

Can local environmental regulation of companies deal with a broader environmental view?

Kasper Dirckinck-Holmfeld¹ and Carla K. Smink²

Abstract

Environmental concern of companies has gradually expanded from a focus on local environmental problems to a broader inclusion of inputs as well as lifecycle perspectives. At the same time, the regulatory approach has changed from a “pure” command-and-control regime, towards a governance regime, where strict regulations increasingly are supplemented with other regulatory instruments such as economic incentives, information and facilitation.

In Denmark, municipalities are the competent authority for companies. Throughout the last decade, several attempts to expand competences of municipalities to include more facilitating and catalytic aspects as well as promoting cleaner technology and pollution prevention have been tried out. However today, most municipalities still rely on traditional command-and-control mechanisms as well as targeting at the traditional local environmental concerns.

However the reason years renewed focus on Climate and Energy seems to provide perspectives to reintroduces this more facilitating role and focus on broader environmental aspects.

Keywords: Environmental regulation, companies, Governance, Local authorities and Pollution Prevention.

Introduction

Environmental concern of companies is generally described as a gradually expansion from a focus on local environmental problems (air, water and soil) to a broader inclusion of inputs (e.g. resources, materials and energy) as well as the whole production chain and products (Remmen 2001, Kjørnø 2007, Jørgensen 2009). Likewise, several authors agitate that the regulatory approach has changed from a “pure” Command and Control regime, towards a governance regime, where strict regulations are supplemented with other regulatory instruments such as economic incentives, information and facilitation (Bäckstrand et al. 2010, Weale et al. 2003; Jänicke 2008).

Looking at the whole regulative set-up affecting companies in Denmark, Denmark is with several different policy tools and instruments addressing a broader environmental concern and as such is in line with these overall terminologies. However, this paper takes a closer look at the direct regulation of companies, and question that in relation to this, such movement in approach has been implemented.

The overall regulative framework for the direct regulation of companies set out by both EU regulation (e.g. IPPC/IED) and national legislation is addressing pollution prevention and best available technology as central parameter to apply. The interviewed caseworkers at local authorities do also acknowledge that there is ample room for addressing broader environmental aspects especially as part of a more facilitating role in prolongation of the traditional authority role. However they do stress, that this room is not utilised.

During the late 80'ties and 90'ties, several attempts to supplement command and control regulation by e.g. promotion of Cleaner Technologies and Environmental Management System has been carried (Baur et. a., 1998; Kromann et. al., 1996). The latest guidance document on surveillance from 2006 also stated that the

¹ Corresponding author. Department of Development and Planning, Aalborg University, A.C. Meyersvænge 15, 2300 Copenhagen S, Denmark; kadir@plan.aau.dk phone (+45) 60 86 89 65

² Department of Development and Planning, Aalborg University, Vestre Havnepromenade 9, DK-9000 – Aalborg, Denmark; carla@plan.aau.dk phone (+45) 99 40 98 05

competent authority should supplement the strict authority role with a catalyst role motivating companies to go beyond compliance (Christensen et. al., 2006).

Another guidance document from 2004 do however emphasises that the surveillance activities should be target those judged to possesses risk of incompliance (Christensen and Baur, 2004), whereas this often will need a more traditional authority role.

Furthermore, as an attempt to streamline the permitting process by both more uniform requirement and more efficient resource allocation, the introducing of standard requirement as reference for BAT level, have removed one of the central dialog options for the competent authority to actually address such aspects as part of the permitting process (Ellegaard et al., 2010)

During the latest decade, the direct regulation of companies has been under pressure. This means that most municipalities barely can meet agreed minimum frequencies for surveillances and solely address what is considered strictly required and not what is considered as possible (Ellegaard et al., 2010).

According to the interviewed caseworkers, the more facilitating role as well as the broader environmental view is not view to be a obligation. Consequently, most municipalities focus on a traditional authority role centred on the traditional environmental parameters.

Methods

This article is based on:

- Review of texts related to governance and a broader environmental view as well as juridical books on the environmental law in Denmark
- Review of several political documents including both prime legal texts (acts and orders), political agreements and reports
- Conduction of interviews with caseworkers in 7 Danish municipalities participating in a EU funded project “Carbon 20” about how to engage local business in CO₂ reductions, and
- Interview with a employed in the central administration Danish Environmental Protection Agency

The broadening of the environmental concern

The traditionally local pollution problems of water (“burning” rivers in heavily industrialised cities) and air (smog) have become regional (acid rain) or global (ozone depletion and global warming). Seas, and no longer just rivers and lakes, have become subject to eutrophication. Furthermore single-substance/single media issues (mercury in water) have been succeeded by multi-substance/multi-media issues (acidification of the air, the soil, the waters) (Winsemius and Guntram, 1992).

Considering these developments, it is not difficult to argue that “the” environment is a complex policy field. The environment as a policy problem is surrounded by at least four factors:

- *Complexity*: interdependent relationships between natural and human-made phenomena like climate change (Carter, 2001: 164-165) and arise from a wide variety of social and economic pressures (Gunningham and Sinclair, 1999: 853-854)
- *Uncertainty*: policies that deal with one discrete problem may have unintended and damaging consequences elsewhere (Carter, 2001: 165)
- *Irreversibility*: once the Earth’s carrying capacity is exceeded, environmental assets may be damaged beyond repair (Carter, 2001: 166). It is arguable that the window of opportunity for averting major ecological disaster is a rapidly shrinking one (Gunningham and Sinclair, 1999: 854)
- *Spatial and temporal variability*: it is easier to make policy that responds to today’s political pressure than policy, which addresses tomorrow’s environmental problems (Carter, 2001: 167)

For this paper traditional environmental concern refers to an environmental view related to the so called immediate environmental aspects of noise, odour, emissions to air and water as well as soil. The broader environmental view is in this paper to be understood as a further focus on global concern such as climate change, resource scarcity etc. and thus inclusion of input related aspect e.g. energy and material use, but also including lifecycle perspectives.

From government to governance

Theoretically, industries can be regulated in three different ways: by public regulation, market regulation and self-regulation; since the 1980s, public environmental regulation has been supplemented increasingly with market regulation and self-regulation (Smink, 2007). Our main focus will be on the *shifts* that have taken place in environmental regulation and governance over the last four decades.

Since the 1970s, command-and-control regulations have been the dominant form of public environmental regulations. The basic thought of command-and-control regulations was obvious: emissions of pollutants were too high and had to be lowered (Smink, 2002: 56). Command-and-control regulations tried to impose constraints on existing activities in society. For example, regulations focused on the efficient removal of waste, not on waste prevention and regulations imposed restraints on process emissions, the product life cycle was no part of regulations (Smink, 2002).

In the last decades, there has been given in to a number of the most visible environmental problems. Air and water quality went up recognisably, smog levels were reduced and visible pollution of surface waters disappeared. Command-and-control regulations have certainly contributed to this reduction (Keijzers, 2000). A major strength of command-and-control regulation is its reliability, provided there is adequate monitoring and enforcement (Gunningham et al., 1998). Gunningham et al. (1998) do also state that command-and-control regulations are easy to articulate, predictable in impact (the enforcement agency can often know precisely how the regulated company will react) and easy of enforcement (because the agency can structure commands so that it knows exactly how to enforce them). With regard to performance-based standards, command-and-control regulations have been successful. "Companies subject to performance-based standards usually emit less than their permits allow in order to make sure that they consistently comply with regulatory standards" (Driesen, 1998: 305).

However, in the 1980s, several began to question the appropriateness of the existing approach of regulating companies. Several weaknesses of command-and-control regulation became more and more clear, e.g. command and control regulation is claimed to be costly and inefficient, traditionally it have been rather static and ineffective by focusing on end-of-pipe technologies (Smink, 2002).

The strengths and weaknesses of command-and-control regulations have contributed to a lot of discussions with the aim of giving in to the weaknesses and to strengthen its strengths. Government has via various initiatives (e.g. involving market forces and individual companies in the regulatory process) tried to modernise public environmental regulations to now encompass a variety of norm regulation, economic incentives as well as informative and involvement activities.

A development that often is termed "from government to governance". However, as argued by Gunningham (2009), it is difficult to say precisely what "new governance" means. Like Gunningham (2009: 146) we will treat "new governance" in the context of environmental protection as involving a cluster of characteristics: participatory dialogue and deliberation, devolved decision-making, flexibility rather than uniformity, inclusiveness, transparency, institutionalised consensus-building practices, and a shift from hierarchy to heterarchy. "Not all these characteristics need to be present for a particular experiment to be regarded as involving new environmental governance, but the more characteristics that are present, and the stronger the form in which they are present, the greater is the claim to be regarded as falling within this category" (Gunningham, 2009: 146).

Direct regulation of companies in Denmark – The overall scheme

In Denmark, the first Environmental Protection Act (EPA) from 1973 was mainly targeting pollution from industry. The basic idea of how to regulate industry was to draw up a list of most polluting types of companies and then stipulated conditions for their operation in a permit (Moe, 1995: 63).

Originally, nearly every manufacturing company was classified as a “particularly polluting enterprise” and needed an environmental permit – covering approximate 35-40.000 companies. In 1985, auto repair shops and fur farms were taken out of the permitting scheme and instead regulated by separate sector specific statutory orders setting general binding requirement directly valid for the whole sectors - reducing the number of companies subject for individual permit to approximately 25.000 companies - partly to provide room for strengthen the compliance monitoring and enforcement. By the adoption of the 1991 EPA the size of the list was reduced dramatically to 10,000 (and subsequently reduced to approximately 7.000), while providing legal basis for regulating the rest trough injunctions (Moe, 2000: 35).

Based on some recommendations from a committee in 2002/3, a simplified permitting scheme have been set-up for the majorities (4.500) of these companies whereas the majority of the applicable conditions is formulated as standard conditions that the competent authorities are obliged to use in the individual permits, leaving approximate 2.000 companies to be regulated by full permits including (but not limited to) the approximate 800 covered by the EU regulation (IPPC and now IED) (Ministry of Environment, 2011).

Traditionally the competences to formulate the conditions in these permits were provided to the local authorities of respective the municipalities and the former counties, while compliance monitoring and enforcement (surveillances) until 1987 was the competences of the municipalities alone. In 1987 it was decided to strengthen the continuity and prioritise the surveillance by providing that the same authorities are responsible for both formulating and enforcing requirements (Moe 2000: 35; 261).

With the reorganisation of the Danish administrative landscape in 2007, the counties have been closed down, while several municipalities have been merged. The companies formerly regulated by the counties are for the majority now under the competences of the enlarged municipalities, while the most polluting (around 250) companies are under the competences of regional units of the central administration.

In the preliminary years not much attention was given to enforcement activities (Moe, 2000). In the beginning of the 1980s it was however highlighted that the enforcement of established requirement was lacking and subsequently agreed to significant strengthen this by agreeing that the surveillance is active following up in contrast to just reacting at complaints or other indication of non-compliance (Moe, 2000).

In the beginning of the 1990s, renewed criticism of the enforcement and monitoring activities led to an agreement between the central – and local administrations about a minimum surveillance frequency stating that minimum 50% of respective the companies subject for permitting and those regulated through injunctions under the competent authorities competences shall receive visits during one year (Moe, 2000; Ellegaard 2010). In 1999, the minimum frequency agreements was amended so that the individual companies subject for permits should get a visitation at least once every third Year, and companies regulated through injunctions once every 5 years. Parallel a guidance document was made to differentiate the surveillance activities on top of this minimum frequency, so that the companies judge likely to be in non-compliance receive more visits (Ellegaard et al., 2010).

Summing up the above the regulation of companies in Denmark today can roughly be group into 4 levels:

Level	Regulation form	Authority	Number companies	Category
1	Full individual permit based on assessment of BAT, CT and the	Split between the municipalities and central	2.000 including 800 IED	Most polluting companies subject annex 1 in statutory

	surroundings	administration		Order
2	Simplified permit based on standard condition	Municipalities, but the standard conditions is revised centrally	4.500 companies	Polluting subject annex 2 – judge some kind of similarities
3	Sector specific statutory orders providing directly binding requirements	Municipalities (surveillance and enforcement) – the statutory orders is revised centrally	Approximately 8.000	Auto repair shop / dry-cleaning (also fur farms and other livestock)... (Sectors with many uniform companies)
4	Injunctions on a case by case	Municipalities	In principal all – however around 35.000 companies subject to periodic surveillance + reactions to complaints	Companies judge to possesses some kind of risk for the environment

Table 1 - 4 levels of company regulation in Denmark³

Approaches in the regulation - A move towards governance?

In the preliminary years after the adoption of the Environmental Protection Act, pollution was seen as a problem in relation to the carrying capacity of the surroundings recipient in respect to emissions to air, water and soil as well as issues related to neighbours such as noise and odour. Focus of authorities was to control that emissions be kept below the carrying capacity of the surroundings or within acceptable levels for the neighbours. The means often related to first demanding the use of best available (cleaning) technologies⁴ to clean the emissions and secondly requiring a certain dilution of the emission e.g. building the chimney higher etc. (Moe 2000 31). This is also reflected in the guidance document from the central administration targeted the respective emissions streams, where e.g. the guidance document on emissions to air even in its 2001 revision basically refers to emissions level achievable by the use of cleaning technologies and how to calculate the height of the chimney subsequently (Environmental Protection Agency, 2001).

In the mid 1980s, focus was increasingly on cleaner technologies, economic instruments and self-regulation (Smink, 2002: 144-145).

Since 1986, Danish government has implemented a series of cleaner technology programmes. From 1986 until 1989, these programmes focus primarily on investigating the potential for cleaner technologies in different trades of industry, and in conducting demonstration projects in companies. From 1990 until 1992, cleaner technology programmes involved a more active broadening of focus, as well as increased competence-building and information dissemination. The third programme, 1993-1997, was the period of integration (Remmen, 1998). Based on evaluating these programmes and other governmental initiatives Remmen have described the development of Cleaner Technologies programs going from strictly technological focus on specific hardware solutions, towards a broader inclusion of behavioural and organisatory aspects by especially supporting the concretisation and dissimilation of EMS for different sectors, to also addressing broader lifecycle perspectives (Remmen 2001).

³ In this table, the number of regulated companies do for the 3 first levels not include livestock farming

⁴ BAT – Best Available Technologies – but here the term BAT solely refers to technologies related to cleaning or diluting the emissions and not as the IPPC directive also include process technology in respect to preventing the pollution

While the various evaluations of the programme point at the important of such programme to develop technologies, the Evaluations of the first programmes also stressed that the programmes should do a better effort in integrating the achieved result into the regulative framework making the dissemination a mandatory rather than voluntary aspects (Jørgensen et. al., xx) While some aspect was written into the existing sector specific orders, the main concept was that the Cleaner Technologies projects should be implemented through the existing permitting and surveillance scheme.

Overall frames for addressing broader environmental aspects in direct regulation of companies

With the 1991 Environmental Protection Act (EPA) and reinforced with the inclusion of the provisions of the IPPC directive adopted in EU in 1996 and transposed into national regulation with the 1999 revision of the EPA, Cleaner Technology (CT⁵) and pollution prevention was included as central guiding principles for the administration of the Environmental Protection Act. Furthermore, it was decided that Cleaner Technologies should be included as premise for issuing the permits, whereas companies had to report about the use of CT in the application and the competent authority can refuse to provide the permit given insufficient argumentation. Along with the inclusion of Cleaner Technologies in the Environmental Protection Act of 1991, solid waste was added as an emission equal to emissions to air, water etc. (Moe, 2000; Kromann et. al., 1996).

To facilitate the uptake of cleaner technologies the Danish Environmental Protection Agency (DEPA) planned to conduct and periodically update different sector notes covering main environmental parameters as well as possible technologies and also establish a database of CT in different sectors (Kromann et. al., 1996, Environmental Protection Agency, 1993). However solely 8 of these have been conducted during the last 20 years and only few are currently updated, while the database has been abandoned long ago.

During the 1990s, several municipalities and counties carried out various different initiatives to promote Cleaner Technologies and especially the uptake of Environmental Management Systems (EMS) as part of their environmental regulation of companies. Focus was mainly on the promotion and facilitation of the companies to voluntarily take up cleaner technologies and EMS alike procedure as part of the general dialog about permits and as part of the surveillance, while also to a minor extent agreeing with some companies to add aspects in the permits mainly related to operational procedure (Kromann et. al., 1996; Bauer et. al., 1998).

In an evaluation of the efforts to include Cleaner Technologies in the permitting and surveillance from 1996 Kromann et. al concluded that the Environmental Protection Act (1991) is viewed to provide a good framework for promoting and facilitate the companies voluntary adoption of Cleaner Technologies especially as part of the permitting process, where the requirement of assessment of BAT/CT form a good outset for a dialog (Kromann et al., 1996). However, the evaluation also concludes that the Act and subsidiary Order does not provide clear legal base for addressing Cleaner Technologies in the conditions in the permits and injunctions given that companies are reluctant and thus might question any requirements (Kromann et al., 1996).

In contrast to this evaluation, a professor in environmental law, Ellen Margrethe Basse, has in an unpublished note (but referred in Paudan 2005) about the legal base for addressing waste prevention, concluded that there indeed is a legal base for addressing input related aspect and waste prevention, and actually claiming that there not only are legal base, but also an obligation to do so (Bauer, unpublished; Palundan, 2005).

The argument is, that while waste (prevention), resources and inputs etc. are not specifically addressed in the paragraph of the subsidiary orders naming conditions that the permit shall include (§14), this paragraph does emphasise that conditions should secure the continuing fulfilment of the prerequisite for issuing the permit

⁵ With the adoption of IPPC directive the term was changed to BAT, but emphasising that BAT is to include process technologies and options for preventing the pollution and secondly cleaning and dilution options.

(§13), which include BAT where emphasis again is given to prevention, minimised resource use and Cleaner Technologies. Furthermore as already mentioned the preliminary § of the EPA specifically emphasise the reduction of waste and resource use by Cleaner Technologies as main principle in respect to judgment made in the administration of the law. This emphasises the legal base for formulating the conditions in the permit, but further provide legal basis for formulating injunctions in respect to waste prevention etc. to companies not subject for permits (Palundan, 2005). In both cases, the legal base is however strictly related to the BAT and cleaner technologies, and need to be based on specific assessment of the individual company (Palundan 2005)

While the Palundan report uses the Basse note to state that there is a clear legal base, the report also reports that only very few practises actually exist. Palundan du provide some suggestion based on these experiences, but emphasises that none of these have actually been subject for trial (Palundan, 2005).

Basses argument is, however, based on a former version of the Environmental Protection Act (1991). As mentioned before, the majority of the companies' subjects for permits are now under a simplified scheme (level 2). The simplifications addresses specifically, that the single permit does not need to address BAT, as this is covered trough the standard conditions (Ministry of Environment, 2006; Christensen et. al., 2006). Consequently the competent authorities have significant reduced capabilities for addressing Cleaner Technologies, pollution and prevention etc. as part of the individual permitting process for those companies as BAT is promoted trough the standard requirements (Christensen et. al., 2006). However, a short review done in connection to this paper shows, that while the standard requirement may reflect BAT in respect to emissions levels none what so ever addresses input related aspect or even procedural conditions to impose continued focus on BAT/CT.

Differentiated approaches for surveillance – traditional authority role, facilitating authority role and/or self-regulation?

While there is an on-going discussion about the actual legal base for addressing broader environmental concern in requirement, the evaluation of Kroman (1996) about inclusion of Cleaner Technologies in environmental regulation already stressed that, in order to be successful in promoting CT and PP, the more traditional command and control regulation should be supplemented by a more guiding and initiating role aiming at facilitating the companies to achieve better environmental performance.

Remmen (årstal), amongst others, emphasises that companies do have very different strategies and approaches towards environmental problems and environmental regulation. He (årstal) distinguishes between proactive, inactive and reactive companies in terms of their approach for dealing with environmental concerns. Remmen (årstal) also stresses that such different approaches enable authorities to approach companies with different strategies calling for a more constructive open dialog about opportunities with the proactive and a more traditional authority role towards the reactive (Remmen xx).

The distinction between different authority roles mentioned above is also emphasised by the latest guiding document on Surveillance from the DEPA (2006) (Christensen et. al., 2006) While the authority role involve the traditional formulation of requirements in respect to setting and updating conditions in permits and injunctions as well as compliance monitoring and enforcing, the catalytic role implies that the authorities in addition should provide guidance to supervise and facilitate businesses improve environmental performance beyond compliance – e.g. implement EMS or similar (Christensen et. al., 2006). However, it is not clearly justified to what extent the catalyst role is required by law. Quite opposite, the Guidance document point out that authorities need to differentiate their time spend on the two roles as the catalyst role in contrast to the authority role is not charged (Christensen et. al., 2006).

Oppose to this distinction between different authority roles and differentiating the approach that the authority is using towards different companies, the differentiation debate in Denmark has also concern a deregulation (or self-regulation) of those companies with a formalised certified EMS (e.g. ISO 14001 or EMAS).

As already mentioned a Guidance document is guiding Competent Authorities to differentiate the surveillance activities towards those judge to possess highest risk of incompliance, whereas an certified EMS should be viewed as indication that the company have things under control and thus rewarded with reduced surveillance visits and thus charged less (Christensen and Bauer, 2004).

In an evaluation of changes made based on the committee, several caseworkers stressed that these EMS, do not necessarily secure compliance, supplementing the view of caseworkers also in the Kromann 1996 evaluation (Ellegaard et. al., 2010; Kromann et. al., 1996). Instead the caseworkers already in 1996 argued that the authorities should play an active role as important critical reviewer and dialog partner for the direction of the environmental work and try to integrate the two systems (Kromann et. al, 1996).

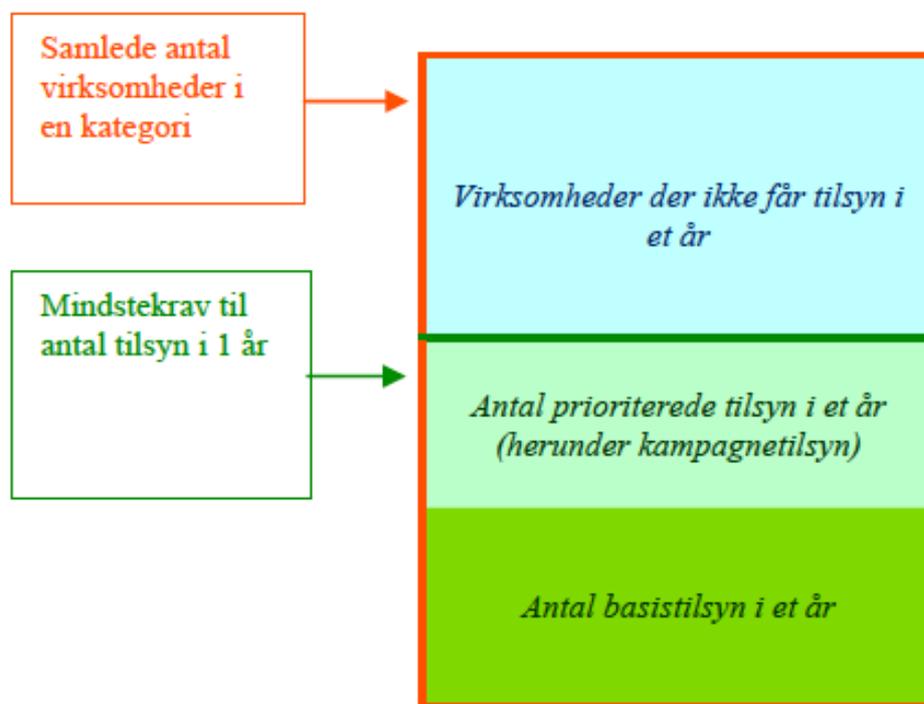
A view that actually seems to correspond those companies using EMS actively. In various evaluations, companies have emphasised that they see the authorities as important dialog partner and also emphasised that they appreciate a frequent contact, but rather as a dialog partner and not just controller (Kromann et. al., 1996, Sønderhousen et. al, 2010).

In parallel with the introducing of these differentiation attempts, the minimum frequency agreements for surveillance activities was as mentioned changed from a 50% of different categories to specific years for different types companies (Ellegaard et. al., 2010).

The mentioned evaluation about the changes concludes that the administrative resources' used for permitting and surveillance activities have been reduced significantly, whereas several municipalities have difficulties just meeting the agreed minimum frequencies, and thus not applying any form for differentiation. Furthermore focus has changed to mainly monitoring compliance, and not necessarily focussing on the biggest environmental improvement options (Ellegaard et. al., 2010).

The evaluation do however point out, that the caseworkers are ambivalent towards the minimum frequency. On the one hand they feel obliged to use resources at someone not strictly needed in terms of compliance, but cant prioritise those who do. Opposite the minimum frequencies do provide a shield against further cut downs (Ellegaard et al., 2010).

As a reaction to these evaluations a new committee (II) has been set down. They have proposed to alter these minimum- and differentiation schemes, integrating them into one. They suggest a basic of minimum frequencies for specific companies, whereas on top is a pole where targeted surveillance are applied for certain percentages of the covered companies (Ministry of Environment, 2011)



Figur 1 – suggested new frame for surveillance (Ministry of Environment, 2011: 29) - need adjustment to English

While the approach basically seems to continue the previous differentiation terminology in respect to prioritise the reactive companies, the suggested scheme do contain options that the targeted surveillance focus also on specific areas or topics and thereby include options for a more catalytic role. However the suggestion does not include adding resources or increasing the overall frequency (Ministry of Environment, 2011).

The committee II emphasises the importance of a good and constructive dialog, both in respect to a catalyst role, but also in explaining the reason for the more firm authority activities needed. The committee seems to promote this more dialog facilitator role, however the committee does not suggest making the catalyst role more obligatory.

Inclusion of Energy and Climate aspect in the environmental regulation of companies

Traditionally energy has not been addressed trough the environmental regulation of companies. Instead, energy saving issues has been addressed separately. Since the oil crisis of the 1970s and especially from the 1990s onwards, several initiatives have been implemented administrated mainly by the Energy Agency.

In 1996, energy taxes on end users (both consumers and companies) were introduced. To level out possible adverse competition aspects, high energy consuming companies were offered a rebate in the tax given that they entered an agreement with the Danish Energy Agency (ENS) to implement a certified Energy Management System and carried out any savings with payback period below 1 years (Krarup and Ramesohl, 2002; Togeby et al., 2009; Ericsson, 2006).

In recognition that IPPC actually includes Energy, around the millennium some preliminary efforts to address how a greater connection between these agreements and the permitting and surveillance schemes was initiated resulting in a report (Engel et. al., 2005).

This report states that there is a legal base for addressing energy in the permits but it is rarely done. Instead the competent Authorities refer to the existence of the above mentioned agreements with ENS and view that no need to include it in the permit as well. The report further stresses that the systems have basically functioning independently, but could both gain by a much better interactions. The report provides several suggestions to strengthen the interlinks, while also stressing that these need to be kept at a level not requiring many resources from caseworkers as they already at that time expressed limitations (Engel et. al., 2005).

While the central administration has not followed up on these recommendations by any means, several of the Municipalities have started to look into how to address energy as part of their dialog with local companies, including permitting and surveillance.

Up to the UN COP 15 on the climate negotiation in Copenhagen December 2009, several municipalities adopted climate actions plans, whereas several is covered the municipal as geographical area and not just the municipality's own emission. This means that they need to engage both citizen and local business as these sector by far count for the majority of the emissions. Among them, the 7 municipalities of "Green Cities", who have initiated a Project: Carbon 20 specifically addressing how to engage local companies in climate gas reductions.

From interviews with caseworkers in these 7 municipalities it appears that addressing climate, energy, and for that matter, use of resources is perceived as something "nice to do" and far from a "must do" in respect to direct regulation of companies (issuing of requirement and surveillance).

The majority of the interviewed caseworkers had the immediate perception that there is no legal base for to formulate requirement for companies in relation to Climate and Energy, as it is not listed as a parameters in the specific clauses in the subsidiary orders – the mentioned §14.

However during discussions and the presentation of Besses argument about addressing waste prevention as part of BAT, the majority of the case workers agreed that energy in principal is included in the BAT concept and that several of the EU BREF document also do address energy aspect. The majority of the case workers also state that energy in principal could be interpreted as part of the general principals of resource optimisation addressed in the first paragraphs of the EPL (§1 and 3). However, there were differences of opinion of whether this is adequate as a basis in Danish law. But even if there are in principal legal base, they all stresses that this base is too ambiguous for local authorities to act on. Shall the local authorities address energy (and resources/input) more consequently as part of the environmental regulation of companies; it should be addresses specifically in the clauses (§14) naming possible condition.

They further stress that given the legal basis, this is strictly connected to the formulation of requirement related to BAT and thus restricted to those most polluting companies subject for full permits (level 1), whereas they doesn't conceive it to cover neither those subject for the simplified permitting scheme and standard conditions nor those only subject to injunctions under the surveillance.

As mentioned, requirements need to be formulated on a specific assessment of BAT in relation to the specific company, unless generally addressed by BREF or other BAT documents. A competence, that several of the case workers stresses actual is not necessarily present in the local authorities any longer as several of those companies now is regulated by the central administration while the majority of the rest are subject to the standardised conditions in relation to BAT.

Some further conceive that energy in respect to BAT only concern process related energy, and not general-purpose installation (lightning, ventilation) nor the climate shield of the buildings. Others, e.g. Ballerup, do however conceive such as part of BAT.

In contrast to including energy and other pollution prevention aspects as part of the conditions in permit or issuing injunctions about this, several of the interviewed case workers including those in Copenhagen,

Albertslund, Kolding, etc. have a long tradition of using surveillance to promote voluntary action including tools as environmental management incl. energy.

Almost all also stresses that there is ample opportunity to discuss energy optimization and pollution prevention during surveillance activities. While some stresses that this is restricted to general information about EMS, energy optimisation etc. the majority stresses that the dialog on surveillances can cover also specific opportunities for improvement. They do however stress, that such dialog should clearly address the opportunities without pointing at specific solutions and recommendations. This is important both in terms of not confusing it with requirement and injunctions, but furthermore not to make the local authority objet for professional liability etc. For the specific solutions they stress that they direct companies to other consultants, and the majority conceive that it is within their competences to point at specific consultants.

Several of the caseworkers do however emphasized that this open dialogue on a voluntary effort (or the catalyst role to use the languish used by the Guidance document on surveillance) requires a somewhat different approach and skills compared to the traditional compliance monitoring and enforcement.

Several highlight for example, that in contrast to the authority role, the case workers as a catalyst don't need to know everything 100% before entering the dialogue with companies, whereas it is o.k. to return after having assessed the matter and further refers to other e.g. consultants for further information. They further stress that this uncertainty for several caseworkers may cause a strong barrier, as they have been accustomed to require detailed knowledge before providing conditions or injunctions.

While this different character of the more catalyst role for some might cause a barrier to inter a more proactive dialog for motivating beyond compliances and addressing broader environmental perspectives, a bigger barrier is according to the interviewees that this catalyst role is not perceive as an obligations, but an option and thus ultimately a matter of local prioritization of resource. Based on the latest years cut downs in resources for surveillances and general constraints of the public spending especially in the municipalities most of the interviewees case workers are anxious (worried/concerned) that the surveillance activities will be cut down to what is strictly required in terms of both frequency and focus – meaning solely the mentioned minimum frequencies as well as focussing solely at the formal authority role (that are ranked) and on the traditional environmental parameters. And this come even from caseworkers in municipalities that call themselves “Green Cities” indicating that such down prioritisation might be even stronger in other municipalities

There might however be some changes underway to the overall frames as the former mentioned committee (II) has proposed to assess how energy can be addressed in the environmental regulation of companies (Ministry of Environment 2011).

According to an employee at the Local Government Denmark (LGDK)⁶, it is also now an official policy of LGDK, that Energy shall be addressed in the direct regulation of companies.

According to an employee in the central administration, the renewing of the IPPC directive to IED have further emphasis the energy aspects and highlighted that the Danish approach is not fully following the intention of the directive. He points out that energy is part of BAT and he considers that there are legal base for addressing energy in permit conditions - at least for companies subject for full permit. In that sense, Denmark does not have an implementation issue with respect to EU Directives.

He also recognises the argument that there are missing guidelines in terms of what should be addressed and how, and that several are reluctant to pose conditions as conceive as uncertain ground in terms of the legal basis. However, he finds that a lot of other aspects that are addressed has the same character – e.g. to get a professional to periodically check a specific element. He further emphasises that it is not only in Denmark

⁶ The interest group of Danish municipalities

that energy and other input related aspects are treated randomly. Even though that energy already was part of the IPPC EU regulation and shall be addressed in BREF, this is done randomly. Even in the cross-sectorial BREF specifically on energy no performance level and key performance indicators are suggested, only some specific technologies for general purposes e.g. light sensor, ventilators etc. however underlining that energy in relation to BAT is not only related to process technology but also general installations related to buildings. At the moment IMPEL is therefore also carrying out work on how to include energy more systematically in BREF and permitting.

According to the interviewee one of the reasons for a lack of attention to energy aspect is however not solely the uncertainty about legal basis, but relates also to the fact that until 2010 most of the larger companies subject for permits had an energy agreements with the Danish Energy Agency (ENS) about implementation of certified energy management system and implementations of improvement options with payback times below 1 year. However with the introduction of the EU ETS system the scheme has been changed whereas most of these do not have an agreement with the energy Agency any longer. In the latest discussions in relation to the recommendations from the committee (II) ENS have also been very positive as they feel that they have lost the contact.

The process initiated by the recommendations from committee (II) is still at too early stage to actually make conclusions about the outcome. A preliminary assessment is expected shortly about the current activities both in relation to permitting and surveillances, but he believe that the further work will concentrate on companies subject for permits and not SME. The aim is to be able to provide some kind of guidelines for how to address energy either as supplement for BREF, suggestions for possible conditions or even also activating some of the existing guidelines bade as part of advice for smaller companies. He states, that it is not decided whether to actual make changes in the legal framework, where a possible barrier is the question of economic compensation for the municipalities provided that new obligations are imposed on them.

Conclusion

The outset for this paper was to assess, how a broader environmental view as well as the claimed widening of governmental approach have materialised in the context of direct environmental regulation of companies in Denmark.

As have been shown in this paper Denmark had around the late 1980s and 1990s several attempts and experiments with how to expand the authority role of issuing and enforcing requirement by a more facilitating and catalytic role addressing broader environmental perspectives centered on the term Cleaner technology and later BAT, but also addressing waste prevention and resources as well as promotion of EMS.

During the latest decade the direct regulation of companies has been under pressure, where resources have been restrained while at same time several new companies had to be regulated. This means that most municipalities barely can meet the agreed minimum frequencies for surveillances and solely address what is considered strictly required and not what is considered as possible within the overall frames. Consequently, most municipalities focus on a traditional authority role centred on the traditional environmental parameters.

Furthermore, as an attempt to streamline the permitting process by both more uniform requirement and more efficient resource allocation, the introducing of standard requirement as reference for BAT level, have removed one of the central dialog options for the competent authority to actually address such aspects as part of the permitting process.

Likewise many of the discussions related to the differentiated surveillance do not necessarily foster this extended catalytic authority role, as those companies where a more constructive dialog is possible also are those who according to this approach shouldn't be prioritised. And while the Guidance document for surveillance does emphasises both a traditional authority role and a more catalytic dialog partner, it doesn't state that this catalytic role is an obligation.

Even the case workers in some of the more environmental conscious municipalities in Denmark, who have established a forum called "Green Cities", state, that while there is room for a catalytic role in the environmental law, it all depends on the prioritisation of local politicians, whereas they based on the latest years cut downs and the current financial constraints of public finances are anxious that they will be able to prioritise anything that is not strictly required and possible to charge – meaning focussing solely on the authority role and restricted to the traditional environmental parameters.

In other words, in theory local environmental regulation can deal with a broader environmental view, as there are both ample legal room and build up several competences to address and facilitate a stronger focus on broader environmental concerns. However, in practice, the direct regulation of companies still rely on traditional authority role focused on the traditional parameters - and possibly even more now than in the 90'ties where all the different experiments was initiated.

However the reason years renewed focus on climate and energy as well as a renewed focus on resource use and green growth might catalyse a renewed focus on the need for addressing a broader environmental concerns as well as reintroducing the more facilitating and catalytic role. Several municipalities are starting to carry out EU financed project on this and lobbying for a renewed focus, while also different state agencies seem interested in reopen the discussions. However the public finances is still under pressure putting severe restraints on any new initiatives and the continuing of the EU project after the EU funding ends.

Literature

Backstrand, K., Khan, J., Kronsell, A. & Lövbrand, E. (2010), *Environmental politics and deliberative democracy : examining the promise of new modes of governance*, Cheltenham : Edward elgar publishing ltd, Cheltenham.

Bauer (Planmiljø) (unpublished), Reduktion af affaldsmængder via miljøgodkendelser m.v., Prepared for Danish Environmental Agency but unpublished

Bauer, B., Berner, C. and Hinke, A.M. (1998): Inddragelse af renere teknologi I tilsyns- og godkendelsesarbejdet, Miljøstyrelsen, miljøprojekt nr. 388, 1998

Carter, N. (2001), *The Politics of the Environment: Ideas, Activism, Policy*. Cambridge University Press

Carter, N. (2007), *The Politics of the Environment: Ideas, Activism, Policy*. Cambridge University Press. Second edition

Christensen, L. og Bauer, B. (2004): Differentieret miljøtilsyn - prioritering af tilsynsindsatsen, Vejledning fra Miljøstyrelsen nr. 6, 2004.

Christensen, L., Engel, P. og Bauer, B. (2006): Vejledning om tilsyn med industrivirksomheder, Vejledning fra Miljøstyrelsen nr. 6, 2006.

Driesen, P. (1998), Is emission trading an economic incentive program?: Replacing the command and control/economic incentive dichotomy. Wash & Lee L Rev

Ellegaard, C., Kopp, T. Richelsen, A og Nielsen, C.W. (COWI) (2010): Evaluering af forenkling på miljøreguleringsområdet, Miljøstyrelsen, Orientering fra miljøstyrelsen nr. 11 2010

Engel, P., Mikkelsen, J. og Buhl, P. (2005), Energieffektivitet i miljøgodkendelser - muligheder for samspil mellem miljøgodkendelser og ledelsessystemer inden for miljø og energy, Miljøstyrelsen, Arbejdsrapport fra Miljøstyrelsen Nr. 3 2005

- Ericsson, K. 2006, "Evaluation of the Danish voluntary agreements on energy efficiency in trade and Industry", AIDEE report. Environmental and Energy Systems Studies, Lund University, Lund, Sweden.
- Fischer, K. and Schot, J. (1993), Environmental strategies for industry. International perspectives on research needs and policy implications. Island Press.
- Gombault, M. & Versteeg, S. (1999), "Cleaner production in SMEs through a partnership with (local) authorities: successes from the Netherlands", *Journal of Cleaner Production*, vol. 7, no. 4, pp. 249-261.
- Gouldson, A. and Murphy, J. (1998), *Regulatory Realities. The Implementation and Impact of Industrial Environmental Regulation*. Earthscan
- Gunningham, N., Grabosky, P. and Sinclair, D. (1998), *Smart regulation – designing environmental policy*. New York. Oxford University Press
- Gunningham, N. and Sinclair, D. (1999), Integrative Regulation: A Principle-Based Approach to Environmental Policy. *Law and Social Inquiry*, volume 24, issue 4, pages 853-896
- Gunningham, N. (2009), Environmental Law, Regulation and Governance: Shifting Architectures. *Journal of Environmental Law*, volume 21, issue 2, pages 179-212
- Jänicke, M. (2008), "Ecological modernisation: new perspectives", *Journal of Cleaner Production*, vol. 16, no. 5, pp. 557-565.
- Jørgensen, T.H. and Holgaard, J.E. (2004), *Environmental reporting: experiences from Denmark. Technology, Environment and Society*. Department of Development and Planning, Aalborg University. Working paper no. 6
- Jørgensen, U (xx)
- Jørgensen, U. Et al (2009), *I teknologiens laboratorium: ingeniørfagets videnskabsteori*, Polyteknisk Forlag.
- Keijzers, G. (2000), The evolution of Dutch environmental policy: the changing ecological area from 1970-2000 and beyond. *Journal of Cleaner Production*, volume 8, issue 3, pages 179-200
- KMPG (1999), *KMPG International Survey of Environmental Reporting*, Institute for Environmental Management (WIMM), University of Amsterdam in collaboration with KMPG International Environment
- Krarup, S. & Ramesohl, S. (2002) "Voluntary agreements on energy efficiency in industry--not a golden key, but another contribution to improve climate policy mixes", *Journal of Cleaner Production*, vol. 10, no. 2, pp. 109-120.
- Kromann, L., Binder, J.C. and Nellemann, L.Ø. (1996): Integration af renere teknologi i miljøsektoren, Miljøstyrelsen, miljøprojekt nr. 331, 1996
- Kørnøv, L. et. All (2007), *Tools for sustainable development*, Aalborg : Aalborg Universitetsforlag, Aalborg.
- Macve, R., and Carey, A. (eds.) (1992), *Business, Accountancy and the Environment: A Policy and Research Agenda*. London: ICAEW
- Mathiesen, B. (1997), *Environmental accounts for companies in the county of Vestsjælland*

Ministry of Environment (2006): Bekendtgørelse om godkendelse af listevirksomheder (BEK nr. 1640 af 13/12/2006 – Godkendelsesbekendtgørelsen) (Statutory Order on the permitting procedure) (access www.retsinformation.dk the 16/05 2012)

Ministry of Environment (2010): Bekendtgørelse af lov om miljøbeskyttelse (LBK nr. 879 af 26/06/2010 – Miljøbeskyttelsesloven) (Opdating (inclusion of later changes) to the Environmental Protection Act of 2006)) (access by www.retsinformation.dk the 28/03/2012)

Ministry of Environment (2011): Rapport fra Virksomhedsudvalg II, Miljøministeriet

Environmental Protection Agency (1993): Godkendelse af listevirksomheder, Vejledning fra Miljøstyrelsen nr. 3 1993

Environmental Protection Agency (2001): Luftvejledningen - Begrænsning af luftforurening fra virksomheder, Vejledning fra miljøstyrelsen Nr. 2 2001

Ministry of the Environment (1988), Enkelt og Effektivt – et debatoplæg om lovgivning og administration. Miljøministeriet, Statens informationstjeneste. København.

Moe, M. (1995), Environmental Administration in Denmark. Ministry of Environment and Energy, Denmark. Danish Environmental Protection Agency. Environmental News No. 17.

Moe, M. (2000), Miljøret, Forlaget Thomsen A/S, 4. Udgave København

Nielsen, E.H. and Remmen, A. (2002), Renere teknologi som miljøstrategi og virkemiddel. In: Arler, F. (ed.), Humanøkologi. Miljø, Teknologi og Samfund. Aalborg University

Palundan, E. (2005), Krav om forebyggelse af affald, Miljøstyrelsen, Miljøprojekt Nr. 1036 2005

Remmen, A. (1998), Innovation concepts and cleaner technologies: experiences from three Danish action plans. Pp. 173-188. In: Jamison, A. (ed.), Technology policy meets the public – Pesto Papers 2. Aalborg University: Aalborg University Press

Remmen, A. and Holgaard, J.E. (1999), Green Accounts – a toll for promoting environmental improvements? Paper presented at the ERCF-conference in Hungary, September 1999

Remmen, A. (2001), Greening of Danish industry – changes in concepts and policies. Technology analysis and strategic management, volume 13, pp.53-69

Smink, C.K. (2002), Modernisation of Environmental Regulations. End-of-Life Vehicle regulations in the Netherlands and Denmark. PhD thesis. Aalborg University, Department of Development and Planning

Smink, C.K. (2007), Vehicle recycling regulations: lessons from Denmark. Journal of Cleaner Production, 15, pp.1135-1146

Sønderhousen, U., Christensen, L., Jørgensen, L.P., Nielsen, J. Wibroe, L. og Christensen, C. (GrotmijCarlbro (2010): Evaluering af virksomhedernes erfaringer med miljøtilsyn, Miljøstyrelsen, Orientering fra miljøstyrelsen nr. 9 2010

Togebj, M., Dyhr-Mikkelsen, K., Larsen, A., Hansen, M.J. & Bach, P. 2009, "Danish energy efficiency policy: revisited and future improvements", Proceedings of the ECEEE Summer Study, pp. 299.

Weale, A., Pridham, G., Cini, M., Konstadakopoulos, D., Porter, M. & Flynn, B. (2003), "Environmental governance in Europe: an ever closer ecological union?", *OUP Catalogue*, .

Winsemius, P. and Guntram, U. (1992), Responding to the environmental challenge. *Business Horizons*, 35, pages 12-20