

IINA SAHRAMÄKI

# Regulating Green Crimes

Characteristics and framings of environmental  
crime prevention in Finland



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ACADEMIC DISSERTATION

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of Tampere University,  
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# ACKNOWLEDGEMENTS

When I walked into the Police University College for the first time in February 2010, I was faced with a puzzling sight: a group of police students standing in the middle of the parking lot! It does not seem like much, but at that time I was going to be interviewed for my first job at the college and I suddenly forgot how to cross the parking lot—I did not want to break traffic rules, you see. It turned out that not only did the Police University College remind me about traffic regulations but it also pushed me towards criminological research which during the following years became my field of interest.

Criminology has also been academic foundation on top of which I have been able to build my own multidisciplinary academic endeavour. With a master's degree in social sciences and in administrative sciences I was in search for a discipline where I would combine my interest in environmental policy, international relations and administration. When I came across the field of green criminology, I knew I had found my perspective on criminology.

I want to thank all my supervisors, Professor of Environmental Policy Pekka Jokinen for his guidance, patience, discussions and beyond, and Associate Professor Helena Leino. I want especially to give my never-ending gratitude to Senior Researcher Terhi Kankaanranta from the Police University College with whom I have had the pleasure to work on several research projects during the past decade. Her patience and ability to see my strengths and weaknesses and her wisdom in guiding me to use them both has been remarkable. She has been one of my supervisors in this doctoral thesis and co-writer in several publications. Without her guidance my dream of a doctoral dissertation would not have become reality. I would also like to thank the Kone Foundation for their grant which was essential in providing me with the time and resources to finalize my thesis.

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I am especially grateful to my all friends and family for their support and encouragement. Jaanika, for her enduring friendship. Mom, for her endless belief in me and her energy in taking care of our boys while I was squirming in a mire of theories and methods. Jani, my love, I would like to thank you deeply for our fruitful discussions and supporting me from the beginning to the end, you are my rock.

# ABSTRACT

Environmental crime is a growing concern internationally. This thesis was designed to enhance a preventive regulatory approach to environmental crime in Finland. It forms a noteworthy effort to construct a wide and multidisciplinary account of regulatory prevention of environmental crime. The thesis is guided by the ambition to paint a broad picture of this complex issue: the goal is to approach the regulatory prevention of environmental crime in varied ways to gain a rich understanding of it.

This thesis is based on four peer-reviewed publications. It answers the questions: what are the characteristics of regulatory prevention of environmental crime; how is environmental crime framed during regulatory enforcement; and how do these characteristics and frames influence environmental crime prevention in Finland? The focus is more on preventive crime control than on practical police work.

To answer to the research questions, regulatory prevention of environmental crime is approached with qualitative method and data triangulation. It comprises a comparative perspective with multiple data sources, a discursive approach to semi-structured interviews, a crime script analysis of two case studies and a Delphi study. Furthermore, the theoretical framework is based on the AGILE approach providing a multidimensional take on regulatory crime prevention.

This thesis argues in a pragmatic manner that there are both the law-on-books and law-in-action which are evident in the process of regulatory crime prevention. Two main conclusions arise from this thesis. First, regulatory voids undermine the authorities' response to environmental crime. Second, law enforcement is characterized by a narrow view on environmental crime prevention. Furthermore, incoherencies in enforcement have a significant influence on the prevention of environmental crime. As such, a wider gaze which is not limited and severely constrained by professional cultures and interpretations of regulations, legislation and fluctuating definitions of environmental crime, is needed if environmental crime prevention is to be successful.





# TIIVISTELMÄ

Ympäristörikollisuus on kansainvälisesti kasvava rikollisuuden muoto. Suomi ei ole suojassa tältä kehitysuunnalta. Artikkeliväitöskirjan tavoitteena on tukea viranomaisten toimia ympäristörikollisuuden ennaltaehkäisyssä tuottamalla tietoa hallinnollisesta rikostorjunnasta (regulatory crime prevention) ja sen esteistä. Ympäristörikollisuuden torjuntaa käsitellään väitöskirjassa useasta eri lähtökohdasta. Näin ollen ilmiöstä ja sen torjunnasta muodostuu monipuolinen ja laaja-alainen näkemys. Lähtökohdiana on ympäristörikollisuuden kompleksisuus, jonka vuoksi ilmiön ennaltaehkäisy ja akateeminen tutkimus hyötyvät monitieteellisestä lähestymistavasta.

Artikkeliväitöskirjan tutkimuskysymykset ovat: mitkä ovat hallinnollisen ympäristörikostorjunnan piirteet, miten ympäristörikollisuutta käsitteellistetään ja miten nämä piirteet ja käsitykset vaikuttavat ilmiön ennaltaehkäisyyn. Väitöskirja koostuu neljästä kansainvälisestä vertaisarvioidusta julkaisusta. Näistä julkaisuista muodostuu menetelmällinen ja aineistollinen triangulaatio, jossa hyödynnetään vertailevaa tutkimusta, diskurssianalyysia, crime script –analyysia ja Delphi-tutkimusta. Teoreettinen viitekehys rakentuu hallinnollisen rikostorjunnan ympärille. Sen keskeiseksi ominaisuudeksi määritellään tässä väitöskirjassa torjunnan ketteryys, jota syvennetään viiden eri ulottuvuuden kautta.

Väitöskirjan tulokset voidaan tiivistää kahteen keskeiseen johtopäätökseen. Ensinnäkin, sääntelyn toimeenpanoon liittyy monella tasolla ilmeneviä heikkouksia, jotka murentavat ennaltaehkäisevää toimintaa. Toiseksi, näkökulma ympäristörikollisuuteen ja sen torjuntaan on verrattain kapea-alainen. Väitöskirjan tuloksissa korostuu tarve tukea viranomaistoiminnan proaktiivisuutta ja yhtenäistää ymmärrystä ympäristörikollisuudesta ja sen torjunnasta eri sektoreiden välillä käytännön tasolla.



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# ORIGINAL PUBLICATIONS

This thesis consists of a summary and the following four publications. The Roman numerals I-IV are used when referring to these publications in the text.

- Publication I Sahramäki, I. & Korsell, L & Kankaanranta, T., 2015. Prevention of Environmental Crime through Enforcement—Finland and Sweden Compared. *Journal of Scandinavian Studies in Criminology and Crime Prevention* **16**(1), pp. 41-59. (\*)
- Publication II Sahramäki, I., 2016. "Enforcement and professional constructions of environmental crime in Finland". In Potter, G. & Nurse, A. & Hall, M. (toim.) *The Geography of Environmental Crime*, Hampshire: Palgrave, pp. 189-216.
- Publication III Sahramäki, I. & Kankaanranta, T., 2017. Waste no money—reducing opportunities for illicit waste dumping. *Crime, Law and Social Change* **68**, pp. 217-232. (\*\*)
- Publication IV Sahramäki, I. & Kankaanranta, T., 2021. Regulatory voids in prevention of environmental crime in Finland. *European Journal of Criminology*. June 2021. doi:10.1177/14773708211020634. (\*\*\*)

(\*) Iina Sahramäki is the responsible author of this article. She collected and analysed the data and wrote the manuscript under the supervision of Dr. Terhi Kankaanranta who also provided insight especially into the strategies of prevention. Dr. Lars Korsell provided data and commented the manuscript from the Swedish point of view.

(\*\*) Iina Sahramäki is the responsible author of this article. She collected and analysed the data and wrote the manuscript under the supervision of Dr. Terhi Kankaanranta.

(\*\*\*) Iina Sahramäki is the responsible author of this article. She collected and analysed the data jointly with Dr. Terhi Kankaanranta and wrote the article under her supervision.





# 1 INTRODUCTION

WALL-E wandered among the mountainous towers of trash in the hazy air, his treads crunching over layers of garbage. The little dirt-brown, box-shaped robot has a few dents and some replaced parts, but overall he looked okay. Not bad, considering he had spent the past several centuries squishing trash into compacted cubes.

-- Followed by his cockroach, WALL-E passed an old holographic billboard, still working since the days when people had lived on Earth instead of in outer space. Buy-n-Large, the company that had provided all consumer goods for humans and had practically run the planet, had created this advertisement centuries earlier. They were trying to lure people onto the sleek new spacecraft shown on the ad: “Too much garbage in your face? There’s plenty of space out in the space! We’ll clean up the mess while you’re away.”

WALL-E hardly listened to the ad anymore. It would probably be a few more centuries before people returned to Earth on that spacecraft. He was, after all, pretty small and the planet was big – and dirty. He had lots more cleaning to do.

WALL-E: A Robot's Tale<sup>1</sup>

While the idea of mankind moving into outer space might not be anywhere close yet, the consequences of environmental degradation are evident. For instance, the effects of climate change and loss of biodiversity are pressing environmental concerns. The story of WALL-E colourfully describes the amount of waste and problems associated with it and the threat it poses to the environment, human health and non-humans. Furthermore, potential disasters associated with waste might be lurking in the shadows. Neither legal nor illegal activities related to the environment and waste should be overlooked as causes of environmental degradation—a notion that is the driving force behind this doctoral thesis.

A variety of illicit activities are related to environment. Environmental offences include illicit waste dumping, dredging, transportation of dangerous substances and breaches of environmental permits, among other things. Furthermore, environmental impairment may be due to the activities of corporations or the actions of private persons (Finnish Environmental Crime Monitoring Group 2020,

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<sup>1</sup> Disney Book Group (2011) *WALL-E: A Robot's Tale*. New York: Disney Press.

58-59; Nissinen 2003, 624). According to the Finnish Ministry of the Environment and Ministry of the Interior, environmental crime in general terms means activities which cause or may cause environmental degradation (Ministry of the Environment 2015). INTERPOL<sup>2</sup> provides a more detailed definition (Interpol 2017, 8):

Environmental crime is a collective term describing any illegal activity carried out by an entity, mainly to generate financial or material gains, which results in the harm of the ecosystem by damaging environmental quality, driving biodiversity loss or overexploiting natural resources. It is socially neglected and economically abusive, leading to global insecurity with widespread consequences on human development.  
- Environmental crime increases poverty and weakens society's resilience.

Both of these definitions refer to and acknowledge the wide scope of environmental crime. The definition of environmental crime is under much debate also in academia ranging from harm-based approaches to legal perspectives. While acknowledging this debate and variety of approaches,<sup>3</sup> here environmental crime is taken to mean offences defined in the Criminal Code of Finland (39/1889) such as environmental impairment. In addition to this legalistic definition of environmental crime as environmental offences, the focus is on environmental illegalities which are namely violations of regulatory rules enforced by environmental protection agencies. The emphasis of this thesis is on waste and contamination offences and illegalities. However, it should be noted that the line between different types of environmental harm is often blurred and as such the topics under the umbrella term environmental crime overlap each other which is also the case here.

Internationally, environmental crime is a growing threat. According to INTERPOL and United Nations Environment Programme (UNEP), environmental crimes are the fourth largest criminal activity in the world (INTERPOL-UN Environment 2016, 2). Furthermore, INTERPOL and UNEP list four characteristics of environmental crime. First, environmental crimes tend to be crimes with a possibility of a high-profit with a low risk of being arrested. Second, large number of criminals is usually involved trafficking of environmental commodities. Third, variety of concealment and smuggling techniques are used to avoid detection. Finally, environmental crime often convergences with other crime and fuels further crime, such as financial crime (INTERPOL-UN Environment 2016, 7).

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<sup>2</sup> International Criminal Police Organization (INTERPOL) is an inter-governmental organization, with 194 member countries.

<sup>3</sup> Variety of approaches is discussed in more detail in the Chapter 1.2. and Chapter 3.

Even though Finland is geographically remotely located, the threat of environmental crime is present also in our society. In their yearly reports, the Finnish Environmental Crime Monitoring Group, which has been active since 1997, has highlighted the need to take the threat of environmental crime seriously and to enhance prevention efforts. For instance, based on the illicit waste transportation cases reported for preliminary investigation, Finland is not sheltered from transnational environmental crime and its manifestations (Finnish Environmental Crime Monitoring Group 2020, 10). However, there have not been any significant crimes related to clear water or illicit logging, which are internationally points of concern (Finnish Environmental Crime Monitoring Group 2020, 58-59). Nevertheless, a study focusing on future scenarios of prevention and supervision of waste crime in Finland argue that if preventative efforts are not further developed, the amount of waste crime will grow and remain hidden creating unpredictable consequences to the environment and human health in the future. In the worst scenario presented in the study transnational waste crime could break out in Finland if resources are not allocated for prevention and supervision (Sahramäki & Kankaanranta 2016a, 51-58).

During the past few years, the prevention of environmental crime has been enhanced due to the publication of Strategy for Preventing Environmental Offences Strategy and Action Programme for the Prevention of Environmental Crime in Finland (Ministry of the Environment 2015). The strategy was a joint effort by the Ministry of the Environment and Ministry of the Interior published in 2015. In 2021, the strategy was updated to cover the years 2021-2026. Additionally, the action plan has been updated every two years. The strategic goals are to develop national and local inter-sectoral cooperation between authorities as well as to strengthen and harmonize the steering of ministries in environmental crime prevention. The goals include organizing training for practitioners; utilizing and further enhancing statistics and other available information in preventative activities, evaluating the up-to-datedness of national legislation; following the trends in transnational environmental crime as well as preventing harm to the environment through education and information sharing. Action plans follow these strategic goals by dividing them into practical activities (Ministry of the Environment 2015, 11-18; Ministry of the Environment 2021, 16).

The increasing interest in environmental crime prevention in governmental agencies has heightened the need for studies supporting these efforts. In Finland, studies on environmental crime are rare and focus often on legal science instead of social sciences. Environmental crime prevention from social sciences point of view

has mainly been studied at the Police University College of Finland. These studies have considered cooperation between law enforcement agencies, waste crime as a part of the shadow economy, Supreme Court convictions and situational environmental crime prevention (Sahramäki & Kankaanranta 2016a; 2016b; 2016c; 2014; Niemi et al. 2014). These studies create a foundation and a starting point for this thesis.

Internationally, studies on environmental crime, often under the umbrella of green criminology, have been varied during past three decades. Advocates of green criminology have published several edited books with a wide range of topics varying from wildlife crime, corporate environmental crime, environmental crime prevention to global ecocrime (see e.g. Hall et al. 2017; Brisman & South 2015; Beirne & South 2007; White 2013a; Spapens et al. 2018; Walters 2013; Potter et al. 2016). The underlying thought in these publications has been to develop, discuss and adopt green criminological perspective to the study of crime and criminality, which has been traditionally in the margins of criminology. Recently, there has also been growing interest in applying and developing new methodologies to the study of environmental crime.<sup>4</sup>

Furthermore, waste crime characteristics have been identified in several studies (see e.g. Almer & Goeschl 2015; Baird et al. 2014; Van Daele et al. 2007; Liddick 2009; Suvantola & Kankaanranta 2018). These studies have established that waste crime includes features which make it appealing to criminal actors and illicit markets such as high profits with a low risk of getting caught and price inelasticity. Furthermore, challenges in regulatory enforcement are also widely recognized. While typically studies on illicit waste activities have focused on analyzing national aspects and case studies (see e.g. Seror & Portnov 2020; Ezeah et al. 2013; Earnhart 2000; Nyborg & Telle 2006; Tourangeau 2015), some branches of research have concentrated specifically on transnational aspects such as illicit waste trafficking (see e.g. Liu et al. 2016; Andreatta & Favarin 2020; Bisschop 2012a; Dorn et al. 2007; Favarin & Aziani 2020; Liddick 2009; Morganti et al. 2020). These studies recognize difficulties in uncovering these crimes as well as their interconnection with legal markets and other types of illicit flows, such as drug trafficking. While the amount of transnational environmental crime is assumed to be growing, its regulation is covered with asymmetries, uncertainties and weak enforcement.

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<sup>4</sup> See special issue *New Quantitative and Qualitative Methods to Investigate Environmental Crimes* of *Journal of Contemporary Criminal Justice* in 2020.

It have been widely acknowledged in the studies mentioned above as well as by governmental working groups that waste crime, and environmental crime in general, is a complex and a wicked problem (see e.g. Ministry of the Environment 2021; Ministry of the Environment 2015; Finnish Environmental Crime Monitoring Group 2020). As such, effective crime prevention cannot rely solely on the efforts of the police but instead needs to include other agencies and sectors in society as well. Furthermore, finding the most efficient regulatory strategy to encourage or enforce compliance is challenging to say the least. Subsequently, the theoretical and empirical literature on regulatory strategies seeking compliance is substantial ranging from deterrence models and compliance methods to responsive regulation and smart regulation and beyond.<sup>5</sup> Further, the criminological literature on crime, criminality and crime prevention is extensive (see e.g. Maguire 2002; Lab 2015; Crawford 2009; Felson 1987).

While considerable research has been devoted to regulatory strategies and green criminology rather less attention has been paid to weaving these perspectives together in terms of the regulatory crime prevention of environmental crime. This thesis was designed to answer this call for enhancing a preventive regulatory approach to environmental crime in Finland. Regulation refers here to rules and procedures and the subsequent monitoring of compliance and enforcement (Gurinskaya & Nalla 2018, 39-40). As such, it does not argue for environmental protection solely through criminal law. The underlying assumption here is rather that illicit activities are best controlled by combining regulation and control of crime opportunities with criminal sanctions (Clarke 2018, 22).

## 1.1 Objective of the thesis

What brings green criminological studies together is the call for criminological imagination—rethinking how ongoing environmental harm may be diagnosed, deterred and prevented (White 2003). Keeping this in mind, this study is guided by the aim to achieve a broad picture of this complex issue: the goal is to approach regulatory prevention of environmental crime in varied ways to gain a rich understanding of it. Following the complex characteristics of environmental crime presented in the Introduction as well as acknowledging the obvious need to effectively reduce environmental harm, this thesis answers the following questions:

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<sup>5</sup> Discussed further in the Chapter 3.3.

1. What are the characteristics of the regulatory prevention of environmental crime?
2. How is environmental crime framed during regulatory enforcement?
3. How do these characteristics and frames influence environmental crime prevention?

The thesis is based on four peer reviewed articles (later *publications*). Three of them were published in international criminology journals and one as a part of a book. All four publications contribute to the objectives of this thesis: publications I-IV answer the first research question, while especially publications II and IV answer the second. Together these publications give answer to the third question presented above.

Publication I *Prevention of environmental crime through enforcement – Finland and Sweden compared* (2015) compares the environmental crime enforcement chains of Finland and Sweden. The focus is on detection, prosecution and sanctioning. The publication examines the main differences and similarities in enforcement between Finland and Sweden and how crime prevention through enforcement can be developed. This comparative study is based on data triangulation combining legislation, official documents and statistics from both countries.

Publication II *Enforcement and Professional Constructions of Environmental Crime* (2016) is published as a part of a book ‘The Geography of Environmental Crime’ edited by Potter, Nurse and Hall. The publication studies law enforcement in Finland through the discursive analysis of 18 semi-structured interviews with police officers and environmental protection agencies. The aim of the publication was to identify the ways in which enforcement agencies socially construct their perceptions of environmental crime and to discuss how their construction impacts the enforcement of environmental regulation.

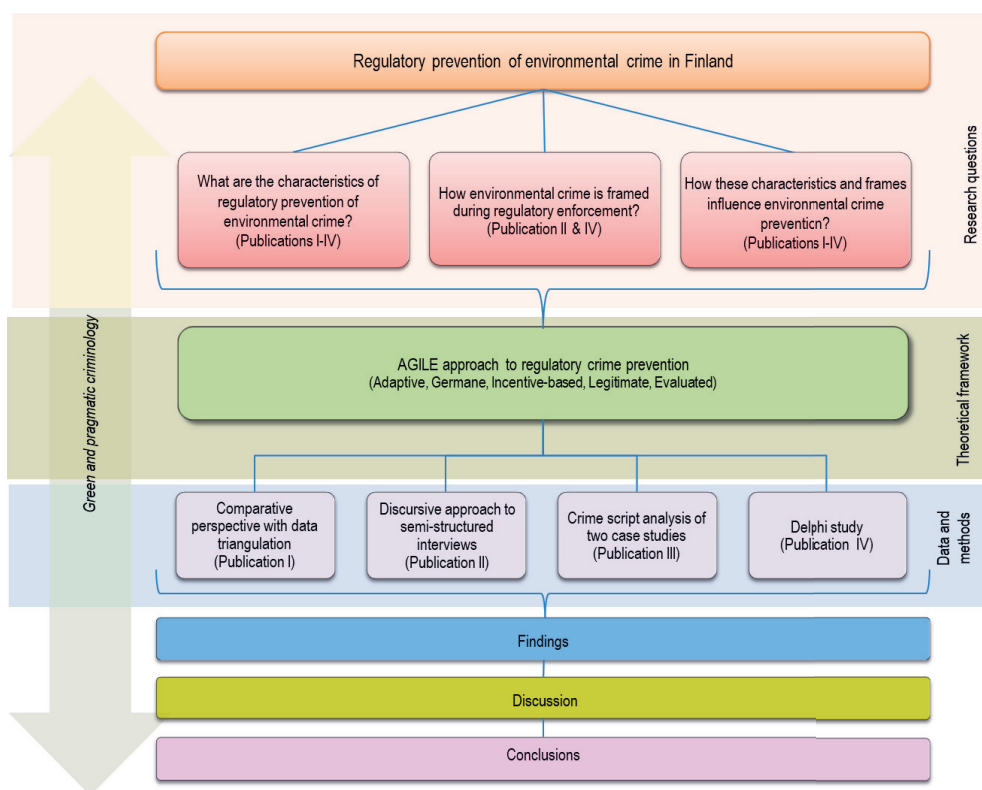
Publication III *Waste no money - reducing opportunities for illicit waste dumping* (2017) identifies criminal opportunities for waste crime. Not only does the publication aim to identify these opportunities but its objective is also to provide practitioners in environmental law enforcement with tools for waste crime prevention. The theory of situational crime prevention and crime script analysis are applied to two cases of illicit waste dumping: the Lokapojat and Petokaivin cases. The publication also extended the crime script analysis of waste crime by adding the possibility to gain economic benefit to the charting of crime commission in the script.

Publication IV *Regulatory voids in the prevention of environmental crime in Finland* (2021) incorporates an inter-sectoral analysis and examines regulatory voids. Its aim

is to analyse whether regulatory voids exist and how they affect the enforcement efforts related to the prevention, supervision, and detection of illicit waste activities in Finland. A three-round Delphi method was used to analyse different aspects of regulatory voids in enforcement and crime prevention.

The aim to achieve a broad picture is mirrored in the theoretical approach and methodological choices. The theoretical framework of the thesis is based on the AGILE approach to regulatory crime prevention. The approach comprises a fusion of dimensions which fold around the concept of regulatory crime prevention. The AGILE approach argues that regulatory crime prevention needs to be adaptive, germane, incentive-based and legitimate as well as evaluated and analysed. While the first four dimensions are echoed in Publications I-IV, the wider goal of this thesis is to provide an analysis of regulatory crime preventions as suggested by the final dimension of the AGILE approach. However, a more detailed evaluation of environmental crime prevention is suggested as a topic for future research.

The versatile use of qualitative methods and data broadens the analysis and provides a many-sided approach to the complex phenomenon of environmental crime. Each of the qualitative data sources provides a different perspective on regulatory crime prevention. They also facilitate acquiring a deeper and more complete understanding of the phenomenon (see Johnson 1997). The overview to the thesis and the relations between the objectives, theoretical frameworks, data and methods are described in Figure 1.



**Figure 1.** Overview of the thesis

A few notions about the context of the thesis are necessary here. First, the thesis is multidisciplinary combining criminology and administrative studies. As such, legislation from the legal sciences point of view is not detailed or analysed here. Second, to enhance environmental crime prevention efforts of law enforcement authorities this thesis has a practical character. Due to the focus on authorities, the crime prevention efforts of the third and private sector are not separately discussed here. Third, this thesis is geographically limited to Finland. However, a comparison between Sweden is also conducted. Fourth, the data was collected 2013–2015 positioning the thesis in the era before the publication of the Strategy for Preventing Environmental Offences strategy and Action Programme in Finland (Ministry of the Environment 2015).

Finally, the focus of this thesis is especially on corporate environmental crime. As the literature on corporate crime and white-collar crime is extensive and it is beyond the scope of this thesis, a simplified definition is adopted here. Corporate crime refers broadly to nonviolent crime conducted in the corporate realm in



pursuit of financial benefit (Simpson et al. 2013, 232; Gibbs & Pugh 2017, 134). Benson, Madensen and Eck (2009, 176) suggest that white-collar crime is a crime committed by people of a high social status as famously argued by Sutherland in 1949 but these offences depend often upon occupationally related opportunity structures. Here, I refer to so called green collar criminals who harm the environment unlawfully usually in the process of pursuing financial benefit.

## 1.2 Green criminology

Before turning to the structure of the study at hand, it is necessary to shed light on the criminological and philosophical underpinnings this thesis holds. In general, criminology is a study of criminals and crime. Theories of criminality have focused on the root causes of crime. These theories seek to explain why some individuals commit crimes. Theories of crime on the other hand seek to explain the occurrence of crime instead of the root causes leading to criminality (Natarajan 2011, xiii). This thesis focuses on the latter emphasizing opportunity structures behind the commission of a crime.

Criminology has typically been positivist by nature. In contrast, critical criminology has criticized this conventional criminology for its legalistic definition of crime and its tendency to measure crime through official statistics. Subsequently, critical criminologists have questioned the systems and institutions of social control. For example, studies on human rights violations place the focus on how a 'crime' is defined and who is in fact the 'criminal' (Carrington & Hogg 2002; O'Brien & Yar 2008, 42-46; Sollund 2015b). Criminology has a multidisciplinary character, as scholars draw from several disciplines, such as sociology (see Coleman & Norris 2000, 15; Carrington & Hogg 2002). This multidisciplinary premise is also evident in 'green criminology', which is a fairly new addition to criminology and to critical criminology to be precise.

In 1990, the term 'green criminology' was introduced by Lynch as he suggested that 'green criminology' may be constructed by blending environmentalism, radicalism, and humanism (Lynch 2006, 2). In 1998, the publication of a special issue on green criminology in the journal *Theoretical Criminology* marked a starting point for discussion on the theoretical development of green criminological approaches (Wyatt et al. 2014). In that publication South (1998) suggested that environmental consciousness should be enhanced in criminology and 'green

criminology' should be used as a perspective for doing this (see also Goyes & South 2017, 178).

Several scholars have provided insights into the content and focus of green criminology. According to Beirne and South (2007, xiii), green criminology refers at its most abstract level to harm against humanity, environment and non-human animals committed by powerful institutions as well as by ordinary people. Wyatt et al. (2014, 1) describe green criminology in more detail:

Green criminology comprises a variety of perspectives that highlight key issues to do with exclusion, exploitation, inequality, harm, suffering and death. - These harms and crimes range from the abuse and exploitation of ecological systems and species other than humans to the long-term damage wrought by states, corporations and militaries to the land, air and water; from illicit trades in toxic materials and at-risk species to the monopolization of natural resources. - Sometimes the harms examined by green criminology are defined as crimes. Sometimes they are not. Sometimes they are quite visible and at still other moments, they are ignored or else their significance is denied. But whatsoever their legal or social status, the expanded notions of harm employed by green criminology need wider dissemination not only in the academy but also in the corridors of power where public policies are forged, enacted and enforced.

White (2008; 2013b, 19) describes green criminology as a broad generic term referring to the study by criminologists of environmental harm, environmental laws, and environmental regulation. A more radical view, if you will, has been that the theory of ecological disorder and capitalism should be at the heart of the green criminological analysis (Lynch, Long et al. 2013, on capitalism see also White 2002). In addition, the need for a more radical green critical criminology which dares to ask questions that others avoid is highlighted by Sollund (2015b). Additionally, cultural and green criminology have been integrated as green-cultural criminology (Brisman & South 2013b). Gibbs et al. (2010) on the other hand proposes a conservation criminology framework and highlights the challenges associated with legalistic and environmental justice perspectives. It should be noted that criminological studies on environmental crime date back decades before these scholars explicated the concept (Goyes & South 2017).

A wide range of topics have been covered by green criminologists in studies ranging from pollution crimes, withdrawal crimes such as collection of raw material, ecological additions such as pollutants, and illness as well as crimes of overproduction and overconsumption (Lynch et al. 2017). For example, studies have concentrated on wildlife crime (Stassen & Ceccato 2020; Sollund 2015a), bio-agriculture (Walters 2006), crimes of the corporate-state (Katz 2012), the illegal

trade in tropical timber (Bisschop 2012b), eco-mafia (Germani et al. 2018) and green victimization (Hall 2017), to mention a few.

In addition, studies have embraced different perspectives under the umbrella of green criminology such as radical green criminology, eco-global criminology, conservation criminology, environmental criminology, constructivist green criminology and speciesist criminology (White 2013b, 23-25). As these kinds of studies place themselves under the label of green criminology, there are bound to be debates over core concepts. For instance, Halsey (2004) argues that green criminology, as it stands, poses modernist conceptions of harm. He also contends that the term 'green' should not be used in the criminological discussion due to the narrow premises it holds.

While I acknowledge this debate and the significance of the perspectives adopted in the field of green criminology, I embrace green criminology as a broad perspective on regulatory environmental crime prevention. My approach is most closely related to a legalistic approach and loosely to a harm-based one. According to the former, so called legalistic approach, environmental crime is a crime when it is a violation of law. However, as my thesis is guided with the aim to achieve a wide picture of regulatory environmental crime prevention, I must look beyond the purely legally defined environmental crimes which brings me to the latter, the so called harm-based approach. The green criminological gaze in general directs attention to critically examine environmental crime and harm.<sup>6</sup> This harm-based perspective takes the view that crimes are often social constructions (Lynch & Stretesky 2003, 218; Hillyard & Tombs 2007, 11). As such the limits of the legalistic definition of crime and harm are contested: while the harm might not be criminal in the traditional sense, it does not mean that it should not be (Passas 2005). From this point of view, in the most basic sense, environmental harm is an act committed with the intention of harming an ecological or biological system while not necessarily being unlawful from the legal system's perspective (Clifford & Edwards 2012, 115).

These two perspectives appear to be on a collision course with each other and as Nurse (2017, 2) concludes "debates continue over whether green crimes are best addressed through criminal justice systems or via civil or administrative mechanisms." Positioning myself in the middle ground of these debates I take a

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<sup>6</sup> For example, the social harm approach criticizes criminology for placing emphasis on 'crime' without critically examining what presupposition, limitations and underlying structures lie behind what is called as 'crime'. Also, many forms of social harms, such as those inflicted by states and corporations, are not covered by criminal law and as such outside of the scope of traditional crime prevention (Hillyard & Tombs 2007).

legalistic approach in a highly pragmatic sense to mean the law-in-the-books and the law-in-action and tie environmental protection through criminal law to regulatory enforcement. Here, I turn to White (2010, 365-366) who identifies three approaches used to analyse environmental criminalization and regulation: the role of law enforcement agencies, regulatory strategies and more fundamental social transformation through critically examining the concept of environmental crime. Following White's reasoning I argue that these approaches are not exclusive; rather they complement each other and "the increasing strength of one reinforces the possibilities of the others". In the following chapter I justify my take on green criminology from the perspective of pragmatic criminology.

### 1.3 Pragmatic criminology

To clarify my view on action and theory, I turn to neopragmatism which forms a broad basis of this thesis. Bearing in mind that this thesis is not philosophically oriented, its take on neopragmatism is best described as imperfect and brief.

Even though the umbrella of pragmatism holds several different descriptions under it, basic definition may be given as follows by Internet Encyclopedia of Philosophy<sup>7</sup>

Pragmatism is a philosophical movement that includes those who claim that an ideology or proposition is true if it works satisfactorily, that the meaning of a proposition is to be found in the practical consequences of accepting it, and that unpractical ideas are to be rejected.

In criminology, pragmatism has commonly meant the focus on practical criminal justice policies and justifying deterrence based models as a base for "correctionalism", as Wheeldon (2015, 397) concludes. As such, he suggests reclaiming the term pragmatic and argues that through this it is possible to justify new criminological thinking and expand our thinking about crime and harm. I draw especially on Wheeldon's (2015) reading of Richard Rorty's neopragmatism<sup>8</sup> and its adaptation to pragmatic criminology. These claims of a multidisciplinary approach and application of a variety of methods are the bedrock of this thesis.

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<sup>7</sup> <http://www.iep.utm.edu/pragmati/>

<sup>8</sup> For discussion on difference between classical pragmatism and neopragmatism see Hildebrand 2005.

In Rorty's neopragmatism, the strict ontological division between essentialism based on objectivity and representationalism claiming subjective experience is deserted. Instead, pragmatic rationality is ontologically flexible, and the truth claim is based on "whatever results in a productive, useful, pro-social outcome at that moment" as well as being open to new more appropriate positions and ideas. Furthermore, these ontological choices are political and as such they should not be seen as self-evident. (Wheeldon 2015, 400-401). Subsequently, truth is not separate from our own descriptions of procedures of justification (Warms & Schroeder 1999, 5). Applying this idea to regulation, which is discussed in more depth in Chapter 3, means that the value of deterrence based models seeing offenders as hedonistic and amoral calculators and models leaning more towards altruistic human nature depends on the context they are applied.

Wheeldon's reading of Rorty highlights the need for methodologic openness. The choice of methods based on their utility on the research problem at hand. In other words, the chosen methodology is dependent on the context (Wheeldon 2015, 403). This thought is clearly reflected in the choice of methods in this thesis discussed further in Chapter 4. A wide range of qualitative methods is captured, and they come together as a methodological triangulation to improve regulatory crime prevention.

Pragmatic criminology avoids the discussion on objective truth; or the choice between positivism and constructivism as well as deductive and inductive reasoning. Instead Rorty's pragmatism relies on abductive reasoning which assumes so called real world and interpretations of that world: knowledge does not mirror nature but is rather a matter of conversation and of social practice. Neopragmatists address the role the linguistic turn<sup>9</sup> by arguing (Kasdan 2015, 1112) that

there is a difference between lived experience and the language used to describe that experience, both in terms of the individual's ability to put words to the practical consequences they have realized and the reception of that language by an audience that may not share the same understanding of those words (i.e., issues of commensurability).

Taking the pragmatic criminology to a more practical level from ontology and epistemology, theory and practice are and should be linked (Warms & Schroeder 1999, 2) and the best possible method to do this is whatever helps to get what we

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<sup>9</sup> For more discussion on pragmatism and the linguistic turn see (Bernstein 2013, 125-152).

want done (Wheeldon 2015, 403). Furthermore, the essence is in formulating ideas through experience and then seeing if those ideas have actually worked, in other words in evaluation and continuous involvement between theory and practice (Kasdan 2015, 1116).

## 1.4 Structure of the thesis

The thesis is divided into 7 chapters. Chapter 1 provides an introduction to the topic as well as specifying the objectives of the study together with the ontological and methodological underpinnings.

Chapter 2 gives a general overview of environmental offences and law enforcement in Finland. It offers a brief summary of the Finnish legislation related to the regulation of environmental harm and crime. Chapter 2 also provides a statistical overview of environmental crime in Finland.

Chapter 3 presents the theoretical framework of the thesis. The theoretical gaze and literature review is based on an approach which argues that to have a preventive effect on complex problems, regulatory crime prevention needs to be agile: it must adapt to the characteristics of the crime; it must be germane to the actors who have the potential to reduce crime opportunities; it must have the ability to incentivize compliance with the regulations; and it must be legitimate and evaluated to ensure the appropriateness of crime problem definition.

Chapter 4 explains the data and methods used in this thesis. The general characteristics and application of the four methods and data used in the publications are presented.

Chapter 5 reports the findings of this thesis. The chapter is divided into three subchapters. The first subchapter presents the findings related to the characteristics of regulatory enforcement. The second subchapter shows the findings concerning the framing of environmental crime prevention. The final subchapter presents the findings on how these characteristics and framings influence the prevention of environmental crime.

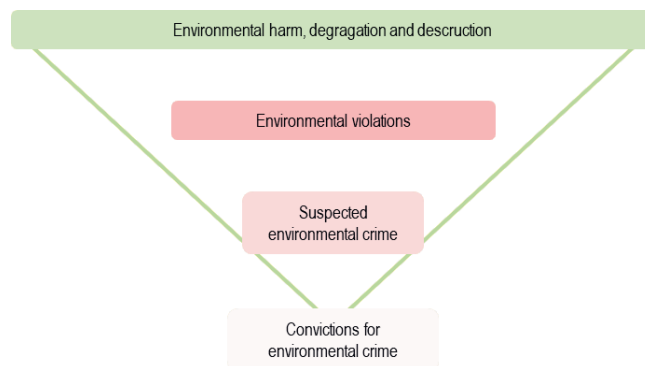
Chapter 6 presents the main findings of this thesis and discusses them in relation to the previous literature. It also discusses the limitations which should be taken into considerations while interpreting the findings as well as presents some ethical considerations. Further, the chapter provides an overview of the implications for practice and future research.

Chapter 7 offers final conclusions.

## 2 ENVIRONMENTAL CRIME IN FINLAND

Only a minor part of human-driven environmental degradation is illegal and only part of it is defined as environmental crime. Thus, environmental crime is often seen as a victimless regulatory crime which downplays the fact that environmental crimes have significant consequences on natural, social and economic environments as well as on human health (Lynch 2018; Crofts et al. 2010; Ruffell & Dawson 2009; Jarrell, & Ozymy 2012; see also White 2008; Michalowski & Brown 2020).

The relation between environmental degradation and environmental crime may be described as a funnel (Figure 2). On the top level is environmental harm. However, only part of this environmental degradation is violations of environmental laws and regulations. Again, only a small part of these violations are suspected as environmental offences leading to preliminary investigations in accordance with criminal law. This part of the funnel is characterized, for example, by interpretations of the law, regulatory discretion and politics, or in other words the law in books and the law in action. Finally, only part of the suspected environmental offences under preliminary investigation is successfully prosecuted as environmental crimes in a court of law. Making the funnel even narrower is the fact that a large part of environmental offences remain hidden.



**Figure 2.** Funnel from environmental harm to convictions for environmental crime.

This chapter discusses environmental violations and crime in Finland. It gives a brief overview of how environmental violations are dealt with through environmental law and how causing environmental degradation is criminalized in Finland. The chapter also provides a statistical overview of environmental crime in Finland.

## 2.1 Environmental offences

The main purpose of environmental law is to regulate the relation between humans and the natural environment (see e.g. Environmental Protection Act 527/2014). To be more precise, environmental law regulates the protection and exploitation of the environment: it may be described as an umbrella which includes all punishable violations related to the environment (Nissinen 2003, 621). Characteristic to environmental law is that the destruction of the environment is lawful if one has a permit to do so. As such, regulations are largely based on environmental permits which allow the authorities to supervise and evaluate activities causing pollution and environmental destruction (Erkkilä & Martinen 2008, 607). Environmental violations may occur for instance when the conduct is prohibited under the law, a permit was not applied or conducted activities were against the obtained environmental permit or they were conducted outside of the period of a permit's validity (Nissinen 2003, 623).

Environmental law is spread between several Acts such as the Environmental Protection Act (527/2014), Nature Conservation Act (1096/1996), Waste Act (646/2011) and Water Act (587/2011). These acts also include definitions of environmental violations (Annex I). Violations against the environment and nature also include land extraction violations (Land Extraction Act 555/1981, Section 17), fishing offences (Fishing Act 379/2015, Section 118) and forest infringement (Forest Act 1093/1996, Section 18).

The sanctions for these violations are fines. However, all of the Acts above include statements that a fine shall be levied unless a more severe punishment is provided elsewhere in the law. This statement refers to Chapter 48 of the Criminal Code (39/1889) where the most severe forms of environmental crime are criminalized and relevant aspects of environmental protection through criminal law are made apparent. Chapter 48 was added to the Criminal Code in 1995 during the second phase of the criminal law reform. The roots of the reform go back to the 1960s which marked a change in Finnish criminal policy as the criticism against



imprisonment started to grow. Following these winds of change, probation orders became more frequent and sentences milder. This transition to a more humane, if you will, criminal policy influenced the Criminal Code reform which started in the late 1970s and took place in the period 1980–1999. The original Criminal Code was issued already in 1889 and it did not reflect the newer values of the Finnish society and criminal policy.

During the reform, all the penal provisions on environmental offences which might lead to imprisonment were placed under the Chapter 48 of the Criminal Code (Annex II).<sup>10</sup> However, minor environmental offences for which only fines might be issued were left under other acts discussed above. The nature of the essential elements of environmental offence reflects the modern thought of criminal law such as protecting environmental values (Ahonen et al. 2003, 359; Ministry of the Environment 2015, 8).

Sections 1-4 of Chapter 48 of the Criminal Code contain impairment of the environment, aggravated impairment of the environment, environmental infractions and negligent impairment of the environment, which are all endangerment offences (Annex II). As such, it is not necessary that the harm to the environment in accordance with the provision is caused, it is sufficient that there has been a danger that damage might have been caused (Nissinen 2003, 636). Chapter 48 also includes nature conservation offences with aggravated nature conservation offences added in 2016 as well as building protection offences (Section 6) which are beyond the scope of this thesis.

The Chapter 48a of the Criminal Code on the other hand includes natural resource offences: hunting offences, aggravated hunting offences, fishing offences, forestry offences, unlawful exploitation of mineral resources in the Antarctic, timber offences, concealing of poached game, and aggravated concealing of poached game (Annex III). However, the focus here is especially on the environmental crimes defined in Chapter 48 instead of natural resources offences.<sup>11</sup>

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<sup>10</sup> It should be noted that Criminal Code also includes other offences which may be linked to the environment but are not however straightforward environmental crimes (Finnish Environmental Crime Monitoring Group 2020) such as health offences (Chapter 44, Section 1), endangerment of health (Chapter 34, Section 4), aggravated endangerment of health (Chapter 34, Section 5), causing the danger of the spread of a veterinary disease (Chapter 44, Section 4a), genetic technology offenses (Chapter 44, Section 9), nuclear energy use offences (Chapter 44, Section 10), careless explosives handling offences (Chapter 44, Section 10), explosives offences (Chapter 44, Section 11), careless handling (Chapter 44, Section 12), radioactive material possession offences (Chapter 44, Section 12a) and transport of dangerous substances offences (Chapter 44, Section 13).

<sup>11</sup> The same outline is made in the strategy for Preventing Environmental Offences 2021–2026 which focuses on crime defined in the Chapter 48 of the Criminal Code 39/1889.

In addition to imprisonment and fines, sanctions on environmental crimes in Chapter 48 include corporate fines. Additionally, aggravated hunting offences (Chapter 48a, Section 1a) may also result in corporate fines (Erkkilä & Marttinen 2008, 609; Finnish Environmental Crime Monitoring Group 2020). Economic benefits gained from illicit activities will be confiscated (Criminal Code 39/1889 Chapter 10, Section 2.). For instance, in nature resources offences, the monetary value of the species harmed is evaluated and the offender is required to pay back the estimated monetary value (Finnish Environmental Crime Monitoring Group 2020). In the case of environmental crimes, economic benefit may be based on the savings the offender has gained from not paying relevant waste treatment costs, for instance. A study focusing on environmental crime cases for which convictions have been given in the District Courts 2009-2013 concluded that there was a significant gap between the proceeds of the crime the courts determined to be confiscated and the amount the prosecutor demanded to be recovered. There were also regional variations and differences in prosecutors' practices. (Launiainen 2016)

## 2.2 Law enforcement agencies

Environmental regulations, such as the Acts presented above and in Annexes I-III, are enforced by governmental environmental protection agencies. The Centre for Economic Development, Transport and the Environment as well as the Regional State Administrative Agencies are responsible for enforcing environmental regulations, as well as issuing and supervising several types of environmental permits. The Centre for Economic Development, Transport and the Environment is also the complainant in the environmental crime cases where the public interest has been violated.

The Finnish Environment Institute supervises the transport and import of waste across borders. The Institute is also responsible for issuing permits in accordance with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which has the aim to ensure that the international trade in specimens of wild animals and plants does not threaten their survival (Finnish Environmental Crime Monitoring Group 2020, 22-23). In addition, the Finnish Safety and Chemicals Agency supervises the industrial use and storage of dangerous chemicals.

Enforcement may be divided into pre-supervision, such as issuing environmental permits, and post-supervision, including legality control (Linnove

2014, 11). Environmental protection agencies use for instance site visits, reports, documental inspections and administrative orders to ensure that the law is pertained (Finnish Environmental Crime Monitoring Group 2020, 22-23; Linnove 2014; Hietamäki et al. 2016).

The main preliminary investigation authority of suspected environmental offences is the Finnish Police who are responsible for the prevention, detection, and investigation of the major part of suspected criminal offences (Police Act 872/2011). However, the Finnish Customs handles preliminary investigations related to illicit waste trafficking across borders and illicit international trade in endangered species of wild fauna and flora in accordance with the CITES agreement (Criminal Investigation Act 805/2011). The Finnish Border Guard investigates offences related to state borders, territorial violations and natural resources (Act on Crime Prevention by the Border Guard 108/2018).

Environmental protection agencies notify the preliminary investigation authority, mainly the police, of breaches of the Acts in accordance with the much cited Section 188 of the Environmental Protection Act (527/2014):

The supervisory authority shall report any act or negligence referred to in sections 224 and 225 to the police for preliminary investigation. However, no notification is needed if the act can be considered minor in view of the circumstances and the public interest does not require charges to be brought.

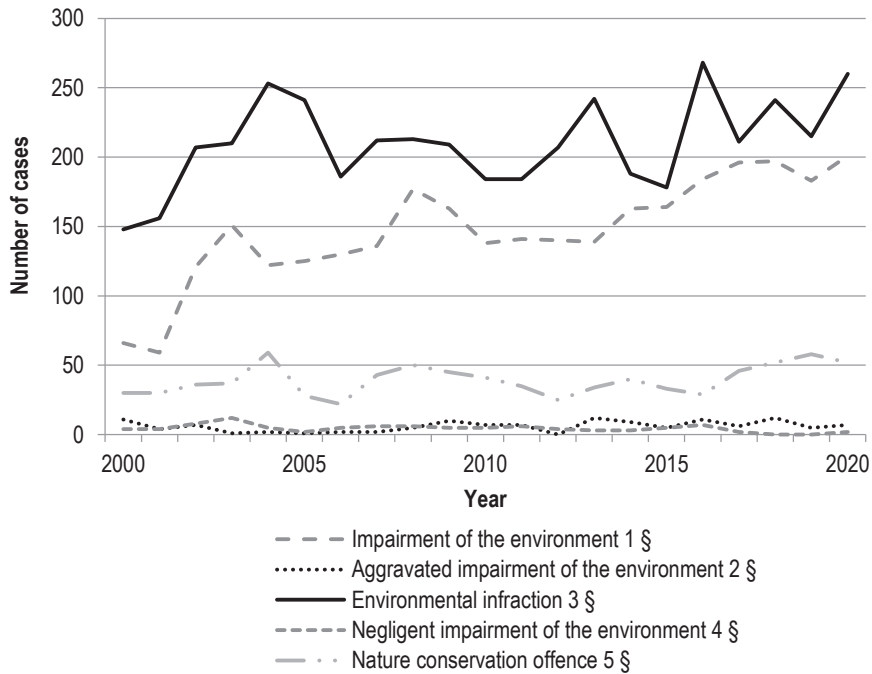
It should be noted that several Acts under the umbrella of environmental law do not include the notification requirement and the Section 188 is far from straightforward (for a comprehensive analysis on the notification requirement in Finnish environmental law see Suvantola 2018; also Koskela et al. 2020). Former Prosecutor General Matti Nissinen (2003, 626) calls Section 188 the hinge between environmental law and criminal code. This hinge has created challenges for all the relevant authorities. For example, local environmental protection agencies have estimated that not enough notifications are made. The main justifications for this have been that the violation had been corrected, was considered minor, or there were a lack of clear instructions on when the notification should be made (Ahonen et al. 2003, 365). A previous study also found that Forest Centres have a high threshold for making notifications for the preliminary authorities (Laakso et al. 2003, 657). The same threshold was evident in another study which found that the most severe forms of violations are reported to the preliminary authority, but several environmental violations fall into a grey area of environmental crime where the notification is not necessarily made. The grey area includes less severe violations where the interpretation of the law varies between authorities and

drawing the line between minor violations and potential criminal environmental offences is challenging to all parties concerned (Sahramäki & Kankaanranta 2014, 78-82; on grey area see Nissinen 2003, 625). For instance, it has also been noted that usually the notification from the Environmental Protection Agency is the starting point for a preliminary investigation even though environmental offences are indictable offences (Ahonen et al. 2003, 367).

When a preliminary investigation is launched for a suspected environmental offence, the relevant authority informs the prosecutor. The national prosecution authority is divided into five prosecution districts covering southern, western, northern and eastern Finland, and the Åland Islands. Nationally there are two prosecutors specialising in environmental crime, who work together with regional prosecutors in environmental crime cases when necessary (Finnish Environmental Crime Monitoring Group 2020, 58-59).

## 2.3 Statistical overview

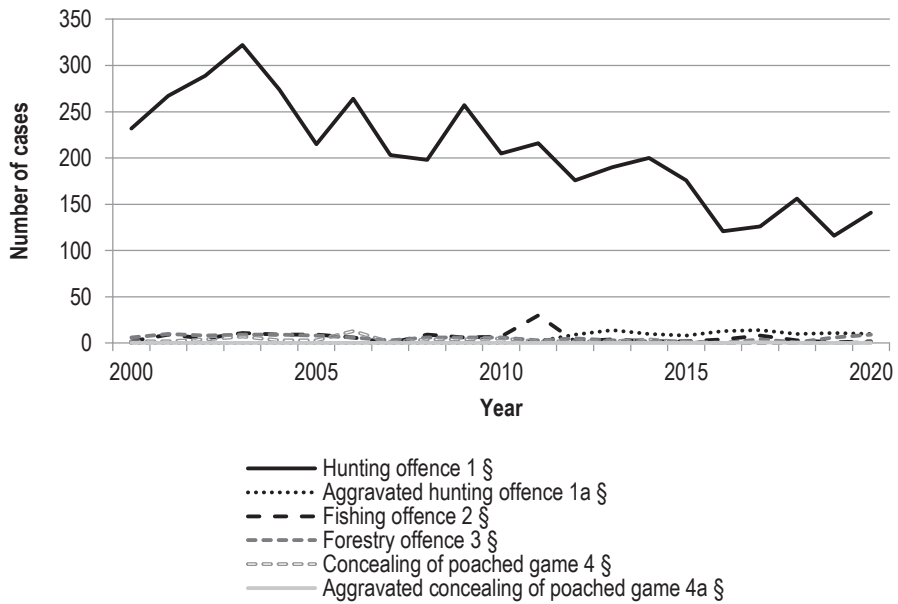
The National Police Information System gathers suspected crimes reported to the police yearly. Figure 3 shows the environmental crimes in accordance with Chapter 48 of the Criminal Code of Finland (29/1889) reported to the police in 2000–2020. As the figure indicates the number of environmental impairments has grown moderately during the last twenty years with an average of 155 cases per year. The most evident growth has been in the number of environmental infractions. In 2000, 148 cases were reported and altogether 260 in 2020. However, the number of reported crimes fluctuates yearly so any conclusions based on them would be doubtful.



**Figure 3.** Environmental crimes reported to the police in 2000–2020 (Chapter 48, Criminal Code 39/1889) (Polstat, 2021)

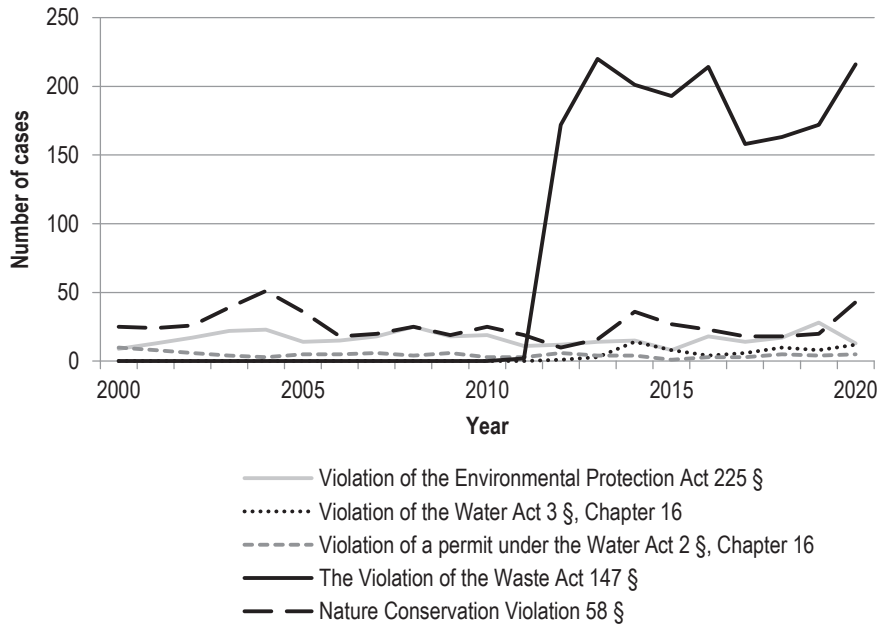
The Finnish Environmental Crime Monitoring Group estimates in its yearly report that the amount of reported environmental crime will grow in the future. One reason for this is the tightening regulation which might lead to higher costs for example in waste treatment and reduction of pollution which again might create temptation for disobedience (Finnish Environmental Crime Monitoring Group 2020, 59).

Natural resources offences 1–4 § (Chapter 48a, Criminal Code 39/1889) reported for 2000–2020 are presented in Figure 4. The number of fishing offences and forestry offences are quite low and also the number of reported hunting offences has also notably decreased during the past twenty years.



**Figure 4.** Natural resources offences reported to the police in 2000–2020 (Chapter 48a, Criminal Code 39/1889) (Polstat, 2021)

Figure 5 includes the violations of the Waste Act 147§, Environmental Protection Act 225 §, Nature Conservation Act 225§, Water Act Chapter 16, 3§ reported to the police in the 2000–2020 period. The number of these violations has remained fairly stable. The Waste Act was reformed in 2011 which explains the rise in the number of waste infractions in 2011.

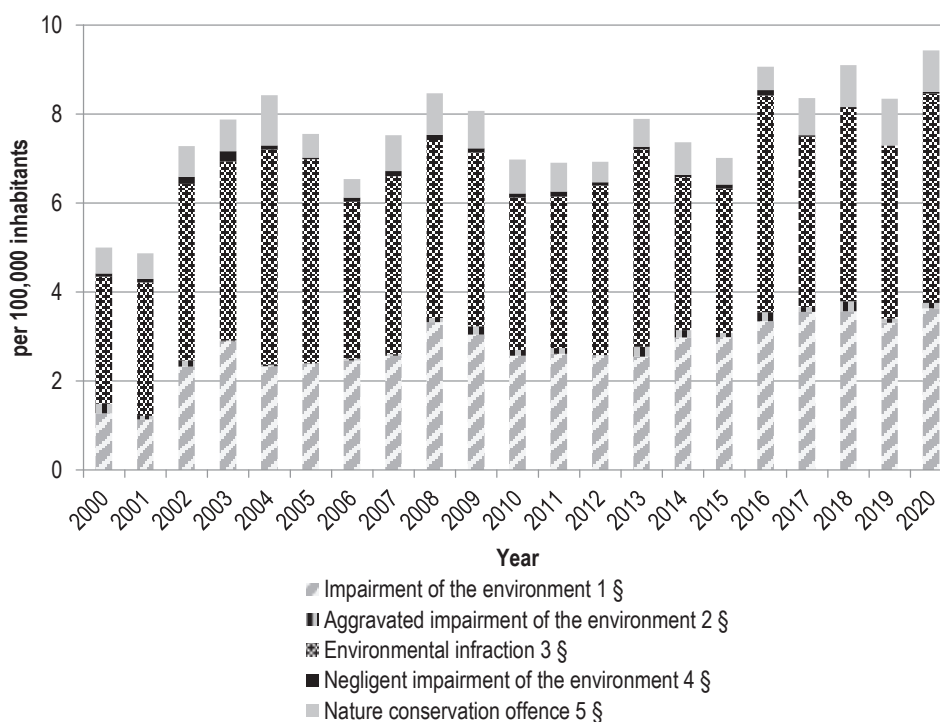


**Figure 5.** Violation of Waste Act, Environmental Protection Act, Nature Conservation Act, Water Act to the police 2000-2020 (Polstat, 2021)

These statistics include a few limitations which should be taken into consideration when interpreting them. The statistics include suspected crimes that have been reported to the police for preliminary investigation yearly. However, these statistics do not reveal the outcome of the preliminary investigation. For example, it not reported whether the preliminary investigation resulted in consideration of charges and if it did, whether the district court came to a conviction on the case as an environmental crime. As an illustration, charges were brought in 52.4% of the cases that were considered for charges 2019 (Finnish Environmental Crime Monitoring Group 2020, 56). Additionally, these statistics are based on the legal classification the offence had during the preliminary investigation. However, the classification may change during the consideration of charges and court proceedings. It should also be noted that all of these processes are time consuming, and it may take several years before a court conviction is reached.

Despite these limitations, the statistics give an overview of the current situation. The quite low number of reported crimes has led to the assumption that a substantial number of violations remains hidden (Sahramäki et al. 2015). Only 9.4

environmental crimes (Chapter 48, Criminal Code 39/1889, 1 – 5 §) were reported to the police per 100,000 inhabitants in 2020 as Figure 6 shows. For example, 2.6 impairments or aggravated impairments of the environment (1-2 §) per 100,000 inhabitants were reported to the police in Finland. As a comparison, in Sweden 16 impairments or aggravated impairments per 100,000 inhabitants were reported (Sahramäki, Korsell et al. 2015, 6). Some notions have been raised by the Finnish Environmental Crime Monitoring Group (2020, 10) which argue that presumably a large part of the environmental offences remain unreported, making prevention and supervision even more challenging. The number of unreported environmental offences, the so called the dark number, is challenging to assess. For instance, the data on environment-related illicit activities is scattered, mixed and partly non-public, making it difficult to gather and analyse (Nissinen 2003, 625).



**Figure 6.** Environmental crimes reported to the police 2000-2020 (Chapter 48, Criminal Code 39/1889, 1 – 5 §) per 100,000 inhabitants (SVT 2021)



### 3 THEORETICAL ASPECTS – AGILE APPROACH TO REGULATORY CRIME PREVENTION

An important test of a regulatory theory is whether it offers assistance in addressing the challenges that regulators face in practice. In the area of enforcement, those challenges are numerous and severe. Resources are often thinly spread and errant behaviour is difficult to detect. Regulatory objectives are not always clear and legal powers may be limited. Enforcement functions are often distributed across numbers of regulators who struggle to co-ordinate their activities. Further, it is often extremely hard to measure the success or failure of regulation. Even if such measurement is possible, it may be very difficult to improve the regulatory system by adjusting enforcement strategies and legal powers. (Baldwin & Black 2008, 59)

The theoretical aspects of this thesis fold around the concept of regulatory crime prevention with the goal of addressing practical challenges highlighted in the quote above. The characteristics of environmental crimes are making the enforcement even more challenging. They are often crimes of omission, in other words regulatory crimes when action required by regulation is not taken. Subsequently, here the regulatory perspective to crime prevention is adopted. The underlying assumption is that crime is best controlled by regulating and controlling crime opportunities instead of focusing narrowly on punishing offenders (Clarke 2018, 22).

Given the traditionally positivist nature of criminology and focus on root causes of criminality, the notion on regulations' powerful role in controlling crime is not a mainstream in criminological studies. From criminological point of view regulatory crime prevention leans in this thesis on what Clarke (2018) calls the new criminology of crime control. His perspective, designed as a criticism of positivist criminology, puts forward five principles. First, its goal is to explain and reduce crime and as such it is essential to recognize crime specific opportunity structures instead of seeking to explain criminality. Second, rational choice models offer basis for modifying behaviour of potential offenders. Third, the new criminology of crime control is essentially multidisciplinary taking contributions from several different fields into account. Fourth, assisting crime victims should be placed as

focal point. Finally, the variety of regulation with its benefits and harms should be clearly noted. (Clarke 2018, 31-33)

While these principles of the new criminology of crime control provide premise for *regulatory crime prevention*, the term embodies a multitude of concepts which need to be clarified. Public objectives, such as environmental protection and crime prevention, are pursued through managing risks and behaviour via regulation. Here, the term *regulation* will be used in its broadest sense to refer to purposeful rule-setting of who, when, where, and how of crime prevention and the subsequent monitoring of compliance and enforcement of those rules (Gurinskaya & Nalla 2018, 39-40). As such regulatory system includes interaction between interrelated actors and institutional settings they belong to (Black 2014, 3). The broad goal of regulatory enforcement is to ensure compliance. Compliance means the state of conformity with the law (White, 2010, 368). Law on the other hand is “use of state power for organizing social relations and producing particular desired conditions” (Silbey 2013, 7).

In general, *crime prevention* can broadly be defined as reducing the number and occurrence of criminal acts in society (Elliot & Fagan 2017, 4; Bjørgo 2016, 1). Criminal justice agencies can reduce crime directly for example through specific or general deterrence, or indirectly by means of collaboration and victim services, for instance (Tilley 2009, 26-49). However, the term “crime prevention” has overlapping, even slightly confusing meanings<sup>12</sup> which should be noted here. On the one hand the purpose of crime prevention is to decrease the number of persons, groups, committed offences and overall number of criminal acts (Elliot & Fagan 2017, 4). On the other hand crime prevention from a holistic point of view is taken on mean scaling down not only the occurrence of future crime acts but also their harmful consequences (Bjørgo 2016, 4). As such, crime prevention may be used in the context of crime control emphasizing the preventive aspects. Both of these aspects are noted by the Finnish National Council of Crime Prevention (2022). According to the Council (2022) “the goal of crime prevention is to decrease crime and increase security, but also to prevent harm caused by crime”. Finland’s Strategy on Preventive Police Work 2019-2023 leans on the same definition (Ministry of Interior, 2019; see also Hyttinen et al. 2019, 10). According to the strategy preventive action refers to managed and planned activities which prevent crime and other factors which may cause insecurity in the society.

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<sup>12</sup> This confusion is also created by the terms used in Finnish and English and their subsequent translations. For example, the term “crime prevention” may be translated as *rikostorjunta*, *rikoksensorjunta*, *rikosten ennaltaehkäisy* or *rikosten ennalta estäminen*.

However, crime prevention is also used to describe the prevention police conducts through multiple tasks, such as preliminary investigations, analyses and forensic criminal investigations (see Hyttinen et al. 2019). As the Strategy on Preventive Police Work (Ministry of Interior 2019) mentions, other duties of the police such as fieldwork also have preventive effect. However, while in this thesis crime prevention is used to refer to both sides of crime prevention, the emphasis is more on preventive crime control than on practical police work. Nevertheless, elements of police work such as the detection of crime is noted as a part of crime prevention.

Definitional complexity is also present in the term *administrative crime prevention* which needs to be clarified before turning to regulatory crime prevention. Administrative crime prevention has been mainly applied to the prevention of organized crime in Europe. It highlights the efforts to be taken at different levels before the crime has occurred and reported to the police or other relevant authority. In this context administrative crime prevention has for instance included denying criminals the use of a legal administrative infrastructure together with coordinated interventions to disrupt and repress crime (Spapens et al. 2015).

For the time being, administrative crime prevention is fairly new, and its content seems to be dependent on the person defining it in Finland (Hyttinen et al. 2019, 5-6). The leading thought is that administrative crime prevention is not limited to the police or even to governmental authorities but includes actors from the private and third sectors as well. Acknowledging the vagueness of the term, administrative crime prevention may be classified as efforts made with a goal to hamper the possibility of organized crime groups to advance their economic interests. This goal is reached by denying criminal groups the chance to take advantage of the licit economy. These preventive activities require sufficient knowledge on the illicit actors and activities. (Hyttinen et al. (2019, 8-10) As Hyttinen et al. (2019, 7-8) interestingly describe how practitioners, such as law enforcement agencies, might carry out administrative crime prevention without actually understanding the connection between their actions and crime prevention. Tilley (2009, 142) notes that “a key question for those trying to reduce crime is that of persuading those who are competent to contribute to crime prevention that they should do so” resonates well with the objectives of administrative crime prevention.

As these definitions above indicate, *regulatory crime prevention* is a hybrid and even nebulous concept the content of which depends on the purposes and context it is used. While the different terms associated with regulatory crime prevention are

detailed above, the wider picture of the concept may be defined through the characteristics it holds. As such, this thesis leans on the notion that successful regulatory measures and following regulatory crime prevention need to be agile. By forming an acronym AGILE,<sup>13</sup> La Vigne (2018) argues that in order to successfully combat crime regulatory measures need to be

- *A*daptable to the specific crime and its situational context
- *G*ermane to actors while responding to jurisdictional and geographic context
- *I*ncentive-based in order to promote compliance
- *L*egitimate in causes and consequences
- *E*valuated and analysed

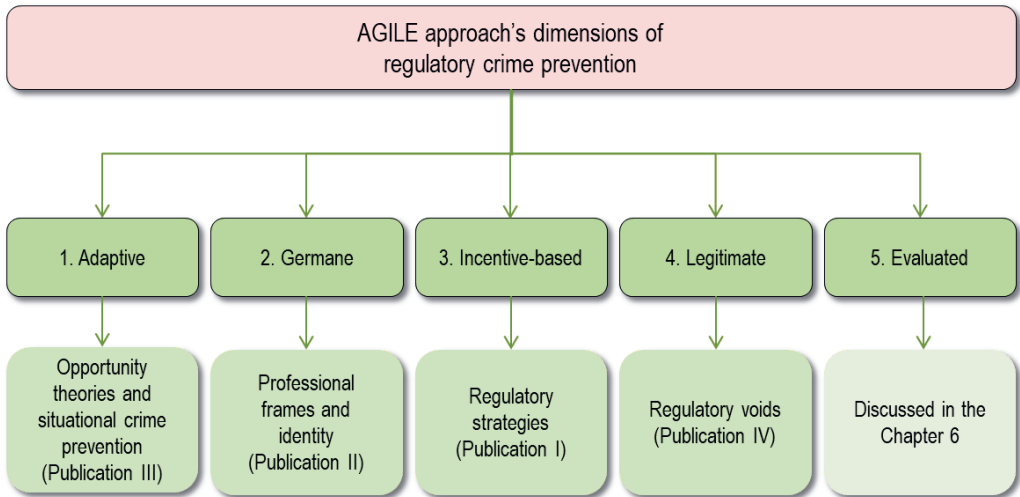
In the context of environmental crime this agility is of the utmost importance and justified as environmental regulation is characterized by the heterogeneity of environmentally regulated entities and complexity of topics and issues under it. Studies on environmental crime have emphasized the special characteristics of environmentally harmful activities which make them challenging to regulate and to prevent (see Brisman & South 2013, 116). For example, damage to the environment is difficult to assess and environmental crime is often seen as a victimless crime which is easy to commit (Comte 2006). Additionally, the definition of environmental crime is rather obscure for instance due to the variety of environmental laws and regulations. Thus, not every possible upcoming circumstance can be foreseen by legislation and rules (Carter & Morgan 2018, 1789).

In the following chapter I present regulatory crime prevention from the point of view of the five dimensions of the AGILE approach (Figure 7). I adopt and modify the approach to the context of environmental crime. Four of the dimensions reflect the theoretical frameworks applied in Publications I-IV. The fifth dimension deals with the evaluation of regulatory measures, which is discussed in more detail in Chapter 6. The dimensions and how they are understood in the context of this thesis are discussed in detail as their presentation

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<sup>13</sup> The inspiration for the AGILE approach is based on a special issue of the ANNALS of the American Academy of Political and Social Science (volume 679 issue 1) published in 2018. The issue engages “a range of areas, showing the promise that the regulatory framework holds for reducing and preventing crime” as described in the introduction (Freilich, Newman 2018, 15). The authors in the special issue discuss and analyze regulatory measures to prevent crime from several angles. In the final chapter La Vigne (2018) draws her AGILE approach from all the articles in the special issue.

in Publications I-IV is fairly limited: in order to understand the approach applied in this thesis in full it is necessary to appreciate the varied aspects of these frameworks gathered under the umbrella of the AGILE approach.



**Figure 7.** AGILE approach

### 3.1 Adaptive: opportunity theories and situational crime prevention

The first dimension of the AGILE approach deals with the adaptability of regulatory crime prevention. Regulation is facing more complex issues and problems making it nearly impossible for legislation and regulation to foresee all possible upcoming situations requiring enforcement and monitoring. As such, regulators must adapt to constantly evolving contexts and at the same time to crime-specific problems and their environments. What follows from this reasoning is the need to focus on the underlying opportunity structure of a specific crime (La Vigne 2018, 203).

To be adaptive to specific crimes as well as to their opportunity structures, the framework relies on opportunity theories which are adopted in the theory and practice of situational crime prevention. Opportunity theories focus on offence-based instead of offender-based perspectives and answer the question of how instead of why (Benson et al. 2009, 176; Huisman & van Erp 2013, 1178). In general, these theories assume that criminals selectively choose potential targets by

considering the pay-offs and risks of committing a crime (Cook 2011, 2). Opportunity theories vary from routine activity theory (see Felson & Cohen 1980), rational choice perspective (see Cornish & Clarke 2011) and crime pattern theory (see Brantingham, & Brantingham 1993) and further to lifestyle theories.

Opportunity theories in general assume a certain opportunity structure whether it refers for instance to a suitable target, motivated offender or capable guardian; nodes and paths; or choice structuring properties. Especially in the context of white-collar crime these opportunity structures are usually not fixed. Rather they are processes which create criminal opportunities related to legitimate business activities (Benson et al. 2009, 185). This is further highlighted by the fact that in white-collar crime the target is often not an identifiable victim (Huisman & van Erp 2013).

In the context of this thesis rational choice theory is especially relevant (Publication II). It argues that specific crimes are chosen due to specific reasons. As such, criminal decision making is crime-specific by nature (Cornish & Clarke 2011, 199). Interestingly, this is based on the same foundation as deterrence models (see Chapter 3.3). However, deterrence-based approaches see offenders as amoral calculators. As such, the severity of legal punishment offsets the motivation to offend, whereas rational choice theory has its foundations in the economic analysis of crime assuming that the offender seeks to maximize payoffs and minimize costs (Akers 1990, 654-655). Even though the basic idea of rational choice theory is based on rational decisions, individuals are assumed to have only bounded rationality which takes into consideration the constraints potential offenders face such as time, ability and knowledge (Smith & Clarke 2012, 294). Furthermore, the rational choice perspective assumes choice structuring properties which refer to the characteristics of the offense. These characteristics make the offense in question an attempting choice to particular offenders due to their goals, motives, expertise, and preferences (Cornish & Clarke 2011, 199).

Opportunity theories, especially rational choice theory, are closely related to situational crime prevention.<sup>14</sup> The goal of situational crime prevention is to “limit the harm caused by crime events by altering the more immediate causes of crime” (Smith & Clarke 2012, 291), or in other words “reducing the opportunities for specific categories of crime by increasing the associated risks and difficulties and reducing the rewards” (Clarke 1995, 91). The appeal of situational crime prevention has been the ability to constrain the criminal actions of the wider public instead of

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<sup>14</sup> While here it is not necessary to go into detail on the history and theoretical background of the situational crime prevention, an excellent review is provided by Clarke (1995).

focusing on identifying individual offenders and their motivations (Cornish, 1994, 153).

Situational crime prevention is first and foremost practical (see Smith & Cornish 2003): by modifying products, systems and environments, harm is reduced and the quality of life improved. As such, environments are modified to shape and modify crime opportunities (Huisman & van Erp 2013, 1181). For example, speed limits, traffic lights and airbags reduce the harm associated with road safety. In the context of the environment, situational measures such as regulatory systems are used and environmentally friendly behavior is encouraged, for example through tax-breaks. In the corporate realm illicit activities are prevented for instance through audits (Farrell 2010, 43).

Situational crime prevention theory has been modified and revised continuously due to the empirical findings and experiences gained from its application in practice (Cornish & Clarke 2003, 41). Cornish and Clarke (2003, 90) suggest a list of 25 techniques on how to apply situational crime prevention in practice. These techniques are divided into five characteristics of criminal opportunity (see also Benson et al. 2009, 183; Huisman & van Erp 2013, 1181):

1. effort required to carry out the offence;
2. perceived risks of detection;
3. rewards to be gained from the offence;
4. situational conditions that may encourage criminal action; and
5. excuses and neutralizations of the offence.

Despite its appeal to achieve concrete results in crime prevention, situational crime prevention has been criticized in relation to its ability to prevent expressive violations including emotional elements such as anger and hostility (Hayward 2007).

## 3.2 Germane: professional frames and identity

The second dimension of the AGILE approach is to identify the relevant stakeholders who have the resources and tools to implement regulation (La Vigne 2018, 203). The relevant authorities for environmental crime supervision and prevention and which are especially relevant to the objectives of this thesis are briefly discussed in Chapter 2. Using some criminological imagination, I argue that in the context of environmental crime the essential question is what is actually prevented. The answer to this question determines who are seen as stakeholders and actors of regulatory crime prevention and how they construct environmental crime.

In general, crime prevention which attempts to reduce criminal acts through regulation takes the view that the valid legislation defines what constitutes a crime.<sup>15</sup> However, law enforcement agencies have discretion at their disposal on how to monitor and enforce legislation; in other words, there is the law in the books and there is also the law in action, which both affect regulatory crime prevention. For this reason, professional frames and professional identity are germane to regulatory crime prevention if one wishes to understand how concepts of environmental crime and crime prevention are employed in different sectors and how these understandings affect regulatory crime prevention (Publication III).

Frames integrate facts, values, theories and interests into a perspective from which problematic situation can be made sense of and acted upon. Subsequently, framing is process of selecting, interpreting and organizing reality. As such, framing creates a basis for knowing and acting (Schön & Rein 1994, 145-146). In a way, frames are like a photographer's lens directing attention to some aspects of reality "while minimizing, obscuring, or excluding other aspects" as described by Pralle and Boscarino (2011, 325). Frames may also be described as normative prescriptive stories. Stability and structure are created through these stories (Laws & Rein 2003, 174). Frames affect how a policy problem is dealt with, at which level of interest it is done and further how the problem is constructed. For instance, when politics come into play, the policy problem may be framed in a way it supports preferred political solutions (Pralle & Boscarino 2011). This is illustrated in the field of environmental crime by the tendency to categorize illicit waste dumping and corporate offences as non-criminal (Crofts & Morris et al. 2010).

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<sup>15</sup> On the legalistic definition of environmental crime, see Situ & Emmons (2000, 3).



The literature on frames and policy problems is extensive, but here it is sufficient to use the concepts of frames and framing in conjunction with professional identity. Professional identity is here defined as a “shared understanding of the rules, beliefs, and habits of a particular group of professionals and representatives of a certain profession” (Sahramäki 2016, 196 based on Wackerhausen 2009, 460-461). At the macro-level, professional identity refers to the public face of the professional which is continuously transforming. Not only do the rights and status of a profession define it but its content is also constructed by neighbouring professions and public opinion. At the micro-level, professional identity incorporates educational aspects and cultural dimensions of the profession. It also includes rules of good conduct, such as to talk in a certain way, to ask certain questions, explaining and understanding things in a certain manner as well valuing one’s profession and telling narratives typical to the profession in question (Wackerhausen 2009). Consequently, a professional identity is “a process through which an individual creates a sense of belonging to a certain professional group” (Sahramäki 2016, 196 based on Wiles 2013, 864).

Another element of professional identity is the immune system, which blocks and rejects behavior which is foreign to the profession. In the most restrictive sense, this may limit conduct by condemning ‘stupid’ question and suppressing imagination and creativity (Wackerhausen 2009, 468). The same phenomenon is referred to with the term ‘territorial behavior’ which creates barriers for example to interprofessional cooperation, which may be seen as a threat to one’s own organizational and professional territory (Axelsson & Axelsson 2009, 321-322).

### **3.3 Incentive-based: regulatory strategies**

Third dimension of the AGILE approach argues that incentives are the basis for effective regulatory crime prevention. To be effective, regulatory crime prevention requires enforcement that has the means to an end, the ability to incentivize compliance (see La Vigne 2018, 207).

In the context of environmental crime prevention, incentives for compliance with environmental regulations are sought in form of several policy instruments (Publication I). Sticks as policy instruments usually refer to harsher monetary penalties or imprisonment resulting from non-compliance. Administrative penalties also have a potential to be a powerful sticks and might be seen as part of

deterrence. For example, revocation and suspension of an environmental license might be a serious deterrent compared to modest fines, which may be calculated as operating costs especially in larger companies. While sticks might be dependable and predictable policy instruments, they are also often inflexible and inefficient (Gunningham & Sinclair 1999, 859; Gunningham & Grabosky 1998, ch. 2; Fortney 2003). As such, relying on administrative and criminal sanctions may not always be the best option if the goal is to fortify the willingness of firms to obey regulations. Carrots as a policy instrument provide incentives to comply, such as economic incentives. However, economic incentives are often efficient but not dependable (Gunningham & Sinclair 1999, 859). Trading schemes, environmental management systems and taxes may be used as carrots to fortify compliance. Sermons on the other hand refer to social incentives for compliance and to moral obligations and principles. These instruments are noncoercive and often cost effective, but not necessarily reliable (Gunningham & Sinclair 1999, 859).

A variety of regulatory strategies aim to show how and when these instruments should or should not be applied. These regulatory strategies reflect their underlying assumptions about firms' motivations for compliance and as such which policy instruments are best suited to motivate compliance. Regulatory strategies vary along a spectrum where the punishment model (Becker 1968) is situated at one end and compliance models on the other (Scholz 1984; Scholz 1991); or to put it differently the spectrum reflects deterrent versus cooperative enforcement.

The punishment model is based on deterrence through criminal sanctions and prosecution and as such is traditionally seen as the core of crime prevention. The deterrence model originates from Becker's (1968) economic model<sup>16</sup> which assumes that an offender, characterized as an amoral calculator, estimates the potential costs associated with non-compliance and compliance and will offend if the expected benefits from offending exceed the costs of non-compliance. As such compliance should be sought through the threat of formal sanctions, making it essential to keep a close watch on regulated firms and proceed to prosecution to maximize the deterrence effect (Becker 1968; Faure & Visser 2004; Scholz 1984).

To have a deterrence effect, most of the illicit activities need to be detected and prosecuted, which requires significant resources making the deterrence model an expensive strategy (Ayres & Braithwaite 1992, 26). Additionally, the settings in which industries operate constantly change making it difficult, or even impossible,

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<sup>16</sup> There is quite extensive literature on compliance and regulation incorporating economic models (see e.g. Fenn & Veljanovski 1988; Malik 2007; Decker 2007; Arguedas 2008). However, economic models are out of scope of this thesis.

for legislation to keep up (Carter & Morgan 2018, 1789). Furthermore, offenders need to be convicted with sanctions severe enough to deter other potential offenders. However, this is rarely the case (see e.g. Ogus & Abbot 2002). Additionally, the fairness of prosecuting all corporations similarly has been questioned. Subsequently, tailored enforcement, where issuing different penalties for the same offence based on the type of organization in question, has been suggested (Fortney 2003).

At the other end of the spectrum, and academic debate, lie the compliance-based regulatory models (Gray 2006, 878; Scholz 1984; Scholz 1991). The compliance model is usually seen as inclining more towards cooperative-based strategies to ensure compliance with legislation. Cooperative enforcement is sought by leaning on policy instruments such as bargaining, persuasion and negotiation (Gunningham 2011, 174-177). Advocates of these strategies argue that strategic behaviour between regulators and those being regulated should be added to the analysis of the effectiveness of regulatory enforcement. However, these strategies are not exclusive and many scholars suggest incorporating elements from both ends of the spectrum as the most effective regulatory strategy (Burby & Paterson 1993; Harrison 1995).

Several studies conclude that a mix of policy instruments is needed for regulation to be effective as potential offenders are affected by different types of motivations, which require different types of policy instruments<sup>17</sup> (Winter & May 2001, 693; also Kagan et al. 2003, 76). One of the most often cited<sup>18</sup> publications is Ayres and Braithwaite's (1992) responsive regulation and pyramids of enforcement and regulatory strategies. Responsive regulation aims to overcome the dichotomy between regulation and deregulation. In other words, it suggests overcoming the inefficiencies of deterrence and cooperative models of regulation by attuning regulatory responses to the differing motivations of the regulated actors. The basis of this conduct may be a tit-for-tat exchange between the regulator and regulated actors or it may be based on restorative justice principles highlighting the need to help the regulated actors to comply and encourage more cooperation through cooperation (Braithwaite 2002; on the application of tit-for-tat enforcement see e.g.

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<sup>17</sup> One of the earliest accounts is Scholz's (1984) experiment in the prisoner's dilemma game. He concluded that tit-for-tit enforcement will result in beneficial cooperation between the regulator and regulated actor. By tit-for-tat he means conduct where as long as the regulated firm cooperates no deterrent response is necessary; if not, the regulator will use a deterrent response. As such, both parties are better off by cooperating.

<sup>18</sup> Even though the book *Responsive Regulation* by Ayres and Braithwaite was published in 1992 it has remained a much cited throughout the years (Ayres 2013, 145-146).

Gezelius 2019). Responsiveness opens possibilities to use a wide variety of regulatory approaches and as a regulatory strategy uses escalating forms of governmental intervention to ensure compliance (Ayres & Braithwaite 1992, 4-7).

The premise of an enforcement pyramid<sup>19</sup> is the suggestion that policy instruments used by a regulator harshen layer by layer if the regulated firm is unresponsive to the milder instruments. As such, regulation should move from persuasion to criminal penalty and license revocation as a last resort (Ayres & Braithwaite 1992, 35-36). Furthermore, the regulator may move up and down the pyramid depending on the regulated actor's responses and actions. Furthermore, while the enforcement pyramid is directed at a single firm, the argument is made for a pyramid of regulatory strategies which targets the entire industry. Again, regulatory strategies should start with the least coercive option such as self-regulation and move forward all the way to command regulation with nondiscretionary punishment when necessary (Ayres & Braithwaite 1992, 38-40).

### 3.4 Legitimate: regulatory voids

According to the fourth dimension of regulatory crime prevention, regulation needs to be legitimate (La Vigne 2018). Without legitimacy crime prevention through regulatory measures will not be achieved. Legitimacy is an essential part of the policy making process. However, the legitimacy of regulation and its subsequent enforcement is challenged in several ways. For instance, alongside the so called classical-modernist political institutions are civil society, new forms of mobilization and citizen-actors who challenge the rules and norms of the state-institutions (Hajer 2003). The legitimacy of regulation may be undermined also for example by the potential unintended consequences of regulations, such as creation of black markets and raising costs for consumers (La Vigne 2018, 209).

Deficiencies in regulation and its enforcement may also create opportunities for criminal activities. These deficiencies include regulatory failures which may be acute or chronic (Carter & Morgan 2018) and regulatory voids such as knowledge constraints, institutional limitations and political resistance (Short 2013, 23). In this thesis, the topic of legitimacy centres on these regulatory deficiencies which not

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<sup>19</sup> Using responsive regulation and the enforcement pyramid as a steppingstone, Gunningham and Grabosky (1998) build a framework for "smarter regulation". They suggest the design of a third phase of regulation combining governmental intervention with market and non-market solutions.

only cause erosion in the trust and confidence of the public in the regulatory regime but also create gaps in regulation and subsequent monitoring and enforcement (Publication IV). As such, these failures and voids also create criminal opportunities.

Acute and chronic regulatory failures are evident in the field of environmental crime. As a recent example, Fitzgerald and Spencer (2020) highlight the Volkswagen Emissions Fraud Case as a regulatory failure in Canada. According to them Canadian authorities failed to respond to the breaches, whereas in the United States the fraud resulted in several charges. Chronic regulatory failures erode the trust and confidence in the regulatory system and as such the regulators' legitimacy. In fact, regulatory trust is an important factor in regulatory legitimacy. It is comprised of expertise, stewardship and transparency. (Bratspies 2009; see also Carter & Morgan 2018). For instance, the reputation of regulators may problematize regulatory decision-making and regulatory efficiency (Rothstein et al. 2006, 1057). It has been acknowledged that regulatory agencies may suffer from inertia, malaise, under-resourcing and capture by the industries the agencies are regulating, which all have negative effects on public trust in the regulators (Hutton 2000).

Acute regulatory failures on the other hand can be adequately characterized as regulatory disasters:

A catastrophic event or series of events which have significantly harmful impacts on the life, health or financial wellbeing of individuals or the environment, caused, at least in part, by a failure in the design and /or operation of the regulatory regime put in place to prevent their occurrence. (Black 2014, 1)

A regulatory void as a concept takes a broader view of regulatory deficiencies than the failures described above. In this thesis, a regulatory void is taken to mean "spaces in which government regulation, in particular, is perceived to be deficient" as defined by Short (2013, 27). In other words, it can be described as a lack of something, such as a lack of sufficient information, lack of consensus about the rules or lack of competent enforcement institutions. While Short (2013) used regulatory voids in her study to describe and discuss spaces in which self-regulation is typically employed, in this thesis regulatory voids are used to analyse deficiencies in the regulation of environmental crime (Publication IV). Short's categorization of regulatory voids as political voids, knowledge voids and institutional voids provides a useful tool to map out the points where regulation fails and criminal opportunities arise.

Political voids not only imply disagreement over the nature of the problem but also the ways the problem should be handled. When political voids exist, effective regulatory enforcement may be difficult or even impossible (Short 2013, 28). A lack of legitimacy and poor regulatory compliance may also be the result of a political void: if political support for regulatory measures is absent regulators struggle to ensure effective enforcement and deterrence actions (Parker 2006). Political voids may also result from developing regulatory solutions which fit with the political needs but do not reduce the risk they were originally made for or displace the harm without actually reducing it (Haines 2009, 35-36).

According to the famous description provided by Hajer (2003, 175), an institutional void refers to the context in which the policy making is currently embedded: “there are no clear rules and norms according to which politics is to be conducted and policy measures are to be agreed upon.” While acknowledging the significance of this definition of an institutional void and its relevance, in the present study institutional voids are discussed in the context of regulatory crime prevention instead of policy analysis. Here, an institutional void is seen in a highly practical manner as a void which may occur when there is a lack of resources and the skills needed to regulate effectively (Short 2013, 28).

When there is a lack of sufficient information and knowledge, another type of void may occur. These knowledge voids cause failures in the existing regulatory regime (Short 2013, 28). As a study focusing on environmental regulation in the United States discussed, enforcement gaps exist when regulators are not aware of all the firms which should be subject to regulation (Andarge & Lichtenberg 2020, 182-183). Additionally, if regulatory crime prevention is to be effective, there needs to be information and knowledge of the different processes related to the topic matter, otherwise, regulation may not be directed accordingly. Furthermore, Short (2013, 27) argues that “knowledge may be produced and deployed strategically to construct particular activities as unproblematic or unregulatable”.

### 3.5 Evaluated and analysed

The fifth and final dimension of the AGILE approach is the call for evidence-based research. Through research, regulations may be justified and legitimized and the consequences of the regulatory measures may be identified, and regulations adjusted. Furthermore, analysis provides a means to understand situational contexts and opportunity structures. Evaluation and analyses are also highly

important for the specification of the crime problem. If a crime problem is not specified accurately responses to it are ineffective and will waste time and resources (La Vigne 2018, 211).

My attempt in this thesis is to answer to this call by analysing the regulatory environmental crime prevention in Finland. The analysis concentrates on the characteristics of regulatory crime prevention through the analysis of the dimensions of the AGILE approach presented above. In Chapter 6 the findings of the analysis conducted in this thesis are discussed in more detail. However, the focus is not on the consequences of the regulations as suggested by La Vigne (2018, 211). Evaluation as a topic for future research is discussed in Chapter 6.

## 4 DATA AND METHODS

This thesis applies qualitative methods. Methodological and data diversity is used to deepen the understanding of regulatory crime prevention in the context of environmental crime. Even though traditional criminology has been based largely on quantitative studies, research adapting green criminological perspectives has mainly been qualitative which has also been seen as a weak aspect of green criminology by some (Favarin & Aziani 2020, 352-353). However, as the objective of this study is not only to analyse the characteristics and framings of the regulatory prevention of environmental crime but also to give voice to professionals involved in the process, a qualitative approach is appropriate choice here.

The following chapter presents the four data methods/approaches adopted in this thesis: a comparative perspective with data triangulation (Publication I), a discursive approach to semi-structured interviews (Publication II), a crime script analysis of two case studies (Publication III), and a Delphi study (Publication IV). The goal of each method and data are presented briefly in Table 1.



**Table 1.** Summary of methods and data

Publication	Methodology		Data	
	Method	Goal		
Publication I	Comparative perspective	Comparing environmental enforcement between Finland and Sweden	Identifying the main differences and similarities in enforcement between Finland and Sweden and how crime prevention through enforcement can be developed further.	Statistics, legislation, governmental documents
Publication II	Discursive approach	Using discourse as a set of meanings and representations through which issues are represented in a certain light; people construct identity through spoken language	Identifying the ways in which enforcement agencies socially construct their perception of environmental crime and how their constructions impact environmental law enforcement.	Semi-structured interviews with 8 police officers and 12 representatives
Publication III	Crime script analysis	Unfolding crime commission process and opportunity structures	Identifying the opportunities for illicit waste dumping in Finland and providing practitioners in environmental law enforcement tools for waste crime prevention	Convictions of District Courts and the Court of Appeal
Publication IV	Delphi study	Modified policy Delphi in order to structure group communication process allowing a group of individuals to deal with a complex problem.	Identifying regulatory voids in the prevention and supervision of illicit waste activities and how they affect enforcement.	28 semi-structured interviews, 3 questionnaires, final seminar

## 4.1 Comparative perspective with data triangulation

The first approach is a comparative analysis of several data sources between Finland and Sweden (Publication I). In a specific sense, a comparative study refers to a formalized way of integrating within-case and cross-case analyses seeking to move beyond qualitative and quantitative strategies (Ragin 2014; see also Rihoux & Marx 2013). In a broader sense, a comparative study refers to comparing phenomena with each other (see Crawford 2009). This study belongs to this latter category. Comparison was used here as a means to study the enforcement perspective on the prevention of environmental crime. The goal was to recognize differences and similarities in environmental crime prevention (see e.g. Paisey & Paisey 2010; Usunier & Sbizzera 2013).

The comparison here is based on a limited set of data between two countries, Finland and Sweden. It was conducted by first recognizing the available and possible data from both countries which could be considered equal enough for comparison (Publication I). Data triangulation was used to facilitate a deeper understanding of the prevention of environmental crimes. Data triangulation refers here broadly to using different data sources in the same study (discussion on triangulation see Hussein 2009).

The selection was based on several criteria and guided by the focus on the environmental enforcement chain in Finland and Sweden. The data was divided into two categories: legislation and statistics. In addition, reports from the authorities were used as background information. The focus on enforcement ranging from environmental protection agencies and preliminary investigation authorities to the prosecutors directed the data selection also to the legislation the enforcement was based on. The roles and responsibilities of environmental authorities are also set in legislation. Furthermore, the legislation includes the essential elements of environmental crimes and their sanctioning. As such, legislation was the main data source in this study.

In addition, statistics were used to compare the environmental crimes reported to the authorities in both countries. Statistics on reported suspected environmental crimes were obtained from the National Police Information System and General Prosecutor's Office in Finland. Statistics from Sweden were received from the Swedish National Council for Crime Prevention. Some limitations should be noted when using official crime statistics as a data source as already discussed briefly in Chapter 2.3. To summarize, as environmental crimes are largely hidden crimes it is reasonable to assume that the number of crimes reported to the police is lower

than the actual number of environmental crimes which have occurred. Additionally, it has been argued that the criminal statistics are first and foremost an indicator of how enforcement agencies manage their monitoring and enforcement activities. For instance, as most environmental crimes are detected by environmental protection agencies, the official crime statistics may in fact tell more about the resources these agencies have at their disposal than the actual amount of crime (Korsell 2003).

Additionally, reports and strategies from the authorities were used to gain background information on the implementation of environmental legislation. At the time the study was conducted, Finland did not have a separate strategy on environmental crime prevention. The Strategy for Preventing Environmental Offences in Finland was published in 2015 (Ministry of the Environment 2015) while the data for Publication I was collected in 2014.

In Sweden, the National Police Board and environmental crime prosecutors produced the 'Strategy for Environmental Crime in 2010'. The strategy provided the authorities with recommendations on effective prevention, supervision and investigation and identified challenges associated with them (Riskpolisstyrelsen & Åklagarmyndigheten 2010). Additionally, the Swedish National Police Board published a report regarding the handling of environmental crimes by the Swedish Police in 2013. This report is quite comprehensive including interviews with police officers, environmental protection authorities and Central Criminal Police. (Rikspolisstyrelsen 2013).<sup>20</sup>

In order to gain comparable documented background information from Finland, the annual report of the multiagency working group called the Finnish National Monitoring Group was used as data. The yearly report includes statistics as well as views on the upcoming issues related to environmental crime prevention (Finnish National Monitoring Group 2013). Furthermore, the report 'Legality Control of Environmental Legislation in 2006' was utilized to gain an understanding of the environmental protection agencies' points of view on environmental crime (Pennanen 2006).

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<sup>20</sup> In addition to the Swedish documents, I was invited as a researcher to participate in an environmental crime seminar near Stockholm in 2013. The seminar is organized yearly as a gathering for police officers involved in the investigation of environmental offences, environmental protection agencies and environmental crime prosecutors. As an observer, I was able not only to listen to the discussions and presentations during the programme, but also to discuss with several representatives of the Swedish authorities and gain insight into the Swedish context. Even though, the information from the seminar was not used in the study as a data, it affected the reading of the Swedish data and deepened my understanding of it.

## 4.2 Discursive approach to semi-structured interviews

The second method and dataset involved a discursive approach with semi-structured interviews (Publication II).<sup>21</sup> Discourse analysis is fairly popular and at the same time a contested and heterogeneous field which has evolved since the 1960s (Livholts & Tamboukou 2015, 3-5; Angermuller et al. 2014, 1-2). Following this diversity, there are no strict rules on how one should conduct a discourse analysis (Livholts & Tamboukou 2015, 3-5). While this kind of flexibility provides opportunities, it also creates challenges and requires careful definition of what is meant by discourse in the study in question.

In general, advocates of discourse theory and analysis share the social constructivist view and the thought of “discourse as constitutive of the social world—not a route to it—and assumes that the world cannot be known separately from discourse” (Phillips & Hardy 2002, 5-6). Several categorizations have also been made. Phillips and Hardy (2002, 20-21) categorize discourse approaches on a horizontal axis, where constructivists are located at the one end and critical approaches at the other, and a vertical axis between the context and text. Further, they locate interpretive structuralism, social linguistic analysis, critical discourse analysis and critical linguistic analysis along these axes. Angermuller et al. (2014) on the other hand provide an extensive review of the philosophical underpinnings and theories associated with discourse analysis. They (2014, 6) describe discourse theories revolving around the nexus of power, knowledge and subjectivity, while methodologically the analysis deals with language, practice and context. They further conclude that there are two main, although not strictly separated ways discourse is used: to develop a socio-historical understanding interested for example in the concept of power (on critical discourse analysis see e.g. Blommaert 2005); and for a pragmatic understanding which views discourse as a practice and process of contextualizing text.

While discourse analysis often provides a theoretical and methodological whole, here discourse is used as a resource. As such a discursive *approach* describes the choice of method most adequately. The approach leans on Wiles’ (2013, 856-857) take on discourse analysis which highlights how people construct identity through spoken language. Subsequently, discourse is defined as “a set of meanings and representations through which issues are represented in a certain light and they produce a particular version of events” (Sahramäki 2016, 197 based on Burr 1995,

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<sup>21</sup> In Publication II the presentation of the discourse analysis and interviews is fairly limited, thus it is discussed here in more detail.

48). Further, social problems are given particular shapes and meanings in discourse. As such, problem definitions and policies are created (Bacchi 1999, 199-200).

An analysis of discourse was applied here to interview transcripts. I conducted interviews with 8 police officers and 12 representatives from environmental protection agencies in Southern Finland in 2013. The duration of the interviews was approximately 1 h 30 minutes and they were conducted at the work premises of the interviewees. The interviews were recorded with the permission of the interviewee and later typed out for the purposes of the analysis.

The selection of the interviewees was based on two notions. First, I conducted the interviews as a part of a research project at the Police University College of Finland. In the project, the supervision and prevention of environmental crime and especially cooperation between authorities was analyzed. The focus was on the Uusimaa region in Finland. The Helsinki metropolitan area was not included in the study, as a previous authority report<sup>22</sup> concluded that challenges in cooperation between authorities in the field of environmental crime prevention were most evident in the smaller municipalities. Second, as the purpose was to study professional identities and framing of environmental crime from the point of view of the main authorities involved in environmental enforcement, police officers and environmental protection authorities were selected as interviewees. These individuals were involved with the topic through their profession and duties designated to them. As such, the selection of interviewees also supported the theoretical concept of professional identity applied in the study.

The main reason for the choice of semi-structured interviews as a method was to empower and facilitate discussion with the possibility of highlighting values especially important to interviewees. As environmental crime from the social sciences point of view in Finland was fairly unstudied during the time the interviews were conducted the chosen method provided room and flexibility for the interviewees to raise new topics and issues for the study. In addition, semi-structured interviews allowed the interviewees to reflect their thoughts fairly freely throughout the interviews (Tuomi & Sarajärvi 2009, 73; Hirsjärvi & Hurme 1997, 48).

The interviews dealt with five broad themes: operation models, forms of cooperation, information sharing, resources and professional expertise, and the strengths weaknesses of the authority in question. The presentation of these topics and their order fluctuated between different interviews (see Eskola & Suoranta

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<sup>22</sup> Keskusrikospoliisi (2007) *Lokki-projekti*. (not publicly available)

1998, 87). The formation of these themes was based on a literature review which combined academic studies, and reports and documents from the authorities.

The purpose of the interviews was to allow the authorities to reflect upon and construct the topic. As such, the method enabled the interviewees to consider issues related to the prevention and investigation of environmental crime. Furthermore, the chosen method allowed the interviewees to discuss values and associations linked to the topic. As such, as an interviewer I did not have a stable list of questions.

The analysis of the interview transcripts consisted of two stages. During the analysis I identified patterns, recurring phrases and ideas across the whole sample (Wiles 2013, 856-857). In the first stage, I read the transcripts several times and searched for recurring words, phrases and ideas. Emerging patterns constituted interpretative repertoires which are a way to talk about certain phenomena, such as environmental crime. I recognized several recurring themes and concepts as well as linkages. In the second stage, I analyzed how the interviewees used these discursive patterns to construct and convey environmental crime prevention and their professional identities.

### 4.3 Crime script analysis of two case studies

The third approach utilizes crime script analyses for two waste crime cases (Publication III). A crime script analysis, or script-theoretic approach, originates from the work by Cornish (1994). In the most basic sense, a script refers to knowledge structures which guide us on how to enact commonplace behavioral processes (Cornish 1994, 157-158). A restaurant visit is an often used example of a script illustrating the relation between past and upcoming events. A restaurant visit includes entering the restaurant; waiting to be seated; being shown to your table; receiving a menu; deciding what to order; ordering; being served; eating; asking for the bill; paying the bill; and exiting the restaurant. Essential to script is its sequential nature (illustrated in the restaurant example) and the idea that what happens now affects what happens next. (Tompson & Chainey 2011, 185)

Cornish (1994, 151) adopted elements from cognitive studies in his script-theoretic approach and argued that

A script-theoretic approach provides a way of generating, organizing and systematizing knowledge about the procedural aspects and procedural requirements of crime commission. It has the potential for eliciting more crime-specific, detailed and comprehensive offenders' accounts of crime commission, for extending the

analysis to all the stages of the crime-commission sequence and, hence, for helping to enhance situational crime prevention policies by drawing attention to a fuller range of possible intervention points.

Following Cornish's ideas, a crime script analysis provides support for situational crime prevention. The bedrock of situational crime prevention is the assumption of rational offenders weighing the costs and benefits of crime commission and the goal to tailor crime-specific measures to prevent crime (Cornish, 1994, 153-155) as discussed in Chapter 3.1. Cornish (1994) felt that the script-theoretical approach could assist in relating crime prevention measures systematically to possible intervention points and as such could provide more specific ways to address crime. Additionally, the approach specified crime prevention efforts by elaborating the decision making process of committing a crime and eliciting detailed information.

Only a few studies have utilized a crime script analysis to pin down the commission of crime related to illicit waste activities.<sup>23</sup> In an exemplary manner Baird et al. (2014, 103) mention a crime script as way to study waste crime and provide a brief example of a crime script for the illegal collection of tires. A crime script analysis has also been applied in the context of cross-border waste trafficking (Sahramäki, Favarin et al. 2017). Both of these studies rely on the work by Tompson and Chainey (2011, 185) who modified crime script analyses to respond better to the context of waste crime and to the needs of practitioners.

These scripts can have several levels of abstraction, which in Cornish's terms move from a universal script, metascript, protoscript to the script and further to a specific track (Cornish & Derek 1994, 159). To illustrate these levels, the *metascript* is the theft of property, a *protoscript* would be robbery, while the *script* would represent robbery from a person, and a *track* could be for instance a subway mugging, while a *universal script* comprises all of these levels. A crime script analysis utilizes theatrical terms in describing the commission of a crime. As such the script is composed of scenes, paths, actions, roles, props and locations.

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<sup>23</sup> In their extensive systematic review of the application of crime script analysis in criminological studies, Dehgharrini and Borrion (2019) found that the use of crime script analysis has grown steadily since Cornish launched his adaptation of script to situational crime prevention techniques. Crime scripts have been applied to studies focusing on cybercrime, corruption and fraud offences, robbery and theft offences, drug offences, violent crime and sexual offences. In the field of environmental crime, crime scripts have been mainly used to describe crime related to wildlife (see e.g. Hill 2015; Lavorgna 2014; Petrossian & Pezzella 2018; van Doormaal et al. 2018; Viollaz et al. 2018) .

In order to remain approachable, the terminology used here is based on the modification made by Tompson and Chainey (2011). As such the scripts include *acts* which are the key stages in which the crime process occurs. In the context of waste crime, these are named creation, storage, collection, transport, treatment and disposal of waste. All of these acts are further divided into four *scenes* which in the context of waste crime are:

1. *Preparation*: identification of opportunities for crime.
2. *Pre-activity*: the steps that need to be carried out before the activity.
3. *Activity* refers to the illicit activity itself.
4. *Post-activity*: the steps needed to exit from the illicit activity.

When describing these scenes, the actors and activities involved in them should be taken into consideration. Furthermore, all scenes include offending conditions which offender may take into consideration. The offending conditions are comprised of prerequisites and facilitators. In addition, scenes include enforcement conditions such as responsibilities as well as legislation and regulations. Table 2 illustrates the relation of the concepts applied in the crime script analysis.

**Table 2.** Example of script structure

Metascript: <i>Environmental crime</i> Protoscript: <i>Corporate environmental crime</i> Script: <i>Waste crime</i> Track: <i>Illicit waste dumping</i>		
Acts	Scenes	
Creation	<i>Preparation</i>	Cast
		Activities
		Offending conditions → Prerequisites
		→ Facilitators
	Enforcement conditions → Responsibility	
		→ Legislation and regulation
	<i>Pre-activity</i>	"
	<i>Activity</i>	"
	<i>Post-activity</i>	"
Storage		"
Collection		"
Transport		"
Treatment		"
Disposal		"



In this thesis, a crime script analysis was applied in two case studies in the following way. First, three *acts* were recognized from the data which helped to break complex issue into more manageable pieces (see Tompson & Chainey 2011, 188). These acts were the collection/transportation, treatment and disposal of waste. Second, from these three acts four *scenes* were defined. The cast and activities involved in all of these steps were identified. Taking the script description further, the offending and enforcement conditions in these scenes were established. Offending conditions refer prerequisites such as the physical equipment, human resources and knowledge the offender might have taken into account during the process. Offending conditions also include facilitators, for instance potential rewards, as well as the perceived risks and costs of being caught. Enforcement conditions on the other hand include question of agency responsible for the waste activity in question and their enforcement powers. Additionally, legislation and regulation are part of enforcement conditions affecting the commission of crime (Tompson & Chainey 2011, 188-191).

Finally, after writing the scripts of the two case studies, charts describing the commission of the crimes in the particular case were drawn. In these charts, also the licit forms of action were recognized with the purpose of identifying the points where the licit action becomes illicit.

Two case studies were chosen as data for the crime script analysis. The chosen cases, Lokapojat and Petokaivin (Table 3), were selected for three main reasons. First, a report providing information on waste crimes for which convictions have been given in the court of appeal concluded that the amount of confiscated monetary benefit was the significantly higher in these two cases compared to any other cases 1994–2014. As such, they were considered the most severe cases of waste crime in Finland during that period as most of the sanctions for environmental crime are monetary. Second, non-appealable judgements were available on both cases. Finally, both cases deal with crime committed during corporate activities.

**Table 3.** Case studies (Publication III)

Lokapojat			
Field of activity	Waste crime case with conviction		
	<i>Timeline</i>	<i>Illicit activities</i>	<i>Conviction</i>
Collection and treatment of sewage, oil waste and waste from grease extraction wells in the Helsinki metropolitan area	1999-2008	The corporation dumped and treated the waste they collected illicitly causing environmental damage as well as misinformed waste treatment plants about the contents of waste trucks in order to save on waste treatment costs.	The managers of the corporation were convicted of aggravated fraud and aggravated impairment of the environment in the District Court as well as in the Court of Appeal. The managers were sentenced to four years of imprisonment and ordered to pay EUR 1 million in reparations
Petokaivin			
Field of activity	Waste crime case with conviction		
	<i>Timeline</i>	<i>Illicit activities</i>	<i>Conviction</i>
Focus on construction sites, such as demolition and subsequent transportation of waste produced in the constructions sites in the Porvoo region.	1999-2006	The corporation used waste from demolition site to construct foundation motocross track illicitly and was also accused of oil spills surrounding corporation's property	The CEO and one board member were prosecuted for the impairment of the environment. The district court convicted the bankrupt's estate to pay damages of over EUR 800000. The CEO was ordered to repay EUR 30000 in economic benefit that was illegally gained and was sentenced to 80 days of conditional imprisonment. In addition, the CEO and the board member were ordered to pay over EUR 30000 in regard to the oil dumping decontamination measures. However, the board member appealed, and the Court of Appeal reduced the fines given by the district court.

Convictions of the District Courts and the Court of Appeal were the main data source. However, court decisions do not include specific data which would provide details on offenders and on the commission of crime. To overcome this obstacle, I was granted the possibility to acquaint myself with the pre-trial investigation material of the two cases. Due to its classified and non-public nature this material was not used as an official data source in this study. However, hearings, technical information and expert statements included in the material provided indispensable deeper knowledge about the commission of the crimes and aided in the interpretation of the court decisions.

## 4.4 Delphi study

The fourth and final approach of this thesis is a modified policy Delphi<sup>24</sup> (Publication IV). Conventional forms of the Delphi method seek to find consensus among participants. The consensus is sought typically in a three-round study where consensus is developed during the final round (see Brady 2015; Dalkey 1969; Linstone & Turoff 1975, 3). According to the Linstone and Turoff (1975, 3)

Delphi may be characterized as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem.

However, nowadays the Delphi method is used in several ways varying from consensus building to collaborative decision making and finding dissenting opinions. Furthermore, a Delphi study may be carried out in various ways. To illustrate this, in a study seeking consensus on elements of conducting a forensic mental health assessment for Australian courts a two round Delphi study was used incorporating a questionnaire in the first round and semi-structured interviews in the second (Bycroft et al. 2019). As another example, the concept of urban security and its definition was studied in a three round policy Delphi comprised of three participant panels (Edwards & Hughes 2013). Furthermore, Delphi studies vary from multiple consensus seeking rounds to real-time meetings and forums to generate solutions for decision makers (Fletcher & Marchildon 2014, 3; Linstone & Turoff 1975, 5).

The Delphi method is generally considered to be an appropriate choice when the problem in question would benefit from subjective judgments on a collective basis; the topic is a complex problem where the communication of individuals concerned is missing; there are severe disagreements between individuals concerned resulting in the need for assured anonymity in the communication process; and the number of individuals concerned is substantial making face-to-face communication ineffective and frequent group meetings infeasible (Linstone & Turoff 1975, 4).

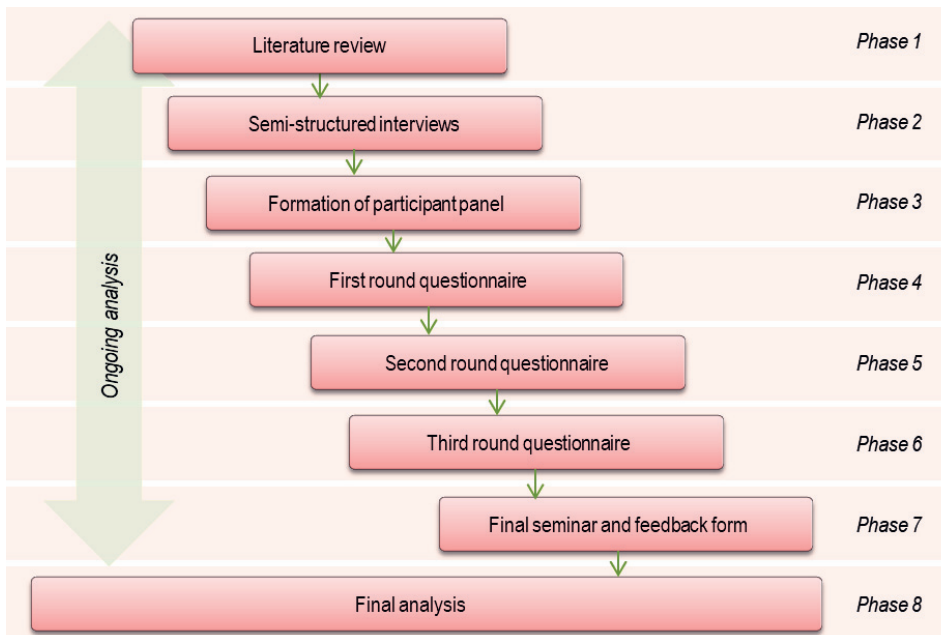
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<sup>24</sup> The Delphi method originates from Rand Corporation's "Project Delphi" in the 1950s, when the method was used in the cold war era to select an optimal U.S. industrial target system from the point of view of a Soviet strategic planner (Dalkey 1969). Interestingly, the method was named Delphi after the oracles in Ancient Greek. The Delphi Method. Techniques and Applications, book by Linstone and Turoff, was published in 1975 and again in 2002 as an e-version. The publication has become much cited ground for researchers applying various modifications of Delphi.

Here a Delphi method was used to examine whether there are regulatory voids in the prevention and supervision of illicit waste activities in Finland and how they may affect enforcement (Publication IV). The Delphi approach was considered a desirable choice for several reasons. First, the prevention and supervision of environmental harm and crime is a complex topic which not only requires multidisciplinary expertise but also needs effective inter-sectoral cooperation. Second, the Delphi provided practitioners with a possibility to enhance discussion and consideration on the topic. Third, an online Delphi could provide a platform where several participants from geographically disperse area could be reached cost effectively compared to face-to-face meetings.

The method used in this study can be best described as modified policy Delphi. Following the guidelines of a policy Delphi, it examines statements, arguments, comments and discussion around the research topic (Turoff 1975, 85). Instead of seeking consensus, alternatives, opinions and pro and con arguments were brought forward. The focal point of the study is an iterative process where key findings were fed back to the participant panel for further comments (Franklin & Hart 2007, 238; Fletcher & Marchildon 2014, 4).

A Delphi study was conducted in Finland between the autumn of 2014 and spring 2015. The structure of the applied Delphi study is presented in Figure 8.



**Figure 8.** Phases 1-8 of the Delphi study

28 semi-structured interviews were conducted and used as background information together with a literature review (Phases 1-2). Altogether 74 representatives from the pre-investigation authorities, environmental enforcement authorities, academia, prosecution and private sector representatives were invited to participate in the panel and in the three Delphi rounds (Phases 3-6).

The first questionnaire was sent online to 74 participants with a covering letter explaining the purpose of study and the structure of Delphi study. All of the participants were addressed personally and requested to commit to all the rounds. The participants had two weeks to respond after which reminder emails were sent. In the first round the response rate was 91% (Phase 3).

The data obtained from round 1 was analyzed. The findings were summarized and fed back to the participants for further comments as a part of the second round questionnaire. The purpose of this step was to check the rigor of the data and also to provide opportunity to include new insights (Brady & O'Connor 2014, 216; Brady 2015). The findings from the first round were used to construct the questionnaire for the second round. The claims and questions were formed to specify the first round responses and deepen the findings. They included multiple choice questions, the evaluation of themes on a scale and open questions. The second round questionnaire was sent to the 67 participants who answered the first

round questionnaire. Again, the participants had two weeks' time to respond. The response rate in the second round was 82% (Phase 4).

After the data from round 2 was analyzed, the findings were fed back to the participants and the questionnaire for the third round was constructed. The third round included nine scenarios which were created based on the findings from the first and second rounds, the interviews of the second phase and literature review in the first phase. Participants were asked to comment freely on the feasibility, reliability and significance of the scenarios as well as include comments on other issues they may wish to highlight. The third round questionnaire was sent to the 55 specialists who answered the round 2 with two weeks' time to respond. The response rate was 80% (Phase 5). The themes, content, number of invited participants and response rates from all three rounds are summarized in Table 4.

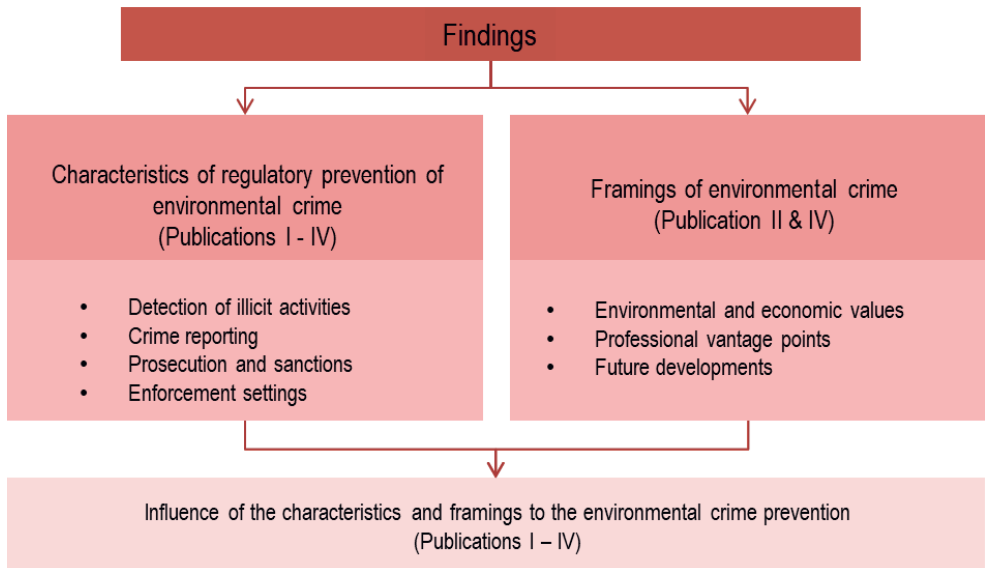
A voluntary seminar was held for the participants in order to discuss the preliminary findings and promote discussion between representatives from different sectors (Phase 7). The analysis was ongoing throughout the process which made the final analysis easier (Phase 8). However, it should be noted that reporting the significant amount of data in one article with limited space, the findings has to be summarized and compacted tremendously which without a doubt will lead to some loss of data.

**Table 4.** Themes, contents, and response rates in Delphi rounds I-III

Delphi round	Themes	Content	Number of invited participants	Response rate
I	prevention, supervision and exposing illicit waste activities; enforcement tools; characteristics of illicit waste activities; and interpretations and development of legislation	33 claims	74	91%
II	exposing illicit waste activities; exchange of information; development and current state of relevant legislation; and future challenges in the prevention and supervision of illicit waste activities	11 claims	67	82%
III	nine scenarios		55	80%

# 5 FINDINGS

As defined in the Introduction, this thesis answers the questions: what are the characteristics of the regulatory prevention of environmental crime; how is environmental crime framed during regulatory enforcement; and how do these characteristics and frames influence environmental crime prevention? The structure of the findings chapter follows the research questions of this thesis (Figure 9).



**Figure 9.** Structure of the Findings

First, the findings regarding the characteristics of the regulatory prevention of environmental crime are presented. Second, the findings on the framings of environmental crime are set forth. Finally, the influence of these characteristics and framings on environmental crime prevention are discussed. The findings are based on Publications I-IV.

## 5.1 Characteristics of regulatory enforcement

Below the findings related to the detection of illicit activities, crime reporting, prosecution and sanctions as well as and enforcement settings are presented.

### 5.1.1 Detection of illicit activities

Most illicit corporate activities related to the environment are detected by environmental protection agencies. The findings indicate points where illicit waste activities might be detected most efficiently (Publication III). As the crime script of the Lokapojat case shows, the corporation chose to collect mixed-waste loads, instead of collecting each waste type separately. They transported the mixed loads to waste treatment plants. Further, waste loads were also transported to the facilities on the corporations' premises where they were handled illicitly. Another way the corporation disposed of waste was by pouring it into drains and transporting it to landfills intended for pure soil. The crime script analysis reveals that during these acts, an illicit path was chosen instead of a licit one. These findings suggest that illicit activities might have been detected during transportation, at the final destination and during site visits to the corporations' premises, as the corporation was operating under an environmental license supervised by environmental agencies (Publication III).

However, the Delphi study indicates that the authorities and third/private sector have quite varied views on where illicit waste activities might be detected most efficiently (Publication IV). Most disagreement was on how illicit activities related to electronic waste, scrap cars, scrap yards, dangerous substances, dumping and the reuse of waste could be detected. Nevertheless, demolition waste and wastewater was seen to be detected most efficiently at the point of origin or at the final destination; while illicit waste exports and imports could be best detected during transportation. Further, traffic enforcement was highlighted as an efficient way to detect illicit waste flows across borders. Dangerous substances were seen as the most pressing concern related to illicit waste activities (Publication IV).

The findings emphasize cooperation between regulators and those being regulated (Publication II & IV). Interestingly, the participant's panel of the Delphi study considered cooperation between preliminary investigators and the private/third sector to be essential for the detection of environmental crimes, while the semi-structured interviews emphasized cooperation between regulators and



those being regulated (Publication II & IV). However, there were differing views regarding how important visits by supervisory authorities to the sites of those being regulated were for the supervision and prevention of illicit waste activities (Publication IV). Interestingly, the crime script for the Lokapojat Corporation shows that managers were able to mislead environmental inspectors during site visits as they were given advance notice of the upcoming site inspection (Publication III). As such, there appears to be lack of capable guardianship which would detect and prevent illicit activities through enforcement procedures. As another example, the corporations studied here were also able to disobey their environmental licenses for several years (Publication III).

Furthermore, the findings show that the organizational culture and social networks play essential roles in creating criminal opportunities and making detection more challenging. For example, the Lokapojat Corporation had a crime-facilitating operational culture where employees were strictly forbidden to discuss waste activities to outsiders and were threatened with penalties if they did so. In both case studies, several employees were aware of the potentially illicit activities taking place but chose not to report them to officials or were potentially unaware of the illicit nature of these activities. In addition, corporate managers had advanced knowledge of how to take advantage of the criminal opportunities, such as targeting waste transports to waste treatment plants which were unlikely to be supervised effectively making the detection of illicit activities less likely (Publication III).

The findings of the crime script study show that both decreasing objective and subjective opportunities for crime are needed for the situational prevention of illicit waste activities to be effective. Subjective opportunities refer for instance to company's crime-facilitating culture, while objective opportunities on the other hand refer for example to the risk of being detected (Publication III).

### 5.1.2 Crime reporting

Statistics show that significantly more environmental crimes are reported to the police in Sweden than in Finland: in 2012, 1,500 cases of impairments and aggravated impairments of the environment were reported in Sweden while fewer than 200 were reported in Finland. Additionally, when examined per 100,000 inhabitants the number was significantly lower in Finland: the number was below 3 in Finland and 16 in Sweden in 2012. The comparison also shows that Swedish

legislation orders environmental protection agencies to report suspected crimes to the police, whereas in Finland some discretion is allowed. This discretion is described in Section 188 of the Environmental Protection Act (527/2014), according to which no notification is needed if the act can be considered minor as discussed in Chapter 2.1. On the contrary, in Sweden, such discretion is not allowed and the Swedish Environmental Code has required that a notification must be made since 1999 (Publication I).

In Sweden, the notification requirement has resulted in reporting minor offences which has strained the criminal system (Publication I). This concern was also expressed by Finnish police officers during the semi-structured interviews. They pointed out that if all the minor environmental offences and illicit activities were reported to the police, they would not have enough resources to investigate them. As such, a notification requirement would not be desirable. However, the notions of the police officers were quite contradictory to their view that environmental inspectors should not choose to decide among themselves whether various forms or cases of environmental damage should be investigated or not. They emphasized that this was the duty of the police and illicit activities should always be reported to the preliminary authority. Subsequently, the police officers felt that environmental protection agencies should report more crimes to the police instead of handling illicit activities through administrative means (Publication II).

Additionally, police officers considered self-regulation and self-reporting to be untrustworthy while environmental protection agencies found self-reporting to be trustworthy. Interestingly, 94% of the participant panel of the Delphi study took the view that waste is most probably being transported across borders unreported (Publication IV). The crime script analysis also raises concerns related to self-reporting and self-regulation. In both case studies, the corporations gave untrue information and neglected their responsibilities regarding environmental regulation. The Petokaivin Corporation, for example, neglected its duties to document waste transports and operated against environmental regulation and licenses. Due to these illicit conducts the corporation was able to save money on waste treatment costs and as such gained economic benefits (Publication III).

Furthermore, the findings indicate that environmental protection agencies and police officers have different ways of rationalizing crime reporting. Police officers considered environmental inspectors unwilling to report crimes to the police and as such they were seen as the bottle necks of environmental crime reporting. This bottle neck was seen as a lack of willpower to intervene in illicit activities as well as political and economic pressure from municipalities. The underlying assumption

made here was that in reality the amount of hidden, or unreported, environmental crime is extensive (Publication II).

On the other hand, environmental protection agencies characteristically referred during the interviews to illegal states which was defined separately from environmental crime. This may also be described as differences between legality control and environmental protection through criminal law. Following this reasoning, illegal states were not reported to the police but was dealt with through administrative enforcement tools. It should be noted that during the interviews environmental inspectors mentioned that the roughest crimes were always reported to the police (Publication II). The findings indicate that environmental inspectors valued restoring the environment more than criminal procedures (Publication II & IV).

### 5.1.3 Prosecution and sanctions

When illicit environment related activity is detected and reported to the preliminary investigating authority, namely the police, the next steps of the enforcement chain are consideration of charges and prosecution. In contrast with the Finnish process, the prosecutor is in charge of the preliminary investigation in Sweden. A comparison reveals that both systems have drawbacks. In Sweden the usage of resources have created challenges between police and prosecutors, for example regarding expensive tests in the course of the preliminary investigation. Smooth cooperation between police and prosecutor is essential (Publication I).

The findings indicate that environmental crimes are less likely to be prosecuted in Sweden than in Finland. It should be noted that this might be partly due to the notification requirement. This notification requirement has resulted in reporting a significant number of minor cases and later the prosecutor has decided to waive the charges in Sweden: according to the Swedish Criminal Code courts cannot impose punishment if the environmental crime is considered minor. However, statistics showed that in both countries only a small part of the reported environmental crimes are taken to court (Publication I).

No matter whether the suspected environmental crime is handled through a criminal procedure or with administrative tools, the following step of the enforcement chain are the potential consequences of the detected illicit activity. In general, fairly low monetary sanctions are the most common, while prison sentences are rare. This is the case in both Finland and Sweden, as the comparison

shows. There is also a risk that bigger corporations especially will not be affected by sanctions targeted to individuals and will continue business as usual despite criminal sanctions (Publication I). In Finland, there are differing views as to whether criminal or administrative sanctions are appropriate for smaller infractions. The Delphi study shows also that the use of criminal sanctions is not seen as versatile or nationally consistent in Finland (Publication IV).

The findings of this study revealed that corporate fines as a sanction are also usually quite low: EUR 2,000–10,000 while the maximum corporate fine could be as high as EUR 850,000. In Sweden the use of corporate fines is somewhat easier and more often used. For example, the prosecutor may impose a corporate fine without taking the case to a court of law in Sweden. This again may improve the likelihood of monetary sanctions for environmental crimes (Publication I).

#### 5.1.4 Enforcement settings

Focusing solely on detection, prosecution or sanctions is less likely to result in efficient prevention. Instead, the whole enforcement chain and its settings should be taken into account (Publication I). The findings reveal scarce resources to be one of the most pressing topics affecting regulatory activities. Insufficient resources weaken other actors' trust in the ability of environmental protection agencies to supervise illicit activities. Prevention also focuses on the supervision level due to insufficient resources of the preliminary investigating authority. Inadequate resources also potentially allow illicit operators to take advantage of the lack of efficient supervision. In addition, scarce resources have led to prioritising other efforts instead of preventing illicit waste activities (Publication IV). For example, police officers referred to an administrative culture which emphasizes financial aspects, for example indicators measuring the amount of the collected criminally gained benefit (Publication II).

To generalize, it appears that scarce resources have a negative effect on prevention on several levels and in numerous ways: they deepen regulatory voids (Publication IV). This concern is present also in the findings of the crime script analysis where enforcement and regulation were seen as creating criminal opportunities—these voids are difficult to fill in the presence of limited and scarce resources (Publication III).

In regulatory settings where financial indicators put pressure on officials, information sharing is considered very important and essential to efficient

enforcement. However, the findings reveal significant challenges related to the intersectoral flow of information, which creates knowledge and institutional regulatory voids. These challenges vary from a lack of knowledge of the authorities' responsibilities, underdeveloped networks, the lack of proper instructions on how to enforce legislation, to legislative barriers. Again, resources are a major obstacle to the flow of information. Resources also affect promoting dialogue between private and third sectors and the authorities, which was seen as important together with networking between different sectors (Publication IV).

In addition to the need for information sharing, the findings indicate the need for national guidelines and operation models, which were seen as lacking, in order to unify activities. The lack of unified activities was also evident when the participant panel of the Delphi study were asked to estimate national variation in illicit activities: the panel had differing views regarding whether illicit waste activities varied nationally and whether these variations posed challenges to supervision and prevention efforts. The participants also mentioned illicit activities transitioning to areas with weak enforcement; the lack of resources and their uneven distribution nationally; and the lack of sufficient knowledge as a source of national variation (Publication IV).

The definition of waste was also seen as one of the challenges authorities face in the prevention of illicit waste activities: obscurity of the definition creates confusion and poses significant challenges to prevention. It is noteworthy that 30% of the environmental protection agencies' respondent group estimated that the challenges posed by definition were insignificant. The participant panel of the Delphi study had also differing views regarding whether the parties under regulation should be responsible for defining waste. Additionally, it was questionable whether better knowledge on legislation and regulation of private sector operators would enhance their compliance. The panel also took the view that the definition of waste should be specified at the strategic level (Publication IV).

Regarding the political enforcement settings, the participant panel of the Delphi study called for more participation at the strategic level. For example, it was considered to be highly important that the operative level was taken into account on the strategic level. However, only 33% of the participants found it likely that insight of the operative-level was in fact sufficiently acknowledged by government ministries. Interestingly, 56% of the strategic level and 41% of the environmental protection agencies' respondent groups found that the operative level was sufficiently taken into account (Publication IV).

The findings also indicate some inconsistency in the views regarding the sufficiency of the authority powers to supervise and prevent illicit waste activities. As an illustration, 78% of the private/third sector respondent group of the Delphi study found it unlikely or very unlikely that sufficient enforcement powers existed, while nearly half of the environmental protection authorities found it to be likely. The participants specified that while current powers might be sufficient, more knowledge on how to use them is needed and that cooperation between sectors might enhance the efficient use of existing powers (Publication IV).

## 5.2 Framing environmental crime prevention

The findings related to the framings of environmental crime prevention are divided into environmental and economic values, professional vantage points and future developments, and are presented below.

### 5.2.1 Environmental and economic values

The findings reveal varying views on environmental crime and its prevention. The definitions given by police officers and environmental protection agencies to environmental protection, and the prevention of economic and environmental crime are summarized in the Table 5. The environmental protection authorities viewed environmental protection and conservation as the goal of enforcement: criminal law enforcement was viewed as something separate from environmental protection (Publication II). Furthermore, police officers linked environmental crime strongly with economic crime: gaining economic benefit was seen as the main motivation for environmental crime, leading to investigating environmental crime as economic crime. However, environmental values were also present in the police officers' constructions of environmental crime especially on the personal level (Publication II).

Interestingly, the environmental protection authorities also combined economic aspects in their framing of environmental crime. For example, one interviewee concluded that during the past few years environmental inspectors had started to pay more attention to the possibility of a linkage between environmental and economic crime. Furthermore, another interviewee mentioned that if potentially there was a criminally gained economic benefit involved in illicit environmental

activity, it would be more likely that the case would be reported to the police. As such, both the environmental protection authorities and police officers framed environmental crime through economic lenses (Publication II).

**Table 5.** Definitions of environmental protection, prevention of economic and environmental crime

Authority	Environmental protection	Prevention of economic crime	Prevention of environmental crime
Environmental protection authorities	Main goal and purpose of environmental enforcement; correcting illicit state in order to protect the environment.	Important and should be considered also in the context of environmental crime; consideration of whether an environmental crime is actually a crime if no economic benefit is gained from it.	Part of penal thinking; punishing offenders is fairly distant to the main purpose of environmental enforcement.
Police officers	Important value, or at least should be; secondary when compared to economic interests.	Environmental crime prevention as a part of economic crime prevention.	By-product of economic crime.

### 5.2.2 Professional vantage points

Professional vantage points also affect the framings of environmental crime and its prevention. The findings suggest that environmental inspectors’ professional identity is based on environmental protection which is in conflict with the economic aspects of environmental crime prevention. The professional identity was also based on providing guidance and support to ensure compliance and limiting environmental harm instead of punishing offenders. Being authoritative and punishing offenders was seen something outside their profession and as a part of the police profession (Publication II).

Police officers’ professional identity on the other hand affected their somewhat unwillingness to investigate environmental crime. However, at the same time the investigation of environmental crime was seen as challenging needing advanced knowledge and skills. These views were also reflected in the police officers’ constructions of environmental harm and crime as something that is placed in many ways outside the scope of police organization and culture and as a

responsibility of the environmental protection authorities. These framings painted a picture of the police as a reactive rather than proactive in the prevention and detection of environmental crime (Publication II).

The professional perspectives presented above indicate the presence of professional voids. To examine this aspect more clearly, informational and professional voids need to be differentiated and examined in the context of knowledge voids. As such, an informational void refers to the lack of information and sufficient knowledge. Professional voids however refer to the understanding of the problem and professional framework within which regulation occurs (Publication IV). The professional perspectives in our study were coloured by inconsistencies. The professionals approached enforcement, regulation and crime prevention with different premises and did not always share common understanding of the problem in question. As an illustration, environmental inspection authorities referred continuously to an 'illegal state' during the semi-structured interviews. (Publication II).

The findings also suggest inconsistencies in the use of regulatory strategies, especially concerning which are the most efficient and how these strategies should be used. Besides, regulatory enforcement is based on the one hand on trust between the authorities and those being regulated, but at the same time there are assumptions that more illicit activities are in fact taking place than meet the eye. Both findings demonstrate the difficultness and challenges in forming a unified response by the authorities to the complex phenomena of environmental crime. Furthermore, inconsistencies deepen and create regulatory voids which again make space for crime (Publication IV).

### 5.2.3 Future developments

During the third round of the Delphi study, nine future scenarios related to environmental crime and waste crime were presented to the participant panel. As these scenarios were based on previous Delphi rounds, they and the comments provided by participants indicate how environmental crime and its prevention are framed. The future of the enforcement response to environmental crime was framed as a cross-sectoral process between authorities in its most efficient form. Throughout the study the findings highlighted the importance of smooth cooperation between sectors as key to the successful prevention of environmental crime. Furthermore, if obstacles to better intelligence and cross-sectoral



information such as the lack of sufficient cooperation, networking, and information systems were removed, more hidden crime would be detected in the future (Publication IV). These findings suggest the framing of environmental crime as a regulatory crime which might be best prevented by enhancing regulatory procedures (Publication IV).

Generally, the participant panel of the Delphi study took the view that if these regulatory processes are not increased and better empowered the number of illicit activities will increase and will locate in areas where enforcement and supervision are the weakest. Furthermore, the findings demonstrate that the participants see increasing growth of foreign waste operators. They estimated that cross-border and waste-related organized crime will increase. However, Finland's remote geographical location was seen as possibly limiting the interests of organized crime groups in engaging in illicit cross-border waste related activities (Publication IV).

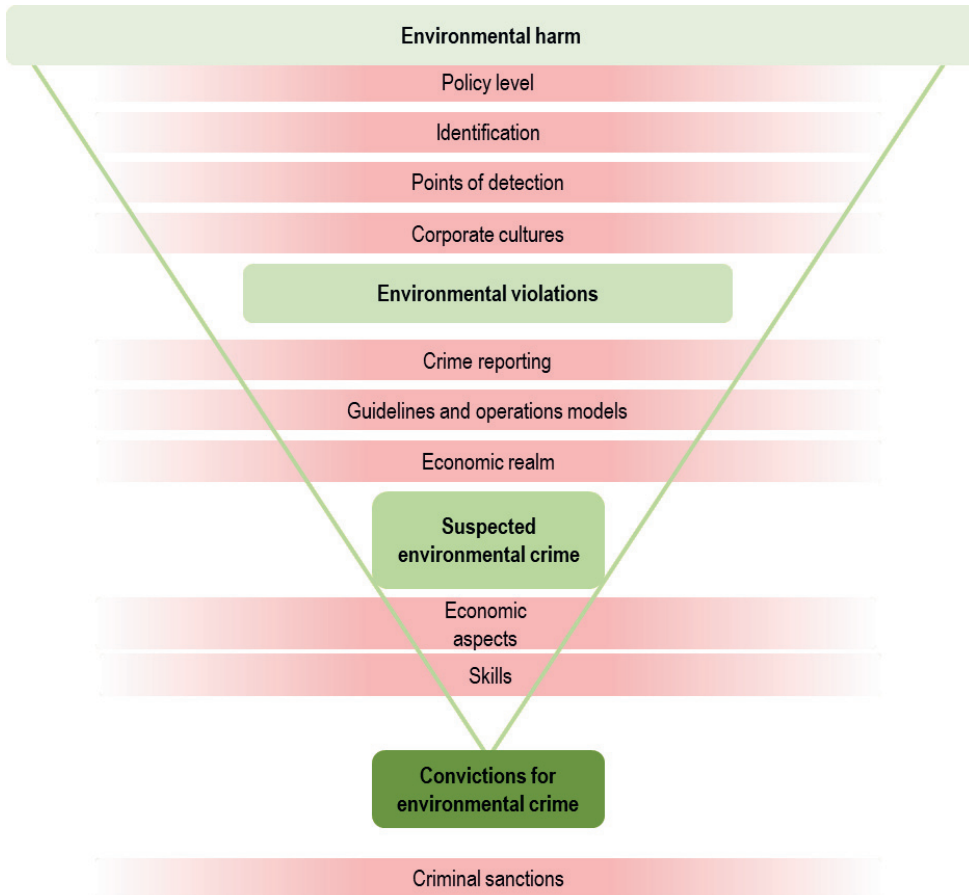
The participant panel also indicated that the police should take an active role in the prevention of environmental crime (Publication IV). The same notion was voiced by the police officers during the semi-structured interviews. Environmental values were seen as something that should be focused on in the future as a part of police work. It was mentioned that environmental values were not receiving as much attention as they should (Publication II).

### **5.3 Influence of characteristics and framings to environmental crime prevention**

Together the findings presented above emphasize that regulatory deficiencies characterize regulatory crime prevention. The enforcement chain from detection to prosecution and sanctions was highlighted throughout the data. Additionally, the enforcement settings were referred to in varied ways. The findings indicate inconsistencies and variance throughout the enforcement chain as well as in enforcement settings. The findings also suggest the existence of regulatory voids and point towards the need for secondary crime prevention efforts for corporate environmental crimes. The findings on the framings assert that professional and economic frames prevail in enforcement of environmental regulation. These findings indicate that these characteristics and framings uphold enforcement inconsistencies (Publications I-IV).

In order to reflect on the influence these findings concerning the characteristics and framings have on environmental crime prevention it is necessary first to go

back to the funnel presented in the Chapter 2 and supplement it with the findings (Figure 10).



**Figure 10.** Challenges in regulatory crime prevention

This funnel summarized in Figure 10 describes how the characteristics and framings discussed above influence regulatory prevention of environmental crime. The findings suggest that regulatory deficiencies influence every step of the funnel. The funnel begins with environmental harm. Some parts of this environmental degradation are defined as environmental violations in accordance with legislation. Further, criminal law provides essential elements of violations which are to be placed under preliminary investigation as suspected environmental crimes. However, environmental harm must be defined as illicit at the policy level and

recognized by legislation. Furthermore, the harm needs to be detected and identified as an environmental violation. As the findings show, these steps were characterized by political, institutional, and informational voids. In the case of corporate environmental violations: corporate culture, operation models and corporate decisions play an essential role when environmental harm is not addressed in a licit way. This is especially true in regulatory crimes, or in crimes of omission. Corporations may fail to report for instance breaches in pollution levels or environmental permits may not be applied accordingly (Publications I-IV).

Framings and regulatory deficiencies further influence the transition from an environmental violation to a suspected environmental crime. This is particularly the case in the grey area of environmental crime, while the most serious cases were easily identified and placed under preliminary investigation. Flexible legislative norms underlie the choice of regulatory strategy and instruments. The findings show that informational voids exist for example as there is a lack of unified national guidelines and operations models. Further, it is noteworthy that considerations on economic realm are evident when decision is made in different levels whether environmental violation should be addressed via criminal law (Publications I-IV).

Moving towards the end of the funnel, part of the suspected environmental crimes are taken to court and are prosecuted in accordance with criminal law. As the findings show, also in preliminary investigations the authorities again face economic aspects. Furthermore, a minor institutional void may also exist regarding the skills needed to investigate and prosecute environmental crime successfully. Finally, when a verdict is given the criminal sanctions tend to be fairly low monetary sanctions (Publications I-IV).

## 6 DISCUSSION

As defined in the introduction this thesis answers the questions: what are the characteristics of the regulatory prevention of environmental crime; how is environmental crime framed during regulatory enforcement; and how do these characteristics and frames influence environmental crime prevention? The main findings of this thesis are:

1. Regulatory deficiencies weaken the adaptability, appropriateness and legitimacy of regulatory crime prevention.
2. The most efficient regulatory strategy is still under debate.
3. Professional vantage points direct the authorities to respond to environmental harm.
4. Economic aspects underlie and direct the regulatory prevention of environmental crime.

This chapter is organized as follows. First, the main findings and their aspects are elaborated in more detail. Second, the theoretical and methodological contributions this thesis indicates are presented. Third, the validity of study is considered. Finally, implications for practice and further research are discussed.

### 6.1 The AGILE prevention of environmental crime?

The four main findings are discussed here in more detail and are considered in the light of the AGILE approach. Subsequently, their relevance in relation to the previous literature is discussed.

*First, regulatory deficiencies are most clearly demonstrated in regulatory voids which weaken the adaptability, appropriateness and legitimacy of regulatory crime prevention.* It is obvious that there are challenges in the intersectoral flow of information. One example of such knowledge void are the lack of much needed national guidelines and operation models. There is especially a need for intersectoral procedures. However, it should be noted that the Ministry of the Environment updated the guidelines for

environmental supervision in 2016. According to the guidelines, environmental protection agencies should primarily notify the police of illicit activities and breaches of the law. The guidelines also highlight that administrative sanctions such as administrative compulsions may be used while the preliminary investigation is ongoing (Hietamäki et al. 2016, 30).

Concerningly, the eroding effect of regulatory voids is highlighted in the findings related to institutional voids. For instance, scarce resources direct the focus of preventive work and hamper efforts by the authorities. The same concern regarding the negative effect of scarce resources on preventive work has been expressed by the Ministry of the Interior (2019). It should be noted here that scarce resources should not be seen only as the lack of personnel and financing. To illustrate, the interpretation of whether resources are sufficient or not is in some cases a matter of the efficient distribution of work and leadership.

Further, institutional voids refer to skills needed for effective enforcement. Previous literature shows law enforcement has been characterized by institutional voids in the past decades. Environmental protection agencies face the challenge of interpreting and enforcing mixed and complicated regulations. Together these obstacles have resulted in criminogenic opportunities such as the use of illicit dumping sites (Brennan 2016). In another illustration from another field of regulation, one study analysing the enforcement capability and competence related to occupational health and safety recognized core competencies for inspectors, such as administrating 'best practice' regulatory standards, developing strategies and communicating. The findings indicated gaps between the ideal and actuality of these competencies. The regulators struggled to adjust to the shifting regulatory expectations; obtaining multiple skills; planning strategically; and encouraging and rewarding those being regulated to go beyond compliance. As such, in order for the ideals and practice to meet, regulators are required to have multiple skills which they need to adopt in a sparsely resourced institutional context (Gunningham 2012). While it is obvious that environmental crime investigation requires specialized skills, the findings of this thesis do not indicate a severe lack of competence.

Furthermore, prior studies have noted the importance of responsiveness in enforcement. Responsiveness and flexibility require communicational and relational skills from regulatory staff in addition to information on the conduct and circumstances of each level, which both make responsive regulation challenging to apply effectively in practice (see Nielsen & Parker 2009, 394-395). Additionally, in order to be really responsive, as Baldwin and Black (2008, 61) argue, regulators

need to be responsive not only to the performance of the parties being regulated but also to the firm's own operating and cognitive frameworks; broader institutional environment of the regulatory regime; different logics of regulatory tools and strategies; and to the changes in each of these elements. The findings of this thesis support these notions. The crime script analysis for instance showed that institutional arrangements and corporative cultures play a significant role when an illicit path is chosen instead of the licit one.

Political voids appear in the findings which indicate gaps between the operative and strategic level. These findings together with informational voids can be viewed as a symptom of a lack of political support—intersectoral guidelines and resources are insufficient and a solid front in the prevention of environmental crime is missing. Further, these political voids weaken legitimacy. A lack of legitimacy was also indicated in a previous study which found that regulators did not trust that violations of environmental law would be severely punished or punished at all in the courts, which made it difficult for them to get tough on polluters and undermined the legitimacy of the regulators (Fineman 2000, 66-67). This observation is supported by notions made here—environmental protection through criminal law leads often only to low sanctions.

One of the explanations for the regulatory voids presented above might be that a coherent view of the problem of environmental crime and its prevention had not been formed when the data of this study was gathered. As such, it is important to note that steps have been taken. An action plan as a part of the strategy for environmental crime prevention has been implemented since 2015. As mentioned in the foreword of the current strategy, the shared understanding of the topic has increased (Ministry of the Environment, 2021, 7). Additionally, several publications and guidelines have been published by the Ministry of the Environment.<sup>25</sup> However, the Strategy for Preventing Environmental Offences 2021–2026 and the subsequent Action Programme have only been implemented during the last few years making it fairly new. The success of these steps is yet to be evaluated.

Previous studies show that Finnish authorities are not struggling alone with regulatory voids. A study analysing the waste regulatory frameworks of the European Union and Italian government found that the unclear legal framework and problems in the supply chain, such as “uncoordinated numbers of competent authorities involved at different stages of the process”, facilitated waste crimes (Morganti et al. 2020). Additionally, because the EU member states have different

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<sup>25</sup> Publications have been gathered in the Ministry's home page <https://ym.fi/ymparistorikosten-torjunta>

justice response systems, it follows that criminals might choose to operate in countries where the rules and sanctions are looser (Rucevska et al. 2015).

Regulatory deficiencies presented in this thesis manifest themselves also as a lack of capable guardianship—a term used in the context of situational crime prevention and especially relevant when considering the adaptability of regulatory crime prevention. As summarized in Chapter 3.1 the situational crime prevention approach focuses on making it harder to commit a crime rather than trying to change offenders' motivations. The findings show that waste crime could be detected and prevented at several points if capable guardianship would have been present such as during site visits, transportation and in waste treatment plants.

Huisman and van Erp (2013) investigated the characteristics and the usefulness of situational crime prevention theory in the context of environmental crime in the Netherlands. In a cross-case analysis of 23 case studies they concluded that while situational crime prevention theory might be a useful framework to some extent in the analysis of opportunities for environmental crime it needs modification in its core concepts. For instance, situational crime prevention theories assume the crimes of commission, whereas corporate environmental crimes are often crimes of omission. Furthermore, crime victims, so called targets, are not easily identified in the context of corporate environmental crime. The authors (Huisman & van Erp 2013, 1196) conclude that the “prevention of environmental crime requires more of a macro approach in addition to” situational crime prevention theory.

This thesis also shows that a wider approach is needed in the prevention of environmental crimes. For example, the findings show that operating cultures played significant role during the crime commission. The findings also suggest that stakeholders have different views regarding where and how illicit activities might be detected and prevented. Additionally, severe concerns regarding the trustworthiness of site visits to the premises of regulated companies were raised. These concerns were supported by the findings of the crime script analysis which indicate that corporations were able to mislead supervisors. This need for a wider approach is supported by Freilich and Newman (2018, 12) who highlight the necessity to look for “wide-ranging solution, from which policy eventually emerges, and regulatory efforts evolve”. The same notion is voiced by Vaughan (2004) who calls for more consideration on cultural and political circumstances in addition to micro-level analyses of situational crime prevention efforts.

Lynch, Stretesky and Long (2018) also discussed situational crime prevention in the context of green crimes and the contributions of environmental social control measures to environmental crime. They come to the conclusion that while

situational crime prevention might be an appropriate method for controlling environmental crime based on previous empirical studies, broader economic policies need to be addressed in order to successfully reduce ecological disorganization. Given these notions on the limitations of opportunity structures and situational crime prevention, it is necessary to complement environmental crime prevention with the other elements. This thesis has aimed to do that by incorporating regulatory strategies in the analysis.

*Second, while ensuring the incentive-base of regulatory strategies is at the core of regulatory crime prevention, it is still debatable which strategy is the most effective.* The previous literature has debated the effectiveness of different regulatory strategies. Relying on traditional command and control enforcement strategies has gained much support especially on a practical level in the United States (see e.g. Harrison 1995). For instance, a study analysing environmental violations in the United States found legal penalties actually constitute larger part of firms' share value than the monetary losses markets imposed after a violation or suspicion of a violation has become public. As such, it is suggested that legal penalties are the primary deterrents of environmental violations (Karpoff et al. 2005). However, Stretesky (2006) concluded that in the context of corporate crime, deterrence measures do not necessarily have an impact on corporate compliance. For instance, softer policy instruments might be more appropriate when firms following the rules voluntarily need to be encouraged to remain loyal or when the goal is to induce less motivated firms to follow regulations (see e.g. Korsell, 2001). As a study on smart regulation suggests, traditional policy instruments and regulatory strategies would benefit from third-party regulation, such as losing clients through negative publicity (Gibbs et al. 2010). For instance, regulation of the recycling market more efficiently instead of criminalizing E-waste is suggested as a potential solution for reducing the global harm caused by E-waste (Van Erp & Huisman 2010).

The findings of this study do not indicate whether environmental crime would be most efficiently prevented by reducing harm through environmental law or by punishing offenders through criminal law. The comparison with Sweden indicated, several challenges emerge if all the potential and minor environmental violations are reported to police. Additionally, if the use of sticks is to be efficient, the sanctioning of environmental crime is essential. Regarding deterrence, namely severity, certainty and celerity of sanctions, three notions can be made. First, the sanctions for environmental crimes are fairly mild. Second, the findings show that several factors undermine the certainty of sanctions. Finally, in general, administrative and criminal processes are often slow. These notions cast a dark



shadow over the current effectiveness of general deterrence. However, as the corporate environmental crime is often embedded in the corporate actions it is questionable whether specific deterrence will be more efficient. If few employees and chiefs are convicted of environmental crime, it might not prevent the corporation for breaking the law in the long run.

These concerns are echoed by the advocates of cooperative model. Scholz (1984, 1991), for instance, already in the early 1990s argued that relying solely on the deterrence effect of formal sanctions is an ineffective strategy due to the costs of enforcement together with the inherent inefficiency of regulation. Previous studies have also indicated mixed results regarding the perceived risk of detection to deter violations and increase compliance (see Winter & May 2001). For instance, Burby and Paterson (1993, 766) concluded that a cooperative approach is successful when regulator and the parties subject to regulation are able to jointly agree upon an action plan on how to achieve compliance with performance standards. However, they emphasized the need to use both deterrent and cooperative strategies in order to achieve the best performance standards.

Following this reasoning other policy instruments than prosecution and sentencing might be more efficient to increase and ensure compliance. As the findings stated, the stakeholders estimated that waste is transported constantly without reporting and more efficient prevention is needed. For instance, previous studies have indicated that it may be socially desirable for the regulator to selectively forgive noncompliance especially when faced with difficulties in assessing the compliance status of the firms being regulated (Malik 2007). Additionally, if there is a credible threat that future violations will be prosecuted, it might be beneficial for the regulator not to pursue criminal charges as this forgiveness may lead to future compliance. (Fenn & Veljanovski 1988; see also Ogus & Abbot 2002) These studies resonate with the premises of the enforcement pyramid, according to which the policy instruments used by the regulators can harshen if the regulated firm is unresponsive to the milder instruments (Ayres & Braithwaite 1992, 35-36).

As previous studies have noted, environmental offences include harm-based and act-based offences, where the former refers to offences that have caused actual harm for instance to the environment or human health, and the latter to offences where risky behaviour and potentially harmful acts could have resulted in harm but no actual harm occurred (Rousseau & Blondiau 2014, 440). When this is combined with the wide range issues under environmental regulation, it is challenging, to say the least, to determine which sanctions (harm- or act-based, administrative or

criminal), would deter potential offenders and as such fortify compliance. Nevertheless, environmental protection agencies are in a position to implement significant preventive measures to pre-empt environmental harm. However, it remains questionable whether administrative supervision and sanctions actually deter potential criminal offenders. Furthermore, the choice to use powerful administrative sanctions as an enforcement tool is not self-evident. Unfortunately, previous studies offer little evidence of the deterrence effect of administrative sanctions as they provide mixed results. However, stronger administrative penalties are rarely used in some countries such as in the United Kingdom as a case study has shown (Watson 2005, 193). On the other hand, in Germany administrative and civil penalties are given to those who commit administrative offences. In the case of Germany, it should be noted however that these penalties are imposed by regulatory agencies and there is no fault requirement which makes the process more flexible compared for example to prosecution (Watson 2006, 281).

The findings of this thesis resonate with this previous work in the field of enforcement strategies. Opening up the defence lines and thinking in a new way is needed if environmental crime prevention is to be truly incentive-based. Findings suggest ways to overcome regulatory voids: cooperation and information sharing are seen as the keys for efficient environmental crime prevention. The findings clearly show that the complexity of environmental crime has been recognized and stakeholders are in search for best ways to address it. The regulatory deficiencies discussed above not only weaken regulation and crime prevention but are also affected by framings of the stakeholders.

*Third, professional frames guide authority response to environmental harm.* The findings suggest that environmental protection agencies see punishing offenders as fairly distant to the main purpose of regulation. A possible explanation for this might be that environmental protection agencies operate under environmental law which is characterized by flexible norms and ambiguity. As such, it is not surprising that the notification of a suspected environmental crime for preliminary investigation is often based on evaluation instead of strict and straightforward notification requirements (see Koskela et al. 2020). As a comparison with Sweden shows, this evaluation is needed if one wishes to prevent the overload of the criminal justice procedure with minor environmental violations. One might argue, that criminal law's pursue of prevention through punishment is understandably the outsider in the larger frame of environmental protection and conservation given the ambiguous elements of environmental law. As a study focusing on inspectors of building safety concluded, when intentional noncompliance was observed by

inspectors they preferred to try to find a solution together with the regulated party through cooperation and knowledge enhancement rather than punishment (May & Wood 2003).

The police's daily operations are in general guided by fairly straightforward regulations, while the professional identity of environmental protection authorities is constructed against a background of flexible norms. This notion is also echoed by Fineman (2000) who studied environmental regulation from the point of view of the regulator. The findings are particularly interesting regarding how they reflect the green values and varying roles associate with the regulators' professional identity. The regulators saw green values as instrumental: while the pursuit of green values was often seen as difficult in their personal lives, they saw themselves as knowledgeably green compared to the general public and identified themselves as a part of the professional culture of the environmental agency. The study concludes that considerable interpretative discretion was exercised when the regulators applied environmental law in practice. Furthermore, regulators may hold several roles, such as enforcer and helper, which often contradict each other.

These findings on professional vantage points indicate that authorities have fluctuating lenses through which environmental crime is framed. As such, there are inconsistencies in how regulation is interpreted and enforced. Activities that cause environmental degradation are framed as harmful *or* as environmental crime—this may be called the grey area of environmental crime. The findings of this thesis indicate that there is some fluctuation between what regulation and its enforcement is actually about: harm is something we need to protect the environment from, and crime is something that someone needs to be punished for doing. Prevention is not only challenged by these professional framings but by understating the attitudes of the police to preventive work as noted in Finland's Strategy on Preventive Police Work 2019-2023 (Ministry of Interior 2019). These framings narrow the view of environmental crime prevention but also undermine the legitimacy of regulatory prevention of environmental crime. It should be noted that the most severe cases of environmental impairments are reported, prosecuted and convictions are given, as concluded by Sahramäki & Kankaanranta (2013).

*Finally, the findings suggest that economic aspects are present in the framing of both the environmental protection authorities and police officers and that they guide the regulatory prevention of environmental crime.* Economic framing focuses on preventing the possibility to gain profits at the expense of environment. This is obvious when one considers the framework in which environmental crime is embedded in our society. The prevention of economic crime has been highly accentuated at the

governmental level for several years. As a more recent example, the Government Resolution on a Strategy and an Action Plan for Tackling the Grey Economy and Economic Crime for 2020–2023 (Ministry of Interior 2020) expresses concern regarding economically motivated environmental crime. Furthermore, it launched a project which aims to achieve higher detection rates of especially aggravated environmental crime by profiling high risk fields and actors. It is also argued that prevention is not only achieved due to the higher risk of getting caught but also through information sharing.

Thus, economic indicators direct attention and resources to crimes where significant amounts of the illicitly gained economic benefits may be confiscated. In addition, Finland's Strategy on Preventive Police Work 2019-2023 concludes that economic indicators used in the police organization do not support preventive work: short-term indicators do not reflect the long-term results of crime prevention (Ministry of Interior 2019).

The economic framings of environmental crime arguably also narrow the view on the victims of environmental crime. To simplify, the victim appears to be economy and licitly operating corporations. As such a brief discussion on the topic of victims is necessary here. Environmental crimes are typically seen as so called victimless crimes. For example, when environmental crimes are committed by corporations the target of the crime is not usually an identifiable victim (Huisman & van Erp 2013, 1181). As such, the causality between crime and victim is often difficult to reconstruct (Hall 2013, 219; Natali 2015, 64-65).

However, environmental crimes are not victimless, the case may be actually quite the opposite, even though the victims of environmental crimes may be less obvious than for example those of street crimes. Generally, environmental victims are those harmed by the adverse effects of environmental degradation which may be caused by individuals, corporations and/or states (Hall 2013, 221). These victims may be humans, non-humans (flora, fauna etc.) and ecosystems alike (Lynch & Stretesky 2014, 101). Green criminological studies<sup>26</sup> have demonstrated environmental victimization for instance in the case of e-waste (Bisschop & Vande Walle 2013) and the environmental victimization of females (Lynch 2018) and have discussed how complying with international environmental regulations have

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<sup>26</sup> Victimology is a branch of criminology, is concerned with the victims of crime. However, the victims of the powerful, namely corporate, state and environmental crimes, have remained mainly outside of the scope of victimology studies (Lynch & Stretesky 2014, 80; Bisschop & Vande Walle 2013, 34-35). In order to acknowledge these victims, green criminologists have argued for green victimology (Lynch & Stretesky 2014, 80-102; White, 2018) and a green criminological examination of the potentially upcoming ecocide (South 2013).

significant consequences at the local level resulting in environmental victimization (Davies 2014). Additionally, in her case study of Dow Chemicals in the United States, Katz (2012) has argued that high cancer mortality rates together with environmental pollution were the result of state action.

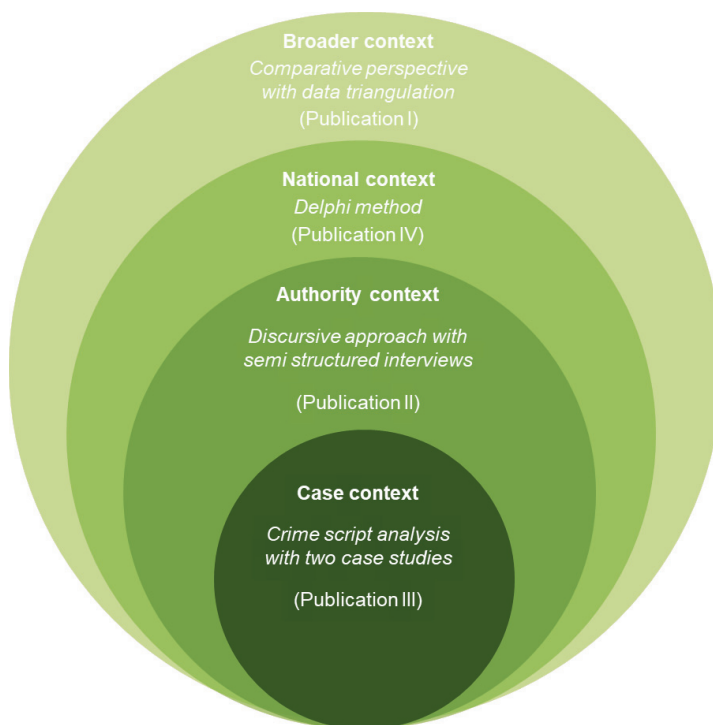
## 6.2 Methodological and theoretical contributions

This thesis forms a noteworthy effort to construct a broad and multidisciplinary account of the regulatory prevention of environmental crime. The thesis aimed to tackle the complexity of environmental crime prevention using methodological and data triangulation.

The specific methodological contribution of this thesis lies in specifying crime scripts for waste crime. Here, economic benefit was considered a criminal opportunity, namely the opportunity to make money (Publication III). As such, it is suggested here that financial aspects are made apparent in crime scripts. The motivation behind most environmental crimes is financial, especially when one discusses corporate environmental crime. The argument here is that by making the steps to gain economic benefit illicitly more visible it would be easier to focus on crime prevention activities. In the case of environmental crime, examples of economic benefit include reducing transportation costs, false accounting and not paying for licit recycling costs. While economic benefit, is not an *act* in the sense for example that Tompson and Chainey (2011) mean, it is a crucial activity in terms of the commission of a crime: for instance, customers may be billed under false pretences, false amounts of waste may be reported to authorities in yearly reports, or savings may be made in waste treatment costs (Publication III). Thus, the prevention and supervision activities could be directed to financial aspects involving all competent authorities.

The most important methodological contribution lies in the use of several data sources and methods. This methodological and data triangulation provided the chance to approach the topic from several perspectives, which all contributed to the main objective of the thesis: to approach the regulatory prevention of environmental crime in varied ways in order to gain a rich understanding of it. The methodological and data triangulation applied in this thesis may be described as moving from a wider to narrower context (Figure 10).

The *broader context* was provided by the comparative study with data triangulation which demonstrated environmental crime prevention by extending the view across national borders. The Delphi study on the other hand showed the *national context* of environmental crime and its prevention through the eyes of a participant panel comprised of experts from several sectors. A discursive approach with semi-structured interviews further specified the *authority context* with the main authorities responsible for the prevention of environmental crime, environmental protection agencies and police officers. Finally, a crime script analysis of two case studies described the process of environmental crimes in a *case context*. These contexts supported this thesis's ambition to create a wide picture of environmental crime prevention.



**Figure 11.** Methodological contribution

Regarding theoretical contributions, this thesis is an example of how an AGILE approach might be applied to the study of environmental crime prevention. The findings of this thesis indicate that environmental crime is mainly framed as regulatory crime taking place in the corporate realm motivated by the pursuit of economic benefit. As such, the theoretical contribution is based on formulating

and adjusting the dimensions of regulatory crime prevention to create a framework for the study of environmental crime.

The regulatory approach to environmental crime prevention modified here combines the criminological framework of opportunity theories and situational crime prevention with regulatory studies. Furthermore, the approach was reinforced with the concept of framing. Subsequently, the AGILE approach's dimensions may be summarized in the context of environmental crime prevention in terms of three features: framings, crime prevention and regulation.

Some discussion related to the characteristics of environmental crime is needed here. Huisman and van Erp (2013) argue for distinguishing between regulatory and predatory white-collar crime. Predatory white-collar crime refers to crimes such as fraud, whereas regulatory crime implies a failure to comply with regulations and failing to fulfil regulatory requirements. This categorization is especially relevant when discussing situational crime prevention which assumes exploitation and active target selection. Many of the environmental crimes are in fact regulatory violations. However, there are examples of predatory environmental crime as well, such as waste trafficking. (Huisman & van Erp 2013, 1184-1185). The AGILE approach acknowledges both these sides of environmental crime by promoting opportunity structures together with regulatory strategies. Furthermore, from the pragmatic framework of regulatory crime prevention developed here it is not appropriate to clearly separate legalistic and harm-based perspectives from each other. In fact, they supplement each other by recognizing the importance of legislation for crime prevention and at the same time accepting that environmental harm, violation and crime are actually vague terms that can have multiple meanings depending on the context and stakeholder.

As cited in Chapter 3 “an important test of a regulatory theory is whether it offers assistance in addressing the challenges that regulators face in practice” (Baldwin & Black 2008, 59). While an AGILE approach may appear broad and even unfocused, its main contribution lies in doing what Baldwin and Black call for—it offers practical assistance to the authorities. Furthermore, it is flexible and open towards discovering new ways to enhance environmental crime prevention.

This thesis suggests theoretical developments also related to the concept of the regulatory void as Short's (2013) political, knowledge and institutional regulatory voids (see Chapter 3.4) do not capture all the aspects of the deficiencies which the findings indicated. As such, dividing the knowledge void into informational and professional voids is suggested (Figure 12; Publication IV). Informational voids comprise a lack of information and sufficient knowledge. Professional voids refer



to how the problem is understood and what kind of professional frames surround the problem definition. This includes perceptions and the professional culture. Rationalizations of environmental crimes are based on professional identities. (Publication IV). Additionally, the previous literature provides several examples of professional voids (see e.g. Fineman 2000; Harrison 1995; Ogus & Abbot 2002).

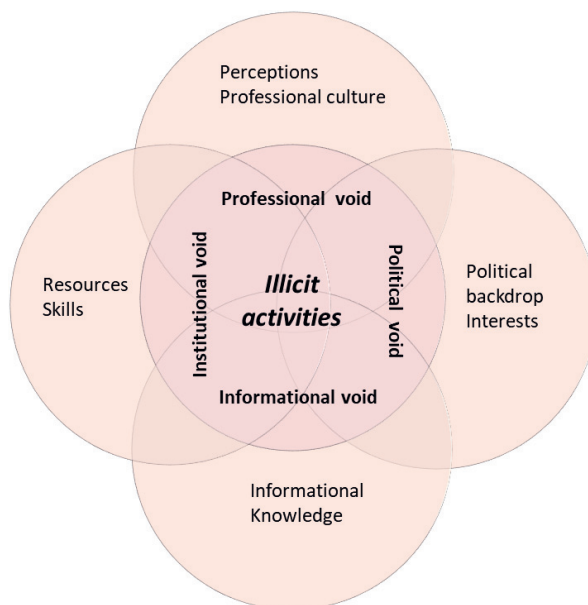


Figure 12. Modified regulatory voids<sup>27</sup>

### 6.3 Validity of the study

While conducting my research and writing this thesis, further steps in enhancing environmental crime prevention, supervision and investigation have been taken. As such, some caution must be applied when considering the findings of this thesis. The data used here was collected in the period of 2013-2014. After the publication of the strategy for environmental crime prevention in 2015, an action plan for the prevention of environmental crime has been applied in practice and more efficient

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<sup>27</sup> Figure originally published in Sahramäki, I. and Kankaanranta T., 2021. Regulatory voids in the prevention of environmental crime in Finland. *European Journal of Criminology*. June 2021. doi:10.1177/14773708211020634.



prevention of environmental crime has been sought for example through cooperation between authorities. However, the topics discussed here tend to progress and develop slowly. Courses of action, presumptions and regulations transform at a sedate pace. At the very least, the findings of this thesis provide a background which should be taken into account when taking steps to further enhance environmental crime prevention in Finland. It should also be noted that even though this thesis is geographically limited to Finland with a comparison to Sweden, it has significance outside Finland as the challenges of environmental crime prevention are recognized internationally.

Some notions should also be made on the disciplinary premises of the thesis. As described in the Introduction this thesis is based on multidisciplinary take on environmental crime prevention. It is mainly founded on administrative science and criminology. In addition it is positioned in the middle ground of academic debate and defines environmental crime as criminal harm as well as regulatory breaches. However, the thesis passes over the analysis of environmental crime prevention from the legal sciences point of view. One might argue that this lowers the validity of the study as the principles of criminalization such as *ultima ratio* are highly relevant when considering regulatory control and the use of penal law. Nevertheless, the data of this thesis largely excludes the discussion on principles of criminalization. For instance, these topics are not directly referred in the interviews or discussed during the Delphi study. As such, discussing the legal point of view in more detail here, would be shallow at its best and further unjustifiable.

The rest of this sub-chapter is devoted to a discussion on the data, methodologies and philosophical premises of the thesis. In the context of the crime script case studies and comparative study it is useful to refer to Flyvbjerg (2006) who convincingly argues that there are several misunderstandings related to case studies. First, it is assumed that practical knowledge is less valuable than context-independent knowledge. Second, it has been argued that scientific development cannot be made on the basis of individual cases. Third, it has been sometimes assumed that case studies are not well suited for theory building. Fourth, case studies have been criticized for the tendency to confirm the researcher's notions. Finally, it is sometimes presumed that developing generalizations is difficult based on case studies. After bringing down these misunderstandings Flyvbjerg emphasizes that case studies are a necessary and sufficient method in social sciences. However, it requires justified case selection and research tasks. Below, I discuss and briefly justify these aspects and the choices made in this thesis.

*Crime script.* The selection of the cases for the crime script analysis together with the available data should be evaluated when considering the validity of the crime script analysis. The Lokapojat and Petokaivin cases were selected as they were clearly the most severe waste-related environmental crimes for which convictions have been given in Finland at the time the crime script analysis was conducted. As court convictions provide only a limited view of the commission of a crime, preliminary investigation material as supportive data provided an essential understanding of the cases.

The cases provide only a restricted view of the commission of waste crime in general. However, the strength of a crime script analysis is that it reveals also points of detection which can be generalized. Waste management is regulated and as such waste operators take relatively similar steps to meet these regulatory requirements and conduct their business. While points for detection are recognized in this process, these can be modified to apply to other waste crime cases as well. As such, I argue that this practical knowledge is highly valuable.

*Comparative study.* Sweden was chosen for the comparison for several reasons. Finland and Sweden share similar geographical locations and the similarities between the societies are obvious, for example regarding the economic structures, public institutions and natural resources. In addition to this justification of the case selection, the research task supported the comparison of these countries. For instance, in the discussions regarding environmental crime prevention in Finland, Sweden is often mentioned as good example of efficient and functioning environmental crime prevention. As such, there was a need to study whether this was in fact the case.

The data selection was based on practical limitations related to data access and differences in the available data in the two countries. This is also reflected in the quite low number of available official documents related to environmental crime and its prevention. Legislation for instance is structured in a country-specific manner and the statistics reflect this. Cultural differences may also affect the comparison, and as such it should be noted that this comparison and interpretation was done mainly based on a Finnish point of view. Following these limitations, the overall picture of the environmental enforcement is limited and restricted to specific data.

*Semi-structured interviews.* At the time the interviews were conducted in 2013, there was an obvious need to fortify cooperation between authorities in the prevention of environmental crime in Finland. This need resulted in a research project financed by the National Police Board and carried out at the Police University

College. Being the researcher in that project I had a unique chance to interview representatives of authorities who shared the concern for environmental crime and an interest of enhancing its prevention. Subsequently, the interviewees were favourably disposed towards sharing their thoughts, experiences and ideas with me during the interviews. Nevertheless, one could argue that only 20 representatives were interviewed. However, the analysis showed that themes and concepts were recurring, and patterns emerged.

Semi-structured interviews require certain qualities of the interviewer. I found that as an interviewer I had to constantly balance being encouraging and sensitive in order to create a safe space for reflection and at the same time keeping the interview within the limited time frame and inside the broadly chosen themes. My goal was to ensure that all the themes were discussed as well as some specific questions related to them without limiting the discussion on these topics. The quality of the data obtained is largely dependent on the success of these factors.

*Delphi study.* In the field of criminology, a Delphi study is a rarely used method. This is understandable as criminology is comparatively quantitatively based. Further, the Delphi is future oriented and may be used to forecast crime trends instead of studying crimes that have already been committed. Nevertheless, the Delphi contains elements which are significant to the preparation of crime prevention, enforcement and regulation and possible growth of environmental crime. As this thesis demonstrates, the use of the Delphi method also enabled the participants to contemplate the topic both during and between the rounds and gave the researchers a rare opportunity to follow, process and analyse these considerations. Due to these advantages the Delphi approach holds up well, although it is necessary to discuss in some length the criticism the method has faced, what this criticism means to the validity of the thesis and furthermore, how these reservations may be dispelled.

The Delphi method has been criticized for lacking scientific rigour. Much of the critique is related to the debate and differences between qualitative and quantitative methods. Due to the characteristics and nature of the Delphi, especially the topics of problem identification, researcher skills and data presentation need to be discussed (Hasson et al. 2000). These concerns were also reflected by Linstone and Turoff in 1975 when they listed common reasons why Delphi studies may fail. These included imposing the monitor's views and not allowing other perspectives to be raised; problems in summarizing and presenting responses; ensuring common interpretations of the evaluation scales; as well as underestimating the demanding nature of the Delphi method for the respondents.

In general, the study design poses an obvious challenge to the rigor of a Delphi study (Hasson et al. 2000). The selection of the sample, in this case the relevant participants in the panel, should be given considerable thought. In the Delphi study conducted here the representativeness of the panel was considered through the participant matrix, which ensured that the participants were selected from several different respondent groups and covered several topics. Furthermore, purposive sampling was used to gather participants from different professional and organizational backgrounds (Turoff 1975, 84-85). However, purposive sampling has representative challenges as it may result in bias and direct responses in a certain direction. On the other hand, the Delphi method is based on the assumption of the benefits of using topic-specific experts. The purposive sampling contributed to the high response rate in Publication IV, as the participants were committed to participating to all three rounds (see Hasson et al. 2000, 1010).

The rigor of the Delphi should also be considered based on the researcher's skills including expertise on the research topic, the ability to monitor the Delphi process and analyse the data. In order to provide a personal perspective these issues are discussed in the first person. During the study I was working as a researcher at the Police University College where my main topic of research has been environmental crime prevention and supervision. As the topic has been fairly unstudied from the social sciences point of view in Finland, it has required me to carry out a significant amount of background research and reflect on how it should be approached and studied. The selection of the Delphi method was based on this careful approach. In addition, I had previously conducted a research project analysing the current state of environmental crime prevention in Southern Finland. During that project I interviewed several authority experts on the topic and gained an understanding of the main research needs on a practical level. These experiences led to the conclusion that prevention and environmental protection agencies would benefit from research that would bring geographically and institutionally spread individuals struggling with the same complex topic together and provide a platform where these individuals and their insights would be heard. These observations followed Linstone's and Turoff's (1975, 4) notions on when a Delphi is an appropriate choice of method. Some of these being when communication between relevant individuals is missing and the number of individuals is too substantial for face-to-face communication.

Regarding the ability to monitor the Delphi process, I would argue that while the Delphi poses several challenges to the researcher, such as the large amount of data and monitoring the process, it is also a learning process in itself. In order to

ensure the rigor of the study, considerable background information was collected on the topic and on the Delphi as a method. Additionally, the Delphi process was followed continuously together with the project manager and steering group. As I was able to spend all my working hours on the monitoring and on the ongoing analysis of the Delphi, I was able to stay on top of the substantial amount of data the method provided. I argue that in order to conduct a trustworthy and conscientious Delphi study, it is necessary that the monitor is able to give it their full attention.

*About pragmatic criminology.* The premises of pragmatic criminology presented in the Introduction also need to be discussed when evaluating the validity of this thesis. If practice and theory are intertwined and constantly evolving, how can one judge whether a method was the best possible or whether another more appropriate one could have been found? More precisely, how can the findings of this thesis intertwine with theory when their actual application to practice and usefulness has not been evaluated and studied? How can I formulate any ideas of regulatory environmental crime prevention as I have not worked in law enforcement? While I tried to answer these questions through practice-oriented theoretical considerations and utilizing several qualitative methods, in many ways my take on pragmatic criminology was incomplete. However, I find comfort in the acceptance of fallacy, contextualism and modesty ideals of neopragmatism (Wheeldon 2015) which is aptly described in Kasdan's (2015, 1118) discussion on applying neopragmatism in public administration:

The (neo-)pragmatist attitude is a tactical orientation to achieving goals because contexts shift more rapidly than bureaucracy can adapt. Achieving a minor outcome that works today is more useful than working a grand plan that risks being obviated by the time it is completed. The technique is to integrate a reasonable level of situational awareness into action as we focus on the likely duration of any policy or program's utility and avoid overengineering solutions.

## 6.4 Ethical considerations

The publications are based on data which was collected as a part of research projects conducted in the Police University College. Police University College has its own ethical committee. However, the projects were not estimated to require separate ethical evaluation as all the research activities in the Police University College are conducted in line with the ethical principles and guidelines of the Finnish National Board on Research Integrity. Research frames of the projects did

not require separate ethical review.<sup>28</sup> Nevertheless, the data of this thesis includes variety aspects which warrant ethical reflections.

The interviews and the Delphi study were based on voluntary participation. The participants were not for example ordered to participate to the interview by their superiors. However, as I approached them as a researcher of the Police University College, they might have felt the need to participate due to the general prestige associated with the police organisation in Finland. Nevertheless, I as an interviewer did not notice that the participants would have participated to the research due to any other reason than interest in the topic of detecting and preventing environmental crime. The enthusiasm to participate was also evident in the high response rate in the Delphi study. Also, the ethical principles of the study were explained to the participant of the Delphi study in the invitation letter as well as in the beginning of the first questionnaire.

Important ethical issue which should be noted when considering the data is the anonymity. Here, the panel may be described as quasi-anonymous (Publication IV). The researcher was aware of the participants' identities and as such was also able to invite them to participate by sending them a personal email. However, the responds remained anonymous, and were unknown to each other. The exception was the voluntary final seminar where the principle of anonymity was not implemented. All the members of the participant panel as well as the persons interviewed during the Delphi were invited to the final seminar. The seminar was organized in Vantaa in Southern Finland, which considering the distances in Finland made it difficult for all to participate alongside their duties; however almost half of those invited participated which indicates that safeguarding their anonymity was not seen as an obstacle for participating in the study (see McKenna 1994, 1224).

At the beginning of all interviews, the interviewees were explained the purpose of the research project, the anonymity and the style how findings are to be reported. As such, they gave their consent before the interview started. The interviewees were also able to pause or stop the interview if they wished to do so. The interviews were also recorded with the permission of the interviewees. The recording and the transcript with saved and used in accordance with the legislation and strict guidelines of data security and protection applied in the Police University College

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<sup>28</sup> The ethical frames requiring ethical review are listed and explained on the website of the Finnish National Board on Research Integrity, see [www.tenk.fi](http://www.tenk.fi).

A few points should be made regarding my role as an interviewer. First, at the time of conducting the interviews I worked as a researcher at the Police University College. There is a possibility that the interviewed representatives of the environmental protection agencies assumed I was a police officer. Hypothetically this might restrict the discussion and obstruct individuals for sharing their thoughts for example on potentially illicit nuances or giving honest views on the challenges in the cooperation between authorities. In order to reduce the possibility of this misunderstanding, I contacted the interviewees first by email explaining the context in which these interviews were to be conducted and described my position as a researcher. At the beginning of all the interviews, I also explained the purpose of the study in a similar way and briefly described my role and educational background.

Second, when the discussion during the interviews turned to the deficiencies associated with the organization and profession the interviewees identified themselves with, some hesitation on the part of the interviewees was evident. While this was interesting from the point of view of studying professional identities and framing, it might also have restricted and obscured the discussion.

The crime script analysis raises the ethical considerations regarding the research on corporate crime. Both of the environmental offences have had media coverage during the legal proceedings and the corporation names have been published. Nevertheless, the analysis of the offences reveals aspects of the corporations which might be considered by some as slander. These concerns were taken into account during the analysis. The analysis was conducted in a highly systematic manner and the method was defined precisely and documented in detail. Furthermore, the findings were based on publicly available court records and only data from these sources were reported.

## 6.5 Implications for practice and future research

This thesis offers three main contributions to practice. *First, it needs to be acknowledged that the way environmental crime is understood affects what is prevented and how.* The findings of this study indicate that supervision and investigation focus mainly on severe environmental crime with noteworthy economic aspects. The environmental protection agencies classify environmental crimes as illicit activities where economic benefit is pursued; and police officers categorize environmental crime as a part of economic crime investigation. While tying economic and



environmental crime closely together might be in the interest of public institutions, the questions of what is and what is not prevented should be raised. If diminishing resources are focused on the most severe cases of environmental impairment, streams of smaller criminal infractions may cause severe damage to the environment without providing significant economic benefits to individual offenders.

Additionally, the Strategy for Preventing Environmental Offences 2021–2026 recognized the challenges related to holding offenders of smaller environmental infractions accountable as one of the problems of environmental crime prevention (Ministry of the Environment 2021). Administrative sanctions might be one of the possible solutions to this problem. While this thesis supports this possibility, it highlights that it is questionable if sanctions, whether they are based on criminal law or administrative instruments, are actually the most efficient way to prevent environmental crime. Rather, incentive-based regulation with a variety of instruments is needed.

*Second, it is essential to note that nearly all findings of this thesis indicate inconsistencies in environmental crime prevention.* An efficient and coherent authority response to environmental harm and crime is yet to be developed. To narrow down these inconsistencies it is essential to find a shared understanding of the means and points where environmental crime can most efficiently be prevented. This requires discussion and information sharing on environmental crime between and within private, public and third sector—and trust between these actors. This would enhance a more efficient use of resources if preventative activities were focused and combined.

The same need is recognized in the Strategy for Preventing Environmental Offences 2021–2026. The strategy also highlights that progress has been made especially at the regional level where information and best practices are shared (Ministry of the Environment 2021). This thesis contributes to this development by underlining the need to involve third and private sector in these discussions as essential stakeholders are currently largely missing from the preventative efforts.

*Third, this thesis shows that prevention is in many ways currently reactive instead of proactive.* While environmental regulation is focused on securing the sustainable use of natural resources and issuing environmental licences proactively, the prevention of illicit activities is based on reaction. Further, in general, the police are focused on preliminary investigations instead of conducting activities which would proactively prevent illicit activities. Furthermore, reaction places the emphasis on an enforcement strategy which relies on the preventative effect of the threat of



punishment. As concluded on several occasions, punishment for environmental crime is usually fairly low and the chance of getting caught is also fairly low. This raises concerns as to whether the enforcement strategy currently evident in environmental crime prevention is in fact appropriate.

As the crime script analysis indicated, crime-facilitating culture may make it difficult for the employees to address and report unethical or illicit activities of the corporations. However, whistleblowing could be an efficient way to detect corporate crime including environmental crime. The Directive 2019/1937 of the European Parliament and the Council on the protection of persons who report breaches of Union law, so called whistleblower directive, might be one of the ways to enhance the detection of environmental crime. The purpose of the directive is to ensure that whistleblowing is safe and can be done in a secure way. As such, when the Directive takes effect in the upcoming years, corporations with over 50 employees must have their own internal secure channel for whistleblowing. In addition, public organisations will have their own internal channels and the Chancellor of Justice will have a public channel for reporting illicit activities. However, it remains to be seen whether these channels will be taken in by the employees of the fairly small waste operators. Whistleblowing channels would also be an interesting way to gather information from illicit and unethical behaviour related to environmental crime. As such, it might provide researchers empirical data which could give insight on the criminal behaviour of green collar criminals which is essential if we are to prevent and detect environmental crime.

The topic of crime prevention is highly current. For instance, Finland's Strategy on Preventive Police Work 2019–2023 highlights the need for a preventative approach in the constantly changing operating environment. However, the strategy also acknowledges that a preventative approach is not embedded in the professional culture of the police; in fact, it is typically seen as a less important aspect of the police's duties (Ministry of Interior 2019). Regulatory crime prevention forms a noteworthy possibility to broaden the horizon of crime prevention by tying regulation, enforcement and crime prevention closer together.

To ensure the process of empowering a preventative approach in practice, the evaluation of crime prevention activities is of the utmost importance. While the first four dimensions of the AGILE approach (adaptive, germane, incentive-based and legitimate) were discussed in length in Chapter 3, the fifth dimension, evaluation, has not been highlighted here as much as it would have deserved. The evaluation and analysis of regulatory crime prevention, its measures and subsequent research is required if the effective regulatory prevention of

environmental crime is to be achieved. As an ideal, the evaluation would feed back to the other dimensions of regulatory crime prevention and adjust efforts to achieve efficient regulation, enforcement and crime prevention. Future studies on the evaluation of the regulatory prevention of environmental crime are therefore recommended.

It should also be noted that systematic ways to measure environmental crimes is yet to be developed. One of the reasons for this might be that environmental crime is typically seen as regulatory crime. As such, measuring has been based on authority statistics which give only partial information about crime, as discussed in the Chapter 2.3. Another reason might be that environmental crime may be characterised as victimless crimes. As such, victim and crime surveys may not be seen as a source for measuring and understanding the scope environmental crime. However, as green criminologists and this thesis have shown, environmental crime is a wicked problem which cannot be categorized solely as a victimless problem of the regulators. Furthermore, the prevention of environmental crime and evaluation of its control would benefit from the use of wider scale of surveys and technological solutions. This observation is also noted internationally as research consortiums are trying to find the most efficient ways to detect and measure green crimes through technological innovations.<sup>29</sup> Again, there is an obvious need for criminological imagination and how to use the tools already in place and how to develop new ones in order to measure, evaluate and control environmental crime in the most efficient way.

These notions are consistent with the observations and recommendations by the Research Division of the National Council for Crime Prevention. The Division recommends evaluation studies and emphasizes the substantial relevance of these studies in orienting crime prevention efforts in the most accurate manner (National Council for Crime Prevention 2021). Subsequently, a systematic evaluation of the activities issued as a part of the Action Programme for Environmental Crime Prevention (Ministry of the Environment 2015) is needed. Further, referring to Finland's Strategy on Preventive Police Work 2019–2023 (Ministry of Interior 2019), this thesis suggests further research on the leadership and strategical levels as these level cannot be separated from crime prevention if its goal it to be truly preventive.

In order to deepen the understanding of regulatory crime prevention, cultural aspects should be incorporated in the evaluation and analysis. The findings of this

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<sup>29</sup> This notion is based on author's participation in discussions with academia and practitioners nationally and internationally.

study show that the professional culture, enforcement culture, business culture and national culture all affect the way environmental crime is framed and its subsequent monitoring is organized and conducted. Further research should be done to investigate how these cultural settings interact and collide and to understand what they mean to the broader topic of environmental crime prevention.

## 7 CONCLUSION

This thesis has provided a unique study of environmental crime prevention from the social sciences perspective in Finland. It concludes that there appears to be a contradictory regulatory regime in place: on the one hand, it is based on the trust between enforcement agencies and business operators, and on the other hand the enforcement agencies hold an underlying assumption of foul play. Two specific conclusions can be drawn from this thesis.

*First, regulatory crime prevention is characterized by regulatory deficiencies.* These deficiencies erode regulatory environmental crime prevention and can be seen in regulatory voids, and inconsistencies in crime-specific and regulatory strategies.

*Second, regulatory crime prevention is framed with a fairly narrow view of environmental crime.* This view is demonstrated by professional frames and an economic framework. In fact, framing may produce regulatory deficiencies by narrowing the focus on some aspects and at the same time excluding others.

While regulatory crime prevention is faced with these inconsistencies and understandings, its agility remains weak. At the same time this thesis shows that environmental crime is a complex and growing concern which needs to be approached with a wide set of tools and measures.

From the point of view of an AGILE approach a few conclusions can be drawn. First, regulatory deficiencies create challenges to adapt to the constantly evolving contexts of environmental crime. The findings show that there are a fuller range of possible intervention points than are currently being explored. However, enforcement has been *adaptive* in the sense that the focus is placed on economic aspects of environmental crime. Second, the view of environmental crime and regulatory crime prevention is in many ways narrow as it is framed from professional vantage points. However, enforcement is *germane* to the prevention of economic crime—while it remains debatable whether this is an advantage or weakness in regard to environmental protection. Third, this study has not been able to demonstrate whether regulatory strategies applied are *incentive-based* and effective. Nevertheless, there appear to be incoherent views among stakeholders on how compliance should be incentivized most effectively—through the threat of

criminal law or administrative instruments. Finally, regulatory voids create holes in regulatory crime prevention posing severe challenges to its *legitimacy*. For instance, the legitimacy of regulatory crime prevention is reduced because the authorities are not unified.

The most important issue this thesis highlights is the pressing need to develop environmental crime *prevention* in addition to *supervising* and *investigating* environmental crime. This calls for clearer responsibilities for preventative activities, empowering stakeholders from different sectors and building a shared understanding of environmental crime and harm. A coherent front of capable guardianship would lead to more effective regulatory prevention of environmental crime. Furthermore, a wider gaze, which is not limited or severely constrained by professional cultures and interpretations of regulation, legislation and fluctuating definitions of environmental crime, is needed. Indeed, regulatory prevention of environmental crime needs to be *agile* in order for it to be efficient, functional and appropriate.

# AFTERWORD

Is environmental protection overshadowed by the prevention of the shadow economy and environmental crime? Is it possible for public entities to be truly proactive and to prevent the worst-case scenario where environmental crime continues to impair our environment on an escalating scale? Can we build bridges to cross sectoral barriers and overcome obstacles in joint efforts to prevent environmental degradation? These are the questions I have been struggling while writing this thesis.

However, I'm glad to notice that progress has been made in the past few years. Governmental agencies are conducting developmental projects to find new ways to prevent environmental crime, the action programme in conjunction with the Strategy for Preventing Environmental Offences have increased knowledge and created networks where discussion between authorities are taking place. One can only hope that at the same time corporations are becoming more aware of environmental regulations and the consequences of illicit and licit environmental degradation.

In my opinion, we are painting thin lines if we dispute who is answerable for the prevention of environmental crime or what is framed as a crime. This debate is continuous. For example, several green criminologists argue that our understanding of crime is limited and coloured by consumption, economic interests and political pursuits. According to these arguments, a significantly larger amount of environmental degradation should be understood as criminal. After spending years reading and studying green crime, these critical thoughts appeal also to me. However, in the end, isn't the most important thing that we are all answerable for preventing environmental harm and no matter what the environmental harm is called?

## REFERENCES

- AHONEN, T., KERPPILÄ, L. and PIJATANNIEMI, E., 2003. Ilmoittaako vaiko eikö? Arvioita kunnan ympäristöviranomaisen ilmoituskynnyksestä ympäristörikosjutuissa. *Oikeus*, **4**(32), pp. 359-375.
- AKERS, R.L., 1990. Rational Choice, Deterrence, and Social Learning Theory in Criminology. *The journal of criminal law & criminology*, **81**(3), pp. 653-676.
- ALMER, C. and GOESCHL, T., 2015. The Sopranos Redux: The Empirical Economics of Waste Crime. *Regional studies*, **49**(11), pp. 1908-1921.
- ANDARGE, T. and LICHTENBERG, E., 2020. Regulatory compliance under enforcement gaps. *Journal of regulatory economics*, **57**(3), pp. 181-202.
- ANDREATTA, D. and FAVARIN, S., 2020. Features of transnational illicit waste trafficking and crime prevention strategies to tackle it. *Global crime*, **21**(2), pp. 130-153.
- ANGERMULLER, J., MAINGUENEAU, D. and WODAK, R., 2014. *Discourse Studies Reader*. Amsterdam: John Benjamins Publishing Company.
- ARGUEDAS, C., 2008. To Comply or Not To Comply? Pollution Standard Setting Under Costly Monitoring and Sanctioning. *Environmental & resource economics*, **41**(2), pp. 155-168.
- AXELSSON, S.B. and AXELSSON, R., 2009. From territoriality to altruism in interprofessional collaboration and leadership. *Journal of interprofessional care*, **23**(4), pp. 320-330.
- AYRES, I., 2013. Responsive regulation: A co-author's appreciation. *Regulation & governance*, **7**(1), pp. 145-151.
- AYRES, I. and BRAITHWAITE, J., 1992. *Responsive regulation transcending the deregulation debate*. New York: Oxford University Press.
- BACCHI, C.L., 1999. *Women, policy and politics*. London: Sage Publications.
- BAIRD, J., CURRY, R. and CRUZ, P., 2014. An overview of waste crime, its characteristics, and the vulnerability of the EU waste sector. *Waste management & research*, **32**(2), pp. 97-105.
- BALDWIN, R. and BLACK, J., 2008. Really Responsive Regulation. *The Modern Law Review*, **71**(1), pp. 59-94.
- BECKER, G.S., 1968. *Crime and Punishment: an Economic Approach*. Palgrave Macmillan UK.
- BEIRNE, P. and SOUTH, N., eds, 2007. *Issues in green criminology. Confronting harms against environments, humanity and other animals*. Cullompton: Willan.
- BENSON, M.L., MADENSEN, T.D. and ECK, J.E., 2009. White-Collar Crime from an Opportunity Perspective. *The Criminology of White-Collar Crime*. New York, New York: Springer New York, pp. 175-193.
- BERNSTEIN, R.J., 2013. *The Pragmatic Turn*. 2. Aufl. edn. Oxford: Polity.

- BISSCHOP, L., 2012a. Is it all going to waste? Illegal transports of e-waste in a European trade hub. *Crime, law, and social change*, **58**(3), pp. 221-249.
- BISSCHOP, L., 2012b. Out of the woods: the illegal trade in tropical timber and a European trade hub. *Global Crime*, **13**(3), pp. 191-212.
- BISSCHOP, L. and VANDE WALLE, G., 2013. *Environmental victimization and conflict resolution: a case study of e-waste*. Palgrave Macmillan.
- BJØRGO, T., 2016. *Preventing Crime. A Holistic Approach*. London: Palgrave Macmillan UK.
- BLACK, J., 2014. *Learning from Regulatory Disasters*. LSE Law, Society and Economy Working Papers 24/2014. London School of Economics and Political Science Law Department.
- BLOMMAERT, J., 2005. *Discourse: A critical introduction*. Cambridge: Cambridge University Press.
- BRADY, S.R., 2015. Utilizing and Adapting the Delphi Method for Use in Qualitative Research. *International journal of qualitative methods*, **14**(5), pp. 1-6.
- BRADY, S.R. and O'CONNOR, M.K., 2014. Understanding How Community Organizing Leads to Social Change: The Beginning Development of Formal Practice Theory. *Journal of Community Practice: Interdisciplinary Scholarship for Community Practice in the 21st Century*, **22**(1-2), pp. 210-228.
- BRAITHWAITE, J., 2002. *Restorative justice & responsive regulation*. Oxford: Oxford University Press.
- BRANTINGHAM, P.L. and BRANTINGHAM, P.J., 1993. Environment, Routine, and Situation: Toward a Pattern Theory of Crime. *Routine Activity and Rational Choice*. 1 edn. Routledge, pp. 259-294.
- BRATSPIES, R., 2009. Regulatory trust. *Arizona Law Review*, **51**, pp. 575-631.
- BRENNAN, C., 2016. The Enforcement of Waste Law in Northern Ireland: Deterrence, Dumping and the Dynamics of Devolution. *Journal of environmental law*, **28**(3), pp. 471-496.
- BRISMAN, A. and SOUTH, N., 2013. A green-cultural criminology: An exploratory outline. *Crime, media, culture*, **9**(2), pp. 115-135.
- BRISMAN, A. and SOUTH, N., eds, 2015. *Environmental Crime and Social Conflict*. Farnham: Routledge.
- BURBY, R.J. and PATERSON, R.G., 1993. Improving Compliance with State Environmental Regulations. *Journal of policy analysis and management*, **12**(4), pp. 753-772.
- BURR, V., 1995. *An Introduction to Social Constructionism*. London: Routledge.
- BYCROFT, D., DEAR, G.E. and DRAKE, D., 2019. Psychological reports for sentencing juveniles in Australian courts. *Psychiatry, Psychology and Law*, **26**(3), pp. 355-374.
- CARRINGTON, K. and HOGG, R., eds, 2002. *Critical Criminology. Issues, debates, challenges*. Devon: Willan Publishing.
- CARTER, R. and MORGAN, R., 2018. Regulatory trust and failure - a case study of coal seam gas in New South Wales, Australia. *Journal of environmental planning and management*, **61**(10), pp. 1789-1804.
- CLARKE, R.V., 1995. Situational crime prevention. In: M. TONRY and D.P. FARRINGTON, eds, *Building a safer society. Strategic approaches to crime prevention. Volume 19*. Chicago: The University of Chicago Press, pp. 91-150.



- CLARKE, R.V., 2018. Regulating Crime: The Birth of the Idea, Its Nurture, and the Implications for Contemporary Criminology. *The Annals of the American Academy of Political and Social Science*, **679**(1), pp. 20-35.
- CLIFFORD, M. and EDWARDS, T.D., 2012. *Environmental crime*. Second edition edn. Burlington, MA: Jones & Bartlett Learning.
- COOK, P.J., 2011. *The Demand and Supply of Criminal Opportunities*. Crime Opportunity Theories. 1 edn. Farnham: Ashgate, pp. 127-153.
- COLEMAN, C. and NORRIS, C., 2000. *Introducing criminology*. 1. publ. edn. Cullompton, Devon: Willan.
- CORNISH, D., 1994. The procedural analysis of offending and its relevance for situational prevention. In: R. CLARKE, ed, *Crime Prevention Studies, Vol. 3*. Monsey: Criminal Justice Press, pp. 151-196.
- CORNISH, D.B. and CLARKE, R.V., 2003. Opportunities, precipitators and criminal decisions: A reply to Wortley's critique of situational crime prevention. In: M.J. SMITH and D.B. CORNISH, eds, *Theory for Practice in Situational Crime Prevention. Crime Prevention Studies, vol. 15*. Devon: Willan Publishing, pp. 41-96.
- CORNISH, D.B. and CLARKE, R.V., 2011. Understanding Crime Displacement: An Application of Rational Choice Theory. *Crime Opportunity Theories*. 1 edn. Farnham: Ashgate, pp. 197-211.
- CRAWFORD, A., 2009. *Crime prevention policies in comparative perspective*. Collumpton: Willan Publ.
- CROFTS, P., MORRIS, T., WELLS, K. and POWELL, A., 2010. Illegal dumping and crime prevention: A case study of Ash Road, Liverpool Council. *Public space (Broadway, N.S.W.)*, **5**, pp. 1-23.
- DALKEY, N.C., 1969. *The Delphi Method: An Experimental Study of Group Opinion*. Santa Monica: The Rand Corporation.
- DAVIES, P.A., 2014. Green crime and victimization: Tensions between social and environmental justice. *Theoretical Criminology*, **18**(3), pp. 300-316.
- DECKER, C.S., 2007. Flexible enforcement and fine adjustment. *Regulation & governance*, **1**(4), pp. 312-328.
- DEHGHANNIRI, H. and BORRION, H., 2019. Crime scripting: A systematic review. *European journal of criminology*, **18**(4), pp. 504-525.
- DORN, N., VAN DAELE, S. and VANDER BEKEN, T., 2007. Reducing Vulnerabilities to Crime of the European Waste Management Industry: the Research Base and the Prospects for Policy. *European Journal of Crime, Criminal Law and Criminal Justice*, **15**(1), pp. 23-36.
- EARNHART, D., 2000. Environmental Crime and Punishment in the Czech Republic: Penalties against Firms and Employees. *Journal of Comparative Economics*, **28**(2), pp. 379-399.
- EDWARDS, A. and HUGHES, G., 2013. Comparative European criminology and the question of urban security. *European Journal of Criminology*, **10**(3), pp. 257-259.
- ELLIOT, D. and FAGAN, A., 2017. *The prevention of crime*. Chichester: Wiley Blackwell.
- ERKKILÄ, M. and MARTTINEN, K., 2008. Ympäristöoikeudelliset väärinkäytökset. *Defensor Legis*, **4**, pp. 606-612.
- ESKOLA, J. and SUORANTA, J., 1998. *Jobdatus laadulliseen tutkimukseen*. Tampere: Vastapaino.

- EZEAH, C., FAZAKERLEY, J.A. and ROBERTS, C.L., 2013. Emerging trends in informal sector recycling in developing and transition countries. *Waste management (Elmsford)*, **33**(11), pp. 2509-2519.
- FARRELL, G., 2010. Situational Crime Prevention and Its Discontents: Rational Choice and Harm Reduction versus 'Cultural Criminology'. *Social policy & administration*, **44**(1), pp. 40-66.
- FAURE, M.G. and VISSER, M., 2004. Law and economics of environmental crime. In: H. SJÖGREN and G. SKOGH, eds, *New Perspectives on Economic Crime*. Cheltenham: Edward Elgar Publishing, pp. 57-75.
- FAVARIN, S. and AZIANI, A., 2020. The Global Waste Trafficking and Its Correlates. *Journal of contemporary criminal justice*, **36**(3), pp. 351-383.
- FELSON, M., 1987. Routine Activities and Crime Prevention in the Developing Metropolis. *Criminology*, **25**(4), pp. 911-931.
- FELSON, M. and COHEN, L.E., 1980. Human Ecology and Crime: A Routine Activity Approach. *Human ecology: an interdisciplinary journal*, **8**(4), pp. 389-406.
- FENN, P.T. and VELJANOSVKI, C.G., 1988. A positive economic theory of regulatory enforcement. *The economic journal*, **98**(393), pp. 1055-1070.
- FINEMAN, S., 2000. Enforcing the environment: regulatory realities. *Business Strategy and the Environment*, **9**(1), pp. 62-72.
- FINNISH ENVIRONMENTAL CRIME MONITORING GROUP, 2020. *Environmental Crime Report 2020*. Retrieved in 1.2.2022 <https://polisi.fi/documents/25235045/28576016/Ymp%C3%A4rist%C3%B6riko-skatsaus+2021.pdf/0edd668b-8f1c-05dc-f168-4aefab533ce4?t=1629713181169>
- FITZGERALD, A.J. and SPENCER, D., 2020. Governmentality and Environmental Rights: Regulatory Failure and the Volkswagen Emissions Fraud Case. *Critical criminology (Richmond, B.C.)*, **28**(1), pp. 43-63.
- FLETCHER, A.J. and MARCHILDON, G.P., 2014. Using the Delphi Method for Qualitative, Participatory Action Research in Health Leadership. *International journal of qualitative methods*, **13**(1), pp. 1-18.
- FLYVBJERG, B., 2006. Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, **12**(2), pp. 219-245.
- FORTNEY, D.C., 2003. Thinking outside the 'black box': tailored enforcement in environmental criminal law. *Texas law review*, **81**(6), pp. 1609-1635.
- FRANKLIN, K. and HART, J., 2007. Idea Generation and Exploration: Benefits and Limitations of the Policy Delphi Research Method. *Innovative Higher Education*, **31**(4), pp. 237-246.
- FREILICH, J.D. and NEWMAN, G.R., 2018. Regulating Crime: The New Criminology of Crime Control. *The ANNALS of the American Academy of Political and Social Science*, **679**(1), pp. 8-18.
- GERMANI, A.R., PERGOLIZZI, A. and REGANATI, F., 2018. Eco-mafia and environmental crime in Italy. *Green Crimes and Dirty Money*. 1 edn. Routledge, pp. 42-71.
- GEZELIUS, S.S., 2019. Consequences of Tit-for-Tat Enforcement: Toward a Hippocratic Principle of Regulatory Implementation. *Law & policy*, **41**(2), pp. 220-241.
- GIBBS, C., GORE, M.L., MCGARRELL, E.F. and RIVERS, L., 2010. Introducing Conservation Criminology: Towards Interdisciplinary Scholarship on Environmental Crimes and Risks. *British journal of criminology*, **50**(1), pp. 124-144.

- GIBBS, C., MCGARRELL, E.F. and AXELROD, M., 2010. Transnational white-collar crime and risk. *Criminology & Public Policy*, **9**(3), pp. 543-560.
- GIBBS, C. and PUGH, D., 2017. An ounce of prevention: opportunity structures for white-collar crime in environmental markets. *Crime, Law and Social Change*, **67**(2), pp. 133-151.
- GOYES, D.R. and SOUTH, N., 2017. Green Criminology Before 'Green Criminology': Amnesia and Absences. *Critical criminology*, **25**(2), pp. 165-181.
- GRAY, G.C., 2006. The Regulation of Corporate Violations. *British journal of criminology*, **46**(5), pp. 875-892.
- GUNNINGHAM, N., 2011. Enforcing Environmental Regulation. *Journal of environmental law*, **23**(2), pp. 169-201.
- GUNNINGHAM, N., 2012. Being a Good Inspector: Regulatory Competence and Australia's Mines Inspectorate. *Policy and practice in health and safety*, **10**(2), pp. 25-45.
- GUNNINGHAM, N. and GRABOSKY, P., 1998. *Smart Regulation: Designing Environment Policy*. New York: Oxford University Press.
- GUNNINGHAM, N. and SINCLAIR, D., 1999. Integrative Regulation: A Principle-Based Approach to Environmental Policy. *Law & social inquiry*, **24**(4), pp. 853-896.
- GURINSKAYA, A. and NALLA, M.K., 2018. The Expanding Boundaries of Crime Control: Governing Security through Regulation. *The Annals of the American Academy of Political and Social Science*, **679**(1), pp. 36-54.
- HAINES, F., 2009. Regulatory Failures and Regulatory Solutions: A Characteristic Analysis of the Aftermath of Disaster. *Law & social inquiry*, **34**(1), pp. 31-60.
- HAJER, M., 2002. Policy without polity? Policy analysis and the institutional void. *Policy Sciences* **36**, pp. 175-195.
- HALL, M., 2013. Victims of Environmental Harms and Their Role in National and International Justice. In: R. WALTERS, D. S. WESTERHUIS and T. WYATT, eds, *Emerging Issues in Green Criminology*. London: Palgrave Macmillan UK, pp. 218-241.
- HALL, M., 2017. Criminal redress in cases of environmental victimization: a defence1. *International review of victimology*, **23**(2), pp. 203-223.
- HALL, M., MAHER, J., NURSE, A., POTTER, G.R., SOUTH, N. and WYATT, T., eds, 2017. *Greening criminology in the 21st century*. London and New York: Routledge, Taylor & Francis Group.
- HALSEY, M., 2004. Against 'Green' Criminology. *British journal of criminology*, **44**(6), pp. 833-853.
- HARRISON, K., 1995. Is Cooperation the Answer? Canadian Environmental Enforcement in Comparative Context. *Journal of policy analysis and management*, **14**(2), pp. 221-244.
- HASSON, F., KEENEY, S. and MCKENNA, H., 2000. Research guidelines for the Delphi survey technique. *Journal of advanced nursing*, **32**(4), pp. 1008-1015.
- HAYWARD, K., 2007. Situational Crime Prevention and its Discontents: Rational Choice Theory versus the 'Culture of Now'. *Social policy & administration*, **41**(3), pp. 232-250.
- HIETAMÄKI, M., SIILI-HAKKARAINEN, L., LAHTELA, J., JÄRVINEN, K., VANALA, T., SERENIUS, K. and LEINONEN, K., 2016. *Ympäristövalvonnan ohje*. Helsinki: Ympäristöministeriö.
- HILDEBRAND, D.L., 2005. Pragmatism, Neopragmatism, and Public Administration. *Administration & society*, **37**(3), pp. 345-359.

- HILL, J.F., 2015. A Systems Thinking Perspective on the Motivations and Mechanisms That Drive Wildlife Poaching. In: R. SOLLUND, ed, *Green Harms and Crimes: Critical Criminology in a Changing World*. London: Palgrave Macmillan UK, pp. 189-219.
- HILLYARD, P. and TOMBS, S., 2007. From 'crime' to social harm? *Crime, law, and social change*, **48**(1-2), pp. 9-25.
- HIRSJÄRVI, S. and HURME, H., 1997. *Tutkimusbaastattelu. Teemahaastattelun käytäntö ja teoria*. Helsinki: Gaudeamus Helsinki University Press.
- HUISMAN, W. and VAN ERP, J., 2013. Opportunities for Environmental Crime: A Test of Situational Crime Prevention Theory. *British journal of criminology*, **53**(6), pp. 1178-1200.
- HUSSEIN, A., 2009. The use of Triangulation in Social Sciences Research. *Journal of comparative social work*, **4**(1), pp. 106-117.
- HUTTON, D., 2000. Countering environmental crime: the role of environmental regulators. *Social alternatives*, **19**(2), pp. 24-27.
- HYTTINEN, T., LÄHTEENMÄKI, L., MALIK, H., VANTO, J., VATJUS-ANTTILA, J. and TAPANI, J., 2019. *Hallinnollinen rikosten torjunta - mahdollisuudet ja rajat*. Turku: University of Turku.
- INTERPOL, 2017. *Environmental security. Strategic plan 2017-2020*. Lyon: Interpol.
- INTERPOL-UN ENVIRONMENT, 2016. *Strategic report. Environment, Peace and Security - A Convergence of Threats*. Interpol. Retrieved 15.1.2022 [https://wedocs.unep.org/bitstream/handle/20.500.11822/17008/environment\\_peace\\_security.pdf?sequence=1&%3BisAllowed=](https://wedocs.unep.org/bitstream/handle/20.500.11822/17008/environment_peace_security.pdf?sequence=1&%3BisAllowed=)
- JARRELL, M. and OZYMY, J., 2012. Real crime, real victims: environmental crime victims and the Crime Victims' Rights Act (CVRA). *Crime, Law and Social Change*, **58**(4), pp. 373-389.
- JOHNSON, R.B., 1997. Examining the validity structure of qualitative research. *Education (Chula Vista)*, **118**(2), pp. 282-292.
- KAGAN, R.A., THORNTON, D. and GUNNINGHAM, N., 2003. Explaining Corporate Environmental Performance: How Does Regulation Matter? *Law & society review*, **37**(1), pp. 51-90.
- KARPOFF, J.M., LOTT, J., John R. and WEHRLY, E.W., 2005. The Reputational Penalties for Environmental Violations: Empirical Evidence. *The Journal of law & economics*, **48**(2), pp. 653-675.
- KASDAN, D.O., 2015. One More Look at (Neo-)Pragmatism in Public Administration. *Administration & society*, **47**(9), pp. 1110-1125.
- KATZ, R.S., 2012. Environmental pollution: corporate crime and cancer mortality. *Contemporary Justice Review*, **15**(1), pp. 97-125.
- KORSELL, L., 2001. Big Stick, Little Stick: Strategies for Controlling and Combating Environmental Crime. *Journal of Scandinavian Studies in Criminology and Crime Prevention*, **2**(2), pp. 127-148.
- KORSELL, L., 2003. *Bokföringsbrott - en studie i selektion [False accounting - study of selection]*. Edsbruk: Akademitryck.
- KOSKELA, T., Kankaanranta, T., Suvantola, L., Laakso, T., Koppanen, K., Lehtinen, T., Muttilainen, V., Rikkilä, S. and Tamminen, T., 2020. *Ympäristörikoshyötyjen tilannekuva [Situation of the Environmental Criminal Profit]*. Publications of the Government's analysis, assessment and research activities, 2020:56. Helsinki: Valtioneuvoston kanslia.

- LA VIGNE, N.G., 2018. Applying Regulatory Measures to Address Crime Problems: An AGILE Approach to Enhancing Public Safety. *The Annals of the American Academy of Political and Social Science*, **679**(1), pp. 202-215.
- LAAKSO, T., LEPPÄNEN, T. and MÄÄTTÄ, T., 2003. Metsärikollisuus empiirisen oikeustutkimuksen kohteena. *Defensor Legis*, **4**, pp. 647-667.
- LAB, S.P., 2015. *Crime Prevention : Approaches, Practices, and Evaluations*. London: Routledge.
- LAUNIAINEN, P., 2016. Hyötykonfiskaatio ympäristörikoksissa. In: T. MÄÄTTÄ, A. KUMPULA, K. KOKKO, R. SAIRINEN and J. SIMILÄ, eds, *Ympäristöpolitiikan ja -oikeuden vuosikirja 2016*. Joensuu: Itä-Suomen yliopiston LYY-instituutti, Oikeustieteiden laitos, pp. 337-354.
- LAVORRNA, A., 2014. Wildlife trafficking in the Internet age. *Crime science*, **3**(1), pp. 1-12.
- LAWS, D., and REIN, M., (2003). Reframing practice. In: M. HAJER and H. WAGENAAR, eds, *Deliberative Policy Analysis. Understanding Governance in the Network Society*. Cambridge: Cambridge University Press, pp 172–206.
- LIDDICK, D., 2009. The traffic in garbage and hazardous wastes: an overview. *Trends in organized crime*, **13**(2-3), pp. 134-146.
- LINNOVE, E., 2014. *Ympäristönsuojelulainsäädännön laillisuusvalvontaopas 2014. Ympäristöhallinnon ohjeita 9*. Helsinki: Ympäristöministeriö.
- LINSTONE, H.A. and TUROFF, M., 1975. *The Delphi method: techniques and applications*. Addison-Wesley.
- LIU, N., SOMBOON, V., WUN'GAEO, S., MIDDLETON, C., TINGSABADH, C. and LIMJIRAKAN, S., 2016. Improvements to enforcement of multilateral environmental agreements to control international shipments of chemicals and wastes. *Waste management & research*, **34**(6), pp. 502-510.
- LIVHOLTS, M. and TAMBOUKOU, M., 2015. *Discourse and narrative methods: theoretical departures, analytical strategies and situated writings*. London: Sage Publications.
- LYNCH, J.M., 2006. The Greening of Criminology: A Perspective on the 1990s. *Green Criminology*. 1 edn. Routledge, pp. 165-170.
- LYNCH, M.J., 2018. Acknowledging Female Victims of Green Crimes: Environmental Exposure of Women to Industrial Pollutants. *Feminist criminology*, **13**(4), pp. 404-427.
- LYNCH, M.J. and STRETESKY, P.B., 2003. The Meaning of Green. *Theoretical Criminology*, **7**(2), pp. 217-238.
- LYNCH, M.J. and STRETESKY, P.B., 2014. Exploring green criminology: toward a green criminological revolution. Farham, Surrey: Ashgate Publishing Limited, U.K.
- LYNCH, M.J., LONG, M.A., BARRETT, K.L. and STRETESKY, P.B., 2013. Is it a Crime to Produce Ecological Disorganization? Why Green Criminology and Political Economy Matter in the Analysis of Global Ecological Harms. *British journal of criminology*, **53**(6), pp. 997-1016.
- LYNCH, M.J., LONG, M.A., STRETESKY, P.B. and BARRETT, K.L., 2017. *Green criminology*. Oakland, California: University of California Press.
- LYNCH, M.J., STRETESKY, P.B. and LONG, M.A., 2018. Situational Crime Prevention and the Ecological Regulation of Green Crime: A Review and Discussion. *The ANNALS of the American Academy of Political and Social Science*, **679**(1), pp. 178-196.
- MAGUIRE, M., 2002. *The Oxford handbook of criminology*. 3. ed. edn. Oxford: Oxford University Press.
- MALIK, A.S., 2007. Optimal environmental regulation based on more than just emissions. *Journal of Regulatory Economics*, **32**(1), pp. 1-16.



- MAY, P., J. and WOOD, R.S., 2003. At the Regulatory Front Lines: Inspectors' Enforcement Styles and Regulatory Compliance. *Journal of public administration research and theory*, **13**(2), pp. 117-139.
- MCKENNA, H.P., 1994. The Delphi technique: a worthwhile research approach for nursing? *Journal of advanced nursing*, **19**(6), pp. 1221-1225.
- MICHALOWSKI, R. and BROWN, M., 2020. Poisoning for Profit: Regulatory Rollbacks, Public Health, and State-Facilitated Corporate Crime. *Journal of White Collar and Corporate Crime*, **1**(2), pp. 113-122.
- MINISTRY OF INTERIOR, 2019 *Finland's Strategy on Preventive Police Work 2019-2023*. Retrieved 1.2.2022 <https://julkaisut.valtioneuvosto.fi/handle/10024/161343>
- MINISTRY OF INTERIOR, 2020. *Government Resolution on a Strategy and an Action Plan for Tackling the Grey Economy and Economic Crime for 2020–2023*. Retrieved 1.2.2022 <https://intermin.fi/en/police/economic-crime-and-the-shadow-economy>
- MINISTRY OF THE ENVIRONMENT, 2015. *Ympäristörikostorjunnan strategia ja toimenpideohjelma. Yhteistyöryhmän ehdotus. Ympäristöministeriön raportteja 16*. Helsinki: Ympäristöministeriö.
- MINISTRY OF THE ENVIRONMENT, 2021. *Strategy for Preventing Environmental Offences 2021–2026 and Action Programme 2021–2022*. Publications of the Ministry of Environment 2021:1. Helsinki: Ministry of the Environment.
- MORGANTI, M., FAVARIN, S. and ANDREATTA, D., 2020. Illicit Waste Trafficking and Loopholes in the European and Italian Legislation. *European journal on criminal policy and research*, **26**(1), pp. 105-133.
- NATALI, L., 2015. *A Critical Gaze on Environmental Victimization*. London: Palgrave Macmillan UK.
- NATARAJAN, M., 2011. *Crime opportunity theories*. Farnham: Ashgate.
- NATIONAL COUNCIL FOR CRIME PREVENTION 2021. *Rikoksenteorijunta-neuvoston tutkimusjaoston kannanotto tutkimustietoon perustuva rikoksenteorijunnan kehittämiseksi: tilanne jaoston toisen toimikauden päätyessä 2021*. Retrieved 21.1.2021 [https://api.hankeikkuna.fi/asiakirjat/04f5882c-8ac2-4ee8-8baf-4954df25a585/e7df05f8-124e-4533-a7aca87782ff7722/KANNANOTTO\\_20211123102626.docx](https://api.hankeikkuna.fi/asiakirjat/04f5882c-8ac2-4ee8-8baf-4954df25a585/e7df05f8-124e-4533-a7aca87782ff7722/KANNANOTTO_20211123102626.docx)
- NATIONAL COUNCIL FOR CRIME PREVENTION 2022. National Council for Crime Prevention Home Page. Retrieved 22.1.2022 <https://rikoksenteorijunta.fi/en/national-council-for-crime-prevention>
- NIELSEN, V.L. and PARKER, C., 2009. Testing responsive regulation in regulatory enforcement. *Regulation & governance*, **3**(4), pp. 376-399.
- NIEMI, J., SAHRAMÄKI, I. and JUKARAINEN, P., 2014. Information sharing in inter-organizational collaboration between the police and other authorities in Finland. *European Journal of Policing Studies*, **1**(4), pp. 320-338.
- NISSINEN, M., 2003. Ympäristörikoksista käytännössä. *Defensor Legis*, **4**, pp. 620-639.
- NURSE, A., 2017. Green criminology: shining a critical lens on environmental harm. *Palgrave communications*, **3**(1), pp. 1-4.
- NYBORG, K. and TELLE, K., 2006. Firms' Compliance to Environmental Regulation: Is There Really a Paradox? *Environmental & resource economics*, **35**(1), pp. 1-18.
- O'BRIEN, M. and YAR, M., 2008. *Criminology: The Key Concepts*. Florence: Routledge.
- OGUS, A. and ABBOT, C., 2002. Sanctions for Pollution: Do We Have The Right Regime? *Journal of environmental law*, **14**(3), pp. 283-298.

- PAISEY, C. and PAISEY, N.J., 2010. Comparative research: An opportunity for accounting researchers to learn from professions. *Journal of accounting & organizational change*, **6**(2), pp. 180-199.
- PARKER, C., 2006. The "Compliance" Trap: The Moral Message in Responsive Regulatory Enforcement. *Law & society review*, **40**(3), pp. 591-622.
- PASSAS, N., 2005. Lawful but awful: 'Legal Corporate Crimes'. *The Journal of socio-economics*, **34**(6), pp. 771-786.
- PENNANEN, J., 2006. *Ympäristölainsäädännön laillisuusvalvonta - erityisesti ympäristösuojelulain näkökulmasta [Legality control of environmental legislation - Environmental Protection Act point of view]*. Helsinki: Suomen ympäristökeskus.
- PETROSSIAN, G.A. and PEZZELLA, F.S., 2018. IUU Fishing and Seafood Fraud: Using Crime Script Analysis to Inform Intervention. *The Annals of the American Academy of Political and Social Science*, **679**(1), pp. 121-139.
- PHILLIPS, N. and HARDY, C., 2002. *Discourse Analysis. Investigating Processes of Social Construction*. Los Angeles: SAGE Publications Inc.
- POLSTAT, 2021. Statistics about environmental crime. The National Police Information System. Received 5/2021.
- POTTER, G.R., NURSE, A. and HALL, M., eds, 2016. *The Geography of Environmental Crime*. London: Palgrave Macmillan UK.
- PRALLE, S. and BOSCARINO, J., 2011. Framing Trade-offs: The Politics of Nuclear Power and Wind Energy in the Age of Global Climate Change. *The Review of policy research*, **28**(4), pp. 323-346.
- RAGIN, C.C., 2014. *The Comparative Method. Moving Beyond Qualitative and Quantitative Strategies. With a New Introduction*. Oakland: University of California Press.
- RIHOUX, B. and MARX, A., 2013. QCA, 25 Years after "The Comparative Method". *Political research quarterly*, **66**(1), pp. 167-235.
- RISKPOLISSTYRELSEN, 2013. *Polismyndigheternas hantering av miljöbrott. Tillsynsrapport 2013:6. [Processing of environmental crime in the Police. Monitoring report 2013:6]*. Stockholm: Riskpolisstyrelsen.
- RISKPOLISSTYRELSEN and ÅKLAGARMYNDIGHETEN, 2010. *Strategier mot miljöbrott. Ett samarbetsprojekt mellan Riskpolisstyrelsen och Riksenheten för miljö- och arbetsmiljömål [Strategy for environmental crime: Cooperation project with Swedish National Police Board and Department of Environmental and Working environment crime]*. Stockholm: Riskpolisstyrelsen/Åklagarmyndigheten.
- ROTHSTEIN, H., IRVING, P., WALDEN, T. and YEARSLEY, R., 2006. The risks of risk-based regulation: Insights from the environmental policy domain. *Environment international*, **32**(8), pp. 1056-1065.
- ROUSSEAU, S. and BLONDIAU, T., 2014. Act-based Versus Harm-based Sanctions for Environmental Offenders. *Environmental policy and governance*, **24**(6), pp. 439-454.
- RUCEVSKA, I., NELLEMAN, C., ISARIN, N., YANG, W., LIU, N., YU, K., SANDNAES, S., OLLEY, K., MCCANN, H., DEVIA, L., BISSCHOP, L., SOESILO, D., SCHOOLMEESTER, T., HENRIKSEN, R. and NILSEN, R., 2015. *Waste Crime: Low Risks - High Profits. Gaps in Meeting the Global Waste Challenge. A Rapid Response Assessment*. Secretariat of the Basel Convention, GRID-Arendal and Zoi Environment Network.

- RUFFELL, A. and DAWSON, L., 2009. Forensic Geology in Environmental Crime: Illegal Waste Movement & Burial in Northern Ireland. *Environmental Forensics*, **10**(3), pp. 208-213.
- SAHRAMÄKI, I., 2016. "Enforcement and professional constructions of environmental crime in Finland". In G. POTTER, A. NURSE & M. HALL (eds.) *The Geography of Environmental Crime*, Hampshire: Palgrave, pp. 189-216.
- SAHRAMÄKI, I., FAVARIN, S., MEHLBAUM, S., SAVONA, E.U., SPAPENS, A. and KANKAANRANTA, T., 2017. Wasting opportunities: Prevention of illicit cross-border waste trafficking. *European journal of policing studies*, **5**(2), pp. 61-85.
- SAHRAMÄKI, I. and KANKAANRANTA, T., 2014. *Ympäristörikollisuuden torjunta ja valvonta Suomessa - kohti viibreämpää viranomaisyhteistyötä?* Tampere: Poliisiammattikorkeakoulu.
- SAHRAMÄKI, I. and KANKAANRANTA, T., 2016a. Jäterikollisuuden torjunta ja valvonta Suomessa vuonna 2040: neljä skenaariota. *Futura*, **4**, pp. 46-59.
- SAHRAMÄKI, I. and KANKAANRANTA, T., 2016b. *Jäterikollisuus Suomessa nyt ja tulevaisuudessa*. Tampere: Poliisiammattikorkeakoulu.
- SAHRAMÄKI, I. and KANKAANRANTA, T., 2016c. *Katsaus hovioikeuden ympäristörikostuomioihin*. Tampere: Poliisiammattikorkeakoulu.
- SAHRAMÄKI, I., KORSELL, L. and KANKAANRANTA, T., 2015. Prevention of environmental crime through enforcement—Finland and Sweden compared. *Journal of Scandinavian studies in criminology and crime prevention*, **16**(1), pp. 41-59.
- SCHOLZ, J.T., 1984. Cooperation, Deterrence, and the Ecology of Regulatory Enforcement. *Law & society review*, **18**(2), pp. 179-224.
- SCHOLZ, J.T., 1991. Cooperative Regulatory Enforcement and the Politics of Administrative Effectiveness. *The American political science review*, **85**(1), pp. 115-136.
- SCHÖN, D. and REIN, M., 1994. *Frame reflection. Toward the resolution of intractable policy controversies*. New York: BasicBooks.
- SEROR, N. and PORTNOV, B.A., 2020. Estimating the effectiveness of different environmental law enforcement policies on illegal C&D waste dumping in Israel. *Waste management (Elmsford)*, **102**, pp. 241-248.
- SHORT, J.L., 2013. Self-Regulation in the Regulatory Void: "Blue Moon" or "Bad Moon"? *The Annals of the American Academy of Political and Social Science*, **649**(1), pp. 22-34.
- SILBEY, S.S., 2013. Organizational Challenges to Regulatory Enforcement and Compliance. *The Annals of the American Academy of Political and Social Science*, **649**(1), pp. 6-20.
- SIMPSON, S.S., GIBBS, C., RORIE, M., SLOCUM, L.A., COHEN, M.A. and VANDENBERGH, M., 2013. An empirical assessment of corporate environmental crime-control strategies. *The journal of criminal law & criminology*, **103**(1), pp. 231-278.
- SITU, Y. and EMMONS, D., 2000. *Environmental crime. The criminal justice system's role in protecting the environment*. Thousand Oaks [u.a.]: Sage Publ.
- SMITH, M.J. and CLARKE, R.V., 2012. Situational Crime Prevention: Classifying Techniques Using "Good Enough" Theory. In: B.C. WELSH and D.P. FARRINGTON, eds, *The Oxford Handbook of Crime Prevention*. New York: Oxford University Press, pp. 291-315.
- SMITH, M.J. and CORNISH, D.B., 2003. *Theory for practice in situational crime prevention*. Monsey, NY: Criminal Justice Press.



- SOLLUND, R.A., 2015a. The Illegal Wildlife Trade from a Norwegian Outlook: Tendencies in Practices and Law Enforcement. *Green Harms and Crimes. Green Criminology in Changing Word*. London: Palgrave Macmillan UK, pp. 147-169.
- SOLLUND, R.A., 2015b. *Introduction: Critical Green Criminology — An Agenda for Change*. London: Palgrave Macmillan UK.
- SOUTH, N., 1998. A Green Field for Criminology? *Theoretical Criminology*, **2**(2), pp. 211-233.
- SOUTH, N., 2013. The ecocidal tendencies of late modernity. In: R. WHITE, ed, *Global Environmental Harm*. Cullompton: Taylor and Francis, pp. 228-247.
- SPAPENS, A.C.M., PETERS, M. and VAN DAELE, D., 2015. *Administrative Measures to Prevent and Tackle Crime. Legal Possibilities and Practical Application in EU Member States*. Hague: Eleven International Publishing.
- SPAPENS, T., WHITE, R., VAN UHM, D. and HUISMAN, W., eds, 2018. *Green Crimes and Dirty Money*. 1 edn. Milton: Routledge.
- STASSEN, R. and CECCATO, V., 2020. Environmental and Wildlife Crime in Sweden from 2000 to 2017. *Journal of contemporary criminal justice*, **36**(3), pp. 403-427.
- SUVANTOLA, L., 2018. *Ympäristörikosten ilmoituskynnykset ja lievien ympäristörikkomusten sanktiointi*. Helsinki: Ympäristöministeriö.
- SUVANTOLA, L. and KANKAANRANTA, T., 2018. Broadening the Toolbox for the Prevention of Illegal Waste Trafficking, to Address Emerging Threats. *Environmental policy and law*, **48**(1), pp. 64-74.
- SVT, 2021. Väestön ennakkotilasto. Marraskuu 2021. Helsinki: Tilastokeskus.
- TILLEY, N., 2009. *Crime prevention*. Devon: Willan Publishing.
- TOMPSON, L. and CHAINEY, S., 2011. Profiling Illegal Waste Activity: Using Crime Scripts as a Data Collection and Analytical Strategy. *European journal on criminal policy and research*, **17**(3), pp. 179-201.
- TOURANGEAU, W., 2015. Re-defining Environmental Harms: Green Criminology and the State of Canada's Hemp Industry. *Canadian journal of criminology and criminal justice*, **57**(4), pp. 528-554.
- TUOMI, J. and SARAJÄRVI, A., 2009. *Laadullinen tutkimus ja sisällönanalyysi*. 6. uudistettu painos edn. Helsinki: Kustannusosakeyhtiö Tammi.
- TUROFF, M., 1975. The Policy Delphi. In: H. LINSTONE and M. TUROFF, eds, *The Delphi Method. Techniques and applications*. 2002 edn. pp. 80-96.
- USUNIER, J. and SBIZZERA, S., 2013. Comparative thick description: Articulating similarities and differences in local consumer experience. *International marketing review*, **30**(1), pp. 42-55.
- VAN DAELE, S., VANDER BEKEN, T. and DORN, N., 2007. Waste Management and Crime: Regulatory, Business and Product Vulnerabilities. *Environmental policy and law*, **37**(1), pp. 34.
- VAN DOORMAAL, N., LEMIEUX, A. and RUITER, S., 2018. Understanding site selection of illegal border crossings into a fenced protected area: a rational choice approach. *Crime science*, **7**(1), pp. 1-11.
- VAUGHAN, B., 2004. The Greening and Governance of Crime Control. *Criminology and Criminal Justice*, **4**(1), pp. 5-28.
- VIOLLAZ, J., GRAHAM, J. and LANTSMAN, L., 2018. Using script analysis to understand the financial crimes involved in wildlife trafficking. *Crime, law, and social change*, **69**(5), pp. 595-614.

- WACKERHAUSEN, S., 2009. Collaboration, professional identity and reflection across boundaries. *Journal of interprofessional care*, **23**(5), pp. 455-473.
- WALTERS, R., 2013. *Emerging issues in green criminology*. Basingstoke: Palgrave Macmillan.
- WALTERS, R., 2006. Crime, Bio-Agriculture and the Exploitation of Hunger. *British journal of criminology*, **46**(1), pp. 26-45.
- WARMS, C.A. and SCHROEDER, C.A., 1999. Bridging the gulf between science and action: the 'new fuzzies' of neopragmatism. *Advances in nursing science*, **22**(2), pp. 1-10.
- WATSON, M., 2005. Environmental Offences: The Reality of Environmental Crime. *Environmental Law Review*, **7**(3), pp. 190-200.
- WHEELDON, J., 2015. Ontology, epistemology, and irony: Richard Rorty and re-imagining pragmatic criminology. *Theoretical criminology*, **19**(3), pp. 396-415.
- WHITE, R. 2002. Environmental harm and the political economy of consumption. *Social justice*, **29**(1/2), pp. 82-102.
- WHITE, R., 2003. Environmental Issues and the Criminological Imagination. *Theoretical criminology*, **7**(4), pp. 483-506.
- WHITE, R., 2008. Depleted uranium, state crime and the politics of knowing. *Theoretical Criminology*, **12**(1), pp. 31-54.
- WHITE, R., 2010. Prosecution and sentencing in relation to environmental crime: Recent socio-legal developments. *Crime, law, and social change*, **53**(4), pp. 365-381.
- WHITE, R ed, 2013a. *Global Environmental Harm. Criminological perspectives*. Cullompton: Taylor and Francis.
- WHITE, R., 2013b. The Conceptual Contours of Green Criminology. In: R. WALTERS, D. SOLOMON WESTERHUIS and T. WYATT, eds, *Emerging Issues in Green Criminology*. London: Palgrave Macmillan UK, pp. 17-33.
- WHITE, R., 2018. Green victimology and non-human victims. *International review of victimology*, **24**(2), pp. 239-255.
- WILES, F., 2013. 'Not Easily Put Into a Box': Constructing Professional Identity. *Social work education*, **32**(7), pp. 854-866.
- WINTER, S.C. and MAY, P.J., 2001. Motivation for Compliance with Environmental Regulations. *Journal of policy analysis and management*, **20**(4), pp. 675-698.
- WYATT, T., BEIRNE, P. and SOUTH, N., 2014. Special Edition: Green Criminology Matters, Guest Editors' Introduction. *International Journal for Crime, Justice and Social Democracy*, **3**(2), pp. 1-4.

# ANNEX I OVERVIEW OF ENVIRONMENTAL ACTS AND VIOLATIONS

Act	Purpose	Scope	Violation
Environmental Protection Act (527/2014)	To prevent the pollution of the environment and any risk of this, prevent and reduce emissions, eliminate adverse impacts caused by pollution and prevent environmental damage; safeguard a healthy, pleasant, ecologically sustainable and biologically diverse environment, support sustainable development and combat climate change; promote the sustainable use of natural resources, reduce the amount and harmfulness of waste, and prevent adverse impacts caused by waste; make the assessment of activities causing pollution and the consideration of the impacts as a whole more effective; improve the opportunities of citizens to affect decision-making concerning the environment	All industrial and other activities that cause or may cause environmental pollution; also all activities that generate waste and lead to waste treatment.	Violation of the Environmental Protection Act (Section 225)
Nature Conservation Act (1096/1996)	Maintain biological diversity; conserve the beauty and scenic value of nature; promote the sustainable use of natural resources and the natural environment; promote awareness and general interest in nature; and promote scientific research	Nature and landscape conservation and management.	Nature conservation violation is defined in the Section 58.
Waste Act (646/2011)	Prevent the hazard and harm to human health and the environment posed by waste and waste management; reduce the amount and harmfulness of waste; promote the sustainable use of natural resources; ensure functioning waste management; and prevent littering.	Waste, waste management and littering, as well as to products and activities generating waste.	The violation of the Waste Act is mentioned in the Section 147.

Water Act (587/2011)	Promote, organize and coordinate the use of water resources and the aquatic environment, to render it socially, economically and ecologically sustainable; prevent and reduce the adverse effects of water and the use of the aquatic environment; and improve the state of water resources and the aquatic environment.	Water resources management issues.	Violation of a permit under the Water Act (Chapter 16, Section 2) Violation of the Water Act (Chapter 16, Section 3)
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## ANNEX II ENVIRONMENTAL OFFENCES, CHAPTER 48 OF THE CRIMINAL CODE

Offence	Elements	Sanction
Impairment of the environment (Section 1)	<p>Introducing, emitting or disposing of an object, a substance, radiation or something similar into the environment in violation of the law or without a permit required by law or in violation of permit conditions.</p> <p>The Section includes wide range of national and international acts and regulations which control aspects such as production, handling and mixing of dangerous chemicals, neglecting the duty to organize waste management and imports and exports of waste.</p>	A fine or imprisonment for at most two years
Aggravated impairment of the environment (Section 2)	<p>The damage or danger of damage caused to the environment or health is especially serious.</p> <p>The seriousness of the damage or danger should be evaluated based on the duration, width of the effect and other circumstances of the realized or imminent damage. The impairment of the environment may also be considered aggravated if the offence is committed in violation of an order or a prohibition of an authority which has been issued due to a conduct defined in Section 1. In addition, according to Section 2, the offence may be aggravated also when assessed as a whole.</p>	Imprisonment for at least four months and at most six years.
Environmental infraction (Section 3)	The damage or danger of the impairment of the environmental is considered to be insignificant.	A fine or imprisonment for at most six months.
Negligent impairment of the environment (Section 4)	Affecting the environment or violating the acts as mentioned in Section 1 through negligence which is not deemed gross.	A fine or imprisonment for at most one year.
Nature conservation offence (Section 5) and aggravated conservation offence (Section 5a)	<p>Intentionally or through gross negligence unlawfully destroying or impairing a natural area, an animal, a plant or other natural object protected by legislation and regulation.</p> <p>In 2016 an aggravated nature conservation offence was added to the Chapter 48 Section 5a.</p>	<p>A fine or imprisonment for at most two years (Section 5)</p> <p>Imprisonment from four months to four years.</p>

## ANNEX III NATURAL RESOURCES OFFENCES, CHAPTER 48(A) OF THE CRIMINAL CODE

Offence	Elements	Sanction
Hunting offence (Section 1)	Hunting using a trap or trapping method that is prohibited, hunting in violation of the Hunting Act or a provision or an order given on its basis protecting game, prohibiting or restricting hunting or establishing a limit, or without a hunting permit, an elk hunting permit or an exceptional permit, or when hunting endangers or harms a person or the property of another or violates a hunting prohibition or restriction that has been issued for general safety.	A fine or imprisonment for at most two years
Aggravated hunting offence (Section 1a)	The offence is committed in a particularly brutal or cruel manner, the object of the offence is a large amount of game, considerable economic offence is committed, the offence is committed in a particularly planned manner or a wolverine, lynx, bear, deer, otter or wolf is killed or injured.	Imprisonment for at least four months and at most four years
Fishing offence (Section 2)	When fishing using explosives or pressure that has otherwise been caused or a firearm or electrical current, fishing to a considerable extent in violation of the Fishing Act or a provision or an order given in general or in an individual case on its basis regarding the protection of fish or crayfish, fishing tackle, fishing, a prohibition of or restriction to fishing, or the minimum size of fish or crayfish, unlawfully in violation of the Fishing Act introducing or transferring a species of fish or crayfish or their stock that have not previously been found there to a water area, so that the act is conducive to endangering or harming the stock of fish or the piscary.	A fine or imprisonment for at most two years.
Forestry offence (Section 3)	Violating a provision of the Forest Act (1093/1996) or a provision or order issued on its basis pertaining to protected forest areas or protected areas, intentionally, through a civil cultural or forest use measure, in violation of the Forest Act or a provision or order issued on its basis or without the permit required by law or in violation of the terms of a permit, harming a living environment that is in its natural state or similar to its natural state that is clearly distinguishable from its surrounding area and that is particularly important from the point of view of the biodiversity of the natural forest, so that the act is conducive to endangering the preservation of the typical features of the said living environment.	A fine or imprisonment for at most two years
Unlawful exploitation of mineral resources in the Antarctic	Exploring or utilizing a mineral deposit in the Antarctic region referred to in section 3, subsection 1, paragraph 5 of the Act on the Protection of the Antarctic Environment other than as part of scientific research.	A fine or imprisonment for at most two years

(Section 3a)		
Timber offence (Section 3b)	Violating Regulation (EU) 995/2010 of the European Parliament and the Council of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market, on a professional basis unlawfully placing on the market harvest timber or products made from such timber.	A fine or imprisonment for at most six months
Concealing of poached game (Section 4)	Hiding, obtaining, transporting, conveying or marketing game that has been obtained through a hunting offence or fishing offence poached game	A fine or imprisonment for at most one year.
Aggravated concealing of poached game (Section 4a)	The object of the offence is a large amount of game, a considerable economic offence is intended, the offence is committed in a particularly planned manner or the object of the offence is a wolverine, lynx, bear, deer, otter or wolf and the offence is aggravated also when assessed as a whole.	A fine or imprisonment for at most three years.





# PUBLICATIONS

- Publication I Sahramäki, I. & Korsell, L. & Kankaanranta, T., 2015. Prevention of Environmental Crime through Enforcement—Finland and Sweden Compared. *Journal of Scandinavian Studies in Criminology and Crime Prevention* **16** (1), pp. 41-59.
- Publication II Sahramäki, I., 2016. "Enforcement and professional constructions of environmental crime in Finland". In Potter, G. & Nurse, A. & Hall, M. (eds.) *The Geography of Environmental Crime*. Hampshire: Palgrave, pp. 189-216.
- Publication III Sahramäki, I. & Kankaanranta, T., 2017. Waste no money—reducing opportunities for illicit waste dumping. *Crime, Law and Social Change* **68**, pp. 217-232.
- Publication IV Sahramäki, I. & Kankaanranta, T., 2021. Regulatory voids in the prevention of environmental crime in Finland. *European Journal of Criminology* June 2021. doi:10.1177/14773708211020634



# PUBLICATION

I

## **Prevention of environmental crime through enforcement**

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# **Prevention of Environmental Crime through Enforcement - Finland and Sweden Compared**

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## *Prevention of Environmental Crime through Enforcement - Finland and Sweden Compared*

This study aims to contribute to the research into prevention of environmental crimes, by comparing the environmental crime enforcement chain in Finland with that in Sweden: detection, prosecution and the punishment with sanctions. We examined (1) what are the main differences and similarities in enforcement between Finland and Sweden?, and (2) how can crime prevention through enforcement be developed further based on these findings? The comparison is based on legislation, official documents, and statistics. The findings suggest that a high rate of reporting crimes alone does not necessarily indicate more effective prevention of environmental crime, as pre-trial investigations quite rarely lead to prosecution. Most of the sanctions for environmental offences are monetary and quite small. However, in Sweden the use of the corporate fine is significantly more frequent than in Finland. It is concluded that, even though enforcement is essential, prevention of environmental crime, stressing voluntary compliance and administrative sanctions instead may be more effective in the long-run.

Keywords: environmental crime; enforcement; prevention; comparative analysis; Finland; Sweden

## **Introduction**

Environmental crimes can be seen as crimes of omission, where the violation occurs when the parties are not complying with regulatory requirements. (Huisman & van Erp, 2013, p. 1185). As such, environmental enforcement has to “walk a fine line between being overly harsh and overly lax if it is to accomplish its goals” (Fortney, 2003, p. 1609). Challenges to environmental enforcement are illustrated in the debate between legal and illegal pollution – what seems to be a problem for one person is not a problem for someone else. As such, the morals and values of potential offenders play a significant role in the environmentally harmful action; whether it is regarded as being acceptable or not (Vaughan, 2004, p. 8). Most environmental damage caused by corporations takes place with the consent of society in the name of economic development and growth. When taken even further, corporate environmental crimes are part of a political economy, where financial values are regarded as being more important than environmental values.

In addition to the fine line between legal and illegal pollution, enforcement agencies are faced with other challenges: victims of environmental crime may be difficult to find, and proving the connection between the environmental offence and victimization can also be challenging (Comte, 2006, p. 193). For instance, clear effects and consequences of pollution may be difficult to establish. As such, environmental crimes are often characterised as victimless crimes. Nonetheless, the connection between corporate environmental crimes and, for example, human health has been identified (Katz, 2012; see also Friedrichs, 2004, pp. 61–62). It has been estimated that only a small proportion of these so called victimless crimes, such as environmental crimes, will be reported to the police (Heinonen, Keinänen, & Paasonen, 2013, pp. 128–129).

The purpose of this article is to compare the environmental enforcement chain in Finland and Sweden. Finland and Sweden are relatively similar Scandinavian societies with a

quite similar economic structures and natural resources. In both countries, there has recently been a growing interest in a greater exposure of hidden environmental crimes. Of particular interest and complexity are aggravated environmental crimes which are considered to be especially harmful to nature, human health, and the overall economy. In Finland and Sweden, environmental protection agencies, the police, and the prosecuting authorities are all struggling with similar issues in preventing environmental crime. The enforcement chain which environmental crime legislation provides, together with cooperation between different authorities, has been emphasised. As such, they provide a suitable subject for comparison.

The emphasis in this article is on the prevention of corporate environmental crime, even though it is acknowledged that environmental crimes are also committed at the level of the individual. In this article, environmental crime is defined as “an unauthorised act of omission that violates the law and is therefore subject to criminal prosecution and criminal sanctions” (Situ & Emmons, 2000, p. 3). Following this definition, environmental enforcement is seen as a chain of detection, prosecution, and conviction for environmental crimes. This article asks (1) what are the main differences and similarities in enforcement between Finland and Sweden? and (2) how can crime prevention through enforcement chain be developed further based on these findings?

The article is structured as follows. First, established strategies of prevention are introduced. Second, the data and methods are explained. Third, the statistics on reported suspected environmental crime in Finland and Sweden are presented. Fourth, the findings on the comparison of detection, prosecution and sanctioning for environmental crime in Finland and Sweden are presented and analysed. Finally, the main findings, limitations of the study, and implications of the findings are discussed.



## **Strategies of prevention**

Given the definition of environmental crime as an unauthorised act of omission which violates the law and is subject to criminal sanctions (Situ & Emmons, 2000, p. 3), environmental crime can be characterised as regulatory crime. In order for the prevention of regulatory crime to be effective, the enforcement chain needs to work effectively (Akella & Cannon, 2009, pp. 529–530). The probability of detection, prosecution, and conviction has an effect on the quality of the enforcement chain (White, 2010, p. 376). Under this theoretical framework, it can be assumed that improving the enforcement chain will lead to more effective crime prevention. Therefore, from that theoretical perspective, it is important to analyse the prevention of environmental crime via the enforcement chain instead of empirically testing one particular prevention strategy, such as e.g. situational crime prevention. Bearing this in mind, improving the enforcement of environmental crime legislation is an essential part of prevention of environmental crimes, provided that it is supported by other prevention strategies such as command-and-control, self-regulation, self-policing, smart regulation, and self-policing, all of which are discussed shortly below (see also Situ & Emmons, 2000).

Studies of crime prevention have established that the severity of the punishment, along with a high risk of detection, should deter offenders. According to these command-and-control strategies, compliance is achieved via the threat of formal sanctions (Faure & Visser, 2004, pp. 59–60; Simpson, Gibbs, Rorie, Slocum, Cohen, & Vandenberg, 2013, p. 236). From the economic, utilitarian theory perspective, the rational polluter will continue to pollute up to the point where the marginal cost of doing so is equal to the marginal benefit (Emery & Watson, 2004, p. 744). The sanctions imposed on the violations should be significant and exceed the potential benefits (Faure & Visser, 2004, p. 59). According to

Becker (1968), when the probability of detection increases, the number of offences should decrease. Therefore, detection plays a significant role in crime enforcement.

However, the detection rates for environmental crimes are usually somewhat low, and rationalisations to explain away the situation are easy to find (Huisman & van Erp, 2013, p. 1195). Generally speaking, corporations have the motivation such as outperforming rival companies by increasing profits via reducing costs. These costs may include investments in environmentally friendly technology or recycling waste in the proper way (Situ & Emmons, 2000, p. 61). Environmental performance appears to be limited by financial pressures and competition; new environmentally friendly technologies are unlikely to be adopted if they are not financially advantageous (Kagan, Gunningham, & Thornton, 2003, p. 83). This is illustrated by the observation that environmental protection and investments in environmentally friendly technology are often not a high priority in corporations (Kagan et al., 2003; Laufer, 2003; Ramus & Montiel, 2005; Simon, 2000; Thornton, Kagan, & Gunningham, 2003). At the same time, the likelihood of being prosecuted and convicted of an environmental crime with the imposition of a severe sentence is generally considered to be very low (Bisschop, 2012; Comte, 2006; du Rées, 2001; Emery & Watson, 2004, p. 741; Korsell, 2001; Sahramäki & Kankaanranta, 2014). Moreover, the savings in the cost of compliance are tempting, and it is felt that environmental offences are relatively easy to commit (Huisman & van Erp, 2013, p. 1195). As a result, corporations may actually have disincentive to comply with environmental regulation (Fortney 2003, p. 1609).

For these reasons, it has been argued that command-and-control strategies which are combined with self-regulation are more effective in preventing corporate environmental crime (Simpson et al., 2013, pp. 265–266). Self-regulation refers to prevention strategy where norms and values together with internal compliance systems inside the corporations will lead to compliance (Simpson et al., 2013, pp. 237). For instance social pressures and the

characteristics of corporate environmental management seem to have an effect on compliance (Kagan et al., 2003, p. 83).

It has also been suggested that regulators should work closely together with the corporations to find ways to reward industry leaders in their efforts to improve environmental performance and to encourage compliance with the regulations (Thornton et al., 2003, p. 139). Consequently, the use of “smart regulation” and enforcement has been suggested (Gibbs, McGarrel, & Axelrod, 2010; van Erp & Huisman 2010). Smart regulation relies on flexibility of regulators. Gibbs, McGarrel and Axelrod (2010, p. 555) argue that in the case of transnational white-collar crime, “regulatory agencies need to evolve to provide credible oversight of this economic activity.” A variety of interventions should be used according to the specific characteristics of the business, instead of creating more and more extensive rules that prohibit transactions. For example, consumers should be recognised as third-party regulators whose power to force companies to change potentially illegal and harmful practices. In addition, tailored enforcement has been suggested for more efficient enforcement instead of “one-size-fits-all” command-and-control strategies. In tailored enforcement, the industry and corporate specific characteristics are taken into account when choosing the most efficient enforcement strategy (Fortney 2003, p. 1631).

In the self-policing strategies, the idea of moving away from traditional command-and-control strategies is taken even further. Self-policing is based on an assumption about the movement from traditional enforcement methods to market-based incentives (Stretesky, 2006, p. 672). To be more precise, in self-policing strategies, economic incentives are offered to companies to report their own environmental violations to the public authorities. A case of point are industry-specific characteristics which create operational cultures in which illegal activities may generally be accepted or seen as necessary in order for the firm to be

successful (Alexander & Cohen, 1996, p. 43; Daboub, Rasheed, Priem, & Gray, 1995, pp. 141–145; McKendall & Wagner, 1997).

## **Data and Methods**

In this article data triangulation, i.e. using different data sources in the same study was utilised in order to facilitate a deeper understanding of the prevention of environmental crimes and to increase the validity of the study (Denzin & Lincoln, 2000; Hussein, 2009). Data triangulation also includes collecting data at different times, at different places and, from different people. As each data source gives a different perspective on the study question, it is possible to acquire a deeper and more complete understanding of the phenomenon. (Johnson, 1997).

Two different types of data sources were used in this article. First, crime prevention through enforcement is highly dependent on up the applicable legislation which frames the crime prevention tools available to the public authorities. The roles and responsibilities of environmental authorities as well as the forms and severity of the sanctions are also set in legislation. Therefore, legislation was the main data source in this study. Criminal Code of Finland and Environmental Protection Act of Finland was compared with the Environmental Code of Sweden and Swedish Penal Code. Second, in order to compare the volume of environmental crime between countries, official crime statistics were utilised. Statistics on reported suspected environmental crime were drawn from the National Police Information Systems (Polstat, 2013), General Prosecutor's Office and The Swedish National Council for Crime Prevention.

Authority reports were also utilised as background information on the implementation of environmental legislation (Finnish National Monitoring Group, 2013; Pennanen, 2006; Rikspolisstyrelsen, 2013; Rikspolisstyrelsen & Åklagarmyndigheten, 2010). Background

information on detection, reporting, prosecuting and sanctioning of environmental crimes were drawn from these documents and previous research literature. In Sweden, National Police Board and environmental crime prosecutors produced “Strategy for Environmental Crime in 2010.” In the strategy, several challenges related to effective prevention, supervision and investigation of environmental crimes were identified. Also, several recommendations were made how to improve these issues (Rikspolisstyrelsen & Åklagarmyndigheten, 2010). In addition, the Swedish National Police Board published a report regarding the handling of environmental crimes by the Swedish Police in 2013. The report included interviews with six police districts. Also supervising authorities and Central Criminal Police were interviewed (Rikspolisstyrelsen, 2013). There is no separate environmental crime prevention strategy in Finland. However, the Finnish National Monitoring Group, which is a multiagency working group, publishes an annual report of the current state of environmental crime. The report includes statistics and experts views on the rising challenges and issues in environmental crime supervision and prevention (Finnish National Monitoring Group, 2013). Furthermore, in Finland, environmental supervision agencies point of view on environmental crime supervision was described in a report “Legality Control of Environmental Legislation in 2006” (Pennanen, 2006).

The quality of data may be influenced by several factors, yielding to some limitations also in this article. Environmental crimes are largely hidden crimes. It can be assumed that the number of crimes reported to police does not equal the actual number of occurred environmental crimes. As a result, the validity of official crime statistics may be decreased. The suspected environmental crimes are mostly detected by regulatory agencies. Therefore the criminal statistics are first of all an indicator of how the regulatory agencies are working with control and how much resources they use for control (Korsell, 2003).

In addition, a standard problem related with cross-country comparisons is the differences in the collection and nature of the data. As recorded crimes typically are based on country specific legislation, content of statistics may differ between countries. Also, the long study period may influence the quality of data, if the nature of crimes changes during the research period. However, in this article the analysis covered mainly only the year 2012, therefore excluding this problem. Finally, if multiple abbreviations are used for the same word, results may be biased. In this study, this aspect was not causing any problem, as crimes were classified to environmental crimes based on legislation, not on researchers own coding (see Laitinen & Aromaa, 1994; Nath, 2006; Skogan, 1974).

In this article, prevention of environmental crime through enforcement was studied from a social science perspective by means of a comparative study. The goal of a comparative study is to find a systematic structure which has resulted in recognised differences and similarities (Paisey & Paisey, 2009; Usunier & Sbizzera, 2013). In its simplest form, a comparative study refers to comparing phenomena with each other. Comparative research may also be classified into different categories, such as adversarial analyses, thematic comparisons, studies based on causal relationships and comparisons between countries (Gauthier, 2000; Kogan, 1996). This study belongs to the latter category.

### **Reported environmental crimes in Finland and Sweden**

In Finland and Sweden, there is an ongoing discussion on how to improve on the detection rate and how to promote environmental crime reporting. It is widely acknowledged that environmental crime is largely hidden in both countries.

In Finland, the police are generally responsible for the pre-trial investigation, whereas in Sweden the prosecutor leads the investigation. In this article, pre-trial investigation refers to police investigation. Most of the suspected environmental offences are exposed and

reported to the police in Finland and to the prosecutor in Sweden by the environmental supervisory authorities. In both countries, supervision authorities are principally responsible for reporting suspected environmental offences.

However, in Finland there are significantly fewer environmental crimes reported to the police every year than in Sweden (Figure 1). For example, in 2012 there were in all about 1,500 reports of impairments and aggravated impairments of the environment in Sweden, whereas the number in Finland was below 200. In Figure 1 the reported suspected impairments and aggravated impairments of environment per 100 000 inhabitants in Finland and Sweden in 2008-2012 is presented<sup>1</sup>. The same ratio of numbers has remained constant in recent years.

*(Figure 1)*

Figure 1. Reported suspected impairments and aggravated impairments of environment per 100 000 inhabitants in Sweden and Finland in 2008-2012. (Source: Polstat 2013, Brå 2013)

In Finland, the essential elements of environmental crime are defined in the Criminal Code. In Chapter 48 of the Criminal Code impairment of the environment, aggravated impairment of the environment, environmental infraction, negligent impairment of the environment, nature conservation offence and building protection offence are criminalised (Criminal Code of Finland 39/1889). In Finland, the majority of environmental crimes reported to the police are impairments of the environment as presented in Table 1. The absence of suspected aggravated impairments of the environment in 2012 is noteworthy. Even though the goal of prevention and investigation has been to uncover serious environmental crimes, only few suspected aggravated impairments of environment are reported annually to the police.

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<sup>1</sup> Information about population statistics in Finland and Sweden was obtained from Statistics Finland and Statistics Sweden agencies.

In addition to the Criminal Code of Finland, there are also several other environmental criminalisations in the Finnish legislation. For example, according to the Waste Act, violations of the Act may lead to fines. Likewise, fines may be issued in the case of violation of a permit under the Water Act. Other fines related to environmental offences include for instance the nature conservation violation and an offence during the transport of dangerous goods. These reported violations in 2012 are also presented in the Table 1.

*(Table 1)*

In the Chapter 48a of the Criminal Code of Finland, natural resources offences are criminalised. These include hunting offence, aggravated hunting offence, fishing offence, forestry offence, unlawful exploitation of mineral resources in the Antarctic, concealing of poached game and aggravated concealing of poached game. The Finnish Border Guard is usually in charge of the pre-trial investigation of these crimes.

In Sweden, environmental offences are criminalised in the Swedish Environmental Code, which is a framework law that includes a wide range of environmental legislation. The essential elements of principal environmental offence and aggravated environmental crime, careless causing of environmental damage, environmentally harmful handling of chemicals, unauthorized environmental activity, obscuring environmental control, giving defective environmental information and littering are outlined in Chapter 29 of the Environmental Code (Environmental Code of Sweden, Ds 2000:61). In Table 2, the environmental crimes reported to the prosecutor and police in 2012 according to the Swedish Environmental Code are presented. A significant number of the reported environmental crimes are littering offences. Also, large numbers of principal and aggravated environmental crimes are reported to the prosecutor/police.

*(Table 2)*



## **Enforcing environmental crime legislation**

### ***Detecting and reporting environmental crime***

The supervision and licensing of environmental legislation is organised in fairly similar ways in Finland and Sweden. In Finland, the Centre for Economic Development, Transport and the Environment is one environmental supervisory authority, which supervises licenses granted by Regional State Administrative Agencies. Also, the municipal environmental supervisory authorities are responsible for issuing and supervising some of the environmental licenses. In Sweden, environmental permissions and licenses are issued by environmental committees of the municipalities, county administrative boards or the Environmental Court of Law, depending on the nature of the activity. In practice, most of the licenses are supervised at the municipal level. Also, some permissions and licenses are issued by The Swedish Chemical Agency.

Most of the environmental crimes are noticed during surveillance activities by the environmental inspection authorities. In addition, suspected environmental crimes are reported to officials by citizens, competitors and media as well (e.g. Ceccato & Uittenbogaard, 2013). Thus, acquiring information through surveillance is essential in environmental crime detection. In both countries, corporations working under environmental licence have to report environmental inspection authorities about their business operations. As such the supervision is largely based on self-reporting by the corporations, which does not necessarily provide the authorities correct information on corporative actions. Depending on the industry in question, environmental inspectors may also do site visits. However, the resources for supervision are limited, which has increased the role of self-reporting in environmental legality control (Sahramäki & Kankaanranta, 2014). Supervision resources may also be unevenly distributed for example due to political interests and campaigns which increases the supervision in some industries and diminishes it in others. As such, the

supervision and sanctions are targeted to certain corporate actors, which may weaken the plausibility of the environmental criminal law (Korsell, 2001, p. 130).

In Finland, environmental supervision authorities are required by the Environmental Protection Act to request a pre-trial investigation in the case of suspected environmental offences. However, a certain amount of consideration is allowed by the law: no notification needs to be given if the act can be considered minor in view of the circumstances, and if the public interest does not require charges to be brought.

Consequently, a significant number of cases of environmental damage are dealt with by the environmental supervision agencies. Corporations operating under environmental license may get remarks and orders from environmental supervision agencies to eliminate harmful and illegal action. Environmental supervision agencies may also issue penalty payment in order to enforce their instructions (see e.g. Pennanen, 2006). Therefore, not all suspected offences actually appear in the official crime statistics. It can be assumed that considerable number of environmental crimes remains unreported in Finland. As a result, the number of suspected environmental crimes reported to the police is considered to be low, and the obscured, or hidden, environmental criminality is estimated to be significant (Finnish National Monitoring Group, 2013).

In Finland, environmental violations, which are detected by the supervisory authority but are not reported to the police, have been called the grey area of environmental crime (Nissinen, 2003, p. 626). In order to increase the number of environmental offences in pre-trial investigation, the clarification of the grey area has been seen to be necessary.

In Sweden, environmental protection agencies are required by law to notify the prosecutor of all the violations of the Swedish Environmental Code. Since 1999 when the Code came into effect, the number of environmental crimes being reported has grown significantly. Before the existence of the Environmental Code, the situation was very much

the same as it is presently in Finland; the supervisory authority did not report all suspected environmental offences. They were considered to be too minor or insignificant to be reported to the public prosecutor. In addition, the supervisory authorities did not believe a criminal investigation would lead anywhere (du Rées, 2001).

However, the notification requirement has not come without criticism in Sweden. Even when the environmental authorities are obligated to report suspected crimes, a significant number of offences are handled by administrative sanction instead of by pre-trial investigation. On the other hand, when a request for a pre-trial investigation is made of every suspected violation, the minor violations unnecessarily strain the criminal system without producing the intended benefits (Korsell, 2001, p. 42; Rikspolisstyrelsen & Åklagarmyndigheten, 2010, p. 21). Also, the focus of the police and prosecutor has been on minor environmental infractions as opposed to aggravated, organised and transnational violations of environmental law, which was identified as the strategic goal.

It has also been argued that requiring notifications leads to using “sticks” as part of the environmental policy instead of providing the corporations “carrots” for obeying the environmental regulations and endorsing environmentally friendly production (Korsell, 2001). At the same time, a pre-trial investigation rarely leads to charges being actually filed. As such, the supervisory officials may consider filing reports of crime to be a frustrating. (Skagerö & Korsell, 2006, p. 9)

### ***Prosecution of environmental crimes***

Criminal procedure in Finland consists of four phases: a pre-trial investigation, consideration of charges (prosecution), the trial, and the judgment from the court. The police, customs, border-guard and military authorities are official pre-investigation authorities, but ordinarily a pre-trial investigation is handled by the police. Anyone can report an offence to the pre-trial authority, but not all offences will lead to an investigation. If there is any reason to believe

that a crime has been committed, a pre-trial investigation will be launched (Helminen, 2012). At that stage, the circumstances of the alleged crime, the identity of the parties concerned, the damage caused as well as the benefits gained by the crime will be analysed. In addition, other factors necessary for the prosecution will be considered. (e.g. Kankaanranta & Mutttilainen, 2011, pp. 56–57). Secondly, a case will be submitted to the prosecutor for the consideration of charges. The third phase of the criminal procedure is the trial stage. Finally, the decision of the court will be enforced.

The criminal procedure in Sweden is quite similar to the situation in Finland described above. Many environmental crimes are reported by the regulatory agencies to the public prosecutor. There are specialised prosecutors dealing with environmental crimes. Depending on the suspected offense, the prosecutor decides to initiate a pre-trial investigation, or not to proceed further. The police conduct the pre-trial investigation under the direction of the prosecutor. If a crime has been committed and the accused pleads guilty and accepts the proposed sentence, the prosecutor could decide to order a summary punishment instead of going to court. However, if the accused does not agree and the prosecutor still is convinced of a conviction, the prosecutor has the option of filing criminal charges to be presented in a court of law.

When analysing the prosecution of environmental crimes in Finland and Sweden, one notable difference is the organisation of the pre-trial investigation. In Finland, the police are in charge of the investigation, whereas in Sweden the prosecutor runs it. Both procedures have positive and negative implications. In Sweden, the distribution of the work may be complicated regarding the usage of resources. The prosecutor may, for example, demand expensive tests to obtain evidence of a crime (Rikspolisstyrelsen, 2013). In Finland, the cooperation between police and prosecutor often works smoothly, but drawbacks have also been reported. If the prosecutor is, for example, too busy to familiarise himself with a

complicated case, the time spent on the investigation may increase (Kankaanranta & Muttilainen, 2011).

Table 3 shows the pre-trial investigations and considerations of charges of environmental offences according to the prosecutor general in Finland in 2012. The Table 3 includes all the offences in the Chapter 48 of the Finnish Criminal Code. In 44% of cases the prosecutor pressed charges and in 16% of cases the prosecutor decided to waive charges. It should also be noted that in 15% of the cases prosecutor had limited the pre-trial investigation. 20% of the cases were pending as the investigation was still ongoing. (see e.g. Kankaanranta & Muttilainen, 2010, pp. 421, on different status quos of investigation process).

*(Table 3)*

Table 4 shows pre-trial investigations and the consideration of charges for environmental crimes and working environment crimes in 2012 by the Swedish Prosecutor General. Altogether 1,525 suspected impairments and aggravated impairments of the environment were reported to the prosecutor in 2012. Pre-trial investigation and consideration of charges was concluded in 686 cases. As the Table 4 includes only impairments and aggravated impairments of environment in Sweden, it is not directly comparable with the Table 3, which includes all the environmental offences listed in the Finnish Criminal Code. However, the Tables 3 and 4 give indication of the prosecution percentages in both countries.

*(Table 4)*

As shown in Table 4, a corporate fine was imposed in 7% of the cases, fines were imposed in 4% of cases and charges were pressed in 4% of the cases. In 76% of the cases pre-trial investigation was discontinued or not preceded. Most of the reported environmental crimes

were minor. As such, the prosecutor did not have the prerequisites to press charges (Skagerö & Korsell, 2006). According to the Swedish Criminal Code, no punishment will be imposed by the court if the environmental crime is regarded as minor. If an administrative sanction is already decided upon in a case in which only a fine could be imposed, the prosecutor can go to court only if the charge is in the public interest. Therefore, many less serious environmental crimes are handled by administrative sanction, and generally only serious crimes will proceed to court.

### ***Conviction: Sanctions from environmental crimes***

A significant proportion of environmental corporate and private crime offences are handled by means of administrative sanctions in both countries. Administrative environmental sanctions can be decided by the environmental authority against a legal person such as a corporation. While recognising the importance of administrative sanctions, our focus in this analysis is on the fines based on criminalisation. Monetary sanctions are the most commonly used criminal sentences in environmental offences. Prison sentences are rare both in Finland and in Sweden (Finnish National Monitoring Group, 2013; du Réés, 2001; Korsell, 2001; Sahramäki & Kankaanranta, 2014).

There is major difference between Finland and Sweden in the use of corporate fines as sanctions. In Finland, a corporate fine is imposed by the court of law. However, a corporate fine is rarely demanded by prosecutors and if it is imposed, the fine is usually low, approximately EUR 2,000 - 10,000 (Finnish National Monitoring Group, 2013, p. 33). According to the Criminal Code of Finland (Chapter 9), the corporate fine is a minimum of EUR 850 and a maximum of EUR 850,000. The nature, the extent, significance and seriousness of the offence should be considered in determining the amount. Prerequisites for liability are determined in the Criminal Code of Finland, Section 2 (61/2003):

*A corporation may be sentenced to a corporate fine if a person who is part of its statutory organ or other management or who exercises actual decision-making authority therein has been an accomplice in an offence or allowed the commission of the offence or if the care and diligence necessary for the prevention of the offence have not been observed in the operations of the corporation.*

In Sweden, the prosecutor can impose a corporate fine without taking the case to a court of law if the perpetrator accepts the summary punishment. If not, the prosecutor has to go to court. According to the Swedish Penal Code (Chapter 36, Section 8), a corporate fine is a minimum of SEK 5,000 and a maximum of SEK 10 million.<sup>2</sup> The nature, extent and relation to the business activity of the crime are considered in determining the amount. According to Section 7 of the Swedish Penal Code:

*For offences that have been committed in the exercise of trade and industry activity, on the assessment of a public prosecutor, business fines shall be imposed on the businessman, if the crime is prescribed with a more severe punishment than monetary fines and: 1. the businessman has not done what reasonably could have been demanded to prevent the criminality, or 2. the offence has been committed by a person in a leading position based on the authority to represent the businessman or make decisions on behalf of the businessman, or a person who otherwise has had a special responsibility for insight or control in the business. The first paragraph does not apply, if the criminality was directed towards the businessman.*

## **Main Findings**

Even though crime prevention has been studied from various different perspectives (Tonry & Farrington, 1995), there is fairly little research on prevention of corporate environmental crime as such (White, 2008, p. 237). This study aims to contribute to research into the

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<sup>2</sup> € 539.82 - € 107,964.54 according to European Central Bank's exchange rate on 4/11/2014.

prevention of environmental crime by comparing the enforcement chain of environmental crimes in Finland with that in Sweden: detection, prosecution and sanctioning.

Regarding detection, we compared the rates of recorded crimes in the two countries (2012) and found that the rates are higher in Sweden than in Finland (see Figure 1 and Tables 1 and 2). We suggest that these differentials do not reflect differentials in the actual criminal behaviour. Rather, a greater incidence of reported environmental crimes may indicate more effective prevention, as the detection rate appears to be higher in Sweden. We also consider that the differences may be related to institutional arrangements of social control. Thus, in Sweden environmental inspection authorities are required by law to report all suspected crimes to the prosecutor, whereas in Finland a certain amount of discretion is allowed.

These results need to be interpreted with caution. The notification requirement does not necessarily indicate that more environmental crimes are detected in Sweden than in Finland. In both countries, a significant number of corporate illegalities against the environment are handled through administrative instead of criminal procedure. As such, not all of the environmental offences detected are necessarily reported to the police. In a study by Benson and Simpson (2009, p. 121) it has been demonstrated that criminal intervention is relatively rarely used when violations are discovered. As an illustration, in Sweden the notification requirement has not removed the underlying aspect that administrative authorities tend to emphasise cooperation between corporative and voluntary compliance rather than criminal investigation, which has been widely acknowledged in the previous literature (du Rées, 2001; Faure & Visser, 2004, p. 67; Sahramäki & Kankaanranta, 2014; Skagerö & Korsell, 2006). Consequently, enforcement may not be improved only by obligating the environmental inspection authority to report more suspected offences to the police or prosecutor.



When considering the sanctioning of environmental crimes, it is somewhat surprising that there is a significant difference in the use of corporate fines as environmental crime sanctioning between Finland and Sweden. In both countries, charges can be brought only against natural person. However, in Sweden, a corporation may be sentenced to a corporate fine by the prosecutor, whereas in Finland only a court of law may impose corporate fine. In Sweden, a corporate fine is used fairly often by the prosecutor (see Table 4.), as contrasted with Finland where a corporate fine is demanded rather rarely by Finnish public prosecutors. A conviction of environmental crimes in a court of law is often uncertain, as they are often seen as victimless crimes. In addition, it may be difficult to determine the particular individual accountable for the offence due to complex corporate structures (White, 2010, p. 371). This complexity may also make the cost-benefit calculation difficult and unpredictable (Emery & Watson, 2004, pp. 745–746). When a corporate fine may be imposed by the prosecutor, determining the details of the liability structure within the corporation may not be necessary. As such, a corporate fine imposed by the prosecutor may be a more cost-effective and effective sanction for punishment and prevention of environmental crimes. It may also improve the likelihood of a monetary sanction being imposed for environmental crime, since the decision is not placed under the jurisdiction of a court of law.

This can also be the prosecutor's reasoning in Sweden, where a corporate fine is the most often used form of criminal punishment against corporations violating the Environmental Code. In Sweden, two motives for stressing corporate fines have been recognised. First, the use of corporate fine has become a strategy to more properly sanction a business since ordinary fines have little to do with the revenue and turnover. Second, it is a strategy to asset recovery (Brå, 2014a; 2014b). On the other hand, environmentally unfriendly actions may be part of the institutionalised behaviour of organisations such as corporations. Therefore, if the corporate fines are imposed but the amounts are low, they may

not have an actual effect on corporation's environmentally unfriendly operation models. Furthermore, the corporation may pass on the additional costs of fines to customers in their products. As such, it is questionable whether harsher fines would in reality change corporate behaviour.

## **Discussion**

Based on the data used in this article and main findings presented above, it is not feasible to argue for or against harsher penalties and higher fines in order to reduce environmental crimes. However, the main findings serve as a starting point for further discussion.

The findings indicate that command-and-control strategies alone are insufficient in prevention of environmental crimes. It has been argued that without the use of big stick potential offenders have little motive to compel regulatory requirements (White 2010, p. 379). For this reason, these monetary sanctions should be severe enough to deter possible offenders and change corporate behaviour. It is questionable whether this has actually happened, since sanctions are considered to be generally low in Finland and Sweden. As the majority of sanctions are monetary, environmental crimes have become so-called fine crimes. As the fines are also usually low, the benefit gained from the crime can outweigh the possible costs (Skagerö & Korsell, 2006, p. 10). This is also corroborated by Faure and Visser (2004, p. 61) who question the effectiveness of criminal law in deterring environmental damage, as the detection rate and sanctions are low.

In addition, it has been argued that criminal sanctions for environmental crimes should be inversely related to the probability of detection. Faure and Visser (2004, p. 63) suggest that there is a trade-off between deterrence and enforcement costs - increasing detection rate requires an increase in policing costs. However, the financial resources for the authorities are scarce, and environmental crimes are often difficult to detect. Therefore, to

account for the possibility that only a minor proportion of the offenders will be caught, bigger sanctions are needed. Advocates of this argument propose that it is cost-effective to pursue deterrence through increasing the severity of the sanctions rather than investing in enforcement.

This study has been unable to demonstrate if harsher penalties would in effect lead to more effective prevention of environmental crimes. Nevertheless, rational calculations are not necessarily applicable as such to the strategies in prevention of environmental crimes. If the criminal sanctions are targeted only on individuals, there is a risk that the corporation will continue business-as-usual even though the manager has been convicted of environmental crime. Also, corporate environmental crimes benefit the corporation at the expense of human health and the environment. Typically, corporate environmental crime often benefits the corporation as a whole more than personal interests (Situ & Emmons, 2000, p. 46).

Nevertheless, it has also been suggested that prevention of environmental crime through criminal sanctions is effective since the sanctions are imposed on corporate managers who generally have a social status and reputation that they desire to protect (du Réés, 2001, p. 111).

The effect of sanctions should not be viewed solely through monetary restitution. Administrative as well as criminal sanctions can “educate” potential criminals by indicating the moral consequences of their actions (Cohen, 1992, pp. 1059–1060) such as suggested by self-regulation and smart regulation strategies. It has also been acknowledged that prevention of environmental crime should be extended to informal sanctions, such as naming and shaming, which could have a negative effect on the business reputation of green-collar criminals (Faure & Visser, 2004, p. 62; Simpson et al, 2013, p. 238). Also, media attention to environmental problems and investigations against a company could be very problematic for the company’s image. Reputation may play an important role due to the relationship

companies have with their customers and employees, as well as governmental agencies. Company's reputation as environmentally friendly business may bring competitive advantage and as such increase revenues. On the other hand, public shaming of corporate offenders may be soon forgotten by the general public or get diluted in the flow of news (see e.g. Ceccato & Uittenbogaard, 2013).

Other studies have emphasised that tailored sanctions and enforcement strategies are needed for effective prevention of environmental crimes. What is more, paradoxically strong tools such as criminal sanctions are often weak in the cases of wicked problems, as Vaughan (2004, p. 11) has aptly argued. Flexibility is needed from the regulatory and enforcement regimes (Fortney, 2003). In the end, the goal of enforcement is to improve compliance (Akella & Cannon, 2009, p. 530), which can be achieved in combining administrative sanctions and methods with criminal sanctions (Faure & Visser, 2004, p. 66). As such wide range crime prevention strategies are needed.

As characterised in the introduction, environmental crimes are often perceived to be victimless regulatory crimes in which the role of values and perceptions cannot be excluded. Characteristically, the definition of harm and crime is based on the values and knowledge of the actors involved (White, 2008, p. 235). If the party harmed is not clearly recognised and the consequences of the offence are visible only after a long period of time, the consequences may not be regarded as serious. For instance in Finland, it has been argued that the supervisory authorities do not have the necessary knowledge and skills to evaluate whether suspected environmental offenders should be convicted under the criminal law or not. As such, it has been argued that they should not be allowed to make their own judgment. It has also been suggested that initiating an investigation of a suspected offence has a preventative effect on its own (Pennanen, 2006, p. 19).

Previous research has shown that infringement of environmental law is unlikely to occur when operation under consideration is perceived as dangerous to humans and wildlife as well as being undesirable. Consequently, providing information of the influence of environmental crime to human health as well as environmental damage should be taken into account in enforcement actions. As such, self-regulation has been suggested to be more effective than deterrence-based interventions in alleviating the attractions of crime (Simpson et al., 2013, pp. 265–266). As mentioned in the review of the literature, self-regulation relies on norms and values which, together with an effective internal compliance system is assumed to provide effective deterrence, and will lead to the prevention of environmental crimes (Simpson et al., 2013, p. 237). To illustrate, in Finland and Sweden, supervision of environmental licences is largely based on self-reporting of the corporation, as identified in this article. Subsequently, self-regulation and self-policing strategies in prevention of environmental crime are important. If the corporation has internal compliance system and high environmental values, it can be assumed to have also reliable self-reporting. Also, if the supervision continues to rely on self-reporting of the corporations, self-policing in forms of financial benefits associated with compliance and voluntarily reporting failures in compliance may outweigh the criminal sanctioning. Also, if the supervision continues to rely on self-reporting of the corporations, financial rewards to corporations that for instance voluntarily report their failures in compliance, might outweigh the criminal sanctioning.

Given the weak sanctions and low probability of criminal prosecution in Finland and Sweden, stressing voluntary compliance instead may be effective in the long run. This is an important issue for future research. As characterised previously, environmental crimes are often perceived to be victimless regulatory crimes. Further research should be carried out to investigate the application and interpretation of environmental crime legislation in the environmental inspection agencies, police and prosecutors. Understanding better the different

levels of enforcement and application of the environmental legislation to enforcement chain may be the key to form a coherent enforcement chain in prevention of environmental crimes.

The findings in this article also stress the importance of comparative research in the field of crime prevention. Environmental crimes, as well as several other crimes, are quite often transnational in character. States have clear need to work together in order to prevent cross-border criminality effectively. However, differences in legislation and distribution of responsibilities between authorities may affect the concrete prevention efforts. As such, more comparative research is needed to identify the differences and similarities in the enforcement efforts of different countries, and furthermore to pinpoint the bottlenecks in prevention of environmental crime.

### ***Limitations***

Approaching crime prevention from the enforcement perspective used in this study has its limitations. The legal-procedural approach is restricted to the existing system which includes only the environmental damage defined in the legislation and leaves out other actions that are potentially harmful to the environment (Gibbs, Gore, McGarrell, & Rivers III, 2010, pp. 125-126; Hall, 2013, p. 220).

The number of official documents related to enforcement in environmental crime prevention was quite low, perhaps partly due to restricted access to documents. Therefore, the quite low number of available statistical and official documents may slightly have complicated the overall understanding about the chain of enforcement. Limitations related with the content of statistical data were discussed in Data and Methods section.

Statistics of crime give only a limited view of the actual scale of the criminality in question. Grey and dark numbers of crimes behind the official statistics should also be recognised when making comparisons. “Grey numbers” refers to offences which come to the

attention of the public authorities, but are not included in the statistics. “Dark numbers,” on the other hand, refers to crimes which do not come to the attention of the public authorities at all (Comte, 2006, p. 197).

There are also obvious limitations to measuring corporate environmental crime and corporate crime in general (Gibbs & Simpson, 2009). The separation of corporate environmental crime and environmental crime committed by individuals is challenging. Often statistics do not specify whether an individual is suspected of an environmental crime committed during their non-workingtime or in a personal capacity or of committing a corporate environmental crime, where the offence is committed as part of corporate action. Also, the corporation’s unique culture, strategic and operational models determine the actions performed inside the corporation (Alexander & Cohen, 1996, p. 433).

Our review of relevant literature indicates that there are relatively few studies that have analysed environmental crime prevention from the enforcement point of view. Therefore, comparisons between other countries were not easy. Finally, cultural differences may also influence interpretation of results. In order to avoid cultural bias in this study, the analysis was made by authors from both Finland and Sweden.

### ***Policy Implications***

As the number of environmental crimes reported to the police is considered to be low and sanctions are fairly minor in Finland, identifying possible problems related to enforcement chain is of the utmost importance. One of the issues that emerges from this study is that focusing only on single aspects of enforcement, such as detection, prosecution or sanctions, is unlikely to be sufficient in improving prevention. Therefore, the focus of the analysis must be directed to the entire enforcement chain.

It has also been suggested that the choice between administrative or criminal intervention is dependent upon the interpretation and reading of the legislation: what is considered to be environmental crime and what is defined as tolerable damage caused to the environment (Sahramäki & Kankaanranta, 2014). This has important implications for improving prevention of environmental crimes in Finland. It should be considered whether the most effective solution in improving enforcement should be based on the notification requirement or not. This reasoning is supported by the finding that only few environmental crimes were prosecuted in Finland and Sweden.

### ***Conclusion***

As a conclusion, the costs of crime to the offender, such as the risk of detection, apprehension and conviction, as well as the severity of punishment (Jacob, 2011, p. 273), appear to be fairly low regarding environmental crimes in Finland and Sweden. In addition, estimating the effectiveness of environmental enforcement in deterring companies is challenging, since the hidden environmental crime is relatively unstudied (Benson & Simpson, 2009, p. 121). As such, prevention should not be based solely on criminal law enforcement. In fact, it has been argued that the weakness of environmental law enforcement probably encourages environmental crime (Situ & Emmons, 2000, pp. 65–66). Briefly, enforcement needs to be supported by other crime prevention strategies, such as self-regulation, smart regulation, and self-policing, in order for it to be effective.

### **References**

Akella, A. S., & Cannon, J. B. (2009). Strengthening the weakest links: strategies for improving the enforcement of environmental laws globally. In R. White, *Environmental Crime. A Reader*. (pp. 528-567). Devon: Willan Publishing.



- Alexander, C. R., & Cohen, M. A. (1996). New Evidence on the Origins of Corporate Crime. *Managerial and Decision Economics*, 17, 421-435. doi: 10.2307/2487977.
- Becker, G. S. (1968). Crime and Punishment: An Economic Approach. *Journal of Political Economy*, 76, 169-217. doi: 10.1086/259394.
- Benson, M. L., & Simpson, S. S. (2009). *White-Collar Crime. An Opportunity Perspective*. New York, NY: Routledge.
- Bisschop, L. (2012). Is it all going to waste? Illegal trade in tropical timber and a European trade hub. *Global Crime, iFirst*, 1-12. doi: 10.1007/s10611-012-9383-0.
- Brå (2013). Brott och statistik. [Crime and statistics] Retrieved from <https://www.bra.se/bra/brott-och-statistik/statistik.html> Accessed 10.6.2014.
- Brå. (2014a). *Gå på pengarna. Antologi om tillgångsinriktad brottsbekämpning*. (Rapport 2014:10). [Go for the money. Anthology of revenue oriented crime prevention.] Stockholm: Brottsförebyggande rådet. Retrieved from [https://www.bra.se/download/18.221265bc145ae05f27a381/1399460005640/2014\\_10\\_Ga\\_pa\\_pengarna.pdf](https://www.bra.se/download/18.221265bc145ae05f27a381/1399460005640/2014_10_Ga_pa_pengarna.pdf). Accessed 25.11.2014.
- Brå. (2014b). *Frågan om en sammanhållen resultatredovisning för tillgångsinriktad brottsbekämpning*. (Rapport 2014:19) [Questions about society's statement of earnings in revenue oriented crime prevention] Stockholm: Brottsförebyggande rådet. Retrieved from [http://www.bra.se/download/18.6cde4de61493868542d61a/1415283794973/2014\\_19\\_Fr%C3%A5gan+om+en+sammanh%C3%A5llen+resultatredovisning+f%C3%B6r+tillg%C3%A5n+gsinriktad+brottsbek%C3%A4mpning.pdf](http://www.bra.se/download/18.6cde4de61493868542d61a/1415283794973/2014_19_Fr%C3%A5gan+om+en+sammanh%C3%A5llen+resultatredovisning+f%C3%B6r+tillg%C3%A5n+gsinriktad+brottsbek%C3%A4mpning.pdf).
- Ceccato, V. & Uittenbogaard, A. (2013). Environmental and Wildlife Crime in Sweden. *International Journal of Rural Criminology*, 2, 25-52. Retrieved from [http://kb.osu.edu/dspace/bitstream/handle/1811/58848/IJRC\\_Ceccato\\_vol2-issue1\\_pp25-52.pdf?sequence=1](http://kb.osu.edu/dspace/bitstream/handle/1811/58848/IJRC_Ceccato_vol2-issue1_pp25-52.pdf?sequence=1).
- Cohen, M. A. (1992). Environmental Crime and Punishment: Legal/Economic Theory and Empirical Evidence on Enforcement of Federal Environmental Statutes. *Journal of Criminal Law and Criminology*, 82, 1054-1108. Retrieved from

<http://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=6725&context=jclc>.

Comte, F. (2006). Environmental Crime and the Police in Europe: A Panorama and Possible Paths for Future Action. *European Energy and Environmental Law Review*, 15, 190-231.

Retrieved from

<https://www.kluwerlawonline.com/abstract.php?area=Journals&id=EELR2006022>.

Criminal Code of Finland 39/1889, Chapter 48 Environmental offences (578/1995) English translation available at <http://www.finlex.fi/en/laki/kaannokset/1889/en18890039.pdf>

Accessed at 4.12.2014.

Daboub, A. J., Rasheed, A. M., Priem, R. L., & Gray, D. A. (1995). Top Management Team Characteristics and Corporate Illegal Activity. *The Academy of Management Review*, 20, 138-170. Retrieved from <http://www.jstor.org/stable/258890>.

Denzin N.K. & Lincoln, Y. (2000). *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage Publications, Inc.

du Rées, H. (2001). Can Criminal Law Protect the Environment? *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 2, 109-126. doi:

10.1080/140438501753737606.

Emery, A., & Watson, M. (2004). Organizations and environmental crime: Legal and economic perspectives. *Managerial Auditing Journal*, 19, 741-759. doi:

10.1108/02686900410543868.

Faure, M. G., & Visser, M. (2004). Law and economics of environmental crime. In H. Sjögren, & G. Skogh, *New Perspectives on Economic Crime* (pp. 57-75). Cheltenham: Edward Elgar.

Finnish National Monitoring Group. (2013). *Ympäristörikoskatsaus vuodelta 2012* [Environmental Offences in Finland 2012]. Retrieved from

[https://www.poliisi.fi/poliisi/home.nsf/ExternalFiles/6536FA5CA987C99DC2257C0100277792/\\$file/Ymp%C3%A4rist%C3%B6rikoskatsaus%202012.pdf](https://www.poliisi.fi/poliisi/home.nsf/ExternalFiles/6536FA5CA987C99DC2257C0100277792/$file/Ymp%C3%A4rist%C3%B6rikoskatsaus%202012.pdf).

Fortney, D. C. (2003). Thinking outside the 'black box': tailored enforcement in environmental criminal law. *Texas Law Review*, 81, 1609-1635. Retrieved from <https://litigation-essentials.lexisnexis.com/webcd/app?action=DocumentDisplay&crawlid=1&doctype=cite&docid=81+Tex.+L.+Rev.+1609&srctype=smi&srcid=3B15&key=f95893ff77e6b4c65bce2de599444d56>.

Friedrichs, D. O. (2004). *Trusted Criminals. White Collar Crime in Contemporary Society* (Second Edition. ed.). Belmont, CA: Thomson Wadsworth.

Gauthier, A. H. (2000). *The premises of comparative research*. Paper prepared for the European Panel Analysis Group. Retrieved from <http://cordis.europa.eu/documents/documentlibrary/90834231EN6.pdf>.

Gibbs, C., & Simpson, S. S. (2009). Measuring corporate environmental crime rates: progress and problems. *Crime, Law and Social Change*, 51, 87-107. doi: 10.1007/s10611-008-9145-1.

Gibbs, C., Gore, M. L., McGarrell, E. F., & Rivers III, L. (2010). Introducing conservation criminology. Towards Interdisciplinary Scholarship on Environmental Crimes and Risks. *British Journal of Criminology*, 50, 124-144. doi: 10.1093/bjc/azp045.

Gibbs, C., McGarrell, E.F., & Axelrod, M. (2010). Transnational white-collar crime and risk. Lessons from the global trade in electronic waste. *Criminology & Public Policy*, 9, 543-560.

Hall, M. (2013). Victims of Environmental Harms and Their Role in National and International Justice. In R. Walters, D. Solomon Westerhuis, & T. Wyatt. *Emerging Issues in Green Criminology: Exploring Power, Justice and Harm* (pp. 218-241). Hampshire: Palgrave Macmillan.

Heinonen, J., Keinänen, A., & Paasonen, J. (2013). *Turvallisuustutkimuksen tekeminen*. [Doing Security Research] Tallinna: AS Pakett.

Helminen, K. &. (2012). *Esitutkinta ja pakkokeinot*. [Pretrial investigation and the use of force] Helsinki: Talentum.

- Huisman, W., & van Erp, J. (2013). Opportunities for Environmental Crime. A Test of Situational Crime Prevention Theory. *British Journal of Criminology*, 53, 1178-1200. doi:10.1093/bjc/azt036.
- Hussein, A. (2009). The use of Triangulation in Social Sciences Research: Can qualitative and quantitative methods be combined? *Journal of Comparative Social Work*, 1, 1-12. Retrieved from [http://jcs.w.no/local/media/jcs.w/docs/jcs.w\\_issue\\_2009\\_1\\_8\\_article.pdf](http://jcs.w.no/local/media/jcs.w/docs/jcs.w_issue_2009_1_8_article.pdf).
- Jacob, A. (2011). Economic Theories of Crime and Delinquency. *Journal of Human Behavior in the Social Environment*, 21, 270-283. doi: 10.1080/10911359.2011.564951.
- Johnson, R. B. (1997). Examining the validity structure of qualitative research. *Education*, 118, 282-292. Retrieved from <http://www.dralessandro.com/subpages/PDFfiles/Validity%20Structure.pdf>.
- Kagan, R. A., Gunningham, N., & Thornton, D. (2003). Explaining Corporate Environmental Performance: How Does Regulation Matter? *Law & Society Review*, 37, 51-90. Retrieved from <http://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=1870&context=facpubs>.
- Kankaanranta T. & Muttilainen, V. (2011). *Talousrikostutkinta poliisissa vuonna 2011. Tutkintahenkilöstölle osoitetun kyselyn tuloksi*. [Economic crime investigation by the police in 2011]. Tampere: Poliisiammattikorkeakoulu.
- Kankaanranta, T. & Muttilainen, V. (2010). Economic crimes in the construction industry: case of Finland. *Journal of Financial Crime*, 17, 417-429. doi: 10.1108/13590791011082779.
- Katz, R. S. (2012). Environmental pollution: corporate crime and cancer mortality. *Contemporary Justice Review*, 15, 97-125. doi: 10.1080/10282580.2011.653523.
- Kogan, M. (1996). Comparing higher education systems. *Higher education*, 32, 395-402. doi: 10.1007/BF00133254.
- Korsell, L. (2001). Big Stick, Little Stick: Strategies for Controlling and Combating Environmental Crime. *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 2, 127-148. doi:10.1080/140438501753737615.
- Korsell, L. (2003). *Bokföringsbrott – en studie i selektion*. [False accounting – study of selection]. Edsbruk: Akademitryck.

Laitinen, A. & Aromaa, K. (1994). *Näkökulmia rikollisuuteen*. [Perspectives on delinquency] Tampere: Tammer-Paino.

Laufer, W. S. (2003). Social Accountability and Corporate Greenwashing. *Journal of Business Ethics*, 43, 253-261. doi: 10.1023/A:1022962719299.

McKendall, M. A., & Wagner, J. A. (1997). Motive, Opportunity, Choice and Corporate Illegality. *Organization Science*, 8, 624-647. doi: 10.1287/orsc.8.6.624.

Nath, S-V. (2006). *Crime Pattern Detection Using Data Mining. Web Intelligence and Intelligent Agent Technology Workshops*. Retrieved from <http://cs.brown.edu/courses/csci2950-t/crime.pdf>.

Nissinen, M. (2003). Ympäristörikoksista käytännössä. [Environmental crimes and the practice]. *Defensor Legis*, 4, 620-639. Retrieved from [http://www.edilex.fi/defensor\\_legis/883](http://www.edilex.fi/defensor_legis/883).

Paisey, C., & Paisey, N. J. (2009). Comparative research. An opportunity for accounting researchers to learn from professions. *Journal of Accounting & Organizational Change*, 6, 180-199. doi: 10.1108/18325911011048754.

Pennanen, J. (2006). *Ympäristölainsäädännön laillisuusvalvonta - erityisesti ympäristösuojelulain näkökulmasta*. [Legality control of environmental legislation – Environmental Protection Act point of view] Helsinki: Suomen ympäristökeskus.

Polstat (2013). *Statistics about environmental crimes in Finland. The National Police Information System*.

Ramus, C. A., & Montiel, I. (2005). When Are Corporate Environmental Policies a Form of Greenwashing? *Business Society*, 44, 377-414. doi: 10.1177/0007650305278120.

Rikspolisstyrelsen, & Åklagarmyndigheten. (2010). *Strategier mot miljöbrott. Ett samarbetsprojekt mellan Rikspolisstyrelsen och Riksenheten för miljö- och arbetsmiljömål*. [Strategy for environmental crime. Cooperation project with Swedish National Police Board and Department of Environmental and Working environment crime] Stockholm: Rikspolisstyrelsen/Åklagarmyndigheten.

Rikspolisstyrelsen. (2013) *Polismyndigheternas hantering av miljöbrott. Tillsynsrapport 2013:6*. [Processing of environmental crime in the Police. Monitoring report 2013:6] Stockholm: Rikspolisstyrelsen.

Sahramäki, I., & Kankaanranta, T. (2014). *Ympäristörikollisuuden torjunta ja valvonta Suomessa - kohti vihreämpää viranomaisyhteistyötä?* [Prevention and surveillance of environmental crimes in Finland - towards greener cooperation between authorities?]. Tampere: Police University College.

Simon, D. R. (2000). Corporate Environmental Crimes and Social Inequality. New Direction for Environmental Justice Research. *American Behavioral Scientist*, 43, 633-645. doi: 10.1177/00027640021955469.

Simpson, S. S., Gibbs, C., Rorie, M., Slocum, L., Cohen, M. A., & Vandenberg, M. (2013). An Empirical Assessment of Corporate Environmental Crime-control Strategies. *The Journal of Criminal Law & Criminology*, 103, 231-278. doi: 0091-4169/13/10301-0231.

Situ, Y., & Emmons, D. (2000). *Environmental Crime. The Criminal Justice System's Role in Protecting the Environment*. Thousand Oaks, CA: Sage Publications, Inc.

Skagerö, A., & Korsell, L. (2006). *Är vi bra på miljöbrott? En snabbanalys*. [Are we good in environmental crime? Short analysis.] Stockholm: Brottsförebyggande rådet.

Skogan, W.G. (1974). The Validity of Official Crime Statistics: An Empirical Investigation, *Social Science Quarterly*, 55, 25-38. Retrieved from [http://skogan.org/files/Validity\\_of\\_Official\\_Crime\\_Statistics.SSQ\\_1976.pdf](http://skogan.org/files/Validity_of_Official_Crime_Statistics.SSQ_1976.pdf).

Stretesky, P. B. (2006). Corporate self-policing and the environment. *Criminology*, 44, 671-708. doi: 10.1111/j.1745-9125.2006.00060.x.

The Swedish Environmental Code, Ds 2000:61, English translation available at <http://www.government.se/content/1/c6/02/28/47/385ef12a.pdf> Accessed 4.12.2014.

Thornton, D., Kagan, R. A., & Gunningham, N. (2003). Sources of Corporate Environmental Performance. *California Management Review*, 46, 127-141. doi: 10.2307/41166235

Tonry, M., & Farrington, D. P. (1995). *Building a Safer Society. Strategic Approaches to Crime Prevention*. Chicago, IL: The University of Chicago Press.

Usunier, J.-C., & Sbizzera, S. (2013). Comparative thick description. Articulating similarities and differences in local consumer experience. *International Marketing Review*, 30, 42-55. doi: 10.1108/02651331311298564

Valtioneuvosto. (2012). *Valtioneuvoston periaatepäätös hallituksen toimintaohjelmaksi talousrikollisuuden ja harmaan talouden vähentämiseksi vuosina 2012–2015*. 19.1.2012. [Governmental Action Plan to Reduce Economic Crime and the Shadow Economy 2012-2015. 19.1.2012] Helsinki: Valtioneuvosto.

van Erp, J. & Huisman, W. (2010). Smart regulation and enforcement of illegal disposal of electronic waste. *Criminology & Public Policy*, 9, 579- 590. doi: 10.1111/j.1745-9133.2010.00652.x

Vaughan, B. (2004). The Greening and Governance of Crime Control. *Criminal Justice*, 4, 5-28. doi: 10.1177/1466802504042221

White, R. (2008). *Crimes Against Nature. Environmental criminology and ecological justice*. Devon: Willan Publishing.

White, R. (2010). Prosecution and sentencing in relation to environmental crime: Recent socio-legal developments. *Crime, Law and Social Change*, 53, 365-381. doi: 10.1007/s10611-010-9233-x

Table 1. Reported suspected environmental crimes and environmental violations in Finland in 2012. (Source: Polstat 2013)

	Year 2012	Per 100 000 persons
<b>Environmental crimes (Chapter 48 of the Criminal Code)</b>		
Impairment of the environment (1 §)	140	2,6
Aggravated impairment of the environment (2 §)	0	0,0
Environmental infraction (3 §)	207	3,8
Negligent impairment of the environment (4 §)	4	0,1
Nature conservation offence (5 §)	25	0,5
Building protection offence (6 §)	4	0,1
<b>Environmental violations</b>		
Violation of the Waste Act (Waste Act 147 §) <sup>3</sup>	227	4,2
Violation of a permit under the Water Act (Water Act, Chapter 16, 2 §)	1	0,0
Nature conservation violation (Nature Conservation Act 58 §)	10	0,2
An offence during the transport of dangerous goods (Act on Transport of Dangerous Goods 19 §)	8	0,1

<sup>3</sup> As the Waste Act 2011/646 came into effect in 1.5.2012, Table 1 includes 172 reported violations of the Waste Act 2011/646, 147 § and 55 reported violations of the Waste Act 1072/1993, 60 §.



Table 2. Reported suspected environmental crimes (Chapter 29 of the Environmental Code) in Sweden in 2012. (Source: Brå 2013)

	Year 2012	Per 100 000 persons
Principal environmental offence, incl. aggravated (1 §)	1 525	16,0
Careless causing environmental damage, incl. aggravated (2 §)	503	5,2
Environmentally harmful handling of chemicals (3 §)	167	1,7
Unauthorized environmental activity (4 §)	797	8,3
Obscuring environmental control (5 §)	93	1,0
Giving defective environmental information (6 §)	58	0,6
Littering (7 §)	2 092	21,9
Other offences against the Code (8 §)	205	2,1

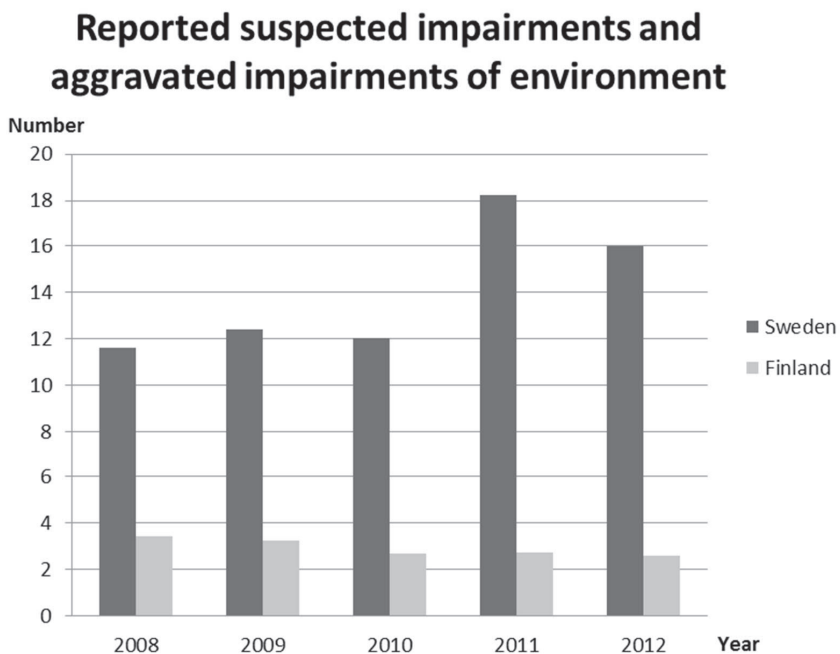
Table 3. Pre-trial investigations and considerations of charges of environmental offences (Criminal Code Chapter 48) in Finland 2012. (Source: Finnish National Monitoring Group, 2013)

	Year 2012	Percent	Per 100 000 persons
Pre-trial investigation turned over to another authority	1	0 %	0,0
Prosecution	144	45 %	2,7
Summary penal proceedings	13	4 %	0,2
Waiving of charges (imputable)	14	4 %	0,3
Waiving of charges	40	12 %	0,7
Limited pre-trial investigation	48	15 %	0,9
Other decision	1	0 %	0,0
Pending	66	20 %	1,2
Total	330	100 %	6,1

Table 4. Pre-trial investigations and considerations of charges of environment offence and aggravated environment offence in Sweden in 2012. (Source: Åklagarmyndigheten, personal communication, February 10, 2014)

	Year 2012	Percent	Per 100 000 persons
Pre-trial investigation is not preceded	108	16 %	1,1
Pre-trial investigation is discontinued	410	59 %	4,3
Pre-trial investigation turned over to another authority	5	1 %	0,1
No reason to suspect an offence	55	8 %	0,6
Waiving of charges (imputable)	9	1 %	0,1
Summary penal proceedings	26	4 %	0,3
Waiving of charges	1	0 %	0,0
Prosecution	26	4 %	0,3
Corporate fine	46	7 %	0,5
Other decision	0	0 %	0,0
Total	686	100 %	7,2

Figure 1. Reported suspected impairments and aggravated impairments of environment per 100 000 inhabitants in Sweden and Finland in 2008-2012. (Source: Polstat 2013, Brå 2013)



# PUBLICATION II

## **Enforcement and professional constructions of environmental crime in Finland**

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# 8

## Enforcement and Professional Constructions of Environmental Crime in Finland

Iina Sahramäki

### Introduction

In Finland, the awakening to the need for more efficient prevention of environmental crime has been relatively slow; it has generally been assumed that environmental crime is not a particularly severe problem. Only recently, after a few corporations were found to have committed aggravated impairment of the environment, has awareness of the issue arisen. Hence, during recent years, several actions have been taken by authorities to address environmental crime (Ministry of the Environment 2015; Finnish National Monitoring Group 2015; Sahramäki & Kankaanranta 2014b).

The response of authorities to environmental crime has been characterized by an emphasis on prevention of economic crime in Finland (Ministry of the Environment 2015; Valtioneuvosto 2012;

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Sahramäki & Kankaanranta 2014b). However, it has been estimated that most environmental crimes go undetected (Finnish National Monitoring Group 2015; Ministry of the Environment 2015). Furthermore, several challenges in cooperation between the police, as the pre-trial investigation authority in Finland, and environmental inspection authorities have been recognized in previous studies. For example, challenges related to insufficient resources and poor communication are widely acknowledged in Finland (Ahonen, Kerppilä, & Pirjatanniemi 2003; Aakkula 2001; Sahramäki & Kankaanranta 2014b). The obstacles to collaboration between authorities are not exclusively a Finnish phenomenon (Gray 2004; Sharma and Kearins 2011; Koschmann 2012).

In this chapter, the enforcement of environmental legislation in Finland is studied. Environmental crime is defined here as ‘an unauthorized act of omission that violates the law and is therefore subject to criminal prosecution and criminal sanctions’ (Situ and Emmons 2000, p. 3). Although the authorities comply with the environmental legislation in their activities, they implement the legislation on the basis of their professional interpretation of the law. As such, in this chapter, it is argued that it is essential to look behind the enforcement efforts and to study the discourses in which these efforts are embedded, and how they affect environmental enforcement. To be more precise, the purpose of this chapter is (i) to identify the ways in which enforcement agencies socially construct their perception of environmental crime and (ii) to discuss how their constructions impact environmental law enforcement. The analysis is based on semi-structured interviews conducted with police officers and environmental inspection authorities in the spring of 2013.

The chapter is organized as follows. First, the background and the current developments in enforcement and prevention of environmental crime in Finland are presented. Second, the framework of the analysis, including professional frames and identity, is discussed. Third, the data from 20 semi-structured interviews is presented and the method is explained. Fourth, in the findings section the discourses of police and environmental inspection authorities and their reconstructions of environmental crime are identified. Finally, the implications of these discourses for environmental enforcement are discussed and some final conclusions are drawn.



## Environmental Crime in Finland

Environmental crime in this chapter is studied from the legalistic point of view. Essential elements of an environmental offence have been defined in the Criminal Code of Finland (39/1889). Impairment of the environment (1 §), aggravated impairment of the environment (2 §), environmental infraction (3 §), negligent impairment of the environment (4 §), nature conservation offences (5 §), and building protection offences (6 §) have all been criminalized in Chapter 48 of the Criminal Code (578/1995). These types of crime include acts such as violations against the Chemical Act, Environmental Protection Act, Waste Act, and several regulations imposed by the European Union.

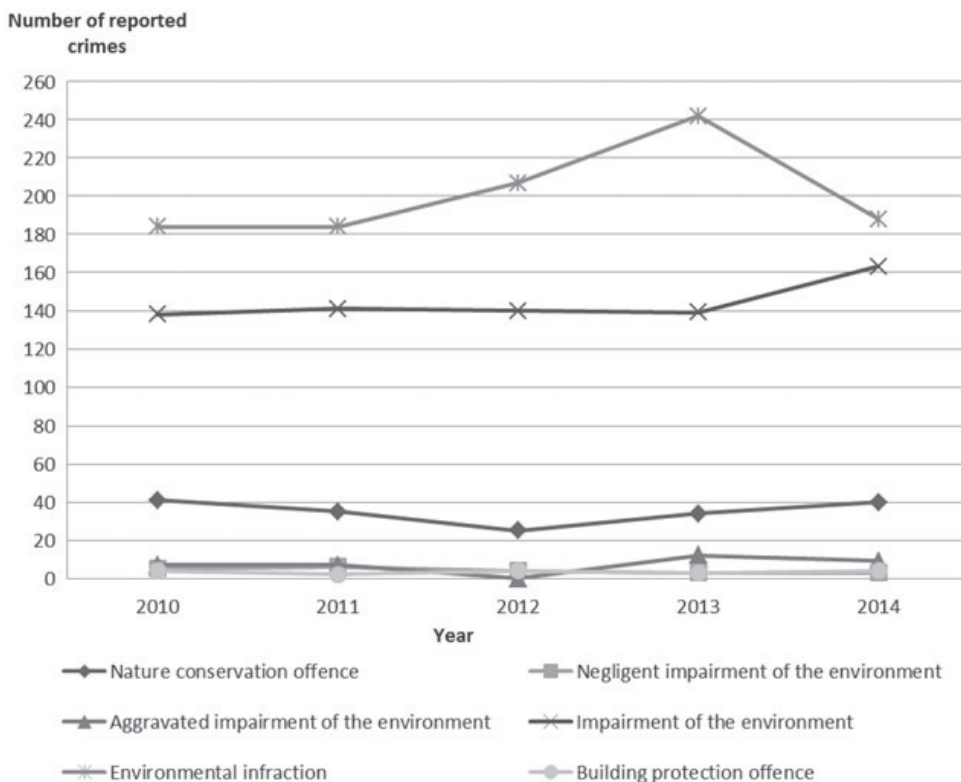
Only approximately 500 environmental crimes according to the categories listed in Chapter 48 of the Criminal Code of Finland are reported annually. These are reported to the police for pre-trial investigation (Figure 8.1). In addition to these reported (suspected) environmental crimes, Finnish legislation also includes other environmental violations outside the criminal code, such as the Waste Act (JäteL 60 §), Nature Conservation Offence (LSL 58 §), Building Violation (MRL 185 §), and Violation of the Environmental Protection Act (YSL 116 §).

Although there are no reliable estimates of the scale of hidden crime in Finland,<sup>1</sup> there is a general assumption that the majority of environmental crimes remain hidden or unreported (Finnish National Monitoring Group 2015, p. 6; Nissinen 2003). Usually, this assumption is based on the higher number of reported environmental crimes in the neighboring country Sweden, to which Finland is compared. For example, 2.6 suspected impairments of the environment, including aggravated impairments of the environment, per 100,000 persons were reported to the police in Finland in 2012. In Sweden, 16.0 principal environmental offences, including aggravated environmental offences, per 100,000 persons were reported in the same year (Sahramäki et al. 2015, pp. 46–47).

At this point, the so-called dark and grey figures of hidden crime should be separated. The dark figure refers to crimes that remain unknown to the authorities. The grey figure, on the other hand, refers

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<sup>1</sup> For more information on hidden crime in Finland, see Oikeuspoliittinen tutkimuslaitos (2014).



**Fig. 8.1** Suspected environmental crimes reported to the police in 2010–2014 in Finland

to crimes which come to authorities' knowledge, but do not show in the statistics (Comte 2006, p. 197). In Finland, the grey figure, or so-called grey area of environmental crime, is enabled and partly created by legislation which allows for significant discretion to be exercised by authorities and also allows for interpretation of the environmental crime (Nissinen 2003, p. 625). According to the Environmental Protection Act, Chapter 18, Section 188, environmental inspection authorities are required by law to report suspected environmental crimes to the police. However, according to the same section 'no notification needs to be made if the act can be considered minor in view of the circumstances and if the public interest does not require charges to be brought'. Such an open definition forces authorities to define what is considered to be minor and when action is required in the

public interest. It has become obvious that there is no unified way in which these are defined nationally (Finnish National Monitoring Group 2013; Sahramäki and Kankaanranta 2014b).

As the police have only limited resources and few measures to expose illicit environmental activities in Finland, most of the suspected environmental crimes are detected during supervision activities by environmental inspection authorities, or by crime reports from the public. For example, over half of the suspected impairments of the environment and the aggravated impairments of the environment are reported to the police by environmental inspection authorities (Ministry of the Environment 2015, p. 9; Finnish National Monitoring Group 2014, p. 8).

In Finland, certain environmental permits are given and supervised at the community level, whereas others are managed at the regional level. In this study, environmental inspection authority refers to both community and regional authorities. The most significant legislation guiding supervision and environmental protection activities is the Environmental Protection Act, although environmental crimes are criminalized in the Criminal Code. The police are the pre-trial investigation authority in crime investigations according to Chapter 48 of the Criminal Code mentioned above.

Environmental crime has received considerable public attention recently in Finland. Ongoing discussion on the prevention of environmental crime has been strongly associated with discussion on cooperation between different authorities. The focus has been on enhancing the capabilities of the authorities to expose environmental offenders. In the Finnish policy documents and authority reports, it has been assumed that prevention is achieved through better detection rates (National Bureau of Investigation 2007; Finnish National Monitoring Group 2015, 6). To this end, in 2014, the Finnish Ministry of the Interior and Ministry of the Environment established a joint collaboration group to create a policy proposal for a strategy and action plan for the prevention of environmental crime. Representatives from different authorities as well as a representative from non-governmental organizations were invited to join the group. The Ministries stated clearly that the task of the group was to identify major challenges in the collaboration between authorities in the prevention of environmental crime. As a result, the group published a

proposal for the strategy and procedure for prevention of environmental crime in the spring of 2015 (Ministry of the Environment 2015).

The strategy proposal includes seven strategic goals, which are divided into several points for action. Solutions for prevention of environmental crime are focused strongly on improving cooperation between authorities. In the strategy proposal, networks of several authorities are defined as a desirable form for cooperation. The strategic goal is to enhance effective use of resources and to share knowledge between authorities. Networks are proposed to be formed at the national as well as the regional level (Ministry of the Environment 2015, p. 12). In addition, the need for more training is highlighted. The goal is to promote the knowledge and professional competence of the office-holders. Further, more instructions on how to interpret and implement the legislation are proposed for enforcement agencies, as well as instructions to the private sector regarding their legal responsibilities (Ministry of the Environment 2015).

This strategy has been awaited for some time. The Finnish National Monitoring Group, a multiagency working group established in 1997, has continuously in its annual reports emphasized the need for a strategy for prevention of environmental crime. In addition, in public discussion, Finland has been compared to Sweden, where the strategy for prevention of environmental crime was published already in 2010 (Rikspolisstyrelsen and Åklagarmyndigheten 2010).<sup>2</sup>

## Professional Construction of Environmental Crime

### Professional Frames

It is widely acknowledged that environmental harm is largely a social construction which refers to defining through cultural lenses what

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<sup>2</sup>In Sweden, the strategy was seen as a useful policy document to promote the prevention of environmental crime and the enforcement of environmental legislation. For more information on the implementation of the strategy see Sahramäki et al. (2015); Rikspolisstyrelsen (2013); Skagerö & Korsell (2006); Sahramäki & Kankaanranta (2014a).

is considered to be the problem requiring attention (White and Heckenberg 2014, pp. 60, 64; White 2008, p. 33). While acknowledging the broader social construction of environmental harm, the main focus in this chapter is on how police officers and environmental inspection authorities socially construct and approach the enforcement of environmental crime legislation from their own professional frames.

For this purpose, frames are defined as beliefs, perceptions, and appreciations which underlie different policy positions (Schön and Rein 1994, p. 23). For example, frames of professional actors include definitions of the problem as well as preferred solutions to them (Grin and van de Graaf 1996, p. 77). Furthermore, interests are prioritized through these cognitive and moral maps. As such, frames have a significant effect on which policies are seen as appropriate (Kang and Jang 2013, p. 51). For example, in the context of the global warming discourse, it is implied that negative impacts of global climate change are greater than the risks associated with nuclear power (Pralle and Boscarino 2011, p. 323).

To be more precise, frames draw our attention to limited interpretation of selected facts, at the same time leading us to dismiss others. In general, the morals and values of different actors affect what is seen as acceptable and what is not. For example, our view of the environment is constructed through cultural acclimatization acculturation (Vaughan 2004, p. 8).

Following this rationale, frames are also referred to as normative-prescriptive stories through which stability and structure are created. Moreover, in the course of these stories, the phenomenon, such as waste trafficking or wildlife trade, is named as a problem and the appropriate course of action is created (Laws and Rein 2003, p. 174). This is illustrated by the tendency not to regard illegal dumping as an environmental crime, and corporate offences in general tend to be categorized as non-criminal (Crofts et al. 2010, p. 5). As such, framing as an act includes 'paying selective attention to partial characteristics or a policy problem and naming them according to the goal, context and binding conditions of a policy issue' (Kang and Jang 2013, p. 51).

## Professional Identity

In addition to the professional frame, the concept of professional identity is helpful. Professional identity is here defined as shared understanding of the rules, beliefs, and habits of a particular group of professionals and representatives of a certain profession (Wackerhausen 2009, pp. 460–461). Thus, professional identity may be viewed as a process through which an individual creates a sense of belonging to a certain professional group (Wiles 2013, p. 864).

Furthermore, broader societal and community context is linked to the organization, or in this case, to the group of professionals working in the police administration and environmental administration, with their institutional values and generally accepted meanings (Crank 2003, p. 204). As such, it is essential to include broader societal aspects and developments in the analysis. As the focus of this chapter is on law enforcement agencies, the broader context involves policies and policy proposals as well as legislation.

Professional identity also includes the way of speaking, questioning, understanding, explaining, seeing, and valuing, which is essential to our approach (Wackerhausen 2009, pp. 460–461). These linguistic resources together with professional practices mutually constitute each other. They provide ‘a view of what it means to be a professional as well as a specific way to act in the world’ (Hicks 2014, p. 252). Moreover, professions create their own professional territories, which form well-defined areas of work and fields of activity. These may include, for example, ethical rules and legal responsibilities (Bihari Axelsson and Axelsson 2009, pp. 321–322).

## Data and Method

Semi-structured interviews were conducted with 8 police officers and 12 representatives from environmental protection agencies in Finland in 2013. During the interviews, the main issues and challenges in the cooperation between authorities in the prevention of environmental crime were discussed. As the purpose of the interviews was to allow the authori-

ties to discuss and construct the topic freely, the interviewer did not have a list of questions. Instead, the interviews were divided into five themes: operation models, forms of cooperation, information sharing, resources and professional expertise, and weaknesses and strengths of the authority in question. The themes were based on previous literature and discussions on the topic with the authorities on other occasions.

However, interviews were not limited to these broad themes. On the contrary, interviewees were encouraged to discuss and emphasize the topics they considered to be the main issues in the prevention of environmental crime. As such, the method enabled police officers and environmental protection authorities to explain and to question issues related to prevention and investigation of environmental crime as well as to discuss the values associated with the topic. Nevertheless, the interviewer made sure that all the five themes were covered during the interview. Interviews were conducted in the work premises of the interviewee and they lasted approximately 1 hour 30 minutes.

The transcripts of the interviews were analyzed with a discursive approach. The transcripts were read several times in order to identify the discourses. For the purposes of this study, discourse was defined as a set of meanings and representations through which issues are represented in a certain light and they produce a particular version of events (Burr 1995, p. 48). Subsequently, any social problem, such as causing environmental harm, is given particular shape and meaning, such as environmental crime, in the discourse. Thus, actors such as police officers and environmental inspection authorities attempting to deal with these problems will also shape the problem definitions and policies (Bacchi 1999, pp. 199–200).

During the analysis, several recurrent themes and concepts as well as linkages were recognized. The purpose was to identify patterns and recurring phrases and ideas across the whole sample instead of analyzing the interviews one by one. As such, interviews were not viewed as individual narratives (Wiles 2013, p. 856).

The verbal input of the interviewer was read as part of the transcripts. As the interviewer was part of the process, her possible effect on the content of the interview should not be ignored. However, the focus of the analysis was on the explanations, understandings, terms



used, and justifications given by the interviewees. As such, social interaction between the interviewer and the interviewee was not included in the analysis.

## Findings

### Police Officers' Social Constructions of Environmental Crime

#### Linking Environmental and Economic Crime

During the interviews, police officers highlighted the connection between environmental and economic crimes. *'Economic aspects are involved. If I remember correctly, the National Police Board has also said that environmental crime is a component of economic crime'* (Police Officer 4). Police officers referred to confiscating economic benefit and saw the motivation behind environmental crime to be economic. As such, attention was not paid, for example, to ignorance or lack of knowledge concerning the environmental protection requirements given by industries as a reason for committing environmental offences.

The link between environmental and economic crime was also demonstrated by the concepts used to explain environmental crime and the response of law enforcement agencies to the crime. For example, environmental crime was referred to as a by-product of economic crime. One police officer explained that environmental crime always includes an economic aspect. *'As a rule, there is an economic crime case behind environmental crime: environmental crime is committed exactly in order to save on something'* (Police Officer 7).

Environmental crime investigation was also connected to economic crime investigation in a very practical way: *'For example, we can confiscate firearms when we start investigating an economic crime. And as environmental crime is categorized as a part of economic crime, we can do the same with them'* (Police Officer 2). It may also be argued that economic aspects have an effect on the concrete investigation of environmental crime. This is



illustrated by investigating impairments of the environment and aggravated impairments of the environment in the economic crime investigation units in Finland.

### **Economics of environmental crime investigation**

Overall emphasis on economic aspects by police officers also echoes the organization culture of law enforcement agencies. Managing by results has gained strong standing in public organizations due to the adoption of new public management during the past 20 years. Many of the indicators which are used as a basis for management are financial. For example, one of the results measured in police departments is how much criminally gained benefit is collected back from criminals. Furthermore, in the strategic proposal for prevention of environmental crime, ministries are suggested to be responsible for overseeing the prevention and investigation efforts. As such, specific goals are to be set in place and the attainment of these desired objectives is to be supervised by ministries (Ministry of the Environment 2015).

As one police officer noted, before the police start an investigation in the economic investigation units, they calculate how much criminally gained benefit may be collected back from that particular case: *'In addition [confiscation of criminally gained benefit] is one of our performance indicators. So of course we and of course our prosecutors also pay attention to this. In very small cases we won't move forward; if we are talking about cases of a few hundred or even thousand euros, we won't move forward in the same way. But if we are talking about just a little bit bigger cases, then of course we will determine what the criminally gained benefit was'* (Police Officer 8).

As such, the starting point is that you need to make money in order to get money. *'But this is understandable, since money is used as a measure when deciding on the budget which the unit will get for next year'* (Police Officer 2). In relation to scarce resources, it was also described that *'environmental crimes are probably the ones which will be cut off from investigation'* (Police Officer 1). The emphasis on confiscating criminally gained benefit directs the work of police units, for example, when allocating

resources. *It appears that the idea is the same as it is behind traffic accidents, which really are accidents. Why don't we have for example investigators in the insurance companies? But we don't have, it's the police who investigate those. It has never been questioned that resources are allocated to these [investigations]. But intentional impairment of the environment, this should be handled through administrative authorities.—I don't understand this'* (Police Officer 5).

When analyzing these statements further, it appears that policies highlight environmental law enforcement in cases where significant confiscation of criminally gained benefit is possible. If these policies are seen as acceptable and valued in the professional frame of the police, the economically less important cases might be omitted from environmental law enforcement.

## **Environmental Values**

In addition to the discourse linking economic aspects and environmental crime investigation together, the discursive repertoires of police officers included softer values such as highlighting the need for environmental protection. It appears that the economic frame did not affect the interviewees' personal views on environmental protection.

For example, environment was described as shared environment and as a value that needed to be protected for mutual benefit. As one police officer noted: *'Now I have softer values, I mean I think that no matter what, we need to make sure our environment stays clean'* (Police Officer 1). Furthermore, the environment was valued as something that needs to be the focus of police work in the future: *'If I were the Chief Director of the Police Force I would invest in environmental [crime investigation]—economic crime investigation is beneficial to the state and to the business but keeping the environment clean for everyone is a politically and even religiously important matter'* (Police Officer 7).

Furthermore, as another officer emphasized, environmental crime investigation does not currently receive the attention it should deserve in the police organization. *'Our investment in environmental crime abatement is clearly not on the level it should be. Environmental crime*

*is on the side of economic crime investigation units. Of course confiscation of criminally gained benefit is often related to environmental crime investigation but it [environmental crime investigation] is not the mainstream we are dealing with. This means that even when an environmental crime case is investigated it does not get the attention it should get'* (Police Officer 8).

On the other hand, there appears to be a lack of willingness at some level to investigate environmental crime. For example, police officers referred to environmental crime investigation as a 'non-sexy field for police officers:' *'This environmental crime investigation is not the sexiest field to work with according to recently graduated police officers'* (Police Officer 4). One officer pointed out that environmental crimes are even more challenging to investigate than economic crimes, and as such no one is too keen to take them on. Another officer added: *'I assume there are many small environmental crime cases. The investigations are not handled because of the resources—resources are in a way used as an excuse. A basic crime investigator, who has lots of cases to work with, won't be too excited about it [environmental crime investigation]'* (Police Officer 7).

Following these observations on environmental values and willingness to investigate environmental crime, it appears that even though a police officer's professional identity appears to be based on harder values, such as economic interests, softer values such as environmental protection also appear to be important at a personal level. *'Well of course, the younger staff takes these things seriously. I would say that maybe these attitude problems we have been having will disappear in the next few years'* (Police Officer 6). As such, combining these softer values with the professional identity and organization of the police is still challenging. *'It's the responsibility of each officer to decide whether some other case is more important to investigate than an environmental crime case. I think the environmental case will remain last. They don't consider it to be that serious, and it is not in fact as serious as crimes against human life and health, as one must remember'* (Police Officer 1).

An individual police officer's ability and expertise to investigate environmental crime appears to be limited. Several officers pointed out that environmental crime investigation requires specialized knowledge

different from the skills needed in economic crime investigation. *'I suspect that there's [at the local level] a lack of know-how. In these bigger economic crime investigation units they may have expertise and they certainly have intelligence'* (Police Officer 6). As one officer pointed out, it is challenging for the investigating authority to picture a crime of omission instead of a crime of commission. *'In these cases natural sciences and samples are mixed, and then when we start to piece together the concrete hazard, the benefit and damage... and also the essential elements of crime are difficult—everything is difficult'* (Police Officer 5). Besides, typical to the professional culture of police is to require unequivocal proof of crime. *'Police and prosecuting authorities always try to determine what is the concrete crime and what is the benefit, and one always wants the numbers and figures so that it is easier to show on paper what has actually happened'* (Police Officer 3).

### **Assumption of Hidden Crime**

According to the police officers, more environmental crimes exist than are reported to the police, but crimes remain hidden because of the environmental inspection authority. *'The problem is not the content of the report of an offence; the problem is that the offences are not reported to the police. That's the point. OK, the reports include the descriptions of acts and so on, and the police understand them, so that is not the point; the point is that they don't do the reports'* (Police Officer 5). Their explanations and options for uncovering the hidden environmental crime were constructed around criticism and assumptions about environmental inspection authorities. *'Sometimes I have been wondering about the toothlessness of environmental inspection authorities, seriously, how little they can do in reality, and how much they allow [the companies] to do. It's a matter of how far they allow things to go before they actually do anything'* (Police Officer 2). Another officer referred to environmental inspection authorities as using positive thinking in controlling environmental permits: *'The way of thinking [in the environmental inspection authorities] is very positive, I should say'* (Police Officer 5).

Environmental inspection authorities were described as being afraid of their own administration as well as of the police, being unable to control corporations working under environmental licenses and thus being unable to fulfill their official duties. As one police officer summarized: *'It is obvious that official duties are not fulfilled, because the [environmental crime] statistics show almost zero in the long run'* (Police Officer 5).

Explanations of the assumed lack in crime reporting also included views on the challenges at the municipal level. *'The municipal administrations are quite difficult as they [environmental inspection authorities] have the municipality as an employer, or the politicians in a way, and the municipal council. And the politicians are connected with businesses and that might mean they have issues with reporting the offence, about whether it can be investigated and what can be done. Their situation might be very difficult, their hands may be tied'* (Police Officer 3). On the other hand one police officer pondered the willingness of environmental authorities to report illegal activities to the police through bias: *'They are doing their job at the municipal environmental inspection authorities without a doubt. However, I don't know why, or maybe it's part of the general bias, but at some point [motivation to handle environmental crime suspicion] wanes. And it [suspicion of environmental crime] doesn't reach actors who would actually want to take things further'* (Police Officer 4).

Police officers had partly contradicting assumptions. First, it was explained that environmental inspection authorities should not report all incidents of environmental harm to the police. For example, one police officer pointed out that assumed illegal activities are sometimes reported to the police based on false pretenses. *'They [environmental inspection authorities] have their own pressures. They are trying get rid of their own pressures by pushing the cases to the next level [police], that will take care of it'* (Police Officer 7). Furthermore, not all environmental harm or illegal activities were considered to be criminal and to be convictable under criminal law. According to one officer, the police do not have the resources to investigate all suspected and reported environmental crimes. As such, it is more reasonable to use administrative sanctions issued by environmental inspectors to punish actors for causing environmental harm.

On the other hand, environmental inspection authorities were not themselves expected to evaluate when environmental harm is a crime and when it is not, as well as whether or not it should be reported to the police. This somewhat contradicts the previous point made about unnecessary crime reporting. It was explained that it is the professional expertise of the police—not of the environmental inspectors—to evaluate and to investigate whether a crime has actually occurred. *I don't understand why intentional cases have to be handled by administrative authorities. I mean in these [environmental crime] cases the prosecution rests with the prosecuting authorities and the cases remain unreported and uninvestigated*' (Police Officer 5).

## **Environmental Inspection Authorities' Social Constructions of Environmental Crime**

### **Financial Aspects of Environmental Offences**

It appears that economic framing also prevails in the perceptions of the environmental inspection authorities regarding environmental enforcement. *Maybe, these suspicious cases have opened up a little bit more—during recent years we have been thinking more from the point of view that these are cases that one really needs to look into and that there might often be economic crime involved. Maybe this is something we have been thinking more about lately*' (Environmental Inspection Authority J). For example, environmental inspection authorities explained the need to report the suspected environmental crimes to the police by the need to punish the economic criminals. This is noteworthy, since criminally gained economic benefit is not mentioned in the legislation as one of the justifications for convicting for environmental crime. Moreover, the supervision of economic benefit gained by a corporation working with environmental licenses is not mentioned in the legislation as a duty of environmental inspection authorities.

The need to concentrate more on criminally gained benefit when considering environmental harm was also evident in the interviews with environmental inspection authorities. *Of course the environmental interest*



*comes first, but the potential financial gain which might be part of the suspected [illegal] activity gives lots of support to these suspicions' (Environmental Inspection Authority D). For example, one environmental inspector highlighted that 'now we have started to think that there might be economic crime behind the impairment of the environment. And then we should report the suspected environmental crime to the police' (Environmental Inspection Authority B).*

Environmental crime was framed from the economic point of view as something that needs to be handled in order to prevent the criminals from getting financial benefit from their wrongdoings. *'The environmental inspectors start to understand that if waste is dumped somewhere, for the company it is a way to save money, so it is economic crime. Before it was seen just as an action against the waste act, littering and some other act against the legislation' (Environmental Inspection Authority C).*

Economic framing of environmental crime should be analyzed against the background of wider developments in society and in the organization in question. Prevention of environmental crime is embedded in the performance management discourse, which reflects the overall atmosphere in a society highly focused on results. Furthermore, the fight against economic crime and the shadow economy has been one of the Finnish government's flagship policies in recent years. In addition, the need for more efficient authority response to environmental crime was mentioned in the Action Plan to Reduce Economic Crime and the Shadow Economy for the years 2012–2015. The Action Plan states that economic recession may increase environmental crime. Illicit dumping of waste has also been taken as one of the examples of shadow economy in the public campaign against shadow economy.

On the other hand, competing with the economic framing was the environmental protection frame, according to which the shared environment needs to be protected from pollution. As such, combining economic benefit with environmental protection has an obvious contradiction regarding the professional identity of environmental protection authorities. This was aptly remarked by one environmental inspector: *'I understand that it [economic crime] is also there, but it has nothing to do with environmental crime in my opinion, if environmental crime is something against the environment' (Environmental Inspection Authority C).*

## Focus on Environmental Protection

Environmental inspection authorities made a clear distinction between criminal law enforcement and enforcement of nature conservation and environmental protection. They leaned on separating environmental protection legislation from the penal code, in which environmental crime is criminalized in Finland. *'For us the environment, permits and acting according to the legislation, and possibly the prevention and minimization of all environmental harm, these are the focus. And everything else is completely another thing, and we are not that interested about that'* (Environmental Inspection Authority B). In addition, another inspector separated penal thinking from the interpretation of environmental authorities: *'For me it was completely strange—how this penal thinking goes. So it doesn't have anything to do with the way the environmental inspection authority thinks things and interprets the legislation, that is something completely different'* (Environmental Inspection Authority I).

The work of environmental inspection authorities comprises mainly licensing and supervising of environmental permits on the basis of the Environmental Protection Act. In addition, environmental authorities provide guidance and support on environmental matters. *'You can see how seriously and even passionately the inspectors take reporting the suspected offence. And also how big an issue it is for the inspectors, especially the first report. I still remember my first one. It is a big thing, to take on such a radical measure as to accuse, suspect someone of a crime, it is a big thing'* (Environmental Inspection Authority A). Against this background, environmental enforcement is not based on finding the wrongdoers and punishing them. Environmental enforcement is framed as limiting the harm to the environment and ensuring its preservation.

Professional identity is based on shared understanding of representatives of a certain profession. During the interviews, environmental inspection authorities defined their professional identity on the basis of differences between them and the police: *'For example, if I think about my colleagues, some of them are humanists, naturalists and really soft and kind people, not at all tough. Police officers are given education on human*



*relations and their duties are to order and command. They have training to do that and the background is really different compared to the ones who have read biology at the university and are then thrown into the authoritative jobs'* (Environmental Inspection Authority H). Furthermore, when comparing to police work, one environmental inspector highlighted the differences between perceptions people have on these two professions: *'We are lacking authority. We don't have it. So the business actors can simply tell us where to get off. Everyone, even the small ones, can act freely, but they don't have the courage to do that to the police'* (Environmental Inspection Authority I).

## Crime Reporting

Environmental inspection authorities had different starting points for explaining the reporting of suspected crime to the police than police officers, who highlighted the need for more crime reporting from the environmental inspectors. Characteristically, during the interviews, environmental inspection authorities referred to an 'illegal state' instead of using the concept of environmental crime. To environmental protection authorities, an illegal state did not mean that the corporation violating its environmental license is actually committing environmental crime. *'This type of more or less illegal state, I believe the inspectors notice it and also do something about it, demand an explanation why it has happened and also assurances that it won't happen again. Maybe that's the most common way. And if the offence is bigger, then they [inspectors] maybe ask help from a lawyer. And then maybe they'll give an order or administrative compulsion, and maybe then report to the police'* (Environmental Inspection Authority A).

As such, an illegal state may be corrected without starting a criminal investigation and reporting the suspected environmental crime to the pre-trial investigation authority. *'But my personal threshold to report [illegal activity] to the police is very, very high'* (Environmental Inspection Authority E). This was reflected by another environmental inspector authority by referring to getting things done in their own way: *'We are managing, and I think, isn't it the main goal that we as the environmental*

*inspection authority try to get things done in our own ways and only if that doesn't work, or we don't know the offender, are we in touch with the police'* (Environmental Inspection Authority F).

It should be noted that environmental protection authorities have administrative sanctions and other tools, such as reminders and written orders, at their disposal. As one environmental inspector said: *'I personally have been against reporting to the police, thinking "not yet" or "do we really need to", "isn't this something that we can handle through supervision"'* (Environmental Inspection Authority E). Another noted: *'we have managed to get things done on our own' and 'it's not our first step to contact the police'* (Environmental Inspection Authority F).

At the same time, environmental inspection authorities emphasized that the 'roughest crimes' are always reported to the police. *'We have somehow felt that it [reporting the suspected offence to the police] doesn't lead anywhere. As such, we have tried to choose the worst cases for reporting so that the offenders that according to our sense of justice should be convicted, get convicted'* (Environmental Inspection Authority K). According to one environmental inspector, *'if there is clear evidence that the environment has been harmed, then I'll report to the police about the incident'*.

However, if only a minor crime is suspected, it is not necessarily reported to the police. As such, even if crime is suspected this is not necessarily seen as something that would need to be convicted under criminal law. *'Well, I don't think I would very easily report illegal activities regarding business operations, if I weren't absolutely sure'* (Environmental Inspection Authority F). As one environmental inspector noted: *'If the lawbreaker is cooperative, we haven't reported to the police about the incident. We have just restored the environment and then let it go'* (Environmental Inspection Authority C). Another said: *'if the lawbreaker disregards our concerns and doesn't want to listen, we report to the police easier'* (Environmental Inspection Authority I). Further, in environmental enforcement, criminal procedure is not essential; more emphasis is given to restoring the environment after harm is caused.

## Discussion

In this chapter, police officers' and environmental inspection authorities' constructions of environmental crime and environmental enforcement were studied. Effective environmental enforcement was seen as an important part of crime prevention. As such the purpose of the chapter was (i) to identify the ways in which enforcement agencies socially construct their perception of environmental crime and (ii) to discuss how their constructions impact on environmental enforcement.

Economic discourse was prevailing with both authorities. Accordingly, environmental crime was framed largely as a part of economic crime. Significant attention was paid to criminally gained benefit. Environmental enforcement which included confiscating criminally gained benefit was seen as an appropriate policy. As such, the purpose of environmental enforcement in the constructions was to prevent criminals from gaining financial benefit. With reference to this, if the financial benefits from environmental crime could be minimized, the motivation and initiative to commit environmental crime would also be minimal. For this reason, the view on effective environmental enforcement was based on costs and benefits calculations—a person will commit a crime if the expected benefits of the crime exceed the expected costs (Emery and Watson 2004, p. 744; Becker 1968, s. 176).

Economic discourse directs attention on how the problem is understood and what is valued. What is surprising is that in the police officers' interviews there were clear discursive repertoires which included the notion of environmental values and the need to protect the environment in general. However, these values were still secondary compared to economic interests and the need to collect criminally gained economic benefit back from criminals. Environmental inspection agencies made a clear distinction between criminal law enforcement and enforcement of environmental protection. On the one hand, environmental enforcement should focus on punishing economic criminals, while on the other hand correcting an illegal state in order to protect the environment.

When analyzing the professional constructions of environmental crime, the question of what is actually harmed should be noted. This

topic may be approached by asking what is left unquestioned in the constructions of these professionals. As mentioned before, framing leads us to internalize certain facts and exclude others. Environmental inspection authorities questioned whether causing environmental harm is a crime at all, if no evident economic benefit was gained. Police officers did not question whether the focus of environmental crime investigation should be economic benefit or not. As such, motivations or reasons for environmental crime other than economic ones were excluded from the frame.

What also remained unquestioned in these discursive repertoires was the need for more intelligence work by the police. Environmental harm was understood as something that should be handled outside the police organization, as a responsibility of the environmental protection authorities. One explanation for this finding could be found within the professional identity of the police. Wackerhausen (2009, p. 467) calls this a strike back of the professional identity's immune system. It follows that professionals with a strong immune system, meaning a strong sense of professional identity, with resistance to non-orthodox ideas and perspectives, may experience the need to protect their own perceptions and ways of explaining, understanding, and justifying behavior. For example, environmental protection and nature preservation have not been at the heart of police work traditionally. Nevertheless, the environmental values were evident in police officers' talk. This suggests that professional identity might be opening up to new values and perspectives, which might provide new opportunities for productive cooperation between police and environmental protection authorities in the future.

In addition to intelligence, the limits of the current legislation were not questioned. Police officers as well as environmental protection authorities defined environmental harm from a legalistic perspective. Whether or not other forms of environmental harm than the ones mentioned in legislation should be defined as environmental crime was left unproblematic by all the interviewees.

Another important notion was that the environmental inspectors' discursive repertoire included both 'illegal state' and 'environmental harm', which did not necessarily mean that an environmental crime has occurred. These findings are consistent with other studies suggesting that administrative authorities tend to emphasize cooperation with cor-

porations and voluntary compliance rather than criminal investigation (Faure and Visser 2004, p. 67; du Réés 2001; Skagerö and Korsell 2006; Sahramäki and Kankaanranta 2014a,b).

The police officers' discursive repertoires construct professional identity as reactive organization rather than proactivity in the prevention and investigation of environmental crime. It follows that unveiling of environmental crime is not valued as a duty of the police—it is the responsibility of environmental inspection authorities. When this understanding is compared with the understanding of environmental inspection authorities of 'illegal state' rather than 'environmental crime', it may contribute to the lack of a coherent authority response which is also mentioned in the annual report of the Finnish National Monitoring Group for environmental crime (2013). This affects the coherency of enforcement chain, as different professionals approach environmental enforcement from different premises. In order to overcome these differences, construction of a common understanding is essential. These findings are also supported by a study on collaboration between police and tax inspectors, in which it was suggested that collaboration is a learning challenge which authorities may meet with reflective conversation (Puonti 2003, 2004).

As the boundaries given in the legislation between causing environmental harm and committing environmental crime are unclear, this framing affects where the presumed limits of responsibilities are between different authorities. Defining the causing of environmental harm as 'illegal state' by the environmental inspection authorities is in many ways contradictory to the reason to doubt principles of the pre-trial investigation authorities. This again may weaken the enforcement of environmental legislation and create opportunities for environmental crime offenders. Concerns related to legislation were also presented by Situ and Emmons (2000, pp. 65–66), who argued that the weakness of environmental law enforcement may actually encourage corporate environmental crime. In the Finnish case, the authorities have partially contradicting ways of understanding the concept of environmental crime.

These results need to be interpreted with caution. If the discursive repertoires had been analyzed from a different framework, the findings may have had a different emphasis. As the professional identity perspective has directed attention to the ways representatives of different professions

speak, question, value, understand, and explain social problems and issues, the role of the legislator and the distribution of power in society affecting the concept of environmental harm are not problematized. It should also be noted that the data used in the analysis is limited. However, taking into account the low number of professionals working in the prevention and investigation of environmental crime in Finland, the interviewees probably included some of the key actors in the field.

Further research should be carried out to investigate the grey area of environmental crime which is affected by the contradicting constructions of environmental crime. The term 'grey area' refers to illegal activities which come to the attention of the environmental inspection authorities but are not reported to the police (Nissinen 2003, p. 625). Thus, the environmental inspection authorities may be aware of environmental violations, and may issue administrative sanctions, but these violations are not convicted or investigated as environmental crimes. Discussion of this so-called grey area of environmental crime is not limited to Finland, as authorities are also facing similar challenges in other countries (see Skagerö and Korsell 2006). It also relates to the broader discussion of environmental harm: what is considered to be harmful enough to be convicted as environmental crime?

## Conclusion

This study has shown that there are several obstacles to be removed before efficient environmental enforcement may be achieved. Economic discourse within the enforcement bodies emphasizes economic values such as confiscating criminally gained financial benefit. This indicates that causing environmental harm where less financial aspects are involved may not be seen as environmental crime in either enforcement agency. As such, these suspected environmental offences may not be efficiently dealt with, which again may diminish preventative aspects of enforcement.

The contradicting discourses regarding crime reporting also affect the effectiveness of environmental enforcement. Environmental inspection authorities do not consider it necessary to report illegal activities to the police for pre-trial investigation, whereas police officers see this as an

essential part of enforcement. There is an obvious lack of joint understanding, which may lead to gaps in environmental enforcement. These gaps may in turn create opportunities for criminal activities.

It should also be noted that whereas discourses affect the practices, practices also have an influence on the discourses. Consequently, when developing authority response to environmental crime it should be remembered that understanding, practices, operation models, and values often go hand in hand.

## References

- Aakkula, T. (2001). *Ympäristöririkokset alueellisten ympäristökeskusten käsittelyssä* [Supervision of environmental crime in regional environmental inspection authorities]. *Suomen ympäristökeskuksen moniste 222* Helsinki: Ympäristökeskus.
- Ahonen, T., Kerppilä, L., & Pirjatanniemi, E. (2003). 'Ilmoittaako vai eikö? Arvioita kunnan ympäristöviranomaisen ilmoituskynnyksestä ympäristörikosjutuissa [Report or not to report? Evaluation of crime reporting by environmental inspection authorities]. *Oikeus*, 32(4), 359–375.
- Bacchi, C. L. (1999). *Women, policy and politics. The construction of policy problems*. London: SAGE Publications.
- Becker, G. S. (1968). Crime and punishment: An economic approach. *Journal of Political Economy*, 76, 169–217.
- Bihari Axelsson, S., & Axelsson, R. (2009). From territoriality to altruism in interprofessional collaboration and leadership. *Journal of Interprofessional Care*, 23(4), 320–330.
- Burr, V. (1995). *An introduction to social constructionism*. London: Routledge.
- Comte, F. (2006). Environmental crime and the police in Europe: A panorama and possible paths for future action. *European Energy and Environmental Law Review*, 15, 190–231.
- Crank, J. P. (2003). Institutional theory of police: A review of the state of the art. *Policing: An International Journal of Police Strategies & Management*, 26(2), 186–207.
- Crofts, P., Morris, T., Wells, K., & Powell, A. (2010). Illegal dumping and crime prevention: A case study of Ash Road, Liverpool Council. *The Journal of Law and Social Justice*, 5, 1–23.



- du Rées, H. (2001). Can criminal law protect the environment? *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 2, 109–126.
- Emery, A., & Watson, M. (2004). Organizations and environmental crime: Legal and economic perspectives. *Managerial Auditing Journal*, 19, 741–759.
- Faure, M. G., & Visser, M. (2004). Law and economics of environmental crime. In H. Sjögren & G. Skogh (Eds.), *New perspectives on economic crime* (pp. 57–75). Cheltenham: Edward Elgar.
- Finnish National Monitoring Group. (2013). *Ympäristörikoskatsaus vuodelta 2012* [Environmental crime in 2012]. Helsinki: Poliisihallitus.
- Finnish National Monitoring Group. (2014). *Ympäristörikoskatsaus vuodelta 2013* [Environmental Offences in Finland 2012]. Helsinki: Poliisihallitus.
- Finnish National Monitoring Group. (2015). *Ympäristörikoskatsaus vuodelta 2014* [Environmental crime in 2012]. Helsinki: Poliisihallitus.
- Gray, B. (2004). Strong opposition: Frame-based resistance to collaboration. *Journal of Community & Applied Social Psychology*, 14, 166–176.
- Grin, J., & van de Graaf, H. (1996). Technology, Assessment as Learning. *Science, Technology, & Human Values*, 21(1), 72–99.
- Hicks, D. (2014). The construction of librarians' professional identities: A discourse analysis. *The Canadian Journal of Information and Library Science*, 38(4), 251–270.
- Kang, M. and Jang, J. (2013). 'NIMBY or NIABY? Who defines a policy problem and why: Analysis of framing in radioactive waste disposal facility placement in South Korea'. *Asia Pacific Viewpoint*, 54(1), 50–60.
- Koschmann, M. A. (2012). The communicative constitution of collective identity in interorganizational collaboration. *Management Communication Quarterly*, 27(1), 61–89.
- Laws, D., and Rein, M. (2003). Reframing practice. In M. Hajer & H. Wagenaar (Eds.), *Deliberative Policy Analysis. Understanding Governance in the Network Society* (pp. 172–206). Cambridge: Cambridge University Press.
- Ministry of the Environment. (2015). *Ympäristörikostorjunnan strategia ja toimenpideohjelma. Yhteistyöryhmän ehdotus* [Strategy and action plan for prevention of environmental crime]. *Ympäristöministeriön raportteja 16* Helsinki: Ympäristöministeriö.
- National Bureau of Investigation. (2007). *LOKKI-projekti. Loppuraportti* [Project LOKKI. Final report]. Vantaa: Keskusrikospoliisi.
- Nissinen, M. (2003). *Ympäristörikoksista käytännössä* [Environmental crimes and the practice]. *Defensor Legis*, 4, 620–639.
- Oikeuspoliittinen tutkimuslaitos. (2014). *Rikollisuustilanne 2013. Rikollisuus ja seuraamusjärjestelmä tilastojen valossa* [Crime and criminal justice in Finland]. Helsinki: Oikeuspoliittinen tutkimuslaitos.



- Pralle, S., & Boscarino, J. (2011). Framing trade-offs: The politics of nuclear power and wind energy in the age of global climate change. *Review of Policy Research*, 28(4), 323–346.
- Puonti, A. (2003). Collaboration as a learning challenge: Constructing a common understanding between police officers and tax inspectors. *Police Practice and Research: An International Journal*, 4(2), 131–147.
- Puonti, A. (2004). Tools for collaboration: Using and designing tools in interorganizational economic-crime investigation. *Mind, Culture, and Activity*, 11(2), 133–152.
- Rikspolisstyrelsen. (2013). *Polismyndigheternas hantering av miljöbrott. Tillsynsrapport 2013:6* [Processing of environmental crime in the Police. Monitoring report 2013:6]. Stockholm: Rikspolisstyrelsen.
- Rikspolisstyrelsen and Åklagarmyndigheten. (2010). *Strategier mot miljöbrott. Ett samarbetsprojekt mellan Rikspolisstyrelsen och Riksenheten för miljö- och arbetsmiljömål*. Stockholm: Rikspolisstyrelsen/Åklagarmyndigheten.
- Sahramäki, I. and Kankaanranta, T. (2014a). *Vihreämpää rajan toisella puolella? Vertaileva tutkimus ympäristörikollisuuden torjunnasta ja tutkinnasta Suomessa ja Ruotsissa* [Greener across the border? Comparative study on prevention and investigation of environmental crime in Finland and Sweden]. Tampere: Police University College.
- Sahramäki, I. and Kankaanranta, T. (2014b). *Ympäristörikollisuuden torjunta ja valvonta Suomessa—kohti vihreämpää viranomaisyhteistyötä?* [Prevention and surveillance of environmental crimes in Finland—Towards greener cooperation between authorities?]. Tampere: Police University College.
- Sahramäki, I., Korsell, L., & Kankaanranta, T. (2015). Prevention of environmental crime through enforcement—Finland and Sweden compared. *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 16(1), 41–59.
- Schön, D., & Rein, M. (1994). *Frame reflection. Toward the resolution of intractable policy controversies*. New York: BasicBooks.
- Sharma, A., & Kearins, K. (2011). Interorganizational collaboration for regional sustainability: What happens when organizational representatives come together? *Journal of Applied Behavioural Science*, 47(2), 168–203.
- Situ, Y., & Emmons, D. (2000). *Environmental crime. The criminal justice system's role in protecting the environment*. Thousand Oaks, CA: Sage Publications.
- Skagerö, A. and Korsell, L. (2006) *Är vi Bra på miljöbrott? En snabbanalys* [Are we good in environmental crime? Short analysis]. Stockholm: Brottsförebyggande rådet.
- Vaughan, B. (2004). The greening and governance of crime control. *Criminal Justice*, 4, 5–28.

- Valtioneuvosto. (2012). Valtioneuvoston periaatepäätös hallituksen toimintao-  
hjelmaksi talousrikollisuuden ja harmaan talouden vähentämiseksi vuosina  
2012–2015. 19.1.2012. [Governmental Action Plan to Reduce Economic  
Crime and the Shadow Economy 2012–2015. 19.1.2012]. Helsinki:  
Valtioneuvosto.
- Wackerhausen, S. (2009). Collaboration, professional identity and reflection  
across boundaries. *Journal of Interprofessional Care*, 23(5), 455–473.
- White, R. (2008). *Crimes against nature. Environmental criminology and ecologi-  
cal justice*. Devon: Willan Publishing.
- White, R., & Heckenberg, D. (2014). *Green criminology. An introduction to the  
study of environmental harm*. Oxon: Routledge.
- Wiles, F. (2013). 'Not easily put into a box': Constructing professional identity.  
*Social Work Education*, 32(7), 854–866.

# PUBLICATION III

**Waste no money – reducing opportunities for illicit waste dumping**

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## Waste no money - reducing opportunities for illicit waste dumping

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**Abstract** Illicit waste dumping is a growing concern for Finnish authorities and also internationally. In this study the call for a more detailed analysis of waste crime was answered by identifying criminal opportunities for waste crime. The study also aimed at providing environmental law enforcement officials with suggestions for waste crime prevention. The theory of situational crime prevention and crime script analysis was applied to two cases of illicit waste dumping. The findings suggest that criminal opportunities are found on several levels. Subsequently, situational crime prevention activities around waste transportation, treatment and disposal are suggested. The study also extended the crime script analysis of waste crime by adding a possibility to gain economic benefit to the charting of the crime commission process. It can be assumed that economic benefit is one of the key motivations for waste crime – the opportunity to make money with illicit activity. By recognizing economic benefit as part of the crime script, crime prevention could be directed also to instruments that complicate and decrease possibilities for gaining profit illicitly. Therefore, it would be possible to reduce criminal opportunities and increase the possibility of getting caught.

### Introduction

Waste crime has received increasing public attention in recent years. Contamination of the groundwater, soil erosion, health risks, as well as toxins in the food chain are just a few of the harmful consequences of illicit activities. ([1], 5; [2], 208) Illicit dumping of waste causes damage for instance to natural, social and economic environments ([3], 7–9). Furthermore, several reports have highlighted the links between organized crime and illicit waste trafficking [4–6].

Previous studies have shown that the waste sector has several vulnerabilities that make it an attractive field for criminal activity [7–13]. These studies have emphasized

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that the majority of illicit activities occur alongside legal ones. A particular challenge is that waste is easily manipulated. For instance, hazardous waste is relatively easy to mix with non-hazardous waste and export across borders. Moreover, it has been acknowledged that criminal opportunities stem from existing market conditions: presumably a considerable black market exists, as waste disposal costs are relatively high in developed countries compared to lighter regulations in developing countries [14]. Moreover, profits from illicit waste management have been estimated to be three to four times lower compared to legal waste management [8].

While acknowledging the need for a broader analysis of harms in the field of green criminology ([15], 235), this study adopts a legalistic approach to criminology. As such, the study addresses the prevention of harms that are criminalized in legislation [16]. Environmental offences are criminalized in Chapter 48 of the Criminal Code of Finland (39/1889). These offences include impairment of the environment, aggravated impairment of the environment, environmental infraction and negligent impairment of the environment. In Chapter 44 of the Criminal Code, the transportation of dangerous goods offence relates also to offences surrounding waste. Around 400–450 suspicions of these offences mentioned above are reported to the police annually. However, the statistics do not reveal how many of these offences in reality have to do with illicit waste activities rather than other environment related illicit activities. Waste-related offences also include violations of the Waste Act (646/2011): over 200 violations are reported to authorities annually. Still, it has been assumed that the majority of environment-related crime remains hidden in Finland, compared to, for example, neighboring Sweden [17].

The increasing knowledge of harms caused by illicit waste activities has heightened the need for more effective crime prevention efforts. Research has focused on promoting environmental compliance (see [18], 180). While studies on compliance are essential, law enforcement agencies require advanced knowledge of the best opportunities and concrete stages at which authorities might detect and prevent criminal activities. The call for more a detailed analysis of waste crime was answered in this study by applying the theory of situational crime prevention to waste crime. The crime script analysis method was used to identify frames where criminal action might take place and as such provide authorities with knowledge on the points where crime prevention could take place ([19], 160; [18, 20]) This study examines crime prevention from an opportunity framework. Following this rationale, the focus of this study was on reducing opportunities for crime, instead of changing criminal motivation or analyzing the causes of criminality ([19], 153; [21], 1; [22]). As such the goal was to identify opportunities for waste crime commission. To be more precise, this study had two aims: identifying the opportunities for illicit waste dumping in Finland and providing practitioners in environmental law enforcement with tools for waste crime prevention.

The article is structured as follows. First, the situational crime prevention theory and opportunity framework regarding waste crime are introduced. Second, the data and its limitations are discussed, as well as the crime script analysis as a method. Third, the crime script analysis is applied to two case studies. Fourth, the opportunities for illicit waste dumping are discussed. Finally, conclusions regarding the practical implications are drawn.

## Situational crime prevention

Several criminological theories may be adapted when analyzing crime. Theories address for instance factors influencing the supply of criminal opportunities (routine activity theory), actions that potential victims can do to reduce their risk of crime (lifestyle theory) or the decision-making of the potential offender (rational choice perspective) [23, 24]. Consequently, crime prevention studies on environmental crime have suggested several strategies for the prevention of environmental crime, such as self-regulation [25], smart regulation [9], self-policing [26], as well as tailored enforcement [27].

Prevention efforts can be addressed through opportunity theories such as situational crime prevention [1, 10, 18]. Situational crime prevention is an integrated theory that combines criminal-centered and crime-centered frameworks. The criminal-centered aspect is based on the assumption of individual's rational choice [28]. If the offender behaves rationally, s(h)e tries to meet well-defined goals as well as possible. The potential criminal evaluates the conceivable costs and benefits of the crime before making a decision to engage in criminal activity. If the expected utility of the crime exceeds the utility what could possibly be gained by using time and other resources in a different way, a crime will be committed. Therefore, persons do not become criminals as a result of different motivation factors, but because their benefits and costs differ [29]. However, criminals may tend to underestimate the possible costs of crime, such as getting caught, but rather think primarily about positive consequences ([30], 28).

As the focus of situational crime prevention theory is also crime-specific, it is acknowledged that factors influencing the decision-making process vary significantly between different types of offences (see [28], 2; Willison and Backhouse [24], 407; [23]). It proposes strategies that increase the risk of committing a crime ([10], 1181). The immediate environment of the potential crime can be modified in such a way that committing a crime will be more difficult and risky. Perceived costs of crime will be increased by increasing the effort needed to commit a crime, or the probability of getting caught. In addition, if the anticipated benefits are lower, the net benefits of a crime will be lower ([31], 59–60; [25], 236; [32], 744).

In conclusion, situational crime prevention theory assumes that situational factors influence the criminal's impression about the net benefits, therefore having an impact on the criminal's rational choice and a subsequent behavior. When the opportunities for crimes are limited, the likelihood of a criminal act is less ([23, 28], 3).

## Opportunity framework

As presented above, according to situational crime prevention theory, a crime is committed if the rewards are considered to outweigh, for example, the risk of detection and punishment. As Huisman and van Erp [10] concluded

*“opportunity structure is conducive to environmental crime in many ways: most offences take little effort, chances of detection are low, rationalizations are easily found and saving compliance costs is an attractive reward of non-compliance.”*

Criminal opportunities may have several characteristics [10, 23]. In this study, four broad characteristics of opportunities for waste crime — illicit waste dumping to be more precise — are identified.

First, subjective opportunity may be created by a corporation's crime-facilitating operational culture. Corporate environmental crime is usually embedded in corporate practices and committed in order to advance corporate goals ([16], 46). From a broader perspective, corporate crime is a subtype of white-collar crime ([25], 232). Corporate actors engaging in illicit dumping are defined in this study as commercial actors. These include hands-on business men who pursue economic benefit by avoiding waste-related costs, such as landfill taxes or recycling costs, by dumping waste illicitly ([3], 15–16). For example, offenders in illicit waste activities work usually on a practical level, such as at waste plants, instead of having strong prestige and high-status as managers of large corporations. Following this, corporate environmental crime is used as a conceptualization that refers to the context where offences are committed rather than to the characteristics of the offenders ([10] 1183).

Second, objective opportunity is provided by having access to a suitable target ([16], 63). As an illustration, a suitable target for illicit waste dumping may be a remote area or land owned by the offender, for example, with easy access for trucks. Some of these opportunities may be reduced by blocking access to the target or reducing the attractiveness of the target with effective surveillance, such as security cameras or an authority presence ([33], 77–78).

Third, challenges in enforcement and regulation create criminal opportunities for waste crime. As such, a lack of capable guardianship creates opportunities for crime. For instance, the combination of self-regulation, administrative surveillance and licensing as well as penal enforcement may create confusion ([8], 31). This is highlighted in law enforcement actions by authorities who have a tendency to focus on different stages of illicit activities, creating gaps in prevention and detection. For instance, criminal enforcement has focused more on illicit transportation, whereas administrative controls focus often on static sites [12]. Also, the international business environment is often controlled by national penal and administrative controls, creating difficulties in applying appropriate and efficient controls ([8], 31).

Fourth, the increased costs of legal operations are possible enablers for waste related crime ([7], 98). Usually, waste crimes are committed in order to gain economic benefit. For instance, at the personal level, individuals may wish to avoid recycling costs [34]; or at the corporate level, white-collar criminals may wish to maximize companies' revenues. The costs of legal waste management — such as recycling, incineration technologies and compliance — are high ([8], 35), which may make disposing of waste illicitly a rational decision ([1], 8).

## Data and method

### Data

Two illicit waste crime cases were obtained as the basis for the analysis. Both cases led to a conviction in the district courts in Finland and were also taken to the Court of Appeal, gaining lots of media attention. Further, the two cases led to



more severe convictions than seen with other waste or environmental crime cases in Finland during recent years.

The first case deals with the illicit dumping of sewage in the Helsinki metropolitan area. Lokapojat Corporation dumped and treated sewage, oil waste and grease extraction well waste illicitly, causing environmental damage. In addition, the corporation misinformed waste treatment plants about the contents of waste trucks in order to save on waste treatment costs. The crimes were committed between 1999 and 2008 in Southern Finland, mainly in the Helsinki Metropolitan area. In that area the population is over one million, which is around a fifth of the whole population in Finland.

The second case concerns Petokaivin Corporation, which illicitly dumped waste from demolition and construction sites in the Porvoo area in Southern Finland. The waste was used illicitly as a foundation for a motocross track. The CEO and a board member were also accused of oil spills, as oil was found from plots surrounding the corporation's property. The crimes were committed in the period 1999–2006. The City of Porvoo, with 50,000 inhabitants, was established in 1997 as a merger between the Porvoo rural municipality and the town of Porvoo.

Convictions from the District Courts and the Court of Appeal were used as the main data source. The convictions include the court decision and its justifications and are publicly available. In addition, pre-trial investigation documents were used as supporting material. Pre-trial investigation documents include, for example, a hearing of the accused and witnesses, as well as technical information and expert statements. However, this material is sensitive and is not publicly available. As such, they could not be directly referred to in the analysis. Nonetheless, they gave indispensable knowledge about the crime, providing a context for understanding the in-depth court decision.

There are a few limitations in using court decisions as the data source (see [20]). For example, decisions do not include transcripts of the hearings, which would provide information on the offenders and details on the commission of the crime. It should also be noted that information in the court decisions is not comprehensive. Nevertheless, decisions include sufficient information on the offending and enforcement conditions, which are the main focus of this study. In addition, court decisions including the sentence and its justifications are based on multiple sources, such as the pre-trial investigation material, prosecution and court hearings, giving an holistic view of the crime. They have also gone through legal scrutiny, which makes them relatively trustworthy data [20]. However, it should be noted that neither the court decisions nor pre-trial investigation material included information on how authorities became aware of the illicit activities in these corporations.

### Script analysis

Crime script analysis may be described as a support for situational crime prevention. Through crime script analysis, the potential for situational prevention is created, as the process of specific crime commission is unpacked [20]. Further, systematic knowledge of the crime commission process can be used as a basis for prevention policies ([19], 160).

Originating from cognitive science, script analysis has been applied to, for example, developing preventative measures for drug manufacturing laboratories [20], mapping the hunting process of serial sex offenders [35], adult child-sex offenders [36] and stolen vehicle exportation [37]. In the field of waste crime, a script analysis has been used to explore preventative activities regarding illicit dumping in a specific location

[1] and also to profile illicit waste activity [18]. This study contributes to further developing the application of crime script analysis to illicit waste activities and to illicit waste dumping in particular.

The concepts used by Tompson and Chainey [18] were applied in this study in order to make the crime script analysis more approachable to practitioners in law enforcement. Tompson and Chainey [18] modified script analysis to be used as a tool for analyzing illicit waste trafficking. By doing so they streamlined the method and the concepts used in the original crime script analysis methodology developed by Cornish [19].<sup>1</sup> As such, “scenes” are called in this study *acts*, such as acts of creation, storage, collection, transport, treatment and disposal of waste. The *acts* were further divided into four *scenes* (preparation, pre-activity, activity and post-activity), which differs from the original script analysis, which included 11 scenes, referred to there as “facets”.

The script analysis was conducted in the following way. First, the Lokapojat and Petokaivin case scripts were broken down into acts. Three acts were recognized: collection/transportation, treatment, and disposal. Acts were further divided into four scenes: preparation refers to identifying opportunities for crime; pre-activity to steps that need to be carried out before the activity; activity refers to the illicit activity itself; and post-activity to the steps needed to exit from the illicit activity ([18], 188–189). All of the scenes involve actors, activities, offending and enforcement conditions. Offending conditions are prerequisites, such as cognitive and physical aspects, which make it possible to commit the crime. Included in the offending conditions are also facilitators that enable criminal activity. For example, the opportunities for waste crime discussed in previous sections are facilitators of crime commission. Enforcement conditions are the responsibilities of enforcement agencies, legislation and regulation.

In addition to the acts and scenes mentioned above, we suggest including economic benefit in the crime commission process. As the motivation for waste crime is often economic, we argue that economic benefit and the process of how it is gained should be made more visible in the crime script analysis. By recognizing economic benefit as a part of the crime script, crime prevention could also be directed at instruments that complicate and decrease the possibilities to gain profit illicitly. Therefore, it may be possible to reduce criminal opportunities and increase the possibility to get caught.

According to the economic theory of business, it is assumed that companies want to maximize their profit. Economic profit can be defined as the difference between a firm’s total revenue and the sum of its explicit and implicit costs (e.g. [38]). However, there was no detailed information about companies’ financial figures in our data. Therefore, we defined the economic benefit in this study as, for example, savings in companies’ transportation costs and the benefit gained from false accounting.

Second, scripts in both cases were written. In addition, charts (see Figs. 1 and 2) of crime commission were drawn. These charts included illicit and licit forms of actions,

<sup>1</sup> Using the concepts developed by Cornish [19] illicit waste dumping may be described as a specific track of a larger waste crime script, which again is part of wider environmental crime protoscript. The track of Illicit waste dumping may be divided further into different scenes, such as transportation and disposal. These scenes again may include different facets. To illustrate, the professional auto-theft script includes scenes of theft, concealment, disguise, marketing and disposing. All of these scenes may be conducted in different ways. For instance, car theft may be committed in a car park or through hire fraud; a stolen car may be marketed through a phone ad or foreign dealer. As such, the script of professional car-theft is fairly routinized, with specific scenes, but at the same time these scenes may have different settings ([19], 173–175)

with the purpose of identifying the points where the licit becomes illicit. Third, the content of the script was interpreted and the results were visualized. Finally, ways to tackle the problem were identified ([18], 188–192).

## Case studies

### Lokapojat case

The business idea of Lokapojat Corporation was to collect waste from rainwater and grease extraction wells as well as household waste. The process of crime commission in the Lokapojat Case is charted in Fig. 1.

When considering the preparation scene for the waste collection act, the actors must have had advanced knowledge of how to maximize profits in the business in question. The activities were particularly concentrated in fields of waste management where demand was high. In addition, the management was aware of the possible savings, for instance, in money and time, that might be obtained by loading several types of waste onto the same load. As such, the preparation scene included outlining the goals and operational models at the management level.

The preparation scene was followed by pre-activities, which again created opportunities for committing illicit activities. The truck drivers were given instructions on how to operate during the collection and transportation of waste. They were instructed to collect several types of waste from clients in the same load. The Court of Appeal concluded that even though the mixing of certain types of waste is forbidden, it does not in itself constitute damage to the environment unless the waste collected includes hazardous waste. As such, the act of mixing the waste load is an environmental crime according to the Finnish Criminal Law only if the load is delivered to a place that is not able to handle the mixed waste appropriately.

As such, the actual environmental crime was committed by transporting the waste from wells and households to waste treatment plants that were not equipped to treat this type of waste appropriately. Following this operational model, the company was able to save in waste treatment costs as well as to avoid driving to the waste treatment plants several times to empty the tanker-trucks. As a result of this time-saving, the company was able to serve more clients during the working hours. All of these activities led to economic benefits from illicit activities.

Even though the actual scene of collecting several types of waste and transporting it illicitly to waste treatment plants was conducted by the tanker-truck drivers, they were working under the strict instructions of the management. As such, the preparation and pre-activities preceding the actual crime were essential. Employees were strictly forbidden from talking about corporate practices outside the workplace and even threatened with penalties if they did so. This was probably one of the key reasons why the employees did not report the harms from the business activities to officials. Also the high turnover of workers reflects the challenges and difficulties in corporation culture.

The post-activities of the collection and transportation act included washing the tanker-truck in the corporation's premises. The cleaning was done in an area where the waste leftovers from the tankers poured into the sewer through a basin that was designed to filter waste collected only from rainwater wells. However, the tanker-trucks that were washed in the basin also contained waste from grease water wells and household sewage.

Regarding the waste treatment act, the management knew of the possibility for financial savings by treating the waste at the corporate premises before transporting it to the waste treatment plants. In the pre-activity scene, the management bought a container for the premises. The container was intended to be a temporary storage for waste collected from grease extraction wells. As such, the tanker-truck drivers were instructed to empty their loads into the container instead of driving it straight to the legal waste treatment plants. The waste from grease extraction wells contains, for example, water and sand in addition to grease. As such, the grease resurfaces and the sand settles to the bottom of the container, with a layer of water suspended between the two.

During the next scene of the script, the water was sucked from the container and drained into a sewer. With these activities the corporation was able to save on waste treatment costs. Moreover, the costs at the waste treatment plants are calculated based on the weight of the load; as the water was removed from the loads, the load was significantly lighter, which again reduced treatment costs. Post-activities included charging customers based on the weight of the load that included the water in addition to grease, sand and other polluted waste. The corporation also deceived the staff of the waste treatment plants by giving them false information on the content of the waste loads and on their weights. Again, the motive was to save on waste treatment costs.

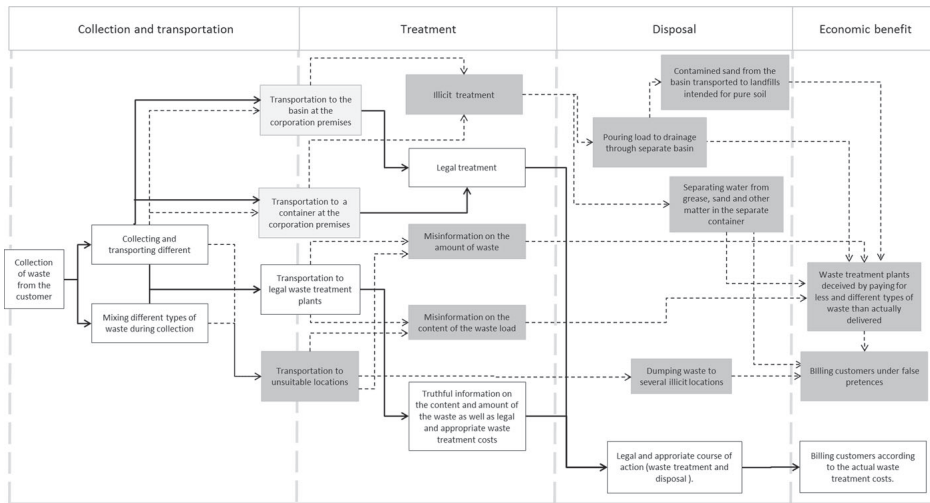
In the final act, the waste was disposed of. The corporation emptied waste loads into the basin, from which the waste poured into sewers on the corporation premises. Waste loads were also emptied into public sewers, causing overloads to the drainage system. Part of the loads was transported to the legal waste treatments plants. However, correct information about the actual content and weight of the load was not always given to the staff at the waste treatments plants. As such, the corporation was able to save on costs.

The management prepared these activities by building the basin at the premises, guiding the truck drivers in how to estimate the weight and content of the loads on the low side. In addition, the likely polluted leftovers of waste from the basin were transported to the landfills, which were intended only for non-polluted soil.

From Fig. 1, one can recognize the phases of the crime commission at which an illicit activity was chosen instead of a licit one. The first phase (Fig. 1) is when the corporation chose to transport mixed-waste loads to the basin or to the containers located on the corporation's premises. These loads were treated either licitly or illicitly, making it one point where the illicit operational model was chosen in order to gain an economic benefit. On the other hand, the loads were also transported straight to other unsuitable locations, instead of transporting them to licit waste treatment plants. The second phase took place at the disposal act, when the loads were poured into drainage and when contaminated soil was transported to landfills intended for pure soil.

This crime commission process led to economic benefit. Licit economic benefit would have been gained by billing customers according to the actual waste treatment costs. However, an illicit action was chosen. As such, customers were billed under false pretenses and lower costs were paid to waste treatment plants.

The managers of the corporation were convicted of aggravated fraud and aggravated damage to the environment in the District Court as well as in the Court of Appeal. The managers were sentenced to four years of imprisonment and ordered to pay EUR 1 million in reparations. The court estimated that the managers gained an illicit economic benefit of nearly the same amount, which formed the basis for the penalty to reimburse the state.



**Fig. 1** Chart of Lokapojat case. (Darker grey boxes refer to illicit activities; and lighter grey boxes to activities which might be licit depending the e.g. following action. Dashed lines describe the illicit process. White boxes and solid lines refer to what would have been the licit activity)

**Petokaivin case**

As a part of their business operations, Petokaivin Corporation transported excess soil, demolition waste and other materials from excavation work sites to landfills and waste treatment plants. As such, they collected waste and other materials from different construction sites and transported it forward with appropriate trucks. The crime commission process in the Petokaivin Case is charted in Fig. 2.

The preparation scene during the collection and transportation of waste act included agreeing with motocross track operators on transporting soil and other materials from construction and demolition sites among others to the motocross track to be used as a track construction material. The motocross track operators were acquaintances of the employees of the Petokaivin Corporation, which presumably helped to make the agreement possible.

In addition, according to the district court, the content and quantities of the loads transported from different sites were not appropriately and accurately documented. As such, loads may have included several types of material ranging from demolition waste to excess soil and concrete. During the preparation scene, the activities in the construction sites and other locations were not sufficiently instructed or supervised. Moreover, the pre-activities may be described as omission activities, where responsibilities were neglected by the managers in charge. This may refer to an indifferent or careless operational culture within the firm. Moreover, pre-activities included making plans for using waste in the motocross track and decisions on whether the soil, waste and other material from the construction sites was to be transported to the motocross track, landfill or waste treatment plants.

The waste treatment act evolved around disregard towards environmental regulation and supervision. During the pre-activities the environmental licenses for the transportation of waste to the motocross track should have been checked and regulations complied with. However, the CEO of the Petokaivin did not check the need for an environmental license in the use of the materials in question as construction material for a motocross track. As such, the preparation and pre-activity scenes can be described as negligence on the part of the CEO.

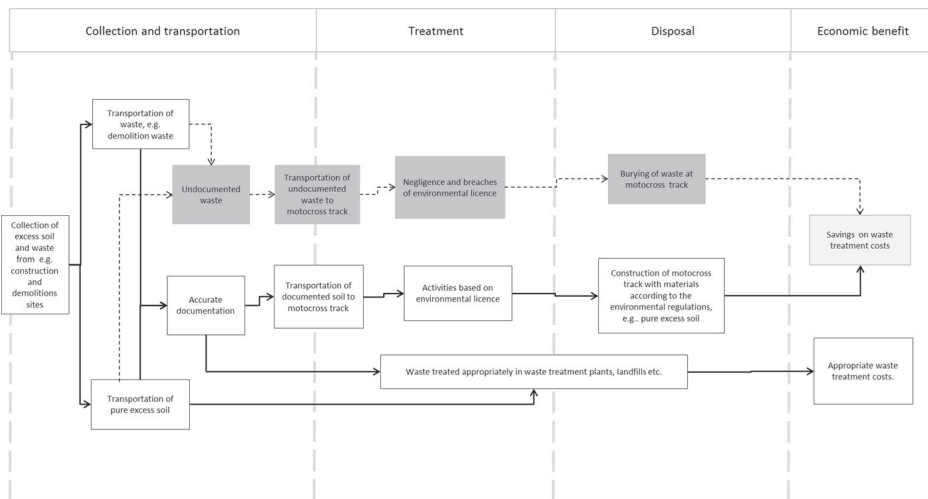
The activities included in the disposal act evolve around burying of construction waste and the waste of the two detached houses at the motocross track. The illicit activities also included the transportation of undocumented loads to the motocross track. During these activities, demolition waste from the two detached houses was transported to the motocross track, the performing of which was forbidden and also a breach of the environmental license. As a post-activity, the waste was covered with appropriate soil in order to make the field suitable for motocross riding.

It should be noted that the economic profit gained from the illicit activities in the Petokaivin case were partly licit and partly illicit. As some of the materials transported to the motocross track were in accordance with environmental regulation, the corporation was likely to make a profit by transporting this material from sites to the track instead of landfills or other appropriate destinations. This would have been especially beneficial if the sites were located closer to the track than to the landfills, saving time and money on transportation costs. However, illicit profit was also made because demolition waste was dumped at the track in contravention of environmental regulations. As such, the corporation was able to gain economic benefit in transportation, treatment and disposal costs.

In Fig. 2 the crime commission process is charted. The corporation chose to transport undocumented waste instead of licitly documenting all the waste transported. The licit process would have included accurate documentation and transportation of approved material to the motocross track in accordance with environmental licenses. As such, the motocross track would have been constructed with licit materials. Following the decision to act illicitly, the corporation was able to gain economic benefit by saving on waste treatment instead of paying the licit costs.

The CEO and one board member were prosecuted for the impairment of the environment according to Chapter 48 of the Criminal Code of Finland. The district court convicted the bankrupt's estate to pay damages of over EUR 800000. In addition, the CEO was ordered to repay EUR 30000 in economic benefit that was illegally gained and was sentenced to 80 days of conditional imprisonment. In addition, the CEO and the board member were ordered to pay over EUR 30000 in regard to the oil dumping decontamination measures. It should be noted that in the study, the focus was on the illicit activities related to the motocross track; as such, an analysis of the oil spills in the corporation's premises was not done. The board member appealed, and the Court of Appeal reduced the fines given by the district court.





**Fig. 2** Chart of Petokaivin case. (Grey boxes and dashed lines refer to illicit activities. White boxes and solid lines refer to what would have been the licit activity. The lighter grey box refers to savings that might be licit or illicit depending on e.g. previous actions)

## Discussion

This study aimed to identify the opportunities for illicit waste dumping in Finland and to provide the practitioners involved in environmental law enforcement with tools for waste crime prevention. Crime script analysis was applied to two case studies; one case study of the illicit dumping of sewage and one case of illicit dumping of demolition waste in Finland. Based on the crime scripts, opportunities for waste crimes were pinpointed and subsequently ways to tackle the waste crime were identified.

The findings of this study show that both subjective and objective opportunity was created for illicit waste dumping in both cases. Subjective opportunity referred for instance to the company's crime-facilitating operational culture. In the Lokapojat case, for example, the employees were given strict orders not to discuss business operations outside the office. If they would do so, they were threatened with penalties. In the Petokaivin case, several employees and management were aware of transportation and dumping of demolition waste at the motocross track. Despite this, the illicit activity was allowed to take place and to continue.

Other possible explanations for maintaining the corporation's crime-facilitating culture and creating criminal opportunities as such might be the employees' unawareness of the lack of appropriate environmental permits or indifference to the possible consequences of the activities conducted during working hours. In the Lokapojat case, criminal opportunities were created by employees' unawareness of the legislation and also their possible lack of interest in environmental protection. They also might have assessed that the risk of getting caught is lower than the expected revenues from illicit activities. From the situational crime prevention point of view, it would be challenging to change the behavior of the employees and increase their awareness. However, in this scenario the most efficient form of detection might also be the most efficient form of prevention, as it would decrease

the possibility of committing a crime. These findings further support the idea that “secondary crime prevention needs to disrupt the way people regard illegal dumping and to strengthen moral condemnation through educative practices” [1].

The management at Lokapojat was also aware of the supervision activities in the waste treatment plants. As such, they targeted their activities at plants with less supervision and surveillance. Also, they poured waste into drainage and also transported contaminated soil to landfill. This lowered the risk of being detected and also created economic benefit. With reference to this, the objective opportunity for illicit waste dumping was created. From the situational crime prevention view, targeting more surveillance, for example, security cameras, would decrease the opportunities for crime related to waste treatment plants. The present findings seem to be consistent with other research that found that environmental design and situational crime prevention increases risks and reduces rewards, and as such reduces opportunities for illicit dumping [1].

The low detection rate has also been recognized by the Finnish National Monitoring Group for environmental crime, which referred to it as one of the biggest threats to environmental crime prevention [39]. This study confirms that illicit activities are associated with a low risk of getting caught.

Another important finding was that challenges in enforcement and regulation created criminal opportunities in both cases. One element regarding criminal opportunity appears to be the lack of capable guardianship in waste transportation. In the Lokapojat case, an illicit form of action was chosen instead of the licit one when the corporation transported the mixed waste loads to a basin and to the containers located in the corporation’s premises, as well as to other unsuitable locations. In the Lokapojat case, situational prevention of illicit waste transportation would have been unlikely. There are limited opportunities to verify the content of tanker-trucks on the road. For instance, the traffic police do not always have appropriate technology to verify the content at the roadside. Another possible explanation might also be the lack of experience and expertise in distinguishing illicit transportation from licit ones. The lack of capable guardianship is also evident in the Petokaivin case in the form of undocumented waste transported. To illustrate, the environmental licenses were not obeyed although the corporation’s illicit activities continued for several years.

From the enforcement point of view, the supervision of environmental licenses is the duty of environmental law enforcement agencies. As such, criminal opportunities in the treatment and disposal of waste might have decreased if the guardianship of environmental licenses would have been more efficient. The corporations were given advance notice on upcoming inspections. In the Lokapojat case, this gave the corporation an opportunity to clean and organize their premises in a way that gave the inspection authorities a misleading view of the corporation’s activities. It seems possible that this *modus operandi* is due to a lack of sufficient resources at the environmental law enforcement authorities. For instance, they are able to conduct a limited number of inspections. Also, regulation creates criminal opportunities by promoting scheduled inspections. However, from the situational crime prevention framework, unscheduled inspections would be an opportunity to promote the detection of illicit activities and as such increase the likelihood of getting caught. Subsequently, this might lead to more effective crime prevention.

There are, however, other possible explanations than subjective and objective opportunity or challenges related to enforcement, regulation or costs related to waste crime. For example, it was interesting to note that in both cases, some of the illicit activities were enabled through previous acquaintances of the offenders. In the



Lokapojat case, the manager knew the truck driver who transported the polluted sand from the basin located at the corporation premises to the landfills intended for pure soil. In the Petokaivin case, the corporation employees knew the operators of the motocross track, making the agreement of transporting soil and waste to the premises possible. As such, previous networks created opportunities for illicit activities.

Previous research has suggested that illicit disposal of waste is more effectively deterred with a consignment obligation than by increasing penalties. A consignment obligation refers to disposers' obligation to consign their waste to a licensed waste management firms [34]. However, the present study has not addressed disposers' role in the commission of the crime. For example, in the Lokapojat case, the customers of the corporation were subsequently under a false impression of the licity of the activities of the corporation. In the Petokaivin case, no mention was found in the court decisions of where the waste was collected from. Nevertheless, targeting preventative activities where waste disposers would act as customers of the waste management firms might have been an effective form of waste crime prevention in both of these cases.

Usually, waste crimes are committed in order to gain economic benefit. Following this rationale, in this study adding the economic benefit to the charting of illicit activities was suggested. Tompson and Chainey [18] leave the analysis to the final act of the crime commission, such as illicit disposal of waste. However, we suggest taking the script analysis further by making visible where the crime commission process leads to. Therefore, we included economic benefit as the final step, or act if you will, of the script. In the Lokapojat case the economic benefit was gained by deceiving the staff at the waste treatment plants and billing customers under false pretenses. In the Petokaivin case economic profit was gained through savings in waste transportation and treatment costs. These findings indicate that economic benefit is closely connected to other acts in the commission of crime but also it creates the key opportunity for waste crime - the opportunity to make money.

From the situational crime prevention point of view, when crime prevention activities are targeted at other types of economic crime, the motivation and opportunity to make money illicitly with waste may be prevented at the same time. For instance, detection and prevention of fraud, a shadow economy and tax fraud might make profiting from illicit waste activities less tempting. As previous research has concluded that committing an environmental crime reflects the nature of waste management business, the corporation is involved and committing an economic crime therefore reflects their nature as companies ([8], 25). To be more precise, it would make committing a waste crime more risky and also increase the perceived costs of crime. This result must be interpreted with caution because it would apply most likely only to commercial waste crime, that is, illicit waste activities conducted as a part of business operations.

To conclude, the present study supports the conclusion of Huisman and Van Erp [10], who found situational crime prevention theory to be useful in analyzing the opportunities for environmental crime. In addition, most prevention efforts have already been suggested by environmental regulation models. As such, the new innovations to be drawn from situational crime prevention theory may understood to be fairly limited (see [10]). However, including economic benefit as a final step in the crime commission process may open new possibilities for developing situational crime prevention.

## Conclusion

These findings have important implications for developing waste crime prevention. This study indicates that a broad approach to the situational prevention of commercial waste crime should be adopted. The findings clearly show that concrete situational prevention activities, for instance installing security cameras at all waste treatment plants and landfills, would decrease the opportunities for crime. However, decreasing these objective opportunities alone would probably not be sufficient. More attention should also be paid to subjective opportunities, such as a corporation's culture and environmental law enforcement activities.

To illustrate, a corporation's working culture might create opportunities for crime. Moreover, the prevention and detection of economic crime, through inspecting the bookkeeping and transportation receipts, might prevent a motivation to commit illicit activities in the waste business in general. Further research should be done to investigate, for example, whether the effective prevention of illicit labor and the legal protection of employees increases detection rates and decreases opportunities for waste crime. Further work is required to establish the connection between public awareness of the negative consequences of waste crime and crime reporting. Crime reporting might increase the risk of getting caught and as such reduce the opportunities and motivation for waste crime.

It can thus be suggested that wide collaboration between different authorities is needed to tackle waste crime, as the expertise of several law enforcement agencies is essential. Future studies on cooperation between authorities and the connection between preventative efforts in different types of crime are therefore recommended. Further research should also be done to investigate corporate crime-facilitating cultures and the amount of economic profit gained from illicit waste activities, as these might open up new possibilities for and insights into situational crime prevention.

## References

1. Crofts, P., Morris, T., Wells, K., & Powell, A. (2010). Illegal dumping and crime prevention: a case study of ash road, Liverpool council. *The Journal of Law and Social Justice*, 5(4), 1–23.
2. Ruffell, A., & Dawson, L. (2009). Forensic geology in environmental crime: illegal waste movement and burial in Northern Ireland. *Environmental Forensics*, 10, 208–213.
3. Webb, B., Marshall, B., Czarnomski, S., & Tilley, N. (2006). Fly-tipping: Causes, Incentives and Solutions. Jill Dando Institute of Crime Science, University College London. <http://kb.keepbritain tidy.org/flytipping/Content/FactsandFigures/jdres.pdf> Accessed 19 May 2015
4. Europol (2013). Threat Assessment 2013. Environmental crime in the EU. Europol public information. <https://www.europol.europa.eu/sites/.../socta2013.pdf> Accessed 10 December 2015.
5. Interpol (2006). Assessing the Links between Organised Crime and Pollution Crimes. Interpol Pollution Crimes Working Group. <http://www.interpol.int/content/download/5370/45081/version/3/file/organizedCrime.pdf> Accessed 15 December 2015.
6. Interpol (2009). Electronic Waste and Organized Crime. Assessing the Links. Phase II Report for the Interpol Pollution Crime Working Group. Interpol Pollution Crime Working Group. <http://www.interpol.int/content/download/5367/45070/version/3/file/Wastereport.pdf> Accessed 15 December 2015.
7. Baird, J., Curry, R., & Cruz, P. (2014). An overview of waste crime, its characteristics, and the vulnerability of the EU waste sector. *Waste Management and Research*, 32(2), 97–105.

8. Dorn, N., Van Daele, S., & Vander Beken, T. (2007). Reducing vulnerabilities to crime of the European waste management industry: the research base and the prospects for policy. *European Journal of Crime, Criminal Law and Criminal Justice*, 15(1), 23–36.
9. Gibbs, C., McGarrell, E. F., & Axelrod, M. (2010). Transnational white-collar crime and risk. Lessons from the global trade in electronic waste. *Criminology & Public Policy*, 9, 543–560.
10. Huisman, W., & van Erp, J. (2013). Opportunities for environmental crime. *A test of situational crime prevention theory. British Journal of Criminology*, 53, 1178–1200.
11. Massari, M., & Monzini, P. (2004). Dirty businesses in Italy: a case-study of illegal trafficking in hazardous waste. *Global Crime*, 6, 285–304.
12. Van Daele, S., Vander Beken, T., & Dorn, N. (2007). Waste management and crime. Regulatory, business and product vulnerabilities. *Environmental Policy and Law*, 37(1), 34–38.
13. Van Erp, J., & Huisman, W. (2010). Smart regulation and enforcement of illegal disposal of electronic waste. *Criminology & Public Policy*, 9, 579–590.
14. Liddick, D. (2010). The traffic in garbage and hazardous wastes: an overview. *Trends in Organized Crime*, 13(2-3), 134–146.
15. White, R. (2008). *Crimes against nature. Environmental criminology and ecological justice*. Devon: Willan Publishing.
16. Situ, Y., & Emmons, D. (2000). *Environmental crime. The criminal justice system's role in protecting the environment*. Thousand Oaks: Sage Publications, Inc.
17. Sahramäki, I., Korsell, L., & Kankaanranta, T. (2015). Prevention of environmental crime through enforcement - Finland and Sweden compared. *Journal of Scandinavian Studies in Criminology and Crime Prevention*, 16(1), 41–59.
18. Tompson, L., & Chainey, S. (2011). Profiling illegal waste activity: using crime scripts as a data collection and analytical strategy. *European Journal on Criminal Policy and Research*, 17, 179–201.
19. Cornish, D. (1994). The procedural analysis of offending and its relevance for situational prevention. In R. Clarke (Ed.), *Crime prevention studies, volume 3* (pp. 151–196). Monsey: Criminal Justice Press.
20. Chiu, Y.-N., Leclerc, B., & Townsley, M. (2011). Crime script analysis of drug manufacturing in clandestine laboratories. *British Journal of Criminology*, 51(2), 355–374.
21. Bullock, K., Clarke, R. V., & Tilley, N. (2010). *Situational prevention of organized crimes*. Devon: Willan Publishing.
22. Nurse, A. (2015). *Policing wildlife. Perspectives on the enforcement of wildlife legislation*. Hampshire: Palgrave Macmillan.
23. Clarke, R. V. (1997). Introduction. In R. V. Clarke (Ed.), *Situational crime prevention. Successful case studies* (pp. 1–43). New York: Harrow and Heston.
24. Willison, R., & Backhouse, J. (2006). Opportunities for computer crime: considering systems risk from a criminological perspective. *European Journal of Information Systems*, 15, 403–414.
25. Simpson, S. S., Gibbs, C., Rorie, M., Slocum, L., Cohen, M. A., & Vandenberg, M. (2013). An empirical assessment of corporate environmental crime-control strategies. *The Journal of Criminal Law and Criminology*, 103, 231–278.
26. Stretesky, P. B. (2006). Corporate self-policing and the environment. *Criminology*, 44, 671–708.
27. Fortney, D. (2003). Thinking outside the "black box": tailored enforcement in environmental criminal law. *Texas Law Review*, 81(6), 1609–1635.
28. Beebe, N. L. & Rao, V.S. (2005). Using situational crime prevention theory to explain the effectiveness of information systems security. Proceedings of the 2005 SoftWars Conference, Las Vegas, NV, December 2005.
29. Becker, G. S. (1968). Crime and punishment: an economic approach. *Journal of Political Economy*, 76, 169–217.
30. Akers, R. L., & Sellers, C. S. (2009). *Criminological theories. Introduction, evaluation, and application*. Oxford: Oxford University Press.
31. Faure, M. G., & Visser, M. (2004). Law and economics of environmental crime. In H. Sjögren & G. Skogh (Eds.), *New perspectives on economic crime* (pp. 57–75). Cheltenham: Edward Elgar.
32. Emery, A., & Watson, M. (2004). Organizations and environmental crime: legal and economic perspectives. *Managerial Auditing Journal*, 19, 741–759.
33. Benson, M. L., & Simpson, S. S. (2009). *White-collar crime. An opportunity perspective*. New York: Routledge.
34. Shinkuma, T., & Managi, S. (2012). Effectiveness of policy against illegal disposal of waste. *Environmental Economics and Policy Studies*, 14, 123–145.
35. Beauregard, E., Proulx, J., Leclerc, B., & Allaire, J.-F. (2007). Script analysis of the hunting process of serial sex offenders. *Criminal justice and behavior*, 34(8), 1069–1084.

36. Leclerc, B., Wortley, R., & Smallbone, S. (2011). Getting into the script of adult child sex offenders and mapping out situational prevention measures. *Journal of Research in Crime and Delinquency*, 48(2), 209–237.
37. Morselli, C., & Roy, J. (2008). Brokerage qualifications in ringing operations. *Criminology*, 46(1), 71–98.
38. McDowell, M., Thom, R., Frank, R., & Bernanke, B. (2009). *Principles of economics*. New York: McGraw-Hill Higher Education.
39. Finnish National Monitoring Group. (2013). Ympäristörikoskatsaus vuodelta 2012 [Environmental offences in Finland 2012]. National Police Board of Finland. [https://www.poliisi.fi/poliisi/home.nsf/ExternalFiles6536FA5CA987C99DC2257C0100277792/\\$file/Ymp%C3%A4rist%C3%B6rikoskatsaus%202012.pdf](https://www.poliisi.fi/poliisi/home.nsf/ExternalFiles6536FA5CA987C99DC2257C0100277792/$file/Ymp%C3%A4rist%C3%B6rikoskatsaus%202012.pdf) Accessed 10 December 2015.

# PUBLICATION IV

## **Regulatory voids in prevention of environmental crime in Finland**

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# Regulatory voids in the prevention of environmental crime in Finland

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## Abstract

Increasing concern about environmental issues has heightened the need for the effective enforcement of environmental regulations and for research supporting these efforts. This study incorporates intersectoral analysis and examines regulatory voids. The aim is to analyse whether regulatory voids exist and how they affect the enforcement efforts related to the prevention, supervision and detection of illicit waste activities and, furthermore, waste crime in Finland. The Delphi method is used to analyse different aspects of regulatory voids in enforcement and crime prevention. The three-round Delphi comprised a panel of 74 participants from different sectors and had a significantly high response rate: 91 percent in the first round, 82 percent in the second and 80 percent in the third, respectively. Not only do the findings indicate that political, institutional and knowledge-regulatory voids exist, the study also suggests that the knowledge void should be further divided into informational and professional void – and, as such, there are actually four regulatory voids to be found that should be analysed. Findings also suggest that there is lack of consensus on regulatory enforcement, severe challenges in the flow of information and insufficient resources, which together form a contradictory regulatory regime based on trust between regulators and regulatees, on the one hand, and underlying assumptions of foul play, on the other. The study concludes that enforcement authorities walk a regulatory tightrope between compliance with and punishment of regulatory strategies, trying during the course of their work to avoid falling into the regulatory voids.

## Keywords

Crime prevention, Delphi, enforcement, Finland, regulatory void, waste crime

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## Introduction

Studies on environmental harm have emphasized the toll that pollution takes on natural, social and economic environments as well as on human health (Crofts et al., 2010; Jarrell and Ozymy, 2012; Michalowski and Brown, 2020; Ruffell and Dawson, 2009). This increasing concern about environmental issues has heightened the need for regulatory strategies that address the complexity of environmental harm and also environmental crime. Although considerable research has been devoted to the effectiveness of regulatory strategies and corporate compliance (see, for example, Gunningham and Grabosky, 1998; Malik, 2007; Simpson et al., 2013), less attention has been paid to the authorities' perspectives on regulatory enforcement (see, for example, Du Rées, 2001; Fineman, 2000; Sahramäki, 2016). Previous studies have indicated the need for analysis involving a broad range of specialists in order to address different aspects of the multidimensional phenomenon of environmental harm and crime in Finland (Sahramäki, 2016; Sahramäki and Kankaanranta, 2014, 2016b).

This study answers the call for intersectoral analysis by giving a voice to environmental supervisory agencies, preliminary investigation authorities, academia, and the private and third sectors. The study has two aims. First, it sets out to examine whether there are regulatory voids in the prevention and supervision of illicit waste activities in Finland and, second, if so, it asks what the voids are and how they affect enforcement. Regulatory void is defined here as spaces where regulation is perceived to be deficient (Short, 2013: 27).

The study explores the Delphi method, which, although supporting intersectoral analysis is, at least in our estimation, rarely used in criminology.<sup>1</sup> The Delphi method consists of a panel of topic-specific experts, sequential questionnaires, and an iterative process of feeding the findings back to the respondents for further comments (Franklin and Hart, 2007: 238). Delphi is considered to be appropriate when, for example, the problem being explored benefits from subjective judgements on a collective basis and when there is a need for the contribution of individuals with diverse experiences and expertise in the examination of a broad and complex problem (Linstone and Turoff, 1975: 4; see also Grisham, 2009: 115). Both of these considerations are present in the topic at hand: the prevention of illicit waste activities and the enforcement of environmental regulation are a complex subject involving representatives from several different professions. Waste crime is often characterized as a victimless crime or a regulatory crime, driven by weak legislation, the increased costs of legal operations, the inelastic price of waste, asymmetries in regulation and legislation internationally, enforcement difficulties such as under-resourcing, and the complexity of businesses and actors, whose nature and physical appearance may be manipulated and mixed, to mention a few (Baird et al., 2014; Dorn et al., 2007; Massari and Monzini, 2006; Tompson and Chainey, 2011; Van Daele et al., 2007).

Although we acknowledge the challenges of defining what environmental crime and harm actually are per se and the importance of contesting them as a part of a green criminology agenda (see Brisman and South, 2013; Lynch, 2020; White, 2008), for the purposes of this study we adopt a legalistic approach, whereby criminal law defines which harms are subject to criminal prosecution and may lead to convictions of *environmental crime* (Situ and Emmons, 2000: 3).

The article is organized as follows. First, there is a brief description of the regulatory agencies and environmental crime in Finland. Second, the concept of 'regulatory void' is



explicated. Third, the Delphi method and data are illustrated. Fourth, the findings are introduced. Finally, there is discussion of the findings, reflections on the limitations and practical implications of the study, and final conclusions.

## Environmental crime and environmental enforcement in Finland

In Finland, environmental offences vary from illicit waste dumping, dredging, transportation of dangerous substances and breaches of environmental permits for example (Finnish Environmental Crime Monitoring Group, 2020: 58–9). For example, between 1994 and 2014, a total of 36 cases of waste-related impairments of the environment were handled in the courts of appeal. These cases dealt with the dumping and transportation of dangerous substances, construction or demolition waste, scrap or waste from vehicles, and so on (Sahramäki and Kankaanranta, 2016a: 2–3). Environmental pollution and impairment may be due to a corporation's activities or private persons' actions alike. However, in this study, the focus is on the breaches committed by corporations.

The number of suspected offences is quite low, which has led to the assumption that a substantial number of violations remain hidden (Sahramäki et al., 2015). From a statistical point of view, an average of 187 suspected violations of the Waste Act, 170 impairments of the environment, eight aggravated impairments of the environment, 218 environmental infractions, and three negligent impairments of the environment were reported to the police annually in the period 2012–19.<sup>2</sup>

In Finland, supervisory agencies (see Table 1) are obligated to notify the relevant preliminary investigation authority when the provisions of Criminal Code Chapter 48, 'Environmental offences' (39/1889), are met. However, according to Section 188 of the Environmental Protection Act (527/2014 188§), 'no notification is needed if the act can be considered minor in view of the circumstances and the public interest does not require charges to be brought'.

**Table 1.** Environmental supervisory and preliminary investigation authorities in Finland.

Authority	Duties related to environmental regulation
<i>Supervisory agencies</i>	
Centre for Economic Development, Transport and the Environment	Enforcement of environmental regulations
<i>Regional state administrative agencies</i>	
Finnish Environment Institute	Enforcement of regulations regarding waste exports and imports
<i>Preliminary investigation authorities</i>	
Finnish Police force	Prevention, detection and investigation of suspected environmental offences
Finnish Customs	Preliminary investigations related to illicit waste trafficking across borders
Finnish Border Guard	Preliminary investigations of offences related to state borders and territorial violations

## **Regulatory voids**

Generally, environmental regulation is characterized by the heterogeneity of environmentally regulated entities and the complexity of topics and issues under it, both of which highlight the fact that not every possible future circumstance can be foreseen by legislation and rules (Carter and Morgan, 2018, 1789). In addition, regulatory agencies may suffer from, for example, inertia, malaise, under-resourcing and capture by the industries the agencies are regulating (Hutton, 2000). These challenges make environmental regulation vulnerable to the possibility of regulatory failures, which may be acute, such as incidents causing serious harm to the environment and human health, or chronic, such as a lack of public trust in regulatory agencies (Carter and Morgan, 2018: 1790–1). Furthermore, gaps in regulation may provide opportunities for illicit activities. For the purposes of this study, we approach regulatory failures and gaps through the concept of ‘regulatory void’. We lean on Short’s (2013: 27–8) categorization of ‘regulatory voids’ into political, institutional and knowledge voids. Short’s goal was to explore situations where governmental regulation is perceived as deficient and self-regulation is typically adopted, and how self-regulation may effectively mitigate these regulatory voids. However, our purpose is to explore how the concept of regulatory void may be used to study regulatory enforcement of environmental crime, and of waste crime in particular.

Political voids are formed when there is disagreement over the nature of the problem and how it should be handled. As such, politics may prevent effective regulatory enforcement (Short, 2013: 28). On the EU level, unclear legal frameworks and problems in the supply chain facilitate waste crimes. In addition, owing to differences between member states in justice response systems, criminals will choose to operate in countries where the rules and sanctions are the least stringent (Morganti et al., 2020; see also Rucevska et al., 2015). Furthermore, a lack of political support for regulatory enforcement and deterrence actions may lead to a compliance trap: without political support, regulators struggle to increase the effectiveness of enforcement and deterrence actions, which results in poor regulatory compliance and a lack of legitimacy (Parker, 2006).

The enforcement of environmental regulations highlights these challenges associated with the policy level. Harm to the environment, such as a certain amount of industrial air pollution, is accepted as a part of consumer society. Subsequently, regulatory enforcement is trapped in a political framework that determines when financial benefits outweigh the harm caused to the environment, which environmental harms should be prevented and which enforcement tools are available (Koski, 2007; White, 2013: 268). Furthermore, environmental laws and regulations are social constructions that often reflect the interests of powerful groups (Lynch, 2020).

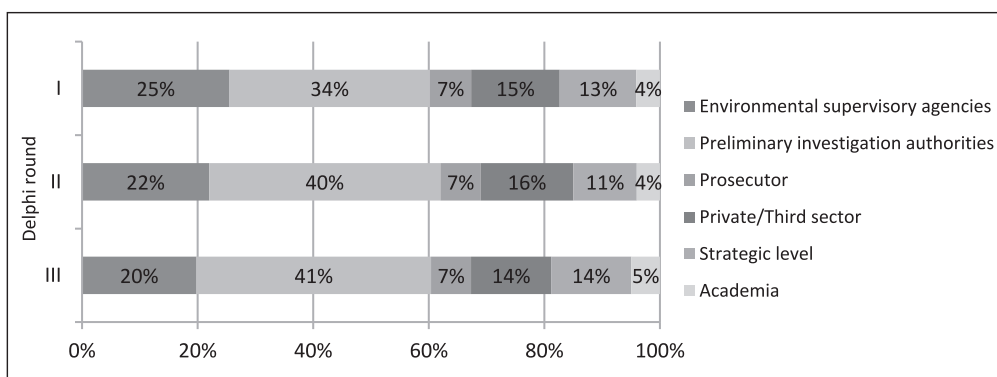
Institutional voids may occur when there is a lack of the resources and skills needed to regulate effectively (Short, 2013: 28). According to Hajer (2003: 175), an institutional void arises if ‘there are no generally accepted rules and norms according to which policy making and politics is to be conducted’. The influence of the institutional void has been analysed in many research settings (see Enticott and Franklin, 2009; Vilcan and Potter, 2019). For example, in rural communities, institutional voids were reported to appear in the form of the lack of a statutory regional framework for development planning,

assessment and management, as well as a shortage of data-sharing (Morrison et al., 2012). Thus, institutional voids can lead to poor-quality decisions or unsuccessful outcomes (Pinkse and Kolk, 2011). As a more recent example, Fitzgerald and Spencer (2020) name the Volkswagen emissions fraud case as a regulatory failure in Canada because the authorities failed to respond to the breaches, whereas in the United States the fraud resulted in several charges. Seror and Portnov (2020) also pointed out that, to be effective, environmental enforcement policy should be put into action quickly, which is challenging if one takes into account the presence of regulatory voids.

Knowledge voids originate from a lack of sufficient information and knowledge and cause failure in the existing regulatory regime (Short, 2013: 28). As an illustration, previous research has suggested that the lack of sufficient information affects not only the extent to which regulatory goals are met, but also the choice of compliance strategy adopted by, for example, the regulated company (Andarge and Lichtenberg, 2020: 199–200). Also, Van Erp and Huisman (2010) have suggested that the problem of E-waste may actually be better solved by regulating the recycling market than by continuing to criminalize E-waste. This would require intersectoral information-sharing and thinking outside of the regulatory boundaries in order to gain deeper knowledge of how to prevent this particular type of illicit activity effectively. In addition, as Short (2013: 27) aptly describes, ‘knowledge may be produced and deployed strategically to construct particular activities as unproblematic or unregulatable’, which also relates to the question of who has the power to frame activities as illicit and how they are regulated (see, for example, Snider, 2010).

## The Delphi method and data

The origins of the conventional Delphi method, whereby consensus is sought among participants, can be traced back to the 1950s (Dalkey, 1969). Nowadays, however, Delphi studies may encourage collaborative decision-making or identify dissenting opinions in addition to consensus-building and may be carried out in various ways (Fletcher and Marchildon, 2014: 3; Linstone and Turoff, 1975: 5).



**Figure I.** Respondent groups in Delphi rounds I–III.

This study utilized a modified policy Delphi. The intention was to bring forward alternatives, opinions, and arguments for and against instead of seeking a consensus. A three-round Delphi study was conducted in Finland between autumn 2014 and spring 2015. The eight phases of the Delphi study, which are all based on one another, are presented in Table 2.

The participant panel was gathered through purposive sampling during phase 3. The panel also included interviewees from phase 2 because they possessed relevant expert knowledge essential to the topic in question, given the fairly limited number of experts

**Table 2.** Phases of Delphi study.

Phase	Content
(1) Literature review	Identifying topics, concepts, links and interactions for the following phases.
(2) 28 Semi-structured interviews with representatives from supervisory agencies, preliminary investigation authorities and the private sector	Finding relevant topics for the questionnaires through discussion on legislation, illicit activities in the waste sector, the grey economy, <sup>a</sup> interfaces between authorities and other issues interviewees considered to be relevant.
(3) Participant panel	Gathering a panel of 74 participants through purposive sampling. Formation of a participant matrix in order to make sure that the expertise of the participants covered all the relevant issues.
(4) First Delphi round	Questionnaire comprising 33 claims about preventing, supervising and exposing illicit waste activities; enforcement tools; characteristics of illicit waste activities; and interpretations and development of legislation. Findings on a 4-point Likert scale regarding likelihood, desirability, importance and experienced significance.
(5) Second Delphi round	Questionnaire comprising 11 claims clarifying the findings from the first round: exposing illicit waste activities; exchange of information; development and current state of relevant legislation; and future challenges in the prevention and supervision of illicit waste activities.
(6) Third Delphi round	Nine scenarios created on the basis of the findings from previous phases.
(7) Final seminar and feedback	Voluntary seminar and a feedback form in order to disseminate the results, promote discussion and deepen understanding of the findings.
(8) Analysis	Describing contexts, features and themes – grouping terms and concepts together in order to provide descriptions of recurring themes and relating them to previous research findings.

Note:

<sup>a</sup>The 'grey economy' is beyond the scope of analysis in this article. The data including all the topics and claims are presented in the report by (Sahramäki and Kankaanranta, 2016b).

in Finland. We acknowledge the representation challenges that the use of purposive sampling creates, but it was used to gather participants from different professional and organizational backgrounds (Turoff, 1975: 84–5). Purposive sampling presumably also contributed to the high response rate, because the participants were involved in the topic and, as such, they were committed to participating in all three rounds (see Hasson et al., 2000: 1010). The number of invited participants and their background information and response rate are presented in Table 3.

The panel was quasi-anonymous: although the researchers were aware of the participants' identities, their responses remained anonymous to the other participants and the participants were unknown to each other, with the exception of during the voluntary final seminar (phase 7) (McKenna, 1994: 1224). Members of the participant panel were asked to specify their line of activity and this resulted in six respondent groups (see Table 4 and Figure 1).

Online questionnaires in all three rounds during phases 4–6 provided the means by which participants located in different parts of Finland were contacted in a cost-effective manner. The participant panel was given two weeks to respond to each round. After each

**Table 3.** Respondents' background information and response rate.

Delphi round	Number of invited participants	Response rate	Gender		Age (years)			
			Female	Male	20–35	36–50	51–63	≥ 64
I	74	91%	42%	58%	4%	51%	45%	0%
II	67	82%	42%	58%	7%	49%	44%	0%
III	55	80%	36%	64%	4%	48%	48%	0%

**Table 4.** The six respondent groups.

Environmental supervisory agencies	Centre for Economic Development, Transport and the Environment Regional state administrative agencies Finnish Environment Institute
Preliminary investigation authorities	Police Finnish Customs
Prosecutor	Prosecutors specialized in environmental crime
Private/third sector	Private sector representatives involved in associations bringing waste operators together Third-sector organizations involved in organizing recycling in conjunction with private sector operators
Strategic level	Representatives from governmental ministries, e.g. the National Police Board or the Tax Administration
Academia	Researchers specializing in environmental crime law and environmental crime

round, the findings were fed back to the participants for further comments. This was done to check the trustworthiness and rigor of the data and to provide an opportunity for response (Brady and O'Connor, 2014: 216). Each questionnaire also included spaces for comments, which participants actively used to evaluate, comment on and specify the claims made and topics discussed, which added value to the data (see Hasson et al., 2000: 1011). It should be noted that the analysis of the findings was ongoing throughout the Delphi rounds.

## Findings

In the following, the findings are presented from political, institutional and knowledge vantage points, which resonate with the three levels of regulatory void discussed earlier.

### *Political aspects*

*Authority powers.* The participants had differing views on whether the current legislation provides the authorities with sufficient powers to supervise and prevent illicit waste activities. This discrepancy was also evident within the respondent groups; 47 percent of the supervisory agencies and 43 percent of the preliminary investigators found the claim to be likely or very likely. Surprisingly, the private/third sector respondent group had the most negative view, with 78 percent of them finding it to be unlikely or very unlikely that sufficient enforcement powers exist.

On the basis of these mixed results from the first round, participants were asked in the second round to specify which kinds of powers were needed and how the current powers could be used more efficiently. The participants felt that the current powers are sufficient but that there is a lack of knowledge of how to use them. They further emphasized the need for cooperation between sectors instead of increasing powers while also underlining the importance of training on how to use the existing powers more efficiently, and they noted that challenges in information exchange form barriers to the effective use of powers. Some participants also mentioned the lack of resources, the fragmentation of authorities, and the lack of assigned responsibility.

Furthermore, only 33 percent of the participants found it to be likely that operative-level insight was sufficiently taken into account by government ministries, even though the vast majority (95 percent) believed that it would be important. Two respondent groups contradicted the majority: 56 percent of the strategic level and 41 percent of the supervising agencies' respondent groups found that the operative level is sufficiently taken into account. Several participants also commented that legislation often does not respond to the needs of practitioners.

*Future areas of political concern.* In the third Delphi round, the participant panel was presented with claims regarding future developments that should be areas for concern. The general view of the panel was that the number of illicit activities will increase in the future if no action is taken to empower prevention efforts. For example, illicit waste dumping will be concentrated in sparsely populated areas to which waste from cities

might be transported; and national inconsistencies in prevention, supervision and sanctioning will lead to the concentration of illicit activities in poorly supervised regions.

The panel took the view that the number of foreign waste operators will continue to grow and that, if prevention efforts are not conducted, there will be a growing threat of cross-border waste crime and waste-related organized crime in the future. An increase in organized crime due to the lack of resources in environmental crime prevention was also seen as a possible future scenario by the majority of the panel. A few of the participants considered these to be unlikely because Finland's geographical location is unattractive and the size of its waste market is limited.

The panel also suggested that citizens will become more active in reporting suspicious environment-related activities to the authorities in the future. Additionally, cooperation between authorities was seen as becoming more efficient and it was believed that environmentally friendly values would spread in the future, leading to the prevention of the aforementioned scenarios.

### *Institutional aspects*

*Self-regulation and self-reporting.* The panel was asked to estimate the trustworthiness of self-reporting and self-regulation on a sliding scale. Over half of the participants presumed them to be quite untrustworthy. It should be noted that over half of the supervisory agency respondents did consider self-regulation to be trustworthy, whereas the preliminary investigators had the most negative view. One of the participants illustrated the situation in the following way:

The resources of the environmental supervisory agencies, at least in the governmental supervisory agencies, are continuously reduced. This is why the supervision is based more and more on self-regulation and reports sent to the supervisor. Due to limited resources, it is impossible to verify these reports. The starting point of the supervision is that regulated firms are sincere and their undertakings are trustworthy.

However, 94 percent of the participant panel considered it to be likely or very likely that, although environmental enforcement is largely based on self-reporting, the transportation of waste across borders actually goes unreported.

Additionally, the panel was asked to evaluate whether self-regulation would be more trustworthy in the future if private sector operators' awareness of legislation increases owing to enhanced communication between the private and public sectors. The panel largely rejected this scenario on the basis of the view that awareness of the regulations does not decrease illicit activities due to crime as a conscious activity, nor does it decrease the variety of illegally acting operators or the need for criminal sanctions as deterrents. The participant panel was of the opinion that the amount of hidden environmental crime is substantial. However, few participants commented on the growth of environmental values as the reason for compliance.

*Resources.* The participant panel was in nearly unanimous agreement (98 percent) on the claim that inadequate resources decrease other actors' trust in the ability of supervisory



agencies to supervise and prevent illicit activities. At the same time, the panel saw it as very likely (40 percent) or likely (36 percent) that the prevention of illicit environmental activities focuses too much on the supervision level, because the resources of the preliminary investigation authority are insufficient. Participants commented on the importance of the allocation of resources and specified several effects of diminishing resources, such as situations in which illicit operators take advantage of the lack of efficient supervision or authorities try to impose duties on other authorities. Limited resources also resulted in prioritizing other efforts such as detecting drug trafficking across borders instead of illicit waste trafficking.

In the third Delphi round, the participant panel was presented with the future scenario of the supervision and prevention of environmental crime being a cross-sectoral process in which duties fluctuate across administrative borders. Few participants considered the trend to be desirable, with a few of them also taking the view that this development had already begun. It was evident across the comments that cooperation is seen as essential to the efficient prevention of illicit activities in the future. Some respondents wondered about the leadership challenges that a cross-sectoral process may pose and saw the scenario as being too optimistic in the near future. Once again, the adequacy of resources was raised as a major obstacle to this scenario becoming reality. As one of the participants described the situation:

We should wake up to the need for the prevention of environmental crime and vigorously invest in cooperation between authorities locally and nationally. If enough resources are not allocated to this, these problems will explode in our face. 'Out of sight, out of mind' is not an option here!

**Detection.** The panel considered it to be very important (31 percent) or important (43 percent) that the illicit activities related to dangerous substances should be the focal point of supervision and prevention and that their transportation forms a major part of illicit waste activities. One of the major concerns has been the transportation of used car batteries in passenger ships; if these modes of transportation are conducted illicitly without permits and taking the necessary safety measures, the result is a serious safety hazard. Concerns related to the transportation of dangerous substances over land were also connected to adequate safety measures and whether the substance was transported to an appropriate facility for further treatment; if not, health and environmental hazards may be the result. Another examples of concerns related to dangerous substances are illicit dumping and burial below ground, especially in groundwater areas.

The panel also found traffic enforcement to be a significant (44 percent) or very significant (26 percent) part of the supervision and prevention of illicit waste activities and traffic enforcement to be a desirable way to detect the illicit flow of waste across borders. Half of the participants suggested that more enforcement should be targeted at these flows of waste. A growing concern was that firms do not always report the correct amount of transported waste to authorities and illicit transport to third world countries via other European countries.

Altogether, 61 percent of the participant panel considered cooperation between preliminary investigators and the private and third sectors to be essential in detecting illicit



activities. The panel was asked to evaluate how likely it is that site inspections are the most important available tool in the supervision and prevention of illicit waste activities. Even though 28 percent of the participants considered this to be very likely; 28 percent considered it to be unlikely or very unlikely. Several participants commented that resources make it difficult to use site inspections effectively as a detection tool, as one of the participants wrote:

Site inspections are a very important part of the prevention of illicit activities. Surprise site inspections in particular would support this [prevention], but due to the decreasing resources of the supervisory agencies, site inspections will most likely be cut back in the future.

According to the panel, illicit activities related to waste water and demolition waste would be most efficiently detected either at the point of origin, such as industrial facilities, or at the final destination, such as recycling facilities and dumping sites. Illicit activities in waste exports and imports were seen to be detected most efficiently during transportation. However, the participants had differing views on whether illicit activities related to electronic waste, scrap cars, scrap yards, dangerous substances and the reuse of waste were detected most efficiently at the point of origin or during transportation, including roads, railroad, waterways and ports, or at the final destination. For example, the views of the preliminary investigators regarding electronic waste were quite evenly distributed between all three options. This was also reflected in views at the strategic level. However, 56 percent of the private/third sector, 67 percent of prosecutors and 50 percent of the supervisory agencies' respondent groups found transportation to be the best point of detection. Their views on where illicit waste dumping should be detected were also distributed between all three options.

Regarding prevention and detection efforts, the panel's views varied as to how likely and desirable it would be to centre the preliminary investigation of illicit waste activities nationally. Altogether, 61 percent of the participant panel found it to be desirable or highly desirable and 74 percent found it to be unlikely or very unlikely, with the supervisory agencies' respondent group having the most positive view regarding this possibility. On the other hand, 91 percent of the preliminary investigators found centralization to be unlikely or very unlikely and, interestingly, 57 percent of them found the trend to be desirable or very desirable.

In the third Delphi round, the panel suggested that, in the future, the police will take an active role in reducing waste crime and that previously hidden crime will be detected due to intelligence and cross-sectoral information, which will be easily accessible by all authorities. The participants highlighted the need for more cooperation, the development of information systems, and networking in order for this scenario to be realized.

**Sanctions.** The panel took the view that the use of various sanctions was not flexible, appropriate or consistent nationally. There were, however, differing opinions as to whether administrative or criminal sanctions would be the appropriate consequence for smaller infractions, with 28 percent of the panel leaning toward issuing a criminal fine instead of administrative monetary sanctions.

The participant panel was asked to evaluate how desirable and likely they viewed the development that supervisory agencies would be given the power to impose fines in addition to administrative sanctions in order to back up enforcement activities. The views on the desirability and likelihood of this claim differed between and within the respondent groups. Half of the preliminary investigators found this possibility desirable, but only 23 percent found it to be likely. Overall, 60 percent of the prosecutors found it to be both desirable and likely, and 40 percent of the private/third sector and 47 percent of the supervisory agencies' respondent groups found it to be very desirable. Meanwhile, only 12 percent of the supervisory agencies found the trend to be likely.

*National variation.* The panel had differing views regarding the likelihood of illicit waste activities varying nationally and whether these differences pose challenges for supervisory and prevention efforts. National variation includes, for example, illicit transportation on inland roads and through ports in coastal areas, as well as, for instance, concerns about illicit dumping being a bigger problem in rural areas than in the Helsinki metropolitan area.

The participants were asked to specify these variations in the second round. Altogether, 37 respondents specified their view: 24 percent mentioned the lack of nationally unified operational models, 19 percent underlined the role of illicit activities moving to areas with weak enforcement, 19 percent highlighted the lack of resources and their uneven distribution nationally, and 11 percent mentioned the lack of sufficient knowledge on the part of the authorities. The remaining comments were related to, for example, the difficulties of enforcement in sparsely populated areas.

From the perspective of unifying activities, the panel considered the availability of national guidelines and operations models to actors as being both desirable and important. The participants estimated that there was a greater need for guidance and training at the national level than at the local level. However, it was highlighted that not enough of either was available. One participant commented:

Supervision agencies have a fairly high threshold when informing the police about suspected crime. The reason might be that they don't know how to act in such cases because the number of cases is limited and they don't recognize cases [in which preliminary investigation would be justified]. Guidelines may offer significant assistance to this situation.

### *Knowledge aspects*

*Flow of information.* The majority of participants considered information exchange between sectors to be important (20 percent) or very important (76 percent). At the same time, however, the flow of information was also seen as a significant challenge. The lack of resources, the lack of knowledge of the responsibilities of the authorities, the underdevelopment of networks, the individual allocation of activities, and the lack of proper instructions on the enforcement of legislation were all seen as major obstacles to the flow of information. For instance, legislation and regulation also create barriers inside governmental agencies, because not all governmental employees are entitled to use the same information systems and share information.

In addition, dialogue between the private and third sectors and the authorities was seen as important or very important but dysfunctional. The panel was asked to consider whether dialogue would increase private and third sector awareness of the legislation; would need more networking in order to work; should be the responsibility of the authorities; would be possible with the resources currently available; and would prevent environmental crime. Even though the participants' views generally differed on all of these claims, the panel did highlight the need for more networking in order to facilitate dialogue. Functioning dialogue was seen as part of increasing private/third sector knowledge of legislation and the prevention of environmental crime. Nevertheless, more resources were seen to be needed if dialogue is to be successful. Promoting dialogue was seen to be the responsibility of the authorities.

*Definition of waste.* The participant panel was asked to evaluate the likelihood that the definition of waste creates confusion in separating illicit activities from licit ones and to estimate the significance of these possible uncertainties for supervision and prevention activities. The majority of the participants found it to be very likely (32 percent) or likely (45 percent) that confusion arises from the definition and that it poses very significant (31 percent) or significant (43 percent) challenges to prevention efforts. By contrast, only 24 percent of the supervisory agencies and 24 percent of the preliminary investigators found it to be unlikely or very unlikely that confusion exists, with 30 percent of the supervisory agencies' respondent group finding that the challenges posed by the definition are insignificant. As one of the participants concluded:

In one criminal case, the district court found the statement of the Finnish Environment Institute on the definition of electronic waste inadequate. This should illustrate how challenging the topic [definition of waste] is.

The definition problems concern, for instance, whether the object in question may be reused or should be classified as waste; or whether it is actually raw material or waste. For instance, the regulation on the transportation of electronic equipment across borders for reuse is different from that for equipment classified as waste. Another example is plastic containers that have been used to store chemicals, which may be seen as hazardous waste or as reusable after cleaning.

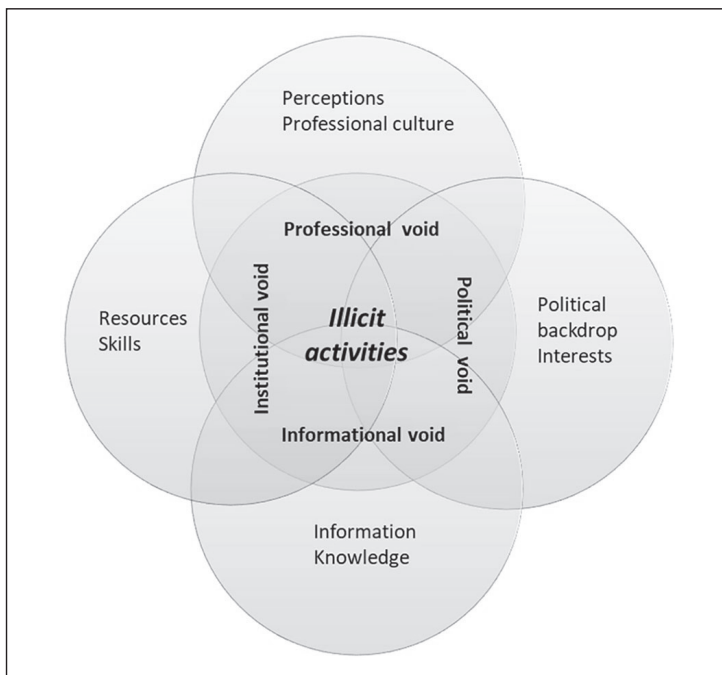
The panel considered that some private sector operators lack knowledge of the relevant legislation and regulations. Nevertheless, the panel had differing opinions on whether it would be likely that private sector operators would be able to define waste and act accordingly if they had better knowledge of the legislation and regulations: 46 percent of the participants considered this to be likely or very likely. Moreover, only 36 percent found it to be desirable or very desirable that private sector operators should be responsible for the definition of waste.

In addition, the participant panel found it to be important (39 percent) or very important (36 percent) that the definition of waste should be clarified at the strategic level. However, 60 percent of the supervisory agencies and 65 percent of the strategic-level respondent group found this to be unimportant.

## Discussion

The findings indicate that regulatory voids exist and they have several effects on enforcement. On the basis of the empirical findings of this study, we suggest further dividing Short's (2013) 'knowledge void' into 'information void' – highlighting the lack of information and sufficient knowledge – and 'professional void' – addressing the understanding of a problem and the professional framework within which regulation occurs. We therefore suggest four categories of regulatory void, as presented in Figure 2: professional, informational, institutional and political voids.

Previous literature also offers examples of professional voids. Fineman (2000) studied environmental regulation through the eyes of a regulator and found that regulation is characterized by interpretative discretion, characteristics and the outlook of regulatory officials. Also, enforcement officials may drift into fruitless negotiations with a violator, because proceeding to prosecution is perceived as a professional failure (Harrison, 1995: 240–1). Furthermore, not only do enforcement agencies struggle to find the optimal form of compliance, such as finding the balance between the benefits of compliance and the social costs of enforcing it (Ogus and Abbot, 2002: 289), they also construct the world through cultural lenses and frames, such as beliefs, perceptions and appreciations (Schön and Rein, 1994; White and Heckenberg, 2014). Compliance has contested meanings if there is no shared understanding of how regulatory requirements should be interpreted (Parker, 2006: 592). As an example, Finnish legislation leaves room for interpretation,



**Figure 2.** Regulatory voids.

which has created difficulties and disagreement between the authorities over whether a violation of environmental regulation is potentially a breach of criminal law and, as such, merits criminal investigation (Sahramäki, 2016; Sahramäki and Kankaanranta, 2014, 2016b). In addition, previous literature has found several regulatory failures that indicate professional voids, such as malaise and capture (Hutton, 2000).

In addition to findings related to professional voids, the present study found several characteristics of regulatory enforcement that indicate the existence of other types of regulatory void. First, *incoherence* was evident throughout the Delphi study. Professional culture and frames create voids between different sectors, which appear to be a lack of a unified view on regulatory enforcement; for example, there are differing views on how waste crime could be prevented and what the problem actually is. There are also contradictions regarding how enforcement should be organized efficiently, as well as which sanctions should be used and how. A lack of knowledge regarding the choice of sanctions and their efficiency also implies the existence of informational voids.

Professional voids are also present in the findings related to the role of the private sector in the prevention of illicit activities. Self-regulation and self-reporting were seen to be quite untrustworthy and it was also assumed that waste transported across borders goes unreported. However, supervisory respondents had a more positive view of the trustworthiness of self-regulation and self-reporting than did those from the preliminary investigation authorities. For example, the supervisory agencies considered the compulsory reports provided to the authorities to be truthful because professional consultants are often involved in the reporting process. A general criticism, however, is that in some cases it is actually a matter of window-dressing (see, for example, Short and Toffel, 2010). Previous research has shown that compliance improves when self-regulation is combined with tough inspections (Short, 2013: 25), yet the panel had an incoherent view on how important site inspections are as an enforcement tool and pointed out that under-resourcing limits the opportunities for on-site visits. These problems were highlighted in a case of aggravated illicit waste dumping in Finland, which resulted in imprisonment and fines in 2013. Despite self-reporting and site visits, the company was able to illicitly dump and treat sewage, oil waste and grease extraction well waste in the Helsinki metropolitan area in significant amounts between 1999 and 2008 (Sahramäki and Kankaanranta, 2017).

Incoherence is also clear with regard to sanctioning. There was, for example, disagreement over whether supervisory authorities should have the power to issue fines. This is concerning, because previous studies have shown, for example, that fining a waste-processing plant increases a regulator's credibility and amplifies the impact of the fine: the number of violations committed by the fined operator and other operators in the same jurisdiction decreases (Shimshack and Ward, 2005: 538). Interestingly, there appears to be only a narrow institutional void regarding enforcement powers: half of the panel found it likely that sufficient powers exist. During the Delphi study, the participants' comments, discussions and findings centred on criminal sanctions when several other sanctioning methods were available, such as licence withdrawal. This observation is supported by previous literature, which has come to the same conclusion on the infrequent use of tougher administrative sanctions (see Ogus and Abbot, 2002; Watson, 2005).

The findings on incoherence are supported by the observation that there is a lack of a unified view about where illicit activities should be detected. Previous studies have found that, in the waste sector, criminal enforcement agencies have often focused on illicit transport, whereas administrative enforcement bodies concentrate on static sites (Dorn et al., 2007). On the basis of the findings of this study, however, we are unable to support or contradict this observation.

There is confusion and differing viewpoints regarding which regulatory strategies are most efficient and how they should be used. Indeed, it appears that elements from both softer and harsher enforcement strategies are in place, creating a contradictory regulatory regime that is based, on the one hand, on trust between regulators and regulatees and, on the other, underlying assumptions about foul play being committed. Combining these findings on incoherence indicates challenges in developing a unified and credible authoritative response to illicit waste activities, which again decreases the deterrence effect that regulatory enforcement may have on potential offenders. The same incoherence is present in previous studies: some suggest that regulatory surveillance, rather than the threat of punishment, is an effective enforcement tool when it comes to enhancing self-regulation (Short and Toffel, 2010: 386–87), whereas others show that cooperative enforcement is effective only when it is combined with the threat of prosecution (Harrison, 1995: 242), and that the threat of intervention acts as a powerful deterrent that is potentially even stronger than actual interventions (Earnhart, 2004: 678–9).

Second, findings indicate severe *challenges in the intersectoral flow of information*, which create major informational as well as institutional voids. However, the importance of cooperation and intersectoral information exchange were highlighted as an essential part of efficient enforcement throughout the Delphi study. In addition to cooperation between the authorities, interaction between the private and public sectors was considered important. Interestingly, previous studies found that cooperation improves the effectiveness of softer enforcement tools but decreases the effectiveness of harsher ones (Raff and Earnhart, 2018: 1375), and that emphasizing bargaining, negotiation and discussions between regulators and regulated firms goes against several values such as transparency and accountability (Yeung, 2013: 314). On the other hand, it has been suggested that positive relationships between the regulator and the regulated provide incentives for compliance owing to the normative commitment and desire to earn social approval for business activities (Burby and Paterson, 1993: 756).

Institutional and informational voids are also present in findings suggesting that an ambiguous definition of waste poses challenges for enforcement. Despite this, there were participants who found the difficulties in separating illicit activities from licit ones to be insignificant or almost non-existent. A possible explanation for this might be that the panel included representatives from several authorities that enforce different aspects of the relevant regulations. Some regulations may be easier to interpret and therefore make enforcement more straightforward. However, there were also incoherencies within the respondent groups regarding the possible confusion that the definition of waste creates. As such, there appears to be fragmentation in terms of both how to interpret the legislative definition of waste and who should define waste. It should be noted that the complexities associated with the definition of waste on the international level also create criminogenic opportunities (Vander Beken et al., 2006).



Finally, *insufficient resources* deepen all regulatory voids. For instance, not only do findings suggest institutional voids, because the authorities lack the resources to perform their duties, but they also indicate professional voids, because presumptions are made regarding the abilities of the authorities to perform their tasks. The topic of the under-resourcing of enforcement is far from new. Under-resourcing results in prioritizing enforcement subjects and thus limits the scope of regulatory enforcement. This is concerning because, if there is a low probability of being subject to enforcement, the optimal strategy for operators may be to delay developing compliance protocols until warned to do so and to implement them only if inspected (Andarge and Lichtenberg, 2020: 183).

The findings show that waste crime is primarily seen as a regulatory crime that may be prevented by increasing communication between sectors, clarifying regulatory guidelines and directing resources toward regulatory enforcement. In addition, the detection of waste crime is primarily based on regulatory monitoring, leaving offenders working without environmental licences on the margins of authorities' response to illicit activities. Interestingly, the participants were concerned about the waste crimes that remain hidden and they also recognized the potential increase in these illegal activities in the future.

The existence of regulatory voids has two significant implications for practice that we wish to emphasize. First, the flow of information and cooperation between sectors should be highlighted. Information, training and guidelines should be clearly stated and available. These topics are vital, because environmental harm and crime are multidimensional issues requiring advanced knowledge, expertise and a multidisciplinary approach if harms to the environment, humans and the economy are to be prevented or at least reduced. Second, under-resourcing and incoherence within different sectors will lead to inconsistent regulatory enforcement and create criminogenic opportunities. As such, allocating resources specifically to preventative and supervisory activities would be essential in order to avoid an increase in waste crime and other illicit activities related to the environment in the future. Another indication that emerges from this study is the existence of political voids in the prevention of illicit waste activities in Finland. Further research should be done to investigate the content of this political void and its implications for the prevention of environmental harm and crime.

These data must be interpreted with caution because of the purposeful sampling in the formation of the participant panel, which raises two limitations. First, the participant panel included only a small proportion of the people involved in the prevention and supervision of illicit waste activities, which raises questions about the degree of representativeness of the panel. Second, the participant panel included only a few participants from each sector, even though the overall number of participants was quite large for a Delphi study. The view from each sector is therefore fairly limited. The primary purpose of the Delphi was, however, to analyse the findings of the whole panel rather than focusing on the respondent groups separately. It should be noted that face-to-face interviews might have produced more and richer data than an online survey (Brady and O'Connor, 2014: 225). Indeed, the present study resulted in a large amount of different types of data, including interviews, questionnaires, scenarios and a workshop, which, again, made the analysis and handling of data quite challenging (see Hasson et al., 2000: 1010). Although we acknowledge these challenges, our findings suggest that the Delphi method can not

only reveal voids in enforcement that may remain hidden in studies focusing on corporate compliance but also promote intersectoral discussion.

## Conclusion

In general, these findings contribute to the discussion on regulatory enforcement by arguing that professional cultures and the enforcement deficiencies they potentially create should be incorporated into theoretical considerations of regulatory strategies. Moreover, whereas the level of resources is decreasing, the opportunities and incentives for illicit waste activities are increasing. This pressing concern is not limited to Finland and has potential far-reaching consequences if not addressed accordingly.

On a practical level, this study suggests that there is a shared view on the current state of illicit waste activities in Finland. The path ahead seems to be clear in terms of the need to enhance regulatory enforcement and crime prevention. It is also evident where the path may lead if no action is taken – to more pollution and an increase in environmental criminality. There is, however, a long way to go before a shared understanding is reached regarding the ways in which illicit activities should be regulated, detected and prevented most efficiently. To conclude, the authorities walk a tightrope between achieving the most effective regulatory enforcement and crime prevention and attempting to avoid falling into the regulatory voids.

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## Notes

1. For examples on Delphi in criminology-related studies, see Suvantola and Kankaanranta (2018), Couturie (1995), Edwards and Hughes (2013), Hu (2010), Lintonen et al. (2014), Mikton et al. (2017), and Valente et al. (2019).
2. Polstat, Statistics on environmental crimes in Finland, obtained from the National Police Information System in 2020.

## References

- Andarge T and Lichtenberg E (2020) Regulatory compliance under enforcement gaps. *Journal of Regulatory Economics* 57(3): 181–202.
- Baird J, Curry R and Cruz P (2014) An overview of waste crime, its characteristics, and the vulnerability of the EU waste sector. *Waste Management & Research* 32(2): 97–105.
- Brady SR and O'Connor MK (2014) Understanding how community organizing leads to social change: The beginning development of formal practice theory. *Journal of Community Practice: Interdisciplinary Scholarship for Community Practice in the 21st Century* 22(1–2): 210–228.



- Brisman A and South N (2013) A green-cultural criminology: An exploratory outline. *Crime, Media, Culture* 9(2): 115–135.
- Burby RJ and Paterson RG (1993) Improving compliance with state environmental regulations. *Journal of Policy Analysis and Management* 12(4): 753–772.
- Carter R and Morgan R (2018) Regulatory trust and failure – A case study of coal seam gas in New South Wales, Australia. *Journal of Environmental Planning and Management* 61(10): 1789–1804.
- Couturie LE (1995) The future of high-technology crime: A parallel Delphi Study. *Journal of Criminal Justice* 23(1): 13–27.
- Crofts P, Morris T, Wells K and Powell A (2010) Illegal dumping and crime prevention: A case study of Ash Road, Liverpool Council. *Public Space (Broadway, N.S.W.)* 5: 23.
- Dalkey NC (1969) *The Delphi Method: An Experimental Study of Group Opinion*. Santa Monica, CA: The Rand Corporation.
- Dorn N, Van Daele S and Vander Beken T (2007) Reducing vulnerabilities to crime of the European waste management industry: The research base and the prospects for policy. *European Journal of Crime, Criminal Law and Criminal Justice* 15(1): 23–36.
- Du Rées H (2001) Can criminal law protect the environment? *Journal of Scandinavian Studies in Criminology and Crime Prevention* 2(2): 109–126.
- Earnhart D (2004) Regulatory factors shaping environmental performance at publicly-owned treatment plants. *Journal of Environmental Economics and Management* 48(1): 655–681.
- Edwards A and Hughes G (2013) Comparative European criminology and the question of urban security. *European Journal of Criminology* 10(3): 257–259.
- Enticott G and Franklin A (2009) Biosecurity, expertise and the institutional void: The case of bovine tuberculosis. *Sociologia Ruralis* 49(4): 375–393.
- Fineman S (2000) Enforcing the environment: Regulatory realities. *Business Strategy and the Environment* 9(1): 62–72.
- Finnish Environmental Crime Monitoring Group (2020) *Environmental Crime Report 2020*. Helsinki: Finnish Police.
- Fitzgerald AJ and Spencer D (2020) Governmentality and environmental rights: Regulatory failure and the Volkswagen emissions fraud case. *Critical Criminology (Richmond, B.C.)* 28(1): 43–63.
- Fletcher AJ and Marchildon GP (2014) Using the Delphi method for qualitative, participatory action research in health leadership. *International Journal of Qualitative Methods* 13(1): 1–18.
- Franklin K and Hart J (2007) Idea generation and exploration: Benefits and limitations of the policy Delphi research method. *Innovative Higher Education* 31(4): 237–246.
- Grisham T (2009) The Delphi technique: A method for testing complex and multifaceted topics. *International Journal of Managing Projects in Business* 2(1): 112–130.
- Gunningham N and Grabosky P (1998) *Smart Regulation: Designing Environment Policy*. New York: Oxford University Press.
- Hajer M (2003) Policy without polity? Policy analysis and the institutional void. *Policy Sciences* 36(2): 175–195.
- Harrison K (1995) Is cooperation the answer? Canadian environmental enforcement in comparative context. *Journal of Policy Analysis and Management* 14(2): 221.
- Hasson F, Keeney S and McKenna H (2000) Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing* 32(4): 1008–1015.
- Hu L (2010) Same bed, but different dreams? Comparing retired and incumbent police officers' perceptions of lost knowledge and transfer mechanisms. *Crime, Law, and Social Change* 53(4): 413–435.

- Hutton D (2000) Countering environmental crime: The role of environmental regulators. *Social Alternatives* 19(2): 24–27.
- Jarrell M and Ozmy J (2012) Real crime, real victims: Environmental crime victims and the Crime Victims' Rights Act (CVRA). *Crime, Law and Social Change* 58(4): 373–389.
- Koski C (2007) Examining state environmental regulatory policy design. *Journal of Environmental Planning and Management* 50(4): 483–502.
- Linstone HA and Turoff M (1975) *The Delphi Method: Techniques and Applications*. Boston, MA: Addison-Wesley.
- Lintonen T, Konu A, Rönkä S and Kotovirta E (2014) Drugs foresight 2020: A Delphi expert panel study. *Substance Abuse Treatment, Prevention and Policy* 9(1): 18.
- Lynch MJ (2020) Green criminology and environmental crime: Criminology that matters in the age of global ecological collapse. *Journal of White Collar and Corporate Crime* 1(1): 50–61.
- McKenna HP (1994) The Delphi technique: A worthwhile research approach for nursing? *Journal of Advanced Nursing* 19(6): 1221–1225.
- Malik A (2007) Optimal environmental regulation based on more than just emissions. *Journal of Regulatory Economics* 32(1): 1–16.
- Massari M and Monzini P (2006) Dirty businesses in Italy: A case-study of illegal trafficking in hazardous waste. *Global Crime* 6(3–4): 285–304.
- Michalowski R and Brown M (2020) Poisoning for profit: Regulatory rollbacks, public health, and state-facilitated corporate crime. *Journal of White Collar and Corporate Crime* 1(2): 113–122.
- Mikton CR, Tanaka M, Tomlinson M, Streiner DL, Tonmyr L, Lee BX et al. (2017) Global research priorities for interpersonal violence prevention: A modified Delphi study. *Bulletin of the World Health Organization* 95(1): 36–48.
- Morganti M, Favarin S and Andreatta D (2020) Illicit waste trafficking and loopholes in the European and Italian legislation. *European Journal on Criminal Policy and Research* 26(1): 105–133.
- Morrison TH, Wilson C and Bell M (2012) The role of private corporations in regional planning and development: Opportunities and challenges for the governance of housing and land use. *Journal of Rural Studies* 28(4): 478–489.
- Ogus A and Abbot C (2002) Sanctions for pollution: Do we have the right regime? *Journal of Environmental Law* 14(3): 283–298.
- Parker C (2006) The 'compliance' trap: The moral message in responsive regulatory enforcement. *Law & Society Review* 40(3): 591–622.
- Pinkse J and Kolk A (2011) Multinational enterprises and climate change: Exploring institutional failures and embeddedness. *Journal of International Business Studies* 43(3): 332–341.
- Raff Z and Earnhart D (2018) Effect of cooperative enforcement strategies on wastewater management. *Economic Inquiry* 56(2): 1357–1379.
- Rucevska I, Nelleman C, Isarin N, Yang W, Liu N, Yu K et al. (2015) *Waste Crime: Low Risks – High Profits. Gaps in Meeting the Global Waste Challenge. A Rapid Response Assessment*. Secretariat of the Basel Convention, GRID-Arendal and Zoi Environment Network.
- Ruffell A and Dawson L (2009) Forensic geology in environmental crime: Illegal waste movement & burial in Northern Ireland. *Environmental Forensics* 10(3): 208–213.
- Sahramäki I (2016) Enforcement and professional constructions of environmental crime in Finland. In: Potter GR, Nurse A and Hall M (eds) *The Geography of Environmental Crime. Conservation, Wildlife Crime and Environmental Activism*. London: Palgrave Macmillan, 189–216.

- Sahramäki I and Kankaanranta T (2014) *Ympäristörikollisuuden torjunta ja valvonta Suomessa – Kohti vihreämpää viranomaisyhteistyötä?* [Prevention and supervision of environmental crime in Finland: Towards greener cooperation between authorities?] Tampere: Police University College.
- Sahramäki I and Kankaanranta T (2016a) *Katsaus hovioikeuden ympäristörikostuomioihin* [Review of the environmental crime convictions in the courts of appeal]. Tampere: Police University College.
- Sahramäki I and Kankaanranta T (2016b) Jäterikollisuus Suomessa nyt ja tulevaisuudessa [Waste crime now and in the future in Finland]. *Poliisiammattikorkeakoulun tutkimuksia* 43. Tampere: Police University College.
- Sahramäki I and Kankaanranta T (2017) Waste no money – reducing opportunities for illicit waste dumping. *Crime, Law, and Social Change* 68(1–2): 217–232.
- Sahramäki I, Korsell L and Kankaanranta T (2015) Prevention of environmental crime through enforcement—Finland and Sweden compared. *Journal of Scandinavian Studies in Criminology and Crime Prevention* 16(1): 41–59.
- Schön D and Rein M (1994) *Frame Reflection. Toward the Resolution of Intractable Policy Controversies*. New York: Basic Books.
- Seror N and Portnov BA (2020) Estimating the effectiveness of different environmental law enforcement policies on illegal C&D waste dumping in Israel. *Waste Management (Elmsford)* 102: 241–248.
- Shimshack JP and Ward MB (2005) Regulator reputation, enforcement, and environmental compliance. *Journal of Environmental Economics and Management* 50(3): 519–540.
- Short JL (2013) Self-regulation in the regulatory void: ‘Blue moon’ or ‘bad moon’? *The Annals of the American Academy of Political and Social Science* 649(1): 22–34.
- Short JL and Toffel MW (2010) Making self-regulation more than merely symbolic: The critical role of the legal environment. *Administrative Science Quarterly* 55(3): 361–396.
- Simpson SS, Gibbs C, Rorie M, Slocum LA, Cohen MA and Vandenberg M (2013) An empirical assessment of corporate environmental crime-control strategies. *Journal of Criminal Law & Criminology* 103(1): 231–278.
- Situ Y and Emmons D (2000) *Environmental Crime. The Criminal Justice System’s Role in Protecting the Environment*. Thousand Oaks, CA: Sage.
- Snider L (2010) Framing E-waste regulation. *Criminology & Public Policy* 9(3): 569–577.
- Suvantola L and Kankaanranta T (2018) Broadening the toolbox for the prevention of illegal waste trafficking, to address emerging threats. *Environmental Policy and Law* 48(1): 64–74.
- Tompson L and Chainey S (2011) Profiling illegal waste activity: Using crime scripts as a data collection and analytical strategy. *European Journal on Criminal Policy and Research* 17(3): 179–201.
- Turoff M (1975) The policy Delphi. In: Linstone H and Turoff M (eds) *The Delphi Method. Techniques and Applications*. Boston, MA: Addison-Wesley, 80–96.
- Valente R, Crescenzi Lanna L and Chainey S (2018) Participatory design of a thematic questionnaire in the field of victimization studies. *European Journal of Criminology* 16(2): 170–187.
- Van Daele S, Vander Beken T and Dorn N (2007) Waste management and crime: Regulatory, business and product vulnerabilities. *Environmental Policy and Law* 37(1): 34.
- Van Erp J and Huisman W (2010) Smart regulation and enforcement of illegal disposal of electronic waste. *Criminology & Public Policy* 9(3): 579–590.
- Vander Beken T and Balcaen A (2006) Crime opportunities provided by legislation in market sectors: Mobile phones, waste disposal, banking, pharmaceuticals. *European Journal on Criminal Policy and Research* 12(3): 299–323.

- Vilcan T and Potter K (2019) Delivering sustainable drainage systems through the English planning system: A proposed case of institutional void. *Journal of Flood Risk Management* 13(1).
- Watson M (2005) Environmental offences: The reality of environmental crime. *Environmental Law Review* 7(3): 190–200.
- White R (2008) *Crimes Against Nature: Environmental Criminology and Ecological Justice*. Cullompton, Devon: Willan Publishing.
- White R (2013) Environmental crime and problem-solving courts. *Crime, Law and Social Change* 59(3): 267–278.
- White R and Heckenberg D (2014) *Green Criminology: An Introduction to the Study of Environmental Harm*. Abingdon: Routledge.
- Yeung K (2013) Better regulation, administrative sanctions and constitutional values. *Legal Studies* 33(2): 312–339.



