

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

Satellite Images as Evidence for Environmental Crime in Europe: A Judge’s Perspective

Dr. Carole M. Billiet ¹

1. Introduction

To my knowledge, not one sentence has been passed yet in Belgium in environmental cases where proof of the offence was based on satellite images.² In my country, satellite images are not yet used as evidence in environmental offences. Nevertheless, this type of proof may very well in the medium term enter the practice of environmental law enforcement. Initiatives in that sense have already been taken since 2005 to establish pollution from shipping in that part of the North Sea that falls under the jurisdiction of Belgium. One day, a criminal court or other public authority with punitive powers will have to investigate the admissibility and value of satellite images as evidence in environmental offences. How will it approach this evidence? What does the law of evidence require? How does a judge deal with a novel and fairly technical instrument of proof?

This paper seeks to sketch the perspective of a judge on the use of satellite images as evidence in environmental offences. I will principally discuss the perspective of the judge who punishes. As we know, law enforcement can be subdivided into monitoring and sanctioning. In a nutshell, monitoring means overseeing observance of the law. Sanctioning refers to situations where, thanks to monitoring, an offence is reported and action is taken against it. In practice, environmental offences are, to a large extent, sanctioned through the use of informal, gentle instruments, such as a warning. The hard core of sanctioning policy consists in the imposition of formal sanctions, which in Europe are generally criminal or administrative³ in nature. In the imposition of sanctions, those *Tanden van het recht* (Teeth of Law) (DUK, 1973),⁴ the judge plays a principal role. Sanctions fall into two main categories: punitive sanctions, which are primarily aimed at aggrieving the offender, and remedial sanctions, which are primarily aimed at reparation and securing the future. The analysis made here focuses on the use of satellite images as evidence with a view to the imposition of punitive sanctions. The demands made on the adduction and assessment of proof with a view to punishment are relatively strict and therefore constitute the most interesting line of approach to my subject.

¹ Vice-president Environmental Enforcement Court of Flanders, former member (2000-2009) of the Environmental Appeal Body of the Brussels Region; Research Director Centre for Environmental & Energy Law University of Ghent. I acknowledge financial support from the Belgian IWT/SBO research project 60034. The source research was concluded on 15 May 2011.

² Environmental law in this context is understood to mean the sum total of environmental health law and nature conservation law, to the exclusion of town and country planning law.

³ Vs. civil law.

⁴ W. DUK, *Tanden van het recht. Oriënterende beschouwingen over sancties* (rede), Zwolle, Tjenk Willink, 1973, 41 p.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

I am a European judge, more particularly a Belgian judge. The perspective of a Belgian penalizing court is, in part, valid for courts of law that consider environmental crime cases elsewhere in Europe.⁵ One reason for this lies, more specifically, in the fact that certain aspects of evidence are enshrined in human rights conventions, in particular the European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR).⁶ Throughout my paper I will attempt to pinpoint the relevance of the findings from the Belgian legal system to the broader European field.

The article falls into three parts. First, I will explain why the use of satellite images as evidence for environmental offences and with a view to punishment, is no longer a matter that concerns only criminal courts and judges. This issue should also be considered in the perspective of an administrative punishment (Section 2 *Punishment for environmental crimes: increasingly a combination of criminal and administrative enforcement*). After that, I will outline the legal theory behind the use of evidence with a view to punishment in both the criminal and the administrative penalization track (Section 3 *The use of evidence with a view to punishment: legal theory*). Subsequently I will focus on environmental law enforcement. I will investigate the potential of satellite images as evidence for environmental offences before criminal and administrative courts, analyse specific problems with the use of those images as evidence, and examine the concrete assessment of this type of evidence (Section 4 *The use of satellite images in environmental law enforcement: actual and potential use in the courtroom*). I will then draw conclusions. Insofar possible and relevant, I have included details of everyday practice in my analysis.

2. Punishment for Environmental Crimes: Increasingly a Combination of Criminal and Administrative Enforcement

In Belgium, the punishment for environmental crimes has evolved between 1999 and 2009 from penalization under criminal law to penalization in a two-track model, in which a criminal and an administrative enforcement track operate side by side.

In May/June 2009, the Environmental Enforcement Act became effective in Flanders, along with a concomitant amendment Act.⁷ Shortly before that, in February 2009, a similar act came

⁵ By Europe I mean all the EU countries, Norway and Switzerland. As you know, the European Union at present has 27 Member States: Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

⁶ Rome, 4 November 1950; effective as from 3 September 1953. All EU countries as well as Norway and Switzerland acceded to this Convention.

⁷ Act (Flemish Parliament) of 21 December 2007 supplementing the Act of 5 April 1995 concerning general provisions relating to environmental policy, comprising a Title XVI “Supervision, Enforcement and Protective Measures”, amended by the Acts of 12 December 2008, 30 April 2009, 8 May 2009 and 23 December 2010 (“Title XVI Environmental Policy Act 1995/2009”); Flemish Government Decree of 12 December 2008 implementing Title XVI of the Act of 5 April 1995 concerning general provisions relating to environmental policy (“Environmental Enforcement Decree”), already repeatedly amended, for instance by the Flemish Government Decree of 30 April 2009. The amendment act of 30 April 2009 and the concomitant amendment

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

into effect in Wallonia.⁸ Both sets of legislation opted to reinforce the administrative sanctioning track, *inter alia* through the introduction of administrative fines.⁹ The administrative fining systems were designed in such a way as to be generally applicable: breaches of the most diverse provisions of environmental health law and nature conservation law can now be administratively penalized with fines of up to 1,375,000 euros (Flemish Region)¹⁰ and 100,000 euros (Walloon Region) respectively.¹¹ Their *ratio legis* is in line with the traditional rationale for the introduction of administrative fining systems¹². A first motive of both legislators was the desire to arrive at a proportional punishment of breaches of environmental law, tailored to the nature, seriousness, extent and consequences of noncompliance with environmental law. A second motive was found in the overload of work of the public prosecutors’ offices and criminal courts, bringing a lack of capacity to prosecute and punish.¹³

The Brussels and Federal environmental legislators had already introduced similar legislation some time ago. They, too, deployed administrative fines as an alternative to criminal enforcement.¹⁴ The Brussels precedent, in particular, is interesting. Like the Flemish and

decree of the same date extended the scope of the new legislation, which initially only covered environmental health law, to include nature conservation law. Effective date of Title XVI Environmental Policy Act 1995/2009, original version: 1 May 2009 (Art. 43(1) Act of 21 December 2007 as implemented by Art. 93 of the Environmental Enforcement Decree). Effective date of Title XVI in version following amendment by the follow-up act of 30 April 2009: 25 June 2009 (Art. 147 Act of 30 April 2009 as implemented by Art. 51(1) of the amendment decree of 30 April 2009). An English version of this legislation can be found at <http://navigator.emis.vito.be/milnav-consult/consultatie;jsessionid=A5D88307342B895CD82B6322823D1EEB?language=en>.

Belgium is a federal state (Art. 1 Belgian Constitution). The country comprises three regions: the Flemish Region, the Walloon Region and the Brussels Region (Art. 3 Belgian Constitution). Environment is a predominantly regional policy area, although certain important aspects such as the setting of product standards and the protection of the population against ionizing radiation belong to the remit of the Federal State (Art. 6(1), II and III, Special Act of 8 August 1980 on institutional reform, as amended).

⁸ Act (Walloon Parliament) of 5 June 2008 on the detection, reporting, prosecution and punishment of environmental offences, and environmental remediation measures, amended by the Act of 30 April 2009; Decree 5 December 2008 inserting a Section VIII in the regulatory part of Volume I of the Environmental Code. Effective date of the new legislation: 6 February 2009 (Art. 17 Act as implemented by Article 12 of the decree).

⁹ Both acts also implemented an important extension and reinforcement of the range of administrative remedial sanctions, but remedial sanctions are only incidentally touched upon in the present paper.

¹⁰ Articles 16.4.25 and 16.4.27 of Title XVI Environmental Policy Act 1995/2009. The Act provides for an adjustment mechanism to allow for currency depreciation. The maximum fine of 250,000 euros must be increased with a multiplication factor (‘opdecieimen’) that applies to criminal fines. The current multiplication factor is 5.5, resulting in a maximum fine of 1,375,000 euros.

¹¹ Title VI *Administrative Fines*, Volume I, Environmental Code (Articles 160 – 169), in particular Art. D.160(2). Unlike the Flemish administrative fining system, the Walloon system does not provide for an increase of the administrative fines with the criminal fine multiplication factor.

¹² *Inter alia* J. PUT, “Rechtshandhaving door administratieve sancties in het recht”, *R.W.* 2001-02, (1195) no. 1, and the references contained therein to legislation, case-law of the Constitutional Court, and literature.

¹³ Draft Act supplementing the Act of 5 April 1995 concerning general provisions relating to environmental policy, with a Title ‘Supervision, enforcement and protective measures’, *Parl. St.*, Flemish Parliament, 2006-07, no. 1249/1, 9 and 18–19; Draft Act on the detection, reporting, prosecution and punishment of environmental offences, and environmental remediation measures, *Parl. St.*, Walloon Parliament, 2007-08, no. 771/1, 3 and 4.

¹⁴ Brussels Ordinance of 25 March 1999 on the detection, reporting, prosecution and punishment of environmental offences (hereinafter referred to as “Environmental Crime Ordinance 1999”) (effective date: 4 July 1999); Federal Act of 14 April 1994 on the protection of the population and the environment against the dangers arising from ionizing radiation and on the Federal Agency for Nuclear Control, as amended by the Act

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

Walloon administrative fining systems, it sets out to control environmental crime in general, with fines of up to 125,000 euros.¹⁵ It came to be applied almost immediately after it came into force on 4 July 1999 and has, over the years, resulted in a fairly large body of cases.¹⁶ Even though administrative decisions, unlike the case-law of the (higher) courts of law, are not published, the administrative fining practice in Brussels is well-known. Billiet (2008) offers an in-depth analysis of the administrative fining decisions in more than two hundred cases in which an appeal was lodged during the period 2001 – 2007.¹⁷ Following on from this research, a database was compiled in 2007-2008 comprising administrative case-law – both first instance and appeal – from the period 2004-2007,¹⁸ which, in turn, formed the basis for further research.¹⁹ The available information gives insight, *inter alia*, in the administrative evidence adduction and assessment.

At the European level, the *Eco-crime* Directive of 2008²⁰ made a move in the opposite direction. The Directive opts for the development of a core body of environmental criminal law to guarantee the criminal prosecution of the most serious offences in the area of environmental health and nature conservation.²¹ The European initiative is rooted in a substrate of national legislations which, taking law and practice together, predominantly opt for the administrative enforcement track for environmental crime, it being understood that this administrative enforcement track also provides for administrative punitive sanctions, more particularly administrative fining systems.²² It is justified by the observations that the current sanctioning systems in the Member States are inadequate and that effective protection of the

of 20 July 2005 (effective date: 3 February 2008 – Art. 14 Amendment Act, as implemented by the Royal Decree of 20 December 2007).

¹⁵ Articles 2, 32, 33, 41 and 42, Environmental Crime Ordinance 1999.

¹⁶ In the first five years that the Environmental Crime Ordinance 1999 was in force (1999-2004), more than 9,000 notices of violation were issued in the Brussels Region for breaches of environmental law. In only 85 cases did the Brussels public prosecutor’s office opt for criminal enforcement (criminal prosecution or a penal transaction). In thousands of cases, an administrative fining procedure was initiated, which in some 3,400 cases resulted in an administrative fine. See C.M. BILLIET, *Bestuurlijke sanctionering van milieurecht. Wetgeving en praktijk* (diss.), Antwerp – Oxford, Intersentia, 2008, 776 – 783 (“BILLIET (2008)”).

¹⁷ *Id.*, 751-836.

¹⁸ *Inter alia* C.M. BILLIET, S. ROUSSEAU, A. BALCAEN, R. MEEUS *et al.*, “Milieurechtshandhaving: een databestand voor onderzoek naar de penale en bestuurlijke sanctioneringspraktijk”, *Tijdschrift voor Milieurecht* 2009, 128 – 150.

¹⁹ List of publications: see www.environmental-lawforce.be, *sub* Output.

²⁰ Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law (*OJ L* 2008, no. 328 of 6 December 2008). See H.E. ZEITLER, “Happy end of a long saga – Agreement on the Directive for the protection of the environment through criminal law”, *J.E.E.P.L.* 2008, 281-291 and A. GOURITIN and P. DE HERT, “Directive 2008/99/EC of 19 November 2008 on the protection of the environment through criminal law: a new start for criminal law in the European Community?”, *E.L.N.I.* 2009, 22-27.

²¹ Art. 3 of the Directive.

²² *Inter alia* N.S.J. KOEMAN, *Environmental Law in Europe*, The Hague – London – Boston, Kluwer Law International, 1999, 659 p. See, recently and focusing on the enforcement of the legislation relating to industrial installations, MILIEU Ltd., *Overview of provisions on penalties relating to legislation on industrial installations in the Member States*, Brussels, Report prepared for the European Commission, DG Environment, under the Study Contract No. 070307/2010/569468/SER/C3, January 2011, 20 – 24, with some details on the administrative fining systems of not only Belgium but also Bulgaria, the Czech Republic, Estonia, Germany, Greece, Hungary, Latvia, Portugal, Slovakia, Spain and the United Kingdom.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

environment calls for criminal sanctions which, unlike administrative sanctions, are an expression of social disapproval and have a more dissuasive effect.²³

The common denominator in these developments, in Belgium and at the European level, is the organization of punishment – the *ius puniendi* or right to punish – in a two-track model, with a criminal and an administrative penalization track which together accomplish environmental law enforcement.

This two-track model is certain to become generally accepted throughout Europe in the short to medium term. Where it does not yet exist, it will most probably be set up, and where it has already been introduced, it will be consolidated and finalized. Theoretical law and economics research into law enforcement in general, and environmental law enforcement in particular, highlights the complementarity of the criminal and administrative enforcement tracks and makes a case for the use of both.²⁴ More policy-oriented and fact-based research also stresses this mutual complementarity and advocates the two-track model.²⁵

The reason why this development merits attention in the present paper is connected with the basic guarantee of the proper administration of justice as enshrined in Articles 6 and 7 ECHR and, additionally, Protocol No. 7²⁶ to the ECHR. As we know, the fundamental right to a proper administration of justice set forth in those articles falls into two packages: a package of minimum guarantees to be observed with regard to disputes concerning civil rights and obligations,²⁷ and a considerably larger package of guarantees that applies in criminal proceedings.²⁸ With the Oztürk judgment of 1984²⁹ and the case-law that has subsequently been developed on the basis of that judgment,³⁰ the European Court of Human Rights has brought administrative fining within the scope of the large package of legal guarantees that applies in criminal proceedings. It is worth mentioning that this equivalence also extends to administrative fining systems operating relatively low maximum fines.³¹ The large package of legal guarantees comprises, among other things, the presumption of innocence provided for in Article 6(2) ECHR, which has a substantial impact on the procedural and substantive aspects of evidence in lawsuits which the European Court of Human Rights classes as criminal cases. As a consequence of the case-law of the European Court of Human Rights, one fundamental set of requirements rules evidence in punitive sanctioning regardless of whether this evidence

²³ Preamble to the Directive, Recitals (2), (3) and (5).

²⁴ *Inter alia* R. BOWLES, M. FAURE and N. GAROUPA, “The scope of criminal law and criminal sanctions: an economic view and policy implications”, *Journal of Law and Society* 200: 35/3, 389 – 417.

²⁵ E.g. R. MACRORY, *Regulatory Justice: making sanctions effective*, 2006.

²⁶ Strasbourg, 22 November 1984; in force on 1 November 1988. Besides Norway and Switzerland, all EU Member States ratified this protocol as well, with the exception of Belgium, Germany, the Netherlands and the United Kingdom.

²⁷ Article 6(1) ECHR.

²⁸ Articles 6 and 7 ECHR and Articles 2-4 Protocol No. 7 to the ECHR.

²⁹ European Ct HR, *Oztürk vs. Federal Republic of Germany*, judgment of 21 February 1984, *ECR*, Series A, vol. 73.

³⁰ Fully established case-law for more than fifteen years. See, fairly recently, confirmation thereof in: European Ct HR (Grand Chamber), *Ezeh and Connors v. United Kingdom*, judgment of 9 October 2003, §§ 69 – 130; European Ct HR (Grand Chamber), *Jussila v. Finland*, judgment of 23 November 2006, §§ 29 – 38.

³¹ European Ct HR, *Schmautzer v. Austria*, judgment of 23 October 1995, §§6, 10 and 31; European Ct HR, *Lauko v. Slovakia*, judgment of 2 September 1998, §§ 12, 26 and 51; European Ct HR, *Kadubec v. Slovakia*, judgment of 2 September 1998, §§ 9, 22, 46 and 47.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

is used in the criminal or in the administrative enforcement track.³² The demands imposed on the use of satellite images as evidence in administrative fining procedures thus share a common denominator with the requirements that must be satisfied in a criminal court, a common denominator that is far more demanding than what applies in civil proceedings.

Coupled with the case-law of the European Court of Human Rights regarding the scope of application of the legal guarantees enshrined in the ECHR that are to be observed in punitive proceedings, the evolution of the *ius puniendi* in European countries to a two-track model brings with that, in the examination of the value of satellite images as evidence in environmental offences, at least as much attention should go to evidence in administrative proceedings as in criminal proceedings.

3. The Use of Evidence with a View to Punishment: Legal Theory

Evidence in punitive proceedings falls into two parts: proof of the offence, and proof of the accountability of one or more defendants for this offence. Without proper legal attribution to one or more identified perpetrators, proven facts cannot lead to punishment.

The discussion will now focus on (A) the requirements imposed by the ECHR on the use of evidence in punitive proceedings, (B) the legal theory underpinning the admissibility and assessment of evidence before the criminal court, and (C) the legal theory underpinning the admissibility and assessment of evidence before fining authorities and the administrative court.

A. Requirements Imposed by the ECHR on Evidence in Punitive Proceedings

The provisions of the ECHR that have an impact on the use of evidence in punitive proceedings can be found in Article 6 of the ECHR proper.³³ This article enshrines the following legal guarantees: the right to a fair hearing (Article 6(1) ECHR), including the right to remain silent and not to contribute to one’s own conviction (*nemo tenetur* principle) (Article 6(1) ECHR as explained by the European Court of Human Rights); the presumption of innocence (Article 6(2) ECHR) and the principle of a defended action enshrined in Article 6(3)(a,b,c) ECHR (*resp.* the right to be informed of the nature and cause of the accusation, the

³² When speaking about criminal proceedings as defined by the European Court of Human Rights in its interpretation of Articles 6 and 7 ECHR, thus including cases handled in the criminal as well as the administrative track, I will from now on use the words ‘punitive proceedings’.

³³ The *non bis in idem* principle enshrined in Article 4 of Protocol No. 7 to the ECHR is, in a certain way, also relevant to evidence in punitive proceedings. For the European Court of Human Rights, this prohibition of repeated trial and punishment applies in cases where trial and punishment in the criminal enforcement track are combined with trial and punishment in the administrative enforcement track. See BILLIET (2008), 193. The prohibition thus entails that a careless use of evidence in the criminal court cannot be rectified by a second trial before the administrative fining authority and vice versa.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

right to have adequate time and facilities for the preparation of one’s defence, and the right to defend oneself in person or through legal assistance). The most important guarantee for the purposes of our subject is the presumption of innocence: “*Everyone charged with a criminal offence shall be presumed innocent until proven guilty according to law.*”

In the case of *Barberà, Messegué and Jabardo v. Spain* (1988), the European Court of Human Rights defines the scope of the presumption of innocence:

(...) the principle of the presumption of innocence (...) requires, inter alia, that when carrying out their duties, the members of a court should not start with the preconceived idea that the accused has committed the offence charged; the burden of proof is on the prosecution, and any doubt should benefit the accused. It also follows that it is for the prosecution to inform the accused of the case that will be made against him, so that he may prepare and present his defence accordingly, and to adduce evidence sufficient to convict him.³⁴

The presumption of innocence imposes both procedural and substantive requirements. In the assessment of evidence, the basic assumption of the judicial authority responsible for the punitive proceedings should be that the accused did not commit the offences with which he has been charged. The burden of proof lies on the prosecution. Any doubt should benefit the accused.

In Belgium, as elsewhere in Europe, evidence and its adduction must satisfy those basic requirements in all punitive proceedings, in both the criminal and the administrative track, with regard to proof of the offence as well as proof of the liability for this offence. This also extends to punitive proceedings in which satellite images are used as evidence. It should be noted that the presumption of innocence entails that punitive proceedings systematically tend to produce false negatives (*vs.* false positives): a guilty party is more likely to be acquitted than an innocent party is to be convicted. Imperfect information of the court – about what happened, who exactly did what, etc – is part of everyday reality in the administration of justice.

B. Admissibility and Assessment of Evidence Before the Criminal Court

Background

The system of proof that applies in criminal proceedings in Belgium is a free system of proof. In principle, proof may be furnished by any means. And in principle, the assessment

³⁴ European Ct HR, *Barberà, Messegué and Jabardo v. Spain*, judgment of 6 December 1988, *ECR*, Series A vol. 147, §77. The definition was confirmed in subsequent case-law – European Ct HR, *Janosevic v. Sweden*, judgment of 23 July 2002, §97. In detail: *inter alia* P. DE HERT, “Art. 6(2) ECHR”, in J. VANDE LANOTTE and Y. HAECK (eds.), *Handboek EVRM*, Part 2, *Artikelsgewijze commentaar* – vol. 2, Antwerp – Oxford, Intersentia, 2004, 519 – 561, in particular nos. 279 – 281.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

of evidence is also left to the sovereign discretion of the criminal court.³⁵ Thus, satellite images are, in principle, admissible as evidence, and it is left to the criminal court to assess the probative value of such evidence in each specific case.

Before examining in more detail how proof of facts and authorship is adduced and assessed, we should briefly touch on the categories of persons who, under Belgian criminal law, can stand trial and be convicted in criminal proceedings. This issue is unquestionably relevant to the potential value of satellite images in the courtroom.

Environmental crime is often committed in a corporate setting. In Belgium, it is only since 1999 that legal persons can be brought before the criminal court.³⁶ Even today, however, criminal law continues to make an important exception for public-law legal persons. So, for instance, the Federal State, the Regions and the Provinces cannot as such be prosecuted before the criminal court.³⁷

The circle of persons who can be held accountable for an offence as its perpetrator, is broadly defined. Not only can the actual perpetrators of offences – persons who satisfy all the constitutive elements of the offence – be prosecuted as a perpetrator. Three other categories of persons can be prosecuted and convicted as perpetrators as well, namely persons who cooperated in the perpetration of the offence (co-perpetrators), persons who have given such aid that the offence could not have been committed without them, and persons who abetted the offence, i.e. through donations, promises, threats, abuse of authority or power.³⁸ Besides these four categories of perpetrators, accessories can be prosecuted as well. The legal definition of an accessory includes persons who have given instructions to commit the offence, or persons who have supplied tools or any other means used to commit the offence, knowing that they would be used for that purpose³⁹.

A study of prosecution practices in environmental crime reveals that public prosecutors avoid prosecuting suspects as accessories, preferring to prosecute them as perpetrators because this approach can result in more severe punishment. Prosecution of perpetrators belonging to the categories of the co-perpetrators and of the providers of essential assistance is commonly used in practice, in particular in the prosecution of corporate crime, in order to bring the legal person as well as one or several responsible natural persons before the court.⁴⁰ It is therefore interesting to observe that the Eco-crime Directive, too, calls for a broad definition of the group of persons liable for prosecution, which includes those who incite, aid and abet.⁴¹

Admissibility of Evidence

³⁵ *Inter alia*, C. VAN DEN WYNGAERT, *Strafrecht en strafprocesrecht in hoofdlijnen*, Antwerp – Apeldoorn, Maklu, 2009, 1206 (“VAN DEN WYNGAERT (2009)”).

³⁶ Federal Act of 4 May 1999 introducing the criminal liability of legal persons, entry into force on 2 July 1999.

³⁷ Art. 5, fourth paragraph, Criminal Code. The Eco-Crime Directive makes a similar exception for “*States themselves or public bodies in the exercise of State authority*” (Articles 2(d) and 7 of the Directive, read jointly).

³⁸ Art. 66, Criminal Code.

³⁹ Art. 67, Criminal Code.

⁴⁰ *Inter alia*, J. DE CLERCQ, Deputy Attorney-General at the Court of Appeal in Ghent, interview of 14 December 2007.

⁴¹ Art. 4, Eco-crime Directive.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

In keeping with the presumption of innocence provided in Article 6(2) ECHR, the burden of proof rests with the prosecution. As previously stated, the prosecutor can furnish proof of the offence and of its imputation by any possible means.⁴² To this principle, there is only one exception that is relevant to this general practice⁴³: the exclusion rule regarding unlawfully obtained evidence. *Inter alia* the following elements qualify as evidence: information from the case file, evidence produced in court, case-law and statutory presumptions, and facts of well-established general notoriety.⁴⁴

Evidence may have been unlawfully obtained for a variety of reasons. Evidence obtained by committing an offence is, of course, obtained unlawfully. Unlawfully obtained evidence may also include evidence that was gathered by violating the right to respect for private and family life as enshrined in Article 8 ECHR.⁴⁵ The position in criminal law with regard to unlawfully obtained evidence merits special attention here because of the possibility that the prohibition of proactive investigation or the privacy law might be breached in the process of collecting and processing satellite images for prosecution purposes.

The classic response in criminal law to unlawfully obtained evidence consists of a procedural sanction: the exclusion of the evidence. Until fairly recently, Belgian criminal law operated a very strict exclusion rule. Any irregularity in the gathering of evidence led to the exclusion of the unlawfully obtained evidence. That kind of evidence was completely inadmissible. The criminal court was not permitted to rely on it in the finding of fact nor to settle the question of the imputation of proven facts. Not only was the primary evidence arising from the original irregularity inadmissible, but the secondary evidence as well (*Fruit of the poisonous tree doctrine*)⁴⁶. In a judgment of 14 October 2003, the so-called *Antigoon* judgment, the Court of Cassation (Supreme Court) put an end to this case-law.⁴⁷ The turnabout in the case-law has become established.⁴⁸ Today, there are only three hypotheses where unlawfully obtained evidence must be kept out of the proceedings and argument: the evidence is unlawful due to non-compliance with formal rules prescribed by law on pain of nullity; the unlawful act has impaired the reliability of the evidence; or the evidence is used in breach of the right to a fair

⁴² Cf.: in Denmark the prosecution of illegal oil discharges in the sea is only possible if based on the analysis results of a sample of the polluted water which proves that it is indeed a case of oil discharge. – EMSA (EUROPEAN MARITIME SAFETY AGENCY), *Enhancing the effectiveness of the law enforcement chain in combating illegal discharges*, Lisbon, Workshop 15-16 February 2011, Draft workshop report, 12. See also below, *sub III.A*.

⁴³ VAN DEN WYNGAERT (2009), 1209 – 1210 and 1212 et seq. The only other exception to the principle that proof may be furnished by every possible means concerns a small number of cases where the law expressly prohibits the use of certain specified information as evidence in a criminal court. Examples of such applications exist in the sphere of the protection of minors. *Id.*, 1209 – 1210.

⁴⁴ *Id.*, 1210-1212.

⁴⁵ *Id.*, 1215-1216.

⁴⁶ VAN DEN WYNGAERT (2009), 1221-1222.

⁴⁷ Cass. 14 October 2003, no. P.03.0762.N, *Rechtskundig Weekblad* 2003-04, 814, concl. Advocate-General M. DE SWAEF.

⁴⁸ See mainly: Cass. 23 March 2004, no. P.04.0012.N, *Rechtspraak Antwerpen, Brussel en Gent* 2004, 1061, note F. SCHUERMANS; Cass. 9 June 2004, no. P.04.0603.F, *Rechtspraak Antwerpen, Brussel en Gent* 2005, 1174; Cass. 16 November 2004, no. P.04.0644.N, *Tijdschrift voor Strafrecht* 2005, 285, with concl. Advocate-General P. DUINSLAEGER; Cass. 2 March 2005, no. P.04.1644.F; Cass. 12 October 2005, no. P.05.019.F; Cass. 8 November 2005, no. P.05.1106.N; Cass. 15 November 2005, no. P.05.1275.N.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

trial.⁴⁹ The third hypothesis merits closer attention. The Court of Cassation has formulated some criteria that the criminal courts may employ to judge whether the unlawfulness of the obtaining of evidence infringes on the right to a fair trial. One such criterion concerns the question of whether the authority charged with the detection, investigation and prosecution of the offence committed the unlawful act intentionally. Evidence that was wittingly unlawfully obtained must be excluded from the proceedings. After all, the new case-law cannot serve as a free licence to set aside even fundamental rules of criminal procedure.⁵⁰

With the present rules of evidence exclusion, Belgian criminal law has adopted a position that is far more in line with the evidence exclusion rules in most neighbouring countries.⁵¹ The new approach entails, for instance, that breaches of privacy law during the collection and processing of satellite images for prosecution purposes no longer, as a rule, will lead to the exclusion of the images as evidence. This will be discussed later in this chapter.

Assessment of Evidence

The assessment of evidence is a matter that is left to the sovereign discretion of the criminal court. It is up to the discretion of the judge to determine whether, given the evidence, there has been a breach of law and, if so, whether this breach of law is imputable to the accused charged with it. The judge does not have to give reasons for his decision on these points, or justify on which evidence his decision is based, although obviously he cannot deny the probative value of the evidence.

There are a limited number of exceptions to the principle of discretionary assessment of evidence where the legislator specifies the probative value of certain forms of evidence. One of those exceptions is quite significant in the process of proving environmental crimes: it concerns the probative value of notices of violation.

A notice of violation drawn up by a competent public servant is an official document which aims at providing evidence in criminal proceedings.⁵² Notices of violation constitute the basis for virtually any criminal court case file.⁵³ The vast majority of public prosecution case files are opened with the receipt by the public prosecutor’s office of a notice of violation, drawn up by the federal or local police, or by a public servant who has been appointed as an inspector with reporting powers under specific legislation, for instance environmental law.⁵⁴ In the further elaboration of the case file, too, notices of violation are an important means of

⁴⁹ VAN DEN WYNGAERT (2009), 1126 – 1234; F. DERUYCK, “Wat krom is wordt recht. Over de bruikbaarheid van onrechtmatig verkregen bewijs”, in XXXIIe POSTUNIVERSITAIRE CYCLUS WILLY DELVA 2005-2006, *Strafrecht en strafprocesrecht*, Wolters Kluwer Belgium, 2006, 201 – 231.

⁵⁰ F. DERUYCK, *o.c.*, 218.

⁵¹ VAN DEN WYNGAERT (2009), 1225.

⁵² *Inter alia* M. BOCKSTAELE, *Processen-verbaal*, Antwerp – Apeldoorn, Maklu, 2005, 15 – 20.

⁵³ *Id.*, 15.

⁵⁴ The reporting of offences and the transmission of the notices of violation to the public prosecutors’ offices is underpinned by the existence of an official obligation for public servants to report crimes and offences (Article 29, Criminal Procedure Code). The only other instance of practical relevance where a case is opened is a complaint (filed with the public prosecutor or the investigation judge).

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

communication for the transmission of information.⁵⁵ It is therefore no exaggeration to say that the notice of violation constitutes the cornerstone of criminal procedure.

A notice of violation usually has the probative value of simple information, which the criminal court evaluates at its own discretion. However, the legislator can also assign special probative value to notices of violation. Where the Belgian environmental legislators organize special inspections in various environmental acts and decrees, with their own inspectors with reporting powers, they have for decades almost consistently opted to assign probative value until proof to the contrary is provided to notices of violation issued by those inspectors.⁵⁶ If a notice of violation has probative value until proof to the contrary, the criminal court must in principle accept the findings of the author of the notice as true. It can only dismiss them or contradict them if proof to the contrary has indeed been provided.⁵⁷ It should be noted, however, that the special probative value is limited to what the reporting official has personally established (seen, heard, smelt, etc), and does not cover what he deduces from his findings.⁵⁸ Proof to the contrary may be provided by all means, even presumptions based on other elements in the case file.⁵⁹

Where satellite images require additional findings on the spot, and the notices of violation drawn up by the reporting official have probative value until proof to the contrary, the special probative value of notices of violation usually means that the satellite images that gave rise to the ground inspection eventually move to the periphery of the body of evidence. They virtually cease to play a role in the proof of the facts.⁶⁰ This will be discussed in more detail below.

C. Admissibility and Assessment of Evidence Before the Fining Authority and the Administrative Court

Background

As far as proof of the facts and of their imputation is concerned, it should be emphasized that administrative fining throughout Europe must indeed respect the legal guarantees in punitive proceedings as enshrined in Articles 6 and 7 ECHR and Protocol No. 7

⁵⁵ So-called ‘subsequent notices of violation’ (as opposed to ‘initial notices of violation’).

M. BOCKSTAELE, *o.c.*, 19.

⁵⁶ *Inter alia* BILLIET (2008), 101-102.

⁵⁷ M. BOCKSTAELE, *o.c.*, 171; R. DECLERCQ, *Beginselen van strafrechtspleging*, Antwerp, Kluwer Rechtswetenschappen Belgium, 1999, 582; VAN DEN WYNGAERT (2009), 1237.

⁵⁸ M. BOCKSTAELE, *o.c.*, 171 – 172; R. DECLERCQ, *o.c.*, 584 – 585. For example, if a notice of violation says that the water which the reporting official saw flowing in the brook at a certain place and at a certain time had yellowish foam floating on it and smelt of rotten eggs, these facts are truths which, subject to proof to the contrary, can serve as a working basis for the public prosecution and the criminal court trying the case. If, moreover, the notice of violation states that the pollution must have been caused by a particular factory situated one kilometre upstream from the spot where the facts were established, this is an expression of the opinion of the reporting official which does not have special probative value but merely serves as information.

⁵⁹ R. DECLERCQ, *o.c.*, 586 – 587; VAN DEN WYNGAERT (2009), 1238.

⁶⁰ This is also, though to a lesser degree, the case when the notice of violation has the probative value of simple information. Findings by public officials in any case enjoy a certain degree of credibility and constitute a form of proof with which the criminal courts are highly familiar.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

to the ECHR, such as the presumption of innocence stipulated in Article 6(2) ECHR.⁶¹ The basic assumption of the official with fining powers in the assessment of each case must therefore be that the person concerned did *not* commit the offences he has been charged with. The burden of furnishing proof to the contrary lies with the public administration. The presumption of innocence also implies that the suspect has the benefit of the doubt.⁶² These guarantees must also be respected by the court that hears an appeal against an administrative fining decision.⁶³

Before considering the admissibility and assessment of evidence in administrative fining, the categories of persons who can be penalized should be examined. Not much attention is given to this issue in literature, but criminal and administrative penalization do not necessarily target the same categories of persons. In Belgium, for instance, administrative fining traditionally extends partially further and partially less far than criminal penalization in this regard. It reaches further with regard to legal persons because inflicting administrative fines to legal persons, including public-law legal persons, has always been possible, and without restriction.⁶⁴ On the other hand, the administrative fining systems that have been created in recent decades throughout the different branches of law generally fail to pay even the slightest regard to a broad definition of the concept of perpetrator. As a result, administrative fining, as a rule, exclusively targets the perpetrators in the strictest sense of offences; unless criminal penalization, it doesn’t extend to, among others, co-perpetrators or providers of essential assistance. Accessories are entirely absent in the picture. Both this relative strength and weakness also exist in the administrative fining systems that penalize

⁶¹ Remember: all EU countries as well as Norway and Switzerland acceded to the ECHR (see note 6 above) and also ratified Protocol No. 7 to the ECHR, with the exception of Belgium, Germany, the Netherlands and the United Kingdom (see note 26 above).

⁶² See above, II.A.

⁶³ Strictly speaking, the ECHR as interpreted by the European Court of Human Rights does not oblige the fining authorities to respect the legal guarantees in punitive proceedings as enshrined in Articles 6 and 7 ECHR and Protocol No. 7 to the ECHR. What the ECHR does require is that the person who was punished under an administrative fining procedure would be guaranteed access to a judicial authority offering all the guarantees that should exist in punitive proceedings. The European Court of Human Rights already emphasized this in the judgment in the case of *Oztürk v. Federal Republic of Germany* (1984), its basic judgment on the subject of the legal guarantees that must surround administrative fining: “*It in no way follows from <the fact that Article 6 §3 is applicable>, the Court would want to make clear, that the very system adopted in the matter by the German legislature is being put into question. Having regard to the large number of minor offences (...) a Contracting State may have good cause for relieving its courts of the task of their prosecution and punishment. Conferring the prosecution and punishment of minor offences on administrative authorities is not inconsistent with the Convention provided that the person concerned is enabled to take any decision thus made against him before a tribunal that does offer the guarantees of Article 6 (...)*” – Eur. Ct. HR, *Oztürk v. Federal Republic of Germany*, judgment of 21 February 1984, *l.c.*, §56. However, insofar the guarantees enshrined in the ECHR constitute a yardstick against which the judicial authorities judge the legality of administrative fining decisions, these guarantees inevitably trickle down to the administrative level. Where the administrative authority knows that its fining decisions will be tested against, *inter alia*, the principle of the presumption of innocence, it will incorporate this presumption in its decision-making.

⁶⁴ See for instance already H.D. BOSLY, *Les sanctions en droit pénal belge*, Ghent, Story-Scientia, 1979, 287 – 288; H. COREMANS, “De administratieve sanctie: naar een omlijning van het begrip”, *Rechtskundig Weekblad* 1964-65, (753) 760.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

breaches of environmental law.⁶⁵ An example of how things can be done differently is given by Dutch administrative law, where the common-law legislation on administrative fining envisages both the perpetrators and co-perpetrators as being accountable for offences.⁶⁶

As was pointed out earlier, administrative fines in Belgium have, in the last few decades, become widespread among the various branches of law, resulting in a plethora of administrative fining systems. Neither the administrative fining systems that exist in environmental law, nor common-law administrative law, provide for any restriction in the types of evidence that are admissible as proof in the prosecution of offences with a view to fining. Moreover, they do not contain any rules that determine the probative value of evidence. Consequently, the basic principles of proof with a view to administrative fining are the same as in the criminal enforcement track: in principle, proof may be furnished by all means, and the fining authority and the administrative court can, in principle, assess the probative value of the evidence at their own discretion. Satellite images can therefore also play a part here as evidence.

Admissibility and Assessment of Evidence

The rules that govern the gathering and evaluation of evidence in the administrative enforcement track belong to conventional administrative law, a branch of law which has the proper administration of a variety of public tasks and services as its core business, and not, unless criminal law, punishment. Two crucial principles of administrative law are, on the one hand, the principle of due care coupled with the requirement to state the reasons for a decision and, on the other hand, the constitutionally enshrined administrative legality principle which provides that the administrative authority can only act within the limits of the powers that have been assigned to it.

Due care⁶⁷ in the preparation of administrative decisions in general requires, as emerges from the case-law of the Council of State, a proper establishment and assessment of the facts that

⁶⁵ See the administrative fining systems implemented by the Brussels Environmental Enforcement Ordinance 1999 (see note 14 above), the Flemish Environmental Enforcement Decree of 21 December 2007 (see note 7 above) and the Walloon Environmental Enforcement Decree of 2008 (see note 8 above).

⁶⁶ Art. 5:01, second paragraph, Fourth Instalment of the General Administrative Law Act; Supplement to the General Administrative Law Act (Fourth Instalment of the General Administrative Law Act) – Explanatory Memorandum, *Parl. St.* (The Netherlands), Second Chamber, 2003-04, no. 29.702/2, 78-81. The Dutch General Administrative Law Act codifies Dutch administrative law. This Act is a so-called ‘instalment law’: it is elaborated by instalments. The Fourth Instalment, the most recent and, so far, final part of the Act comprises a section which codifies administrative fining in a general manner and entered into force on 1 July 2009 (Decree of 25 June 2009 setting the date of entry into force of the Fourth Instalment of the General Administrative Law Act and the Amendment Act to the Fourth Instalment of the General Administrative Law Act, *Staatsblad* 2009, 26).

⁶⁷ The literature on administrative law refers extensively to the link between the principle of due care and the general obligation of due care, a cornerstone of private and public law which also forms the basis of government liability in the event of inadequate monitoring and sanctioning. See recently K. LEUS, “Het zorgvuldigheidsbeginsel”, in I. OPDEBEEK and M. VAN DAMME (eds.), *Beginselen van behoorlijk bestuur*, Bruges, die Keure, 2006, 99 – 129. This close interconnection does not prevent the principle of due care from having its own interpretation as a principle of good government. The traditional analysis, which goes back to an authoritative publication by LAMBRECHTS in 1993, imposes requirements on the administrative authority at

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

make up the case.⁶⁸ The basic requirement of proper fact-finding obviously implies real fact-finding; reliance on allegations, presumptions and unverified statements is out of the question. The facts must be correct and consistent with reality. Reliance on what happens routinely is out of the question too. The facts being gathered must also be complete, leaving no room for vagueness and margins of inaccuracy. The requirement of a proper assessment of the facts means that where a decision-maker is insufficiently skilled to verify the correctness of the information contained in the case file, to understand this information and to evaluate it correctly, he must seek expert advice, even in the absence of a legal obligation to do so. The necessity of seeking expert advice may concern complex technical information as well as more accessible information in a field in which other persons have special expertise. In that respect, an active obligation of investigation rests with the administrative authority: it must do what is necessary of its own accord. Contact with the citizen concerned, for instance as part of observing the obligation to grant a hearing, can help a proper finding and assessment of facts.⁶⁹

Where the possibility of administrative punishment is at stake, the requirement of a careful establishment and assessment of the facts constitutes the cornerstone of proper proof. Such careful establishment and assessment should emerge from the grounds stated for the decision. Belgian administrative law provides for a formal requirement to state the reasons for a decision in administrative decisions of an individual nature, such as administrative fining decisions.⁷⁰ This requirement is more stringent with respect to onerous (vs. favourable) decisions, such as – again – fining decisions.⁷¹ The requirement to state reasons also extends to the substantive aspect: the grounds of a decision must be solid.⁷² In conjunction with the requirement to state the reasons for a decision, the requirement of a careful establishment and assessment of the facts constitutes the basic guarantee of proper proof. The effectiveness of this basic guarantee is underpinned by the administrative legality principle which provides that the administrative authority can only act within the limits of the powers that have been assigned to it.⁷³ Since the administrative fining systems make the administrative fining powers conditional upon the existence of an offence and limit those powers to the imposition of a

three stages in the handling of a case: the preparation of a decision, the decision-making in the strict sense, and the implementation of a decision. – W. LAMBRECHTS, “Het zorgvuldigheidsbeginsel”, in I. OPDEBEEK (ed.), *Algemene beginselen van behoorlijk bestuur*, Antwerp, Kluwer Rechtswetenschappen Belgium, 1993, 27 – 50, in particular no. 7, followed by nos. 8 – 22. See in the same sense: C. BERX, *Rechtsbescherming van de burger tegen de overheid* (diss.), Antwerp – Groningen, Intersentia, 2000, nos. 698 – 713; K. LEUS, *l.c.*, nos. 155 – 162.

⁶⁸ See also L.P. SUETENS, “Algemene beginselen van behoorlijk bestuur in de rechtspraak van de Raad van State”, *T.B.P.* 1981, (81) no. 20.

⁶⁹ W. LAMBRECHTS, *l.c.*, nos. 8 – 9, C. BERX, *o.c.*, nos. 701 – 703, K. LEUS, *l.c.*, 156 – 160, A. MAST, J. DUJARDIN, M. VAN DAMME and J. VANDE LANOTTE, *Overzicht van het Belgisch Administratief Recht*, Mechelen, Wolters Kluwer Belgium, 2006, 56 – 57, and all case-law cited there. On the existence of a legal obligation to seek advice purely on the basis of the principle of due care: S. DENYS, *Advisering in het bestuursrecht door publiekrechtelijke organen, o.c.*, nos. 73 – 75.

⁷⁰ Act of 29 July 1991 on the express statement of the grounds of administrative acts, entry into force on 1 January 1992 (Articles 2 and 7 of the Act).

⁷¹ BILLIET (2008), 273. The relatively stricter requirements to state the reasons for onerous decisions are rooted in the requirement that the grounds of a decision must be proportional to the impact of the administrative decision on the citizen. – *Id.*, 272 – 273.

⁷² It is clear from the case-law that the requirement that the grounds of a decision must be solid implies that they must be “clear, consistent, correct, relevant, specific, precise and complete”. – I. OPDEBEEK and A. COOLSAET, *Formele motivering van bestuurshandelingen*, Bruges, die Keure, 1999, 150 – 161.

⁷³ Art. 105 of the Constitution (federal government); Art. 78 of the Special Act on Institutional Reform (government of the federated entities).

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

penalty on the perpetrator of the offence,⁷⁴ any imposition of a fine without proof of the offence and the accountability of the accused constitutes an exceeding of authority that irrevocably renders the fining decision unlawful.

Partly in view of the administrative legality principle, it should come as no surprise that the principle that the accused should have the benefit of the doubt was fairly readily adopted in administrative fining practice and in the relevant administrative case-law. For example, the Brussels Environmental Appeal Body, which is the appeal body in the administrative fining system in pursuance of the Environmental Crime Ordinance 1999, has on several occasions acquitted an accused because it considered that there was doubt about his or her accountability for the offence.⁷⁵ The Environmental Enforcement Court of Flanders, the administrative court which is the relevant appeal body in the Flemish regional administrative fining system, also found in one of its first judgments that “*the measurement reports that were submitted ... at least give rise to serious doubts about the existence of the environmental offence, which should be construed in favour of the appellant.*”⁷⁶

Belgian administrative case-law and doctrine contain no tenet on the admissibility of unlawfully obtained evidence in administrative penalization procedures. The Dutch legal doctrine came to a similar conclusion for Dutch administrative law⁷⁷ and suggests that, on this issue, administrative case-law should draw the same lines as criminal law and should apply similar exclusionary rules.⁷⁸ This is a reasonable point of view. Insofar as an irregularity involves a violation of the ECHR, for instance information obtained by breaching the right to remain silent as enshrined in Article 6(1) ECHR,⁷⁹ employing similar exclusionary rules would be the obvious option.

As regards notices of violation having probative value until proof to the contrary, administrative practice and administrative case-law take it for granted that their special probative value is not restricted to evidence in a criminal court, but also applies in full in proceedings before an administrative authority and in an administrative court.⁸⁰ In administrative penalization, too, satellite images therefore will be marginalized as evidence whenever the establishment of the facts eventually necessitated an on-site visit by an environmental inspector.

⁷⁴ See above, C. Background

⁷⁵ BILLIET (2008), no. 743.

⁷⁶ Environmental Enforcement Court of Flanders, 17 February 2011, judgment 11/2-VK, *sub* 5.4.

⁷⁷ F.C.MA. MICHIELS and B.W.N. DE WAARD, *Rechterlijke toetsing van bestuurlijke punitieve sancties*, Research report commissioned by the Administrative Jurisdiction Division of the Council of State, University of Tilburg, June 2007, unpublished, 83 – 87.

⁷⁸ *Id.*, with reference to the doctoral dissertation of Embregts, who upholds this position: M.C.D. EMBREGTS, *Uitsluiting over bewijsuitsluiting. Een onderzoek naar de toelaatbaarheid van onrechtmatig verkregen bewijs in het strafrecht, het civiele recht en het bestuursrecht* (diss.), Deventer, Kluwer, 2003.

⁷⁹ Basic judgment: Eur. Ct. HR, *Funke v. France*, judgment of 25 February 1993, ECR, Series A vol. 256-A, §44.

⁸⁰ See for example Environmental Enforcement Court of Flanders, 30 September 2010, judgment 10/1-VK, *sub* 4.3.3 (to the contrary); Environmental Enforcement Court of Flanders, 17 February 2011, judgment 11/2-VK, *sub* 5.4.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

4. The Use of Satellite Images in Environmental Law Enforcement: Actual and Potential Use in the Courtroom

Now that the legal theory background on the admissibility and assessment of evidence has become clear, as far as both criminal and administrative procedure are concerned, and now that we have a general idea of the possibility of using satellite images as evidence for environmental offences within the present system, we must refer back to the practice of environmental law enforcement. There are several points to make here. First, it seems like a good idea to examine more closely the potential of satellite images as evidence for environmental crime (A). We will next discuss the rules on proactive investigation and the Belgian privacy law. What is their impact on the use of satellite images in environmental law enforcement? Do they entail the risk of satellite images being excluded as evidence? (B) Finally, we also briefly touch on the questions to which the court requires an answer with a view to the assessment of satellite images as evidence (C).

A. Satellite Images as Evidence: Current State of Affairs and Potential

Current State of Affairs

So far, the only situation where satellite images are used in the enforcement of Belgian federal and regional environmental law is, as was already pointed out, the protection of the strip of North Sea that falls under Belgian jurisdiction against pollution by spills from ships. The satellite images in question are made available free of charge by the CleanSeaNet programme managed by the European Maritime Safety Agency (EMSA) in Lisbon.⁸¹ Outside the field of environmental policy, there is one other application of satellite images which has existed in Belgium for some ten years now and which merits attention here: the use of such images to monitor the lawful use of European farming subsidies. This application may point to the future use of satellite images to monitor compliance with nature conservation law, in particular the protection of natural habitats, small yet important landscape elements, and vegetation.

Although the use of satellites in the surveillance of the Belgian North Sea began in 2005,⁸² not a single prosecution has yet been based on satellite images.⁸³ The images do not on their own suffice for prosecution purposes. An important reason for this lies in the fact that they do not establish clearly the unlawful acts they wish to document, primarily because they do not make a clear distinction between natural phenomena and discharges of pollutants. Many potential cases of pollution that are discovered by satellites turn out to be a false alarm.

⁸¹ T. JACQUES, BMMN (Beheerseenheid Mathematische Modellen van de Noordzee), 19 November 2008, email message to the author. *See also* EMSA, *o.c.*

⁸² T. JACQUES, BMMN, 24 November 2008, email message to the author; R. SCHALLIER, BMMN, 16 May 2011, email message to the author.

⁸³ *Id.* *See also* F. MAES & S. MOENS, *The use of Earth observation data in criminal proceedings in Belgium*, 2010, Report, *unpublished*, 6.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

When a first analysis shows that the signal might point to a discharge, other means are deployed. Verification is done by means of an aerial surveillance flight or by a thorough MARPOL investigation on board the suspected vessel in the next port of call.⁸⁴ The facts that are established on that occasion lead to a conventional notice of violation if a particular vessel can be connected to an illegal spill. So far, such connection has only been achieved in a small number of cases.⁸⁵ Since it is not yet possible to identify the vessels responsible for a spill on the satellite images themselves – a vessel only appears as a white dot on the images – an automatic linkage of the images to the Automatic Identification System (AIS) with which most large vessels must now be equipped⁸⁶ has been developed. Nevertheless, even with this procedure, identification remains a technically complex matter. The satellite images showing the position of the vessel at a given moment have to be linked to the AIS data.⁸⁷ Only if a notice of violation is drawn up and Belgium has jurisdiction⁸⁸ can the reported facts lead to the opening of a case by the competent national public prosecutor’s office, and result in prosecution and a trial if the prosecuting officer considers it appropriate to do so.⁸⁹ It seems probable, however, that if the trial leads to a conviction, a rather heavy penalty would be imposed “*because of the difficulty of catching the perpetrator.*”⁹⁰

Where in the current state of affairs, outlined above, satellite images only serve to instigate a conventional inspection visit, they play no further part in the handling of the case. Any

⁸⁴ T. JACQUES, BMMN, 24 November 2008, *l.c.*; R. SCHALLIER, *l.c.* The draft report of the recent EMSA workshop clarifies the difficulties: “*Spills weather out rapidly; the conformation rate therefore decreases with the delay between satellite detection and verification*”, but “*when possible spills are checked on site by aircraft less than 3 hours after satellite image acquisition, the confirmation rate is close to 50%*”; nevertheless, “*CleanSeaNet does not detect ‘oil spills’ but ‘possible oil spills’. Confirming the nature of the product (the product is not necessarily a polluting substance in the meaning of <the law>, and if it is a polluting substance, its discharge might be legal under some circumstances) requires collecting additional information on site and/or in port.*” – EMSA, *o.c.*, 7.

⁸⁵ During the period 1991-2010, in only 5 to 6% of instances of seawater pollution detected by aerial surveillance flights was it possible to link a particular vessel to seawater pollution. In the majority of cases, not a single vessel was to be seen anywhere near, and all the BMMN officers could find was a spill with no trace of the perpetrator. *Questions and Answers*, House of Representatives 2010-2011, 4 April 2011, (74) 76-77 (Question No. 89 WOLLANTS).

⁸⁶ T. JACQUES, BMMN, 24 November 2008, *l.c.*

In the course of time, more specifically at the end of 2010, beginning of 2011, CleanSeaNet also supplied AIS data of vessels besides satellite images. Since a new version of CleanSeaNet was launched in February 2011, the AIS data are, for the time being, no longer integrated in the system. This problem is expected to be resolved soon, however. – R. SCHALLIER, *l.c.*

⁸⁷ *Id.* See also EMSA, *o.c.*, 19: “*Even if only one vessel is identified in the general area of the spill, it can rarely be proven that there were no other vessels in the vicinity.*”

⁸⁸ Sometimes the findings turn out to concern offences that fall under the jurisdiction of a neighbouring coastal state since they were committed in the territorial waters of that coastal state. – *Questions and Answers*, House of Representatives 2010-2011, *l.c.*, 76. It also happens that the Flag State exercises its privilege to institute proceedings in pursuance of Article 228 UNCLOS. – EMSA, *o.c.*, 8.

⁸⁹ The public prosecutor prosecutes in only a small number of cases. Figures for the number of environmental crime cases handled by the public prosecution over the period 1993 – 2009 show that prosecution takes place in just 5 to 12% of cases. During that same period, an out-of-court settlement (payment of a settlement amount without the case being heard in court) was proposed in 10 to 18% of cases. 45 to 55% of cases were dropped, roughly one half of which on grounds of the technical impossibility of prosecution (e.g. no identified perpetrator) and the other half for reasons of expediency (e.g. regularization). See, *inter alia*, *Questions and Answers*, Senate 2003-04, 2 December 2003 (328) 331 – 332 (Question No. 3-243 H. VANDENBERGHE) and, most recently, the provisional figures for 2009 of the Flemish High Council for Environmental Law Enforcement (VHRM) in VHRM, *Milieuhandhavingsrapport 2009*, Brussels, 120.

⁹⁰ *Questions and Answers*, House of Representatives 2010-2011, 4 April 2011, *l.c.*, 77.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

prosecution and trial are based on the documents that are conventionally used, in particular the notice of violation, and more specifically the facts that have been established by the reporting official and have been recorded by him in that document. In this context, no specific question arises as to the admissibility of the use of satellite images to prove the facts and impute them to a given suspect. The images are valuable as a first alert, but nothing more⁹¹.

A similar scenario occurs with the use of satellite images to monitor the lawful use of European farming subsidies. Here, too, experience has shown that the images as such do not suffice. Where images alert investigators to a suspected incident of fraud after photographic interpretation, a cursory conventional inspection is carried out by an inspector. If any doubt still remains as to the legality of the situation, a thorough conventional inspection is carried out which may result in a notice of violation and consequently in prosecution and a trial.⁹² Here, too, satellite images are excluded from the actual proceedings in court.

Reasonably it is to be expected that further developments in the technology and the corresponding implementation procedures, will give satellite images growing chances to evolve from a use as a first alert to serving as actual evidence. A point to stress, however, is that the usefulness of those images as purely a first alert, a usefulness that they most probably will continue to have to an ample degree, should not be dismissed. This use increases the chance of catching the perpetrator and may on that account have a powerful deterrent effect.⁹³ Ultimately, the potential of the images as a first alert nonetheless puts into perspective, and somehow mitigates, the practical relevance of the issue that constitutes the subject of this paper: the use of the images as evidence in the courtroom with a view to the punishment of environmental offences.

Potential

Regardless of the ongoing technological development of the Earth Observation techniques, major obstacles remain to the use of satellite images as evidence in court in the context of environmental law enforcement.

A major limitation lies in the formulation of the standards used by environmental law. However elaborate environmental law may have become nowadays, it consists of a relatively small number of types of standards that always recur. A first partial description of these instruments of action with EU relevance can already be found in Council Recommendation

⁹¹ T. JACQUES, BMMN, 24 November 2008, *l.c.*, confirmed by R. SCHALLIER, *l.c.*

⁹² K. VANOOST and T. VERNIMMEN, Flemish Agriculture and Fisheries Agency, Inspection Services, oral communication of 8 April 2011, confirmed on 13 May 2011. Satellite images do not sufficiently allow systematic proper identification of crops. – *Id.*

⁹³ See the well-known Law & economics analysis of the decision to either breach or comply with the law, based on BECKER, in which the key role in this decision of the chance of being caught is identified. – G. BECKER, “Crime and punishment: an economic approach”, *Journal of Political Economy* 1968, vol. 76, 169 – 217. Note that changes in the chance of being caught are also relevant in the criminal court and before the fining authority and the administrative court. As emerged above when we discussed the difficulties to catch and convict the authors of illegal oil spills in the sea, the chance of being caught is a factor that can be taken into account in the determination of the punishment, where a slim chance of being caught constitutes grounds for a stiffer penalty, and vice versa. This analysis, too, is based on BECKER’s seminal article of 1968.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

75/436/Euratom, ECSC, EEC of 3 March 1975 regarding cost allocation and action by public authorities in environmental matters.⁹⁴ The Recommendation, which is limited to the area of environmental health law, makes a basic distinction between standards for fixed installations and product standards.⁹⁵ In order to be able to serve as evidence for the breach of a standard, the images of ‘The World Outdoors’ supplied by satellites must in some way be capable of documenting the constitutive elements of that standard, and therefore of a breach thereof. When we take a look at the types of standards, however, there are two problems that present themselves. Images of ‘The World Outdoors’ turn out to be unsuitable to furnish any useful information about compliance or otherwise with many types of standards, such as standards in the area of product standardization, most operating standards, and countless paperwork obligations such as reporting obligations. And with regard to types of standards for which such images may at first sight seem useful, they turn out on closer scrutiny to be totally inadequate. Let us take, for example, the standards for emission and immission. Emission and immission standards for air, water and soil are systematically formulated using:

- specific physical (e.g. temperature), chemical (e.g. heavy metals) or microbiological (e.g. presence of pathogenic germs) parameters,
- in specific units, which may be relatively simple (simple concentrations, such as µg per litre) or more complex (concentrations linked to a reference volume of effluent or linked to production data such as a quantity of raw material used, a quantity of manufactured product, or a production capacity, for example µg per litre with a reference volume of effluent equal to 5,000 litres per day), and
- in certain levels (instantaneous levels, to be complied with at any moment, but very often also calculated levels such as average levels or percentile levels, where the period over which the average or percentile is to be determined can range from one hour to one week, one month, or even one year).⁹⁶

Satellite images are incapable of giving information about the presence of the constitutive elements of such standards. Consequently, they will never make it to the courtroom as evidence for violations of those standards. Evidence that the constitutive elements of a standard have been violated is essential for a penalizing court, fining authority and administrative court in the proof of an offence.

Another firm limitation of the value of satellite images as evidence in environmental crime is to be found in the capacity of the penalization system to handle cases. Each case that is brought before the criminal court or the fining authority makes demands on scarce time and resources. The inability to handle a bigger caseload in practice also appears to put limits on the use of detection using new technologies. For example, a few years ago Flemish planning inspectors were forced to abandon the idea of using satellite images in the enforcement of

⁹⁴ *OJL* 194 of 27 July 1975.

⁹⁵ Current overview of the types of standards, based on an analysis of Belgian environmental legislation since 1946: C.M. BILLIET, “Milieurecht en handhavingstekort: de handhavingsnood in het licht van de te handhaven normen”, *Tijdschrift voor Milieurecht* 2007, 294 – 310. Applicability of the typology to the standards contained in European environmental directives and regulations: BILLIET (2008), 230 – 234.

⁹⁶ C.M. BILLIET, “Milieurecht en handhavingstekort: de handhavingsnood in het licht van de te handhaven normen”, *l.c.*, 308.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

planning regulations because the Inspectorate lacked the manpower to handle a bigger caseload.⁹⁷ The wider context of this policy issue will be discussed below.

B. Admissibility of Satellite Images as Evidence: Do the Prohibition of Proactive Investigation and Privacy Law Constitute an Obstacle?

In its Opinion no. 26/2006 of 12 July 2006, the Belgian Privacy Commission looked into the use of satellite images in the detection and establishment of planning breaches.⁹⁸ The opinion not only explains the requirements imposed by Belgian privacy law, but also points to the interface between the use of satellite images in the detection of crimes and the strict regulations governing proactive investigation set out in the Criminal Prosecution Code.

Article 28bis(2) of the Criminal Prosecution Code defines proactive investigation as “*the detection, collection, recording and processing of data and information on the basis of a reasonable presumption of punishable acts yet to be committed or already committed but not yet discovered*”, “*with a view to the prosecution of perpetrators of criminal offences*”. In principle, proactive investigation is prohibited. It is only permitted if the punishable acts are committed by a criminal organization or if they form part of a set of crimes and offences that are expressly enumerated by law.⁹⁹ Where proactive investigation can be carried out lawfully, prior written consent must be obtained from the competent public prosecutor, under whose direction and authority the investigation must be conducted.

Belgian privacy law, whose cornerstone is the Act of 8 December 1992 on the protection of privacy in relation to the processing of personal data,¹⁰⁰ implements Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, as amended.¹⁰¹ Therefore, the following analysis of the use of satellite images under Belgian law will probably be of relevance to other EU countries. It should be noted that the European Privacy Directive, and therefore also Belgian privacy law, concerns only the processing of personal data of natural persons (as opposed to legal persons).¹⁰²

⁹⁷ P. VANSANT, Flemish Ministry of Town and Country Planning, Housing and Architectural Heritage, 20 November 2008, email message to the author. The lack of resources obviously also determines the priorities set by any public prosecutor in his prosecution policy, and which results in only a small number of the cases that inundate the public prosecutors’ offices being brought before the criminal court. – See *supra* note 89.

⁹⁸ Commission for the Protection of Privacy, Opinion No. 26/2006 of 12 July 2006, *Tijdschrift voor Milieurecht* 2007, 28 – 32 (hereinafter referred to as “Privacy Opinion”).

⁹⁹ Art. 28bis(2) Criminal Procedure Code and Art. 90ter(2-4) Criminal Procedure Code, *a contrario*.

¹⁰⁰ “Privacy Act”; BS 18 March 1992; repeatedly amended

¹⁰¹ “Privacy Directive”; OJ L 281, 23 November 1995

¹⁰² According to article 2, a, Privacy Directive, ‘personal data’ are “*any information relating to an identified or identifiable natural person (‘data subject’); an identifiable person is one who can be identified, directly or indirectly, in particular by reference to an identification number or to one or more factors specific to his physical, physiological, mental, economic, cultural or social identity*”. Article 2, b, Directive defines the ‘processing of personal data’ as “*any operation or set of operations which is performed upon personal data, whether or not by automatic means, such as collection, recording, organization, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, blocking, erasure or destruction*.”. Both definitions have been adopted *verbatim* in Article 1(1-2) of the Privacy Act.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

As mentioned above, the opinion of the Privacy Commission concerned the use of satellite images in the detection and establishment of planning breaches. In this context, the images would obviously to a substantial degree concern property of natural persons. They would be used in the detection of violations by comparing older and more recent images of the same area. Information from the satellite images would be incorporated in notices of violation and as such form part of the court case file and be used as evidence.¹⁰³

The Privacy Commission considered that the satellite images, insofar as they concerned property of natural persons, constituted information about identified or identifiable natural persons which qualified as personal data for the purposes of privacy law, and that the processing of that information by the planning authorities had to be treated as processing of personal data within the meaning of said privacy law.¹⁰⁴

Following on from this, the Commission found that use of the images for the detection of planning breaches already committed but not yet known, with a view to prosecuting and trying the perpetrators, falls under the definition of proactive investigation¹⁰⁵ and is therefore in principle prohibited.¹⁰⁶

Any use of satellite images that is not characterized as proactive investigation would in principle be legally allowed to establish planning breaches expressly provided for by laws and regulations.¹⁰⁷ In those cases, the processing of the images would have to satisfy certain requirements in order to comply with privacy law. Processing with a view to use in a court case file would have to be carried out by competent public authorities and officials, and the data obtained from the private firms supplying the images must contain no characterization as to whether or not an offence has been committed.¹⁰⁸ The processing of the images would evidently also have to satisfy the well-known basic requirements of fair processing.¹⁰⁹ For instance, the level of detail of the images should not be greater than is necessary for the objective being pursued,¹¹⁰ and the images should not be kept for longer than is necessary to achieve the purposes for which they have been collected, and should be destroyed immediately once there is no further use for them.¹¹¹ In addition, in each specific case, the party concerned should be informed about the use and processing of the images.¹¹² The Privacy Commission also considered it advisable that, in view of the “*substantial privacy impact of the planned processing*” of the satellite images, “*a general information campaign ought to be conducted on the issue*”.¹¹³

¹⁰³ Privacy Opinion no. 4

¹⁰⁴ *Id.*, nos. 5-7

¹⁰⁵ *Id.*, no. 18

¹⁰⁶ *Id.*, nos. 18 and 21

¹⁰⁷ *Id.*, no. 10

¹⁰⁸ *Id.*, no. 17

¹⁰⁹ See Privacy Directive, Preamble, Recital (28).

¹¹⁰ Privacy Opinion, no. 11

¹¹¹ *Id.*, no. 13

¹¹² *Id.*, no. 19

¹¹³ *Id.*

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

The main limitation concerning the use of satellite images with a view to the detection and prosecution of environmental crime that emerges from this opinion, lies in the basic prohibition of any use of the images that characterizes as proactive investigation, notably the detection of offences already committed but not yet known with a view to prosecution and trial in a criminal court. This basic prohibition undeniably enters a *caveat* with the use of satellite images in environmental law enforcement with a view to prosecution, trial and punishment. There are four important points to make here. First, it should be stressed that satellite images can only fall under the definition of proactive investigation if they are gathered and processed for prosecution and trial. This objective constitutes an essential part of the definition of proactive investigation. Use of images for the purposes of prevention and, where necessary, remedial action, for instance in the form of warnings and remedial administrative sanctions, poses no problem. Second, one of the exceptions to the prohibition of proactive investigation, provided for in the Criminal Procedure Code, namely that of crime committed by a criminal organization, may be relevant to certain types of environmental crime, such as illegal waste trafficking and logging. Where such cases arise, images may be used in a criminal court, provided that the conditions are met which the Criminal Procedure Code imposes on the conducting of such investigation. Third, even under the new case-law on the exclusion of evidence, a potential breach of the prohibition of proactive investigation stands a good chance of being inadmissible on account of the hard-and-fast prohibition of the *witting – organized, systematic – gathering*¹¹⁴ of unlawful evidence. The organized nature of obtaining satellite images documenting certain data appears to be irreconcilable with this. The fourth point concerns the use of satellite images as evidence before the fining authority and the administrative court. The prohibition of proactive investigation touches on such an essential aspect of the rule of law that it would be inconceivable for the fining authority and the administrative court not to draw the same line as the criminal court in the rejection or admission of the images.

Where the use of satellite images does not constitute proactive investigation, the terms and conditions imposed by privacy law – in pursuance of the Privacy Directive – on the processing of the images do not really constitute a problem. It should be noted, however, that they require the competent authorities to have sufficient manpower to process the data. The admissibility of images as evidence where the requirements of privacy law have been infringed, will have to be judged case by case in the light of the circumstances of the case. Under the present case-law on the exclusion of evidence,¹¹⁵ however, there is a good chance that they would be considered admissible.

C. Satellite Images in the Appreciation of Evidence: Questions of the Court

The probative value of the satellite data will, in the criminal courts as well as in the fining authorities and administrative courts that control the administrative fining decisions, be assessed as all other evidence.

¹¹⁴ See II.B above, note 50 and accompanying text.

¹¹⁵ See II.B above, *Admissibility of Evidence*.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

If, in my court of law, I were hearing a case in which proof of the offences, in terms of facts, imputation, or both, rests on satellite images, I would first of all want to be able to understand the satellite technology that has been used to make the images. I would also want to know more about the state-of-the-art of the technology. Is it still in an experimental phase, or is it to be regarded as well-established? How should the data collection technology used in the file I have to judge, be situated in the range of applications of data collection technology?

My first further concern would be the authenticity of the data in my case file, as regards the images themselves and the moment (date and exact time) they were made. The authenticity of the data is crucial to taking them along in my appreciation of the evidence. I would want to know exactly how the chain of custody of the data was organized, and what the guarantees were against manipulation of the data, from their recording on, from the satellite to the submitted file. This is especially important because of the ease of alteration of digital data.

Once I would feel satisfied about the authenticity of the data, with regard to the images as well as the time of their recording, I would assess the informative quality of the data with regard to the charges involved: the precise scope of the facts the data document, the degree of precision of the data, their relevance or informative dimension, and the guarantees against technical errors. All of this, once again, for the images themselves as well as the time of their recording.

Finally, I would certainly wish to be fully informed about the precise contribution of the satellite data to the prosecution’s case. If additional data are required to be able to use the data, I would want to know how the “puzzle” is made and what the possibilities or chances are that the other pieces of the “puzzle” are flawed, tainted by errors or manipulations. For example, in the case of a polluting ship, if combining the satellite images with AIS-data is crucial for the identification of the polluting ship, I would want to know about the reliability of this extra data. In other words, when it comes to the other pieces of the “puzzle” and to putting all the informative elements together, too, I would have the same concerns and questions concerning authenticity and informative quality as I have for the satellite images as such. Questions would also concern the precise placement of the satellite data in the whole “puzzle”. In the assessment of evidence, I would screen the probative value of each piece of the “puzzle”, the process of putting all the pieces together, and the “puzzle” as a whole.

5. Conclusion

The use of satellite images as evidence in environmental offences for the purposes of penalization is not a matter that only concerns public prosecutors and criminal courts. In Belgium, environmental law has witnessed the development of a two-track policy in the *ius puniendi*. Environmental offences are punished not only by the criminal courts, but also by fining authorities and administrative courts. In this respect, Belgium follows a general European tendency, partly spurred on by the Eco-crime Directive. The admissibility and probative value of satellite images as evidence in environmental offences constitute issues

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

which today can be analyzed from two common-law backgrounds: criminal law and administrative law. From the perspective of the law of evidence, the two enforcement options share some important common ground: the legal guarantees enshrined in the ECHR and Protocol No. 7 to the ECHR regarding punitive proceedings, in particular the presumption of innocence as contained in Article 6(2) ECHR, which places the burden of proof on the prosecution and requires the judicial authority to grant the accused the benefit of the doubt. Established case-law of the European Court of Human Rights holds that the legal guarantees in punitive proceedings apply to the imposition of administrative fines, even if the maximum fines provided for by the administrative fining system are low.

Evidence with a view to punishment falls into two parts: proof of the offence, and proof of its imputation to one or more defendants.

Belgian law has no specific rules on the use of satellite images as evidence, neither in the criminal court nor before the fining authority and the administrative court. Evidence based on satellite images follows the common rules of evidence in terms of admissibility and the assessment of their probative value with respect to the actual charges.

In both criminal and administrative law, the procedure of proof is free: in both forums, proof may, in principle, be furnished by any means, and the assessment of the probative value of the evidence is left to the sovereign, though not arbitrary, discretion of the criminal court or the fining authority and administrative court respectively. In this way, Belgian criminal law and administrative law lie on the most open side of the European spectrum as far as the demonstration of proof is concerned.

Regarding the admissibility of evidence, the only exception with general practical relevance to the rule of free proof concerns unlawfully obtained evidence. In 2003, the Belgian Supreme Court radically changed its case-law in that area. Nowadays, unlike before, unlawfully obtained evidence is generally admissible. The new case-law follows the trend in the neighbouring countries. It has relevance for hypotheses in which satellite images have been acquired and processed, as proof of environmental offences, in breach of the prohibition of proactive investigation, enshrined in the Belgian Criminal Procedure Code, or of Belgian privacy law, which implements the European Privacy Directive. Where the images have been gathered and processed in breach of the prohibition of proactive investigation, they stand little chance of being admitted as evidence, even under the present flexible approach to unlawfully obtained evidence. Where the images have been gathered and processed without violating the law on proactive investigation and only in one way or another infringe privacy law, they stand a good chance of being admitted as evidence if such infringement was committed unintentionally.

In the assessment of the probative value of satellite data, the images themselves and the time they were made come under scrutiny. Besides a general understanding of the data collection technology, there are three aspects that play a key role in the sovereign assessment of the court: the authenticity of the data, their informative quality regarding the charges, and their precise contribution to the prosecution’s case.

To refer to as: C.M. BILLIET, “Satellite Images as Evidence for Environmental Crime in Europe: a Judge’s Perspective”, in R. PURDY & D. LEUNG (eds.), *Evidence from Earth Observation Satellites. Emerging Legal Issues*, Leiden – Boston, Brill, 2012, 321-355

The analysis that has been made clearly shows that the use of satellite images as evidence for environmental crime finds a major limitation in the formulation of the standards that make up environmental law. This limitation, which has nothing to do with the law of evidence, is probably more far-reaching in the field of environmental health law than in nature conservation law. It is connected to the constitutive elements of the standards, which the criminal court, the fining authority and the administrative court systematically focus on in their assessment of the validity of the charges. The problem is illustrated by the example of the emission and immission standards, two types of standards that belong to the essential classics of environmental law. These standards are made up of parameters, expressed in units and levels, which satellite images are unable to document.

The analysis also points to the opportunities offered by the use of satellite images in combating environmental crime. The contribution they can make to monitoring and as a first alert, merits special mention. The simple fact that making satellite images increases the chances of catching the perpetrator will, generally speaking, have a powerful deterrent effect. Furthermore, there also exists a wide potential for using such images for the purposes of remedial action, where highly valuable policy work can be done and less stringent legal conditions exist. Both these functions place the use of satellite images as evidence with a view to penalization in its proper perspective in environmental law enforcement. The latter function is just one option among many.