Environmental Crime and Ship-source Pollution Directives

Effective, Proportional and Dissuasive Penalties in the Implementation of the Environmental Crime and Ship-source Pollution Directives: Questions and Challenges*

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I. Introduction

After the Court of Justice paved the way for the enforcement of (environmental) Directives through the use of criminal law with its landmark decision of 13 September 2005, important steps have been taken in Directives to oblige Member States to provide for criminal penalties in their national legislation for serious infringements of provisions of community law on the protection of the environment. This first step was taken in Directive 2008/99/EC of 19 November 2008 on the protection of the environment through criminal law[1] and subsequently in another environment-related Directive, being Directive 2009/123/EC of 21 October 2009 amending Directive 2005/35/EC on ship-source pollution and on the introduction of penalties for infringements.[2]

The time for the implementation of these Directives is approaching rapidly.[3]

Even though many Member States are undoubtedly preparing the timely implementation of both Directives, several questions may arise during this implementation process, more particularly concerning the interpretation of some of the rather vague notions that are used in the Directive. It concerns more particularly the duty imposed on Member States to ensure that the offences are punishable by "effective, proportionate and dissuasive criminal penalties". This is an undoubtedly vague notion which may leave Member States to some extent with the question how this should precisely be interpreted during the implementation process.

The goal of this paper is to provide – as food for thought rather than as final solution – a few possible directions and challenges as far as the implementation is concerned. The focus will clearly be on this notion that penalties need to be "effective, proportionate and dissuasive". The Directive undoubtedly also contains other notions which may equally pose a few consequences and challenges, but these have either already been addressed in earlier papers or will be addressed at a later stage. However, as will be made clear below, the discussion of what penalties are "effective, proportionate and dissuasive" can for obvious reasons not be totally isolated from other aspects of the Directives, more particularly the offences. The question of what is "effective, proportionate and dissuasive" will, to a large extent, depend upon the offences concerned.

The basis for the discussion in this paper will on the one hand be provided by some literature concerning environmental criminal law.[4] On the other hand, use will also be made of the economic analysis of (environmental) criminal law. The reason is that the notion of "dissuasiveness" strongly resembles the notion of "deterrence" which has been extensively examined in economic literature with respect to criminal law. Finally, to some extent, use will also be made of some criminological literature which sheds some light on the effectiveness of particular penalties and on reasons for environmental crime from an empirical perspective.

After this introduction, first the legislative history, within the light of the decisions of the Court of Justice, will be briefly called to mind, since this provides

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[1] OJ L328/28 of 6 December 2008.

[2] OJ 280/52 of 27 October 2009.

[3] 26 December 2010 for Directive 2008/99 (art. 8) and 16 November 2010 for Directive 2009/123 (art. 2).

[4] This literature is heavily influenced by German environmental criminal law, but has now also influenced legal doctrine in other systems as well. See for example a landmark opinion written by G. Heine and V. Meinberg, *Empfehlen sich Änderungen im strafrechtlichten Umweltschutz, ins besondere im Verbindung mit dem Verwaltungsrecht? Gutachten für den 57. Deutschen Juristentag* (Can changes be recommended as regards penal environmental protection, particularly in the relation to administrative law? Opinion for the 57. German Juristentag), München, Beck, 1988.

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important indicators to the boundaries of what Europe could do as far as imposing criminal penalties is concerned (2). Next, the provisions in the particular environmental Directives at hand concerning the penalties will be briefly discussed (3) and the question will be asked how the notions "effective, dissuasive and proportionate" can be interpreted (4). This interpretation may have particular consequences for the choice and amount of penalties (5) but may equally lead to specific choices as far as the form of implementation is concerned (6). Next, the question arises how to deal with the unavoidable issue that the "effectiveness, dissuasiveness and proportionality" of the penalty may to a large extent also depend upon the enforcement of legislation in practice (7). A few concluding remarks will end the exposé (8).

Again, it should be repeated that the goal of this study is not to provide strong normative indications of how implementation should take place but rather to provide, based on literature and practical experiences in some Member States, some guidance to the Member States in the implementation process. After all, providing a too strong normative guidance would be contrary to the notion of a Directive which is binding on the Member States as far as the results are concerned, but not as far as the methods and instruments chosen.[5] Another reason why too strong normative indications may be dangerous is that, as will be indicated below, the practical organisation of the enforcement of environmental law between the Member States today differs to an important extent.[6] That may also mean that there is not necessarily a "one size fits all" solution for the whole EU. A type and amount of penalty which is "effective, dissuasive and proportionate" in Member State A, may not necessarily be the same in Member State B, simply because the institutional features of environmental law enforcement differ. That is why the goal of this paper is also to indicate under what type of circumstances particular penalties may be "effective, dissuasive and proportionate" which may eventually lead to differing results for various Member States.

II. Legal History: a Brief Account

The current debate on the implementation of the new environmental criminal law Directives does not stand on itself but is the result of a long and winding road that started approximately ten years ago with various attempts to intervene in the area of (environmental) criminal law.[7]

A first step was taken by the Kingdom of Denmark in 2000 within the framework of the so-called third pillar on 28 January 2000, aiming at serious environmental crime.[8] The idea was to criminalise specific acts which would constitute serious environmental crime.

The first initiative within the (at that time) first pillar was a proposal for a Directive of 13 March 2001 on the protection of the environment through criminal law.[9] In that proposal, it is held that criminal environmental law is necessary since only criminal penalties will provide a sufficiently dissuasive effect and send a strong signal to offenders.[10]

Notwithstanding this proposal by the Commission, the Council continued its action within the third pillar and accepted a framework decision on 27 January 2003 on the protection of the environment through criminal law.[11] This Council framework decision was *inter alia* based on a Council of Europe convention on the protection of the environment through criminal law of 4 November 1998[12] which, however, never entered into force.[13] This obviously led to the well-

[5] See article 249 (old) EC Treaty which provided in al. 3: "A Directive shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods". In the new TFEU this is formulated the same way in article 288, paragraph 3 TFEU.

[6] See for an overview of the differences in the practical enforcement of environmental law Faure, M. and Heine, G., *Criminal Enforcement of Environmental Law in the European Union*, The Hague, Kluwer Law International, 2005, 187 p.

[7] Of course, this evolution will not be discussed in detail within the framework of this contribution. For details see for example Comte, F., "Criminal environmental law and community competence", *European Environmental Law Review*, 2003, 147–156, Comte, F., "Environmental crime and the police in Europe: a panorama and possible paths for future action", *European Environmental Law Review*, 2006, 190–231, Heidemann-Robinson, M., "The emergence of European Union environmental criminal law: a quest for solid foundations", *Environmental Liability*, 2008, 71–91 and 111–136 and Pereira, R., "Environmental criminal law in the first pillar: a positive development for environmental protection in the European Union?", *European Environmental Law Review*, 2007, 254–268 and Ryland, D., "Protection of the environment through criminal law: a question of competence unabated?", *European Energy and Environmental Law Review*, 2009, 91–111.

[8] OJ 39/4 of 11 February 2000.

[9] OJ C180E of 26 June 2001.

[10] For comments on this proposal see *inter alia* Comte, F., *European Environmental Law Review*, 2003, 147–156 and Faure, M., "European environmental criminal law: do we really need it?", *European Environmental Law Review*, 2004, 18–29.

[11] OJ L29/55 of 5 February 2003.

[12] The text has inter alia been published in Faure, M. and Heine, G., *Environmental criminal law in the European Union. Documentation of the main provisions with introductions*, Freiburg im Breisgau, Max Planck Institute for Foreign and International Criminal Law, 2000, 407–416 and is also available on http://www.coe.fr/eng/legaltxt/172ehtm.

[13] For a comment on the provisions in this Council of Europe Convention see Faure, M., "Towards a new model of criminalisation of environmental pollution: the case of Indonesia", in Faure, M. and Niessen, N. (eds.), *Environmental law and development. Lessons from the Indonesian experience*, Cheltenham, Edward Elgar, 2006, 202–203.

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known institutional conflict as a result of which the Commission launched an appeal against the Council.[14] In its well-known judgment of 13 September 2005, in case C-176/03, the court found that although "as a general rule, neither criminal law nor the rules of criminal procedure fall within the community competence", "the last-mentioned finding does not prevent the community legislature, when the application of effective, proportionate and dissuasive criminal penalties by the competent national authorities is an essential measure for combating serious environmental offences, from taking measures which relate to the criminal law of the Member States which it considers necessary in order to ensure that the rules which it lays down on environmental protection are fully effective".[15]

A second decision of the court resulted from the other area which is at stake today, ship-source pollution. In this case, first a council framework decision to strengthen the criminal-law framework for the enforcement of the law against ship-source pollution was established.[16] This council framework decision prescribed specific penalties to be imposed upon offenders who committed particular violations and hence prescribed minimal sanctions. On 7 September 2005, also a Directive was promulgated on ship-source pollution and on the introduction of penalties for infringements.[17] The contents of the Directive were relatively similar to the one of the framework decision. This was hence not a conflict, but rather a traditional cooperation between first and third pillar whereby the first pillar used the larger enforcement possibilities from the third pillar. However, the above mentioned decision of the court of 13 September 2005 made clear that the Commission itself was competent within the conditions of necessity and proportionality to force Member States to implement criminal sanctions. Hence, the Commission appealed against the framework decision of 12 July 2005 which resulted in the second decision of the Court of Justice in case 140/05 of 23 October 2007. Since the articles of the framework decision are designed to require Member States to apply criminal penalties, those articles, so the court holds, must be regarded as being essentially aimed at improving maritime safety, as well as environmental protection, and could have been validly adopted within the framework of the first pillar. As a result, the framework decision is annulled by the court. However, an important comment is added in § 70:

> "By contrast and contrary to the submission of the Commission, the determination of the type and level of the criminal penalties to be applied does not fall within the Community's sphere of competence".

The court specifies that provisions such as they were introduced in the framework decision which relate to the type and level of the applicable criminal penalties could not be adopted by the Community legislature.

The conclusions of this case law are hence relatively clear:

- from the decision of 13 September 2005, it follows that when the application of effective, proportionate and dissuasive criminal penalties by the competent national authorities is an essential measure for combating serious environmental offences, criminal law may be prescribed on the condition that it is necessary in order to ensure that the rules which it lays down on environmental protection are fully effective. A first test to be applied is hence whether the use of the criminal law is necessary and proportionate to reach the goals of environmental protection at which the particular Directive aims.
- The determination of the type and level of the criminal penalties to be applied does not fall within the Community's sphere of competence.

Obviously, the judgments are no longer relevant as far as the division between the first and third pillar is concerned, that distinction having disappeared after the entry into force of the TFEU. In the future it would hence be possible to use the new powers to force Member States also to introduce criminal penalties of a specific type and level.

This case law hence also determined the scope of the Directives 2008/99 and 2009/123 which will now be briefly discussed.

III. Directives 2008/99 and 2009/123

Directive 2008/99 holds in consideration (3) that experience has shown that the existing systems of penalties have not been sufficient to achieve complete compliance with the laws for the protection of the environment. Such compliance, so the text continues, can and should be strengthened by the availability of criminal penalties, which demonstrate a social disapproval of qualitatively different nature compared to administrative penalties or a compensation mechanism under civil law. Consideration 10 explains that the Directive obliges Member States to provide for criminal penalties in their national legislation in respect of serious infringements of provisions of community law on the protection of the environment. But the text equally makes clear that the Directive "creates no obligations regarding the application of such penalties, or any other available system of law enforcement, in individual cases". Specific behaviour defined in article 3 of the Directive will constitute a criminal offence when committed unlawfully (which is

[14] OJ C135/21 of 7 June 2003.
[15] § 48 of the decision of 13 September 2005. For comments on this decision see *inter alia* Comte, F., *European Environmental Law Review*, 2006, 226–229 and Pereira, R., *European environmental Law Review*, 2007, 254–268.
[16] OJ L255/164 of 30 September 2005.
[17] OJ L255/11 of 30 September 2005.

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equally defined in article 2(a) of the Directive). Article 5 provides that Member States shall take the necessary measures to ensure that the offences referred to in articles 3 and 4 are punishable by effective, proportionate and dissuasive penalties.

As far as legal entities are concerned, this is repeated in article 7.

A similar model is followed in Directive 2009/123 concerning ship-source pollution.

Consideration (3) equally holds that criminal penalties, which demonstrate social disapproval of a different nature than administrative sanctions, strengthen compliance with the legislation on ship-source pollution in force and should be sufficiently severe to dissuade all potential polluters from any violation thereof.

A new article 5a stipulates that specific infringements will have to be regarded as criminal offences and a new article 8 provides that each Member State shall take the necessary measures to ensure that infringements within the meaning of articles 4 and 5 are punishable by effective, proportionate and dissuasive penalties.

Also, Directive 2009/123 has specific provisions concerning the liability of legal persons. Article 8 hence provides that also legal persons that are held liable will be punishable by effective, proportionate and dissuasive penalties.

IV. Effective, Dissuasive and Proportionate

Both Directives make clear, as we just discussed, that penalties will have to be effective, dissuasive and proportionate and this applies both to natural persons as well as to legal entities.[18] Hence, in order to determine the type and amount of the penalties in Member States legislation, it is crucial to reflect upon how these three concepts should be interpreted. An attempt to reflect upon that issue will be undertaken in this section.

4.1 Effective

The notion of effectiveness refers to a relationship between particular goals set by the policy maker on the one hand (the effects) and the (legal and policy) instruments used by the policy maker on the other hand. A simple definition of an effectiveness test would hence entail that one examines whether the particular legal and policy instruments chosen can be suited and are effectively suited to reach the goals set by the legislator.

This notion makes clear that in order to judge the effectiveness, some information is necessary on the goals set by the legislator. In the case of European environmental law, this is relatively simple since for example Directive 2008/99 itself clearly refers to (old) article 174(2) of the treaty,[19] holding that community policy on the environment must aim at a high level of environmental protection. In that sense, one could (very simply) argue that a policy instrument would be effective if it is able to contribute to this goal of a high level of environmental protection.

Obviously, this effectiveness test entails both an *ex ante* as well as an *ex post* element. One could on the one hand *ex ante* (before the legislation entered into force) examine whether the particular shape and structure of the institutional design may lead to the goals set by the legislator and would in that sense be (theoretically) effective.[20] But of course *ex post* could equally be evaluated whether the instruments have in practice also enabled to reach the goals set by the legislator and was therefore also (empirically) found to be effective. Ideally, an effectiveness test would embrace both aspects.

To an important extent, the effectiveness test broadly and (admittedly) vaguely defined as it is here as "ability to reach a high level of environmental protection" is, as far as the penalties are concerned, strongly linked to the subsequent notions of dissuasiveness and proportionality. After all, a penalty will most certainly be considered effective in reaching a high level of environmental protection when it could dissuade offenders from violating environmental law. The proportionality test equally refers to a relationship between the seriousness of the offence and the size and type of the penalty. If the penalty is proportionate in the sense that higher penalties are applied for more serious violations, this will undoubtedly also contribute to the effectiveness of the penalty. This hence shows that to an important extent, the three mentioned criteria are unavoidably interrelated.

Still, there are probably a few specific features which can be mentioned as criteria to judge the effectiveness of penalties in environmental criminal law. These are related to the fundamental question of the functions of the penalty system. A bit more can be said than merely that the penalties should aim at a "high level of environmental protection". In order to reach this ultimate goal, several functions of penalties in environmental criminal law can be distinguished:

A first function of a criminal penalty system in environmental law is undoubtedly general deterrence. This probably comes close to the notion of dissuasion discussed below. It refers to the fact that the penalty system should *ex ante* dissuade the whole group of potential polluters from violating environmental law:

[18] The only difference being that, as far as legal entities are concerned, penalties should not necessarily be of a criminal nature.

[19] Article 191(2) TFEU.

[20] See on challenges and problems in *ex ante* evaluation of legislation the contributions in Verschuuren, J. (ed.), *The impact of legislation. A critical analysis of ex ante evaluation*, Leiden, Martinus Nijhoff Publishers, 2009.

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general deterrence. If a penalty system can fulfil this function, it can certainly be considered as effective in contributing to the goal of reaching a high level of environmental protection.

This is a goal which is generally distinguished in criminal law as a function of the criminal law system. However, there are two notions which are of particular importance for environmental criminal law, having to do with the fact that environmental crime can often cause major damage to the environment which is not always undone with the imposition of a criminal penalty. After all, the mere imposition of a criminal penalty (e.g. sending a polluter to jail) will not necessarily lead to an improvement of the environment. That is why in environmental legal doctrine often two additional functions of the criminal penalty system are distinguished:

A second function is that the penalty should also aim at restoration of harm caused in the past. This is sometimes translated in the notion that the penalty should lead to a "*restitutio in integrum*". In simple words, it means that the penalty should also lead to the consequences of the environmental crime being undone by the perpetrator. This may of course have consequences for the type of penalty chosen.

A third function of the penalty is that not only harm caused in the past should be undone, but that the penalty should equally aim at prevention of future harm. It may e.g. make little sense to impose a heavy monetary penalty upon a legal entity if one knows that the installation which lays at the source of the pollution is still going to be used by the firm which paid the fine. Hence, the penalty system may also aim at reaching a specific prevention by avoiding the pollution to continue.

These specific functions of the criminal penalty (restoration of harm done in the past and prevention of future harm) are probably specific to environmental criminal law and may have consequences for the type of penalties chosen. These functions may be quite important as indicators of the effectiveness of an environmental criminal penalty system.

4.2 Dissuasive

4.2.1 General deterrence theory

The notion of dissuasiveness refers strongly to deterrence theory. Dissuasion is based on the idea that the foresight of a criminal penalty will lead potential perpetrators (in general), but also a specific violator (individually) to compliance with the law. This idea of criminal law as a deterrent has been strongly based on the ideas of the Nobel prize-winning economist Gary Becker.[21] The idea of Becker is, to put it very simple, that potential criminals base their decision to violate the law or not on a cost-benefit analysis. They will decide to violate if the benefits from violation are higher than the costs of doing so. The benefits in case of environmental crime could e.g. consist of not-changing to a cleaner production technology (in order to comply with permit conditions) and hence save the money from doing so or e.g. delaying the investment in a water treatment plant and hence saving on interests that would otherwise have to be paid to the bank. The costs of violation comprise of the sanction that will be imposed e.g. a fine. This, however, should be multiplied with the probability that the violator gets apprehended, that the case will be prosecuted and that the judge will impose the sanction. These various probabilities together can reduce the expected sanction. Since the probability of a sanction being imposed is usually less than 100 per cent, the expected cost (probability multiplied with the sanction) is usually substantially lower than the sanction which is *ex post* actually imposed. Becker's idea is that potential violators are aware and thus have full information on the probability and the sanctions (in sum of expected costs) and will thus violate when they perceive their benefits to be higher than expected costs. In a simple formula, this could be presented as follows:

If:
B = benefits
p = probability of being detected, prosecuted and convicted
S = sanction actually imposed

then the decision of the violator depends on:

$B \lesseqgtr p \times S$

On the basis of this very simple formula, it can be indicated what from this deterrence perspective the goal of criminal law should be: sanctions should be of such a type and magnitude that the expected costs are higher than expected benefits to the perpetrator. In this way, it could be held that penalties would be "effective and dissuasive".

A simple example could illustrate this: suppose that the benefits from an environmental crime (for example costs that can be saved) are €10,000 and that the sanction that would be imposed in case of a conviction would be €100,000. If the probability of detection would be 10 per cent and the probability of conviction 50 per cent the expected cost for the polluter would be 10 per cent × 50 per cent × €100,000 = €5,000. This simple example shows that *ex ante* a rational polluter would decide to commit the crime for the simple reason that his expected benefits (€10,000) are higher than the expected costs (€5,000).

A conclusion at the policy level from this very simple model is that the penalties to be imposed are strongly linked to expected benefits to the perpetrator, but also to harm to society: the larger the harm to society is resulting from an environmental crime and

[21] Becker, G. S., "Irrational behaviour. Economic theory", *Journal of Political Economy*, 1962, 1–13 and Becker, G.S., "Crime and punishment: an economic approach", *Journal of Political Economy*, 1968, 169–217.

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the larger potential benefits to the perpetrator, the higher the expected penalty will have to be to reach an effective dissuasion. Second, the optimal penalty to be imposed *ex post* will also to a large extent depend upon the probability to be apprehended, prosecuted and convicted. The lower the probability of detection was, the higher the penalty should be that is *ex post* effectively imposed. One, admittedly rough, conclusion from this Becker formula is hence that it would be interesting to verify on the basis on the nature of the crimes whether it is possible to predict that particular violations would lead to higher benefits to the polluter, larger harm to society and a low probability of detection. Those would all be indications of the necessity to deter with higher penalties. One element that may e.g. play a role in that respect is whether the violation was committed out of negligence or intentional. Intentional violations may (but not always) cause larger harm to society and in case of an intentional violation, polluters may often spend more efforts to conceal the violation as a result of which the probability of detection may be reduced.

This basic and simple Becker model has a few interesting consequences for the choice of the type and amount of penalties which will be discussed below (in 5.1).

4.2.2 Does environmental criminal law deter?

Data on detection and prosecution of environmental crime show that in fact the likelihood that a violation ends up in court and is sanctioned is relatively low. For the Flemish region in Belgium, based on data of the environmental inspectorate, it was found that the average probability of being apprehended and prosecuted for a violation is less than 1 per cent, meaning that only one in hundred firms that are in violation will be detected and prosecuted.[22] This not only follows from the fact that the probability to be inspected is very low,[23] but especially from the fact that many detected violations are not prosecuted. In the Flemish region the prosecutor dismissed 62 per cent of violations established by the environmental inspectorate.[24] Similar data come from the U.K.: On average the prosecution rate for pollution incidents is less than 5 per cent.[25] However, serious incidents have a much higher prosecution rate.[26] Similar data come from Germany where older studies indicated that around 50 per cent of all environmental violations were dismissed by the public prosecutor.[27]

Similar data can be presented as far as the sanctions are concerned that are imposed, if the case gets at all to the court. A study on the fines imposed by the courts within the competence of the court of appeals of Ghent in the Flemish region in the period 1990–2000 found that an average fine of €5,000 was imposed both in first instance and in appeal.[28] A later study referred to average fines imposed for violations in the textile sector of €2,869 in first instance and €7,165 in appeal.[29] For the Netherlands average fines imposed through the criminal system were reported ranging from €1,351 to €2,342.[30]

If one looks at these average fines imposed by criminal courts in Western Europe and multiplies this with the probability of being detected and prosecuted of about 1 per cent this would lead to estimations in expected sanctions for example for the Flemish region varying from €87.7[31] to €176[32] to €181.[33]

The European experience with low expected sanctions for environmental crime would, at first blush, be different in the U.S. where strict sentencing guidelines apply, to which the judge should in principle

[22] See Faure, M. G. and Svatikova, K., "Criminal or Administrative Law to Protect the Environment? Evidence from Western Europe", Working paper draft May 2009.

[23] As was also established by Billiet, C. and Rousseau, S., "De zachte rechtshandhaving in het bestuurlijke handhavingspoor: de inspectiebeslissing en het voortraject van bestuurlijke sancties. Een rechtseconomische analyse", *Tijdschrift voor Milieurecht*, 2005, 19.

[24] Faure, M. G. and Svatikova, K., "Enforcement of Environmental Law in the Flemish Region", *European Energy and Environmental Law Review*, 2010, 60–79. Again this was also established in earlier research. See for example Ponsaers, P. and De Keulenaer, S., "Met strafrecht tegen milieudelicten? Rol en functie van bijzondere inspectiediensten in de strijd tegen milieucriminaliteit", *Panopticon*, 2003, 250–265.

[25] See Bell, S. and McGillivray, D., *Environmental Law*, 6th edition, Oxford, OUP, 2006, 295–296.

[26] Of on average 63 per cent. See on this targeting by the Environment Agency in the UK Faure, M. and Svatikova, K., *Criminal or Administrative Law to Protect the Environment? Evidence from Western Europe*, Working paper, draft May 2009, 16.

[27] See Meinberg, V., "Empirische Erkenntnisse zum Vollzug des Umweltstrafrechts", *Zeitschrift für die gesamte Strafrechtswissenschaft*, 1988, vol. 100, 112–157 and Lutterer, W. and Hoch, A. J., *Rechtliche Steuerung im Umweltbereich*, Freiburg im Breisgau, Max Planck Institute for Foreign and International Criminal Law, 1997.

[28] Billiet, C. and Rousseau, S., "De hoogte van strafrechtelijke boetes. Een rechtseconomische analyse van milieurechtspraak (1990–2000) van het Hof van Beroep te Gent", *Tijdschrift voor Milieurecht*, 2003, 131.

[29] Billiet, C. and Rousseau, S., "De hoogte van strafrechtelijke boetes. Een rechtseconomische analyse van milieurechtspraak (1990–2000) van het Hof van Beroep te Gent", *Tijdschrift voor Milieurecht*, 2003, 131.

[30] See Schoep, G. K. and Schuyt, P. M., *Feiten en percepties van de sanctionering van milieudelicten en delicten betreffende de volksgezondheid*, Leiden, 2008.

[31] Rousseau, S., *Economic empirical analysis of sanctions for environmental violations: a literature overview*, p. 9.

[32] Rousseau, S., *The impact of sanctions and inspections on firms' environmental compliance decisions*, working paper Center for Economic Studies, Katholieke Universiteit Leuven, No. 2007–04, September 2007, 10.

[33] Rousseau, S., Evidence of a filtered approach to environmental monitoring, available from the author: Sandra.Rousseau@econ.kuleuven.be, August 2008, p. 9.

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adhere.[34] However, Barrett found in a study on the application of sentencing guidelines for environmental crime "that the sentences imposed in the majority of cases reflected the reluctance of judges to impose significant incarceration for violations of environmental laws".[35] Others even held that these sentencing guidelines led to negative outcomes for deterrence. Since judges consider the guidelines as unreasonable this results in the opposite effect of lenient sentencing of environmental criminals. According to some American scholars now also significant violations are in fact sentenced too leniently, which may undermine the deterrent value of environmental enforcement and may trivialize environmental law itself.[36]

4.2.3 Does low expected sanctions equalise low dissuasion and low effectiveness?

This section started, in an attempt to interpret the notions of "effectiveness, dissuasiveness, and proportionality" of penalties with the assumption that in order for penalties to be effective (in the sense of leading to a high environmental quality) they should also be dissuasive. The assumption was that if the penalties were too low (and hence probably not dissuasive), they may not lead polluters to compliance with environmental law. The empirical evidence presented above[37] shows that in fact expected penalties are relatively low. On that basis, one could even ask the question why many polluting firms comply relatively well with environmental law, given that benefits of violation are usually higher than expected costs. If firms would have the Becker model, explained above, in mind, they could, from an *ex ante* perspective, gain by violating and there should be more environmental criminality than can be observed today. This phenomenon (relatively high compliance not withstanding low expected sanctions) has been referred to in the literature as the Harrington paradox, following a few papers of Winston Harrington who identified this issue.[38]

Impressive empirical evidence of this point is presented in recent German work by Almer and Goeschl.[39] They possess a data set for the period 1995-2005 for 16 individual states in Germany, leading to 152 observations. They also show that once a potential violation has been detected (and there are violations that go undetected and hence unrecorded) only in 59 per cent of cases the offender is identified and hence a violation is formally established. From these 59 per cent of identified offenders, only 26,3 per cent are brought to trial. Thus, the probability that an offender is apprehended and prosecuted is according to their research only 15,5 per cent. Notwithstanding the low probability and corresponding low expected costs Almer and Goeschl found a statistically significant deterrent effect from the criminal law.

This shows that firms may have an incentive to comply with environmental regulations even if their costs of compliance exceed the expected penalty, calculated as the probability of detection (p) multiplied with the formal penalty imposed *ex post* (s). The explanation for this phenomenon is that there are a number of reasons why firms may comply notwithstanding low expected sanctions.

4.2.4 Reasons for compliance

One reason is that one could argue that of course not all cases are prosecuted before a criminal court, but that does not necessarily mean that nothing happens. Prosecutors can in some legal systems also propose a financial payment to the perpetrator and hence deal with the case themselves, in order to avoid the high administrative costs of the criminal prosecution. This may hence add something, but probably not a lot, to the expected sanction.

A second point is that there may be other costs than the mere sanctions imposed by the courts that could deter potential violators, e.g. related to the fact that a conviction through the criminal system could lead to a "shaming" and hence to a loss of reputation for entrepreneurs.[40] However, American empirical research by Karpoff and Lott showed that whereas stock value of publically traded firms could fall after the announcement of a bad environmental outcome (such as an oil spill or criminal prosecution), these stock price effects are approximately equal to government imposed penalties, cleanup costs and private settlements.[41] They therefore conclude that a criminal

[34] For an economic critique of these sentencing guidelines see Easterbrook, F., "Criminal Procedure as a Market System", *Journal of Legal Studies*, 1983, vol. 12, 289–332.

[35] Barrett, J.J., "Sentencing Environmental Crimes under the United States Sentencing Guidelines: A Sentencing Lottery", *Environmental Law*, 1992, vol. 22, 1421–1449.

[36] See Babbitt, C. J., Cory, D. C. and Kruchek, B. L., "Discretion and Criminalization of Environmental Law", *Duke Environmental Law and Policy Forum*, 2004, vol. 15, 1–64.

[37] I do of course realise that this merely consists of a subjective selection from a few countries, but I would be surprised if other Member States would come up with data showing that expected penalties for environmental crime would be substantially higher.

[38] See Harrington, W., "Enforcement Leverage when Penalties are Restricted", *Journal of Public Economics*, 1988, vol. 37, 29–53 and Harford, J.D. and Harrington, W., "A Reconsideration of Enforcement Leverage when Penalties Are Restricted", *Journal of Public Economics*, 1991, vol. 45, 391–395.

[39] See Almer, C. and Goeschl, T., *Environmental crime and punishment: a dynamic panel data analysis*, University of Heidelberg, Working Paper 2008.

[40] See generally on the importance of this shaming notion Braithwaite, J., *Crime, Shame and Reintegration*, Cambridge, Cambridge University Press, 1989.

[41] See Karpoff, J. and Lott, J., "The Reputational Penalty Firms Bear from Committing Criminal Fraud", *Journal of Law and Economics*, 1993, vol. 36, 757–802.

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conviction did not cause an additional reputational loss and that the mere fact of being labelled as a "criminal" does not lead to additional costs.[42]

A third reason why the low prosecution rates of environmental violations in Western Europe should be interpreted with caution is that the prosecutor could in fact engage in regulatory dealings[43] whereby the prosecutor only agrees to dismiss the case after evidence of compliance by the firm. Some argue that this so-called "soft approach" in many cases leads to compliance by firms.[44] A problem with this approach is, however, that since the economic gain resulting from a violation of environmental statutes can be substantial, a firm that after detection only risks of having to do what it had to do according to the law anyway, has nothing to loose by violating. Violation, for instance by delaying an investment in environmental prevention equipment, can thus lead to substantial savings in interest payments basically without additional risks.[45] A substantial problem of underdeterrence could hence follow.

There may be a fourth reason why many firms comply notwithstanding low expected sanctions under the criminal law. This is related to the fact that companies base their *ex ante* decision on compliance on their subjective perception of the probability of being detected and prosecuted and the sanctions that can be imposed. They may hence not be aware of the low expected sanction in reality. The Belgian economist Rousseau found strong empirical backing for this phenomenon: when firms had to pay a monetary sanction during the previous two years they were on average more in violation in a second period than firms that did not have to pay a fine in the first period. The interpretation is clear: those who did not have to pay a fine before overestimated the expected fine and complied. Firms that were recently fined had a more accurate impression of true expected sanctions and, being aware that they were low, were not deterred any longer.[46] This has an important policy implication: fining a polluter with a too low fine can have a perverse learning effect: firms will then be informed about the low expected sanction, whereas those who were not confronted with these low sanctions may still wrongly believe that expected sanctions are higher than they actually are and thus be more induced towards compliance. The policy implication seems to be that if the agency or court decides to fine a polluter it is better not to impose any fine at all than a too low one since otherwise one would even destroy wrong, subjective perceptions by potential perpetrators that fines are higher than they actually are.

4.2.5 Effectiveness without dissuasion?

An important lesson from this empirical literature is that we may have to qualify the earlier statement that dissuasion is a necessary component of effectiveness and that in order to be dissuasive penalties should necessarily be deterrent. The empirical research shows that there may be other reasons why firms may comply with environmental law. Dissuasive penalties may not be the only way of reaching a high level of compliance. From this empirical literature also some (careful) policy conclusions could be deduced as far as the effectiveness of enforcement strategies is concerned.

One conclusion may be that firms may be deterred by other elements than the mere (financial) penalty which is formally imposed (e.g. through the court system). Although the empirical evidence on this issue is divided, informal reactions such as "naming and shaming" may hence add to the effectiveness of the penalty system as well.

Second, one should not necessarily react to the fact that expected sanctions are low as a result of low prosecution rates which in turn lowers the probability of being apprehended, prosecuted and convicted. To the extent that violations take place out of ignorance (lack of information) rather than intentionally, enforcement strategies aiming at providing information and thus reaching compliance may well be effective. This is probably an argument in favour of a differentiated enforcement system: deterrence may be the primary goal in case of intentionally violating perpetrators of the Becker type (who could only be brought to compliance by threatening them with high penalties) whereas a softer compliance strategy (providing information leading towards following the law) may be the more appropriate strategy with firms that merely breach because of lacking information. As will be argued below, there is substantial evidence showing that such a differentiated enforcement strategy may be effective. It is yet another argument that it is not necessarily deterrence alone what counts in enforcement of environmental law.

Third, since firms react to information concerning expected penalties (related both to probabilities of detection and type and amount of penalties) it may well be effective to have an information strategy particularly aiming at informing potential perpetrators

[42] Cohen, M. A., "Criminal Law as an Instrument of Environmental Policy: Theory and Empirics", in Heyes, A. (ed.), *Law and Economics of the Environment*, Cheltenham, Edward Elgar, UK, 2001, 213–214.

[43] See Fenn, P. and Veljanovski, C., "A Positive Economic Theory of Regulatory Enforcement", *Economic Journal*, 1988, vol. 98, 1055–1070.

[44] Billiet, C. and Rousseau, S., *Tijdschrift voor Milieurecht*, 2005, 18–19.

[45] This was argued with respect to the situation in the Netherlands by Nentjes, A. and Hommes, J., "Handhaving van het milieurecht", *Tijdschrift voor Milieuaansprakelijkheid*, 1990, 1–7.

[46] Rousseau, S., "Timing of Environmental Inspections: Survival of the Compliant", *Journal of Regulatory Economics* 32, 2007 and Rousseau, S., *The Impact of Sanctions and Inspections on Firms' Environmental Compliance Decisions*, 19.

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what expected penalties may be. After all, even the Becker type of dissuasion will not be effective if potential perpetrators have no information on expected penalties.

4.3 Proportionate

The third feature penalties should have according to the Directives is that they have to be "proportionate". With this notion of proportionality obviously something more is meant than simply that the penalties should be dissuasive, otherwise the requirement of proportionality would merely have any added value. The proportionality of a penalty most likely refers to a relationship between the type and magnitude of the penalty on the one hand and the type of infringement on the other hand.

A first possibility is to interpret this proportionality requirement again on the basis of economic analysis and to take into account for example the ability to pay the fine in fixing the sanction. Economists have also stressed the importance of linking the sanction to the harm done because of the necessity of so-called "marginal deterrence": if relatively minor violations would already be sanctioned with extremely high penalties a potential violator would have an incentive to commit the more serious rather than the less serious crime (if even a less serious crime would already carry a heavy punishment). The proportionality requirement which is very much stressed in criminal law as well hence has an economic basis as well.

For this section, we would, however like to follow a different type of literature, following largely German dogmatics, in which a distinction is made between the nature and type of the infringement and the corresponding penalty.[47] This literature distinguished four different types of models of environmental crimes.

Model I, referred to as abstract endangerment, does not punish environmental pollution directly, but enforces prior administrative decisions (like permits or other administrative rules). The criminal law typically applies in these kinds of cases as soon as the administrative provision has been violated, even if no actual harm or threat of harm to the environment occurs. It is held that these abstract endangerment crimes mainly focus on vindicating administrative values, although punishing the administrative violation indirectly furthers ecological values as well.[48]

Model II concerns concrete endangerment crimes with administrative predicates: here not only unlawfulness (to be interpreted in various ways) is required, but also proof that the unlawful activity caused threat of harm to the environment. This moves the model closer to a vindication of environmental values than was the case for model I. There can be such an (presumed or actual) endangerment in case of an emission of a substance into the environment: actual harm is not required, merely an (presumed or actual) endangerment, e.g. through an emission.

Model III: concrete harm crimes with administrative predicate: in this case still unlawfulness is required (violation of an administrative rule), but equally proof of actual environmental harm. Again it would be logic to impose higher penalties for those crimes in model III than the crimes in model II, since in this case actual environmental harm occurs and not merely an endangerment.

Model IV: serious environmental pollution: eliminating the administrative link: these crimes aim to punish very serious pollution regardless of whether there is an underlying regulatory violation. In this model following the condition of a licence can hence not constitute a defence. The "permit shield" does not apply. The reason to break the administrative link in those cases is that environmental harm is at issue of a magnitude beyond that contemplated by the administrative rules with which the entity complied. Since there would be more extreme harm in these cases a more severe punishment would also be indicated.

The normative consequence from dividing crimes according to this model is that it allows to differentiate the various environmental crimes according to the seriousness of the offence. This would precisely correspond to the proportionality principle.[49] In the mentioned literature it was suggested to adopt a graduated system of environmental crime (in accordance with the proportionality principle) according to *inter alia* the mental state of the actor (acting knowingly or negligently) but also looking at the protected interest at stake and the way in which these are endangered by various crimes.

Taking those principles as a starting point it can be held that the abstract endangerment crimes of model I vindicate directly only administrative values. This hence allows to place the four models along a continuum that represents the seriousness of the

[47] See Faure, M. and Visser, M. J. C., "How to Punish Environmental Pollution? Some Reflections on Various Models of Criminalisation of Environmental Harm", *European Journal of Crime, Criminal Law and Criminal Justice*, 1995, 316–368 and Mandiberg, S. F. and Faure, M. G., "A Graduated Punishment Approach to Environmental Crimes: Beyond Vindication of Administrative Authority in the United States and Europe", *Columbia Journal of Environmental Law*, 2009, vol. 34, 447–511 (electronically available on http://ssrn.com/abstract=1275547). For a summary of these models see also Faure, M., "A new model of criminalisation of environmental pollution", *supra* note 13, at 195–201.

[48] The reason is that an entity that follows administrative rules is likely to harm the environment as well and the following of administrative rules allows the agency to monitor the entity's operation to ensure that harm is less likely to occur.

[49] So was argued by Faure and Visser (*supra* note 47 at 324, 332 and 343–344) and see generally Dressler, J., *Understanding Criminal Law* (4th edition 2006) at chapter 6, discussing proportionality in criminal law.

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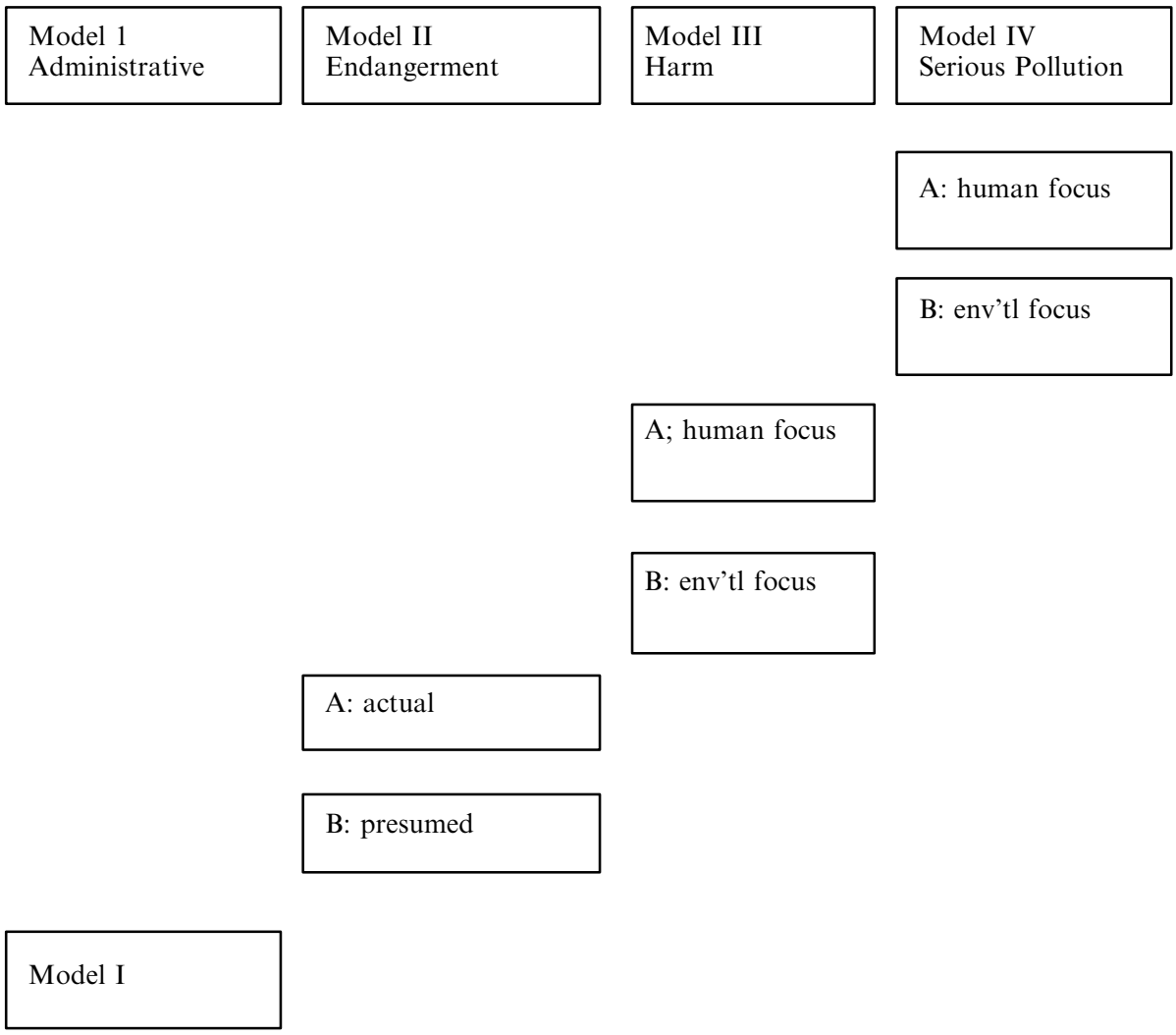

offence and the severity of the authorised punishment. As mentioned, the abstract endangerment model I comes at the lowest end of the continuum. They could be punished with milder sanctions than crimes in the other three models, which vindicate more important interests. It is also easy to conclude that the concrete harm model (III) crimes are more serious than the concrete endangerment (model II) crimes for the simple reason that realised harm is more serious than the threat of harm. Hence these should carry more severe punishments. Model IV requires that the harm be extreme, which suggests that these crimes are more serious than those in model III.

A further subdivision is possible in models II and III based on whether there is only presumed or actual harm (II) and on whether the crimes involve harm to the environment only and crimes involving harm to both the environment and to human health (in III). The latter subdivision would be useful for model IV as well.

This subdivision could lead to a following ranking of environmental crimes with the seriousness of criminality increasing when moved from the left to the right and from the bottom to the top.[50]

This type of ranking would allow punishments according to various degrees of severities and corresponding penalties. In addition a differentiation according to the mental state (acting knowingly wilfully or merely negligently) could be introduced as well. Such a graduated punishment approach would hence allow to have penalties correspond with the seriousness of the crime, which would thus meet the proportionality principle. This approach can, to some extent, already be found in current environmental criminal law in some Member States. Moreover, the Council of Europe Convention on the protection of the environment through criminal law of 4 November 1998 also largely followed this model.[51]

[50] The diagram is taken from Mandiberg and Faure, *supra* note 47 at p. 47.

[51] See Faure, M., "A new model of criminalisation of environmental pollution", *supra* note 13, at 202–203.

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V. From Theory to Practice: Policy Consequences

So far some observations have been formulated on how the concepts of ''effectiveness, dissuasiveness and proportionality'' could be interpreted from a theoretical perspective and moreover a few empirical observations were added to indicate how these concepts could work in practice. Now the question will be asked how these theoretical insights can be translated in more concrete recommendations as far as the nature and amount of the penalties is concerned.

5.1 Fines or imprisonment?

Taking again general deterrence theory, discussed above[52] it can easily be argued (mainly from an economic perspective, but also from a legal) that when optimal dissuasion can be achieved equally through fines and through prison sanctions fines are preferred since they are less costly to impose than prison sanctions.[53] Many economists are therefore opponents of prison sanctions, simply because the costs for the implementation of those sanctions are much higher than the costs for imposing fines. That is why many have qualified the fine as the ideal sanction in case of corporate crimes, like environmental crime.[54]

There is, however, one important problem with the fine, being that it is able to reach dissuasion only when the offender has the ability to pay the optimal fine.[55] As was mentioned above, also with reference to empirical research, the probability of being apprehended, prosecuted and convicted in a criminal case is very often much lower than 100 per cent. Especially when the harm to society is large and the gain to the offender from the environmental crime substantial, the effective penalty that should be imposed should reflect the low probability of detection. These (potentially very high) fines may constitute an insolvency problem. If that is the case fines will no longer provide optimal dissuasion. When such an insolvency problem arises non-monetary sanctions will have to be applied.[56]

The lesson from economic theory seems hence to be that the fine should be used for environmental crime as primary penalty and non-monetary sanctions (like imprisonment) should only be used to the extent that an insolvency problem arises. This is more particularly the case when the optimal fine would be higher than the individual wealth of the offender. In that case the fine could still be used until the limit of the wealth of the offender and the imprisonment to reach still additional deterrence.

Empirical evidence also shows that the application of prison sanctions for environmental crimes is rare. This seems to be limited to cases of fraud or serious environmental harm.[57]

5.2 Administrative or criminal?

5.2.1 To implement the Directives?

Both Directives make clear that the penalties that should be imposed in order to be ''effective, proportionate and dissuasive'' should be *criminal* penalties. In preamble 3 preceding Directive 2008/99 it is held that criminal penalties ''demonstrate a social disapproval of a qualitatively different nature compared to administrative penalties or a compensation mechanism under civil law''.

From a legal perspective there is hence no point of debate: in order to comply with European Law and to implement the Directives correctly the penalties to be introduced (or maintained) in Member States law should formally have the character of criminal penalties. Still it is interesting to address whether this should necessarily be the case from a theoretical perspective. Also it may be worthwhile to look at data on the practical enforcement of administrative and criminal environmental law. This may shed some light on the possibility to use administrative law in addition to criminal penalties.

Moreover, the duty to impose *criminal penalties* only applies as far as natural persons are concerned.

[52] See 4.2.1.

[53] This point has been made *inter alia* by Polinsky, A. M. and Shavell, S., ''The Optimal Trade-Off between the Probability and the Magnitude of Fines'', *American Economic Review*, 1979, 880–891 and Polinsky, A. M. and Shavell, S., ''A Note on Optimal Fines When Wealth Varies Among Individuals'', *American Economic Review*, 1991, vol. 81, 618.

[54] Posner, R., ''Optimal Sentences for White-Collar Criminals'', *American Criminal Law Review*, 1980, 400–418.

[55] The effectiveness of fines moreover, also depends on the efforts made to effectively collect the fines as well.

[56] See Coffee, J. S., ''Corporate Crime and Punishment: a Non-Chicago View of the Economics of Criminal Sanctions'', *American Criminal Law Review*, 1980, 419–476, Segerson, K. and Tietenberg, T., ''Defining Efficient Sanctions'', in Tietenberg, T. H. (ed.), *Innovation in Environmental Policy*, Cheltenham, Edward Elgar, 1992, 63–65 and Shavell, S., ''Criminal Law and the Optimal Use of Non-Monetary Sanctions as a Deterrent'', *Columbia Law Review*, 1985, vol. 85, 1232–1262.

[57] For Belgium see *inter alia* Billiet, C. M. and Rousseau, S., ''De Hoogte van Strafrechtelijke Boetes. Een Rechtseconomische Analyse van Milieurechtspraak (1990–2000) van het Hof van Beroep te Gent'', *Tijdschrift voor Milieurecht*, 2003, 120–134. For Germany see Meinberg, V., ''Empirische Erkenntnisse zum Vollzug des Umweltstrafrechts'', *Zeitschrift für die gesamte Strafrechtswissenschaft*, 1988, 112–157. Recent research for the Netherlands by Schoep and Schuyt also showed that 95 per cent of sanctions imposed for environmental crimes were fines (Schoep, K. G. and Schuyt, P. M., *Feiten en percepties van de sanctionering van milieudelicten en delicten betreffende de volksgezondheid*, Leiden, 2008).

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For legal entities the directives merely contain an obligation to introduce effective, proportionate and dissuasive penalties, but it is not indicated that these should have a criminal nature.

5.2.2 To achieve optimal dissuasion

From the deterrence perspective presented above it follows that if the probability of detection is less than 100 per cent a (monetary) sanction should threaten which outweighs this low probability of detection (taking into account harm to society and the gain to the offender). These monetary sanctions (fines) can in principle have both a criminal and an administrative nature. Usually the imposition of fines via an administrative procedure is less costly than via the criminal procedure.[58] The reason is that the threshold of proof is (usually) lower and that the procedural guarantees in criminal law are usually more elaborated than in administrative law.[59] Administrative fines can often be imposed by administrative authorities themselves after a relatively simple procedure and requiring a low threshold of proof. These procedures are hence usually held to be less costly.[60]

If optimal deterrence can also be achieved through fines it would hence be desirable to use the less costly administrative procedure than the complicated criminal law.

Many scholars have therefore held that the imposition of relatively modest fines through the criminal procedure is inefficient since a similar result could also be achieved at lower costs through administrative law.[61] Ogus and Abbot have, more particularly for the UK advocated the use of administrative fines to enforce violations of administrative regulations.[62]

There are, however, from an economic perspective, two important reasons why not all efficient penalties necessary to deter environmental pollution could be imposed through administrative law and why therefore criminal law remains necessary. The first reason has already been mentioned above,[63] being that the optimal penalty (to outweigh the low detection rate) can in some cases be higher than the assets of the polluter. This may make non-monetary sanctions (such as imprisonment) necessary. Severe sanctions like imprisonment cannot be imposed through an administrative proceeding. The reason is that the costs of the administrative procedure may be lower than the costs of the criminal procedure, but the accuracy of the latter may be a lot higher as well. Administrative procedures may hence involve larger so-called ''error costs''.[64] Error costs are of course a lot higher when severe sanctions, like imprisonment would be imposed, rather than only fines. It is therefore understandable that the less costly administrative procedure may be chosen in cases where the consequences (and hence the error costs) will not be too high in the event of a wrongful conviction. That explains why administrative law (and the corresponding administrative procedure) will be applied in cases where relatively low penalties can suffice to provide deterrence. However, in cases where the probability of detection is relatively low, social harm and the potential gain to the polluter is high and thus a more severe (non-monetary) sanction is needed it is necessary to use the more costly criminal procedure and hence to impose criminal penalties.

5.2.3 Practice

There exist substantial differences between the Member States as far as reliance on administrative or criminal law to enforce environmental law is concerned. Some Member States (like traditionally Belgium and the United Kingdom) relied traditionally (although there is also a trend towards change) on criminal law, whereas others (e.g. Germany and the Netherlands) relied more on administrative law. Recent empirical evidence seems to show that in systems that would only have criminal penalties (and hence the criminal procedure) expected sanctions would be relatively low. The empirical evidence seems to indicate that the reason is that prosecutors focus on cases of severe environmental harm and may hence dismiss a large number of other cases (that are hence not brought to the court). Also actual penalties

[58] See Faure, M., Ogus, A. and Philipsen, N., ''Curbing consumer financial losses: the economics of regulatory enforcement'', *Law & Policy*, 2009, vol. 31, 174.

[59] Of course the imposition of fines via administrative law now also needs to correspond to the requirements of article 6 of the convention on human rights to the extent that this is in the case law considered as a ''criminal charge''. Even though this has led to more elaborate administrative procedures in many Member States (see the contributions in Seerden, R. J. G. H., Heldeweg, M. A. and Deketelaere, K. (eds.), *Public environmental law in the European Union and the United States*, The Hague, Kluwer Law International, 2002 and in Seerden, R. J. G. H. (ed.), *Administrative law in the European Union, its Member States and the United States. A comparative analysis*, 2nd ed., Antwerp, Intersentia, 2002) in most Member States the criminal procedure is still more complicated (and hence more costly) than the administrative procedure.

[60] See Ogus, A. I., ''Criminal Law and Regulations'', in Garoupa, N. (ed.), *Criminal Law and Economics*, Cheltenham, Edward Elgar, 2009, 90–110.

[61] See Faure, M., Ogus, A. and Philipsen, N., *supra* note 58, at 174–181.

[62] Ogus, A. I. and Abbot, C., ''Pollution and Penalties'', Swanson, T. (ed.), *An Introduction to the Law and Economics of Environmental Policy: Issues in Institutional Design*, Elsevier, 2002, 493–516 and Ogus, A. I. and Abbot, C., ''Sanctions for Pollution: Do We Have the Right Regime?'', *Journal of Environmental Law*, 2002, vol. 14, 283–300.

[63] See 5.1.

[64] See Miceli, T., ''Optimal Prosecution of Defendants Whose Guilt Is Uncertain'', *Journal of Law, Economics and Organisation*, vol. 6, 1990, 189–201.

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imposed by courts seem to be relatively low. In this respect we refer to the numbers presented above.[65]

German research seems to indicate that the likelihood that administrative fines (referred to in Germany as *Geldbußen*) are imposed for administrative violations (referred to as *Ordnungswidrigkeiten*) is substantially higher than the likelihood of a prosecution in the criminal court.[66] In the criminal prosecution the prosecutor will dismiss almost 60 per cent of all cases whereas in only 7,9 per cent of the cases a prosecution will take place. The administrative authorities imposed a fine in 53 per cent of all cases.

5.2.4 Policy consequence

A conclusion from this empirical evidence is that systems which allow administrative fines in addition to criminal penalties can add substantially to expected costs for the perpetrator and thus to deterrence. Coming back to the criterion of "effectiveness and dissuasion" adding the possibility of administrative fines to criminal penalties may hence add substantially to dissuasion and to the effectiveness of the enforcement system. The simple reason is that prosecutors in criminal procedures tend to use their scarce resources in a cost effective way and hence do not prosecute all cases. The advantage of having an administrative fining system in addition to the criminal procedure is that cases which are not prosecuted via the criminal procedure can still be penalised with an administrative fine.

So far we only referred to the administrative fine as a punitive sanction, serving the goal of deterrence. However, it may be clear that administrative sanctions can also play another role when it comes to determining effective penalties, more particularly as far as prevention and restoration of environmental harm is concerned. Those goals can often more effectively be served by administrative law than by criminal law since administrative law allows for more speedily and hence more effective reactions.

5.3 Effective penalties

5.3.1 Functions of penalties

When discussing the criterion of effectiveness above[67] it was indicated that the effectiveness of the penalty could be examined in the light of the functions of those penalties. In that respect three different functions of penalties were distinguished:

- Deterrence (dissuasion);
- Prevention of future harm;
- Restoration of harm that occurred in the past.

So far the debate mainly focused on penalties that could add to dissuasion (deterrence) whereby it was examined under what circumstances fines and imprisonment can be considered cost effective penalties to serve the goal of dissuasion.

However, in order to fulfil the other functions (prevention and restoration) other sanctions of a non-monetary nature could be considered than the more traditional penalties in criminal law (fine and imprisonment).

5.3.2 Restoration of harm

Many modern environmental statutes in the Member States now allow the judge also to impose as a (criminal penalty) a variety of measures e.g. aiming at the restoration of the harm committed in the past. The judge can e.g. force the convicted polluter to clean up a polluted soil or to remove waste that has been deposited illegally. In some cases an order can be given to compensate victims of pollution (independently of the victim's rights under civil law to claim for compensation).

A few random examples can illustrate this:

The New Flemish Decree on Enforcement of Environmental Law of 21 December 2007[68] provides *inter alia* in art. 16.6.4 that he who unlawfully disposes of waste will be convicted by the judge to collect, transport and remove the waste within a delay to be determined by the judge. Art. 16.6.6 § 1 of the same decree also provides that the judge can order to restore a place into its original condition.

A similar provision can be found in art. 8c of the Economic Crimes Act of the Netherlands (which is also applicable to environmental offences) which provides that the judge can order as a measure that the convicted should perform what is unlawfully neglected or restore what has been unlawfully performed. The (environmental) legislation of many other Member States contains similar provisions.

5.3.3 Prevention of future harm

The same may be the case for the prevention of future harm. The judge could e.g. order that the installation that was the cause of the violation of environmental law would no longer be used in the future and in some cases the measure could go as far as the closing of the enterprise that violated environmental law.

For example the Environmental Protection Act in Denmark provides in section 110b that the right to carry out activities under chapter 5 of this Act (IPPC permits) can be revoked in case of conviction for criminal offences when particular specific conditions are fulfilled. In case of an imposition of high fines the convicted can also be subject to registration in a special register for "non-environmental-responsible-

[65] See *supra* section 4.2.2 showing that in the UK on average prosecution rates for pollution incidents were less than 5 per cent and that in the Flemish Region the prosecutor dismissed 62 per cent of violations established by the Environmental Inspectorate.

[66] See Lutterer, W. and Hoch, H. J., *Rechtliche Steuerung im Umweltbereich*, 1997, 190–191.

[67] See 4.1.

[68] Which entered into force on 1 May 2009.

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persons" under the Danish Environmental Protection Act, sections 40a and 40b.[69] The Court can also order the suspension of the right to operate a licensed activity as a criminal penalty. Moreover, the Danish Court Procedural Act entitles to use a penalty payment to force the defendant to bring the offence to an end.

The New Environmental Enforcement Decree in the Flemish Region also allows the judge to order the prohibition to use an installation which was the cause of the environmental offence as a safety measure during the time period to be determined by the judge.

The Economic Crimes Act in the Netherlands equally provides in Article 7c that the judge can order (as a complementary punishment) the (wholly or partially) closure of the enterprise of the convicted where the economic crime has been committed for a maximum period of one year.

Under Irish law a license under the Waste Management Act 1996 may only be given or transferred to a fit and proper person. This is not the case if the relevant person has been convicted of a prescribed offence. A prior conviction for environmental offences can hence lead to a refusal of future authorisations.[70]

In Spain, for offences against the environment laid down in Articles 325 and 326 of the Penal Code the judge can impose some of the measures described in Article 129a, such as the closure of a company, its offices or establishment, either temporarily or permanently.

Even though those measures are usually treated as non-monetary sanctions, for the simple reason that they are not a fine it may be clear that there can be serious monetary implications as well. For example the removal of illegally deposited waste can be extremely costly. Hence, even though it is sometimes argued that the goal of those measures is not deterrence or dissuasion but rather prevention or restoration this is in practice sometimes merely a matter of degree since costly restoration measures may lead to additional deterrence as well.

5.3.4 Publication

The same is the case for yet another measure which can according to the law of many Member States now be ordered by the judge, being the publication of the judgement through the mass media. Some may argue that this is merely a measure informing the public at large of the pollution that occurred, but, as was also argued above, this publication can (depending of course upon the nature of the firm) also lead to serious reputational losses and hence again provide additional deterrence.

Again the possibility to make the judgment public via the mass media is provided for in the (environmental) legislation of many Member States. Just to give a few (random) examples: Article 7g of the Economic Crimes Act in the Netherlands allows the judge to order the publication of the judgment as a complementary sanction.

In France various additional penalties can be imposed in case of environmental crime, mentioned in 10° and 11° of Article 131-6 of the Code Pénal. The penalty of public posting or publication of the decision pronounced either by the written press, or by any means of audio visual communication in accordance with Article 131-35 of the Code Pénal can be ordered as well.

In sum, even though those measures (which are especially useful in case of environmental crime) may particularly aim at prevention and restoration they can provide additional deterrence as well and could be welcomed for that reason also.

5.3.5 Removal of illegal gains

This is also the case for one particular sanction which gains increasingly popularity in the fight against white-collar crime generally, but also in the area of environmental crime, being the forfeiture of illegal gains. From a legal perspective this is presented as a measure: the gain illegally obtained by the perpetrator should be removed to bring the violator back in the *status quo ante*.[71]

It was shown that the forfeiture of illegal gain can not only be a useful measure, but also be efficient in order to provide additional deterrence, precisely in case of a low detection rate and when low effective fines are imposed by courts.[72] These conditions may well be met in case of environmental crime as a result of which the removal of illegal gain can be a useful additional penalty.

However, early empirical studies by German

[69] Peter Pagh however, argues that this regime would be too complicated and hence does not merit to be copied by other legal systems (Pagh, P., "Denmark", in Faure, M. and Heine, G. (eds.), Criminal *penalties in EU Member States' environmental law*. Final report October 2002, available at: < http://www.unimaas.nl/default.asp?template = werkveld.htm&id = PRWC3TQ0MEFO064JA0VV&taal = en >, p. 169.

[70] See Scannell, Y., "Environmental criminal law in Ireland", in Faure, M. and Heine, G. (eds.), *Criminal penalties in EU Member States' environmental law*. Final report October 2002, available at: < http://www.unimaas.nl/default.asp?template = werkveld.htm&id = PRWC3TQ0MEFO064JA0VV&taal = en >, p. 210.

[71] For the legal foundations of this measure see Kilchling, M., "Comparative Perspectives on Forfeiture Legislation in Europe and the United States", *European Journal of Crime, Criminal Law and Criminal Justice*, 1997, vol. 5, 342–361 and Kilchling, M. (ed.), *Die Praxis der Gewinnabschöpfung in Europa*, Freiburg im Breisgau, Max Planck Institute for Foreign and International Criminal Law, 2002.

[72] See Bowles, R., Faure, M. and Garoupa, N., "Economic Analysis of the Removal of Illegal Gains", *International Review of Law and Economics*, 2000, 537–549 and Bowles, R., Faure, M. and Garoupa, N., "Forfeiture of Illegal Gain: an Economic Perspective", *Oxford Journal of Legal Studies*, 2005, vol. 25, 275–295.

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criminologists (referring to the application of this measure in Germany in the 1980s) showed that the risk of removal of illegal gain had hardly any effect on potential criminals in their decision whether or not to commit the crime.[73] However, meanwhile the possibilities to remove illegal gain as well as the practical application of this measure to environmental crimes has increased substantially since these early studies.[74] The additional deterrent effect and hence the effectiveness of this removal of illegal gain, also in case of environmental crime may hence well have substantially increased.

An important point of attention is the enforcement of specific measures imposed by the judge. One should after all make clear that when e.g. a polluter is convicted to remove waste he has illegally deposited, that this will also be executed. In this respect many legal systems now have the possibility to accompany this order with a so-called penalty payment. It is a financial penalty that will be due if the duties imposed upon the convicted party are not fulfilled within the time limit laid down in the judgement.

5.4 Corporate crime

A brief word should also be mentioned as far as the penalties against legal persons are concerned. Both Directives mention that the Member States shall also take the necessary measures to ensure that legal persons are also punishable by effective, proportionate and dissuasive penalties. Here the only difference with the issues discussed so far is that the word ''criminal'' is omitted, of course to accommodate those Member States where criminal liability of legal entities is not accepted. The question what are effective, dissuasive and proportionate penalties against legal entities can, however, clearly be answered along the same line as the discussion above concerning penalties imposed upon natural persons. The main difference will consist in the fact that imprisonment can obviously not be imposed on a legal entity, not only for practical reasons but also because it is a typical criminal penalty. The optimal penalties for legal entities in order to be ''effective, dissuasive and proportionate'' will hence consist of fines (which are, as was argued above, the main penalty in case of environmental crime).[75] In addition, the non-monetary penalties discussed in the previous section can of course all be applied to legal entities as well.

One important economic argument in favour of criminal liability of legal entities is that the assets of the corporation are usually larger than the assets of the individual employee working within the corporation. Hence, without corporate criminal liability employees would rather quickly face an insolvency problem and hence the costly non-monetary sanctions (like imprisonment) would have to be applied. The advantage of corporate criminal liability is that when the employee cannot bear the full burden of the optimal penalty the less costly fines can longer be applied in reaction to environmental crime.[76] The employer could in turn apply sanctions to the employee, like refusing promotion or termination of the contract.[77]

But monetary sanctions may also exceed the corporation's assets. In that respect it should not be forgotten that environmental polluters are often organised as corporate entities which benefit from limited liability.[78] Hence, given limited liability of corporations there is also a risk that optimal fines may be higher than the corporations (limited) assets. For that reason also for legal entities non-monetary sanctions may be necessary. Some of the non-monetary sanctions we discussed above (in fact all except for incarceration) can also be applied to legal entities. However, Polinsky and Shavell argue that applying non-monetary sanctions to corporations may in some cases be difficult. They consider this as a strong argument in favour of combining (criminal)

[73] See Perron, W., ''Vermögensstrafe und erweiterte Verfall'', *Juristenzeitung*, 1993, 919–920 and Smettan, J.R., *Kriminelle Bereicherung in Abhängigkeit von Gewinnen, Risiken, Strafen und Moral*, Freiburg in Breisgau, Max Planck Institute for Foreign and International Criminal Law, 1992.

[74] See for an application to environmental crime in the Netherlands Faure, M. and De Roos, Th. (eds), *De Berekening van het Wederechtelijk Verkregen Voordeel uit Milieudelicten*, The Hague, SDU Uitgevers, 1998 and for a comparison with Belgium see Faure. M. and De Roos, Th., ''De ontneming van het wederrechtelijk verkregen voordeel in Nederlandse en Belgische milieustrafzaken'', in Faure, M. and Deketelaere, K. (eds.), *Ius commune en milieurecht*, Antwerp, Intersentia, 1997, 291–327. The legislation of many Member States now provides explicitly for the possibility of the confiscation of the illegal gain made by the environmental offence. See for example Article 110–5 of the Environmental Protection Act in Denmark ''where violations gave raise to profits, they are confiscated in accordance with Part 9 of the Penal Code, even if the violation did not result in damage to the environment or risk of damage. Where profits can not be confiscated, this shall be considered when metering out a fine, including possible additional fines'' as well as in Finland (section 2 of chapter 10 of the Penal Code of Finland).

[75] See 5.1.

[76] See Cohen, M. A., ''Criminal Law as an Instrument of Environmental Policy: Theory and Empirics'', in Heyes, A. (ed.), *Law and Economics of the Environment*, Cheltenham, Edward Elgar, 2001, 208–209.

[77] The argument is similar as the reasons in favour of employer's liability according to the principle of *respondeat superior* in tort law. See Landes, W. and Posner, R., ''The Positive Economic Theory of Tort Law'', *Georgia Law Review*, 1981, vol. 15, 914.

[78] Hansmann, H. and Kraakman, R. H., ''Toward Unlimited Shareholder Liability for Corporate Torts'', *Yale Law Journal*, vol. 100, 1991, 1879.

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liability of the legal entity with individual criminal liability of the employee.[79]

5.5 A graduated punishment approach

The question of course arises whether the graduated punishment approach for environmental crime which was presented from a theoretical perspective above in section 4.3 (in order to fill in the proportionality requirement for penalties) could also be made more concrete. In the literature an attempt has been undertaken to verify to what extent some of the various models discussed in section 4.3 above can also be found back in the environmental criminal law of some of the Member States today. In this respect I can refer to an earlier publication where it was examined to what extent environmental criminal law in France and Germany do fit into the graduate punishment approach-model.[80] For the topic of this study it is more interesting to analyze to what extent the theoretical model presented above in section 4.3 can also be used to look for proportionate penalties for the offences stipulated in the Directives that have to be implemented.

It may be useful to see to what extent the offences could be qualified according to one of the models presented above in section 4. This may be helpful to the extent that it was argued above that offences could be placed in the models along a continuum whereby the seriousness of the offence increases from model I (abstract endangerment) to model IV (serious environmental pollution) and that the severity of the authorized punishment would consequently increase as well. This obviously does not answer the question what the precise punishment should be in each and every case, but it may to some extent allow a differentiation between the statutory maximum provided for the various offences. In addition it should be remembered that the proportionality is just one of the three requirements for the penalties according to the Directives. The requirements of effectiveness and dissuasiveness, discussed above in 4.1 and 4.2 should be met as well.

Looking first at the offences in Directive 2008/99 on the protection of the environment through criminal law one should first of all establish that according to the formulation in article 3 all of them require unlawfulness which is defined in article 2(a) as infringing:

(i) the legislation adopted pursuant to the EC treaty and listed in annex A; or
(ii) with regards to activities covered by the Euratom treaty, the legislation adopted pursuant to the Euratom treaty and listed in annex B; or
(iii) a law, and administrative regulation of a Member State or a decision taken by a competent authority of a Member State that gives effect to the community legislation referred to in (i) or (ii).

A simple conclusion therefore follows that none of the offences follows the serious environmental pollution model (IV) where the administrative link is eliminated and the "permit shield" does not apply. Since all offences require unlawfulness basically only models I-III come into the picture.

Article 3 of Directive 2008/99 distinguishes 9 offences. We will now address each of those in turn to see in which of the models described in section 4.3 they would fit:

(a) the discharge, emission or introduction of a quantity of materials or ionising radiation into air, soil or water, which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of air, the quality of soil or the quality of water, or to animals or plants.

Already this first example shows how difficult it is to classify this provision in the Directive according to the theoretical models developed in section 4.3. The first part of the provision (discharging or emitting or introducing a quantity of materials into air soil or water) clearly constitutes concrete endangerment crimes of model II. However, the second part provides a specific condition that the emission should cause or is likely to cause death or serious injury to any person (human focus) or substantial damage to the quality of air, soil, water, animals or plants (environmental focus). A distinction could be made between causing such damage which would make it fit into the concrete harm model III and emissions which are merely likely to cause this consequence which would keep them into model II.

(b) the collection, transport, recovery or disposal of waste, including the supervision of such operations and the after-care of disposal sites, and including action taken as a dealer or a broker (waste management), which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of air, the quality of soil or the quality of water, or to animals or plants.

Here again the same problem arises: the collection, transport, recovery or disposal of waste is as such an abstract endangerment crime of model I. However, like in provision (a) there is a requirement that this act would either cause or be likely to cause damage to human health or to the environment. Again, "likely to cause" would make them fit in the concrete endanger-

[79] See Polinsky, A. M. and Shavell, S., "Should Employees Be Subject to Fines and Imprisonment Given the Existence of Corporate Liability?", *International Review of Law and Economics*, vol. 13, 1993, 239–257 and Kornhauser, L. A., "An Economic Analysis of the Choice between Enterprise and Personal Liability for Accidents", *California Law Review*, vol. 70, 1982, 1345–1392.

[80] See for a more detailed analysis Mandiberg, S. F. and Faure, M. G., *supra* note 47 at 53–58.

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ment crimes of model II whereas "causes" makes it the more serious concrete harm crime of model III, whereby within model III a distinction could be made as far as the penalty is concerned between the case where "only" substantial damage to the environment is caused and the case where death or serious injury to any person is concerned, which would make the crime obviously more serious.

(c) the shipment of waste, where this activity falls within the scope of Article 2(35) of Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste and is undertaken in a non-negligible quantity, whether executed in a single shipment or in several shipments which appear to be linked.

This is perhaps a harder one to classify: to the extent that there is "merely" unlawful shipment of waste it is the unlawfulness of the shipment that is penalized which would make it an abstract endangerment crime of model I. However, since it also includes a requirement that the shipment should be undertaken "in a non-negligible quantity" one could equally argue that this unlawful shipment also caused threat of harm to the environment, which would make it a concrete endangerment crime of model II. That would, however, require that there would also be abandonment on disposing of waste in an unlawful manner. The endangerment created by the shipment could be merely abstract, whereas an endangerment created by disposal or abandonment would be concrete.

(d) the operation of a plant in which a dangerous activity is carried out or in which dangerous substances or preparations are stored or used and which, outside the plant, causes or is likely to cause death or serious injury to any person or substantial damage to the quality of air, the quality of soil or the quality of water, or to animals or plants.

Again this is an example of a rather complicated formulation: the unlawful operation of a plant as such is a classic example of an abstract endangerment crime of model I. However, in this case the condition is added that this operation would cause or would be likely to cause death or serious injury to humans or to the environment. Here the same comments apply as to provisions (a) and (b). To the extent the provision focuses on causing personal injury or harm to the environment it can be considered a concrete harm crime of model III; to the extent that this operation is merely "likely to cause" these effects it would be a concrete endangerment crime of model II.

(e) the production, processing, handling, use, holding, storage, transport, import, export or disposal of nuclear materials or other hazardous radioactive substances which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of air, the quality of soil or the quality of water, or to animals or plants.

In this respect we can be short since the provision has the same construction as (d) hence it is either a concrete endangerment crime of model II or a concrete harm crime of model III depending on whether the endangerment (likely to cause) or concrete harm (causes) is required.

(f) the killing, destruction, possession or taking of specimens of protected wild fauna or flora species, except for cases where the conduct concerns a negligible quantity of such specimens and has a negligible impact on the conservation status of the species.

Here the classification seems relatively simple since "killing, destruction, possession or taking" all seem to require a specific consequence, which goes beyond the mere endangerment and would make them fit all into model III. However, taking a closer look one notices that once more the provision in fact hides various types of behaviour of a different nature: killing and destructing specimens of protected wild fauna or flora could definitely be considered as a concrete harm crime of III and more particularly one with an environmental focus (III B). However, the possession or taking of those specimens could, but should not necessarily be of a same seriousness to the extent that restoration is still possible. In that case it could be argued that possessing or taking those specimens certainly constitutes a concrete endangerment according to model II and more particularly an actual endangerment (model II A). This may be an argument in favour of differentiating the penalty between on the one hand possession or taking and on the other hand killing and destructing, whereby the latter would obviously be more serious.

(g) trading in specimens of protected wild fauna or flora species or parts or derivatives thereof, except for cases where the conduct concerns a negligible quantity of such specimens and has a negligible impact on the conservation status of the species.

This seems more like an abstract endangerment crime, comparable to offence (c) discussed above (unlawful shipment of waste). After all, unlawful trading in protected wild fauna or flora may lead to an endangerment of particular values, but the endangerment is rather abstract. The focus of the offence is rather on the unlawful character of the trading, which would make it fit into model I and hence of a less serious nature than the offences protecting similar values in (f).

(h) any conduct which causes the significant deterioration of a habitat within a protected site.

This provision seems to be relatively easy to classify since a concrete harm is required (significant deterioration of a habitat within a protected site) which makes it a concrete harm crime of model III with an environmental focus (III B).

(i) the production, importation, exportation, placing on the market or use of ozone-depleting substances.

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Here again the provision is rather difficult to classify since at least five different types of behaviour are mentioned which can all potentially endanger the ozone layer, but in some cases the danger may be merely abstract (for example in case of production) whereas in other cases the danger may be more concrete (placing on the market) or could even lead to concrete harm (use of ozone-depleting substances). Depending on which type of behaviour is at stake potentially any of the models could hence apply.

Turning now briefly as well to the other Directive, 2009/123 on ship-source pollution, we can be relatively short since article 4.1 merely provides for one offence being:

> "Ship-source discharges of polluting substances, including minor cases of such discharges, into any of the areas referred to in article 3(1)".

These unlawful discharges are typically concrete endangerment crimes of model II and could moreover be classified as presumed endangerment: proof of harm or threat of harm to the environment is not required, merely unlawful emission.

After our attempt to classify the offences in the Directives according to the graduated punishment approach the question can of course be asked to what extent this is useful in the sense of actually assisting the Member States in their implementation decisions on providing for proportionate penalties. Of course it is not claimed or argued here that this graduated punishment approach as theoretically developed in section 4.3 is a miracle solution or panacea. To some extent one could also discuss whether a particular type of offence fits better into one category or the other. Those types of discussions are of course largely unavoidable.

However, the advantage of looking at the various offences in this way is that one can focus on the type of values protected by the offence (merely environmental values or also human health) and the way in which these values are endangered by a particular behaviour can also be distinguished: hence it allows to differentiate between situations where a particular behaviour merely constitutes an abstract danger to a particular value, a concrete danger or actually harms the protected value (environment or human health). To the extent that the protected values become more endangered or harmed by particular behaviour it may make sense to reflect this in the level of statutory penalties as well. Hence looking at the offences in this way may provide some guidance at least as far as the question is concerned how the seriousness of different offences can be compared and how this can subsequently be reflected in the levels of the statutory penalties.

One element that could certainly also be added as an indicator for differentiation, not discussed yet is of course the *mens rea* of the offender. Directive 2008/99 distinguished in this respect between offences committed intentionally on the one hand and offences committed with serious negligence on the other hand. It would make sense to have higher penalties for the first case than for the latter. Directive 2009/123 includes a further differentiation by distinguishing between intent, recklessness or serious negligence. Here it would obviously make sense to distinguish the cases of recklessness, serious negligence and intent whereby the statutory penalty could increase along this continuum. Obviously another factor to be taken into account is the violation history of the offender: most legal systems will punish repeat offenders more seriously than first offenders. However, this can, but should not necessarily be reflected in the legislation since it is an issue that the judge can take into account at the sentencing level.

One particular difficulty that may arise during the implementation phase is that the Directives (more particularly 2008/99) often cover behaviour of a rather different nature. In many cases the causing or "likely to cause" particular harm is incorporated in the same offence whereas the seriousness of those is of course (as indicated above) of a different nature.[81] Also, injury to human health or damage to the environment are incorporated in the same offence as well, whereas it may make sense to distinguish between both. The same was the case for the possession or taking of protected wild fauna or flora on the one hand and the killing and destructing of those specimen on the other hand.[82]

This raises a few important questions as far as implementation techniques are concerned. Ideally one would like to have different provisions with different penalties according to whether behaviour fits into model I, II or III. But a consequence of that choice would be that a literal transposition of the Directive into Member States law would not be possible since a more differentiated approach would be desirable. That of course raises the question of how to implement the Directive and more particularly how to fit it into existing legislation and whether it is indeed necessary to have this differentiation incorporated into legislation. Some may argue that the differentiation between the type of behaviour and protected values could also be reflected when the judge decides upon a particular penalty in a specific case. These issues will be briefly touched upon in the next section.

VI. Specific Implementation Choices: the Form

6.1 Need to amend existing legislation?

A first question that always pops up when asking how

[81] This is for example the case in the offences incorporated in article 3(a), (b), (d).

[82] In article 3(f) of Directive 2008/99.

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particular EU Directives should be implemented is whether it would be possible to opt for the (seemingly easy) solution of simply copy-pasting the Directive (at least Directive 2008/99) in a literal way e.g. in an act on environmental criminal law.

That seems hardly possible in this particular case since even if the offences from article 3 of Directive 2008/99 were literally copied the obligation of article 5 still applies that these offences should be punishable by effective, proportionate and dissuasive penalties. If one would follow the interpretation of proportionality as suggested above in section 4.3 this would imply that a literal translation of the offences provided for in article 3 would not be possible for the simple reason that this article provides for many offences of a seemingly different nature as a result of which the proportionality requirement of article 5 would require that different penalties apply depending upon the values protected by the various provisions and the way in which they were endangered or harmed by the various offences. Of course some may argue that this would be a relatively burdensome task for the legislator in the Member States of which the administrative costs may be high or even prohibitive. That would be an argument in favour of having rather broad penalty provisions and allowing the judge to differentiate according to the protected values and specific behaviour. However, as will be argued below (in section 6.2) leaving the necessary differentiation of penalties to a large extent to the judge cannot be considered the first best solution.

A second problem with simply copy-pasting the Directive would be that the harmony and unity with existing Member State law may be disturbed. After all, many Member States do have legislation on environmental crimes in which (to some extent) behaviour described in the offences under article 3 of Directive 2008/99 is already penalized. If one would hence add on that a specific act simply transposing the Directive the question would still have to be answered how this relates to existing Member State law.

This also relates to a third issue, being that some (or perhaps many) Member States may argue that they already have detailed legislation on environmental criminal law which already provides for effective penalties also for the behaviour that needs to be criminalized according to article 3 of Directive 2008/99. Of course it is not the goal of this paper to examine to what extent the behaviour in the Directive already constitutes a crime under Member States law. However, even though some of the types of behaviour described in article 3 of Directive 2008/99 undoubtedly are already criminalized in Member State law, it would be surprising to see that the precise description of the conditions for criminal liability would be exactly the same as those required in article 3 or Directive 2008/99. More particularly the strong focus on criminalization of behaviour which causes or is likely to cause personal injury or damage to the environment can perhaps be found in some, but certainly not in the legislation of all Member States. Moreover, even if theoretically, (again this was not the focus of this paper) a Member State would already have criminal provisions focusing on all types of behaviour incorporated in article 3 of Directive 2008/99 the question still arises whether the penalties provided for by that Member State are indeed proportionate as required by article 5 of Directive 2008/99. To the extent that this is not the case at least some adaptation of national legislation may seem unavoidable. However, given the requirement that there should at least be some unity with existing Member State law on environmental crimes it would make sense to examine to what extent the offences in the Directive could be incorporated into existing Member State law and can be punished by effective, proportionate and dissuasive criminal penalties.

As far as the form is concerned today Member States laws vary substantially: in some Member States criminal law provisions are incorporated into specific environmental acts, in others they can be found in general environmental statutes and some Member States have intentionally incorporated environmental criminal law in the Penal Code.[83] The literature has focused on pros and cons of incorporating environmental criminal law into Penal Codes. It would reach too far to address these issues at this stage, but it may be clear that to the extent legislators in Member States had particular preferences (e.g. to incorporate environmental criminal law in the Penal Code) this may also have consequences as far as the choice for a particular implementation technique is concerned. Some ''path dependency'' is unavoidable in that respect. However, that choice of form does as such not affect the question whether the penalties can be ''effective, dissuasive and proportionate''.

6.2 Leave freedom with the judge or provide legislative precision?

Article 5 of Directive 2008/99 provides that Member States shall make sure that the offences are punishable by effective, dissuasive and proportionate penalties, but that does not directly answer the question to what extent the indication on the penalties should be very differentiated and precise (whereby hence the legislator links a specific (range of) penalty to specific behaviour) or whether a broader range of penalties should be made available and hence there would be larger reliance on the discretionary powers of the judge to match a particular penalty to a specific offence. Arguments can be made in both directions. The judge will undoubtedly *ex post* have the best information on how the specific behaviour affected the values

[83] This is for example the case in Spain, Portugal, Germany and the Netherlands.

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protected by the legislator and would thus be in a good position to determine what constitutes a proportionate penalty for the particular offence. However, the argument could also be made that it should primarily be the democratically elected legislator that takes *ex ante* the decision what type of penalties will apply to what type of behaviour. Of course the principle of legality requires that the conditions for criminal liability should be specified by the legislator and the requirement of *lex certa* also implies that conditions for criminal liability should be specified as clearly as possible. Even though the legislator should determine the penalties there is still the option of providing very broad penalty provisions, hence allowing a large amount of discretion to the judge to determine which would be a proportionate penalty for a particular offence. Leaving discretion to the judge could go as far as leaving the judge also the option of applying the models on graduated punishment as developed in section 4.3. An obvious disadvantage of allowing the judge to choose the optimal penalty within the broad boundary set by legislatively authorized minimum and maximum penalties is that the predictability and uniformity of the punishment may be endangered.

From the perspective of the EU Commission the problem would then also be that it becomes more difficult to judge whether a penalty is really proportionate to the particular offence as required by article 5 of Directive 2008/99. However, one should in this respect also keep in mind the case law discussed above[84] indicating that the determination of the type and level of the criminal penalties did not fall within Europe's sphere of competence. This is also clearly repeated in preamble 10 preceding Directive 2008/99 which clearly states:

> "This Directive creates no obligations regarding the application of such penalties, or any other available system of law enforcement, in individual cases".

Ideally the first best choice would be, for reasons of predictability and uniformity to have the legislator specify what proportionate penalties are for the various offences determined in article 3 of Directive 2008/99. However, within the penalties provided by the legislator there may still be sufficient scope for the judge to choose a proportionate penalty to a particular offence. This idea of judicial discretion has also been strongly supported by economic analysis, more particularly in reaction to the practice in the US where strict sentencing guidelines apply to which the judge should in principle comply. Differently than the economic model of punishment[85] these sentencing guidelines also provide quite often for incarceration as the main penalty in case of violation of environmental regulations. Easterbrook has strongly opposed this idea of strict sentencing guidelines, arguing that "there is no correct price for crime in the same way that there is no correct price for apples". He holds that the price of "environmental" crime depends upon a variety of elements, which enabled the judge to determine the optimal penalty in a differentiated way.[86] Easterbrook therefore supports discretionary sanctioning powers of the judge, arguing that this will allow the judge to differentiate sanctions in a more precise manner, taking into account the relevant criteria.

In this respect we can also refer to the empirical evidence discussed above[87] showing that judges in the US consider the guidelines often as unreasonable, which leads to the opposite effect of lenient sentencing of environmental criminals.

These observations may hence lead to a balanced answer with respect to the question whether precise indications should be provided in the legislation or whether there should be strong reliance on the sentencing powers of the judge: given the necessity of uniformity and predictability it would be the first best option to have the legislator determine which penalties fit particular behaviour according to the models described above in section 4.3 which fit the particular offences in article 3 of Directive 2008/99. However, in a next step the judge should have the discretion (without mandatory guidelines) to determine which penalty is proportionate to the particular offence.

One particular additional complication comes from the fact that the EU lacked the competence to determine the type and size of penalties. Hence even though one could ideally argue that the proportionality requirement in article 5 of Directive 2008/99 would allow the Commission to verify whether particular penalties provided for by the Member State legislator fit the particular offences in article 3, some caution in this respect is indicated, precisely since the EU lacked the competence to determine the type and size of the penalty. Member States could probably rightly criticize a very stringent control by the Commission under the heading of "proportionality" of the penalty if this would in fact amount to a control of the type and size of the penalty. Hence, even if this may only be second best, even if particular Member States would decide to provide a broad range of penalties (applicable to the offences in art. 3 of Directive 2008/99) it is quite questionable whether this implementation technique could be attacked by the Commission for the reason that it is not clear whether the particular penalty is proportionate to the specific offence. After all, the Directive itself holds clearly that it creates no obligations regarding the application of such penalties, or any other available system of law enforcement, in individual cases.

[84] See section 2.
[85] See above 4.2.1.
[86] See Easterbrook, F., "Criminal Procedure as a Market System", *Journal of Legal Studies*, 1983, vol. 12, 295 and 325.
[87] See at the end of section 4.2.2.

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VII. A Duty to Enforce?

Above it was indicated that for a penalty to be dissuasive it is necessary that the expected costs for the potential offender should be higher than expected damages.[88] It was already indicated that expected costs not only depend upon the formal penalty that is imposed *ex post*, but also upon the probability of being apprehended, prosecuted and convicted. A problem is hence that for a penalty to be dissuasive (and in that sense effective) one should not only take into account the formal size of the penalty, but also the probability that it is actually imposed. The difficulty is of course that the Directives can only require Member States "to ensure that offences are punishable by effective, proportionate and dissuasive criminal penalties". However, if these penalties would only have a low probability of being imposed in practice they may by the end not be dissuasive at all.

The difficulty is of course that this probability of imposing the penalty depends upon a variety of practical aspects not captured in the formal question of whether penalties are "effective, proportionate and dissuasive". However, totally ignoring the practical enforcement of environmental criminal law may incur the danger that there could merely be a "paper implementation" whereby a Member State would incorporate severe penalties in its formal legislation. If, however, no environmental inspectors or prosecutors were available to give priority to the prosecution of those cases, it could be questioned whether the penalties are still "effective, dissuasive and proportionate".

It is an issue which is not at all ignored by the European Court of Justice. Not only has the Court often held that even though Member States remain free in the choice of instruments for the implementation of a Directive, the penalties in case of violation of implementing legislation should at least be effective, proportionate and dissuasive.[89] Moreover, in the well-known Spanish Strawberries Case it was also held that the lack of effective prosecution against violators of implementing legislation can be considered as a violation of European law.[90]

In other words: the ECJ is not at all blind for these practical enforcement aspects and hence the European Commission has tools to require that violations against legislation implementing a Directive would also be effectively prosecuted.

However, a brief look at the empirical evidence concerning practical enforcement in a few Member States that we presented above[91] showed that prosecution rates are relatively low and expected sanctions as a consequence as well. The question has therefore been asked whether an obligation to enforce should be imposed upon Member States authorities enforcing environmental law. From an economic perspective an obligation to prosecute all violations that are discovered makes little sense. The reason is that yet another Nobel Prize winner (again from Chicago) Georges Stigler has indicated that the social goal of enforcement is not to reach a maximum enforcement (meaning that all violations would be prosecuted), but an optimal enforcement.[92] The simple reason is that the costs of reaching 100 per cent enforcement would be much too high. Ogus and Abbot therefore concluded as far as environmental crime is concerned: "Perfect compliance is neither possible nor desirable".[93]

Enforcement literature has also indicated that it may be an effective enforcement policy to divide firms in different classes on the basis of their compliance behaviour and to focus enforcement efforts correspondingly.[94] Many empirical studies have shown that a targeted monitoring (whereby monitoring costs are mostly spent on those firms of which it is known that they tend to be in non-compliance) may be an effective enforcement strategy as a result of which a greater compliance with environmental regulations can be achieved.[95] Also, Heyes and Rickman showed that, given limited assets of the agency to spend on inspections, an enforcement agency may engage in "regulatory dealing", using tolerance in some contexts and increasing compliance in another, for other types of violations.[96] They show that accepting a certain degree of tolerance with specific violations does not at all mean that the enforcement agency (in the particular case EPA) is "going soft" on pollution: it may rather be the result of a strategic choice to maximize the available budget and thus enforcement efforts.[97]

[88] See *supra* 4.2.1.
[89] ECJ 21 September 1989, Case C-68/88 (Greek corn).
[90] ECJ 9 December 1997, Case C-265/95 (Spanish Strawberries).
[91] See *supra* 4.2.2.
[92] Stigler, G., "The optimum enforcement of laws", *Journal of Political Economy*, 1970, 526–536.
[93] Ogus, A. and Abbot, C., "Sanctions for pollution: do we have the right regime?", *Journal of Environmental Law*, 2002, 289.
[94] See Harrington, W., "Enforcement leverage when penalties are restricted", *Journal of Public Economics*, 1988, vol. 37, 29–53, Harford, J. D. and Harrington, W., "A reconsideration of enforcement leverage when penalties are restricted", *Journal of Public Economics*, 1991, vol. 45, 391–395 and Harrington, W. and Heyes, A., "The theory of penalties: 'leverage' and 'dealing': , in Heyes, A. (ed.), *The law and economics of the environment*, Cheltenham, Edward Elgar, 2001, 185–197.
[95] Friesen, L., "Targeting enforcement to improve compliance with environmental regulations", *Journal of Environmental Economics and Management*, 2003, vol. 46, 72–85.
[96] Heyes, A. and Rickman, N., "Regulatory dealing – revisiting the Harrington paradox", *Journal of Public Economics*, 1999, vol. 72, 361–378.
[97] See also Heyes, A., "Eight things about enforcement that seem obvious but may not be", in Swanson, T. (ed.), *An introduction to the law and economics of environmental policy: issues in institutional design*, Amsterdam, Elsevier, 2002, 519–537.

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This shows yet once more what was also discussed above, being that low numbers on enforcement and low expected sanctions do not necessarily mean that the enforcement of environmental law is ineffective or would lack a dissuasive effect.[98] If limited enforcement would hence be a consequence of effective targeting, then it could be argued that the enforcement strategy is effective even though not all violations are prosecuted. There seems, in other words, no reasons at this stage to impose formal duties on Member States as far as the practical enforcement of environmental law is concerned that would go beyond the requirements as expressed in the case law of the European Court of Justice.

VIII. Concluding Remarks

The goal of this paper was, as was clearly stated in the introduction, not to attempt to give final answers, but rather to provide a bit of guidance to Member States in the implementation of Directives 2008/99 and 2009/123. The most important goal was to search for definitions of ''effective, proportionate and dissuasive penalties''. It was indicated that both in economic and legal theory, but also in empirical evidence and experiences in Member States some indications can be found on how to interpret these notions of effectiveness, dissuasion and proportionality.

To some extent the three notions seem to be directed at different players, but they equally show some overlap as well. The question of proportionality (see above 4.3) seems to refer to a relationship between the offence (and more particularly the values endangered or harmed by the offence) on the one hand and the size and type of the penalty on the other.

Dissuasiveness seems on the one hand to refer to the legislative level, indicating what type of penalties can generally be considered to dissuade the violation of environmental statutes, but also to the individual level, whereby the question arises what penalty can be considered as dissuasive in an individual case. However, Directive 2008/99 clearly stated, also in the light of the case law of the ECJ, that the Directive does not create obligations regarding the application of penalties in individual cases. At the level of the legislator economic theory was used *inter alia* to argue that in cases where the potential gain to the offender would be very high, social harm large and the probability of detection low effective penalties should be considerably high. In some cases their magnitude may be such that they outweigh the wealth of the offender, which may make the application of non-monetary sanctions necessary (to deal with the insolvency problem).

The effectiveness requirement showed to some extent overlap with the notion of dissuasiveness, although it was also indicated that in some cases penalties may be effective even though they are hardly dissuasive. Moreover, in environmental law the requirement of effectiveness leads to two specific functions of penalties in environmental cases: they should not only lead to (general and specific) deterrence, but also to restoration of harm that occurred in the past and prevention of future harm. This requires the introduction of penalties that are specifically aimed at these goals. These type of penalties may also be particularly appropriate to be applied to legal entities. These environment-specific penalties can to some extent also have an administrative nature and hence be imposed via administrative law.

Empirical evidence also showed that a system of administrative fines may lead to additional deterrence. Given the high costs of the criminal procedure budget maximizing prosecutors may rationally decide not to prosecute all cases and to target their efforts on the most promising cases. This corresponds with low prosecution rates for environmental crime in practice. The cases which are not prosecuted through the criminal procedure (and which still merit to receive some formal reaction in the form of a penalty) could benefit from the imposition of an administrative fine. Even though Directive 2008/99 requires (at least as far as natural persons are concerned) the introduction of criminal penalties, this of course does not guarantee that these penalties will effectively be imposed. Hence it may add to effectiveness and dissuasion if in addition to the system of criminal penalties also an administrative fining system would exist that could be applied to those cases which are not prosecuted under criminal law.

Even though this study attempted to address the effectiveness of penalties for environmental pollution from various (theoretical and empirical) angles there were still various aspects that have not been discussed in detail. For example both Directives also force Member States to punish the acts of inciting, aiding or abetting.[99] It could equally be examined to what extent inciting, aiding or abetting should be punished with the same or with lower penalties than the offences themselves. Moreover, it was briefly indicated that the Directives mention different states of mens rea (intentionally or at least with serious negligence and in Directive 2009/123 also recklessness), but it would be worth further examination to what extent the different states of mens rea would merit differentiated penalties.

Moreover, the notions of effectiveness, dissuasiveness and proportionality are rather vague notions on which no precise unequivocal definition exists. It was therefore attempted to interpret these notions based on theoretical and empirical literature, but unavoidable the choices made (in the literature) and the interpretation suggested are to some extent subjective

[98] Compare the exposé above at 4.2.3 and 4.2.4.

[99] Art. 4 of Directive 2008/99 and art. 5b of Directive 2005/35 as amended by Directive 2009/123.

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and others may well have different interpretations. For example above it was held (in 5.5.2) that if the proportionality requirement were taken seriously different statutory penalties should be necessary for the different types of behaviour incorporated in Article 3 of Directive 2008/99. But others could hold that this should not necessarily lead to a differentiation in statutory penalties, but to a differentiation in penalties actually imposed by the judge.

A particular difficulty that also arose is that to some extent the requirement of "effective, proportionate and dissuasive" penalties may well depend upon the type and magnitude of the penalties imposed. However, according to the ECJ case law this is particularly an aspect which can not be imposed upon Member States via a Directive. This hence poses somewhat of a dilemma: on the basis of the case law Member States remain free to chose the type and magnitude of the penalty, but on the other hand the effectiveness, proportionality and dissuasive character of the penalty may precisely depend upon the type and magnitude as determined by the Member States. It is not immediately clear how this paradox can be resolved.

Another – related – issue is that the effectiveness of a penalty system may to a large extent depend upon country specific characteristics. We indicated above that apparently large differences exist not only between the legal techniques used to criminalize environmental pollution, but also as far as the practical enforcement is concerned. It seems useful to respect these differences which are to a large extent bound to national legal culture and incur a great degree of "path dependency". However, the consequence may be that the way in which the various Member States interpret the notions of effective, proportionate and dissuasive penalties can to a large extent differ. Effectiveness in this particular area may hence require to respect national differences and would hence lead to some degree of differentiation.

Finally it was also stressed that this paper largely focused on the formal implementation of the Directives and more particularly only on the question what can be considered effective, proportionate and dissuasive penalties. However, the effectiveness of a criminal law system will to a large extent also depend upon its enforcement in practice. It is striking that in many Member States data on the number or violations or on the consequences adhered to those (prosecution, dismissal, type and amount of penalty imposed) is totally lacking. Even within Member States where this information is available, it is only so to a limited extent and for particular time periods, as a result of which there is no comparability whatsoever between the various Member States as far as the practical enforcement of environmental criminal law is concerned. It seems crucial in order to test whether an improved enforcement system can lead to a better compliance with environmental regulation to have reliable data. It seems therefore important to make much work on putting an effective monitoring system in place for example in order to come to a harmonized system of data collection on inspections, violations, measures taken and penalties imposed. Only when such a reliable information system is available, it becomes possible to examine the effectiveness of environmental criminal law in practice.