (1997) and Wastepaper (1998). During 2000–2001, when the case studies were conducted, at least two directives based on EPR were under preparation in the European Community (directives on end-of-life vehicles and on waste electrical and electronic equipment (WEEE)). Table 1 indicates the most important provisions and initiatives, their aims and main substance from the point of view of the industries relevant to this study.

EMSs have been widely studied in recent years (see, e.g., Coglianese and Nash, 2001a; Delmas, 2002; Glachant *et al.*, 2002; Kuisma *et al.*, 2001). Although it has been stated that 'there are close links between ecodesign and EMSs' (Simon *et al.*, 2000, p. 369), this connection has not been widely dealt with (see, however, Berkel *et al.*, 1999; Karlsson *et al.*, 1997). Potential benefits for companies have been evaluated extensively, but the degree of improvements in terms of environmental performance remains controversial.

EPR systems have been studied to some extent as well (see, e.g., Lindhqvist, 2000; Tojo, 2000, 2001, 2003; Spicer and Johnson, 2004). It is in many cases still difficult to evaluate recently introduced systems (see, however, Kautto and Similä, 2004). However, EPR systems seem not only to have increased recycling, but also to have promoted environmentally friendlier design.

[3] There were approximately 60 000 ISO 14001 certifications and 3400 EMAS registrations in the world in December 2003 (Peglau, 2004; European Commission, 2004). In addition to these, there are thousands of unregistered EMSs. In this paper, I refer by EMSs to environmental management systems that are based on the ISO 14001 standard or the EMAS regulation.

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Provision/initiative	Phase of implementation	Main contents
EMAS (the EU Eco-Management and Audit Scheme)	Has been available for participation since 1995 (voluntary)	The organization must conduct an environmental review considering all environmental aspects of its activities, *products and services*, [. . .]. In the light of the results of the review, it must establish an effective EMS aimed at achieving the organization's environmental policy defined by the top management. The management system needs to set responsibilities, objectives, means, operational procedures, training needs, monitoring and communication systems.
ISO 14001	Has been available for participation since 1996 (voluntary)	Specifies requirements for an EMS [. . .] It applies to those environmental aspects [elements of an organization's activities, *products or services* that can interact with the environment] which the organization can control and over which it can be expected to have an influence.
Government Decision on Packaging and Packaging Waste	1 December 1997. Implements the Directive on Packaging and Packaging Waste	The responsibility for preventing the generation of packaging waste, for the reuse of packaging and for the recovery of packaging waste is given to packers.
Directives on Waste Electrical and Electronic Equipment (WEEE) and on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)	Directives were under preparation during the period of the case studies and were accepted in January 2003	The WEEE directive places the responsibility for taking back and recycling electrical and electronic equipment on the producers. The RoHS directive requires the substitution of various heavy metals and brominated flame-retardants in new electrical and electronic equipment placed on the market after July 2006.
Directive on Establishing a Framework for Setting Eco-Design Requirements for Energy-Using Products and Amending Council Directive 92/42/EEC (EuP) (formerly EEE or EuE)	Working paper on EEE (Version 1.0) was issued in February 2001; the Commission's proposal for EuP was in presented August 2003	Establishes a framework for the integration of environmental aspects in product design and development to ensure the free movement of energy-using products within the internal market. In the case in which energy-using product is designed by an organization registered in the EMAS scheme or EMS implemented in accordance with harmonized standards, and the design function is included within the scope of the registration or included into EMS, it shall be presumed that the environmental management scheme or system of this organization complies with the appropriate conformity assessment procedures.

Table 1. The main environmental provisions and public programmes related to product development relevant for the case companies of the study.

Method and Data

The main question addressed in this study is *how* environmental management systems and extended producer responsibility systems have influenced the emergence of greener products in individual companies. An answer was sought via three case studies. These were complemented by results from a survey addressed to the members of the Federation of Finnish Electrical and Electronics Industry (Kärnä *et al.*, 2004).

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Case Studies

Three large, globally operating companies (KONE, lifts; Nokia, mobile phones; Stora Enso, packaging boards) took part in the study. The case studies utilized several sources of data. The main source of information was semi-structured interviews. These were complemented by documents requested from the companies and gathered from the Internet concerning the case companies' operations, organizations and strategy, and activities in environmental management and product development.

The case companies were selected on the basis of theoretical categories (cf., e.g., Yin, 1994; Eisenhardt, 1989; Stake, 1995). All case companies can be characterized as successful and profitable, active in environmental issues, ones that use environmental management tools, have an advanced environmental management structure and have performed assessments of the environmental impact of their products.

I was looking for large firms that could be considered as forerunners or at least ones that have deliberated the relation of their products to the environment. As institutional organization theory (see, e.g., Scott, 1995) emphasizes that organizations tend to imitate large and especially profitable organizations in their own field, it was well grounded to select such organizations for this study. The use of policy instruments related to IPP has been quite moderate so far. Thus, I had a special interest in Stora Enso Packaging Boards as it operates in a field in which an EPR system has already been in force for a number of years. Although the case studies focus on individual companies, their actions will probably be repeated in many others, as the case companies serve as role models for smaller and less successful companies in their field (Scott, 1995, pp. 123–124).

In all, eight persons (experts in product development, managers responsible for product development and managers responsible for environmental issues) were interviewed in January–May 2001. The interviews were confidential and semi-structured. They explored the company's operations and strategy; the company's products and their changes (since the beginning of the 1990s); the company's environmental management and its connection to product development; and the impacts of external factors and stakeholders on product development and products.

All interviews were recorded, transcribed and analysed for recurring themes following an explanation-building strategy (Yin, 1994). In addition, the interviewees reviewed parts of the study.

Survey

A survey on the implementation of EMSs and DFE was sent to 90 member companies of the Federation of Finnish Electrical and Electronics Industry in October 2003. In some companies, the questionnaire was sent to several business units, raising the total number of questionnaires sent to 101. The response rate was 53%. Thus, the results describe the situation in the Finnish electrical and electronics industry rather well. Most of the results are reported by Kärnä et al. (2004) and here I refer only to ones concerning the linkage between EMSs and DFE.

Implications of EMS and EPR in the Case Companies

KONE

At the time of the study, three units of KONE[4] had certified ISO 14001-based EMSs and three EMSs were in preparation. The EMSs did not have a direct link to product development, and the indirect con-

[4] More information on KONE can be found at www.kone.com

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nections were weak, too. The production unit had in some rare cases requested that some surface treatment materials be given up, according to an expert working in a product development. Another expert thought that the interaction between the production unit with EMS and the product development unit may have slightly increased, but was not able to give an example of this. He considered the EMSs of sales companies as more important:

> [. . .] I think what is almost more important and better, is this feedback from sales companies. So when they build that system there, then they will begin making demands, when they discuss these issues with customers and try to consider how these environmental issues are dealt with.

The environmental properties of lifts are regulated in only very few countries (The Netherlands and Hong Kong were mentioned). Voluntary government initiatives have promoted the diffusion of new and environmentally friendlier KONE lift technology in the Netherlands and in Sweden. Therefore, the interviewees felt that more active government involvement in this field would be positive for their company.

Nokia Mobile Phones

All Nokia's[5] production units have certified ISO 14001-based EMSs. In addition, Nokia requires that its contract manufacturers have certified EMSs in accordance with ISO 14001 or some other internationally recognized standard. Yet on the basis of the interviews and other data, it is clear that the connection between EMSs and product development is weak or completely missing. The interviewees described the EMS as an instrument for promoting environmental performance in production and supply chain management. Even though production units sometimes co-operate with product development in order to achieve the goals set in the EMS, an expert working in product development did not see a linkage between the EMS and product development:

> They [EMS and product development] are, however, somewhat different matters . . . , it is more about things like packaging waste management and energy consumption and so on, they are not like . . . , it is not necessarily so close to my work, as I work in product development.

Besides, there were no plans to develop EMSs into tools for product development. Even a manager responsible for environmental issues considered certified EMSs as somewhat too rigid to be useful instruments for the turbulent product development environment. It was also pointed out that the ISO 14001 standard is concerned with the production phase and as such leaves the most important part, the product development, out of its scope (cf. Welford, 2002, p. 4, who stresses that EMSs 'could overlook alternatives that do not conform to the system'):

> Of course they [waste management issues etc.] have to be in order, but not like . . . in a way those things that the basic EMS, the ISO 14001 standard, as it has production as its starting point, in any case. . . . And we have wanted to emphasize that Design for the Environment is the important thing and that it is not like: we have EMS so we have taken care of environmental issues.

During the period of the study, three directives were under preparation that aimed at improving the environmental performance of electrical and electronic equipment (see Table 1). The interviewees were

[5] More information on Nokia Mobile Phones can be found at www.nokia.com

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quite doubtful of the suitability of the WEEE directive's provisions in the rapidly changing business environment of the mobile phone industry. It was evident that the preparation of the WEEE directive has had an effect on Nokia Mobile Phones' main customers, telecom operators, and their interest in improving the recyclability and disassembly of mobile phones. Many of them have started co-operative take-back systems with Nokia in order to fulfil the provisions of the WEEE directive. In particular, an expert working in product development emphasized the importance of the WEEE and RoHS directives. The preparation of the EuP directive had also influenced the interviewees thoughts, although it was not explicitly mentioned. At the same time it was, however, emphasized that the forthcoming legislation is not the only reason for changes in product development goals. Increasing environmental awareness both in Nokia and in society in general was mentioned as the main stimulus for change.

Stora Enso Packaging Boards

Stora Enso[6] has been very active in preparing EMSs, and more than 80% of the group's pulp, paper and board production capacity had a certified EMS (EMAS or/and ISO 14001) by the end of the year 2000. This is how the connection of EMS and product development was described in Stora Enso Packaging Boards:

> There are goals [in EMS] . . . they are more like general goals, as this is a plant-based system . . . if I exaggerate a little, there are nice words about these issues, but they are not on the level of having anything special on setting goals, they are more like stating what we are doing there. So, the goals come more from the strategic process, meaning that we decide the direction in which we are going.

Therefore, the connection was rather vague in this case, too, and although there was a quality management system for product development under preparation during the period of the study there were no plans to include environmental goals in this system.

The interviewees did not consider the indirect linkage between environment management and product development goals as a problem, because they described environmental and economic goals as parallel, in any case. From both points of view, the goal is to develop lighter and more durable packaging boards. However, they admitted that the preparation and implementation of the EPR-based packaging and packaging waste ordinance in Germany in the beginning of the 1990s had accelerated product development in this respect. The pressure for this acceleration has come mainly from the customers, i.e. the packaging companies, who are obliged to pay the costs of packaging waste management in Germany. In the German packaging waste system, the costs are based on the weight of packaging. Therefore, the lighter the packaging board, the lower the costs.

Management Systems and DFE According to a Survey

Further evidence on the missing link between EMSs and DFE can be found in a recent survey of Finnish companies in the electrical and electronics industry (n = 48). Although 59% of the companies had included goals on product development in their EMSs and 18% were planning to do so, EMSs were seen as important in product development by only 6% of the respondents (Figure 1). This observation is not explained by the missing involvement of product development staff, as they had participated in the devel-

[6] More information on Stora Enso Packaging Boards can be found at www.storaenso.com

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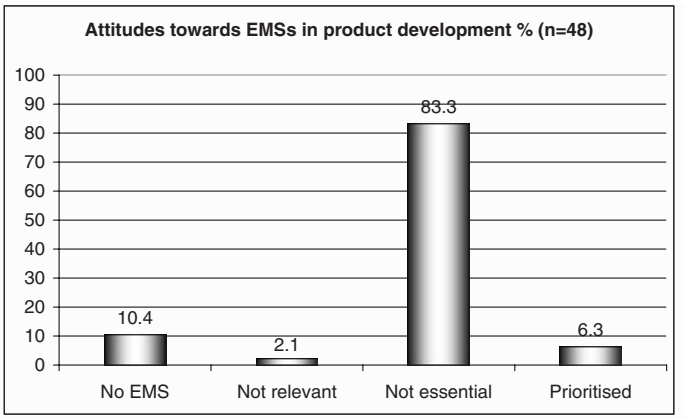

Figure 1. Attitudes towards EMSs in product development (%) ($n = 48$)

opment of DFE goals in 86% of the companies that had included goals in their EMSs or were planning to do so. Thus, the survey confirms the findings of the case studies.

The DFE goals set in the companies were only seldom quantitative. In addition, indicators were rarely set and the progress was not very systematically evaluated. Interestingly, however, most of the respondents found the incorporation of DFE goals in the EMS useful. The most frequently mentioned benefits were increased environmental awareness and savings in raw materials and packaging costs.

Product Development: an Isolated Island?

All the case companies had set goals for DFE and developed their products in an environmentally friendlier direction during the past years. However, the interviews and other data clearly illustrate that the linkage between EMSs and product development is weak or completely missing in all case companies – and the survey confirms that this is a fairly common state of affairs. Thus, the close links between ecodesign and EMSs that Simon *et al.* (2000, p. 369) mentioned and the relatively high DFE performance in companies having EMSs that van Hemel (1998, p. 217) reported may indicate their simultaneous occurrence rather than a close, causal connection. In addition, the SMEs studied by van Hemel may differ from large companies, as in the SMEs the same people are involved in product development and in EMS design and implementation. Yet, as both the ISO 14001 standard and the EMAS regulation emphasize that in addition to an organization's activities *products and services* should also be considered in the environmental review of EMS; this is a somewhat worrying result. One of the reasons for this is certainly the relative novelty of EMSs. It is easiest to start with things in which the progress is soon visible: in waste management and other things directly connected to the production phase. However, the linkage also seems to be weak in companies that have included goals on products in their EMSs. Firstly, the goals are set on a very general level. Secondly, the goals seem to meet each other only by coincidence. Perhaps the most problematic thing is, however, that even in Nokia Mobile Phones, in which the construction of a closer linkage had been considered, the decision had been negative. The EMS was seen as too rigid and production oriented for the turbulent product development environment. Therefore, connecting EMSs and DFE might even be harmful from the DFE point of view. Regarding

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the Commission's – as such ambitious – proposal for a directive requiring the incorporation of life cycle impacts of products into product development, the use of EMSs as indicators of environmentally friendly design seems to be problematic. It might even be described as 'concealing' or 'buffering' the technical core of the organization from institutional demands (McKay, 2001, p. 630; Oliver, 1991).

The results regarding the EPR systems seem to be more positive. Although the most radical changes had taken place in KONE for competitive reasons, the anticipation or implementation of EPR systems had speeded up the DFE activities both in Nokia Mobile Phones and in Stora Enso Packaging Boards. In both cases, the importance of the policy preparation phase was emphasized, as companies tend to anticipate forthcoming provisions (cf. Vedung, 1993, pp. 216–218). It is also important to note that in the case of Stora Enso Packaging Boards the German EPR system forms a continuous incentive to develop environmentally friendlier products, as the costs are based on the weight of packaging. This is not the case in all packaging and packaging waste EPR systems, and it stresses the importance of the careful framing of EPR systems. This result reinforces the findings of earlier research on EPR (e.g. Lindhqvist, 2000; Tojo, 2000, 2001).

In recent years, there has been an increasing interest in linking theories of organizational response to external pressures to research on public policy instruments (see, e.g., McKay, 2001; Boons *et al.*, 2000; Oliver, 1991). From this point of view, it is important to note that organizations' relations to different policy instruments and initiatives are not only based on stimuli responses but also on interactive responses (McKay, 2001, pp. 648–650). In the shift to environmental product policy, this emphasizes the role of organizations (instead of legislators) as central actors in policy making. This is especially crucial in the case of voluntary initiatives, e.g. EMSs, which can also be seen as ways to prevent regulation (Boons *et al.*, 2000, p. 35).

Conclusions

As the focus of environmental policy and management is changing, there is a need for a new kind of approach and for new policy instruments and initiatives. EMSs and EPR systems are efforts to overcome the limitations of the traditional regulatory approach. However, as such, EMSs do not seem to have an effect on product development and its goals. Therefore, they can hardly be used as convincing indicators of an environmentally friendly design process.

On the other hand, the development of environmental product standards for all products is far too heavy and slow a process from both environmental and administrative points of view. Although it gives individual businesses a role in setting their own standards, it does not necessarily favour the environmentally most progressive companies. Thus, there is perhaps a need for combinations of management and product standards. Carefully designed EPR systems might also be one solution, if they include incentives for continuous improvement. Furthermore, as several governments have promoted the adoption of EMSs in many ways, governments might also require more from the companies regarding products and their design. Finally, the auditors and verifiers should concentrate not only on organizations' activities, but also on their products and services.

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Industry–Government Interaction in the Preparation of a New Directive: Nokia, Industry Associations and EuP

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ABSTRACT

This article sheds light on the interaction between the European Commission and different stakeholders via an illustrative example, the preparation of a proposal for what is known as the EuP directive. The main aim is to inquire how a multinational Finnish corporation, Nokia, and related industry associations anticipated legislation under preparation and how they tried to influence the preparation process. Thus, it contributes to the discussion on the role of business in public policy. The paper is based on a combination of different data collection methods and it covers approximately the period from spring 2000 to July 2003. As a result, it highlights how industry associations, Nokia and some other major companies thoroughly reformulated the proposal using issue based strategies. Besides, it describes which venues Nokia selected for lobbying, and illustrates the dependency of the Commission on companies and interest groups as sources of information. Copyright © 2007 John Wiley & Sons, Ltd and ERP Environment.

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Keywords: corporate political activity; environmental policy; the European Commission; interaction; lobbying; organizational responses

Introduction: Giving Birth to a New Mode of Governance

ON 1 AUGUST 2003, AFTER A LONG PREPARATION, THE COMMISSION OF THE EUROPEAN Communities issued a proposal for a directive on establishing a framework for the setting of eco-design requirements for energy-using products (the EuP directive) (Commission, 2003a). The EuP directive is the first directive requiring the incorporation of life-cycle-based environmental considerations into the product development process. Thus, it is at the core of a new policy field, environmental product policy (or integrated product policy, IPP) (see, e.g., Rubik and Scholl, 2002; Commission, 2001, 2003b). In addition, the EuP proposal included several new features from the point of view of environmental governance. The Commission characterized the EuP proposal as

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'a breakthrough in EU product policy' and as 'a major contribution to sustainable development' (Commission, 2003c). Among policy researchers, it has been described as 'a very innovative piece of legislation' (Dalhammar, 2005, p. 10).

This paper sheds light on the preparation of a proposal for the EuP directive. It covers approximately the period from spring 2000 to July 2003. The focus is on the interaction between the Commission and different stakeholders (e.g. representatives of large companies, industry associations and non-governmental organizations (NGOs), member state officials). The main aim is to inquire *how a large multinational Finnish company, Nokia, and related industry associations anticipated legislation under preparation and how they tried to influence the preparation process*. Thus, it contributes to the discussion of the role of business in public policy (corporate political activity, especially the role of individual companies). The paper combines different data collection methods.

Preparation of the Proposal for the EuP Directive

In the European Community, the Commission has the right of initiative. Thus, its task is to present drafts and proposals for legislation to the European Parliament and Council if 'Community interest so requires' (Borchardt, 2000, p. 45). The preparation of a proposal for the EuP directive is described in the proposal itself (Commission, 2003a, pp. 13–14) and is presented briefly in Figure 1. The proposal was a merger of two initiatives: one on the impact on the environment of electrical and electronic equipment (the EEE draft directive) and the other on energy efficiency requirements for end use equipment (the EER draft directive). Despite its clear environmental objectives, the EuP proposal was not prepared in the environmental directorate general (DG Environment, DG ENV) of the Commission. The EEE draft directive was originally prepared by DG Enterprise (DG ENTR) and the EER draft directive by DG Energy and Transport (DG TREN).[1]

The EuP proposal has several stated aims: to ensure the free movement of energy-using products within the European Union, to improve the overall environmental performance of these products and thereby protect the environment, to contribute to the security of energy supply and enhance the competitiveness of the EU economy and to preserve the interests of both industry and consumers (Commission, 2003a, pp. 2–3). Apart from being the first directive requiring the incorporation of environmental considerations into product development, the EuP proposal included several new features from the point of view of environmental governance. To start with, it utilized what are known as the New Approach and the Global Approach (see European Commission, 2000). The main idea of the New Approach is to limit legislative harmonization to essential requirements and set technical specifications in harmonized standards. The Commission mandates so-called standardization bodies (e.g. CEN,[2] CENELEC[3]) to develop these standards. The Global Approach lays down the general guidelines for conformity assessment that are used in the New Approach directives. In the case of the EuP proposal, a crucial role in conformity assessment was given to environmental management systems and self-assessment procedures. Finally, it proposed some use of the companies placing energy-using products on the market as 'regulatory surrogates', i.e. it made them responsible for their subcontractors and their subcontractors (cf. Gunningham and Sinclair, 2002; Vedung, 1997, p. 153; Roach Anleu *et al.*, 2000).

[1] Although the proposal is the merger of the EEE and the EER draft directives, the description of its preparation (Commission, 2003a, pp. 13–14) almost ignores the preparation of the draft EER directive. Furthermore, the end of the preparation stage is described only on a very general level and the so-called EuE draft directive (*Draft Proposal for a Directive of the European Parliament and of the Council on Establishing a Framework for Eco-Design of End Use Equipment*) is not mentioned at all. The EuE draft directive was the first version that combined the EEE and the EER draft directives. It was issued unofficially before the proposal for the EuP directive.
[2] The European Committee for Standardization.
[3] The European Committee for Electrotechnical Standardization.

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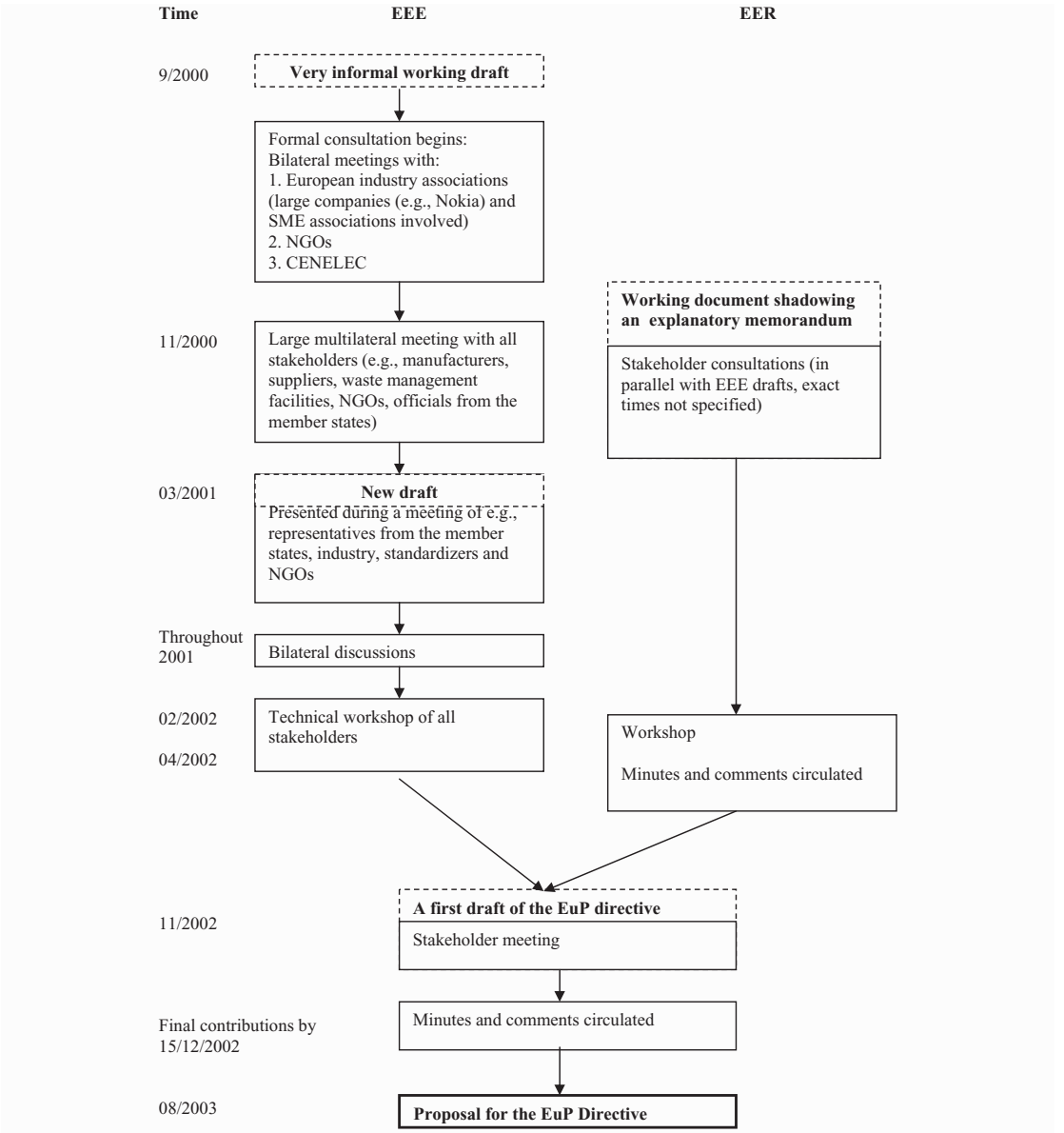

Figure 1. Preparation of the proposal for the EuP Directive as described in the proposal itself (Commission, 2003a, pp. 13–14)

Corporate Political Activity and the Commission

Although the formal procedures are of great importance, this paper aims to look at the day-to-day process of policy preparation. Besides, it aims to overcome some of the problems encountered by previous

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research on government–business interaction in environmental politics and policy: a tendency to focus on intergovernmental negotiations and international organizations and overlook the role of business and consumers (Coen, 2005, p. 197), to treat the regulated companies as a homogenous group and, on the other hand, to view the regulator in management literature as 'an out-there stakeholder which technically and legally constrains business' (Fineman, 1998, p. 954). Thus, there is a clear demand for and a growing interest in research combining different perspectives and opening the black boxes (Coen, 1998, 2005; Arts and Mack, 2003; Levy and Newell, 2005; Martin, 2000).

The oversight of business by policy researchers and regulators by management researchers does not mean that these fields could not provide useful tools for the study of business–government interaction. Policy researchers have analysed the interaction between policy makers and interest groups as a symbiotic relationship (e.g., Mazey and Richardson (2001) have analysed the Commission as a bureaucracy based on Downs' (1967) classic study of bureaucratic behaviour). They stress that the Commission typically uses interest groups as sources of information, support and legitimacy. Besides, to reduce the risks of resistance and policy failures, the Commission has institutionalized a system for the consultation of interest groups. On the other hand, the interest groups (and large companies) seek to establish close connections to regulatory agencies. For interest groups, this symbiotic relationship is both a source of information and a way of influencing the policies.

In organization studies, the strategic responses to governmental action selected by companies have been analysed by, e.g., McKay (2001), Oliver (1991) and Scott (1995, pp. 128–132). They stress that at the same time as organizations are affected by their environments, they are also able to respond to these pressures actively. In their studies, Oliver (1991) and McKay (2001) have distinguished nine different ways of responding to external organizational pressures. These are briefly presented in Table 1 and utilized in examining the findings of the present study. In addition to the differences in organizational responses, McKay (2001, pp. 633, 651–652) stresses their timing (anticipatory, initial, long-term) and the use of dual strategies.

Timing of organizational response is also emphasized by Mazey and Richardson (2001, pp. 219–220). At the beginning of the policy process, 'the Commission official [is] sitting at his or her desk with the blank sheet of paper' and the uncertainty on the content of the planned legislation is at its height. Thus, 'lobbying resources allocated to [. . .] early stage of EU agenda-setting are likely to produce greater returns than resources allocated to lobbying later in the policy process'. At least it is clear that no policy can be

Organizational response	Essential features
Acquiescence	Conscious intent to conform, for self-serving reasons
Compromise	Balancing, pacifying and bargaining
Manipulation	Purposeful and opportunistic application of the tactics of co-opting, influencing or controlling upon an institutional pressure
Reshaping	Modification of regulation to provide a closer fit with the organization's needs and interests
Time shifting	Changing the time frame either by delaying or accelerating
Pre-empting	Using two strategies concurrently, one within and one outside a regulation, to circumvent aspects of the regulation that constrain an organization's decision-making latitude
Avoidance	Attempt to prevent the need to conform to an external pressure by concealing, buffering and escaping (in some cases an environmental management system can be used as a means of avoidance)
Defiance	The rejection of norms and expectations through the tactics of dismissing, challenging and attacking
Safeguarding	Protection of an external regulatory pressure and encouraging use of the pressure by stakeholders

Table 1. Forms of organizational responses distinguished by Oliver (1991: 145–157) and McKay (2001: 636–641)

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made without first setting the issue onto the agenda of a governmental institution (Peters, 2001, p. 78). Yet current studies on the effects of corporate political activity on public policy predominantly focus on the outcomes of legislative processes (Schuler, 2002, p. 349). Although the outcome stage is undoubtedly a highly important step in the process, concentration on it may ignore even more important intermediate steps (committee hearings etc.). In addition, the political issues that are thwarted already before the final phases of decision making processes ('no regulation') are often unheeded by policy analysts.

Finally, by so called 'venue shopping', the interest groups create new opportunities for lobbying (Baumgartner and Jones, 1991; Mazey and Richardson, 2001; Peters, 2001, pp. 88, 91). The interest groups do venue shopping when they decide which government institution to lobby and into what arena they try to shift the debate over public policy. As an institutionalized form of multi-level governance, the EU system has created several new access points for interest groups (Coen, 2005). In particular, the Commission has been characterized as incredibly open for lobbying. In addition, the increases in the power of the European Parliament have possibly brought the Commission even closer to the groups as 'it knows that groups have other, attractive, EU venues where they can influence the policy process' (Mazey and Richardson, 2001, p. 229). Finally, these transitions have changed the relative status of interest groups and increased their autonomy from national states.

According to Peters (2001, p. 81), Euro-organizations tend to function 'more as clearing houses of national interests and organizations than as the aggregators of those interests'. For fear of alienating members, associations often end up in lowest-common-denominator positions (Martin, 2000, p. 14). On the other hand, this encourages the individual companies and national organizations to keep on venue shopping and lobbying for their own favourite policies even after a 'unified position' has been formulated. As Mazey and Richardson (2001, p. 227) put it, 'promiscuity, rather than monogamy, is more rational interest group behaviour'.

Methods and Data

This article focuses on the effects of corporate public affairs and issues management on public policy, i.e. the influence of corporate political activity on one policy process. What makes this kind of study both challenging and interesting is the delicateness of political influence for politicians and civil servants. The main question addressed is *how a large multinational company and related industry associations anticipate legislation under preparation and how they try to influence the preparation process*. The answer is sought via a single-case study on the preparation of a proposal for the EuP directive and by looking at this process mainly through the case of a Finnish mobile communications company, Nokia. There are several reasons to focus in more detail on Nokia. First, it is not possible to cover all relevant actors and their interactions in detail. Second, the case of Nokia exemplifies how a resourceful[4] multinational company can anticipate and influence legislation under preparation. Although there are good reasons to state that Nokia and the industry associations examined successfully influenced the process, it does not mean that these were the only important actors involved.

The main sources of information are the documents published during the preparation and interviews. The documents include draft directives and memos published by the Commission, formal and informal statements, personal e-mails between industry representatives and officials and letters of some stakeholders.

[4] Nokia has approximately 50 full time employees working with environmental issues. It also has a Representative Office for EU Affairs in Brussels and it was pointed out by one of the interviewees that 'Finnish electronic industries in Brussels equals Nokia'.

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Twelve interviews were completed, involving representatives of industry associations, ministries, the Commission, the Nokia corporation etc. The interviews were confidential, semi-structured and lasted typically a little less than an hour. They were recorded, transcribed and analysed thematically. Several less structured discussions with a variety of people involved in the preparation of the EuP proposal were also conducted. Finally, personal observations from a workshop on the EEE draft directive are used to complement the findings. Some of the material utilized (especially the personal e-mails) is confidential. Thus, it is not always possible to identify the source of the information.

Findings

What Issues Were at Stake During the Preparation and How Did the Proposal Change?

There were four main issues of controversy during the preparation process of the proposal for the EuP directive. The most crucial issue for the industry was *the legal basis of the directive*. Use of Article 175 of the treaty establishing the European Community would have allowed the member states to issue stricter national requirements, whereas the use of Article 95 (at least in principle) means harmonization of laws. The Commission used Article 95 of the treaty (on approximation of laws) both in the drafts and in the proposal. However, it was widely discussed during the preparation process whether Article 175 (on the environment) should be the legal basis. In January 2001, the lawyer's office Hunton and Williams published a critical analysis of the EEE draft proposal (Hunter *et al.*, 2001). In their report, they strongly questioned the use of Article 95 as the legal basis for a directive with environmental protection objectives. The discussion on the right legal basis continued through the whole preparation process, but the legal basis remained unchanged.[5]

Second, *the use of the New Approach* was widely discussed during the preparation. Like the legal basis issue, it remained unchanged, as the draft EEE proposal (January 2001) stated that 'These measures are in accordance with the principles for the implementation of the new approach [. . .]' and the proposal for EuP that 'This Directive is in accordance with the principles for the implementation of the new approach [. . .]'. However, the use of the New Approach was questioned both by some industry representatives and the NGOs alike. Whereas the NGOs criticized the dominance of industry in standardization, some companies (and some representatives of standardization organizations, too) were doubtful about the feasibility of the New Approach on such a wide issue as eco-design of products. Use of the New Approach was also criticized in the report by Hunton and Williams (Hunter *et al.*, 2001, p. 1), which argued that the draft EEE proposed 'an illegitimate legislative delegation to private standardization bodies'.

The third issue of dispute was whether a *full scale life cycle assessment (LCA)* would be compulsory. LCA is used to analyse the environmental impacts of a product by collecting and evaluating quantitative data on the inputs and outputs of material, energy and waste flows associated with a product over its entire life cycle. Finally, *the use of environmental management systems (EMSs) in conformity assessment* was widely discussed. The environmental NGOs opposed the use of EMSs in conformity assessment in general, whereas the industry promoted the use of both EMAS[6] and ISO 14001 based EMSs. For some time, the Commission defended the use of EMAS as a European system. In addition to the requirements of ISO 14001, EMAS presumes the undertaking of an externally verified environmental review

[5] One of the proposed amendments of the European Parliament was the use of both of these articles as the legal basis. However, the amendment was not accepted in the conciliation between the EP and the Council.
[6] The EU Eco-Management and Audit Scheme.

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	EMSs in conformity assessment	Life cycle assessment
Draft EEE proposal (September 2000)	EMAS and ISO 1400 not mentioned as means for presumption of conformity	'Manufacturers shall analyse the environmental impact of EEE at each of the various stages of the product lifecycle in order to identify key factors relating to the environmental performance of their products which can be influenced during the design phase. Specific design choices should then be based upon data coming from reliable studies for the equipment concerned or for devices and materials used in its manufacturing, and should take into account available environmental impact assessments and sound environmental principles.'
Draft EEE proposal (February 2001)	'EEE designed by an organization registered according to *the Community eco-management and audit scheme* [EMAS][. . .] shall be presumed to comply with the essential requirements . . .'	'Manufacturers of electrical and electronic equipment shall perform an assessment of the environmental impact of a product throughout its lifecycle, based upon the assumption that it is used under the conditions and for the purposes intended.'
Proposal for EuP (August 2003)	'If a EuP [. . .] is designed by an organization registered in accordance with Regulation (EC) No 761/2001 of the European Parliament and of the Council [EMAS] [. . .] and the design function is included within the scope of that registration, the environmental management scheme of that organization shall be presumed to comply with the requirements [. . .]' 'If a EuP [. . .] is designed by an organization having an environmental management system which includes the product design function and which is implemented in accordance with harmonized standards [ISO 14001] [. . .] that environmental management system shall be presumed to comply with the corresponding requirements [. . .]'	'Manufacturers of EuP shall perform an assessment of the environmental aspects of a representative EuP model throughout its lifecycle, based upon the realistic assumptions about normal conditions and for the purposes of use.' 'In order to establish the ecological profile it is not obligatory to make a life cycle analysis (LCA) according to relevant international standards; such an obligation could create a disproportionate financial and human resources burden on enterprises, in particular SMEs.'

Table 2. The main passages dealing with the use of EMS in conformity assessment and the demands for LCA in two EEE draft proposals and in the final proposal for the EuP directive by the Commission

and the publication of relevant information to the public and other interested parties. EMAS is recognized only in EU countries, whereas ISO 14001 is an international environmental management standard. Table 2 describes how the issues of LCA and EMS were handled in two EEE draft proposals and in the final proposal by the Commission. It shows that in the early EEE draft EMSs were not mentioned as means for presumption of conformity at all, but later both EMAS and ISO 14000 based systems were accepted. LCA was aspired to at the first draft stages, but the final proposal for EuP states that 'it is not obligatory to make a life cycle analysis (LCA) according to relevant international standards'.

In addition to these main issues of controversy, at some stages the need for this kind of directive was also called into question (see the section 'Double hijacking?').

When the EuP directive was finally approved by the Council and the Parliament in April 2005, it turned out that at least the most crucial things from the point of view of European industry associations remained as the Commission had proposed them. The directive was based on Article 95 and a full scale

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Organization	Means of activity towards the Commission (COM)	Issues	Organizational response
Nokia	Participation in the EuP meetings and workshops organized by the COM; meetings with the representatives of the COM. Very active.	Use of Article 95 as legal basis Life cycle thinking, not full scale LCA Use of ISO 14001 (not only EMAS) in conformity assessment Similarity of requirements on large companies and SMEs	Safeguarding Pre-empting Reshaping Safeguarding
EICTA	Participation in the EuP meetings and workshops organized by the Commission (COM); letters to the representatives of the COM (incl. letters to Commissioners Liikanen and Wallström); meetings with the representatives of the COM; publication of position papers. Very active.	Use of Article 95 as legal basis Life cycle thinking, not full scale LCA Use of ISO 14001 (not only EMAS) in conformity assessment Supportive towards the use of New Approach	Safeguarding Pre-empting Reshaping Acquiescence
Orgalime	Participation in the EuP meetings and workshops organized by the COM; letters to the representatives of the COM (incl. letters to President Prodi and Commissioners Liikanen, de Palacio and Wallström); meetings with the representatives of the COM (incl. Commissioner Liikanen); publication of position papers. Very active.	Use of Article 95 as legal basis Life cycle thinking, not full scale LCA Use of ISO 14001 (not only EMAS) in conformity assessment Positive towards the use of New Approach	Safeguarding Pre-empting Reshaping Safeguarding

Table 3. Summary of responses of Nokia, EICTA and Orgalime to the preparation of a proposal for an EuP directive

life cycle assessment was not required. In addition, the directive allows the use of international management standards (not only EMAS) in conformity assessment. The most important addition to the Commission proposal was made by the Parliament, which required the incorporation of a list of priority products[7] for which the Commission should prepare implementing measures and an obligation for authorities to take action if a product is not compliant with the directive and implementing measures (ENDS Environment Daily, 2005). Still, lobbying resources allocated to the preparation stage have produced good returns (cf. Mazey and Richardson, 2001, pp. 219–220).

Responses Applied

In the section 'Corporate political activity and the Commission', different forms of organizational responses were distinguished based on the work of Oliver (1991, pp. 145–157) and McKay (2001, pp. 636–641). In Table 3, the ways in which different organizations have responded to the preparation of a proposal for an EuP directive are summarized. In this section, I also make some remarks on the effectiveness of these responses. The examination does not cover all the organizations that participated in the preparation; it rather aims to illustrate how Nokia and two of the most important European industry associations in the field, EICTA[8] and Orgalime[9], responded. In addition to the organizations

[7] Heating and lighting equipment, electric motors, domestic and office appliances, consumer electronics, air conditioning and a special measure on stand-by losses.
[8] European Information, Communications and Consumer Electronics Technology Industry Associations.
[9] The European Engineering Industries Association representing the interests of the mechanical, electrical, electronic, metal working and metal articles industries.

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considered here, e.g., the American Electronics Association (AeA), the Japan Business Council in Europe (JBCE), the European Committee of Domestic Equipment Manufacturers (CECED) and several large companies and national industry associations actively interacted with the Commission and each other during the preparation. Of the NGOs, the European Environmental Bureau (EEB) and World Wide Fund For Nature (WWF) participated in a 'very lively' manner in the preparatory work. However, especially EEB's intention to challenge and even attack the proposal did not have the intended results during the preparation in the Commission. With the exception of the United Kingdom (and to some extent France and Denmark), the main strategy of the member states in the early stages of the preparation was acquiescence.

As a leading company in its field, Nokia was invited to the preparation of the EEE directive already at the beginning of the formal consultation. Taking into consideration the limitations of the data available, it is also clear that Nokia was successful in attaining its objectives. Nokia utilized several strategies at a time: while it has successfully pre-empted and reshaped the early drafts of EEE, it has at the same time assumed that the incorporation of life-cycle-based environmental considerations into product development process will be required in the future. Thus, it has changed its own methods to conform to these requirements when they come into force (for years, one of the key focus areas of Nokia's strategy for sustainable environmental development has been design for the environment, cf., e.g., Nokia, 2001). Nokia was mentioned as an active and well networked actor in Brussels: '[it has] representation in Brussels, but [it is] also very active on the EICTA side, so their view comes back to the Orgalime level through a product group in EICTA'.

The European industry associations in the field were very active during the whole preparation process. EICTA participated actively in the preparation from the very beginning. In general, it has continuous contacts with the Commission. At the beginning of the process, opinions on the directive were quite diverse and to some extent suspicious in EICTA, but the position evolved in more positive direction during the preparation process. In addition to issues mentioned in Table 3, EICTA's comments during the preparation process highlighted, e.g., use of voluntary agreements (and customer driven demand for information) as a good alternative for standardization (some members of EICTA were doubtful about the New Approach). EICTA emphasized the use of simple and straightforward tools and processes instead of complex, costly, slow and impracticable life cycle assessment. Besides, EICTA was worried about the coherence of initiatives (such as EEE/EER/EuE/EuP, RoHS,[10] WEEE[11]) from different DGs and expressed its concerns on how EU legislation can be forced on manufacturers outside the EU. In general, EICTA supported the overall aims and objectives of the proposal.

Like EICTA, Orgalime maintains 'continuous contact with the institutions' in which views on policy and different position papers are discussed and views are changed. Like EICTA, Orgalime published several position papers, first on EEE as early as August 2000, before the formal consultation begun. It was based on discussions that had been going on with the Commission for years, since the ideas of the WEEE and RoHS directives were presented in the mid-1990s. In principle, Orgalime's attitude towards the proposal was positive, although it made several remarks and objections on details. In addition to the issues mentioned in Table 3, its comments during the preparation process highlighted, e.g., voluntary agreements as a good alternative for standardization (New Approach), the need to take into consideration the differences between different products and product groups, and the need for impact assessment before adopting any implementing measures. Finally, it was worried about the conformity assessment without third party involvement and about the coherence of initiatives (such as EEE/EER/EuE/EuP,

[10] Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
[11] Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment.

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WEEE, RoHS and IPP) from different DGs. According to the interviewees, there were differing views among the Orgalime members particularly on Annex V (EMSs), but these were solved through 'a lively debate'.

Although there were some controversies within and between these European industry associations during the preparation process, both associations were, however, quite undivided and also coherent with each other in the final phases of the preparation. Both of these associations have relatively small secretariats and are thus dependent on the expertise of their member associations and especially companies (Orgalime has only national industry associations as its members but uses representatives of the companies as experts in its working and product groups etc.).

Like Nokia, EICTA and Orgalime used issue based strategic responses in this process. In principle, they were all in support of the preparation of a proposal for EuP directive by DG Enterprise. All of them supported (safeguarded) DG Enterprise's aim to use Article 95 of the treaty as a legal basis. At the same time, they also reshaped and pre-empted the requirements on LCA and EMSs of the early proposals to fit them better to their own organizational needs and interests.

Nokia: Doing Venue Shopping and Being a Venue

Based on the data available, Nokia actually had an important role in the preparation. To begin with, it was already invited to the preparation of the EEE directive at the beginning of the formal consultation and it was very active through the whole preparation process. In addition, it was known that Nokia's top management had good contacts with the European Commissioner for Enterprise and Information Society, Mr. Erkki Liikanen, and his cabinet. These contacts were also utilized by other multinationals (e.g. Electrolux, Hewlett-Packard, IBM, Intel, Philips, Sony and Sun Microsystems) and the European industry associations that co-operated with Nokia in order to influence the cabinet.

As stated earlier, interest groups and large companies do venue shopping when they decide which government institution they lobby and into which arena they try to shift the debate over public policy. Nokia selected 'promiscuity, rather than monogamy', as a way of lobbying (cf. Mazey and Richardson, 2001, p. 227; Coen, 2005), but although it used several points of access the main venue selected was EICTA. Within EICTA and in addition to it, Nokia had much co-operation with other active multinationals. EICTA was also the main venue Nokia used to get its messages to Orgalime.

In addition, Nokia also used its direct contacts to the Commission, both to the DG ENTR and to the cabinet of Commissioner Liikanen. Representatives of Nokia participated actively in the meetings and workshops organized by the Commission. Besides, bilateral meetings of Nokia and the Commission were organized, especially when there were difficulties in finding a consensus within industry associations. In these informal meetings, the issues could be discussed in a more consensus-seeking and less reserved manner than in public workshops. In their direct contacts, European industry associations and Nokia skilfully utilized the competition and conflicts within the Commission (cf. Christiansen, 2001, p. 103) by influencing at the same time the Commission services (the directorates general, i.e. the Commission as bureaucracy) and the cabinet of Commissioner Liikanen (the Commission as political actor).

In addition to these main venues selected, Nokia made some use of The Confederation of Finnish Industry and Employers (TT) as a channel of influence to get the message to Orgalime and to the COM. Nokia represented The Federation of Finnish Electrical and Electronics Industry (SET) in EICTA and also used SET as a way of communicating the forthcoming legislative changes to other companies in Finland (some of them important subcontractors of Nokia). As Finnish ministries were rather passive through the whole preparation process, Nokia did not use them as lobbying venues. Thus, Nokia mainly bypassed the national level in its policy making (cf. Peters, 2001, pp. 85–87).

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Double Hijacking?

In public, the industry associations in principle supported the preparation of the directive. However, behind the scenes also more critical stands were taken, as in 2003 DG Enterprise was ready to consider the interruption of the preparation of the directive. However, it seemed to be clear that in that case either DG TREN or DG ENV would prepare a directive requiring the incorporation of energy and environmental issues into the product development process. Thus, based on the discussions between EICTA and DG Enterprise, EICTA assessed that it was better to have an Article 95 based directive prepared by DG ENTR than to possibly have an Article 175 based directive prepared by DG ENV or even differing national legislations by some member states. In this sense, the preparation of the EEE draft directive (and later the proposal for the EuP directive) can be seen as an attempt to capture or hijack product oriented environmental policy from DG ENV (cf. ENDS Environment Daily, 2000a, 2000b; on business 'hijacking environmentalism' see Welford, 1997). There had been discussion and rumours on a forthcoming directive on eco-design by DG ENV before the first EEE draft was released (during the preparation of the RoHS and WEEE directives) and DG TREN had drafted the EER directive before the proposal for EuP was finally made.

Concluding Remarks

The proposal for the EuP directive can be seen as part of a shift in the focus of environmental policy and management from cleaner production processes to greener products. So far this has mainly occurred through more or less voluntary initiatives of companies. However, the EuP directive means the institutionalization of this development to a new level, into regulative structure (cf. Mac, 2002, p. 262). During the preparation process, the Commission characterized the effects of the EEE as 'an enormous cultural change' (ENDS Environment Daily, 2001). Thus, it is an important political event and the related agenda setting is certainly worth investigating. Besides, it can undoubtedly be said that that this cultural change was formulated very much by the European industry associations (especially EICTA?) and some major companies in interaction with the DG Enterprise. It can even be claimed that industry and DG Enterprise succeed in capturing product oriented environmental policy from DG Environment.

In this paper, the preparation of the proposal for the EuP directive has been examined through the perspective of Nokia Corporation and related industry associations. To get its message to the Commission, Nokia used several points of access, but the main venue selected was EICTA. In addition, Nokia used also its direct contacts to the Commission. Within EICTA and in addition to it, Nokia had a lot of co-operation with other active multinationals. During the Commission's preparation of the EuP directive proposal and its predecessors, it was not highly prioritized by the Finnish ministries, and Nokia mainly bypassed the national level in its policy making. Besides, the personal contacts were very important in the process. This is congruent with earlier findings of organization studies (e.g. Scott, 1995), in which the meaning of common background (rather than current position) as a factor connecting people has been emphasized. In addition, Nokia and industry associations have substantial resources (both knowledge and personnel), which afford them a convincing level of environmental policy expertise.

Nokia and the main industry associations with which it co-operated (EICTA, Orgalime and TT) used issue based strategic responses in this process. In principle, they all supported the preparation by DG Enterprise and supported (safeguarded) its aim to use Article 95 of the treaty as a legal basis. At the same time, they also reshaped and pre-empted some other requirements of the early proposals to adapt them better to their own organizational needs and interests.

The Commission has made efforts to gain more independence in its relation towards the member states. At least in the preparation of the EuP directive, this was apparently quite successful as the member

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states either respected the Commission's right of initiative or were not otherwise willing to influence the Commission in the early stages of preparation. However, this obviously made the Commission more dependent on companies and some other interest groups as sources of information and policy input. From the member states' perspective, this is problematic and significantly restricts their influence, as the early stages of the preparation are the most important from the point of view of final outcomes. On the other hand, the legislation can later be evaluated as effective as it is already in line with the industry's interests.

The EuP directive was finally approved by the Council and the Parliament in April 2005. The nature of the interaction was obviously different after the Commission released its proposal. The struggle on the content of the directive continued and so did the activity of the industry.[12] As the final character of the EuP will be created through the implementation measures, the groups that have been able to win at the agenda setting, proposal formulation and decision stages may still lose, or at least be faced with another political fight, at that stage. While the final character of the directive is still something of a puzzle, it can undoubtedly be said that it has been successfully modified and to some extent pre-empted by Nokia and the industry associations examined.

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[12] During the Parliament first reading, the rapporteur was Finnish MEP Astrid Thors. At that time, her former assistant was working at the Nokia Representative Office for EU Affairs in Brussels.

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Article V

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Nokia as an Environmental Policy Actor: Evolution of Collaborative Corporate Political Activity in a Multinational Company*

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Abstract

Although companies have been studied quite widely as political actors, the majority of this research has treated companies as a homogeneous group. This article inquires how Nokia, a multinational corporation, has anticipated legislation initiatives and how it has tried to influence policy development in interaction with industry associations and EU institutions.

Introduction

Do political institutions or multinational corporations rule the European Union? Although the impact of business on public policy has been widely recognized, studies on the direct relationships between large companies and

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government are still few in number (Coen and Grant, 2006, p. 14). This article sheds light on this subject by inquiring how Nokia, a multinational mobile devices corporation, has anticipated legislative initiatives and how it has tried to influence policy development in interaction with industry associations and EU institutions.

In recent years, the Commission has emphasized the competitiveness of the EU to such a degree that it has even been stated that 'everything that cannot be Lisbonized will be terminated' (Radaelli, 2007, p. 195). This has made the Commission more business friendly, and a highly successful company such as Nokia is an example of a desired collaborator. For its part, Nokia decided to break partly away from industry's traditional co-operation within policy-making and adopt a more proactive and collaborative approach. Instead of the challenging and attacking approaches, it has adopted more constructive strategies.

This development in the role and strategies of Nokia is analysed in three cases of environmental policy preparation: first, the preparation of the RoHS[1] / WEEE Directives;[2] second, the preparation of the EuP Directive;[3] third, the IPP pilot project on mobile phones. These are all shifting the focus of EU environmental policies towards a product-oriented approach. In addition, this new policy field is based on more general ideas on governance (Jordan and Schout, 2006; Mayntz, 2006), opening up new opportunities for stakeholder influence on policy-making. The examination of three consecutive policy processes also enables an analysis of the evolution of more collaborative corporate political activity in the company. The article is based on a combination of different data collection methods: documentary analysis, interviews and participant observation.

Section I presents the analytical framework, which combines previous policy and organizational research. Following this, section II briefly introduces the empirical setting, Nokia and product-oriented environmental policies, as well as the methods and data used. In sections III–V the results from three cases are presented and discussed. In the final section, Nokia's development as an active player in policy-making is discussed and conclusions are drawn for future policy-making.

[1] The Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electric and Electronic Equipment.
[2] The Directive 2002/96/EC on Waste Electrical and Electronic Equipment.
[3] The Directive 2005/32/EC on Establishing a Framework for the Setting of Ecodesign Requirements for Energy-Using Products.

I. Politics of Business and the European Commission: A Symbiosis

Although business as a political actor has been studied quite widely in the last 30 years, the majority of this research has a tendency to look at the relations between state and trade associations. In such a perspective, companies are treated as a homogeneous group (for reviews of the business and government research see, e.g. Coen and Grant, 2006; Wilson, 2006; Martin, 2000; Schneider and Tenbuecken, 2002). On the other hand, the management literature often considers the regulator as 'an out-there stakeholder which technically and legally constrains business' (Fineman, 1998, p. 954). However, since the beginning of the 1980s a number of studies have recognized the increasingly direct relationships between individual companies and government and 'the multiple opportunity structures available for companies' both in the EU and on national levels (e.g., Coen, 1997; 2005; 2007; Coen and Grant, 2006; Levy and Newell, 2005; Mazey and Richardson, 2001). As Coen and Grant (2006) point out, globalization and supranational governance structures strengthen this trend. Yet, the number of empirical studies in this area is still quite limited.

The lack of attention to individual companies by policy researchers, and to regulators by management researchers, does not mean that these fields could not provide useful tools for the study of business–government interaction. In this article, I draw especially on previous research on the interaction between policy-makers and interest groups as a symbiotic relationship (e.g., Mazey and Richardson, 2001) and on categorizations of strategic corporate responses to governmental action (McKay, 2001; Oliver, 1991). Mazey and Richardson (2001) (see also Coen and Grant, 2006, pp. 17–19) stress that the Commission typically uses interest groups and companies as sources of information, support and legitimacy. These ties have been strengthened, as the Commission has institutionalized a system for the consultation of interest groups to reduce the risks of resistance and policy failures. For their part, the interest groups and large companies seek to establish close connections to regulatory agencies. For business, this symbiotic relationship serves as a means to access information and a way of influencing the policies in order to avoid risky and unexpected changes in their environment.

In organization studies, strategic responses to governmental action by companies have been analysed by, e.g., McKay (2001) and Oliver (1991). They stress that while organizations are affected by their environments, they are also able to respond to these pressures actively. In their studies, Oliver (1991) and McKay (2001) have distinguished nine different ways of responding to external organizational pressures. These are briefly presented in Table 1. In addition to the differences in organizational responses, McKay

Table 1: Forms of Organizational Responses, Distinguished by Oliver and McKay

Organizational response	*Essential features*
Acquiescence	Conscious intent to conform, for self-serving reasons
Compromise	Balancing, pacifying and bargaining
Avoidance	Attempt to prevent the need to conform to an external pressure by concealing, buffering and escaping
Safeguarding	Protection of an external regulatory pressure and encouraging use of the pressure by stakeholders
Pre-empting	Using two strategies concurrently, one within and one outside a regulation, to circumvent aspects of the regulation that constrain an organization's decision-making latitude
Time shifting	Changing the time frame either by delaying or accelerating
Reshaping	Modification of regulation to provide a closer fit with the organization's needs and interests
Defiance	The rejection of norms and expectations through the tactics of dismissing, challenging and attacking
Manipulation	Purposeful and opportunistic application of the tactics of co-opting, influencing or controlling upon an institutional pressure

Source: Oliver (1991, pp. 145–57) and McKay (2001, pp. 636–41).

(2001, pp. 633 and 651–2) stresses their timing (anticipatory, initial, long-term) and the use of dual strategies.

Timing of organizational responses is also emphasized by Mazey and Richardson (2001, pp. 219–20). At the beginning of the policy process, 'the Commission official [is] sitting at his or her desk with the blank sheet of paper' and the uncertainty on the content of the planned legislation is at its height. Thus, 'lobbying resources allocated to [. . .] early stage of EU agenda-setting are likely to produce greater returns than resources allocated to lobbying later in the policy process'.

Finally, by so-called 'venue shopping', the interest groups and companies create new opportunities for lobbying (Baumgartner and Jones, 1991; Mazey and Richardson, 2001; Peters, 2001, pp. 88 and 91). The interest groups do venue shopping when they decide which government institution to lobby and into which arena they try to shift the debate over public policy. As an institutionalized form of multi-level governance, the EU system has created several new channels for corporate political action (Coen, 2005; Bouwen, 2004; Richardson, 2000). Especially the Commission has been characterized as being incredibly open for lobbying (Mazey and Richardson, 2001, p. 221). Lastly, these transitions of power between national and EU institutions have

altered the relative status of interest groups and companies and increased their autonomy from national states (and from national industry associations).

According to Peters (2001, p. 81), Euro-organizations tend to function 'more as clearing houses of national interests and organizations than as the aggregators of those interests'. For fear of alienating members, industry associations often end up in least-common-denominator positions (i.e., adopt low standards) (Martin, 2000, p. 14) or even focus only on areas where common cause already exists (i.e., avoid internally confrontational topics) (Coen and Grant, 2006, p. 23). In these circumstances, individual companies and national organizations have incentives to venue shop and lobby for their own favourite policies even after a 'unified position' has been formulated. As Mazey and Richardson (2001, p. 227) put it, 'promiscuity, rather than monogamy, is more rational interest group behaviour'.

II. The Empirical Setting

Nokia and Environmental Product Policy

Nokia is the world's leading manufacturer of mobile devices, with an estimated 38 per cent share of the global device market in 2007. In all, it has approximately 112,000 employees and net sales of €51 billion (2007). In 2008, Nokia was ranked 69th in the Forbes (2008) list of the world's largest public companies, and is by far the largest European company within its industry: technology hardware and equipment. Nokia has more than 100 full-time employees working with environmental issues. It also has a Representative Office for EU Affairs in Brussels. One thing that has enabled Nokia's increasingly active role has been the growth of Nokia's environmental organization at the end of the 1990s. This was done partly in order to anticipate the forthcoming legislative requirements and it made it possible for certain persons to concentrate on the field of environmental policy-making. The case of Nokia exemplifies how a resourceful multinational company can anticipate and influence legislation under preparation and finally, since Nokia is a highly important client for many other companies in the electronics industry, its active role in the formulation of European legislation has wider significance. Moreover, participation in the formulation of legislation at a European level requires a great deal of resources, which only a few companies have at their disposal.[4]

[4] According to Hix (2005, pp. 211–12), calculated from data in Greenwood (2003), there were more than 2,300 interest groups with a representative office in Brussels in 2001. Only 250 of these represented individual companies.

The electrical and electronics industry, including Nokia, has in recent years been a target of special attention regarding environmental product policy (or integrated product policy, IPP). IPP is a new policy field, which has been developed in the EU since the end of the 1990s (see, e.g., Scheer and Rubik, 2006; Commission, 2001; 2003a). The key principle behind IPP is that products are increasingly viewed from a life-cycle perspective: environmental burdens are considered from extraction of raw materials to disposal of products. Three new directives have been approved in 2003–05 as part of the implementation of IPP, with an aim to reduce the negative environmental impacts of electrical and electronic equipment and energy-using products. The requirements of the Directives apply to the design, manufacturing and waste management of these products. They carry implications not only for the manufacturers of final products or trademark owners but also for importers, suppliers of materials, components and subassemblies and contract manufacturers, in other words the whole product supply chain. In addition to the Directives concerning the entire electrical and electronics industry, the mobile phone was selected as a target product for the first voluntary IPP pilot project exercise established by the Commission.

Methods and Data

This article focuses on the influence and organization of corporate political activity in the formation of environmental product policy in the EU. What makes this kind of study both challenging and interesting is the sensitive nature of the topic of corporate political influence for politicians and civil servants. The main question addressed is how Nokia, a multinational Finnish mobile devices corporation, has anticipated legislative initiatives and how it has tried to influence policy development in interaction with industry associations and EU institutions. The answer is sought via three case studies on: first, the preparation of RoHS / WEEE Directives; second, the preparation of the EuP Directive; and third, the IPP pilot project on mobile phones.

Several sources of data and data collection methods were utilized. The main sources of information are briefly presented in Table 2. The first two cases utilized mainly interviews and documents as their data, whereas the third drew on observation and even participation as its key data collection methods. The first case is less closely documented than the second and third, and it serves more as a background for them than as an independent study. In all cases, the interviews were recorded, transcribed and analysed thematically. In the case of the IPP pilot exercise, the meetings of the Nokia IPP pilot project group were also recorded.

Table 2: Key Sources of Data Utilized in Three Cases

	RoHS & WEEE Directives	*EuP Directive*	*IPP Pilot Exercise*
Interviews	Four (Representatives of Nokia)	12 (Representatives of industry associations, ministries, Nokia, the Commission, etc.)	13 (Nokia representatives, including repeated interviews with the project manager)
Observations	–	A COM workshop on the EEE draft directive	Nine Nokia's internal IPP Project Group meetings in 2005–06, final meeting of Nokia, COM and IPP pilot project stakeholder group in November 2007
Other data	Documents, several shorter discussions, stories published by the environmental news service *ENDS Environment Daily*	Internal and public documents, personal emails, several shorter discussions, stories published by the *ENDS Environment Daily*	Internal and public documents, several shorter discussions, stories published by the *ENDS Environment Daily*, participation in several meetings on the IPP pilot product exercise at the Finnish Environment Institute, draft versions of reports by Nokia

Source: Author's own data.

III. All Those Wasted Years? The Preparation of the RoHS and WEEE Directives

The RoHS Directive restricts the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyls in certain electrical and electronic products. The objectives of the RoHS Directive are twofold: on the one hand it is an internal market directive which aims to prevent barriers to trade and distortion of competition that may be caused by differences in national measures and regulations. On the other hand, its environmental and health objective is to 'contribute to the protection of human health and the environmentally sound recovery and disposal of waste electrical and electronic equipment' (RoHS Directive, Art. 1).

In the WEEE Directive, the responsibility for the waste management of discarded products has been placed on the producers (manufacturers and importers). The main objectives are to prevent the generation of electric and electronic waste and to ensure a maximum recovery of waste. Another aim is to improve the environmental performance of economic operators throughout the whole product life cycle of electrical and electronic products. The Directive is thus based on the principle of extended producer responsibility (Lindhqvist, 2000).

Originally, there were plans for only one Directive including the requirements of both the RoHS and the WEEE Directives. Throughout the whole process, these Directives were prepared in close connection to each other. Thus, they are also treated here as one case.

Nokia prepared for the RoHS requirements ever since the 1990s by first being involved in the discussions on the contents of the Directive, but especially by changing its own operations through various projects. During the years 2000–05, the products of all business groups were checked for compliance with the RoHS requirements. Nokia had, however, started proactive work in anticipation of the RoHS requirements even before this, by for example studying alternatives for lead-free soldering. The RoHS requirements have also given increasing attention to the general management of material data. Nokia has developed its own 'Nokia Substance List' on the substances the use of which is forbidden or restricted in the company's products. The list is based on legislative requirements (e.g. RoHS Directive) but also includes some stricter requirements set by the company itself. The list is used both internally in product development projects and in operating with subcontractors and contract manufacturers.

During the preparation of the RoHS and WEEE Directives, Nokia's corporate approach towards environmental policies was still under development. As such, there was agreement that integration of environmental issues into

production and product development could reduce costs. However, there was some hesitation on the strategy towards RoHS and WEEE in the beginning. The industry associations within the field (at the time e.g., ECTEL)[5] were still quite doubtful of the importance of environmental issues, and as the companies let them handle the discussions at the early stages of the preparation of the Directives, some of the moves made during the preparatory discussions with the Commission were later termed 'dreadful mistakes' by Nokia representatives. The industry in general has perceived the unclear requirements (Orgalime, 2006; Kautto and Kärnä, 2006) and incoherencies of implementation in the Member States as the main problems, but from Nokia's point of view the lack of incentives for front-runners has also been problematic (Sormunen, 2006).

Several years before entry into force, Nokia anticipated the requirements of the WEEE directive and improved the recycling and disassembly capacities of its products. The company has, among other things, developed take-back systems for mobile phones together with telecommunication operators (see Nokia, 2007).

In the formulation of the WEEE Directive, the Commission and the industry associations had long been in favour of a model for producer responsibility based on collective financing. Studies in the field have however shown that placing financial responsibility on producers individually is the most important precondition for the effective achievement of the objectives of producer responsibility (e.g., Tojo, 2004). An ad hoc group (see Coen, 2005; Coen and Grant, 2006, pp. 23–4) called Electronics Coalition, formed by certain major corporations (including Nokia), managed to include in the Directive the option of individual producer responsibility. However, the incoherencies of implementation in the Member States and the lack of incentives have remained a problem.

It is not possible to go into the details of RoHS and WEEE processes here, but Nokia's overall conclusion on the preparation of the Directives was that the industry's contribution and co-operation was not as proactive as it should have been. This was reflected later in the preparation of the EuP Directive and especially during the IPP pilot project. The organizational response selected by Nokia in the later phases of preparation can be characterized as *reshaping*, in terms of the categories distinguished by Oliver (1991, pp. 145–57) and McKay (2001, pp. 636–41). Even more important probably was that the disappointments during the process led to a distrust in defiance as a sustainable political strategy.

[5] In 1999, ECTEL and eurobit merged into EICTA (European Information, Communications and Consumer Electronics Technology Industry Associations).

IV. Preparation of the EuP Directive

The EuP Directive is the first directive requiring the incorporation of environmental considerations into product development and it has been characterized as 'a breakthrough in EU product policy', 'a major contribution to sustainable development' (Commission, 2003c) and as 'an enormous cultural change' (*ENDS Environment Daily*, 2001). Its main aims are to ensure the free movement of energy-using products within the EU and to improve the overall environmental performance of these products and thereby protect the environment. From the point of view of environmental governance, the EuP Directive includes several interesting and new features. It uses the companies placing energy-using products on the market as 'regulatory surrogates', i.e. it makes them responsible for their subcontractors and their subcontractors' subcontractors (Gunningham and Sinclair, 2002; Vedung, 1997, p. 153). Besides, it utilizes what are known as the New Approach and the Global Approach (see Commission, 2000). The main idea of the New Approach is to limit legislative harmonization to essential requirements and set technical specifications in harmonized standards. The Global Approach lays down the general guidelines for conformity assessment that are used in the New Approach directives. In the case of the EuP, a crucial role in conformity assessment is given to environmental management systems and self-assessment procedures.

Like the preparation of the RoHS and WEEE Directives, the preparation of the EuP Directive was a drawn-out and complicated process (see Commission, 2003b, pp. 13–14; Commission, 2005a; Kautto, 2007). The EuP proposal itself was a merger of two initiatives: one on the impact on the environment of electrical and electronic equipment (the EEE draft directive) and the other on energy efficiency requirements for end-use equipment (the EER draft directive). Despite its clear environmental objectives, the EuP proposal was not prepared in the environmental directorate-general (DG Environment, DG ENV) of the Commission. The EEE draft directive was originally prepared by DG Enterprise (DG ENTR) and the EER draft directive by DG Energy and Transport (DG TREN). When the EuP Directive was finally approved by the Council and the Parliament in April 2005, the most crucial things remained as the Commission (COM) had proposed them. Thus, the main focus here is also the preparation in the COM. However, as the final character of the EuP will be created through the implementation measures and standards, the struggle on the content of the Directive will continue in the coming years.

Nokia's Political Activity During the Preparation

As a leading company in its field, Nokia was invited to the preparation of the EEE Directive already at the beginning of the formal consultation. It seems that Nokia was successful in attaining its objectives and it played quite an important role in the preparation, especially during the most important period, the preparation in the Commission. Of course, that does not mean that Nokia or organizations connected to it were the only important actors in the process.

Nokia was very active through the whole preparation process and Nokia representatives participated actively in the meetings and workshops organized by the Commission. In addition, it was known that Nokia's top management had good contacts with the European Commissioner for Enterprise and Information Society, Mr Erkki Liikanen, and his cabinet. These contacts to the cabinet were used by Nokia and, besides, the European industry associations and other multinationals (e.g., Electrolux, Hewlett-Packard, IBM, Intel, Philips, Sony and Sun Microsystems) co-operated with Nokia to gain access to the cabinet more easily. Bilateral meetings of Nokia and the Commission were organized especially when there were difficulties to find a consensus within industry associations.

The co-operation continued also during the co-decision procedure in the Council and the European Parliament. During the first reading in the European Parliament, the *rapporteur* was a Finnish MEP, Astrid Thors. At that time, her former assistant was working at the Nokia Representative Office for EU Affairs in Brussels. Thus, Nokia remained an important venue for industry associations and other large companies.

As stated earlier, interest groups and large companies pursue venue shopping when they decide which government institution they should lobby and into which arena they should try to shift the debate over public policy. Nokia selected 'promiscuity, rather than monogamy', as a way of lobbying (Mazey and Richardson, 2001, p. 227; Coen, 2005). But although it used several points of access, the main venue selected was EICTA (European Information, Communications and Consumer Electronics Technology Industry Associations). Within EICTA and in addition to it, Nokia had a lot of co-operation with other active multinationals. EICTA was also the main venue that Nokia used to get its messages to Orgalime (the European Federation of National Industry Associations representing the European mechanical, electrical and electronic and metal articles industries): according to an industry association representative interviewed, '[it is] also very active on the EICTA side, so their view comes back to the Orgalime level through a product group in EICTA'. In their direct contacts, European industry associations and Nokia skilfully utilized the competition, conflicts and bureaucratic politics within the

Commission (Christiansen, 2001, p. 103) by dealing at the same time with the Commission services (the DG ENTR) and with the Cabinet of Commissioner Liikanen.

In addition to these main venues selected, Nokia made some use of the Confederation of Finnish Industry and Employers (TT) as a channel of influence to get its message to Orgalime and to the COM. Nokia also represented the Federation of Finnish Electrical and Electronics Industry (SET) in EICTA. As Finnish ministries were willing to 'respect the Commission's right of initiative' during the early stages of preparation, and the Council was rather like-minded with the COM, Nokia bypassed to a large extent the national-level actors in its policy-making. Considering the exceptional importance of Nokia for the Finnish national economy[6] and therefore for the Finnish government, this is somewhat surprising. It reflects a difference between large and small Member States and their assessed effectiveness as lobbying arenas in European policy-making (Grant, 2000, pp. 106–15). On the other hand, there was no need to mobilize the nation-state, as the process evolved in the right direction without substantial problems.

What Issues were Disputed During the Preparation and How Did Nokia Respond to These?

From Nokia's point of view, there were four main issues at stake during the preparation of the EuP directive. The most crucial issue for Nokia and the whole industry was *the legal basis of the Directive*. Use of Article 175 of the Treaty establishing the European Community would have allowed the Member States to issue stricter national requirements whereas the use of Article 95 (at least in principle) means harmonization of laws. The Commission used Article 95 of the Treaty (on approximation of laws) both in the drafts and in the proposal. However, it was widely discussed during the preparation process whether Article 175 (on environment) should be the legal basis (for example, a critical analysis of the EEE draft proposal by Hunter *et al.*, 2001, strongly opposed the use of Article 95 as the legal basis for the Directive). Later, one of the proposed amendments of the European Parliament was the use of both of these articles as the legal basis. Thus, the discussion on the right legal basis continued through the whole preparation process, but the legal basis remained unchanged. The organizational response selected by Nokia can be characterized as *safeguarding*. Nokia encouraged the Commission to use Article 95 as the legal basis.

[6] According to estimates by Ali-Yrkkö, Nokia's share of the value-added of GDP was 3.7 per cent in 2003 (Luukkonen, 2006, p. 29). For historical reasons, the economical and political position of forest-based industry is at least as strong (e.g., Paija and Palmberg, 2006).

Secondly, the proposed requirement for compulsory *full-scale Life Cycle Assessment (LCA)* was consistently opposed by Nokia.[7] For years, Nokia had already worked with life-cycle assessments concerning its products. Despite this work, there were (and still are) a number of uncertainties and problems connected with the assessments. The availability of data on components and raw materials used in them varies. The available information is often so inexact that it does not, for example, reveal differences in material choices, which tend to be drowned under general informational uncertainties. The effective use of LCAs in product development is also limited by the slowness of the analysis and the complexity of the results for product designers who may not be experts in environmental issues. On this issue, the responses of Nokia were *reshaping and pre-empting*: it supported life-cycle thinking as a basis for environmental policy, but concurrently it opposed the requirement for full-scale LCA, as that would have remarkably constrained its decision-making latitude. Thus, the aim was to modify the proposal to provide a closer fit with its needs and interests (McKay, 2001).

The third issue of dispute was *whether the requirements on large companies and small and medium-sized enterprises (SMEs) should be similar*. Some associations of SMEs claimed that, for example, the requirements for management of material data were too labour intensive for SMEs and they should only pertain to large companies. Nokia strongly opposed different requirements and argued that these would make it impossible for large companies to use SMEs as their subcontractors. Here the response selected by Nokia can again be characterized as *safeguarding*.

Fourthly, *the use of environmental management systems (EMS) in conformity assessment* was widely discussed. The environmental non-governmental organizations (NGOs) opposed the use of EMS in conformity assessment in general, whereas the industry promoted the use of both EMAS[8] and ISO 14001-based EMS. For some time, the Commission defended the use of EMAS as a European system. In addition to the requirements of ISO 14001, EMAS requires the undertaking of an externally verified environmental review and the publication of relevant information to the public and other interested parties. EMAS is recognized only in EU countries, whereas ISO 14001 is an international environmental management standard. Since the end of the year 2000 Nokia has had ISO 14001-based EMSs in all of its production sites. It also requires ISO 14001 from all of its subcontractors. Thus, and because it is a globally operating company, the requirement for EMAS was

[7] LCA is used to analyse the environmental impacts of a product by collecting and evaluating quantitative data on the inputs and outputs of material, energy and waste flows associated with a product over its entire life cycle.
[8] EMAS = The EU Eco-Management and Audit Scheme.

Table 3: The Main Passages Dealing with the use of EMS in Conformity Assessment in Two EEE Draft Proposals and in the Final Proposal for the EuP Directive by the Commission

	EMS in Conformity Assessment
Draft EEE proposal (September 2000)	EMAS and ISO 14001 not mentioned as means for presumption of conformity
Draft EEE proposal (February 2001)	'EEE designed by an organisation registered according to *the Community eco-management and audit scheme* [EMAS][. . .] shall be presumed to comply with the essential requirements'
Proposal for EuP (August 2003)	'If a EuP [. . .] is designed by an organisation registered in accordance with Regulation (EC) No 761/2001 of the European Parliament and of the Council [EMAS] [. . .] and the design function is included within the scope of that registration, the environmental management scheme of that organisation shall be presumed to comply with the requirements [. . .]'. 'If a EuP [. . .] is designed by an organisation having an environmental management system which includes the product design function and which is implemented in accordance with harmonized standards [ISO 14001] [. . .] that environmental management system shall be presumed to comply with the corresponding requirements [. . .]'

Source: Author's own data.

unacceptable for Nokia. Table 3 describes how the EMS issue was handled in two EEE draft proposals and in the final proposal by the Commission and illustrates how the industry was able to modify the requirement. Thus, the response by Nokia and EICTA was *reshaping*, i.e., modification of the proposals to provide a closer fit with their needs and interests.

In addition to these issues of controversy, the need for this kind of directive was also called into question during the preparation at the Commission. In public, the industry associations were in principle supportive of the preparation of the Directive, but behind the scenes also more critical stands were taken. Only a couple of months before the final proposal was issued by the Commission in August 2003, DG Enterprise was ready to consider the interruption of the preparation of the Directive. However, it seemed to be clear that in that case either DG TREN or DG ENV would prepare a directive incorporating environmental issues into the product development process. As a result, based on the discussions between EICTA and DG Enterprise, EICTA and its key members (including Nokia) assessed that it was better to have an Article 95-based directive prepared by DG ENTR than to possibly have an Article 175-based directive prepared by DG ENV. In that sense, the preparation of the proposal for the EuP Directive can be seen as an attempt to capture

or hijack product-oriented environmental policy from DG ENV (*ENDS Environment Daily*, 2000; on business 'hijacking environmentalism' see Welford, 1997).

The EuP Directive was finally approved by the Council and the Parliament in April 2005. It turned out that the most crucial concerns of the European industry were taken into account, and in these areas of concern the Directive was in line with the proposal by the Commission. The Directive was based on Article 95 and a full-scale Life Cycle Assessment was not required. In addition, the Directive allows the use of international management standards (not only EMAS) in conformity assessment. The most important addition to the Commission proposal was made by the Parliament, which required the incorporation of a list of priority products[9] for which the Commission should prepare implementing measures, and an obligation for authorities to take action if a product is not compliant with the Directive and implementing measures. Still, the lobbying resources allocated to the preparation in the Commission had produced favourable returns (Mazey and Richardson, 2001, pp. 219–20).

To summarize, Nokia utilized several parallel issue-based strategic responses during the EuP preparation: while it (together with industry associations and other large companies) successfully pre-empted and reshaped the early drafts of EEE, it at the same time assumed that the incorporation of life cycle-based environmental considerations into product development process will be required in the future. Thus, it changed its own ways of action to conform to these requirements when they come into force (for years, one of the key focus areas of Nokia's environmental strategy has been design for environment, see Nokia, 2001).

V. Making Product Policy and Building Trust: Nokia's Mobile Phones as an IPP Pilot Project

In its Communication on Integrated Product Policy (2003a, pp. 15–17), the Commission stated that it 'will carry out a number of pilot projects to demonstrate the potential benefits of IPP in practice'. In summer 2004, the Commission announced that it would launch two pilot projects, one of which was centred on mobile phones and would be headed by Nokia (Commission, 2004; Nokia, 2004). The project started officially at the turn of 2004–05, and it was carried out in the following stages:

[9] Heating and lighting equipment, electric motors, domestic and office appliances, consumer electronics, air conditioning and a special measure on stand-by losses.

1. Analysis of the environmental impacts of the product throughout its life cycle (~10/2004–2/2005) (Nokia, 2005a);
2. Identification of options to improve the environmental impact of the product (~3–6/2005) (Nokia, 2005b);
3. Analysis of the potential social and economic effects of the improvement options identified at stage 2 (~7/2005–4/2006) (Nokia, 2006);
4. Selection of viable options for improvement and establishment of an implementation plan (~12/2005–5/2006);
5. Implementation (~5/06–01/08) and its analysis (~01/08).

In addition to Nokia and the Commission, the other participants in the project included Motorola, Panasonic (mobile phone manufacturers), AMD, Epson, Intel (component manufacturers), Department for Environment, Food and Rural Affairs (DEFRA, UK governmental organization), Finnish Environment Institute (SYKE) (research institute), France Telecom/Orange, Telia Sonera, Vodafone (telecom operators and retailers), Umicore (recycler), WWF (environmental NGO) and BEUC (consumer organization).[10] I observed the pilot project on mobile phones through Nokia's internal project group during the first four stages. The pilot project is still under way, but conclusions can already be drawn.

For Nokia, participation in the project provided an opportunity to present the environmental work that it has carried out for years and which has been regarded as significant within the company. This has further strengthened the image of Nokia as a company with a high commitment to environmental issues[11] and built trust within the Commission. Another advantage of the project has been that Nokia has had the chance to voice problems and development ideas concerning environmental regulation in the electronics sector. Since Nokia has, at the same time, shown careful consideration for environmental issues in its own operations, the critique that the company has presented has been heeded. Nokia has had several opportunities to express its views on the areas in which the WEEE and RoHS Directives ought to be revised. This action has apparently borne results, since the Commission mentioned in its Communication on the implementation of the Lisbon Strategy (simplifying regulation) these directives as ones that need to be reviewed (Commission, 2005b, p. 51).

[10] Further information on the pilot project can be found at: «http://europa/eu.int/comm./environment/ipp/pilot.htm».

[11] Nokia's environmental work has recently been acknowledged in several contexts, such as listings in the Dow Jones Group Sustainability Index (DJSI) since 2000 and in the FTSE4Good index on corporate responsibility. Nokia also received the Appeal of Conscience Award for corporate responsibility and commitment to environmental issues in September 2005. In 2006, Greenpeace ranked Nokia as the best environmental performer within the electronics industry (*The Economist*, 2006).

In addition, as the organization heading the project, Nokia has been the only organization that has had a clear overall view of the material produced in the project. As the author of the reports, the company has been, at least to some extent, able to choose which issues are emphasized in them. Among these aspects have been:

- The problems in obtaining the information required for life cycle assessments (LCAs) and in the reliability of the available information are brought up in the chapter on the EuP Directive. Instead of full-scale LCAs for each and every product, Nokia has been able to promote the idea of life-cycle thinking or Key Environmental Performance Indicators (KEPIs, see Singhal *et al.*, 2004) as better premises for environmental improvements.
- The Commission's Communication on Integrated Product Policy (2003a, p. 5) states that IPP incentives should 'reward those companies that are innovative, forward-looking and committed to sustainable development'. Formulation of this type of policy is problematic when carried out together with industrial organizations, which are mainly interested in searching for the lowest common denominator (Martin, 2000, p. 14; Peters, 2001, p. 81). The IPP pilot project has been an opportunity to emphasize the establishment of 'best practices and front-runners' as a starting point for the formulation of the requirements for environmental product policies.
- Moreover, the pilot has been an opportunity to generally illustrate the problems of integrated product policy in the case of complex products.
- Last but not least, the Nokia and mobile phone industry were able to demonstrate that environmental improvements are made within the sector on a voluntary basis and that the environmental impacts of mobile phones are quite moderate in comparison to many other energy-using products (Nokia, 2005a, pp. 36–7). This was an important message because, at the time of the project, the Commission was considering which product groups should be covered by the EuP implementation measures.[12]

Participation in the IPP pilot project continued the proactive approach that Nokia had assumed, according to which it is better for the company to take part in influencing the contents of the requirements than to simply adjust to regulations that others have laid out, which might be less suitable for practical business operations and environmental management. Underlying Nokia's

[12] According to the EuP Directive, 'priority should be given to alternative courses of action such as self-regulation by the industry where such action is likely to deliver the policy objectives faster or in a less costly manner than mandatory requirements'.

proactive role has been a shared view in the company that policy requirements should be influenced at the earliest possible stage.

Conclusions

In this article, the preparation of the RoHS and WEEE Directives, the EuP Directive and the IPP pilot exercise have been examined from the perspective of Nokia, a multinational Finnish mobile devices corporation. Nokia's activities have been largely based on co-operation with the industry within the framework of the EICTA, although in some cases Nokia's views have differed from those of many other companies. In such events, Nokia has formed ad hoc coalitions with other major corporations and organizations operating in the field. Nokia has so far been one of the few companies in the electrical and electronics industry that have lobbied for the collection of material data also beyond the scope of existing legislation, i.e., the RoHS requirements.

The RoHS, WEEE and EuP Directives and the IPP pilot exercise can be seen as part of a shift in the focus of environmental policy and management from cleaner production processes to greener products. So far this has mainly occurred through more or less voluntary initiatives of companies. However, the new directives signify the institutionalization of this development on a new level, into regulative structure (Mac, 2002, p. 262). It can undoubtedly be said that *individual firms* have played an essential role in the formulation of this field of public policy, especially in the cases of the EuP Directive and the IPP pilot, but also in the later stages of the WEEE Directive preparation (Mazey and Richardson, 2001; Coen and Grant, 2006, pp. 17–19).

Nokia's view of the industry's co-operation as insufficiently proactive during the RoHS and WEEE processes and the unclear requirements of these Directives was later reflected in the preparation of the EuP Directive and especially during the IPP pilot project. Instead of adopting the challenging and attacking approaches of industrial associations, Nokia adopted more constructive strategies, such as reshaping, pre-empting and, to an increasing extent, safeguarding. This has enhanced the trust in Nokia within the Commission, which is particularly important as the Commission is increasingly favouring certain groups and companies over others due to lobbying overload (Hix, 2005, p. 223; Wilson, 2006, p. 39; Coen and Grant, 2006). The collaborative approach adopted by Nokia can be expected to bring further positive results in the future and the Commission has already recognized the need to revise the RoHS and WEEE Directives. At the same time, Nokia has changed its own operations to conform to the requirements when they come into force.

Table 4: Summary of the Development of Nokia as an Environmental Policy Actor

Policy initiative	*RoHS & WEEE*	*EuP*	*IPP*
Main venue(s)	EICTA, Electronics Coalition, COM	EICTA, COM	COM
Responses summarized	Defiance, reshaping	Reshaping, pre-empting, safeguarding	Safeguarding, reshaping
Benefits and drawbacks emphasized by Nokia	No incentives for front-runners, unclear requirements in RoHS, disappointment, very labour intensive	Moves in the right direction, requirements still unclear to some extent, rather successful	The end results still unclear to some extent, successful, rather labour intensive

Source: Author's own data.

A summary of the development of Nokia as an environmental policy actor is presented in Table 4. Generally, the following aspects have characterized the environmental policy-making in Nokia in the 2000s:

- Proactive, anticipatory timing;
- Multi-level lobbying, several venues: promiscuity rather than monogamy;
- Selection of the Commission as the most important political institution for lobbying;
- Not only negative feedback: reshaping rather than defiance;
- Ad hoc alliances;
- Multi-level alliances;
- The importance of personal contacts in the policy-making process with the Commission.

Why, then, has Nokia adopted a positive approach towards environmental policy-making? The top management's personal commitment to the environment is certainly one reason, and it was often stressed in interviews with the environmental specialists within Nokia. Besides, the lessons learned from conflicts between environmentalists and other industrial sectors have led to risk avoidance and to the adoption of a more proactive approach. Finally, as the understanding of its relatively progressive position in environmental issues gradually grew within Nokia, environmental regulation was probably seen as one way to maintain its advantage in the competition with less advantageously positioned and smaller players within the field (Garcia-Johnson, 2000; Reinhardt, 2000).

From the perspective of environmentally oriented politicians and the environmental administration, this could mean that policy should be made and

strategic alliances should increasingly be sought with individual, 'progressive' companies instead of industry associations that look for lowest-common-denominator solutions. The risks of this kind of collaborative policy-making should, however, be studied further.

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