

2024 Environmental Crime Threat Assessment

A 'special' on plastic waste and climate measures

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 POLITIE

2024 Environmental Crime Threat Assessment

A 'special' on plastic waste and climate measures

Rudie Neve, Monique Hamerslag, Willemijn Holthuis (ILT-IOD), Elise Schutte, Vanessa Schwegler, Margo Verbaarschot, Viktor Wildeboer (ILT-IOD)

Commissioned by the police National Intelligence Coordinator and the Police Chief of the National Expertise and Operations Unit, National strategic assessments were drawn up in 2024. These reports relate to the police's prioritised security themes as listed in the National Intelligence Agenda (NIA). The 2024 Environmental Crime Threat Assessment report, commissioned by the Strategic Environmental Chamber, is part of this series.

Foreword to the 2024 Threat Assessment

This 2024 Environmental Threat Assessment, adopted by the Strategic Environmental Chamber¹, differs from previous environmental threat assessments in two respects. First, this threat assessment is being published before the lapse of four years, as would be usual. Second, the content is differently structured. The previous Threat Assessment generally took stock of the areas and types of environmental crime. The first part of this new assessment, the chapter on the plastic waste chain, can be considered an important addition to that overview. The authors take an in-depth look at the subject, relying mainly on covertly gathered information. The second part focuses on the climate issue and considers laws and regulations and possible forms of crime in this area. Some of this report covers unexplored territory. It is worth noting that a chapter on water quality is due for separate publication in 2025.

However, one unchanged aspect of both this and previous threat assessments is their sense of urgency. Unfortunately, said the comments made in the foreword of the 2021 Threat Assessment remain true today: 'On the global level, the serious impact of environmental damage on the environment and human health is becoming ever more widely known.' The world's overall environmental and climate challenges are as overwhelming as ever. Tackling environmental crime is one of the tasks at hand, and criminal law should certainly share responsibility for combating it.

The question, then, is whether the organisations responsible for criminal justice are performing adequately in this field. In the foreword to the 2021 SMK Threat Assessment, my predecessor wrote that the criminal justice approach to environmental crime left much to be desired: 'Criminal investigation and prosecution are not sufficiently effective, investigations are fragmented, prosecutions and legal proceedings take too long, and the ultimate penalties are unlikely to act as a deterrent.'

In 2024, the question faced by the criminal justice system is no less pressing. Indeed, three years after the critical report on environmental enforcement by the Van Aartsen Committee, its members Van Aartsen and Sorgdrager in their review of the improvement programme initiated after the report's publication still find great fault with the criminal justice system. Some recent reports also call on the National Office for Serious Fraud, Environmental Crime and Asset Confiscation to take a firmer line. The revised 2024 EU Environmental Criminal Justice Directive seems to give a more compelling argument for environmental criminal law enforcement than its 2008 predecessor.

The period from 2021 to 2024 is not long enough to be able to say that environmental enforcement is visibly improving. As things stand, it takes a lot of time and sustained energy to change the direction of long-standing trends. But some developments are encouraging. The completion, in September 2024, of the Intergovernmental Programme on Strengthening

the system of licencing, supervision and enforcement (VTH System) means that the blueprint for enforcement is now on a firmer footing. For example, since criminal and administrative enforcement should work in tandem, the intended strengthening of the robustness of the environmental services also adds value to the criminal justice system. In the opinion of the Strategic Environmental Chamber, one important outcome of the programme is that it will be given a formal and thus stronger basis by way of a ministerial decree. The rulings by the 's-Hertogenbosch District Court in the Chemelot cases of January of this year are particularly worthy of mentioning in this connection. These rulings contributed significantly to considerations regarding sanctions law in environmental criminal cases. Since an appeal has been filed, it is now up to the court of appeal to form a judgment on the matter.

However, it must be recognised that criminal law enforcement is not yet at the level it should be. The overall investigative potential of the police, special investigation services and the special investigation officers of Domain II could be much better utilised. Lead times must come down. Initial and follow-up actions need to be much better aligned when prosecuting cases. Sentencing law is still in its infancy. The task for the criminal justice system continues to be as massive as it ever was, but so does the willingness and motivation of all parties involved to continue working on it.

Michiel Zwinkels

Chief Public Prosecutor, Public Prosecution Service, Chair of the Strategic Environmental Chamber

¹ The Strategic Environmental Chamber (SMK, *Strategische Milieukamer*) is comprised of the inspectors general of the Inspectorate for the Human Environment and Transport Inspectorate, the Netherlands Food and Consumer Product Safety Authority and the Netherlands Labour Authority, the portfolio holder for Environmental Crime of the police, the director of the Environmental Service Zuid-Holland Zuid for the environmental services, with the chief public prosecutor of the National Office for Serious Fraud, Environmental Crime and Asset Confiscation acting as chair. The SMK broadly directs the criminal law approach to environmental crime.

Acknowledgements

This Environmental Crime Threat Assessment was commissioned by the Strategic Environmental Chamber. It also forms part of the series of strategic assessments produced by the police with respect to themes listed on the National Intelligence Agenda.

Two ILT-IOD employees, Willemijn Holthuis and Viktor Wildeboer, wrote the chapter on crime involving plastic waste. They would like to thank various colleagues for their contributions.

The introduction and Chapter 3 on climate measures were written by police staff. Margo Verbaarschot wrote the section on emissions in the introduction of Chapter 3, Vanessa Schwegler wrote the section on the deforestation regulation, Monique Hamerslag wrote that on the hydrogen economy, while Elise Schutte contributed the section on emission allowances. Rudie Neve, police researcher, wrote the remaining sections and did the final editing.

The expert meeting held on 10 June 2024 played an important role in fleshing out the findings. This was organised by Jip Colenbrander and Margo Verbaarschot. There were sub-sessions on the subjects of Chapters 2 and 3 and on the theme of water quality, which will be further elaborated. In addition to the authors, Ingelou Sybrandij and Emile Lindemulder played a role in moderating the sub-sessions and reporting.

The monitoring committee formed on behalf of the clients met on three occasions: before inception, to discuss the first draft, and to discuss the final version.

The monitoring committee consisted of:

Floor van den Bogart	National Office for Serious Fraud, Environmental Crime and Asset Confiscation, also on behalf of Martine Hollander.
Emiel Vos	DCMR Environmental Protection Agency
Leontine Sitee	Ministry of Justice and Security
Marloes Hoenderdos – van Lin	NVWA-IOD
Jenny van Houten – Peschier	ILT-IOD
Emile Lindemulder	Police (Environmental Crime Portfolio)
Alexandra van den Heerik	Police, A&O
Joost Seuntiëns	Police, environmental crime intelligence coordinator
Erik Kooijker	Police, NXT

Finally, we would also like to thank Anton Weenink, police researcher, for his editing work, which greatly improved the report's readability.

The authors

Executive summary

The Environmental Crime Threat Assessment 2024 is a special edition, differing from the wide selection of environmental themes covered in previous threat assessments. A short general section is followed by two more chapters. In Chapter 2, ILT-IOD staff discuss plastic waste crime. Of particular note is that this chapter is mainly based on information obtained from covert sources. Chapter 3 provides by a reflection on the implications of climate change for the (criminal) approach to environmental crime. This has led to an overview of recent and new laws and regulations to combat global warming. In addition to providing a description of these laws and directives, as the chapter discusses questions like: how will supervision and enforcement be shaped? Is it already possible to say something about the opportunities to manipulate, circumvent, or take unfair advantage of the new regulations? Both chapters also feature a summary that is slightly more extensive than the one given here.

Crime throughout the plastic waste processing chain

The chapter on crime in plastic waste processing builds on and updates previous reports in this area. Each step in the chain involves enforcing the rules aimed at ensuring that discarded plastic is – preferably - recycled or at any rate disposed of responsibly. Domestically, criminal activity mainly undermines a level playing field, to the detriment of waste handlers who do operate in accordance with the rules. Abroad, illegal plastic waste exports mainly result in environmental pollution and damage to health.

Special attention is paid to the role traders and intermediaries play in this industry. Some of these have no storage capacity of their own but still trade in waste, sometimes with partners in other parts of the world, without ever physically being in possession of the materials. This greatly hampers monitoring. Moreover, it is very easy to enter this market as there are very few requirements for new entrants. It may be tempting for larger companies to take advantage of such small traders to get rid of plastic waste cheaply. It is difficult to hold them accountable for what happens to the materials next. Complex relations in increasingly large holdings add to the sector's lack of transparency. The chapter concludes with a number of concrete recommendations to politicians and policymakers, including notes on how they can be put into practice.

Climate: familiar and entirely new laws and regulations

Whenever existing practices are made illegal or new obligations are implemented, there is a risk that some companies and individuals affected by these laws will try to circumvent them to gain a competitive advantage.

The Regulation on Deforestation-free products restricts imports of timber, chocolate, and coffee, among other products that can cause deforestation. The F-gas Regulation imposes quotas on imports of these heavy greenhouse gases used for refrigeration. Monitoring and enforcement therefore mainly entail preventing illegal imports of certain goods that are in demand. Other climate measures include regulating the trade in emission allowances, promoting the production of renewable fuels (including hydrogen), and introducing reporting requirements (CSRD and CSDDD), which require companies to show what they have done to contribute to countering climate change.

This involves fairly complex regulations that have not yet fully crystallised. Much of the oversight will fall to private parties such as certification bodies. Administrative law is expected to play an important role in enforcement, but the criminal law system will undoubtedly have a role to play, as well. The Economic Offences Act can be invoked when companies wilfully and structurally fail to comply with their obligations.

The climate chapter logically contains less specific policy recommendations: efforts have been made to identify criminal opportunities that might arise from the new laws and regulations. For the coming years, it will be important to monitor developments closely and take (preventive) measures should new illegal practices or new versions of known types of crime emerge.

List of abbreviations

ACM

Autoriteit Consument en Markt (Netherlands Authority for Consumers & Markets)

AFM

Autoriteit Financiële Markten (Dutch Authority for the Financial Markets)

BOA

Bijzonder opsporingsambtenaar (Special investigating officer)

BOD

Bijzondere opsporingsdienst (Special investigation service)

CBAM

Carbon Border Adjustment Mechanism, tax on emissions caused by products imported from outside the EU

CSRD

Corporate Sustainability Reporting Directive, EU directive

CSDDD

Corporate Sustainability Due Diligence Directive, EU directive

DEI+

Demonstratieregeling Klimaat en Energie-innovatie (Climate and Energy Innovation Demonstration Scheme).

EIA

Environmental Investigation Agency, British NGO.

EMPACT

European Multidisciplinary Platform Against Criminal Threats

ETS

Emission Trading System

EU

European Union

EUDR

Regulation on Deforestation-free products

EUTR

European Union Timber Regulation

EWSR

European waste shipment regulation

ECHR

European Convention on Human Rights

ECHR

European Court of Human Rights

Fiscal Intelligence and Investigation Service (FIOD)

Fiscale Inlichtingen- en Opsporingsdienst (Fiscal Intelligence and Investigation Service)

FIU

Financial Intelligence Unit

FP

Functioneel Parket (National Office for Serious Fraud, Environmental Crime and Asset Confiscation) (part of the Public Prosecution Service)

GWP

Global Warming Potential, of a substance expressed in relation to 1 kg CO₂

HER

Hernieuwbare Energie Regeling (Renewable Energy Scheme). Subsidy scheme for innovations generating savings greater than the subsidy

ILT

Inspectie Leefomgeving en Transport (Human Environment and Transport Inspectorate)

ILT-IOD

Inspectie Leefomgeving en Transport – Inlichtingen- en Opsporingsdienst (Human Environment and Transport Inspectorate - Intelligence and Investigation Service)

IPCC

Intergovernmental Panel on Climate Change

ISZW

Inspectie Sociale Zaken en Werkgelegenheid (Social Affairs and Employment Inspectorate)

LHSO

Landelijke Handhavingsstrategie Omgevingsrecht (National Enforcement Strategy for Environmental Law)

LVVN

Ministerie van Landbouw, Veeteelt, Voedselzekerheid en Natuur (Ministry of Agriculture, Livestock, Food Security and Nature) (formerly LNV)

NEa

Nederlandse Emissie autoriteit (Dutch Emissions Authority)

MvT

Memorie van Toelichting (Explanatory memorandum)

NLA

Nederlandse Arbeidsinspectie (Netherlands Labour Authority) (formerly ISZW)

NVWA

Nederlandse Voedsel- en Warenautoriteit (Netherlands Food and Consumer Product Safety Authority)

NVWA-IOD

Nederlandse Voedsel- en Warenautoriteit- Inlichtingen- en Opsporingsdienst (Netherlands Food and Consumer Product Safety Authority - Intelligence and Investigation Service)

OECD

Organisation for Economic Cooperation and Development

OM

Openbaar Ministerie (Dutch Public Prosecution Service)

P(E)RN

Packaging (Export) Recovery Note

PBL

Planbureau voor de Leefomgeving (Netherlands Environmental Assessment Agency)

RIVM

Rijksinstituut voor Volksgezondheid en Milieuhygiëne (National Institute of Public Health and Environmental Hygiene)

SDE++

Stimuleringsregeling Duurzame Energieproductie (Renewable energy production incentive scheme). Continuation of MEP and SDE. Compensation for excess project costs.

SMK

Strategische Milieukamer (Strategic Environmental Chamber)

SOCTA

Serious Organised Crime Threat assessment, Europol report

UNODC

United Nations Office for Drugs and Crime

UPV

Uitgebreide Productverantwoordelijkheid (Extended Producer Responsibility)

VIHB

Lijst van Vervoerders, Inzamelaars, Handelaars en Bemiddelaars (List of Transporters, Collectors, Traders and Intermediaries)

VTH

(Stelsel van) Vergunningverlening, toezicht en handhaving (System of Licensing, supervision and enforcement)

WED

Wet op de economische delicten (Economic Offences Act)

WwFT

Wet ter voorkoming van witwassen en financieren van terrorisme (Money Laundering and Financing of Terrorism (Prevention) Act)

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Introduction





This special edition of the Environmental Crime Threat Assessment follows on from the 2021 Environmental Crime Threat Assessment, which was written at the request of the Strategic Environmental Chamber (SMK). In 2024, on the initiative of the national police units², strategic assessments were drawn up for the specific themes listed in the national Intelligence Agenda, including environmental crime.

As was customary until 2017, the periodicity aligns with the four-year cycle operated at the European level, such as the publication of Europol's Serious and Organised Crime Threat Assessment (SOCTA). The SMK has embraced the initiative to create an overview of environmental crime in this context. Since the decision to establish the SMK refers to a Environmental Crime Threat Assessment, this name will be retained (Parliamentary Papers II, 2021-2022, 22343, no 337).

The SMK uses the threat assessment as part of the basis for setting the agenda for the criminal justice approach to environmental crime.

Based on the threat assessments, stakeholders have, ever since 2012, highlighted environmental crime as a form of crime with serious consequences for the living environment, public health and society. Selected forms of environmental crime have been analysed in terms of their opportunity structures and *modi operandi*, and starting points for prevention and strategy have been explored in more detail. The threat assessment may thus play a role in further developing policy on tackling environmental crime by the SMK and its affiliates.³

This 2023 Threat Assessment was prepared relatively shortly after the 2021 Threat Assessment had been published, which gave cause to opt for a somewhat different approach, taking the form of a 'special'. A 'regular' Environmental Crime Threat Assessment will be published again in 2028. In consultation with stakeholders, the decision was taken to publish this special to take an in-depth look at a limited number of subjects: crime in the plastic waste stream and the impact of laws and regulations to combat climate change. These subjects are covered in Chapters 2 and 3, respectively.

An initially planned section on water quality has been postponed to 2025 for capacity reasons.⁴ A separate report on this subject will therefore be forthcoming. In the chapter on climate and in the yet-to-be-published report on water quality, a somewhat different approach was taken than in previous threat assessments. From an area of economic activity adversely affecting the environment, we reason backwards to identify the illegal activities that contribute to these adverse effects. Specifically, this entails attempting to provide an image of the possible new forms of rule-breaking or crime that new laws and regulations might generate.

Before this threat assessment is outlined in section 1.4, we will first address some general concepts (1.1), and explore the concept of environmental crime in greater detail (1.2). Section 1.3 briefly describes the system for dealing with environmental crime.

² The division of the National Unit into the National Expertise and Operations Unit and the National Investigation and Interventions Unit is an ongoing process.

³ The Social Affairs and Employment Inspectorate is part of the Strategic Environmental Chamber, as well, such in addition to the parties involved in the project team. The chair of the SMK is the chief public prosecutor of the National Office for Serious Fraud, Environmental Crime and Asset Confiscation.

⁴ The topical nature of this topic was recently highlighted by the RIVM report, which showed that drinking water companies are increasingly struggling to remove pesticide and fertiliser residues from river and surface water to prepare drinking water (Van As, Van der Aa & Ambaum, 2024).

1.1 Environment and environmental crime

Look at mother nature on the run in the 1970's (Neil Young, 1970)

Concerns about the environment are not exactly new, as illustrated by the song referred to in the above. Ever since the 1960s, many people have been concerned about the environment, and the first environmental action groups were formed during that time. In 1968, the Club of Rome was founded and the report *Limits to Growth* (Meadows, 1972), produced by this group of scientists, helped ensure that the issue has held public attention ever since. Since then, many reports have been published, but they have not been able to prevent our current 'climate crisis'.⁵ While the Club of Rome back then mainly raised the alarm, at present, there is a strong focus on the policies of governments, which, according to the International Panel on Climate Change (IPCC) and others, are seriously flawed, especially in terms of their implementation. The latest report of the International Panel on Climate Change, to be discussed in Chapter 3, is a clear example of this (IPCC, 2023). Of course, this is not to say that nothing has happened: governments are attempting to prevent and limit damage to the environment, and more recently to the climate, with laws and regulations.

Environmental legislation and environmental crime

Climate change and the poor state of the environment are caused not only by environmental crime but also, to a large extent, by legal economic activities, many of which are licensed. Environmental legislation aims to curb these activities in such a way that the burden on the environment remains within the limits set by the government. Environmental legislation in the Netherlands started to develop in the 1960s. Before that time, the *Estates Act* (*Natuurschoonwet*, 1928) and the *Birds Act* (*Vogelwet*, 1936) had already been implemented. A law on pesticides came into force in 1962, with the *Nature Conservation Act* following in 1967. Environmental regulation has grown considerably, partly in response to a number of major 'environmental scandals' that came to light in the 1980s and 1990s, such as the *Lekkerkerk*, *Uniser*, and *TCR* cases, all of which concerned the dumping or discharge of chemical or oil waste (Van den Anker, 1997; Spapens, 2012).

A complex body of environmental legislation was created, and largely restructured in the new *Environment Act* on 1 January 2024. Implemented by way of four orders in council (Dutch: *Algemene Maatregel van Bestuur*) and one ministerial regulation, this Act provides the legal frameworks for activities, both carried out and planned, that affect the physical living environment. An earlier simplification of the bloated range of legislation was the introduction of the *Environmental Management Act* in 1993. Whereas the concept of 'institution' (*inrichting*) dominated the application of the *Environmental Management Act*, this term has disappeared in the *Environment Act*. Reference is now only made to 'activities' which affect the living environment.⁶

One of the principles enshrined in the *Environment Act* is the *precautionary principle*. This means that companies and governments must take measures if it is plausible that activities

⁵ The 2021 Environmental Crime Threat Assessment (Neve, 2021) briefly summarised the findings of the main reports that had appeared shortly before its publication.

⁶ A lot of information on the *Environment Act* can be found on the *Environment Information Point* website: www.iplo.nl. See also Chapter 2 of the 2021 Environmental Crime Threat Assessment (Neve, ed., 2021).

could adversely affect the environment or health. This may be the case when indications of a risk of environmental damage exist but scientific evidence that such damage will in fact occur is (still) insufficient. In that case, 'precautionary' measures must be taken.⁷ The Dutch Safety Board published a report making recommendations for embedding the precautionary principle, following incidents at Tata Steel (IJmuiden), Chemours (Dordrecht), and APN (Nijmegen). The Board stated that the health and welfare of local residents should be more paramount in policy and monitoring (OvV, 2023).

The emergence of environmental legislation has also led to a new form of crime: complying with laws and regulations in economic activities is expensive. Conversely, this also means that a lot of money can be saved by not doing so, which accounts for the bulk of environmental crime.

Environmental crime has been recognised as a serious social problem in the Netherlands for decades (Van den Berg, 1995a, 1995b; Bruinsma & Bovenkerk, 1996; Spapens, 2012, 2016) and, somewhat more recently, has also received considerable attention internationally. On the international stage, this often involves wildlife crime, such as the illegal trade in ivory and timber from protected tree species (UNODC, 2024). Several other forms of crime are also important, such as waste crime (Nellemann et al., 2016). The most recent Serious Organised Crime Threat Assessment (SOCTA) briefly discusses wildlife crime and waste and pollution crime (Europol, 2021, p. 54). Europol has published a special report on the topic, updating and elaborating on these issues (Europol, 2022). Eurojust, the European agency for cooperation in criminal matters, published a report in which the main conclusion is that environmental crime is expanding rapidly and threatening entire ecosystems. Vast sums of money can be made perpetrating certain forms of environmental crime and the risk of running up against the justice system is considered very low. When it does happen, the penalties tend to be low.⁸ On a global scale, many billions are put into the various forms of environmental crime, and it is widely believed that the scale of such operations continues to grow.⁹ A review of cases reported to Eurojust shows that they mainly involve waste crime, illegal trade in endangered species, pollution and illegal trade in hazardous substances (Eurojust, 2021). These forms of environmental crime, as well as many others, are also found in the Netherlands.¹⁰

1.2 A closer look at environmental crime

Environmental crime covers a wide range of very different phenomena, ranging from waste dumping (in developing countries or elsewhere) to illegal imports of crop protection products and non-compliance with safety regulations in high-risk companies.

Many reports on environmental crime do not provide a definition but only refer to the practices criminalised by environmental legislation. For example, Europol's website lists a number of types of environmental crime, focusing on crimes committed by 'organised crime groups'. Such criminal activities allow for raking in sums comparable to those for drug

trafficking, while the chances of being caught and the possible penalties are considerably lower. Green criminology focuses less on what is classified as a crime under criminal law and mainly considers damage to the living environment. For example, the enormous damage to biodiversity caused by overfishing the oceans is labelled an environmental crime, even though this practice is not criminalised under the law (White, 2011). While most environmental offences are criminalised under the Economic Offences Act (WED), the Penal Code is also often relevant. This is the case, for example, where forgery is involved (Section 225 of the Dutch Penal Code), which is often the case in all kinds of environmental crime.

In 2024, the new EU Environmental Crime Directive came into force. It is expected to lead to an earlier recourse to criminal law when environmental crimes are identified. A new list of environmental crimes has been made, including illegal timber trade and the depletion of water stocks. Individuals and company executives can be sentenced to fines and imprisonment. The proposal also calls for a clear and common definition of environmental crime, which has so far been lacking in Europe.¹¹ Agreements on tackling environmental crime will be harmonised, so that cross-border environmental crimes can be tackled more efficiently, which was an issue until recently. Member States have two years to implement the Directive into national laws and regulations.¹²

1.3 Tackling environmental crime

It is impossible to eradicate environmental crime altogether, but all parties involved strive to curb it through monitoring, enforcement, and, if necessary, criminal investigations. Criminal investigations are primarily aimed at punishing the perpetrators, but they also have a signalling function and provide information on the opportunity structures for environmental crime in different industries. Such insights can in turn be used in preventing environmental crime. The aim is to focus capacity on environmental crimes that cause the most harm to the environment or to the climate. In cases where the damage is not tied to a particular place (such as global warming) or is committed in faraway countries (as in the case of illegal plastic waste exports), assigning a certain importance to a case is less straightforward.

Some critical reports on the licensing, supervision and enforcement (VTH) system have been discussed in Chapter 2 of the 2021 Threat Assessment. In mid-2024, the University of Leiden will be conducting research commissioned by the Dutch Research and Documentation Centre (WODC) on the effectiveness of punishment in the environmental domain.¹³ In this report, we limit ourselves to a brief description of the role played by the criminal justice system.

The system in brief

Enforcement of environmental legislation is largely the remit of the licensing authorities. These are mostly local and regional authorities (municipal and provincial authorities), which

7 <https://iplo.nl/regelgeving/omgevingswet/voorzorg/>.

8 See also the interview coordinating environmental officer Rob de Rijck had with the Algemeen Dagblad newspaper in July 2020. <https://www.ad.nl/binnenland/milieucriminelen-komen-te-makkelijk-weg-zegt-om-duizenden-euro-s-boete-stelt-niks-voor~a567ceba/>

9 Reference is made here to Interpol-UNEP (2016). The revenue of \$91 billion to \$259 billion and growth of 5 per cent to 7 per cent quoted there is taken from Nellemann, 2014.

10 For comprehensive overviews, see Neve, Liezen, Nieuwdorp, Redder & Van der Zon (2012) and Spapens (2016).

11 See: <https://www.europarl.europa.eu/news/nl/press-room/20240223IPR18075/milieucriminaliteit-ep-keurt-nieuwe-lijst-van-straftbare-feiten-en-sancties-goed> See: <https://www.europarl.europa.eu/news/nl/press-room/20240223IPR18075/milieucriminaliteit-ep-keurt-nieuwe-lijst-van-straftbare-feiten-en-sancties-goed>

12 <https://magazines.rijksoverheid.nl/jenv/jenvmagazine/2024/24/milieucriminaliteit#:~:text=Europa%3A%20richtlijn%20aangescherpt&text=In%20een%20aangescherpte%20conceptrichtlijn%20verbiedt,de%20regels%20rond%20chemische%20stoffen>

13 <https://www.wodc.nl/onderzoek-in-uitvoering/welk-onderzoek-doen-we/3454---straffen-in-het-milieudomein>

have often jointly outsourced this task to the environmental services. They also deploy special investigating officers (BOAs), who can draw up charges in case of violations of the rules.

The main national regulators of environmental compliance are the Netherlands Food and Consumer Product Safety Authority (NVWA) and the Living Environment and Transport Inspectorate (ILT). The Netherlands Labour Authority (NLA) also enters the picture when compliance with environmental regulations touches on working conditions within companies. Where there is an overlap between environmental compliance and taxation, the Dutch Tax and Customs Administration can also be an important supervisory body. Customs, part of this organisation, oversees the movement of goods at the borders. All regulatory bodies feature their own investigative services. The ILT, NVWA, and Tax and Customs Administration, refer to them as Intelligence and Investigation Service (IOD), resulting in the ILT-IOD, the NVWA-IOD, and the FIOD (Fiscal Intelligence and Investigation Service). Together with the NLA's Investigation Service, they form the so-called Special Investigation Services (BODs). The Special Investigative Services Act stipulates that the BODs are subject to the relevant line ministries. The BODs have primacy in tackling crime in their areas of operation, and the police have a complementary role. As a result, the environmental teams of the police's 10 regional units and of the National Unit are involved in tackling environmental crime. Furthermore, within the police's basic teams, certain police officers are responsible for environmental issues; they are known as environmental portfolio holders. All criminal investigations are of course conducted under the direction of the Public Prosecution Service; environmental crimes are processed by prosecutors from the National Office for Serious Fraud, Environmental Crime and Asset Confiscation (*Functioneel Parket*, FP).

The National Enforcement Strategy for Environmental Law (LHSO)

Introduced in 2022, the LHSO is the successor to the National Enforcement Strategy first introduced in 2014. The aim of this joint strategy is to harmonize the actions taken against environmental violations and offences, creating a level playing field and consigning to the past differences in the strategies adopted by agencies such as inspectorates and environmental services in different regions. In addition, experiences have been exchanged between stakeholders. One of the LHSO's objectives is to better secure the relationship between administrative and criminal law. In the so-called 'Intervention Matrix', the action taken and the severity of the consequences in case of offences and crimes are determined with a view to the intention of the offender, ranging from unwitting rule-breaker to notorious criminal.¹⁴

However, the Van Aartsen Commission in 2021 found that not all environmental services were following the (then) LHS (VTH Advisory Committee, 2021). A more recent report found that, in 2023, two environmental departments were still not working in accordance with the LHSO (Blokland et al., 2023).

¹⁴ The enforcement strategy can be found in pdf format on the website of the Environment Information Point: <https://iplo.nl/regelgeving/instrumenten/vergunningverlening-toezicht-handhaving/landelijke-handhavingsstrategie-omgevingsrecht/>

The Strategic Environmental Chamber sets out the lines of policy

The criminal-law approach to environmental crime is led by the FP, which is tasked with tackling complex fraud and settling confiscation cases in addition to combating environmental crime.¹⁵ Due to the complex institutional context involving various ministries, inspectorates and investigative bodies, a coordinating body has been created: the Strategic Environmental Chamber (SMK), chaired by the chief prosecutor of the FP.

The SMK, which meets about three times a year, directs the broader policy of criminal environmental enforcement. In addition to the chief public prosecutor of the National Office for Serious Fraud, Environmental Crime and Asset Confiscation, the SMK consists of a director of an environmental service on behalf of the environmental services (*Omgevingsdiensten*), the Inspector General (IG) of the Living Environment and Transport Inspectorate (ILT), the IG of the Netherlands Food and Consumer Product Safety Authority (NVWA), and the environmental crime portfolio holder on behalf of the police force management. All agencies are thus represented at the highest level. The SMK has commissioned this threat assessment to help with the further development of policies for tackling environmental crime by its members. The policy response to the previous threat assessment announced that an establishment decree would be issued, giving the SMK an official status. This decree also establishes the commissioning of the Environmental Crime Threat Assessment (Parliamentary Papers II, 2021-2022, 22343, no 337).

The Environmental Chamber assesses cases and distributes limited capacity

The Environmental Chamber is the national assessment and steering team for criminal environmental investigations, acting under the responsibility of the FP. Also referred to as the Tactical Environmental Chamber, it allocates scarce investigative capacity to criminal environmental investigations. Representatives of the special investigation services, such as the NVWA-IOD and the ILT-IOD, participate in the Environmental Chamber. It also features a representative from the environmental services, the NLA, and the environmental investigations unit of the police.

The chair of the Environmental Chamber is the investigating public prosecutor of the FP. The aim is to use the investigative capacity of the investigation services as effectively as possible, comprehensive strategies playing a major role. This means that it must in all cases be considered which party is best able to intervene in order to achieve the most results.

1.4 Structure and approach

As was the case in previous Environmental Crime Threat Assessments, the themes covered in the report were decided jointly by the stakeholders. The researchers from the ILT-IOD next started work on the plastic waste section and investigators from the police got to work on the climate section. As these are quite different themes, no common research question and methodology were used. These will therefore be set out in the relevant chapters.

¹⁵ <https://www.om.nl/organisatie/functioneel-parket>.

1.5 Reading guide

Chapter 2 discusses plastic waste streams. Following a general introduction, the chapter successively addresses the legal framework and provides a description of the industry. The next few paragraphs zoom in on crime, both on a general level and with a specific focus on the import, processing, and export of plastic waste. Chapter 3 presents the new forms of crime related to government measures to mitigate and adapt to climate change. After a brief introduction, the chapter addresses the following issues: the EU Deforestation Regulation, the F-gasses Regulation (refrigerant and heavy greenhouse gas), the promotion of renewable fuels, the trade in emissions and combating greenwashing, and the introduction of sustainability reporting requirements for companies by way of the CSRD and CSDDD.

References

Anker, M.J.J. van den (1999). *Wie betaalt, bepaalt. Over intermediare organisaties, milieucriminaliteit, organisatiecriminaliteit en integriteit in het complexe milieuveld*. The Hague: Elsevier bedrijfsinformatie.

Ash, K.S., N.G.F.M. van der Aa & M. Ambaum (2024). *Evaluatie maatregelen bescherming drinkwaterbronnen, Landelijke beeld van de uitvoeringsprogramma's bij gebiedsdossiers drinkwaterwinningen*. Rijksinstituut voor Volksgezondheid en Milieu. <https://www.rivm.nl/publicaties/evaluatie-maatregelen-bescherming-drinkwaterbronnen-landelijke-beeld-van>

Berg, E.A.I.M. van den (Ed.) (1995). *De markt van misdaad en milieu. Deel 1*. The Hague: Research and Documentation Centre.

Blokland, J et al. (2023). *Omgevingsdiensten in beeld 2023*. TwynstraGudde/SPPS. <https://www.rijksoverheid.nl/documenten/rapporten/2023/10/05/bijlage-2-rapport-biennial-research-environmental-services-in-sight-2023>

Bruinsma, G. & Bovenkerk, F. (1996). *Enquête opsporingsmethoden, bijlage IX*. Fijnaut research group sub-study II: Sectors.

Eurojust (2021). *Report on Eurojust's Casework on Environmental Crime*. <https://www.eurojust.europa.eu/report-eurojusts-casework-environmental-crime>

Europol (2021). *European Union Serious and organised threat assessment 2021*. <https://www.europol.europa.eu/socta-report>

Europol (2022). *Environmental crime in times of climate change, Environmental Crime Threat Assessment*. <https://www.europol.europa.eu/crime-areas/environmental-crime>

IPCC (2023) Sections. In: *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647

Parliamentary Papers II, 2021-2022, 22343, no 337. Policy response to the 2021 Environmental Crime Threat Assessment.

Meadows, D. (1972). *Rome club report*. Aula paperback.

Nellemann, C., Henriksen, R., Raxter, P., Ash, N., Mrema, E. (Eds.) (2014). *The Environmental Crime Crisis - Threats to Sustainable Development from Illegal Exploitation and Trade in Wildlife and Forest Resources. A Rapid Response Assessment*. Nairobi and Arendal: United Nations Environment Programme and GRID-Arendal.

Neve, R. (2012). *Milieucriminaliteit in Nederland, een inventarisatie voor het Nationaal Dreigingsbeeld 2012*. Part 1: final report. Zoetermeer: National Police Services Agency - Department of International Police Information.

Neve, R. (ed.) (2021). *2021 Environmental Crime Threat Assessment. Strategic Environmental Chamber*.

Neve, R. (2023) Focus op milieumarkten: het Dreigingsbeeld Milieucriminaliteit. Justitiële verkenningen, vol. 49, no. 4, p. 28 – 41

Neve, R, J.M. Liezen, A. Nieuwdorp, K. Redder & G. van der Zon (2012). *Milieucriminaliteit in Nederland, een inventarisatie voor het Nationaal Dreigingsbeeld 2012, Deel 2*. Zoetermeer: National Police Services Agency - Department of International Police Information.

OvV (2023). Industrie en omwonenden. Dutch Safety Board. https://onderzoeksraad.nl/wp-content/uploads/2023/11/industrie_en_omwonenden-564630708.pdf

Spapens, A.C.M. (2012). *De complexiteit van milieucriminaliteit: De aard van het misdrijf, de opsporing en de samenwerkingsrelaties*. The Hague: Boom Lemma uitgeverij.

Spapens, T. (ed.) and Lectureship on Environmental Crime (2016). *Handboek milieucriminaliteit*. Amsterdam: Reed Business.

UNODC (2024). *World Wildlife Crime Report 2024*, United Nations Office on Drugs and Crime. <https://www.unodc.org/unodc/en/data-and-analysis/wildlife.html>

White, R. (2011). *Transnational environmental crime. Toward an eco-global criminology*. Abingdon (UK): Routledge.

2



Crime involving plastic waste



Summary

The Netherlands plays a major role in the global plastic waste trade. Parties acting criminally are present in every step of the plastic waste chain, from stripping to the processing of the waste. Domestically, criminal activities mainly result in subversion of the level playing field, to the detriment of waste handlers who do operate according to the rules. Abroad, illegal plastic waste exports mainly result in environmental pollution and damage to health. In countries lacking adequate treatment capacities, waste often ends up in landfills or in surface water, or is incorrectly incinerated. Incorrect processing can release substances of very high concern. These substances pose major health risks, impeding reproduction or being carcinogenic, for example.

To counter the harmful effects of the export and improper disposal of plastic waste, the government intervenes in various ways: through policy, licensing, supervision, and enforcement of administrative, civil, or criminal law. The European Waste Shipment Regulation (EWSR) and the Basel Convention, which regulate cross-border shipments of (plastic) waste, have been tightened up. The government thus aims - among other things - to prevent waste dumping in countries lacking proper treatment capacities. Encouraging recycling, resulting in less new plastic being produced, is another important goal of government intervention. Measures taken to this effect include producer responsibility rules, which have plastic producers play a part in the waste management of their own products, and recycling standards for plastic packaging.

This chapter in the threat assessment was written by the Intelligence and Investigation Service of the Environment and Transport Inspectorate (ILT-IOD). In it, the ILT-IOD will describe those criminal practices in the plastic waste chain it has identified over the past five years. By sharing its knowledge, the ILT-IOD hopes to give readers an insight into the forms crime with plastic waste can take, and the opportunities that facilitate it. In this fashion, we offer tools to better address this problem together.

Method

This chapter is based on information from Dutch environmental investigation and supervision bodies. Much of the information is drawn from the work by the Intelligence and Investigation Service of the Environment and Transport Inspectorate (ILT-IOD).

The ILT-IOD possesses information from various sources, such as reports made and criminal investigations. For a large part, this chapter is based on signals from the covert intelligence provided by the ILT-IOD's Criminal Intelligence Team (Dutch: *Team Criminele Inlichtingen*, TCI). Signals from the TCI were supplemented by knowledge and information from the ILT-IOD, a contribution from FIU-the Netherlands, and information from public sources. In addition, interviews were conducted with inspectors and investigators to enrich and test the information.

Findings

Crime takes place throughout the plastic waste trade chain. Money can be made or saved by circumventing laws and regulations during the production, transportation, and processing of plastic waste. A recurring element in each of these phases is the dubious and criminal role played by some traders and intermediaries in this industry. The greatest risk lies with traders who buy and sell the waste without having their own storage or processing site. This allows them to operate flexibly throughout Europe and beyond. The market is easy to enter as there are few legal requirements to become a 'trader' under the Environmental Management Act.

These parties trade in waste of the lowest quality, with very high processing costs or with only a small proportion being suitable for recycling, meaning that a large part of it is landfilled or incinerated. This low-grade waste is then exported outside the country. In so doing, they conceal the true nature, destination, or properties of the shipments through forgery or striking a deal with the receiving party (or trader) abroad. Traders are not the only high-risk group. This chapter explains how large (waste) companies, too, can obstruct the operation of a healthy market. These parties work with traders to cheaply get rid of the most polluted waste streams. Private arrangements may be made between parties to divide the market and thereby to obtain favourable prices.

From 20 November 2026 onwards, the export of plastic waste to non-OECD countries will be banned. This could increase the risk of illicit trade.

Complex group relationships in the waste industry and the huge volumes and numbers of transport movements from and through the Netherlands make it challenging to uncover illegal activities involving plastic waste. Governmental bodies responsible for supervision and enforcement with respect to the waste industry and waste streams are fragmented. Some of the monitoring and control takes place within the waste sector itself, with commercial interests sometimes taking precedence. The various national and global organisations active in such supervision still do not properly cooperate or share enough information on waste crime with each other. A good information position entailing a solid understanding of current criminal threats and risks and the opportunities that enable crime, is lacking.

Recommendations

- Improve the understanding of group relations and (criminal) practices in the Dutch and international waste industry and high-risk waste streams.
- Coordinate the international supervision of plastic waste streams and actors by establishing international partnerships and sharing information.
- Strengthen and further facilitate procedures for international judicial cooperation.
- Invest in proactive and risk-based detection of plastic waste crime.
- Use the information available on waste crime to consider various ways to stop or prevent criminal behaviour. Conducting a criminal investigation and sharing information about criminal trends with policymakers are examples of such interventions.
- Encourage cooperation and information sharing in tackling waste crime in the existing system of licensing, supervision and enforcement (VTH system).
- Improve the visibility and supervision of high-risk small traders and intermediaries, and also consider online trading.
- Anticipate the upcoming export ban on plastic waste, which is likely to boost illegal waste shipments.
- Enforce producers' responsibility to encourage high-quality reuse and have the polluter pay the costs.

2.1 Introduction

Many Western countries, including the Netherlands, export waste to other parts of the world. They do this partly because of the relatively low processing costs elsewhere. Those exports are not always welcome in the destination country and are sometimes illegal. Improper processing leads to environmental pollution and the release of substances of very high concern (Petrlik et al., 2024). Substances of very high concern are, for example, substances with high health risks, impeding reproduction or being carcinogenic (RIVM, 2024).

As an important international node for trade and shipping, the Netherlands plays an enabling role in the entire plastic waste chain: it is an importer, a processor, and an exporter. And the Dutch share in this market is growing. In recent years, against the global trend, both imports to and exports from the Netherlands have increased. This maintains the Netherlands' position as one of the world's largest exporters of plastic waste (Park et al., 2024).

Crime is always just around the corner in this sector. Enforcing environmental legislation is complex and fragmented (Houten-Peschier, 2023), and this is particularly true of waste legislation. At the same time, being compliant is expensive for industry parties. Hence, the main incentive for crime is the financial model used by processors and traders: the discarder of poorly recyclable waste provides them not only with the waste but also with money. The benefits therefore precede the processing costs. This creates an incentive to process waste as cheaply as possible (Buckers et al., 2021). Profits shrink with each additional processing step, making the cheapest processing method the most attractive.

The situation is further compounded by the fact that the recycling sector in the Netherlands and the rest of the EU is under pressure. Recycling is not a cheap processing method; recycled plastic is often more expensive than new plastic. The price of new plastic depends partly on the price of oil, plastic's main raw material. When oil is inexpensive, recycled plastic waste cannot compete as a raw material with new plastic from China or the US.¹⁶

Despite strict rules, it is often financially attractive for EU countries to export plastic waste to low-wage countries. Low-wage countries often pay more for high-quality waste than the EU does. Given their lower labour costs and less stringent legislation and enforcement (Petrlik et al., 2024), profit margins are higher, and waste can be processed more cheaply in low-wage countries than in the EU. Abroad, good-quality waste is reused, but residues from recycling or low-quality waste often end up in the informal circuit, in landfills or are incinerated (OECD, 2022) Even if no useful application for the waste exists in the destination country, exporting it is often prohibited or is subject to strict conditions. As a result, low-grade plastic waste is sometimes 'smuggled' out and ends up in places where it is not processed properly, resulting in pollution and health risks.

Landfills are a major source of local pollution, with waste sometimes entering rivers and, eventually, the sea. In addition to the visible harmful effects of this practice, this leads to the creation of microplastics that enter the food chain. When incinerated, the plastic and additives cause toxic emissions, which has serious consequences for the ecology and for human health.

¹⁶ See, for example: <https://eenvandaag.avrotros.nl/item/nieuw-plastic-is-goedkoper-dan-gerecycled-plastic-waardoor-fabrieken-omvallen-wil-je-een-circulaire-economie-dan-moet-je-deze-industrie-helpen/>.

Research direction and method

The theme of this chapter is the crime perpetrated in the context of the trade in and processing of plastic waste. The core question is:

What criminal threats are current in the Dutch plastics sector and what criminal dealings are taking place?

The main sources underlying this report on waste crime are the reports of the ILT-IOD's Criminal Intelligence Team (TCI). The Criminal Intelligence Team gathers intelligence by, for example, conducting covert interviews with individuals in a particular industry. The TCI regularly reports the signals obtained from these conversations to the ILT-IOD, shielding the identity of their sources. The TCI information we used for this chapter provides insight into criminal behaviour but is less suitable for making statements about the scale of the criminal activities. Signals from the TCI were supplemented by IOD information and information from public sources. In addition, interviews and participation sessions were organised with inspectors and investigators to enrich and test the information. While these interviews in particular helped to obtain an overall picture of the sector, they also provided information on the modus operandi used in previous investigative investigations and opportunities for crime. Finally, the Financial Intelligence Unit (FIU)-the Netherlands contributed to this chapter on plastic waste crime by conducting exploratory research on the usefulness of financial data and risk indicators for charting crime involving plastic waste.¹⁷

Structure/reading guide

This introduction is followed by a brief overview of key developments in relevant legislation, with an emphasis on regulations governing the export of plastic waste. Next, we present an analysis of the plastics industry, the dynamics of plastic waste trade and the associated threats. The subsequent section examines criminal activities related to plastic waste, focusing on its import and processing within the Netherlands, as well as its export. Finally, these insights inform the concluding section where we provide actionable recommendations to combat crime within the plastic waste supply chain.

2.2 Legal framework

International waste legislation

Regulation of the waste market began in the 1980s. At the time, it became clear that large quantities of hazardous waste were being shipped from industrialised countries to developing countries, where the waste was dumped. The dumping was curbed under the leadership of the United Nations by way of the Basel Convention (1989). In summary, this Convention aims to protect human health and the environment from the adverse effects of cross-border hazardous waste movements.

The Convention mainly addresses hazardous waste and waste requiring special attention. For example, it stipulates that waste may only be exported if it will be recovered, and not if the intention is to dispose of it. A total of 191 State Parties are now signatories to the Basel Convention. The Member States of the European Union (EU) are also parties to the convention.

¹⁷ The ILT-IOD and FIU-the Netherlands are currently expanding their cooperation on this subject.

The five UN Member States that have not ratified the Convention are East Timor, Fiji, Haiti, South Sudan, and the United States. For the EU Member States, the specific implementation of the Convention are laid down in European and national legislation. In the case of the Netherlands, this includes the European Waste Shipment Regulation (EWSR) and the Environmental Management Act.

The Basel Convention distinguishes between OECD and non-OECD countries. The OECD is an alliance of 38 - mostly wealthy - countries.¹⁸ Conversely, countries that are not part of this alliance (non-OECD countries) are often less wealthy and usually have less stringent environmental laws and regulations. There are also specific nuances regarding the destination and quality of the waste.¹⁹ Under the Basel Convention, each country can specify the type of waste it wants to receive, and which permit regime applies. These conditions may vary from country to country. In the following section, we will first discuss the latest changes in legislation. We will then consider the general principles of the European Waste Shipment Regulation (EWSR) and discuss the producer responsibility principle.

Tightening up the Basel Convention and the EWSR

Because the export of (plastic) waste is still fraught with problems and abuses even with this legislation in force, the parties to the Basel Convention agreed to tighten up the rules in 2019. Plastic waste was added as an extra waste type to Annex II, the annex to the Basel Convention that lists waste types requiring special attention. This led to the stricter EWSR rules applying to plastic waste exports from 2021 onwards. Now, by mid-2024, these rules still apply. A distinction is currently being made between non-hazardous ('green list') and hazardous ('amber list') waste streams. The following requirements are imposed on the export of various types of non-hazardous plastic waste streams (Basel code B3011):

- Waste plastic must be almost free from contamination and other types of waste
- Waste must consist of one type or a specific mixture of types of plastic waste, which must be recycled separately
- Waste must be destined for recycling and pass through no more than one intermediate storage site.

Other types of plastic waste and mixtures are now considered hazardous waste or waste requiring special attention (Basel code A3210 and code Y48, respectively) and are subject to procedures similar to those governing the export of amber-listed waste streams. With respect to exporting waste from the EU to non-OECD countries, this tightening up of the rules means that European processors and traders can no longer export their amber-listed plastic waste to Southeast Asian destinations, as these are not OECD countries. For green-listed waste streams, whether exporting to a non-OECD country is possible depends on the response of the receiving country (third-country regulation).

The response of the non-OECD country can be: a ban of that particular waste stream, export is only possible with a waste shipment notification, a contract shipment (Annex VII) suffices and/or other national regulation exists.

¹⁸ OECD stands for the Organisation for Economic Cooperation and Development.
¹⁹ See the Department of Public Works' explanation (2024) for more details.

Exporting amber-listed plastic waste to OECD and EU countries is still permitted under certain conditions.

This has increased EU exports to OECD countries such as Turkey (Basel Action Network, 2024). Turkey belongs to the OECD and processes various types of plastic waste at relatively favourable costs. Turkey has invested heavily in the recycling industry (Caglayan & Tobaz, 2024) and has a less strict enforcement regime in place because of the importance of recycling to the economy (Comolli, 2021). However, there are indications that some of the waste is not recovered. For example, Dell (2024) describes how British waste ended up in Turkey via the Netherlands and was dumped there (see also Greenpeace, 2021).

Principles of the EWSR

Before describing the new developments with respect to the European Waste Shipment Regulation (EWSR), we will first provide an overview of the general principles of the EWSR. The Basel Convention has been implemented in European and Dutch law by way of the European Waste Shipment Regulation (EWSR) (EU, 2024). The EWSR regulates waste shipments within, into, and out of the EU. This makes the EWSR more comprehensive than the Basel Convention, which, for example, does not restrict intra-EU trade. The EWSR aims to prevent companies and institutions from exporting waste for disposal at sites with insufficient high-quality processing capacity. To this end, the EU seeks clarity and transparency regarding the destination and route of waste shipments. Like the Basel Convention, the EWSR distinguishes between OECD and non-OECD countries, with the rules for exports to the latter usually being stricter. The EWSR has three procedures, the one to follow depending on the transport risk. This is determined by the destination, type of waste and intended treatment.

The first procedure - the information procedure, or green list procedure - is for waste materials that can be processed relatively safely, with fewer risks to humans and the environment, and which are destined to be recovered.²⁰ Shipments falling under this procedure are not checked in advance by the licensing authority (ILT). These wastes fall under the EWSR green list because they are not hazardous or are not a mixture of several wastes. Under this procedure, transportation requires an Annex VII document completed in accordance with the EWSR. Supervisors have difficulty monitoring this waste stream because there is no reporting requirement. However, the digital registration system to be set up under the new EWSR aims to make these flows transparent, as well; more information on this system is given below. The second procedure - the waste shipment notification procedure, or amber list procedure - applies to waste substances with higher expected risks to humans and the environment or waste streams. This concerns hazardous waste or waste mixed with other substances. Under this procedure, the competent authorities of the countries of dispatch, transit and destination are notified prior to the shipment. These authorities assess the required data provided and then agree if they are sufficient. This waste shipment notification procedure is accompanied by the provision of financial security (deposits) by the notifier. This deposit will be released once processing of the waste is complete. Transporting amber-listed waste and waste for disposal to non-OECD countries is prohibited. The third and final category concerns export bans. These apply, among other cases,

²⁰ This involves waste that may fall under code B3011, see ILT, 2024b.

to exports outside the EU or to exports of hazardous waste or waste requiring special attention to non-OECD countries. An export ban may also apply if the receiving non-OECD country has banned an import.

Revised EWSR in 2024

Following the tightening of the Basel Convention, which came into force in 2021 by way of the EWSR, the EU has been further adjusting the rules for plastic exports: in May 2024, the revised EWSR came into force. The provisions of the revised EWSR will take effect in stages.²¹ From May 2026 onwards, waste shipment notifications will have to be submitted for exports of all types of plastics from the EU. Waste may only be exported from the EU if an independent audit has shown that the treatment facility in the destination country processes the waste in accordance with the requirements set in the EU. In addition, the export of plastic waste to non-OECD countries will be banned. This ban will come into force in November 2026. Finally, a harmonised digital registration system providing Member States insight into internal trade in hazardous and so-called green-listed waste will become active in May 2026. This system is still under development, and its exact form is unknown.

These new rules aim to achieve higher-quality plastic waste treatment and increase transparency in the plastic trade. They will likely have a significant impact on trading practices in the plastic waste market. One legitimate route is to demonstrate that waste has reached an end-of-waste stage or qualifies as a by-product. This should be demonstrated on a case-by-case basis until a national or European regulation is in place. However, it is also likely that certain parties may seek new ways to circumvent these regulations.

Producer responsibility

In addition to the plastic waste sector, the plastics industry, too, is responsible for the proper disposal of materials it introduces to the market. This is set down, for example, in the European Union's CSDDD directives, which require large companies to report their environmental impact.²² Moreover, packagings, including plastics, are also subject to extended producer responsibility (EPR). EPR aims to promote reuse and recycling and recover treatment costs from producers. In the case of packagings, for example, the rule that 90 per cent of plastic bottles must be collected each year has been in force since 2022. For more information on EPR, see the ILT's website (2024).

Extended producer responsibility applies to parties that place new packaging on the market, particularly producers and importers. Following the introduction of the Packaging Management Decree, multiple packaging producers have united under the name Verpact (formerly: Stichting Afvalfonds Verpakkingen). Verpact directs the reuse and recycling of packaging waste in the Netherlands. For example, it ensures that plastic packaging producers pay a fee according to their producer responsibility.

Verpact in turn uses this money to pay the parties that collect and process packaging waste into recycled material, such as municipalities that collect household waste that can be recycled.

2.3 Context

To better understand crime in the plastics sector, it is necessary to have some understanding of the sector and waste streams. We will therefore in this section describe some characteristics of the plastic waste industry and plastic waste streams, such as processing volumes and developments in the plastic waste market. We conclude with an overview of the criminal (financial) signals that the ILT-IOD has observed.

A closer look at plastic waste streams

Plastic is a catch-all concept that comprises a wide variety of materials. What they have in common is that they are composed of polymers, mostly derived from petroleum. Additives are added to those polymers to obtain certain properties, such as plasticisers to make them flexible or pliable, flame retardants or dyes. Other polymers include thermosets and thermoplastics. Thermosets are poorly recyclable. The specific properties of a plastic are relevant to which processing methods are permitted. For the sake of readability, we will use "plastic" as an overarching term and will not distinguish between the individual types.

The plastic waste market is highly international, with waste often being shipped long distances before it is processed. This makes the market complex and results in a situation where national interventions are sometimes less effective than desired. The Netherlands plays a major role in this international network. Within the EU, it is one of the largest exporters and importers of plastic waste (ILT, 2023). However, it remains difficult to detail the sources, routes and processing of Dutch plastic waste. Lobelle et al. (2023) analysed plastic waste streams in the Netherlands and found a great many unknowns. It estimates that most of the plastic waste in the Netherlands arises from domestic production and consumption (especially household waste and the textile industry), while another large part is imported from neighbouring countries.

In recent years, the Netherlands has imported more plastic waste than it has exported, as shown in table 2.1. The Netherlands was the world's largest importer of plastic waste in 2022 (OECD 2024). The six countries that sent the most plastic waste to the Netherlands during 2018-2023 were all OECD countries and EU Member States, except for the UK. It is likely that the plastic waste entering the Netherlands is not all processed in the Netherlands: a segment of it will be re-exported. This would make the Netherlands a major transit country of plastic waste.

²¹ For a comprehensive overview, see the ILT's website: <https://www.ilent.nl/onderwerpen/afvaltransport-evoa/documenten/leefomgeving-en-wonen/afval/afvaltransport-evoa/informatieblad/gevolgen-herziene-evoa>

²² Corporate Sustainability Due Diligence Directive, see section 3.6.5.

Table 2.1. Annual amounts of plastic waste (HS code 3915) imported and exported by the Netherlands and the percentage of exports to non-OECD countries

Source: own analysis in UN Comtrade database in June 2024

Year	Imports (tonnes)	Exports (tonnes)	Percentage of exports to non-OECD
2018	555.371	341.791	25%
2019	582.093	387.816	18%
2020	619.286	413.233	24%
2021	760.440	617.311	35%
2022	810.867	568.430	29%
2023	796.234	576.702	38%

A lot of plastic waste is exported from the Netherlands to neighbouring countries, although the figure fluctuates over time. As Table 2.1 shows, about two-thirds of the waste was shipped to other OECD countries over the past six years. Table 2.2 shows that Germany, Belgium, the UK, and Turkey were particularly popular destinations. A third of plastic waste was shipped to non-OECD countries, with Indonesia and Vietnam receiving the largest volumes. Notably, the percentage of plastic waste exported from the Netherlands to non-OECD countries fluctuates widely, between 18 and 38 per cent.

Table 2.2. Top 6 destinations and countries of origin of plastic waste exported and imported by the Netherlands (HS code 3915) in the period 2018-2023.

Source: own analysis in UN Comtrade database in June 2024

Imports to NL 2018-2023		Exports from NL 2018-2023	
Country of origin	Plastic waste total (tonnes)	Country of destination	Plastic waste total (tonnes)
Germany	1.616.031	Germany	515.313
Belgium	712.781	Belgium	515.035
United Kingdom	632.252	Indonesia	384.468
France	377.861	United Kingdom	244.785
Poland	116.493	Turkey	191.149
Sweden	109.672	Vietnam	172.791

Developments and risks in the plastics market

Waste companies are getting bigger and bigger and are increasingly making efforts to integrate their processes. This development has been mentioned on many an occasion (e.g. in the Environmental Crime Threat Assessment 2016) and has a major impact on the market.

Company growth on the one hand takes place through acquisitions of competitors. As a result, there are currently only a few large waste collectors in the Netherlands (horizontal integration). They also grow by taking over business units throughout the chain (vertical integration), with waste processors also starting to sell raw materials, for example. In 2016, this led to the following comment: “This increasing interconnectedness between and interdependence of companies complicates both internal and external supervision. The identification of rules violations and the reporting of incidents by way of internal supervision must compete with commercial interests.” In 2024, we find that this situation is still in place.

Recycling initiatives are limited. Worldwide, only 9% of plastic waste was recycled in 2019 (OECD 2022). The plastic waste industry is under pressure, creating a risk of criminal conduct. Two factors involved are discussed in more detail in the below.

Recycling is expensive

The 20 June 2024 letter to the House of Representatives from the Minister of Infrastructure and Water Management noted that Dutch recycling companies are having difficulties making a profit.²³ The reason cited is that recycled plastic (recyclate) is often more expensive than new plastic, making it hard to compete with producers of new plastic. Some factors behind this are the low price of new plastic, the large supply of (cheap) new plastic from Asia and America and the fluctuating oil price. The price of new plastic depends partly on the price of oil, the main raw material for new plastic. This dependency makes the plastics market unpredictable and reduces investment in recycling. Furthermore, the biggest demand for recyclate is from Asia and not from parties nearby the Dutch recyclers. The recent bankruptcies of Dutch recyclers Umincorp and TRH Recycling (Recycling Magazine Benelux, 2024) illustrate that the sector is troubled. They could not market their recyclate due to the low price of fossil plastics.²⁴

Uncertainty in the EU recycling industry is also a risk from a criminogenic point of view. Increasingly strict and complex legislation means that companies have to invest more to comply with legislation, putting pressure on their revenue models. This may lead some companies to take more risks by interpreting the rules in a way that is advantageous to them.

Export

Some of the waste is treated in the Netherlands, and some of it is exported, mainly to non-OECD countries. The waste often passes through other European or OECD countries. This is

²³ See the answers to questions 6 and 7 of the letter to the House of Representatives dated 20 June 2024 "Answers to questions on the plastic standard bill" accessible at <https://open.overheid.nl/documenten/dpc-0140e036da7809bdda543d86c0de2ffc190c5730/pdf>

²⁴ For an outline of the industry, see also NRC's July 2024 article <https://www.nrc.nl/nieuws/2024/07/12/de-weg-naar-plastic-recyclen-zit-muurvast-misschien-was-ik-naief-dat-ik-dacht-het-te-kunnen-opnemen-tegen-fossiele-plastics-a4859530>

because processing in the EU is less profitable and - as we have seen above - the European recycling sector is not doing well. For example, 54 million tonnes of waste are generated in the EU each year, while there is only enough capacity to process 8.5 million tonnes (Comolli, 2021). As a result, exports are a widely chosen alternative. This partly leads to high-value recycling for high-value plastic waste streams such as industrial packaging films (ILT, 2023b). However, there are also streams that cannot be recycled or the recycling of which leads to relatively large residual streams. Lobelle et al. (2023) point out that when Dutch waste is improperly processed, such improper processing mainly takes place abroad, after it is exported.

Recipient countries, however, are themselves trying to get a grip on polluting streams of plastic waste. They for instance demand that cargoes be inspected before transportation. Neve (2012) described this phenomenon over a decade ago, when China set up a major European inspection service. In recent years, Indonesia has been an important destination for Dutch waste and has initiated a partnership with a private company that inspects containers in the Netherlands and Belgium destined for Indonesia (Interview with an ILT-IOD investigator, 2024). However, the following section will discuss some courses of action that render even such additional measures taken by individual countries insufficient to prevent plastic waste crime.

Plastic waste crime: how common is it?

At present, it is difficult to make firm statements on the extent of crime involving plastic waste. Up-to-date overviews of hard and soft data on this subject are lacking and information is not yet always tracked and shared in a structured way. Physical and administrative investigation is difficult, and perpetrators are rarely caught red-handed. The crime is by definition hidden and rarely reported (Gibbs & Simpson, 2009). It is in all respects non-reported crime, known in Dutch as *'haalcriminaliteit'* (CCV, 2019). However, the ILT's risk analysis does provide some indication of the social damage caused when plastic waste is improperly processed. For example, the ILT estimates the social harm of plastic waste not being recycled at €75 million per year. ²⁵ The impact of incorrect plastic waste registration is estimated by the ILT to amount to €87 million ²⁶ (ILT, 2023).

No such estimate can be made at this time on the basis of information received from criminal investigations. The covert sources we have used for this chapter provide insight into the threats of criminal behaviour and how it might occur.

Nevertheless, we will in the below provide a limited overview of the information on signals and investigations in the Netherlands available to us (see Table 2.3). In order to create this table, the ILT-IOD examined the available information on possible crime involving plastic waste by Dutch companies:

- Information from intelligence reports, risk signals and trend reports of the ILT-IOD's from 2020 to June 2024.
- Signals on the subject of plastic waste created in the ILT-IOD's investigation registration system. A signal constitutes soft data about a possible crime, such as a report from

someone or a post on the internet. Signals are investigated further and, if promising, weighed up in the National Environmental Chamber (see introduction), which decides whether to launch an investigation.

- Ongoing investigations at the Dutch environmental investigation services according to figures from the National Environmental Chamber from 2020 to April 2024. An investigation is classified by the year in which it started. An investigation may be carried out over several years.

Table 2.3. TCI reports, signals, and investigations dealing with possible crime involving plastic waste known to the ILT-IOD and the police

Source: National Environmental Chamber and ILT-IOD data.

Type	Source	2020	2021	2022	2023	2024	Totaal
Risk signals, intelligence & trend reports	ILT-IOD	3	4	1	2	7	17
Signals	ILT-IOD	7	13	2	6	3	31
Investigations	ILT-IOD and police	3	5	1	0	0	9
Total		13	22	4	8	10	57

This overview shows that fewer criminal investigations have been launched in this field in recent years. The signals received paint a similar picture: in 2020 and 2021 in particular, more signals were received than in recent years. As discussed above, whether this also means that crime levels have fallen cannot be said. Previously, the criminal justice system focused on other forms of environmental crime. Furthermore, the source used for this chapter does not lend itself to answering the question of the extent of crime involving plastic waste. Instead, this chapter has chosen to provide insight into certain courses of action taken in the market. In this connection, we have relied on covert information provided by the TCI. This provided us with insight into case studies rather than leading to an overall crime picture of the sector. Given the perceived signs of criminal activity described in the following section, the market developments putting great pressure on the plastic waste industry and the tightening of the Basel Convention and the EWSR, it remains very important to continue to monitor this closely.

²⁵ Waste is not sufficiently reused or recovered

²⁶ This is the waste not passing through the mainstream disposal and recycling system.

Financial indicators of fraud in the plastic waste industry

Plastic waste-related crime is about money: the cheaper the acquisition, processing, and transportation of the waste, the greater the profits. In all these steps, (financial) transactions take place. To the criminal investigation services, this means not only that criminal assets are to be confiscated, but also that an intelligence position based on financial data and an understanding of methods and structures can be constructed. For this reason, we also address the financial component of plastic waste-related crime in this chapter. We do this in cooperation with the Financial Intelligence Unit-the Netherlands (hereafter: FIU-the Netherlands). FIU-the Netherlands is working towards building up a financial intelligence position in the waste world. The following is a description of the added value of - but also of the barriers restricting - criminal investigations based on financial information. FIU-the Netherlands is the central reporting point for unusual transactions that may indicate money laundering and predicate offences. Companies in the financial sector and non-financial sector, but also outside it, are obliged to report unusual transactions. For Example, the deposit or withdrawal of large cash amounts, illogical indirect transfers and improper use of (business) accounts are reported.

FIU-the Netherlands processes and analyses these reports and acquires additional information from parties like foreign FIUs and the tax authorities. As a result, it has a rich database of financial information, including financial information about the waste sector. FIU-the Netherlands investigates the received reports to determine whether there are sufficient grounds to declare transactions suspicious and thus hand the case over to the investigative, intelligence, and security services.²⁷ FIU-the Netherlands thus contributes to the integrity of the financial system and the prevention and detection of crimes. This duty is mandated by the Money Laundering and Financing of Terrorism (Prevention) Act (Wwft).

These financial risks also play a role within the environmental domain. This is why FIU-the Netherlands is currently building its information position in this domain. For example, a money-laundering risk exists in trade-based money laundering (TBML), with money being laundered via trade flows using fraudulent acts. Such acts include undervaluing and overvaluing plastic waste, falsifying invoices, and incorrectly identifying plastic waste. Criminals use these techniques to move or legitimise criminal moneys. These risks are considered serious for international plastic waste streams (UNODC, 2024).

Plastic waste

The financial information position in the environmental domain is still evolving. It is clear that the sector with an obligation to report still needs to be properly informed of the risk of money laundering in the context of environmental crime. Nevertheless, some interesting points stand out based on an initial investigation by FIU-the Netherlands into reported transactions. In a follow-up investigation, the financial data might also provide concrete figures that say something about the market size. This is not yet possible based on this initial investigation.

²⁷ Source Article: www.fiu-nederland.nl

The suspicious transactions mainly involve plastic waste companies withdrawing cash. This may say something about industry habits: cash is commonly used when purchasing plastic waste – as is the case in other waste industries. However, the number of suspicious transactions is relatively small compared to a waste stream like metal scrap. It is a well-known fact that various forms of crime involve the use of large amounts of cash.²⁸ For this reason, banks take note of such withdrawals and report them to FIU-the Netherlands.

It is also notable that the cash is withdrawn in sizeable amounts. The withdrawals are made either by a great many small waste providers or by larger (business) suppliers who demand direct cash payment. Both explanations are supported by information set out elsewhere in this chapter: the interplay between large companies and small, shifty traders in processing difficult plastic waste streams (see section 2.6.2).

A report by a bank of a transaction that FIU-the Netherlands declared suspicious following investigation presents an example of this. It concerns a Dutch company active in trading plastic waste and registered at an apartment complex with no space for storage or transshipment. Although this is allowed, the bank found it conspicuous, and the transaction was declared unusual. When questioned by the bank, the plastic waste company indicated that it rented a warehouse abroad. The bank could not find any information about the company based on open sources. The company has no website and says it is only active in buying and selling plastic waste. Recycling takes place abroad. Furthermore, large cash withdrawals are made for which no supporting documentation is provided to the bank.

The above example shows that banks possess valuable information and perform an important gatekeeper function, including in countering environmental crime. However, the analysis also showed that the financial data from the reports currently available to FIU-the Netherlands often still does not provide enough information to carry out an analysis for the plastic waste sector. This calls for the development of better financial indicators together with partners.

2.4 Crimes associated with the import and processing of plastic waste

Crime involving plastic waste can occur throughout the entire plastics chain during importing, processing and exporting. In this section, we focus on illegal behaviour and criminal practices that occur during the import and subsequent processing in the Netherlands. In the next section, we describe export-related crime and, finally, we highlight the dubious role played by traders and intermediaries at all these stages. Once again, we note the caveat that the information used from covert sources mainly provides insight into criminal practices and is less informative about the extent of possible criminal behaviour.

The ILT-IOD has information on five potentially illegal acts. We explain these in greater detail in the below.

- Illegal imports from the United Kingdom where contaminated waste streams are relabelled;

²⁸ Source Article: <https://www.amlc.nl/wp-content/uploads/2024/04/Overzicht-witwasindicatoren-februari-2024.pdf>

- Recycling certificates are falsely claimed with the cooperation of Dutch companies;
- Involved parties make under-the-table agreements to receive streams outside of contracts, often involving bribery;
- Rejected batches of plastic waste are illegally traded anyway and reappear on the market;
- Sorting companies deliver waste streams that are less pure (with more residual waste) than they report and sell.

2.4.1 Criminal acts

Fraudulent imports from the UK

The TCI reports point to risks with waste streams entering the Netherlands from the UK. This is often plastic waste of poor quality because it is heavily contaminated, for example with residues from industrial processes or agricultural products containing pesticides.²⁹ Given these qualities, the waste should not be exported as green-listed waste, but this happens anyway.

Illegal trade flows are said to be facilitated by companies specialising in the reclassification of plastic flows. They import the waste from the UK under a different name or code. Trailers enter the Netherlands by ferry from the UK carrying such renamed waste. Upon inspection in the Netherlands, the documents do not match the waste that left the UK. In fact, there are cases where drivers carry different transport documents and on arrival submit different papers than the ones they left the UK with.

UK recycling certificates illegally claimed

A key factor stimulating this form of fraud is the UK's producer responsibility scheme. Companies in the UK that produce large quantities of plastic on a yearly basis are required to buy certificates showing that an equal amount of material has been recycled. These are called P(E)RNs.³⁰ These certificates are issued by accredited recyclers or exporters who have recycled a certain amount of plastic waste. Plastic producers buy these certificates from the recyclers. A certificate cost around €150 per tonne in May 2024. In total, around €650 million circulates in this certificate market.

Fraud with these certificates can take various forms and takes place in cooperation with traders in various countries.

However, information indicates the central role played by Dutch traders in the following ways:

- Dutch traders bring waste from other countries into the UK to claim additional certificates. This scheme is for UK waste only.
- When exported, the flow is counted twice, resulting in certificates being issued twice.
- Waste that exists only on paper is exported to the Netherlands, indicating that certificates are claimed for fictitious streams.

²⁹ This is a picture that the ILT supervisors do not support, possibly because these transports take place under a different name and are therefore not selected for inspection.

³⁰ PRN (Packaging Recovery Note) and PERN (Packaging Export Recovery Note). The PERNs are certificates issued when plastic waste has been exported and recovered abroad.

- On paper, the waste is sent to a processor with proper recycling facilities, but it is actually destined for a company that does not have them. As a result, certificates can be wrongly claimed.

Fraud is common and has caused a stir in the UK.³¹ As a result, the UK government has introduced reforms and the Dutch and UK authorities are now working more closely together. The exchange of information has also improved, providing better insight into which Dutch companies are actually able to recycle the waste. However, this does not eliminate the risk of switching papers en route and changing the destination. Partly for this reason, the UK authorities suspect that fraud still exists under this system.³²

Parties make illegal arrangements to receive streams not listed in contracts

Further on in this report, we will elaborate on the facilitating role played by traders in the illegal market for rejected waste. However, information from covert sources also points to the role played by big companies in this connection. Environmental criminals are diverse in terms of the environmental crimes they commit (Van der Geest et al., 2023). For example, collectors make agreements on how to distribute the plastic of various qualities collected on the Dutch market. This involves bribing people from the plastics and/or paper industry by taking them to sporting events, for example. This can take place at board level, with agreements being made outside of the official contract. Those involved receive money for using other designations and codes for the waste. As a result, incoming low-value or polluted waste streams have a higher value on paper. Such signals about mutual price-fixing agreements are derived from covert sources and cannot yet be verified using other sources.

Sorting companies deliver waste streams that are less clean than was agreed

The amount of rejected waste generated after sorting depends on the quality of the waste collected and the care taken during the sorting process. Waste sorting plants were in some cases reported to have produced monostreams³³ that were cleaner on paper than in reality. Monostreams of waste are better suited for recycling and can be sold at a higher price than less well-sorted waste streams. The disposal of low-quality streams in fact costs money.

Sorters can be paid per tonne of waste to be sorted. This may make it advantageous for them to sort as quickly and as much as possible, for example by increasing the speed of the conveyor belt. However, this comes at the expense of the quality of the sorted material, which in practice may still consist partly of mixed waste when the sorting speed is increased. Rapid sorting can also result in greater leakage losses: a larger amount of unsorted waste that could not be processed.

³¹ See, for example, the article in The Telegraph: <https://www.telegraph.co.uk/news/2023/05/16/uk-plastic-recycling-dumped-abroad-netherlands/>

³² Interview report of the consultation between the ILT and the UK authorities.

³³ A monostream is waste of the same type that is not contaminated, such as a batch of clean PET bottles. A monostream is high-quality waste and can often be recycled, and is therefore worth money. This is in contrast to mixed waste streams, and low-grade waste streams such as contaminated or rejected waste, which cannot be recycled (as such) and often require payment to be disposed of.

The ILT-IOD has information that managers of several waste sorting companies allegedly made agreements to structurally increase their sorting facilities' turnover rate. Due to agreements made between sorting companies, resulting higher leakage losses are not noticed during inspections. The industry carries out its own internal checks on the sorting process. However, these are announced in advance. As a result, during the inspection, the installations run as agreed, and nothing unusual is observed. The poorly sorted waste is said to be converted to a purer stream of waste on paper and traded. This saves the sorting companies in costs, which means they still make money.

Rejected waste reappears on the market

Within the domestic plastics processing sector, the rejected streams - contaminated and non-recyclable materials - are associated with criminal risks. During sorting, different fractions are removed from the waste. After sorting, a residue stream that is so contaminated that it cannot be recycled may remain. Cleaning is expensive and subject to many regulations. For example, under the EWSR, contaminated waste (amber list) cannot be exported to non-OECD countries. The rejected material is kept separate and new outlets are sought in the Netherlands.

Based on covert sources, the ILT-IOD notes that rejected waste is illegally placed back on the market. The rejected waste is not processed according to the rules but exported. This is done by handing it over to traders who illegally export it, with the receiver in the destination country being paid to receive the waste. The role of traders is highlighted further on in this document.

2.4.2 Opportunities

Several opportunities facilitate the abovementioned criminal acts during the import and processing of plastic waste in the Netherlands.

We are noting the emergence of an increasingly conglomerated waste management industry. The scale-up of waste groups was already described in the 2016 Environmental Crime Threat Assessment and is still ongoing today. This is evident, for example, from various (international) takeovers (WasteOnline 2022), which are sometimes blocked by the ACM (NH News 2024). (Criminal) risks that can arise due to the interrelatedness of parties in an industry include illegal (price) agreements, unfair market forces and reduced quality.

A fragmented system of private and public licensing, supervision and enforcement (VTH system) and investigative organisations is facing an increasingly conglomerated waste management industry. The industry itself partly sets up supervision and control. The risk of supervision by the sector itself is that there are always commercial interests at play, which may sometimes outweigh compliance with the law.

The organisation of the public VTH system in the Netherlands is regulated at the institutional or activity level, which can sometimes detract from the importance of looking at the risks within a sector or of total waste streams at a holistic level. We also find that the information from different inspectorates and law enforcement agencies is not always shared. The legal frameworks for sharing are in some cases lacking or not elaborated to the extent that information can actually be shared. The various IT systems do not interconnect sufficiently, so that information cannot be shared properly, even when the legal framework is in place. This is at the expense of a comprehensive overview of relations within a group of companies, waste flows between companies, and (criminal) risks in the industry.

As was mentioned in the above, the revenue model in the waste sector also presents an opportunity for crime in the context of importing and processing of plastic waste in the Netherlands. Processors and traders receive the money from the discarding of poorly recyclable waste at the same time as the waste. This means that the benefits are received before the costs of processing are incurred. This creates an incentive to process the waste as cheaply as possible (Buckers et al., 2021). Profits are reduced with each additional processing step, making the cheapest processing method the most attractive. In addition, the revenue model creates an incentive to hide the waste streams that are less good and increase the size of the good ones on paper.

2.5 Crime in plastic waste exports

Reclassification condemned

On 4 June 2024, the The Hague Court of Appeal convicted a company and its director of failing to comply with Articles 2 and 37 of the EWSR.

Between 4 and 23 December 2020, the company exported five containers of composite packaging (kraft bags with a paper outer bag and a plastic inner bag) from the Netherlands to India without possessing the required licences.

The containers were to be shipped to India via the port of Rotterdam so that the kraft bags could be recycled in India. The defendant on the forms containing information on the kraft bags stated that these containers held WASTE PAPER falling under code Basel Annexe IX. B3020. On 7 December 2020, part of the cargo of the five containers was physically inspected by Customs at the Port of Rotterdam. This revealed that the cargo consisted of kraft bags with a paper outer bag and a plastic inner bag.

This type of composite bag has its own Basel code and must be reported using a waste shipment notification when exported. However, the defendant did not use this code and used the paper waste code instead. No waste shipment notification is required for shipments with the latter code; the waste may be exported as green-listed waste. For waste processors, it is usually more attractive to have cargoes that will be transported classified as belonging to the green list. This saves a lot of time and money. Moreover, waste shipment notification could also result in the transport not being authorised by the competent authorities.

The Court of Appeal held that the evidence legally and convincingly indicated that the accused was guilty of transferring five containers of waste from the Netherlands to India without giving the required waste shipment notification or possessing the required authorisation. The defendant was handed a conditional fine of €20,000.

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2.5.1 Criminal acts

In the field of exporting plastic waste, the ILT-IOD has information on potentially illegal acts and practices to disguise illegal actions. We will explain these in more detail in the below.

- Exporting waste to an unauthorised destination;
- Diverting the transport route of waste streams to various European countries via multiple parties;
- The various methods used to conceal the true nature, sender, or destination of an illegal waste stream.

Fraud by exporting to an unauthorised destination

The requirements of the Basel Convention are essential to exports. Under the stipulations of the Convention, it matters whether the waste is exported to an OECD country or a non-OECD country. Exports to non-OECD countries in particular are fraught with crime. Exports to these destinations are the most strictly regulated, so rules violations are more likely, but there is also more money to be made by saving on processing costs. The selection of a destination is thus a step that, to a major extent, determines whether transport could be illegal. The fact that Dutch parties take more risks - as indicated earlier - is also related to the difficulties the recycling markets are faced with.

China's 2018 import ban is a major development in the plastic waste market. The implications of this have been described in detail elsewhere (e.g. Comolli, 2021; Bervoets, 2024). After China stopped accepting waste imports, many new countries emerged as destinations, especially neighbouring countries such as Indonesia, Malaysia, Cambodia, Laos, Myanmar, Vietnam, Taiwan and Thailand. However, southern and eastern European countries also received more waste (Europol, 2020).

There is evidence that highly contaminated fractions are being illegally exported to Indonesia, Malaysia and other countries.³⁴ Despite the fact that these countries do not want to receive this waste, corrupt officials in the destination country may be undermining such official positions, something the Malaysian government recently expressed concerns about (Basel Action Network, 2024a). For example, officials may not sound the alarm when unauthorised waste streams enter the country (UNODC, 2024). However, illegal plastic waste exports also occur closer to home and within Europe. For example, Bervoets et al. (2024) describe a case involving British waste being shipped to Poland and then illegally incinerated.

Turkey is now a major destination for waste, as Turkey is part of the OECD but has relatively low processing costs. However, exports are only allowed if certain conditions are met: for example, the waste must be green-listed and is destined for recovery in the destination country. Plastic waste also requires recycling. This is certainly not always the case in Turkey. Covert sources indicate that many low-value fractions are still being transported to Turkey. Media reports have highlighted abuses concerning the dumping of European waste of very poor quality in landfills in Turkey (Greenpeace, 2021). The section on traders below discusses Turkey as a destination and the dubious role of traders in greater detail.

³⁴ For example, see this coverage by local Malaysian media: <https://www.thestar.com.my/news/nation/2024/05/13/illegal-waste-still-ending-up-in-msia>

Diverting the transport route of plastic waste

Not every country checks for compliance with the EWSR legislation with the same rigour. Because of this, the transport routes of many waste shipments with final destinations in non-OECD countries are first diverted through other EU Member States and OECD countries (Interpol, 2020; Comolli, 2021). Previously, the direct export of contaminated plastic waste from the Netherlands to a non-OECD country was fraught with greater risk than shipping it from neighbouring countries due to tight inspections. However, recent covert sources indicate that surveillance has increased in neighbouring countries, resulting in the Netherlands being used as a transit port. There are also signals from covert sources that Dutch and German companies export waste via Spain to avoid inspections. From Spain, the plastic waste is first exported to Thailand before ending up in Laos or Myanmar. Companies are flexible in choosing the route of their waste shipments and do not always choose the shortest route; instead, they go for the route with the least chance of getting caught.

Diverting waste via another country has the additional advantage of masking the origin of the waste. One ILT inspector stated this is especially true if the waste is reprocessed in the new country. For example, waste shipped from the Netherlands to Belgium where it is mixed with Belgian plastic waste is very difficult to trace. The new - mixed - waste cargo can now easily pass as Belgian waste. ILT-IOD has information on the repackaging of waste in another country, masking its true origin.

Batches of waste are exported back and forth between traders from different European countries, making the origin difficult for regulators to trace. Several traders in acting this way help larger companies get rid of their most contaminated plastic waste streams. There are also cases where batches are resold within a company operating in several countries, making the stream untraceable. To do this, some companies use their own branches or postal addresses abroad. This allows them to transport streams from the Netherlands to their foreign branch by way of 'internal transport'. Sometimes, the foreign branches or postal addresses are used only on paper, and the plastic waste streams are directly shipped to a destination in Asia.

Concealing the true nature, sender, or destination

The previous sections describe the export of waste to places to which this export is prohibited, for example by diverting the transport through other European countries. Various methods are used to disguise the criminal acts used to achieve this. This section describes these criminal practices. Before a waste stream can be exported, documentation must be completed. For example, if the waste is shipped to a non-OECD country, a waste shipment notification procedure is often mandatory, depending on the agreements with that specific country. Shipments of waste for disposal within the EU or to an OECD country must also be reported with a waste shipment notification. Moreover, extensive documentation on the qualities of the waste must be submitted to the licensing authority (in the Netherlands, this is the ILT). But even if no waste shipment notification is required, such as when waste that can still be recovered is shipped within the EU, the export must be documented by way of an Annex VII EWSR document. Shipments by land or sea require the carrier to carry physical documentation, such as a transport document or an accompanying letter. If waste materials are transported or exported, there is a chance that Customs, the ILT, or other authorities will carry out checks. To reduce the likelihood of inspections and to disguise an illegal shipment during an inspection, false information about the stream to be exported is given in the digital or physical documentation.

This is done, for example, in the following ways:

- The code used for the waste to be shipped is falsified. Using the code for plastic waste may increase the likelihood of inspections, and certain exports require a waste shipment notification to be submitted for plastic waste. For this reason, an unrelated code is chosen, reducing the probability of verification or avoiding the waste shipment notification procedure. For example, our information shows that waste is shipped under codes that are as diverse as those used for textiles, automobiles, tractors, bicycles, motorbikes, and other vehicles. The case described at the beginning of section 2.5 illustrates the reclassification of waste by changing a code. En route (e.g., at sea), the accompanying documents are swapped, setting a new origin or destination on paper for the cargo (Bervoets, 2024). This allows the cargo to be exported directly to the destination country under a non-waste code. Diverting it via other ports is thus unnecessary, and this reduces costs.
- Waste is on paper reclassified as a product, in order to be able to actually export as a product. Shredded plastic waste, for example, can be difficult to distinguish from plastic granules as a raw material, even though it does not meet environmental health and quality requirements.
- Containers with low-grade plastic waste fractions are shipped via domestic terminals to be transhipped directly alongside an ocean-going vessel. This prevents the cargo from being unloaded onto the quay and prevents Customs from scanning it.

Certain waste shipments subject to the waste shipment notification procedure require the waste to be recovered in the destination country. Recovery occurs, for example, when the waste is recycled or incinerated for energy generation. In such cases, the waste is worth more. It occurs that cargo is classified as being intended for recycling (code R3), while no such facilities exist at the destination site. This makes the shipment illegal.

It is not always easy for an exporter (and the supervising or controlling authority) to determine whether a destination has the proper treatment options for the waste. This requires investigating and keeping records of all possible waste handlers in all countries. An exporter should see red flags if the price of a transaction is not in line with the market. If the price paid for the waste at the destination is relatively high or if the price to be paid by the exporter is relatively low, it may well be suspected that this is too good to be true, and that the waste cannot be recycled for that price at the destination.

In addition to modifying documentation, the cargo itself may also be modified to bypass inspection. For example, plastic waste that may not be exported to certain destinations is hidden in containers behind waste that is allowed.

The accompanying documents only list the legal goods (Interpol, 2020). Bervoets (2024) describes a case study in which waste (including plastic waste) was exported from the Netherlands to China. The waste was hidden behind loads of clean paper bales. Such mixed flows eventually end up in places that cannot process them and thus contaminate recycling streams (Ismawati et al., 2024).

In some cases, the buyer of these waste containers is deceived, as well. They believe they are buying containers of paper but also end up with a lot of contaminated waste. The trader mediating between the seller and the buyer is often not present during loading. This increases the risk of adding lower-quality materials. A container loading company will send photos of the cargo to the buyer. In the photos, the cargo looks to be all right and of good quality, often

causing the buyer to make a 70% deposit. When the buyer receives the container, they find out that the cargo is worth much less than agreed upon. They have already lost the down payment by that time. Traders may be responsible for (or aware of) hiding bad batches in other cargo, but this is not always the case.

Other cases involve collusion with the buyer, with the latter knowing they are bringing in poor-quality material and therefore paying less for it or even getting paid for it. Various concealment techniques are used. This includes physical modification, such as shedding or hiding, but also changing documentation. This reduces the chance of being caught and makes monitoring these flows highly specialised work.

2.5.2 Opportunities

With regard to exports, we see a number of factors that enable and/or encourage crime.

The market for waste treatment in the Netherlands and the European Union is not favourable. This is due to the relatively high cost of waste treatment and recycling in Europe as opposed to in non-EU or non-OECD countries. There is a tendency to choose the country with the lowest processing costs, even if legal frameworks do not allow for this. Also, as was described earlier, the higher price of recyclate cannot compete with the low prices of new plastic, meaning the amount of new plastic and plastic waste in the world keeps increasing. The waste has to go somewhere and often finds its way to a place where processing costs are lower. Moreover, the manufacturing economy in Europe is limited, reducing the demand for raw materials such as recyclate. In parts of Southeast Asia, this price is higher. This results in exports to countries where demand is higher. International waste legislation is complex, and its monitoring and enforcement is fragmented, with international cooperation and information sharing adding further challenges. A single international shipment of waste may involve multiple permit issuers, customs officials, supervisors, enforcers and other agencies from various countries. All these bodies have their own mandate and associated piece of the puzzle that is often difficult to share between them. For this reason, a comprehensive view of waste transports and their associated risks is lacking. Inadequate information exchange between Member States means that traders have free rein and manage to put up smokescreens by importing and exporting waste through different routes and countries. The new EWSR requires that, from 2026 onwards, only digital EWSR documents may be used. This provides for improved monitoring of international waste streams.

Current international partnerships mainly work on a project-based or not operational level, and do not yet systematically share information to a sufficient degree. For example, the exchange of information on Dutch companies exporting shipments via another Member State or foreign companies exporting shipments via the Netherlands is not organised on a structural basis. Complex rules and fragmented international supervision offer many opportunities for actors to conceal illegal activities and to remain under the radar themselves.

In addition, not every country implements equally strict supervision of EWSR legislation, allowing criminals to take advantage of weak links in the supervision system. This difference in enforcement may become even more prominent once the EWSR export ban comes into force in 2026 and it becomes completely forbidden for EU countries to export plastic waste to non-OECD countries without meeting very strict conditions. For example, plastic waste may be exported on paper to Eastern Europe for recycling, while in reality, it is shipped as a finished product - and therefore not as waste - from there to China. Signals from the ILT-IOD show

that countries such as Romania, Bulgaria, Ukraine, Kosovo, and Albania already have many established Chinese processors, both good and bad.

2.6 Crime by traders and intermediaries

Traders and intermediaries play an important role throughout the plastic waste chain. They may be involved in importing and exporting waste, as well as in processing and transportation. Various surveys and previous threat assessments show that traders and intermediaries in the plastic waste industry (still) constitute a problem. These companies often act culpably. In addition, they are uncontrollable and evade market supervision (Van den Anker, 1997; Spapens, 2016). For this reason we have added a separate section on traders and intermediaries in the plastic waste industry in this chapter.

Below, we will describe their role and the possible criminal acts we have identified. Finally, we will describe the opportunities that allow traders and intermediaries to play a high-risk role in the plastic waste chain.

2.6.1 Role played by traders and intermediaries

By traders, we mean the companies that buy and resell waste streams. Intermediaries can provide all kinds of services in the waste chain. For example, they bring trading parties together, arrange for transports, or perform administrative work. Traders and intermediaries themselves do nothing with the physical waste.

High-risk traders and intermediaries are small businesses that often do not have a yard for storage or transshipment. However, they often are VIHB-registered.³⁵ The export and transport of the waste often involves several small companies acting as traders or intermediaries.

Companies of small traders are said to be volatile; if a small trader disappears from the market, it is soon replaced. Sometimes, this involves a new employee entering the market on behalf of the original company. Relatives or acquaintances of a small existing trader may also set up new businesses.

2.6.2 Criminal acts

The ILT-IOD has indications that traders and intermediaries often play a role in the illegal import of, trade in, and export of plastic waste in the following ways:

- Rejected and poor quality plastic waste streams are traded and exported by traders;
- Traders are involved in defrauding their customers;
- Traders and intermediaries use various methods to conceal the true nature, sender, or destination of an illegal waste stream. This includes forging accompanying documents and changing codes, reclassifying waste as product, or hiding waste underneath a cover load. These practices are discussed in previous sections on import, processing, and export, and are therefore not covered again here.

³⁵ Companies that collect, transport, trade in and/or mediate in industrial waste or hazardous waste on Dutch territory must be registered in the national list of Transporters, Collectors, Traders and Intermediaries (VIHB list). This applies to both Dutch and foreign companies.

Trading and exporting poorquality waste streams

As described earlier in the section on importing and processing in the Netherlands, large European waste collectors and sorting companies resell batches of plastic waste that remain after sorting to small traders and intermediaries. These are very poor-quality batches originating from the Netherlands, Germany, and the UK. According to the information available to the ILT-IOD, small traders are said to be openly seeking poor-quality and rejected plastic waste streams within the waste sector. They offer to take over poor-quality waste at a low price. The price paid by collectors and sorters to these traders is lower than what would be paid to legitimate processors of low-value waste streams. The batches are resold by these dubious traders, sometimes several times, passing via other traders or through different countries, making the flow untraceable. Ultimately, after passing through various companies and small traders, the waste is exported illegally to Asia and Turkey, for example, where it is not properly processed. By outsourcing the waste management of bad streams and getting rid of bad streams for prices that are too low, the big collectors take the risk of their waste being illegally exported. Small traders and intermediaries may be carrying out mala fide practices themselves, but they are also used as a kind of straw man by big collectors and sorting companies.

Fraud by traders

There are cases where traders defraud other companies. This is done, for example, by collecting downpayments while no batches are actually delivered. Cases also exist where the quality of the waste delivered is lower than what was paid for. Sometimes, this involves downpayments of 30%, which can amount to thousands of euros, and which are lost by the buyers. This usually happens in the case of smaller shipments in international trade, where the possibilities for victims to seek justice are limited.

2.6.3 Opportunities

When considering the role played by traders in the plastic waste industry, we see factors that enable or encourage crime. In this section, we will address some of these opportunities only briefly, as they correspond to the opportunities for crime when importing, processing, and exporting waste (which traders and intermediaries also often play a role in).

Traders and intermediaries are not easily verifiable because they often do not have a physical business location and usually do not physically hold waste. As a result, traders and intermediaries are often not subject to licensing, as an environmentally harmful activity or transport is. The Environmental Management Act seems to absolve waste producers of their responsibility for waste treatment once they hand it over to the next operator in the chain. In the Environmental Management Act, waste disposal refers to physical disposal, but this is not always the case. Ownership sometimes changes on paper while the waste is not physically moved. If the new owner is a trader, this poses many risks, especially as they may trade the waste without ever having seen it.³⁶ This allows traders to take cover behind the description of the waste in the documents, even though they may have been aware of its true nature. The ILT issued a signal report in 2013 on the high-risk role of waste traders. This recommended amending Section 10.37 of the Environmental Management Act to prohibit the delivery of waste to traders. This did not lead to any adjustment.

³⁶ ILT signal, interview with an inspector.

However, traders and intermediaries do need to be VIHB-registered if they trade in or broker plastic waste. Companies that collect, transport, trade in and/or mediate in industrial waste or hazardous waste on Dutch territory must be VIHB-registered.³⁷ The system of VIHB registration is considered to be fraught with risk both in the industry and by supervisors.³⁸ It is possible for practically anyone to apply for VIHB registration. No check that the applicant has the required dispositions, certificates, approvals, or registrations takes place. The industry states that the current regulations on the VIHB list opens the door to 'cowboys' who knowingly circumvent the rules.

Many small traders and intermediaries are operating in the plastic waste sector. Because of the limited knowledge of the interconnectedness of traders and intermediaries in the waste industry, supervision and detection are complex. The fact that the Netherlands' licensing, supervision, and enforcement (VTH system) organisation is regulated at the level of the institution renders constructing a comprehensive picture of the high-risk players and streams difficult.

In addition, it can be difficult for supervisory and investigative bodies to share information, as effective arrangements or collaborations are not always in place. We also see that the information from different supervision and investigation partners is not always shared. The legal frameworks for sharing are sometimes lacking or are not elaborated in such a way that information can actually be shared. This comes at the expense of a comprehensive overview of traders and their role in the (global) waste trade.

Waste trading is also increasingly taking place on the internet, such as on the website *scrapo.com*. Controls, however, mainly focus on physical activities. After all, a permit or a waste shipment notification as required under the Activities (Environmental Management) Decree forms the basis for the board to be able to supervise and enforce. Moreover, information about traders and intermediaries and their business operations is not readily available. Traders and intermediaries provide as little insight as possible into who they do business with, for competitive reasons. This is to prevent the processor from doing business directly with the disposer. Communication between traders and intermediaries about contracts and trading often takes place via WhatsApp. Email is only used to communicate with large companies. There is a risk that this may prevent effective control. Physical documents, such as Annex VII papers, do accompany a cargo physically.

2.7 Conclusions and recommendations

Plastic crime occurs throughout the plastic waste chain. In our own country, this undermines the level playing field, disadvantaging those parties that do comply with laws and regulations. Abroad, improper processing creates risks to people and the environment through contamination, partly due to the wide variety of chemical additives used in plastic.

The available information shows that there is a risk of legal and regulatory circumvention

³⁷ Companies that collect, transport, trade in and/or mediate in industrial waste or hazardous waste on Dutch territory must be registered on the national list of Transporters, Collectors, Traders

³⁸ ILT plastics session.

at every step in the plastics chain. Illegal operations can occur during the import of plastic waste, during its processing in the Netherlands, and during trading and export. Traders and intermediaries play an important role in this processing chain. They facilitate the market by taking over the most problematic (contaminated) plastic waste streams.

However, the ILT-IOD also has information that these traders allegedly collaborate with larger parties in the industry, who can thus dispose of difficult-to-process waste streams more cheaply. Illegal (price) agreements on distributing and processing problematic waste streams may also be concluded in the plastic waste industry. Various concealment techniques hide waste flows from view. Examples include falsifying documents, using cover cargoes, or diverting waste shipments via multiple links or through places where inspections and enforcement are less stringent at that time. This analysis is based on information from confidential sources. It gives an idea of what criminal activities can be performed within the plastic waste industry. The added value of our sources lies mainly in the detailed insight offered into the different forms the various criminal acts involving plastic waste can take. The ILT-IOD is currently conducting further investigations into the signals mentioned in this report.

Tackling crime is extremely important. We find that criminal trading has particularly harmful effects on our living environment and the natural environment. We also find that it is becoming difficult for companies to make a profit recycling plastic waste. As long as certain parties continue to evade the rules for proper processing, an unfair playing field is created, in which those parties that do incur the necessary costs lose out.

The following recommendations focus on the role of inspections and enforcement:

→ Improve the understanding of group relations and (criminal) practices in the Dutch and international waste industry

While insight into the activities of the plastic waste industry and the waste streams does exist, this insight is fragmented and split across various government departments and private companies, including the ILT, Customs, environmental services, the police, the Directorate-General for Public Works and Water Management, and financial institutions. The various relevant IT systems are poorly connected, so information cannot be appropriately exchanged. At the same time, the waste market is increasingly conglomerating, making mutual financial and material flows less transparent. An improved common understanding of the industry and its risks can be achieved by sharing information more often. With regard to covert collection, this report shows how this information can contribute to understanding criminal practices within an industry.

Additional investments are essential to feed both supervision and criminal investigation services with the information required for targeted enforcement. The importance of using financial information follows from the fact that criminal waste disposal is all about money. Take this as a starting point for criminal investigations.

How? For example, by improving cooperation with supervision and investigation partners at home and abroad, sharing information, being able to use inspection data and information and suspicious transactions from financial institutions for analysis, sharing risk indicators of environmental crime with financial institutions, and putting more effort into and making more use of the information from covert collection. Invest in sharing information through the

various IT systems and increase the understanding of the interconnectedness of parties to monitor, enforce, and investigate this in a risk-driven way.

→ Coordinate the international supervision of plastic waste streams and actors

Diverting plastic waste through neighbouring countries is an important modus operandi. The opportunity for this is provided by the fact that surrounding countries have set up their supervision systems in a different manner. Supervision is sometimes stricter in one country than another. As a result, parties choose those ports where they are most likely to succeed at that time.

How? Establishing international collaborations and sharing information will enable improved risk-based supervision. Make use of existing bodies and networks such as Europol, IMPEL, EnviCrimeNet, ENPE, Eufje, Interpol, and sister organisations. Customs, OLAF, the OECD, and the United Nations are also relevant in this regard.

→ Strengthen and relax procedures for international judicial cooperation

Criminal dealings span multiple (EU) countries. An effective strategy requires criminal investigations that can deal with this flexibly. To enable this, it is essential that investigative agencies and prosecutors can cooperate properly and quickly in an international context.

How? Have the Public Prosecution Service invest in a broad and international network to tackle environmental crime. Additional specialists and knowledge should be attracted to speed up and smoothen this process.

→ Invest in proactive and risk-based detection of plastic waste crime

It is essential to create an up-to-date picture of the players, activities, and criminal practices in a sector to effectively deploy the scarce investigative capacity at the right time and in response to the right signals.

How? By setting up a good intelligence organisation, building up an up-to-date information position, collecting and analysing targeted data and information to detect new crimes, by using (financial) risk indicators for gaining a picture of waste crime, and by close cooperation with supervision and criminal investigation partners.

→ Use the information available on waste crime to consider possible interventions. This can be a criminal investigation but also the provision of signals to affect policy or an administrative approach

TCI information shows that crime occurs in many areas but does not always lead to successful investigations.

How? Based on a good information position for the investigative services and a well-functioning intelligence organisation, case studies can be referred to the National Environmental Chamber in a timely manner, and possible interventions can be decided upon. Justia, formerly the Tool-box Criminal Law, should also be used for this purpose. Among the various supervisory and investigative bodies, investments are being made in cooperation and getting to know each other's mandate and legal framework. Knowledge about and correctly applying the National Enforcement Strategy for Environmental Law (LHSO) is also essential. Ensure that knowledge and lessons learned from investigations are used more widely.

→ Encourage cooperation in tackling waste crime in the existing system of licensing,

supervision and enforcement (VTH system)

The relevant organisations cannot easily share information on waste crime, the waste chain, and waste streams. Data exchange between VTH partners is complex. It is often unclear what can and cannot be shared. This is a major bottleneck for building a strong information position.

How? Invest in legal expertise and sufficient support capacity and seek cooperation in the VTH system. The partners active in the Strengthening VTH Intergovernmental Programme (IBP VTH) are currently working on improving mutual cooperation, including cooperation between civil and criminal law bodies and information sharing. The ILT-IOD is involved in this.

→ Improve the visibility and supervision of traders and intermediaries operating in the plastic waste market

Traders are a linchpin in the criminal plastic waste market. Central monitoring of active parties (and waste streams) within the plastic waste industry is lacking. As a result, there is no clear view of new entrants, who experience few barriers when entering the Dutch market.

How? Encourage regulations that improve the supervision of traders and intermediaries in the waste market. Examples include making the process of obtaining a VIHB registration more difficult and imposing the loss of VIHB registration as a sanction. In addition, the Environmental Management Act should be amended to ban the act of delivery to a trader. Monitor actors new to the Dutch market. Keep a centralised overview of new entrants and have risk-based monitoring in place, especially with respect to these new entrants. Also consider the parties operating on digital communication and trading platforms.

→ Anticipate the upcoming export ban on plastic waste, which is likely to boost illegal waste shipments

This chapter provides insight into the practices of the last five years. The upcoming export ban will likely result in even more rule evasion. Existing practices already facilitate the evasion of such a ban by diverting waste through a port with less stringent controls.

How? Risk-driven detection and monitoring based on a good information position allows timely recognition of new risks and MOs. But also monitor whether new opportunities present themselves. The export ban can be legitimately circumvented by recycling plastic waste into a secondary product. The industry and regulators would benefit from a generic regulation on end-of-waste conditions for plastics. Commitment from the policy department to bring the process initiated by the EU to a successful conclusion is desired.

→ Enforce producers' responsibility so that recycling standards can be met

The aim of this recommendation is to encourage high-quality reuse and shift the associated costs to the polluter. The prescribed recycling standards put pressure on the market; when following the plastic packaging chain, it should be possible to exclude illegal processing. This is also the responsibility of producers, and not just of the waste chain.

How? Producer organisations must prove that their waste has been recycled in an environmentally responsible manner for it to count as recycled waste. Make sure this information is easily accessible to the regulator.

References

The internet links were checked at the time of publication of this report

AfvalOnline. (2022). Kras Recycling grotendeels in Thaise handen. <https://afvalonline.nl/bericht/37388/kras-recycling-grotendeels-thaise-handen>

Basel Action Network. (2024). European Union Export Data: 2023 Annual Summary. <https://www.ban.org/plastic-waste-project-hub/trade-data/eu-export-data-annual-summary>

Basel Action Network. (2024a). Massive e-Waste Seizure in Malaysia Follows Tip-Off from Global Waste Watchdog Group. <https://www.ban.org/news/2024/6/26/massive-e-waste-seizure-in-malaysia-follows-tip-off-from-global-waste-watchdog-group>

Binnenlandsbestuur. (2024). VNG beëindigt contract met Verpact. <https://www.binnenlandsbestuur.nl/ruimte-en-milieu/vng-zet-contract-met-verpact-voorlopig-stil>

Buckers, L., Van Ginkel, R., Van Hal, P., Havinga, S., Klomp, W., Lipholt, E., & De Louw, M. (2021). Afval bestaat toch wél: oude en nieuwe dreigingen. +In: Neve, R. (ed.) 2021 *Environmental Crime Threat Assessment*. Strategic Environmental Chamber.

Comolli, V. (2021). Plastic for profit: *Tracing illicit plastic waste flows, supply chains and actors*. Global Initiative Against Transnational Organised Crime, Switzerland.

Comolli, V. (2024). *Plastic Waste and Criminality*. In: Gündogdu, S. *Plastic Waste Trade: A New Colonialist Means of Pollution Transfer* (pp. 107-112). Cham: Springer Nature Switzerland.

Dell, J. (2024). Major- Six-Year Trends in Global Plastic Waste Trade. In: Gündogdu, S. *Plastic Waste Trade: A New Colonialist Means of Pollution Transfer* (pp. 107-112). Cham: Springer Nature Switzerland.

European commission. (2012). CEMENT, WASTE, AND CARBON MARKETS. <https://www.no-burn.org/resources/cement-waste-and-carbon-markets/>

EWSR. (2024). Regulation (EU) 2024/1157. <https://eur-lex.europa.eu/legal-content/NL/TXT/?uri=CELEX%3A32024R1157>

ILT. (2023b). Hoogwaardige grondstoffen naar verre landen door geringe vraag in EU. <https://www.ilent.nl/documenten/leefomgeving-en-wonen/afval/afvalinzameling-en--preventie/factsheets/hoogwaardige-grondstoffen-naar-verre-landen-door-geringe-vraag-in-eu>

ILT. (2023). ILT-wide risk analysis (IBRA) 2023. <https://www.ilent.nl/documenten/meerjarenplannen/2023/09/19/ilt-brede-risicoanalyse-2023>

ILT. (2024a). Verwerken afvalstof: Handelingen voor nuttige toepassingen afval. <https://www.ilent.nl/onderwerpen/afvaltransport-evoa/bepalen-procedure/verwerken-afvalstof>

ILT. (2024b). Wijziging classificatie kunststofafval per 1 januari 2021. <https://www.ilent.nl/onderwerpen/afvaltransport-evoa/wet--en-regelgeving/strengere-regels->

ILT. (2024c). Uitgebreide producentenverantwoordelijkheid (UPV) verpakkingen. Retrieved on 25 June 2024 from <https://www.ilent.nl/onderwerpen/producentenverantwoordelijkheid/upv-packaging>

Ismawati, Y., Septiono, M. A., Proboretno, N., & Zaki, K. (2024). Plastic Waste Trade in Indonesia and Country's Response to Waste Trade Challenges. In: Gündogdu, S. *Plastic Waste Trade: A New Colonialist Means of Pollution Transfer* (pp. 155-189). Cham: Springer Nature Switzerland.

Geest, V. van der., van Onna, J., & van Wilsem, J. (2023). Regelovertreding, daders en handhaving bij milieucriminaliteit. *Justitiële Verkenningen*, 49(4).

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

Houten-Peschier, J. van. (2023). Bestrijding van milieucriminaliteit in de praktijk. *Justitiële Verkenningen*, 49(4).

Chamber of Commerce (2024). HS codes and commodity codes in foreign trade. <https://www.kvk.nl/internationaal/hs-codes-en-goederencodes-bij-buitenlandse-handel/>

Lobelle D, Shen L, van Huet B, et al. 2023. Knowns and unknowns of plastic waste flows in the Netherlands. *Waste Management & Research*. 2024;42(1):27-40. doi:10.1177/0734242X231180863

Neve, R. (2013). Geglobaliseerde afvalcriminaliteit. Illegale praktijken in de afvalstromen naar Afrika en China. National Information Organisation Service, National Unit. <https://www.politie.nl/binaries/content/assets/politie/onderwerpen/publicaties/2013/2013-geglocaliseerde-afvalcriminaliteit.pdf>

Recycling Magazine Benelux. (2024a). Faillissement Umincorp door dumprijzen virgin plastics. <https://www.recyclingmagazine.nl/materialen/plastic-recycling/plasticrecycler-umin-corp-failliet/52911/>

Recycling Magazine Benelux. (2024a). Goedkoop Chinees plastic nekt plasticrecycler TRH. <https://www.recyclingmagazine.nl/materialen/plastic-recycling/goedkoop-chinees-plastic-nekt-plasticrecycler-trh/53892/>

NH News. (2024). Afval Energie Bedrijf staat opnieuw te koop na verboden deal met Rotterdam. <https://www.nhnieuws.nl/nieuws/335027/afval-energie-bedrijf-te-koop-na-verboden-deal>

Directorate-General for Public Works and Water Management. (2024). Afval circulair: Afvaltransport over de grens (EVOA). <https://www.afvalcirculair.nl/afvalregelgeving/afval-vervoer-en-0/evoa/>

RIVM. (2024). Zeer zorgwekkende stoffen. <https://rvs.rivm.nl/onderwerpen/zeer-zorgwekkende-stoffen>

Park, B. C., Brown, A., Laubinger, F., Börkey, P. (2024). Monitoring trade in kunststof waste and scrap - <https://doi.org/10.1787/013bcfdd-en>

Petrlik, J., Beeler, B., Ismawati, Y., & Bell, L. (2024). Toxic Contamination Caused by Plastic Waste in Countries of the Global South. In: Gündogdu, S, Plastic Waste Trade: *A New Colonialist Means of Pollution Transfer* (pp. 113-128). Cham: Springer Nature Switzerland.

Recycling magazine. (2024). Faillissement Umincorp door dumprijzen virgin plastics. <https://www.recyclingmagazine.nl/materialen/kunststof-recycling/kunststofrecycler-umincorp-failliet/52911/>

Reuters. (2021). Trash and Burn. Big brands stoke cement kilns with plastic waste as recycling falters. <https://www.reuters.com/investigates/special-report/environment-plastic-cement/>

UNODC. (2024). Cash in the trash: the role of corruption, organised crime and money laundering in waste trafficking. https://www.unodc.org/documents/bmb/environmental-crime/FINAL_for_printing_-_Cash_in_the_Trash.pdf

Basel Convention on the control of transboundary movements of hazardous wastes and their disposal. (1989). <https://wetten.overheid.nl/BWBV0002081/2020-03-24>

VNG. (2024). Nieuwe afspraken inzameling verpakkingsafval Knelpunten in de uitvoering-spraktijk. https://vng.nl/sites/default/files/2024-04/20240430_lbr_2024_014_ledenbrief_inzake_nieuwe_afspraken_verpakkingsafval.pdf

3



Climate change and new forms of environmental crime



Summary

Both at the national and the international level, governments are taking measures to mitigate the effects of climate change. These measures have implications for the conduct of companies and individuals and, consequently, for monitoring and enforcement. This chapter discusses some new forms of legislation aimed at reducing climate change and global warming. Our analysis is focused mainly on the implications such new legislation has on tackling environmental crime.

After an initial exploration, the partners involved soon reached consensus on the subjects to be addressed. Two of them align with the enforcement partners' previous experiences: the Deforestation Regulation and the F-gas Regulation. The latter regulates the use of these refrigerants and heavy greenhouse gases. Offences related to these regulations take the form of the illegal import and use of goods banned by this new legislation. Countering such offences is traditionally the purview of special investigation services and the police, so there is already experience to build on. It should be noted that the new Deforestation Regulation is considerably broader in scope than the NVWA focus on tackling the import of non-sustainable wood in collaboration with the police, which has already led to a number of criminal cases. The Regulation also covers goods like chocolate, coffee, and cattle and meat. There have already been criminal cases on illegal imports of F-gases used as refrigerants. The phasing out of F-gases by setting quotas ever lower, even though industry demand remains high, is likely to increase illegal trade. It is already estimated that about a third of total F-gas sales are illegal. New criminal cases on this subject can therefore be expected to arise in the coming years. There have already been six criminal investigations concerning refrigerants since 2017.

The other laws and regulations covered are to some extent still unexplored territory from the perspective of the criminal justice system. They concern the trade in emissions, the promotion of renewable fuels, and the sustainability reporting requirements introduced for (large) companies. These reporting requirements are intended in part to counter *green-washing*: the false claim that a product or service is sustainable. Supervision is vested primarily in administrative bodies that do not form part of the criminal justice system, such as the Netherlands Emissions Authority (NEa), the Authority for Financial Markets (AFM), and the Consumer and Market Authority (ACM). These phenomena, too, are not always entirely new (emissions trading has been around for over 10 years now), and the new legislation is built on existing laws. However, the legislation is often complex and still evolving. This entails the setting up of systems of trading rights and certificates, while obligations are imposed on parties subject to the legislation to keep accurate records or file reports. Supervision has largely been privatised in the form of certifying bodies and verifiers. Administrative law will play an important role in enforcement, as will private law, in certain cases. In case of wilful violation for profit, criminal law can also be employed, at least in cases where offences such as forgery and fraud are part of the criminal *modus operandi*. The Economic Offences Act (WED) can be used if parties subject to the legislation fail to meet their obligations, for example, by failing to report.

A special case is formed by the developing hydrogen economy, with respect to which few policies and regulations have as yet been developed. Nevertheless, criminality could occur here if producers were to falsely market hydrogen as 'sustainably produced'. A working group could provide further advice. The climate risk of hydrogen leaks, green or otherwise, will also be highlighted.

Introduction

This chapter aims to provide some insight into forms norm-deviating conduct that contribute to climate change or that undermine policies to slow down this change. By now, climate change is notable everywhere and it forms a serious threat to our global security. Society is making unprecedented investments to stem that tide. Policy initiatives under the European Green Deal, aiming for climate neutrality by 2050, are leading to more and stricter environmental legislation. Behaviour that undermines climate policy threatens nature, security, and the economy but can be very lucrative. This chapter therefore focuses on the question that the Strategic Environmental Chamber formulated as follows:

*Based on the force's Sustainability and Climate Safety priority, the police have indicated a need to better understand those various forms of norm-deviating conduct that contribute to climate change or that undermine policy to slow down this change and that are criminally enforceable. Which criminal activities threaten our climate (the most), which regulations are violated, which of them have the greatest impact, and what action perspectives can be derived from them?*³⁹

In other words, multiple questions are being asked:

- What norm-deviating conduct contributes to climate change?
- What norm-deviating conduct undermines policies to slow climate change?
- Which norm-deviating conduct is criminally enforceable?
- Which criminal activities threaten our climate (the most), and which regulations are being violated?
- What action perspectives can be derived from the findings?

Like in all previously published Environmental Crime Threat Assessments, we will provide a description based on the perspective of criminal opportunities for the climate domain. By looking at the risk that 'yet-to-be-perpetrators'⁴⁰ may commit environmental crimes, we may identify opportunities for crime. Recommendations for prevention can be developed by monitoring the criminal opportunities and, of course, the crimes actually committed in the coming years (Neve, 2023). In this chapter, the opportunity perspective mainly involves looking at what opportunities new legislation offers to make extra money by violating it, by fraud, or by abusing incentive schemes. In addition, if supervision of compliance with laws and regulations is inadequate, wrongdoers are far more likely to seize an opportunity (Cohen & Felson, 1979).

Before discussing all this in more detail, it is important to define the key concept: climate change.

³⁹ Memo from police representative Gert Veurink to SMK members dated 21 November 2023, p.2. See Chapter 1 for the creation of the Environmental Crime Threat Assessment at the initiative of the national police units.

⁴⁰ The term 'nog-niet-daders' was coined by Van den Berg, 1995.

3.1 What do we actually mean by climate change?

On 5 June 2024, the Royal Netherlands Meteorological Institute (KNMI) published a climate report explaining that the 2023 heat record will likely be broken in one of the next five years. It based itself on an analysis of data from the World Meteorological Organisation. The earth's average temperature is quite predictable, much more than the weather in a particular place. Higher temperatures will also lead to more frequent extreme weather, possibly resulting in 'tipping points' being exceeded. Measures that can be taken to limit global warming include reducing the use of fossil fuels, limiting emissions of greenhouse gases such as methane, stopping deforestation, and techniques that remove CO₂ from the air.⁴¹

The Netherlands Environmental Assessment Agency (PBL) released a new report charting climate risks in the Netherlands shortly before the publication of this threat assessment. Its conclusions give cause for concern. Globally, the climate is changing, and it is shifting a bit faster than average in the Netherlands. The fact that we can turn down the heating a bit could be seen as positive, but the adverse effects are still considered to be more important. Extreme drought, extreme rainfall, repeated broken temperature records, and sea level rises make action necessary in the short term. These measures will often be complex and lead to fundamental spatial and distribution demands (PBL, 2024: 6-7).

Climate change has many aspects but is summarised as global warming, the gradual increase in the average temperature of the Earth caused by human activity, in particular the emission of greenhouse gases (GHG) such as CO₂, methane (CH₄) and nitrous oxide (N₂O) (IPCC, 2023).

Three emission types can be distinguished in this connection. First, carbon emissions from fossil fuel use and industrial emissions, which have increased the most. Second, carbon emissions from changes in land use, such as converting forest to pasture or soybean plantations. Finally, other emissions, notably of methane, nitrous oxide, and fluorinated gases, such as HFCs, PFCs, SF₆, NF₃, collectively known as F-gases (IPCC, 2023).

Greenhouse gases vary in their degree of impact and are converted into carbon equivalents. The resulting number is called the GWP: global warming potential. CO₂ thus has a GWP of 1. Methane has a GWP that indicates it is 28 times new laws and regulations are being put in place to combat climate change, stronger than CO₂. Nitrous oxide is released from soil that has been fertilised with fertiliser or animal manure. Nitrous oxide is a very strong greenhouse gas: its GWP is 265.⁴²

Incidentally, some other greenhouse gases have an even much higher carbon equivalent. However, they are less prevalent.⁴³

Much of the current concentration of greenhouse gases is due to historical emissions. These have been so massive that it is unlikely to be possible to keep the temperature rise within safe margins, scientists recently stated.⁴⁴

Both stopping further global warming (mitigation) and adapting to its consequences (adaptation) are now important policy goals and lead to action being taken.

Apart from a climate crisis, the Netherlands also faces a nitrogen crisis.

Although they do not form a direct climate problem, nitrogen compounds emitted by construction, industry, and agriculture are harmful to nature and groundwater.⁴⁵ This will be addressed in the 'water quality' section, which will appear at a later time, as was explained in the introduction to this threat assessment. However, agriculture also leads to emissions of methane, which, as mentioned above, is a very strong greenhouse gas. Measures taken to comply with the European manure policy, which requires the Dutch livestock population to shrink by 600,000 cows, will therefore also have a major impact on Dutch methane and nitrous oxide emissions.

Climate change has also led to measures in a related policy area: the energy transition. The current aim is to move away from dependence on fossil fuels and towards renewable energy, which emits fewer greenhouse gases. Since the war in Ukraine, reducing dependency on oil and gas imports from Russia has also played a role.

Climate policy includes various incentive schemes, sometimes using financial incentives to persuade market players to become more climate neutral. Those schemes may provide opportunities to pull in money through fraud. Some forms of such fraud have already been detected and future incentive schemes could give rise to new forms of fraud. These are discussed below.

In time, the energy transition may also lead to new waste streams, such as discarded solar panels, wind turbine blades, and batteries, which may also give rise to fraud (Zegels, 2024).

3.2 Delineation: norm-deviating conduct related to climate change

The vast majority of greenhouse gas emissions, which cause climate change, occur through legal and mostly licensed economic activities. This chapter focuses on the contribution of unlicensed, illegal activities. Because new environmental crimes or new forms of known environmental crimes are also likely to emerge.

By now, climate change and the strategies taken to tackle it have led to a wide range of activities in different sectors of society: agencies and individuals want to do their bit. This also applies to those involved in countering environmental crime, inspections, BODs and police.

This chapter aims to contribute to understanding the impact of climate change on environmental crime, which is defined here rather broadly: norm-deviating conduct that promotes climate change or undermines climate measures. Climate change may create new

⁴¹ <https://www.knmi.nl/over-het-knmi/nieuws/klimaatverwachting-2024-2028-opwarming-1-5-graden>

⁴² <https://www.milieucentraal.nl/klimaat-en-aarde/klimaatverandering/wat-is-het-broeikaseffect/>

⁴³ A handy overview can be found at <https://klimaat.be/klimaatverandering/oorzaken/broeikasgassen> Derived from the IPCC report.

⁴⁴ The TV programme Nieuwsuur interviewed 24 Dutch climate scientists who have contributed to the IPCC reports. <https://nos.nl/nieuwsuur/collectie/13871/artikel/2433051-klimaatwetenschappers-beperken-warming-earth-goes-failures>

⁴⁵ See, for example, <https://www.rivm.nl/stikstof>

markets, while new laws and regulations are also being developed for existing markets and need to be enforced.

'Change' may be the increase, the decrease, but also the emergence of entirely new forms of environmental crime. This could include illegal trade in certain scarce raw materials or fraud in a subsidy scheme designed to encourage climate-friendly production.

Since the research question also covers the subversion of policy, we will look at both the regulations to combat climate change developed in recent years and those in the pipeline in the coming years, to the extent they are known. Strictly speaking, then, we will not discuss the impact of climate change on policing in general or on tackling environmental crime. Instead, we will address the impact of crimes on climate change and the subversion of new policies and regulations by entrepreneurs who want to circumvent them or commit fraud in the context of incentive and subsidy schemes.

3.3 Research design

The question posed by this study invites a qualitative approach that involves making estimates by consulting written materials and conducting interviews with experts. This is because figures on offences and crimes that may take place in the future are, naturally, not available. To the extent that they do exist, they will of course be mentioned.

First, a literature review was carried out, reviewing the most important recent reports on the climate and possible climate measures, which were summarised in the previous sections. We then shifted our focus to concrete laws and regulations that are expected to be adopted in the climate field, both by the EU and by the Dutch government.

Following an initial overview based on an internet search, focusing on government websites such as overheid.nl, we held a series of interviews with relevant experts to arrive at a further delineation. Our focus in this regard was on specific laws and regulations to reduce greenhouse gas emissions. This resulted in the five sub-themes discussed in section 3.5. These emerged from both the desk research and the interviews. A consensus quickly emerged between the experts involved, and no other subjects were mentioned that should also be covered. This does not mean that these five themes fully cover the field, but that the experts consulted did not consider it necessary to cover any other subjects.⁴⁶ After an initial summary of the relevant laws and regulations, experts were approached to gain insight into the implications for enforcement and possible developments in *modi operandi* for illegal practices concerning these laws and regulations, such as illegal trade and fraud with certificates and reports. Group and individual interviews were held, and experts answered questions by email. Since these were experts, no use was made of an interview schedule or questionnaire, other than a breakdown along the lines of: what are the laws and regulations, how are they enforced, what development in crime can be expected in relation to these regulations, and how does the relevant authority deal with them? The report of each interview was submitted to the respondents, sometimes featuring specific questions, to allow them to provide further clarification and additions, and to make corrections. In addition, we had additional contact with some respondents and experts by email or telephone, referred to in the text as 'personal communication' if such contact went slightly further than clarifying a passage in an interview report.

⁴⁶ In the next section, for example, the energy-saving obligation for companies is mentioned in passing.

Finally, an initial version of this chapter was discussed in a sub-session of the expert meeting on 10 June 2024, in which experts, some of them the same as those interviewed previously, were asked to provide input on the current draft and to suggest conclusions and recommendations.

Unlike the previous chapter on crime in the plastics waste stream, police data such as criminal case files or reports from Criminal Intelligence Teams were not used.

The experts spoken to were aware of their organisation's internal information position, however, an overview of the affiliation and function of the experts involved can be found in the annex.

3.4 What do legal experts say?

Lawyers Sjoerd Lopik and Seppe Stax wrote an article exploring options for criminal enforcement of climate measures. As greenhouse gas emissions have not yet been sufficiently reduced, the government will have to take new climate measures and enforce both these new measures and the measures already taken. It is therefore considered likely that climate change will come to play a more significant role in criminal law. Criminalising the causation of climate change in general is incompatible with the principles of causality and legality, as virtually everyone would be punishable. Specific behaviours will therefore need to be criminalised (Lopik & Stax, 2020).

For a conviction under the Economic Offences Act (WED), which criminalises many environmental offences, evidence of intent is easier to produce than in criminal law. This is linked to the fact that no malicious intent is required, meaning that a defendant cannot defend themselves by claiming ignorance of the relevant legislation. Criminal law is in many cases the last resort, as laid down in the Enforcement Strategy.⁴⁷ It is conceivable that criminal law will be resorted to sooner in the future if the effects of climate change become more apparent and serious violations are identified (Lopik & Stax, 2020, p. 9).

There have not yet been many criminal cases in the Netherlands in which parties have been charged with damaging the climate. The section on emissions trading mentions a case of VAT fraud in relation to the trading system (see section 3.4.4). More well-known are the cases where regulations on the maximum emissions of cars were circumvented with 'rigged software'. There are no known criminal cases in the Netherlands based on violating the Type Examination of Motor Vehicles (Air Pollution) Decree.

Regarding the energy-saving obligation for companies, administrative enforcement is being started up. Prosecution under the WED is possible, but no known cases exist (Lopik & Stax, 2020).

More climate legislation can be expected in the near future. The authors mention some fiscal and financial measures that are currently being discussed by the Dutch House of Representatives. Tax measures may result in companies or activities that produce more emissions being taxed more. Examples include carbon taxes, airline taxes, and the 'Carbon border tax'⁴⁸

⁴⁷ National Enforcement Strategy for Environmental Law or LHSO, see par. 1.3.2.

⁴⁸ CBAM, see section 3.6.3.

on products imported from countries outside the EU (where emissions may not yet be taxed). There is also talk of measures that would result in more interest being charged when financing relatively high-emission activities. The reduction in livestock numbers, advocated by some political parties, would of course also have to be enforced when introduced. The authors are convinced that more climate measures will be taken, although it is of course impossible to predict exactly what they will be and what shape they will take (Lopik & Stax, 2020).

"However, a significant part of the foreseeable enforcement in the field of climate regulation will take place within the framework of administrative law. As with the European Emissions Trading Scheme, climate standards tend to address specific legal objects within a closed context. In such cases, enforcement is more often administrative in nature. Furthermore, the specialised nature of many climate regulations requires investigation by specialised administrative bodies, such as environmental agencies and the Dutch Emissions Authority." (Lopik & Stax, 2020, p. 11).

In the end, the authors seem to be qualifying their contention that criminal law will play a (major) role in enforcing climate regulations.

In a later column on the Environmental Law Association's site, Lopik does discuss some Dutch greenwashing cases that have been dealt with under administrative law and notes that prosecution under criminal law is possible, inter alia by invoking forgery, error, and unlawful act. The European Corporate Sustainability Reporting Directive will increase the importance of such issues. For example, governmental policies will be undermined if they rely on inaccurate information received from companies.⁴⁹

Some lawyers see human rights as an option to tackle polluting climate litigation is playing an important role is in litigation against companies, particularly in light of the development of standards for corporate human rights diligence."

As discussed further in section 3.6.5, the government will, by way of legislation, require a sound origin of goods and services and will require importers to prove that they have ascertained such sound origins.

The European Convention on Human Rights requires Member States to apply criminal law in case of serious human rights violations. The ECHR not only has a defensive function, such as protecting citizens from arbitrary action by the government, but also an offensive one, that of requiring criminal investigations and punishment. However, according to Lopik (2023), the ECtHR is unlikely to mandate the use of criminal law on climate change at this time.

Ecocide and Section 173 of the Penal Code

Several countries are drawing up the new offence of ecocide. In the Netherlands, the relevant proposal and explanatory memorandum were submitted by the Partij voor de Dieren (Animal

Party) on 30 November 2023.⁵⁰ The House of Representatives is still to discuss it. Ecocide, in short, involves destroying the environment and ecosystems. A number of complications involved in introducing such an article in the Penal Code have already been explained. Many questions will have to be answered before a workable drafting of the law can be reached. For example, one issue that needs to be addressed is the 'administrative dependence' of environmental law, that is, its reliance on permits and other environmental regulations, which would mostly be abandoned with the concept of ecocide (Lopik, 2022).

A somewhat related article is Section 173a in the Penal Code. Under this article, a person who "unlawfully places a substance on or in the soil, air or surface water" that endangers the general safety of persons or property faces up to 15 years' imprisonment. This article is currently being invoked in the complaint filed by a group of local residents, supported by lawyer Bénédict Ficq, against Tata Steel. The PPS launched a criminal investigation. Greenpeace later joined the case.⁵¹

However, the question remains whether this article could also be used to prosecute someone for climate damage. Residents living close to Tata Steel and Ficq are able to point to concrete harm to specific local residents, directly blaming one company. With climate damage taking place on a global scale, it will be difficult to link damage to individual actions. To reduce this damage, the government is taking measures that mainly serve to reduce greenhouse gas emissions.

To meet the requirements of the new EU Environmental Crime Directive⁵², the Ministry of Justice and Security is working on a revision of the current legislation. An implementation bill with an explanatory memorandum will be submitted. It makes sense to amend the current Article 173, also to bring it in line with this Directive, which has already been briefly addressed in the Introduction. The new version will maintain the administrative dependency the draft ecocide bill expressly sought to distance itself from. For the new EU Directive (like Article 173) is predicated on unlawful conduct. The EU Directive does not mention ecocide as an independent criminal offence but as an aggravating circumstance.

3.5 Background: greenhouse gas emissions in the Netherlands

Most greenhouse gas emissions are caused by the legal and licensed activities of companies and households. The climate measures discussed below are taken precisely to reduce these emissions as much as possible. To give an idea of this background, figures are presented on the most polluting sectors in the Netherlands.

In 2022, of the total amount of greenhouse gases, 31 per cent was emitted by industry, 19 per cent by the electricity sector, 19 per cent by the mobility sector (domestic traffic and transport), 15 per cent by agriculture, 12 per cent by the built environment (due to burning natural gas for heating) and 3 per cent by land use (such as carbon emissions from peat oxidation minus net CO₂ capture by forests).⁵³

⁵⁰ https://www.parlement.com/id/vm8mtd183wyr/nieuws/wetsvoorstel_ingediend_36475_wet?ctx=vkipglrdhetw&s0e=vhdubxdwqzrw

⁵¹ <https://www.trouw.nl/duurzaamheid-economie/greenpeace-doet-aangifte-tegen-tata-steel-en-chemours~ba492e44/?referrer=https://www.google.nl/>

⁵² The new Environmental Crime Directive came into force on 20 May 2024. See: https://environment.ec.europa.eu/law-and-governance/environmental-compliance-assurance/environmental-crime-directive_en

⁵³ <https://www.cbs.nl/nl-nl/dossier/dossier-broeikasgassen/welke-sectoren-stoten-broeikasgassen-uit->

⁴⁹ Article by Sjoerd Lopik on the website of the Environmental Law Association <https://milieurecht-site.e-captain.nl/nieuws/greenwashing-voor-de-nederlandse-strafrechter>

Figure 3.1. Greenhouse gas emissions in 2022 by sector. (megatons of carbon equivalents)

Source: CBS, RIVM/Emissions Registry

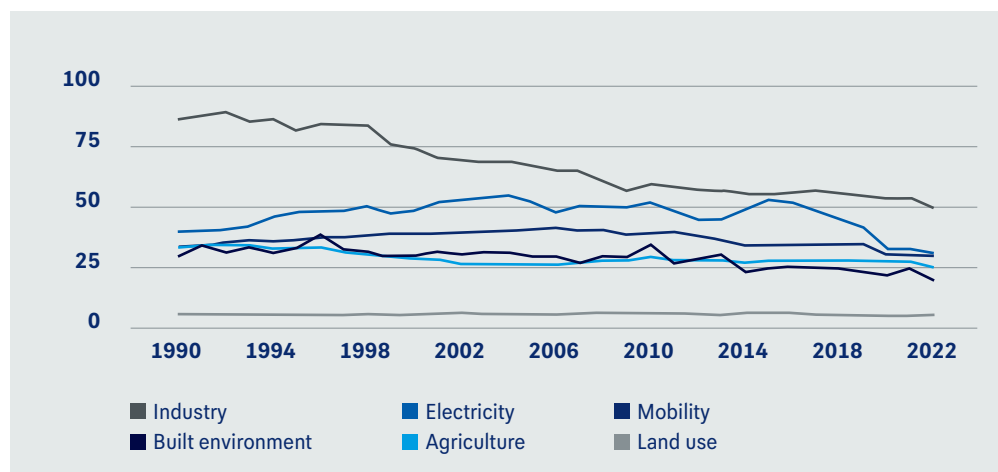


Table 3.1. Largest emitters by sector in 2022

Source <https://www.cbs.nl/nl-nl/dossier/dossier-broeikasgassen/welke-sectoren-stoten-broeikasgassen-uit->

Sector	Sub-area
Industry (49.2 megatons of carbon equivalents)	Chemical industry (16.1 megatons)
	Other industry (11.3 megatons)
	Petroleum industry (10.4 megatons)
	Basic metal industry (6.0 megatons)
	Nitrous oxide, F-gas and other methane (3.4 megatons)
	Landfills (2.0 megatons)
Electricity (30 megatons)	Coal-fired power plants (11 megatons)
	Natural gas (13 megatons)
	Residual gases from e.g. blast furnaces (6 megatons)
Mobility (30.5 megatons)	Passenger cars, petrol (10.7 megatons)
	Freight vehicles (10.1 megatons)
	Mobile tools (3.5 megatons)
	Other traffic/transportation (2.4 megatons)
Agriculture (20.5 megatons)	Fermentation (cow farts) (9.2 megatons)
	Natural gas consumption (6.2 megatons)
	Stable and manure storage (3.9 megatons)
	Manure use (2.7 megatons)
	Other (2.4 megatons)
Built environment (19.6 megatons)	Households (14.2 megatons)
	Services (5.4 megatons)
Land use (5.1 megatons)	Reducing storage in green areas and peat oxidation

3.6 Potentially criminally relevant climate measures in the Netherlands

Since the fifth assessment report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), published in 2014, measures have been taken or are under development to combat global warming. Researchers generally indicate that those measures are insufficient to keep the average temperature rise within safe margins (see, for example, IPCC, 2023, section 2.3). With respect to the Netherlands, the Netherlands Environmental Assessment Agency (PBL) indicated that the plans made by the Rutte government make it possible to meet the targets, provided those plans are also elaborated on in time in terms of implementation, instrumentation, execution, and monitoring (PBL, 2023).

In 2016, the Netherlands signed the Paris Climate Accord, which aims to limit global warming to 2 degrees, or possibly to 1.5 degrees.⁵⁴ To achieve this, emissions must be reduced by at least 55%. By 2050, Europe should be climate neutral: there are to be no net emissions of greenhouse gases. In the Netherlands, this is laid down in the Climate Act, which requires the adoption of a climate plan every five years.⁵⁵ The current climate plan is valid from 2021 to 2030 and sets out the main lines of climate policy for this period.

While the words violation, offence, punishment etc. do not appear in the climate plan, this does not mean that companies or individuals who do not comply with the new rules will get away with doing so. The coalition agreement of the outgoing government agreed on a 55% reduction in carbon emissions to be achieved by 2030. For the sake of certainty, the policy is aimed at a 60% reduction.

The climate plan is obviously of particular interest in the context of this chapter due to ongoing or announced measures that could potentially be circumvented or breached in a way that makes criminal-law intervention relevant. This could include ignoring bans on importing climate-unfriendly goods, abusing subsidy and incentive schemes, or preparing false sustainability reports.

On 26 April 2023, Minister Jetten announced an additional climate package to achieve the set targets for 2030. '...The measures will deliver an additional emission reduction of around 22 megatons, meaning the target of 55%-60% reduction in carbon emissions by 2030 compared to 1990 is expected to be met...'.⁵⁶

The temperature rise must be limited to 1.5 degrees. To achieve this, all sectors are asked to contribute to reducing greenhouse gas emissions, especially CO₂. This is a major task, but it is considered realistic and it can also '... make the Netherlands more beautiful, cleaner and more innovative...', the Ministry said. Therefore, an additional 22 megatons of reduction must be achieved by 2030. From 2027 onwards, all plastics must consist of at least 25-30% recycled materials and biomaterials. A carbon tax will be introduced for agricultural companies and a subsidy (SDE++) will be made available for installing heat pumps.⁵⁶

⁵⁴ <https://www.rijksoverheid.nl/onderwerpen/klimaatverandering/klimaatbeleid>

⁵⁵ The central government's current climate plan can be found at: <https://www.rijksoverheid.nl/onderwerpen/klimaatverandering/documenten/beleidsnotas/2020/04/24/klimaatplan-2021-2030>

⁵⁶ <https://www.rijksoverheid.nl/onderwerpen/klimaatverandering/nieuws/2023/04/26/extra-pakket-maatregelen-dicht-gat-tot-klimaatdoel-2030>

Various subsidy schemes are being set up in the context of climate and environmental policies. Past experience has shown that subsidies are sometimes misused. An overview of subsidy schemes can be found on the Industry Sustainability Platform.⁵⁷

A large number of measures in many climate-relevant areas are imminent or expected. In the new government's framework coalition agreement, the existing climate policy seems to be continued at least in outline, even though it remains to be seen what things will look like in practice.⁵⁸ Organisations for nature and the environment did express concerns, especially about the removal of budgets.⁵⁹

This chapter discusses some measures by way of examples of what may lie ahead in tackling environmental crime by application of administrative and criminal law. The following sections will address the following issues:

- The EU Deforestation Regulation
- Reducing emissions of heavy greenhouse gas, especially F-gases
- Emissions trading
- Encouraging increased use of renewable fuels
- Countering greenwashing and introducing mandatory reporting by companies.

3.6.1 The EU Deforestation Regulation

Deforestation is considered a serious degradation of the environment that contributes to climate change. Environmental crimes often play a role in this connection (UNODC/WWF, 2023). In 2023, the EU published the Deforestation Regulation, also known as the Regulation on Deforestation-free products (EUDR). The EUDR is the successor to the European Timber Regulation (EUTR), which has been in force since 2013 and will partially cease to be in force from December 2024. Compared to the EUTR, the EUDR is broader in scope and sets stricter due diligence requirements, meaning that a company must take responsibility for the entire value chain. Under the EUTR, due diligence was limited to preventing illegal deforestation. The new Deforestation Regulation takes a broader perspective: violations of human rights and the rights of local communities must also be explicitly prevented. As with the Timber Regulation, the focus of enforcement of the Deforestation Regulation is on administrative law, but criminal action can also be taken for serious and deliberate violations by application of the WED. Several 'non-sustainable wood' cases have been brought before criminal courts, relating to the illegal import of timber, sometimes tropical hardwood.⁶⁰ As a result, experience has already been gained with the criminal law approach, which the enforcement of the new EUDR can build on.

⁵⁷ <https://verduurzamingindustrie.nl/hulp-bij-verduurzaming/subsidies-en-regelingen/default.aspx>

⁵⁸ <https://www.kabinetsformatie2023.nl/documenten/publicaties/2024/05/16/hoofdlijnenakkoord-tussen-de-fracties-van-pvv-vvd-nsc-en-bbb>

⁵⁹ An example: 500 million is set aside for the protection of farmland birds by farmers, but at the same time, the Rural Areas Programme, with a budget of 24 billion, is cut: <https://pointer.kro-ncrv.nl/waarom-het-hoofdlijnenakkoord-volgens-de-vogelbescherming-een-ramp-is-ondanks-honderden-miljoenen>

⁶⁰ Five timber cases have been in court in recent years. Another new case was launched in the spring of 2024, see: <https://www.nvwa.nl/nieuws-en-media/nieuws/2024/03/15/nvwa-start-strafrechtelijk-onderzoek-naar-houtimporteur>

By way of the Deforestation Regulation, the EU aims to combat climate change caused by deforestation, insofar as it is caused by importing and using products in the EU.⁶¹ The Deforestation Regulation also covers products that can contribute to deforestation. Its scope is, then, not restricted to wood alone, but also covers commodities like cattle, cocoa, coffee, palm oil, soya, and rubber, the production of which leads to a lot of felling. The Deforestation Regulation considers forests essential to humanity because of their biodiversity and diversity of social, environmental and economic resources. Forests are often essential to local communities, which make a living from them. Deforestation can disrupt local weather patterns and cause carbon emissions, negatively affecting climate change. Apart from the protection that forests provide against climate change, forest fires - often deliberately started - result directly in large greenhouse gas emissions. Apart from climate change, deforestation is causing deserts to expand and reduces resilience to pests and diseases.

Despite this, forests are being degraded and cleared rapidly, both illegally and legally. Each year, 10 million hectares of forest are lost worldwide. According to estimates, 420 million hectares of forest have disappeared since 1990 (FAO and UNEP, 2020). If no timely action is taken, EU production and consumption of commodities covered by the Deforestation Regulation will lead to an increase in deforestation of 248,000 hectares per year between now and 2030.

Deforestation takes place on a global scale: deforestation for soy plantations in the Amazon and for palm oil plantations in Indonesia are well-known examples. Keeping forests healthy and (also economically) sustainable is not easy within Europe, either (Forest Europe, 2020).

What does the Deforestation Regulation mean?

The Deforestation Regulation seeks to mitigate the negative impact of climate change by imposing a Due Diligence System (DDS) on traders and operators who make the products covered by the Regulation (exporting from the EU is also included) available on or introduce them to the EU market. Some derived products (such as furniture, chocolate, rubber tyres, printed paper, or leather) and selected palm oil-based derivatives (used, for example, as a component in personal care products) must also comply with these due diligence requirements. As was already the case with timber (EUTR), for all these products, it must be demonstrated that no forest degradation took place during their production. It should therefore be possible to trace production back to the piece of land where the raw materials were produced. According to the Deforestation Regulation, human rights and the rights of indigenous peoples and local communities must also be considered, both in the European Union and in third countries. All applicable laws of the country of origin must be respected: not just the conservation laws and human rights provisions, but also the local anti-corruption laws and labour rights.

Market operators should proactively identify and document that there is no, or only a negligible, risk of a violation of the Deforestation Regulation. How much effort an operator has to put into regularly collecting the required information depends on which risk category a coun-

try is placed in. Until 1 January 2025, the European Commission's country benchmarking system distinguishes between three different risk categories, based on national regulations, the expansion of agriculture and the rate of deforestation, among other factors (Regulation EU 2023/1115, Art. 29). The frequency of checks is determined based on the risk category, which can be low, standard, or high. If the risk is low, checking 1% of products per flow is considered sufficient, the figures rising to 3% for a 'standard' risk country and 9% for a 'high' risk country. The Netherlands is home to many large multinationals (Berkenhout, Creemers, Stienstra and Weusten, 2023). Such companies sometimes already control more than 9% of the market, so the requirement could be met by inspecting one company.

As a result of the Deforestation Regulation, from 31 December 2024 onwards, products may no longer derive from areas deforested after this date. The Deforestation Regulation sets out a number of sanctions that are deemed to be effective, proportionate, and dissuasive:

- Financial penalties proportionate to the value of the relevant products or raw materials involved and to the environmental damage caused. For legal entities, the maximum amount of this fine is at least 4% of the total annual turnover.
- Seizing the relevant products involved.
- Seizing revenue.
- A temporary exclusion from procurement procedures and access to public funding.
- A temporary ban on offering, exporting, or marketing the relevant products and goods.
- A ban on exercising the simplified due diligence system (of Article 13 of the Deforestation Regulation). Under the simplified regime, operators do not have to comply with the documentation requirements of the risk assessments (Article 10 of the Deforestation Regulation) and risk mitigation (Article 11 of the Deforestation Regulation).

The Deforestation Regulation has been in force since June 2023. Enforcement will start on 30 December 2024 for large enterprises and in June 2025 for SMEs. Further rollout for other commodities and products and the financial sector depends on (the completion of) planned reviews.⁶²

Greenpeace has raised some concerns about the success of the EUDR. Although this is still subject to review and final rollout, it doubts whether the Regulation will have a sufficient impact on ecosystems other than forests. It also criticises the limited inclusion of financial institutions. Another concern is that products such as maize and biofuel remain outside the scope and that protecting human rights is not all-encompassing. That is because compliance with international agreements only applies to producer countries that have actually ratified these laws (Greenpeace, 2023).

Monitoring and enforcement

In the Netherlands, responsibility for implementing the Deforestation Regulation is vested in the Dutch Food and Consumer Product Safety Authority (NVWA), the Ministry of Agriculture, Fisheries, Food Security and Nature (LNVN), and Customs. The NVWA carries out inspections and is responsible for inspections and enforcement, and the IOD can be called in for criminal investigations. The Ministry of LNVN focuses on policy and safeguarding legislation during implementation and handles stakeholder communication. Customs is also responsible for

⁶¹ The Deforestation Regulation can be retrieved here: <https://eur-lex.europa.eu/legal-content/NL/TXT/?uri=CELEX:32023R1115>. It is a regulation and is therefore directly applicable to Member States after its entry into force. This is in contrast to an EU directive, which first needs to be implemented in the national legislation of the Member States. An explanation is available via: https://european-union.europa.eu/institutions-law-budget/law/types-legislation_en

⁶² Art. 34 EUDR, see also Greenpeace, 2023.

monitoring and enforcement but its purview is limited to the customs regime mentioned in the Deforestation Regulation. This mainly involves verifying whether due diligence has been carried out with respect to goods.⁶³

The inspections carried out by the NVWA take place under the intervention policy, which allows the NVWA to impose an order subject to a penalty or issue an official notice. The more serious the offence, the more drastic the intervention. The NVWA's risk-oriented checks are mainly retrospective and focused on the due diligence system. The penalty is related to the import value declared at customs.⁶⁴

Enforcement of the Deforestation Regulation in the Netherlands is mainly conducted under administrative law, but enforcement under criminal law is possible under the Economic Offences Act (WED). NVWA experts say that, in most cases, a fine is imposed. Whenever fraud and complex crime are involved, the matter is also investigated by the investigation agency (NVWA-IOD). It is uncommon for, say, the director of a company to be sentenced to imprisonment.

In collaboration with the Ministry of LNV, NVWA experts have explored whether imposing administrative fines could improve the effectiveness of enforcement. This instrument has the advantage that punishment can be realised at short notice, although the amounts involved are often not large. Whether such a fine positively affects a company's actions has not yet been studied. However, it is known that different types of companies in this field are susceptible to fraud incentives to varying degrees. When it comes to products that can only be sourced in specific places, such as teak from Myanmar, fraud is more likely. Another example of a fraudulent product is the plywood panel trade. This is mainly because the panels used to come from Russia, and with the current sanctions against that country in place, they can no longer be sourced from there. Nevertheless, Russia remains an attractive origin country for plywood sheets because of their quality and low price, while sanctions are not effectively enforced (Acosta, 2024). The Fiscal Investigation Agency (FIOD), which enforces sanctions legislation in the Netherlands, arrested two people in June 2024 for circumventing the boycott of Russian timber.⁶⁵

Figures from Statistics Netherlands (2023) show that the Netherlands was the largest importer of goods causing a risk of deforestation in non-EU countries in 2022, such as soy, palm oil, and cocoa. For this reason and because the country is home to many multinationals, the Netherlands plays a significant role in terms of (enforcing) the EUDR. The quantity and diversity of businesses make enforcement complex. Certain sectors, such as the coffee, wood and cocoa industries, are already taking steps on their own, such as by using certifications. Although these certifications often prove inadequate, these sectors tend to be more open and active,

⁶³ This relates to Art. 26 of the EUDR, refer to: <https://www.nvwa.nl/onderwerpen/eudr-ontbossingsverordening/over-de-eudr# content-wrapper>

⁶⁴ The order subject to a penalty is an administrative measure ordering a company to make improvements by a certain date on forfeiture of a penalty. For the policy, see <https://www.nvwa.nl/ondernemers/toezicht-maatregelen-en-boetes/interventies-nalevingshulp-waarschuwingen-maatregelen-boetes-en-strafrechtelijke-vervolging>

⁶⁵ This concerned the import of Russian timber by Dutch parties through Chinese suppliers <https://www.fiod.nl/aanhoudingen-in-omzeiling-en-overtreding-sanctiewet/>

according to NVWA experts. Also, these sectors and their certifications are more often known to consumers. Other sectors, such as the cattle and rubber sectors, take a less active and transparent stance, even though malpractices do take place.

Adding to the complexity of enforcement is the growth of letter-box companies (Moody's, 2024). For example, JBS, the world's largest meat company, wants to establish its parent company in the Netherlands without also moving the operational structure (OXFAM Novib, 2024). The use of these letterbox companies makes it harder to enforce the EUDR: it becomes more difficult to find out exactly who is behind a company and who makes the decisions.⁶⁶

Monitoring in other countries is of great importance

Fisher, Obidzinks, Alvens and Ekaputri (2024) point out that setting up the EUDR support infrastructure is critical to its success. According to them, the success of the EUDR depends on four qualities: 1) credible and equitable mechanisms in producing countries to ensure traceability of deforestation-free products, 2) more equitable terms of trade, 3) EU internal cohesion, and 4) overcoming risks for the most vulnerable producers (Fisher et al., 2024). NVWA experts also point to the EU's internal cohesion: enforcement of the EUDR by other EU countries has an impact on the success of enforcement in the Netherlands. The Netherlands also effects enforcement under criminal law, while in many countries, the EUDR is only enforceable under administrative law. There is still a lack of a level playing field in the enforcement by EU Member States. Market operators trading in products that are not location-specific may move to other countries where EUDR enforcement is less strict. This fallback option does not apply to all products. Bulk products, such as cocoa, are often tied to specific ports because of processing capabilities. The difference in the level of enforcement of EU Member States also creates an opportunity for fraud: products can, for example, be imported through EU countries with weaker enforcement, deploying fronts.

Conclusion

The EUDR seeks to combat climate change through deforestation. The scope of the EUDR is larger, and the requirements are stricter than those of its predecessor, the EUTR. The Netherlands plays an important role in enforcing the EUDR, as it is home to many multinationals and is a major importer of relevant products. The NVWA, the Ministry of LNV, and Customs are responsible for implementing the Deforestation Regulation in the Netherlands. Enforcing the EUDR is complex, partly because of the large number and diverse nature of companies, the increase in letterbox companies and the slowness of the criminal justice system. The use of administrative fines is being considered to improve the effectiveness of enforcement. However, fraud remains a challenge. Some market participants are more susceptible to fraud than others. Market operators that trade in products that are only available in one or a few places or that come from countries targeted by sanctions are more susceptible to fraud. Too, the difference in the level and method of enforcement between EU Member States creates an incentive for fraud. Market operators can easily move to an EU Member State with weaker enforcement for some products. Setting up a support infrastructure for the EUDR is therefore key to its success. The reviews still leave room for adjustments before the final roll-out.

⁶⁶ An example of concealment of responsibility for deforestation according to investigative journalists: <https://www.thecanary.co/uk/analysis/2024/03/20/company-linked-to-unilever-nestle-is-using-tax-havens-to-hide-criminal-deforestation-half-the-size-of-singapore/>

Findings:

- Published in June 2023, the Deforestation Regulation aims to combat climate change-induced deforestation by imposing due diligence requirements on those parties placing products covered by the Regulation on the EU market. These products include cattle, cocoa, coffee, palm oil, soy, rubber, timber, and some of their derivatives.
- The Netherlands plays an important role in enforcing the EUDR, as it is home to many multinationals, being one of Europe's largest importers of relevant products.
- Enforcing the EUDR is complex. This is due, among other things, to the variety and quantity of companies, the increase in letterbox companies and the speed of the criminal justice system.
- Fraud remains a challenge. The difference in the level and method of enforcement between EU Member States can create an incentive for fraud among market operators.

3.6.2 F-gases: illegal trade flourishes

This chapter deals with the recently revised F-gas Regulation EU 2024/573. The Regulation aims to reduce the use of synthetic refrigerants in installations such as air-conditioning and mobile and stationary refrigeration through a quota system. F-gases have a very high Global Warming Potential, which is many thousands of times higher than that of CO₂. This Regulation came into force in March 2024 and implementation is still ongoing in mid-2024. Meanwhile, quota trading has already begun. Many plants still run on F-gases, and in other parts of the world, they are still produced in abundance. This creates opportunities for illegal trade in F-gases.

For decades, substances that do not occur in nature but are specifically made for cooling systems have been used in such systems. In the 1980s, the CFC and HCFC gases used at the time were found to deplete the ozone layer. The use of ozone depleting substances (ODS) was banned under the 1987 Montreal Protocol.

Of course, the coolers had to keep running and new gases were developed to replace the ODS: fluorinated gases, abbreviated as F-gases (Cornelissen et al., 2021). There are several kinds of F-gases, the most important being HFC's or hydrofluorocarbons, which are used as refrigerants. Some F-gases, when decomposed, form PFAS, which do not degrade and are now found in water, soil, and living organisms, including humans almost everywhere in the world.

F-gases do not deplete the ozone layer, but they are potent greenhouse gases with a very large warming effect of up to 23000 carbon equivalents.⁶⁷ Therefore, they are phased out under the 2016 Kigali Amendment to the Montreal Protocol, implemented by way of the EU F-gases Regulation. The agreements in the Kigali amendment alone may temper global temperature rise by 0.3 to 0.5 degrees. They have been ratified by 158 countries (Cornelissen et al., 2021). Legislation such as the F-gas Regulation has led to the development of new refrigerants with a lower GWP (Global Warming Potential, expressed in CO₂ equivalents). Besides synthetic refrigerants, there are also natural refrigerants, such as CO₂, ammonia, and others. These have only minor greenhouse effects but are dangerous to use and are often toxic or flammable. That is why there are certification rules and rules for inspections and enforcement in place: not just anyone can and should work with these substances.⁶⁸ Another important fac-

tor is that existing refrigeration plants cannot simply switch to other refrigerants. This makes it tempting to obtain F-gases illegally, especially now that they are increasingly difficult to obtain legally and their price is rising. This has led to significant illegal imports into the EU, as outlined in the 2021 Environmental Crime Threat Assessment (Cornelissen et al., 2021). ILT staff were told that about a third of all F-gas sales are currently believed to be illegal, and this figure is only expected to grow due to the revised EU Regulation. By 2024, the quota was already down by 21%.⁶⁹ Moreover, this is a particularly lucrative trade: the heaviest refrigerant costs 800 euros per 12 kg cylinder on the legal market. On the illegal market, the price is around 300 euros. Importers can make a profit of 150,000 euros per container. Between Christmas and New Year's, 18 shipments belonging to one importer alone were spotted. There is plenty of demand for illegal cylinders, as non-certified installers cannot buy refrigerants from a legal seller, who is required to ask for the relevant certificate (group interview among ILT staff).

F-gas Regulation revised

The regulations surrounding F-gases were discussed in the 2021 Environmental Crime Threat Assessment. The most important development is that these fluorinated gases are being phased out, the quota of such gases still being allowed on the European market decreasing every year. Anyone wishing to import F-gases or refrigeration equipment already filled with F-gases will need to have a quota. These quotas, which are also tradable, are tracked in the European F-gases portal. An audit report must be submitted annually to the EU to verify the completed purchase and sales figures for these gases. Rules are also imposed on a variety of specific applications. The use of refillable cylinders is mandatory and a return system must be in place to this effect. In the Netherlands, the implementation of the F-gas Regulation is laid down in the Environmental Management Act (Cornelissen et al., 2021: p. 168).

Of course, the coolers had to keep running and new gases were developed to replace the ODS: fluorinated gases, abbreviated as F-gases (Cornelissen et al., 2021). There are several types of F-gases, the most important being HFCs or hydrofluorocarbons, which are used as refrigerants. Some F-gases, when decomposed, form PFAS, which do not degrade and are now found in water, soil, and living organisms, including humans almost everywhere in the world.

A number of important policy changes have been made in the Netherlands, based on the revised F-gas Regulation (2024/573). The most important one is the further reduction of the quota of HFCs that can be placed on the European market. Quotas will be reduced incrementally, with a view to a complete phase-out by 2050. In addition, equipment regulations are becoming increasingly stringent. Eventually, new installations may no longer contain F-gases and be refilled with new gases, only with recycled or reclaimed gases. The certification requirement for working with F-gases is extended to the natural alternatives to promote safety. New rules on trapped gases in certain types of insulation foam, which must not leak into the environment during construction and demolition work but must be destroyed, have also been

67 One carbon equivalent is the Global Warming Potential (GWP) value of 1 kilogram of CO₂. See, for example, cbs.nl.
68 <https://iplo.nl/thema/lucht/ozon-en-f-gassen/ozonlaagafbrekende-stoffen-gassen/>

69 Elative to the average quantity marketed by producers during the 2009-2012 period. For a further explanation, see: [https://www.infomil.nl/onderwerpen/lucht-water/lucht/ozon-en-f-gassen/handleiding-toezicht/uitfaseren-stoffen/#:~:text=Terugfasering%20F%2Dgassen%20\(HFK%2C%20PFK%2C%20SF6\)&text=Vanaf%201%20januari%202030%20geldt,40%20ton%20CO2%2Dequivalenten](https://www.infomil.nl/onderwerpen/lucht-water/lucht/ozon-en-f-gassen/handleiding-toezicht/uitfaseren-stoffen/#:~:text=Terugfasering%20F%2Dgassen%20(HFK%2C%20PFK%2C%20SF6)&text=Vanaf%201%20januari%202030%20geldt,40%20ton%20CO2%2Dequivalenten)

implemented. In addition, illegal trade will be tackled more efficiently and effectively; new tools have been included to this end.⁷⁰

But illicit trade continues

On the other hand, it has become clear that the illegal trade in F-gases continues as the climate crisis worsens. As refrigerants continue to be phased out, the illegal trade becomes more lucrative. In a recent report, the EIA stated that a lot of money can be made from illegal trade, while inspections and enforcement are far from adequate. Illegal trade has now become a form of organised crime. Illegal F-gases are produced in China and enter the EU via its periphery: previously, through Romania and more recently most often through Bulgaria (EIA, 2024). The ILT has established that the decrease in quotas leads to a 'perverse incentive': the illegal market seems to grow proportionally to the contraction of the legal market (personal communication, ILT employee).

The routes are already focused on avoiding controls. Traders are also getting smarter: they no longer use the banned disposable containers and falsify cargo papers by stating that the shipments contain HFO refrigerants with lower GWP values (EIA, 2024).⁷¹

Seizures show a downward trend. The EIA suspects that this is not caused by a decrease in illegal trading but by smugglers having refined their methods and a lack of enforcement.

Imports, in terms of carbon emissions, have slightly increased (EIA, 2024).

According to the EIA, Europe has a pressing need to invest in monitoring, reporting, verification, and enforcement. In developing countries, the phase-out of F-gases coincides with the final phase-out of the use of ozone-depleting substances such as CFCs⁷², which are sometimes still used there (EIA, 2024).

The ILT employees gave the following example of the methods used by criminals: F-gases often come to Europe with a T1 (transit) status. While a consignee is known, it is not known whether the cargo is actually imported into the EU. However, the papers are not cleared; no check as to whether the cargo matches the documents is performed. As long as the cargo has the transit status, enforcement is limited. A list of uncleared T1 statuses is known to the authorities. A shipment may appear on this list for 270 days. However, this can be circumvented by, for example, having a truck drive to Ukraine on paper but not in reality, or by tampering with the listed weights so as to be able to remove some of the cargo.

After 270 days, the (potentially illegal) F-gases are virtually untraceable. Another example entails the import of containers filled with car products, which are also used to transport F-gases. In other words, a cover load is used (group interview with ILT staff).

⁷⁰ The ODS Regulation (2024/590) has also been revamped, but it is less far-reaching than the new F-gas Regulation. This is mainly because most ODS have already been banned for some time. The main provision concerns the use of insulating foam in construction, which is also already regulated by the F-gas Regulation. URL: <https://iplo.nl/thema/air/ozone-and-F-gases/ozone-depleting-substances-gases>

⁷¹ HFO are refrigerants based on fluorine-containing gases. <https://iplo.nl/thema/lucht/ozon-en-F-gassen/ozonlaagafbrekende-stoffen-gassen/>

⁷² CFCs are ozone-depleting refrigerants that were phased out in Europe some time ago.

Measures such as introducing certification and banning disposable cylinders have had a degree of success. The consumption of F-gases in the EU in 2022 was less than half of the cap set by the Kigali Amendment. Unfortunately, this was accompanied by the flourishing of illegal trade in F-gases, which led to the revision of the F-gas Regulation. As has been mentioned in the above, it has now been agreed to phase out F-gases completely by 2050. Some regulatory loopholes have been closed, so that - unlike in the early days of the Montreal Protocol - customs authorities everywhere have access to the licences accompanying batches of refrigerants, making it possible to check whether the importer actually has a quota. Regulatory exceptions, which could easily be abused, have also been removed. This applies, for example, to allowing F-gases as a raw resource for industrial production processes (EIA, 2024). This was already identified in the 2021 Threat Assessment as a sign of illegal F-gases (Cornelissen et al., 2021). A total ban on these cylinders facilitates enforcement. However, criminals have also started using refillable cylinders with no intention of reusing them. For that reason, a returns system has now been made compulsory when quoting and issuing licences. Batches without the proper papers are to be seized and destroyed (EIA, 2024).

A key enforcement issue is that F-gases, once inside the EU, can be freely transferred from one country to another. In other words, the monitoring burden lies mainly with the country where F-gases are brought into the EU (Cornelissen et al., 2021). The revised F-gas Regulation has failed to solve this problem (EIA, 2024). Track-and-trace methodology is technically possible and already mandated for some products, but the EU still has the option to delay its introduction for a few more years, which is considered a missed opportunity by the EIA (2024). Unlike the US, there is less transparency about quotas in the EU: exactly how much quota each company has is not made public, making monitoring difficult (EIA, 2024). All in all, investigating authorities will have more options available to them with the recent revision of the F-gas Regulation. Their impact depends on the implementation of these options, which is still lacking. The EIA has pointed out that the criminal investigation community has yet to gain an image of these new opportunities (2024).

There is no nationwide list of refrigeration or heating installations that are filled with greenhouse gases and are therefore covered by the European regulation. There is considerable diversity.

Stationary cooling systems are found at supermarkets, hospitals, and office buildings, for instance. Large heat pumps also use refrigerants, as do large installations at data and distribution centres. In addition, there are a great many air conditioners running at smaller shops and in buildings. The numbers are very high and the products are highly diverse (group interview with ILT staff).

Leakage losses

Leakage losses do not seem very relevant at first glance, but large amounts of refrigerant gases with high GWP values, i.e., large amounts of carbon emissions, are released into the atmosphere by leaking from machines that are not functioning properly due to faulty or overdue maintenance. Proper maintenance and leak detection can prevent a lot of leakage. The ILT therefore pays close attention to leakage losses in its supervisory activities.

Inspections and enforcement⁷³

The Environment and Transport Inspectorate (ILT) is primarily responsible for inspections and enforcement of regulations on fluorinated greenhouse gases (F-gases) and ozone-depleting substances, known as Ozone-Depleting Substances (ODS).

In the context of the import and export of these substances, the ILT cooperates with Customs, and in the context of the production of the substances and the supervision of stationary (non-mobile) refrigeration plants, it cooperates with the environmental services. The strategic goal of the ILT with respect to inspections and enforcement is the 'transformation of the revenue model'. Companies should no longer want F-gases to be used if no EU quota are available anymore. Using these refrigerants is inconsistent with the oft-expressed desire to become carbon neutral. Moreover, machine maintenance costs will also increase, especially for those machines using older refrigerants with a high GWP. The underlying idea is that if the larger companies take the lead, the smaller ones will gradually follow (group interview with ILT staff).

In enforcement, the ILT mainly focuses on three issues: leakage losses, certification, and illegal trade. Leakage losses have already been briefly discussed above. The large number of installations and installers complicates enforcement. The certification of installers and companies is another area of concern: those wishing to purchase refrigerants through the legal route will have to be certified, as already discussed. If the correct certificate is not held, companies and technicians can be fined. This fine amounts to 1,500 euros for individuals and double that amount for companies. The public prosecutor determines the fine amount for long-term, multiple, and repeated offences. Of course, efforts are being made to monitor providers via the internet, for example, and tackle them if necessary.

Certifying bodies are seen as a weak link in the chain because they are private companies that depend on their customers, i.e., the companies they have to certify and then audit. Certifying bodies have to oversee the proficiency requirement, involving the proper auditing of companies and granting a certificate only when the company in question meets all conditions. This is not always performed properly (group interview with ILT staff).

The ILT-IOD's focus is on large-scale and organised crime, which, according to intelligence from the IOD, is involved in the illegal trade in F-gases. The initial illegal imports often take place in border countries such as Greece and Bulgaria. The pressure containers find their way to the Dutch black market through online sales channels. Vendors are usually established abroad and sell only to order and for cash. The difference between jurisdictions makes detection more difficult. International cooperation is therefore key to effectively tackling illegal trade in F-gases. Accordingly, the IOD participates in EMPACT, EUROPOL, INTERPOL and the OLAF anti-fraud unit.⁷⁴ Making it easier to share police information with Member States and third countries would help dismantle criminal organisations faster. Establishing an ADCO (Administrative Coordination Group) should ensure that executive departments in Member States can share information and best practices.⁷⁵

⁷³ Unless otherwise stated, this section is derived from the Living Environment Information Point (IPLO) website. See: <https://iplo.nl/thema/lucht/ozon-en-f-gassen/>

⁷⁴ EMPACT: European Multidisciplinary Platform Against Criminal Threats. <https://www.europol.europa.eu/crime-areas-and-statistics/empact>. OLAF: European Anti-Fraud Office. https://anti-fraud.ec.europa.eu/index_en

⁷⁵ ADCO is an international working group for F-gas inspectors and enforcers. The idea is to better organise enforcement at the front end by way of the ADCO (group interview with ILT staff).

The decline in seizures detected by the EIA (2024) was confirmed during talks with ILT staff. By way of explanation, they argued that importers are "getting smarter": they are learning to circumvent new restrictions. For example, the commodity code for natural refrigerant is misused. Such misuse is difficult to prove because it requires sampling (group interview with ILT staff).

Customs checks that declarations, licences or registrations, the related documentation and the goods themselves in the international greenhouse gas trade correspond. F-gases should be registered in the European F-gases portal. The trading party should, of course, have sufficient quota.

From 2025, the Single Window Environment for Customs will be introduced, monitoring the EU external border in terms of import and export of F-gases and ODS. The Customs IT systems will be linked to the ODS licensing system and the European Commission's F-gases portal. This allows real-time monitoring of trader quotas.

Illegal trade in refrigerants is not only detrimental to the climate but is also related to organised crime and tax evasion. For this reason, cooperation with tax investigators is considered a sound strategy. Spain has already introduced such collaboration (EIA, 2024).

Emissions of other greenhouse gases, such as methane, are subject to strict regulations, violation of which is punishable under the WED. Criminal prosecution has taken place in cases relating to methane emitted by livestock farms and natural gas extraction, among others. Regarding F-gases, administrative enforcement takes place, although there is very little case law (Lopik & Stax, 2020).⁷⁶ Six investigations into trade in illegal refrigerants have been initiated at the Environmental Chamber since 2017, constituting about half of the cases involving hazardous substances.

The findings

- F-gases are being phased out but remain in high demand.
- Lower quotas due to the amended F-gas Regulation lead to increased illegal trade.
- It is currently estimated that a third of the trade in F-gases is illegal.
- Preventing leakage losses is also an important aspect of enforcement.
- The system of certification represents a weakness in enforcement.
- International cooperation, information exchange, and good practices are considered essential in enforcement.

3.6.3 Emissions trading

The European Union Emissions Trading System (EU ETS) was the first and is the largest system for trading greenhouse gas emission allowances in the world.⁷⁷ One emission allowance allows a company to emit one tonne of carbon dioxide (CO₂). The price for an emission allowance, the carbon price, is determined by supply and demand. The system operates within an absolute emissions cap (cap-and-trade) where the number of available rights decreases

⁷⁶ These are already currently being addressed in the EMPACT context. See, for example, <https://www.europol.europa.eu/media-press/newsroom/news/f-gases-worth-more-10-million-seized-in-week>

⁷⁷ https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/what-eu-ets_en

es annually to incentivise companies to reduce their greenhouse gas emissions (NEa, 2024a). In short, the system monetises emissions, stimulates technological innovations and creates synergies between energy and climate policies (EIA, 2020). At the expert meeting of 10 June 2024, it was noted that the development of the emissions trading system has not altered the difficulty of adequately measuring CO₂ emissions. In the below, we describe the emissions trading system and highlight potential opportunities for violations and crime.

The EU's Emission Trading System

Globally, several emissions trading schemes exist. All 27 EU Member States participate in the European Union Emissions Trading System (EU ETS). The EU ETS is essential for the European Union's climate policy and aims to reduce greenhouse gas emissions in the energy, industrial, aviation, and shipping sectors. It is considered an important tool to reduce greenhouse gas emissions in a cost-effective manner (LIFE ETX, 2021). The emissions trading system presents companies with a choice: either pay for emission allowances to continue emitting CO₂, or invest the money in cleaner production methods so that carbon emissions are permanently reduced. Investing in sustainability should become increasingly attractive as a result (NEa, 2024a).

Emission rights can be obtained in three ways:

- 1) Free receipt: free allocation of permits is one way to address competitive strength and carbon leakage issues for the industry sector (EIA, 2020). Sectors at a high risk of leaking carbon, such as the aviation and power generation industries, receive free allocations to prevent emissions from moving to countries where no allowances need to be bought.
- 2) Buying at auction: auctions are organised by the European Energy Exchange, the proceeds going directly to the EU Member States according to a predefined distribution key.
- 3) Buying on the open (or secondary) market: there are several trading platforms where EU ETS operators (or others) can trade emission allowances among themselves.

In 2021, the EU ETS covered more than ten thousand industrial plants and power plants and around 350 airlines across the 27 EU Member States. In the Netherlands, around 400 companies participate in the EU ETS. These 400 companies account for about half of the Dutch emissions. Most of the Dutch emissions, some 43%, are produced by electricity generation. 26% is produced by the chemical industry, 14% by natural gas oil production, 8% by metal production, and the remaining 9% is produced by natural gas and oil extraction, crop cultivation, the livestock and paper industries, etc. (NEa, 2024a)

The original EU ETS target, a 43% emission reduction by 2030 (compared to when the EU ETS was created in 2005), was already achieved in 2020. These emission reductions are partly due to other factors and legislation, such as the COVID-19 pandemic and other EU directives (the Renewable Energy Directive and the Energy Efficiency Directive) (LIFE ETX, 2021). There are visible differences between sectors: the energy sector has reduced its emissions, while industrial emissions have remained more or less stable since 2013. Aviation emissions, on the other hand, increased in the years before the COVID-19 pandemic. The explanation for the discrepancy between the different sectors is that the energy sector has largely had to pay for emission allowances since 2013, while aviation and industry still receive large amounts of allowances for free. Therefore, these sectors do not yet have a strong economic incentive to decarbonise their activities (LIFE ETX, 2021).

According to research commissioned by Carbon Market Watch, companies made profits of up to 50 billion euros between 2008 and 2019 due to free allocations of emission allowances. There are several reasons for these gains, including an excess of free allocations, cheaper international offset credit, and passing on the hypothetical emission allowances costs to the customer. This has led to taxpayers and customers subsidising industrial pollution while companies benefit from their free emissions. According to the authors, free emission allowances represent a market failure because the producer still does not bear the external costs of carbon pollution (Carbon Market Watch, 2021).

In the heavy industry sector, most licences are issued free of charge. In 2017, 2018, and 2019, free allocations covered 98.8%, 96.8% and 97.5% of industrial emissions, respectively. In 2019, the European Union introduced the Market Stability Reserve in its emissions trading system to address the surplus of permits and provide greater price certainty in the face of unforeseen factors. If there is a shortage of permits, the market stability reserve is designed to release a quantity of permits from the reserve. Conversely, if there is a surplus, the market stability reserve will remove permits from the market (EIA, 2020).

The aviation sector, too, receives large amounts of free allocations and only has to buy 15% of the required allocations (LIFE ETX, 2021). To avoid disadvantaging European companies, the EU ETS currently only applies to flights within the European Economic Area. The free emission allowances for aviation will gradually disappear. Starting in 2026, emission allowances will be fully auctioned. Emission allowances will still be set aside for aviation operators until 31 December 2030 (European Parliament, 2022).

The competitive position of high-emitting industries plays an important role when allocating free allowances. The EU wants to avoid companies going elsewhere or for the product being outcompeted by cheaper imports from countries that have few rules in place. Although the carbon leakage list is meant to focus on those sectors posing an actual risk, in practice, almost all industrial sectors are included (LIFE ETX, 2021).

In addition to free ETS emission allowances, a number of heavy industries are entitled to subsidies based on EU directives that limit the distortion of competition between countries. These costly state aid schemes are paid out without specific conditions being attached to them (LIFE ETX, 2021).

Fit for 55

The European Council in 2023 adopted the Fit for 55 package to strengthen the EU emissions trading system. This package includes measures such as extending the EU ETS to emissions in the maritime sector, accelerating reductions and phasing out free emission allowances in a number of sectors. Also included in the Fit for 55 package is a new stand-alone emissions trading system for buildings, road transport, and the use of fuels in other sectors (ETS2). In addition, a carbon border adjustment mechanism was developed to prevent products with a high risk of carbon leakage from being imported from outside the EU: the CBAM, which will be discussed in more detail in the below. With the new measures in the Fit for 55 package, the Council aims to realise a higher emission reduction of 62% compared to 2005 by 2030 in the sectors covered by the EU ETS (European Council, 2024).

Extension to the shipping industry

In January 2024, the EU ETS was extended to cover carbon emissions from all large ships entering EU ports. The system covers 50% of emissions from voyages that start or end outside the EU, and 100% of emissions by ships sailing between two EU ports or anchored at EU ports. From 2026, it will also cover emissions of methane and nitrous oxide (European Commission, 2024). Shipping companies will gradually have to surrender emission allowances: 40% by 2024, 70% by 2025, and 100% by 2026. Ship emissions should be reduced by 2% by 2025 compared to 2020, rising to 80% by 2050. These reductions will apply to ships over 5,000 gross tonnes, which are collectively responsible for 90% of carbon emissions (European Parliament, 2022).

Carbon border adjustment mechanism (CBAM)

The Carbon Border Adjustment Mechanism (CBAM) was set up to prevent the EU's emission reduction efforts from being nullified by higher emissions beyond its borders. The CBAM is a European regulation that corrects the CO₂ emission costs avoided by producing carbon-intensive products outside the EU when they are imported into the EU.

Encouraging emission reductions by operators in third countries should reduce global carbon emissions. Importers must buy carbon certificates when importing carbon-intensive products from countries outside the EU (European Council, 2024).

The CBAM has been phased in starting 1 October 2023. The EU also wishes to neutralise the competitive advantage created by cheaper emission allowances outside the EU. Its entry into force will take place in two phases: a transition phase from 1 October 2023 to 31 December 2025 and full entry into force on 1 January 2026 (Tax Office, 2024).

In the first three years, importers will only have to report their 'embedded' emissions to CBAM for six product categories with a high risk of carbon leakage (iron and steel, cement, fertilisers, aluminium, electricity and hydrogen) (NEa, 2024b). From 2026 onwards, importers must be authorised as CBAM declarants to import these goods. Permission to do so must be requested from the Dutch Emission Authority. Also, CBAM importers will from that point on have to buy carbon certificates by way of correcting the emissions associated with the production of the imported goods (Tax and Customs Authority, 2024).

No clear image of scope 3 and 4 indirect chain emissions

A related issue concerns emissions in the production chain within the EU. The policy so far focuses heavily on greenhouse gases directly emitted by companies (scope 1 emissions) and emissions due to locally purchased energy (scope 2). In practice, indirect emissions in companies' value chains often account for a large proportion of emissions. These are referred to as scope 3 emissions. In collaboration with the Netherlands Environmental Assessment Agency and the interdepartmental Working Group on Chain Emissions, TNO has written a report on the possibilities of developing policies to integrate scope 3 emissions into climate policy. The findings are that the perspectives for action under the policy vary widely across sectors; further research is needed to develop specific sector policies. The quantification of scope 3 emissions is proving difficult. Attention must also be given to sectors not yet targeted by current policies, such as the financial and retail sectors. Furthermore, policy must also be focused on the 'front runners', to gain an understanding of the bottlenecks they face and the measures to resolve them. This provides insights from which 'followers' can also benefit. Case studies should be carried out for this purpose. Another finding is that scope 3 emissions are still only

barely considered when designing policies aimed at the circular economy (Broecks, Schiele & Slingerland, 2024). Scope 4 is different from scopes 1, 2 and 3 and relates to emissions avoided in the chain. It is clearly important to pay close attention to this in the context corporate reporting, which is the subject of section 3.6.5 of this chapter.⁷⁸

Supervision

Netherlands Emissions Authority (NEa)

The Netherlands Emissions Authority (NEa) implements the EU ETS in the Netherlands. To be allowed to produce emissions, companies must be able to show that they measure their emissions properly and reliably. This is crucial for licensing and supervision. The NEa also, by way of inspections, in-depth investigations, and reviews of the reports that are compulsorily submitted, checks whether the 400 ETS companies in the Netherlands surrender enough emission allowances each year. The NEa monitors transactions of emission allowances to keep track of trade flows. This also applies to incoming or outgoing transactions from other countries. The NEa also manages the EU ETS registry of accounts and emission allowances of ETS participants, and is responsible for distributing free emission allowances to companies in the Netherlands. If a company fails to report or surrender emission allowances, it has to pay a penalty of 100 euros for every tonne of emissions on top of the allowance to be surrendered.⁷⁹

Netherlands Authority for the Financial Markets (AFM)

Ever since 2018, emission allowances have been classified as financial instruments under the revised Markets in Financial Instruments Directive (MiFID2). This classification is important to protecting the carbon market from market abuse and other forms of misconduct regulated under the Market Abuse Regulation (MAR). In the Netherlands, the related supervision is vested in the Authority for the Financial Markets, EU legislation forming the guiding principle. In its supervision, the AFM emphasises trust and transparency in the financial markets. Risk-based monitoring is used, the policy being to focus on the cases that cause the most damage. The tools it deploys range from informal influencing to administrative-law measures, such as orders subject to a penalty and administrative fines. The AFM mainly focuses on trading in derivatives of emission allowances, such as futures, which are contracts by which parties agree to sell rights to each other at a specific time in the future and at a certain price. As the market fluctuates, such agreements are worth money in their own right and can also constitute an investment. Supervising emissions trading as such is thus mainly in the hands of the NEa (personal communication, AFM employee).

The AFM last investigated a specific element of market abuse in the futures market for EU Allowances (EUAs or carbon credits) in 2022. Formal enforcement action following that investigation was not deemed necessary. Supervision mainly focuses on enforcing Articles 15 and 16 of the Market Abuse Regulation (MAR). Criminal enforcement could apply if there are signals that emission allowances derivatives are being used in money laundering or terrorist financing.

⁷⁸ See, for example, <https://professional.ft.com/en-gb/blog/measuring-scope-4-emissions-what-boards-need-to-know/>
⁷⁹ <https://www.emissieautoriteit.nl/onderwerpen/handhaving-ets/hoogte-boetes-en-dwangsommen/overtreding-inleverplicht#:~:text=Bij%20overtreding%20van%20de%20inleverplicht,e%20lid%20%20Wet%20milieubeheer>

The AFM and the NEa in 2022 signed a Memorandum of Understanding to govern cooperation. In addition, the AFM also cooperates with BaFIN, the German financial markets regulator (personal communication AFM employee).

Possible forms of fraud and abuse

Emission rights represent a financial value which has increased substantially in recent years. In 2022, the total turnover generated by the EU ETS system was 38.8 billion euros (EEA, 2023). The size of the market and its complexity make the ETS attractive for fraud, money laundering, or other (financial) crimes. The following risks can be distinguished in this connection:

Compliance evasion

Companies may try to evade compliance by underreporting emissions or falsifying documentation. In 2021, it became clear that a Bulgarian entrepreneur significantly underestimated emissions from two power plants from 2018 to 2020, directly impacting the environment. The underestimation of carbon emissions of between 1 and 1.5 million tonnes led to the avoidance of emission allowances of around 30 million euros.⁸⁰ There had previously already been concerns about trading fake rights, which Interpol devoted a Guide to (Interpol, 2013). Ever since 2021, account holders with voluntary trading accounts must be registered with the Dutch Chamber of Commerce. The NEa conducts a know-your-customer (KYC) analysis and risk analysis for every new registration. NEa staff suspect that the likelihood of emissions fraud itself is not that high. There are specific rules for registration and a list of standard emission values to be used.⁸¹ Thus, advanced knowledge is needed to commit fraud without being immediately noticed (personal communication).

Money laundering

In the past, it has been reported that criminals abused the ETS for money laundering purposes, but this seems to have been adequately stopped by opening the market only to professional traders and especially by making anonymous trading impossible (Neve et al., 2012).

VAT fraud

VAT fraud through the ETS has also been reduced. In the early years of the EU ETS, there was a risk of VAT carousel fraud, involving fraudsters abusing the VAT system by buying and selling carbon allowances across various EU countries to claim VAT refunds without actually paying VAT, which could yield large sums of money (Europol, 2009). The EU has introduced a reverse charge mechanism to address the problem. This shifts the VAT levy to the customer. Some countries have had criminal cases related to VAT fraud involving emissions trading. There was also a case in the Netherlands, resulting in a conviction, that was not covered by the WED. This concerned a conviction for a tax offence, directing a criminal organisation and forgery.⁸²

⁸⁰ <https://www.eppo.europa.eu/en/media/news/bulgaria-eppo-probes-multi-million-euro-fraud-regarding-greenhouse-gas-emissions>

⁸¹ Quoted in Lopik & Stax, 2020. See also: Rb. The Hague 12 June 2018, ECLI:NL:RBDHA:2018:6869.

⁸² Quoted in Lopik & Stax, 2020. See also: Rb. The Hague 12 June 2018, ECLI:NL:RBDHA:2018:6869.

Market manipulation

As with any financial market, the EU ETS can be vulnerable to market manipulation, such as artificially inflating or depressing the price of carbon rights for financial gain. This can happen through insider trading, spreading false information, or collusion between market participants. By means of the introduction of the Market Abuse Regulation (MAR), the EU has sought to mitigate this risk. Investment firms and brokers are responsible for detecting market abuse and are obliged to report these signals (STORs) to the AFM. The AFM also conducts market supervision through an algorithmic surveillance system. In 2021, the AFM received four STORs on possible market manipulation and a market observation on possible insider trading (ESMA, 2022).

Fraud in applications for free emission allowances

A significant part of the emission allowances are granted free of charge to companies. Fraud could occur in these applications as the monitoring requirements are somewhat less stringent than in emissions reporting. However, the annual applications must have independent verification and are checked by the NEa and often again by the European Commission. Anomalies quickly catch the eye. The employees of the NEa are confident they possess more knowledge about the systematics than market participants do, but also realise that this might change in the future, which in turn could create opportunities for clever fraudsters (NEa employee, personal communication).

In conclusion

The European Emissions Trading Scheme (EU ETS) aims to be a powerful tool in the fight against climate change. The system continues to evolve and become more effective, as evidenced by the recent reforms in the Fit for 55 package and its extension to the shipping sector. Strict monitoring and enforcement are crucial to prevent abuse and fraud and ensure that carbon pollution costs are fairly distributed.

Findings

- The emissions trading system will be extended to sectors such as aviation and shipping.
- The system now involves many billions of euros, making it attractive to fraudsters.
- The NEa and the AFM are in charge of enforcing the rules and imposing administrative measures if necessary.
- In the case of financial crimes in the emission allowances market, such as VAT fraud, money laundering, and terrorist financing, criminal law comes into play.

3.6.4 Promotion of renewable fuels

Another way the government is trying to combat global warming is to reduce the use of fossil fuels. As it is not possible to have all kinds of installations, means of transport, and building heating systems run completely on renewable energy, the aim is to use as much sustainable fuel as possible. We will highlight some of the available options: hydrogen, renewable transport fuels, and the blending obligation for green gas.

Energy transition, hydrogen, and crime

Energy use has evolved throughout history, with mankind relying on renewable sources such as wood and animal fat for heat and light for the first 350,000 years.

These sources were replaced by fossil fuels from the 19th century onwards, a shift that led to significant economic growth but also affected the environment. In the present time, we are faced with an urgent challenge under great time pressure: the transition to a sustainable energy supply at a global level, due to the waning availability of fossil fuels, dangerous geopolitical developments, and above all to combat climate change and environmental pollution (Khan et al., 2018).

Hydrogen, the most abundant element in the universe, is set to play an important role in this energy transition. Ideally, its use is not accompanied by greenhouse gas emissions. International hydrogen trade is on the verge of significant growth. With its strategic Port of Rotterdam and its existing gas infrastructure and experience, the Netherlands could become a forerunner. However, the emerging hydrogen economy also poses new safety risks (Ajanovic et al., 2022).⁸³

Hydrogen targets have been laid down in the Climate Agreement. For instance, by 2025, a nationwide network of 25 hydrogen stations is to be in place, while a subsidy scheme has to be set up to make this a reality. By 2030, an electrolysis capacity of 3-4 gigawatts, with sufficient storage sites and accompanying infrastructure, must be in place. So far, no laws and regulations on hydrogen exist, but this is being worked on.⁸⁴

The following sections discuss the nature of the potential issues surrounding hydrogen and the risks that may result from adopting the hydrogen economy.

⁸³ This was also discussed at a presentation by ABN AMRO, entitled: Hydrogen, where are we now?

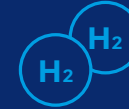
⁸⁴ <https://www.rijksoverheid.nl/onderwerpen/duurzame-energie/waterstof>

Figure 3.2. The discovery of hydrogen

1520

PARACELUSUS 'DISCOVERS' HYDROGEN

Phillippus Aureolus Theophrastus Bombastus of Hohenheim, more famously known as Paracelsus, mixes iron and sulphuric acid together, and notes that a colourless and odourless gas is produced. This gas must have been hydrogen.



1670

FLAMMABILITY

Robert Boyle releases gas through a chemical reaction between an acid and iron, catches it, and discovers it is flammable.

Hydrogen: a step-by-step discovery

1800

ELECTROLYSIS

William Nicholson and Anthony Carlisle by using electricity produce hydrogen and oxygen from water.



1766

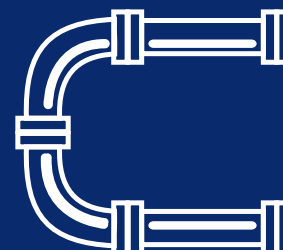
**HENRY CAVENDISH
DEEPENS KNOWLEDGE**

Physicist and chemist Henry Cavendish establishes that the gas described by Paracelsus and Boyle is an element. He manages to accurately describe the chemical properties of this gas.

1838

FUEL CELL

Christian Friedrich Schönbein uses platinum, hydrogen and oxygen to reverse the process of electrolysis, creating water and electrical energy. Based on this, William Grove built the 'gas battery'. The fuel cell was born.



Hydrogen is used to make fertilisers, desulphurise fossil fuels and reprocess heavy petroleum fractions. It also plays an important role in the production of bio-methanol, glass, metal, and semiconductors. The importance of hydrogen will only grow in the future, as it will play a large role in enabling the decarbonisation of the steel, cement, and chemical industries. Hydrogen also offers interesting prospects for storing excess energy from renewable sources such as wind and solar energy, due to its high energy density. Electrolysis of green electricity can be used to produce hydrogen. As a result, it will be possible to reconcile supply and demand within energy networks, which are increasingly out of balance (Zhang et al., 2024). With respect to heavy and international transport by trucks, buses, ships, and even aircraft, hydrogen will only be a good alternative to fossil fuels in the longer term. This is mainly because, given the current state of technology, batteries are still too heavy and do not offer enough range. Biohydrogen could also play an important role in future energy supply, although this technology is not yet all that widespread (Hassan et al., 2022).

Transport and storage

Transporting hydrogen presents challenges because it has to be liquefied at very low temperatures, or stored in gaseous form under high pressure. Innovations in the technologies for storing and transporting hydrogen, such as by using dedicated pipelines, by processing it into a liquid organic hydrogen carrier (LOHC), binding it to ammonia (liquid), or converting it into a hydride (white powder), are crucial for large-scale feasibility (Hassan et al., 2024).

Hydrogen production methods and 'colours'

The largest producers of hydrogen in Europe are Germany and the Netherlands. Most (90%) of this hydrogen does not help reduce carbon emissions because of its production methods. For clarity, colours are used to indicate these methods. The current 'hydrogen rainbow' is shown in the diagram in Figure 3.3.

Technological developments may extend this diagram to include more colours or shades in the future (Ajanovic et al., 2022; Erbach & Svensson, 2023).

Productiemethoden en 'Kleuren' van waterstof

De grootste producenten van waterstof in Europa zijn Duitsland en Nederland. Het merendeel van die waterstof, 90%, is niet behulpzaam bij het terugdringen van CO₂-uitstoot, vanwege de productiemethode. Die methodes worden, voor de overzichtelijkheid, aangeduid met kleuren. De huidige 'waterstofregenboog' ziet eruit als het schema in figuur 3.3.

Technologische ontwikkelingen kunnen dit schema in de toekomst uitbreiden met meer kleuren of schakeringen (Ajanovic et al., 2022; Erbach & Svensson, 2023).

Risks⁸⁵

Depending on the storage and/or transport method, various risks are associated with the use of hydrogen.

- **Gaseous:** it is colourless, odourless, flavourless, so it is not easily perceived when released. It ignites and explodes easily, with the flames being almost invisible but very hot.

It can make metal casings brittle and displace oxygen in a confined space. Hydrogen is a small molecule, so it can leak easily.

In *liquid* form, it is extremely cold and evaporates quickly on release, at which point the dangers of gaseous hydrogen apply. Cold hydrogen gas sinks and can accumulate, for example in sewers. Body parts can freeze on contact, while materials may be damaged.

- **LOHC** can cause skin irritation and drowsiness or dizziness, or even be fatal, if inhaled. It is highly toxic to organisms in the water in both the short and long term, and it is harmful to reproduction.
- **Ammonia:** stings and corrodes the eyes and respiratory tract, while its behaviour varies between damp and dry conditions, danger levels ranging from mild to severe injury or even fatality depending on exposure.
- **Sodium borohydride:** hygroscopic, and reaction with water produces hydrogen gas and the caustic liquid sodium hydroxide.

Figure 3.3. Different hydrogen production methods

GREY	Hydrogen made from fossil fuels, in particular natural gas. In the process, CO ₂ is released into the atmosphere.
BLUE	Hydrogen made from fossil fuels, similar to grey. The CO ₂ is stored or processed, but is not released into the atmosphere.
TURQUOISE	Hydrogen from pyrolysis of fossil fuels. Instead of CO ₂ , but solid carbon is released.
GREEN	Hydrogen from electrolysis of water, the electricity being produced from renewable sources such as wind and solar. No CO ₂ is released into the atmosphere.
PURPLE	Hydrogen from water electrolysis, the electricity being produced from nuclear power. No CO ₂ is released into the atmosphere.
GOLD (or white)	Hydrogen from the Earth's crust, created by contact between water and ferruginous rock. According to the US Geological Survey, 3 trillion tonnes exist on the global level.

⁸⁵ This listing of risks provides a rough overview. For details, see the IFV Knowledge Bank on the Transportation of Hydrogen (Carriers) (Spoelstra, 2022).

Climate risk from leaking hydrogen?

When producing hydrogen, it is important to consider the potential climate risk that hydrogen itself may cause. Various mechanisms have been highlighted by scientists in this connection.

Firstly, hydrogen leakage can lead to an increase in the content of methane, a heavy greenhouse gas. Some of the methane released will be removed in the atmosphere as it reacts with OH (the hydroxyl radical), which is naturally present in the atmosphere. OH may be captured from the atmosphere using hydrogen, with which it readily reacts. Consequently, less methane will be removed by OH, increasing the greenhouse effect. Secondly, hydrogen can create more ozone (O₃) in the troposphere, which acts as a greenhouse gas in that layer of the atmosphere. Finally, hydrogen can rise into the stratosphere. While there is virtually no water vapour there, the reaction of hydrogen with oxygen radicals (highly reactive oxygen molecules) may lead to the formation of water vapour - a natural greenhouse gas. Although the GWP of water vapour is about 11, which at first glance is not high compared to F-gases, methane, or nitrous oxide, the risk should not be underestimated. There is still much uncertainty about the natural production and uptake of hydrogen. When the hydrogen economy is in full swing, the countless small leaks that will occur worldwide will as yet contribute to climate change. To prevent the intended solution from becoming part of the problem, some scientists believe it is important to have, and enforce, regulations to minimise leakages (Blay-Roger et al., 2024; Sand et al., 2023).

Hydrogen and the EU

Europe is taking a leading role in the global transition to a sustainable hydrogen economy. The European Green Deal, the European Hydrogen Strategy, the Fit for 55 package, and the Carbon Border Adjustment Mechanism (CBAM) are closely linked and together form the core of the EU strategy to tackle climate change, accelerate the transition to a sustainable economy and meet the Paris Agreement targets. Each of these initiatives plays a specific role in the broader framework of energy transition and greenhouse gas reduction, with a particular focus on the role of hydrogen as a crucial energy carrier in this process. By implementing the CBAM and compensation measures, the EU seeks to create a level playing field for hydrogen imports and production, taking account of CO₂ emissions. However, the focus is currently only on direct emissions, posing challenges for dealing with sustainably versus less sustainably produced hydrogen. In addition, EU renewable hydrogen rules also have implications for the wider European energy market and the environment (Erbach & Svensson, 2023).

Criminal transition?

As applies to other forms of environmental crime, the hydrogen economy will lead to new forms of crime if circumventing regulations can easily yield illegal profits, especially if enforcement is lacking. Since we can assume that hydrogen will play a crucial role in the economy of the near future, it is likely that the energy transition will also lead to new forms of crime. These could be completely new forms of crime, but it is more likely that society will have to contend with variations of phenomena that already exist today. A major consequence of hydrogen-related crime will be that more CO₂ will be emitted. Although it may take another 10 to 20 years before hydrogen plays the central role it is intended to play, all relevant parties need to

start thinking right now about the challenges that may arise in the future (Hassan et al., 2023).⁸⁶ Possible criminal phenomena that could occur include the following:⁸⁷

- Illegal trade: Demand for certified green hydrogen may lead to illegal trade and the counterfeiting of sustainability certificates.
- Blending: Hydrogen of green origin can be mixed with non-sustainable hydrogen but traded as green hydrogen. Once hydrogen is produced, it is impossible to detect where it comes from. That means that even completely 'grey' hydrogen can be converted to 'green' on paper.
- Subsidy fraud: Subsidies and financial incentives for green hydrogen production can become targets for fraud. Due to the complexity of the CBAM and the differences between Member States in terms of the compensation paid out, legal loopholes are far from an imaginary risk.
- Siphoning: Draining hydrogen illegally. While this risk is present in theory, it is unlikely to play out in practice. Advanced materials and techniques are required, in particular for hydrogen gas that is stored and transported under high pressure. This threshold may apply to a lesser extent to hydrogen bound in hydrides, ammonia, or LOHC.

Detecting and preventing such fraud requires coordinated efforts across the supply chain:

- Detailed certification and tracing: Detailed certification systems and tracking technologies, such as blockchain, can help the entire process, from origin and production to end use.
- Regulatory cooperation: Cooperation between (inter)national regulatory bodies to develop unified guidelines and standards for certifying renewable hydrogen and enforcing these standards.
- Transparency and accountability: Promoting transparency in the supply chain, and holding companies accountable for the accuracy of their sustainability claims, could help discourage fraudulent practices.
- Enforcement cooperation: International and national regulators should cooperate and share knowledge in enforcing the directives.
- Public-private partnership: Financial institutions, stock market analysts, energy companies, and a multitude of national and European government agencies all oversee part of the highly complex field. Knowledge and information sharing and practical cooperation are therefore indispensable in fighting crime in the hydrogen chain.

Conclusion and recommendations

Judging by online discussions, hydrogen is trending. A quick search using the terms 'hydrogen' and 'energy transition' provides a wealth of information in an instant. Both major proponents of hydrogen and sceptics are joining the discussion. However, one subject that is still missing in this discussion concerns the risk of hydrogen-related crime.

The time still available could be used to identify risks and weaknesses in the hydrogen chain, and neutralise them as much as possible. There is no stakeholder capable of doing so independently of other parties.

The main recommendation should therefore be to establish a working group of public and private parties with an interest in the hydrogen economy. This working group should also be a pioneer in promoting awareness of the risks throughout the chain.

⁸⁶ <https://www.emissieautoriteit.nl/actueel/activiteiten/2023/11/21/webinar-cbam>

⁸⁷ These phenomena and possible measures were discussed at a workshop by NXT-Crime Consult held on 23 January 2024 in Driebergen. Anticipating hydrogen crime.

Customs seems the most obvious party to take the initiative to set up such a group, given the risk associated with hydrogen imports. The participants will be able to identify the risks and weaknesses in the hydrogen chain and develop proposals for mitigating measures. Subsequently, this working group could develop proposals for preventive measures and submit them to the relevant ministries, calling for the provision of policy frameworks that are, as yet, still missing.

Promotion of renewable fuels and the EU Renewable Energy Directive

Ever since 2003, it has been mandatory for EU Member States to increase the share of renewable energy used in the transport sector to reduce greenhouse gas emissions.

On 1 January 2022, the second version of the Renewable Energy Directive, RED2, came into force. It was implemented in the Netherlands by way of the Transport Energy legislation that came into force on 1 January 2023.⁸⁸

Even though this is not a very new climate measure, its importance for this chapter becomes clear when considering that a significant share of renewable fuels used in the Netherlands consists of biodiesel. It is precisely in biodiesel production that opportunities for fraud appears to exist.

Biodiesel often contains fuel made from UCOs, 'used cooking oils', such as frying fat. Requirements are imposed on the raw materials and a system has been set up to record the quantities of renewable fuel blended. Suppliers should keep a 'mass balance sheet' that tracks all feedstock coming in and all biofuel going out. However, these records do not always match the reality in the fuel tanks (ILT-IOD & NEa, 2020).

As with other EU regulations, Member States have some scope to arrive at their own interpretation. In the Netherlands, a 'double counting scheme' was created (Hellemons, 2023). Under this scheme, demonstrably sustainable biofuel feedstock are awarded twice as many certificates as other feedstocks. The HBE is the renewable fuel unit for energy used for transport. A lot of money can be made by adding other wastes, for example, and having the documents record that they are UCOs. It is also common to add virgin palm oil, which is cheaper than UCOs are, but is not particularly sustainable, partly because of the deforestation involved in its cultivation (Hellemons, 2023).

The share of renewable raw materials in fuel is certified by a few private companies whose 'sustainability schemes' have been approved by the European Commission. The most commonly used scheme is that of the ISCC⁸⁹, which is also the body that oversees individual Certifying Institutions (CIs). The NEa has been designated as the regulator of the Dutch system as a whole and has built in additional controls by way of checking HBE entries in the books and the application of the double-counting scheme. In case of violations, the NEa itself can take administrative measures, such as an administrative decision. In addition, the NEa can also report to the ILT-IOD, which may initiate a criminal investigation. Some cases of fraud have come to light in recent years, where large illegal profits were found to be involved (Hellemons, 2023).

The ILT in 2019 reported on alleged damages from several fraud cases in 2015 and 2016. Of the total sustainably registered biofuels, 31.6% were wrongly sold as sustainable biodiesel in 2015; the 2016 figure was 22.6%. This corresponds to 348 million kilograms and 322

million kilograms, respectively (ILT, 2019). Business and consumer confidence in this system has been damaged as a result.

Moreover, the sums involved are large. The biofuels industry is very lucrative. Respondents all indicated that money was the biggest motivation for fraud. Meanwhile, a number of criminal investigations have been or are being conducted in connection with fraud in the Dutch biofuels industry. Of these, at least three cases have already been in court, as briefly described in Sabine Hellemons' thesis (2023).

Another important point in relation to biodiesel is that much of it is imported from outside the EU, where private certification should ensure sustainability. The reliability of these certificates is difficult to verify from the Netherlands (NEa input at an expert meeting on 10 June 2024).

A somewhat related risk in the biofuels market is that market players conveniently shift back and forth between European countries to avoid nationally organised supervision. For example: a company may sell biodiesel in the Netherlands that was produced in Belgium, where the NEa is unable to carry out inspections. A market operator may also transport unauthorised raw materials to Germany for re-importation to the Netherlands. Parties in the chain thus shift raw materials and biodiesel between European countries to avoid scrutiny. Despite the fact that there are contacts between the relevant services of the European countries, it pays to transport shipments back and forth (NEa employees, personal communication).

Green gas blending obligation

A new measure to promote sustainable fuels is the green gas blending obligation. This will be introduced in 2026. The NEa had pointed out the potential vulnerability to fraud of this measure (Parliamentary Papers II, 32813, no.1283). As with other measures discussed in this chapter, enforcement of the blending obligation will be conducted mainly under administrative law. Criminal law is seen as a last resort. There have been no criminal cases yet, as the blending obligation has yet to take effect.

Green gas is gas made from materials that have previously absorbed CO₂, such as manure, and therefore on balance do not add CO₂ to the atmosphere, although of course CO₂ is released during combustion. After all, it is chemically similar to natural gas.

At the request of MP van Raan (PvdD), the following definition of green gas was presented by Minister Jetten: "Green gas is a gas mixture produced by the fermentation or gasification of biogas feedstock, which, after cleaning and reprocessing to the right quality, has the same composition as natural gas." (Parliamentary Papers II, 32813, no.1283).

While currently, in 2024, green gas production is still insufficient, the government wants to take measures to step it up. To this end, gas suppliers will be required to blend in a proportion of green gas. This will create a demand for green gas, which is expected to lead to more production at good market prices. The government commissioned a study by CE Delft to identify different variants of the introduction and advise on a choice among them (CE Delft, 2022). An additional study was later conducted at the Minister's request (CE Delft, 2023). Different variants of increasing the mandatory percentage of green gas were calculated. A draft bill was then prepared, and the scheme was amended after an online consultation.

The basic principle is that the government prescribes the percentage of green gas to be blended, which can be adjusted periodically to achieve an optimal reduction in fossil gas use and associated emissions. It was with this percentage that the CE investigation was mainly

⁸⁸ <https://www.emissieautoriteit.nl/onderwerpen/themas/hernieuwbare-energie-voor-vervoer>

⁸⁹ International Sustainable Carbon Certification. See: www.iscc-system.org

concerned. However, it is not necessary for every gas supplier to actually produce and add gas to the supplied gas. Producers of green gas are issued certificates for this, the Guarantee of Origin.

Gas suppliers will have to secure a certain number of certificates. These are called 'green gas units' (GGUs) and are tradable. Gas suppliers receive these GGUs when they 'write off' a green gas Guarantee of Origin on a contract in the built environment. The basis for obtaining the GGU will be the existing guarantee of origin from VertiCer, a certifying body dedicated to renewable energy (Parliamentary Papers II, 32813, no.1283). A 'guarantee of origin write-off' involves demonstrating that a contract to supply the built environment (businesses and households) contains a clause to admix a certain percentage of green gas. This is processed in the NEa's records.

GGUs are tradable, so not everyone has to produce or blend green gas themselves, but they can also buy them on the market so that others take on the actual production of green gas. Gas suppliers must surrender GGUs in proportion to the volume of supply, which will increase the price of green gas and cause more companies to invest in its production. The aim of involving various parties, including energy suppliers, in developing the green gas sector is to create a synergy of knowledge and capital (CE Delft 2022, p. 12). The GGUs, the green gas units that become tradable, will be kept in a separate register at the NEa.

Provision is made for a blending obligation buyout option for suppliers. This option will have to be so expensive that companies are encouraged to blend green gas. Based on CE Delft's calculations, a buyout amount of 500 euros per tonne of carbon avoided is suggested. The higher the buyout, the higher also the cost for the end user. The Minister announced several measures to prevent the cost increase from becoming too high, such as skimming excess profits (Parliamentary Papers II, 32813, no 1283). The buyout was later reduced to 450 euros (Parliamentary Papers II, 32813, no 1352).

Following the internet consultation and input from the ATR (Advisory Committee on Reducing Regulatory Burdens) and the NEa, the end-user group has been aligned with and extended to include the new ETS2 for energy suppliers. The 'HUF test' performed by the NEa was decisive in this connection.⁹⁰ The Emission Trading System 2 is a trading system for fuel and energy suppliers (See also section 3.5.3). It is considered more convenient for monitoring purposes when the end user group is equal in both the 'old' ETS and the ETS2. This leads to less administrative burdens for the NEa. It also avoids the possibility of differences in figures should two different obligations be imposed with respect to the same data. Thirdly, costs are spread over a larger number of end-users. Gas will become less expensive than in the original proposal submitted for consultations. Suggestions are made to compensate for the additional costs by generic policies or specific measures, to be considered by the next government (Parliamentary Papers II, 32813, no. 1352).

Concurrence with SDE++

The Sustainable Energy Production and Climate Transition Incentive Scheme SDE++ is a subsidy scheme for companies and non-profit organisations that generate renewable energy

⁹⁰ When preparing new measures, a test for enforceability, feasibility and susceptibility to fraud is often carried out: the HUF test in Dutch.

or reduce carbon emissions on a large scale. Producers can obtain SDE++ subsidies and sell their Guarantees of Origin to fuel suppliers in the transport market.⁹¹ The blending obligation will have to compete with these schemes, '... causing more expensive technologies to be deployed and prices to rise. The GGU price will rise until green gas producers choose to sell to gas suppliers' (CE Delft, 2022).

Only green gas for which no subsidy has been obtained is eligible for the GGU. Also, Guarantees of Origin must not have already been used for renewable fuel units, the certificates under the renewable energy for transport scheme (Parliamentary Papers II, 32813, no.1283).

The Minister will provide a scheme allowing for moving projects from one scheme to another. The SDE is a subsidy scheme, which will be phased out. If the blending obligation provides sufficient security for market parties to obtain (external) financing, the issuance of new SDE++ decisions will stop (Parliamentary Papers II, 32813, no.1283).

Manure fermentation important factor

To realise the planned increase in green gas production, the development of production capacity is clearly a prerequisite. Large digestion and gasification plants need to be developed and built. Efforts are also underway to speed up the licensing of the relevant facilities. The production of green gas requires a lot of manure, as it is the main raw material for green gas (Parliamentary Papers II, 32813, no.1283).

CE Delft's research shows that gas mono fermentation will lead to less methane emissions from manure storage. After all, the manure would be converted into gas immediately and would not need to be stored for long. If digestate, the residual product after fermentation, is also used as fertiliser, the use of artificial fertilisers associated with large emissions might also decrease (CE Delft, 2022, p. 15).

Sustainability criteria for biocommodities will be laid down by law, according to the criteria of the RED (Parliamentary Papers II, 32813, no.1283).

CE Delft also investigated whether non-biogenic feedstocks can be used to produce green gas. These substances can be converted into methane using hydrogen. The Minister deems gasification combining biogenic and non-biogenic waste to be an interesting option. As a result, demand for these waste streams would exceed supply by 2030. Non-biogenic feedstock for green gas production includes plastics. Using non-biogenic substances as feedstock for green gas is considered particularly attractive for waste streams that are difficult to recycle (CE Delft, 2022).

A special subsidy scheme is being used to develop the technology: the DEI+(Demonstration Energy and Innovation) scheme, which runs from February to August 2024. It is difficult to plan and therefore predict how innovation will develop. Based on the PBL's Climate and Energy Outlook, only a small contribution is still expected in the short term. As such, the targets set out in the parliamentary letter are called quite ambitious (Parliamentary Papers II, 32813, no.1352).

⁹¹ See: <https://www.rvo.nl/subsidies-financiering/sde>.

The documents cited above do not discuss the issue of the co-digestion of manure, which was addressed in the previous Environmental Crime Threat Assessment. Its results were disappointing and the then minister later admitted on TV that the effort was mainly aimed at preserving milk production and livestock (Van Brederode & Goemans, 2021, p 63). The fraud associated with co-digestion mainly concerned the admixture of unauthorised substances, which will not happen in mono fermentation, of course. In any case, it takes a heavy toll on the production capacity for green gas that has yet to be developed.

Implementation

In the Explanatory Memorandum for the online consultation, NEa, VertiCer and the Netherlands Enterprise Agency are addressed under the heading 'implementation'. To enable energy suppliers to meet their obligation, the NEa will create and manage a new GGU register. In this register, energy suppliers report annual deliveries and add an energy verification from a verifier. The registry allows suppliers to create and transfer GGUs. Annually, on 1 July, the NEa writes off the GGUs with which the obligation is met. The NEa needs to expand its communication and information facilities to communicate everything to affected suppliers in a timely manner.

Verticer, a subsidiary of Gasunie and TenneT, issues the guarantees and Certificates of Origin on behalf of the Minister of Climate and Energy. This certificate proves that energy has been generated sustainably. To obtain such a certificate, the producer must demonstrate how the renewable gas was produced. Regulations are in place under the Energy Act in this connection. As already discussed, there is no intention to admix gas that has also already been subsidised under SDE++ scheme. Producers therefore have to make a choice. Verticer and the Netherlands Enterprise must exchange data to enforce this (online consultation, no year stated).

Supervision

In addition to the NEa, private regulators play a role. Enforcement is vested in the NEa. For now, the monitoring and enforcement policy corresponds to that for the Transport Energy legislation. Four principles are identified:

- "The NEa endeavours to promote compliance through preventive means;
- The NEa treats companies equally. This means it makes careful and uniform decisions;
- In principle, the NEa will take remedial action, i.e., it will force the company to end the violation, by imposing an order subject to a penalty, or nullify the consequence of the violation by an administrative decision;
- Whether it takes additional punitive action will depend, among other things, on the seriousness of the offence."⁹²

The intervention policy applying these principles is set out in a document (NEa, 2023).

The NEa will be primarily responsible for a system of monitoring and supervision and a sanctioning mechanism. The NEa is the appropriate party to bear such responsibility because of its knowledge and the experience it already gained with respect to the obligations under the Transport Energy obligations (online consultation, no year stated).

The NEa must keep track of whether gas suppliers report gas supplied on time and correctly.

⁹² <https://www.emissieautoriteit.nl/onderwerpen/handhaving-energie-voor-vervoer> A separate document referenced on this page also sets out the systematics for applying administrative fines.

The annual obligation is based on these reports. It will check whether the account holds sufficient GGUs. Any shortfalls must be made up within three months. It also checks whether the gas the supplier registers Guarantees of Origin for meets the requirements to issue GGUs. Supervision of the chain also includes verifying whether sufficient confidence can be placed in private supervision, by certifying bodies, of carbon chain emission reductions (online consultation, no year stated). Private regulators play a role in verifying an energy supplier's reports and in controlling the production chain. The required verification is already mandatory under ETS2. The verifier checks whether the records match. The verifier must be accredited with the Accreditation Council (online consultation, no year stated). Private monitoring of chain emission reductions is in line with the RED (Renewable Energy Directive), which ensures sustainability for biofuels, etc. through certificates. Different national or international systems can be used, subject to approval by the European Commission, which tests for compliance with the RED. This involves looking at sustainability requirements and the scheme's procedures and auditors' requirements. Better Biomass and ISCC are examples of such systems. The NEa oversees the entire chain. For example, it checks that greenhouse emissions are correctly calculated by the Conformity Assessment Body (CBI), which carries out the audit and certification on behalf of the voluntary scheme (online consultation, no year stated).

Enforcement

If market parties wilfully break the rules, enforcement action will of course be required. This may be the case, for example, if certificates are falsified or misused, if production is reported that has not actually taken place, or if complicated chains are used to conceal that non-sustainable gas has been delivered as renewable gas. Major sums of money can be earned illegally by such practices. The NEa will have administrative enforcement tools at its disposal in case suppliers misreport or falsely claim tradable units. If a supplier has a shortage of tradable units, it must, of course, use the buyout option, subject to the forfeiture of a higher penalty.

If a producer tries to circumvent laws and regulations to save or make additional money, sanctions may be imposed. The NEa can take enforcement action under administrative law, imposing orders subject to a penalty⁹³ and administrative fines. The NEa is also capable of making an administrative decision (of incorrectly reported supplies) and instituting criminal proceedings under the WED. According to the Explanatory Memorandum, implementation of the corrective measures of title 9.7 of the Environmental Management Act often prove sufficient to achieve optimal compliance. These are measures introduced by the Transport Energy legislation. However, in the case of the green gas blending obligation, it could take too long for an order subject to a penalty to bring about an improvement, as the reports must be delivered annually (online consultation, no year stated).

The Explanatory Memorandum states that only energy suppliers are affected by a violation by another energy supplier. Therefore, the regulations do not automatically have a 'major normative effect' or cause harm to third parties outside the defined group of parties subject to the regulation, which would justify the exclusive use of criminal-law sanctions. For this reason, the imposition of administrative fines and administrative decisions is expected to allow adequate action to be taken against violations. Private supervision is expected to spot and correct violations at an early stage.

⁹³ Administrative measures involving the future imposition of a penalty should not have been improved by a certain date.

A little further on, it is explained that 'Violations of the sustainability regulations may lead to a notional achievement of the objective the bill aims to achieve and to 'contamination' of the sustainability chain'. This means that violations not only cause harm to the competition, but also to the environment. That is why prompt intervention is deemed necessary. Hence, the administrative fine combined with the administrative decision is considered to be an adequate form of enforcement.

In case of wilful intent or fraud, criminal enforcement may still be possible. Given that the cases will always relate to legal entities, with ample financial capacity and large financial interests, on the imposition of high fines in case of violation is deemed to be a proper deterrent. Such fines '...may lead to a greater preventive change of conduct by the offender in this target group'. The apparent meaning is that such administrative fines are deemed to foster a change of conduct more readily than criminal-law sanctions would achieve (online consultation, no year stated).

If criminal action is required in connection with fraud or forgery, consultation between the enforcing agencies is necessary to avoid concurrence between administrative and criminal sanctions. The role of criminal law is seen mainly as a backstop and, given the target group, the emphasis will be on administrative measures (online consultation, no year stated).

Findings

- In hydrogen trading, a temptation to sell unsustainably produced hydrogen, the use of which is likely to be hampered, as sustainable hydrogen will exist.
- It is high time to develop hydrogen policies that also address the potential opportunities for crime and the risk of leakage.
- Biodiesel makes up a large proportion of renewable fuels; the double-counting scheme for UCOs is proving susceptible to fraud.
- The rules around the green gas blending obligation will mainly be enforced by the NEa by application of administrative law.
- Criminal law can be used in cases of wilful fraud, such as forgery.

3.6.5 Countering greenwashing and sustainability commitment reporting requirements

This section is about countering misleading sustainability claims by companies, better known as *greenwashing*. Regulations and supervision by the Advertising Commission and the Consumer and Market Authority aim to get companies to use only concretised and well-substantiated 'green claims' in advertising and other public information. The EU Green Claims Directive provides the baseline. In addition, the EU has issued two directives requiring companies to take responsibility for the sustainability of the entire supply chain, respecting human rights, and avoiding corruption: the CSDDD and the CSRD.

The European Commission issued the CSRD, the Corporate Sustainability Reporting Directive, in January 2023 as part of the Green Deal legislation. In the Netherlands, companies will have to start reporting from 2024 onwards.⁹⁴

⁹⁴ <https://www.ser.nl/nl/thema/imvo/wetgeving/eu-duurzaamheidsrapportage#:~:text=Wat%20is%20de%20Corporate%20Sustainability,door%20middel%20van%20verschillende%20duurzaamheidscriteria.>

The obligation to have a plan to promote product sustainability and back it up with information on the production process, starting from the source, goes beyond countering *greenwashing*. The EU is trying to curb this by way of the Green Claims Directive.

The Financial Markets Authority will supervise the CSRD. In addition, the Netherlands Authority for Consumer and Market plays a role in supervising the CSDDD, Corporate Sustainability Due Diligence Directive.

Greenwashing and the Green Claims Directive

Anyone going to the supermarket to do their shopping are confronted with a proliferation of labels on packaging setting out to show that a product has been produced in an environmentally and climate-friendly way. These labels are not always reliable; sometimes they promise more than they can deliver and make the product or service seem 'greener' than it is. This is referred to as *greenwashing*. By way of the Green Claims Directive, the EU aims to protect consumers from such practices. It also aims to protect entrepreneurs who do produce in a climate-friendly way from unfair competition: they often end up charging somewhat higher prices and would therefore be less attractive to consumers.

In this way, consumers are given assistance when making their choice: they can opt for green products if they wish, based on accurate information. The government's own climate policy is also partly dependent on the correct understanding of the measures already taken by companies (Lopik, 2023).

Clear criteria are therefore being developed for the substantiation of green claims and quality marks. These should be reliable, comparable and verifiable. Hence, the directive requires that clear criteria apply, and that an independent and accredited verifier checks the claim. The rules surrounding the application of a particular quality mark should be transparent and reliable. These rules apply to all claims that companies make of their own accord and are not yet covered by EU regulations, i.e., not even in the context of reporting requirements, which will be discussed below.⁹⁵ A study commissioned by the European Commission found that 42% of green claims on websites are exaggerated, inaccurate, or misleading.⁹⁶

In the Netherlands, the Consumer and Market Authority (ACM) has developed the 'Sustainability Claims Guideline', which lays down similar rules. These are elaborated in five rules of thumb with a total of about 20 further specifications (ACM, 2023). Finally, the Advertising Code Committee monitors the reasonableness of green claims in advertising under the Sustainability Advertising Code (CDR).⁹⁷ The Committee does not impose punitive measures but can make a recommendation to an advertiser to withdraw or modify the statement. If necessary, its ruling can be made public in a press release. The Compliance Department of the Advertising Code Committee keeps track of whether a company concerned complies with the recommendation. If it does not, it is registered on the 'Non-compliant list', which also brings the advertiser to the attention of the ACM. According to Greenpeace, the process of complaining to the ACM via the Advertising Code Commission is not widely known

⁹⁵ https://environment.ec.europa.eu/subjects/circular-economy/green-claims_en

⁹⁶ https://ec.europa.eu/commission/presscorner/detail/en/ip_21_269

⁹⁷ <https://www.reclamecode.nl/nrc/code-voor-duurzaamheidsreclame-cdr/>

and not logical; it would be better if the body verifying sustainability claims were also to enforce them (Greenpeace employee, personal communication).

As part of the Green Claims Directive, discussions are being held between the ACM, the NWWA, the ILT, and the policy departments on which parties are responsible for what part of the supervision (NWWA employee, personal communication).

Some cases around 'green' advertising end up in court. For example, KLM was taken to task for commercials claiming that it offers carbon-neutral flights. Recently, the court found that KLM is not allowed to make poorly substantiated green claims in its advertising. However, no ban was imposed, partly because the advertisements are no longer being used. There will be no ban on green claims on the website, nor will KLM have to explain that, under the current conditions, flying negatively affects the climate.⁹⁸ There have been a few more cases in court, including a case brought by students before the Advertising Code Commission against Colgate-Palmolive in December 2023⁹⁹ Albert Heijn removed incorrect sustainability claims after the ACM moved against them.¹⁰⁰

Misinforming investors about the climate risks of an investment, which is also a form of greenwashing, has led to some cases abroad. Such cases may be dealt with under various fields of law, such as administrative law, but also criminal law.

Private law may come into the picture in cases involving error and unlawful act. Misinforming investors may constitute cases of offences under ordinary criminal law, such as forgery and fraud. In Germany, greenwashing has led to criminal investigations in a few cases. A Deutsche Bank subsidiary was condemned when a manager portrayed financial products in the media as more sustainable than they were. No criminal investigations related to such forms of greenwashing have yet been brought to court in the Netherlands (Lopik, 2020).

Europol's latest Environmental Crime Threat Assessment (2022) lists some forms of fraud that (can) cause environmental damage, in addition to counterfeiting. Counterfeiting refers to the falsification of brand names in order to sell products more expensively because of their status. For example, the falsification of the brand names of known crop pesticides could result in products being used that would not normally be approved.

If products obtain a good reputation for being beneficial to the climate, such cases could become climate-related. Forms of fraud more directly related to climate are investment fraud, in which investments in climate-friendly projects are misrepresented, abuse of emissions trading (ETS, emission trading systems), and fraud with certificates, etc. (Europol, 2022).

Independent trading of emission compensation, too, poses a problem related to greenwashing. A number of scandals have come to light in 2023 involving companies abroad that bought carbon certificates abroad with which they could claim to have offset their emissions, for example by financing forestation in a developing country. However, these investments sometimes turned out to be fictitious: the promised investments had not been made. One major case involved the South Pole trading company, which ran a large

98 Judge vindicates three organisations accusing KLM of greenwashing - NRC.

99 <https://www.nrc.nl/nieuws/2023/12/19/studenten-winnen-opvallende-greenwashingzaak-tegen-colgate-palmolive-a4184800>

100 Supermarktketen Albert Heijn verwijderd onjuiste duurzaamheidsclaims na actie ACM | ACM.nl

project around Lake Kariba in Zimbabwe. The EU has recently issued regulations that aim to ensure that this type of carbon offsetting can no longer be claimed by companies to present themselves as 'carbon neutral'.¹⁰¹

In January 2022, the ACM published a notice on actions against 'misleading sustainability claims' in the energy sector. Energy suppliers should make it clear how they are doing in terms of sustainability, using concrete terms and clear criteria. They should distinguish between green gas and carbon-offset gas. Some incidents of malpractices were discovered. Companies for example indicated that the gas was green, without indicating that this green gas only made up a small percentage of the total, or sold compensated gas as 'green' gas. The ACM also cited a case where an energy supplier presented itself as a "leader in sustainability", without making it clear what that meant. It does not immediately become clear whether the ACM will initiate further action should companies make even wilder claims.¹⁰² While it would be possible to intervene under criminal law on the grounds of forgery or fraud in serious cases of misleading sustainability claims or misreporting, to date, intervention has only used the administrative or private-law routes (Lopik & Stax, 2022).

CSDDD, the Corporate Sustainability Due Diligence Directive

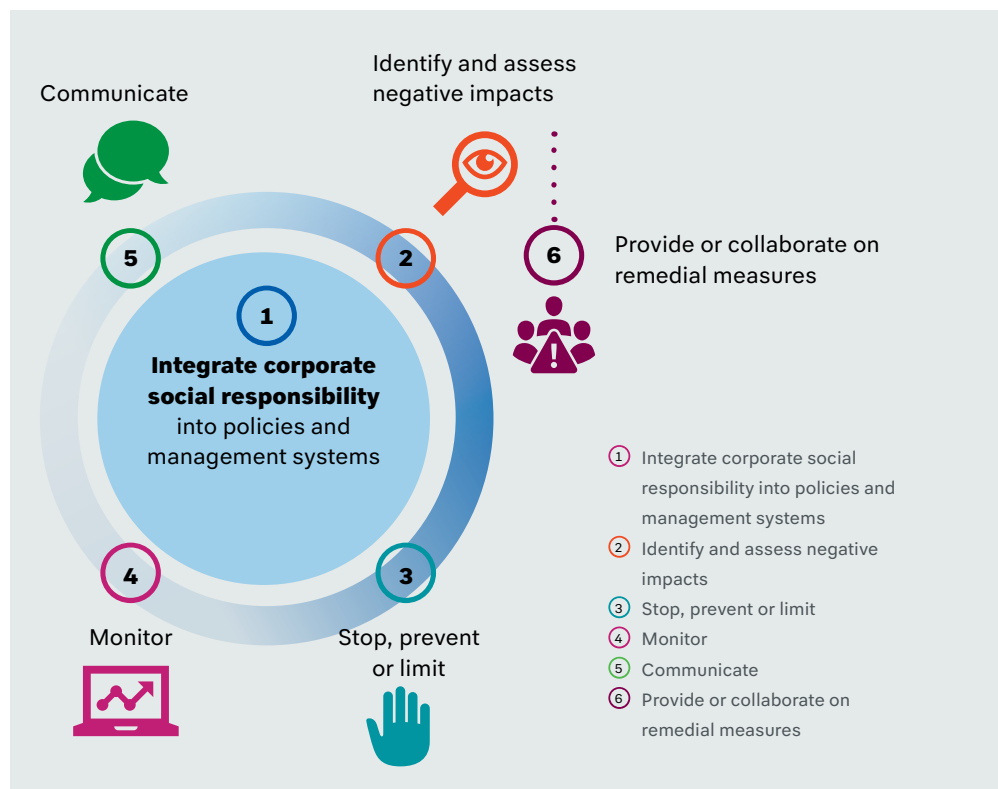
On 23 February 2022, the European Commission published a Corporate Sustainability Due Diligence Directive (CSDDD) proposal – informally also known as the 'anti-looking the other way law'. After two years of negotiations and amendments, it was adopted by the European Parliament on 24 April 2024 and will have to be implemented by all Member States within 24 months, i.e., by the spring 2026 at the latest. It was adopted by the European Council on 24 May 2024, making it final.¹⁰³ In Netherlands, about 475 companies with more than 1,000 employees and a turnover of more than 475 million euros fall under the scope of the Directive. The CSDDD aims to promote sustainable and responsible business practices, the responsibility of companies not being limited to their own activities but extending to the entire value chain. They should apply due diligence with regard to all potentially adverse impacts on the environment, human and labour rights, and contacts with the authorities (e.g., avoid corruption). The CSDDD prescribes six steps that align with the Due Diligence Guidance for Responsible Business Conduct of the Organisation for Economic Co-operation and Development (OECD, 2018). See figure 3.4.

101 <https://www.ftm.nl/artikelen/eu-wil-label-klimaatneutraal-verbieden?share=jeSJY1akJtCJN6zsX4O8A9uewmi7Z/PUyXaL31GeziWfbmCBe1UPDmf+ZUoGIFg> = Consulted 18 January 2024. Follow the Money maintains a case file covering this field.

102 <https://www.acm.nl/nl/publicaties/acm-vervolgt-actie-tegen-misleidende-duurzaamheidsclaims-de-energiesector#:~:text=in%20de%20energiesector-,ACM%20vervolgt%20actie%20tegen%20misleidende%20duurzaamheidsclaims%20in%20de%20energiesector,10%20grote%20energieleveranciers%20heeft%20gecontroleerd>

103 https://commission.europa.eu/business-economy-euro/doing-business-eu/corporate-sustainability-due-diligence_en

Figuur 3.4. Roadmap for due diligence ¹⁰⁴



However, according to legal expert Janneke Bazelmans, these steps are fleshed out in a limited way, the value chain being limited to the 'chain of activities', resulting in financial institutions and consultants being only marginally covered. As for human rights and environmental provisions, an annex lists which matters are covered by the Directive, which means all other matters are not. ¹⁰⁵

The expert meeting revealed that an opportunity for companies to shift supply chain responsibility to suppliers has now been identified. A buyer has the contract state that the supplier meets all due diligence requirements and can invoke this provision if it later turns out malpractices take place somewhere in the chain after all. On the positive side, this does create awareness of the importance of due diligence further down the chain.

¹⁰⁴ Reprinted from: <https://www.rvo.nl/onderwerpen/mvo/buitenland/due-diligence-6-stappen>

¹⁰⁵ In a 3 June 2024 column on the implementation of CSDDD, published on Milieurecht.nl: <https://www.milieurecht.nl/news/csdddimplementation>

It will become mandatory to prepare and implement a climate transition plan aimed at limiting global warming to no more than 1.5°C, in line with the Paris Agreement. Large companies must lay down exactly how they will prevent climate degradation anywhere in the chain. Risks should also be identified in the other areas mentioned in the Guidance (interview with ACM staff).

Naturally, the enforcement of the CSDDD in the Netherlands is still evolving, implementation still being at an early stage. Consumer protection against, among other things, greenwashing and misleading claims regarding sustainability has thus far been regulated in Book VI of the Civil Code, the Dutch implementation of the European Unfair Commercial Practices Directive. It is mainly enforced under administrative law, by application of the Consumer Protection (Enforcement) Act. If companies cross the line, they may have an administrative fine or an order subject to a penalty imposed on them. The ACM deploys a range of instruments when enforcing rules to protect consumers (e.g. (informal) talks, commitment decisions, and fines). Criminal law is applied in cases of fraud (Section 326 of the Penal Code), which may be the case when a company systematically fails to deliver even after payment has been made. More often, cases relate to deceptive sustainability claims, which are dealt with under administrative law (interview with ACM staff).

The CSRD and enforcement by the Authority for the Financial Markets

The Authority for the Financial Markets signalled that the European regulations on sustainability reporting are very complex, which hampers practicability and enforceability. An analysis of the annual reports of large companies (employing more than 500 employees), which have been required to report for some time, found that the reports do not yet meet expectations. The damage companies are causing to the climate and about the measures they take to counter it is not adequately highlighted (AFM, 2023).

Starting from the 2024 financial year (publication in 2025), listed companies with more than 500 employees will be required to start reporting under the Corporate Sustainability Reporting Directive rules. All large companies will be required to do so from the 2025 financial year onwards, and smaller listed companies will follow in the 2026 financial year. This annual reporting should make clear what the company is doing to prevent climate change, the destruction of ecosystems, and human rights violations in the production process and among supply companies. This will allow consumers to decide whether they want to use the company's products or services, and investors to decide whether to invest in them. ¹⁰⁶ According to participants in the expert meeting held on 10 June 2024, the CSRD is therefore not only about the interests of investors but also those of citizens in general: after all, as consumers, they, too, can have their decisions guided by companies' reports. Civil society organisations, such as environmental NGOs, are stakeholders as well. Reporting should comply with the European Sustainability Reporting Standards (ESRS).¹⁰⁷ These standards were developed by an EU working group in cooperation with Stakeholders. These standards are also referred to as ESG: Environment, Social, and Governance. The 12 standards have been classified according to these three categories: the environmental standards cover carbon emissions and water consumption, the social standards cover how

¹⁰⁶ <https://www.afm.nl/nl-nl/sector/themas/duurzaamheid/csrd>.

¹⁰⁷ See <https://www.afm.nl/nl-nl/sector/themas/duurzaamheid/csrd>

employees and any affected communities are treated, and the governance standards cover anti-corruption policies and animal welfare.¹⁰⁸

The CSRD is a major game-changer. An AFM employee speaks of a revolution in the world of reporting, which had gradually crystallised over the past 100-plus years and around which a knowledge community had grown. The CSRD forces companies to start reporting on things they might thus far had no insight at all: apart from noting how environmentally friendly their chain is, beginning at the source, they must also report about the social and societal impact of the production process (e.g., on local communities) and on 'governance'. The latter aspect involves, for example, preventing corruption, but also policies that provide for long-term sustainability (interview with an AFM employee).

The AFM, as its name suggests, mainly supervises financial markets, which is done in a 'risk-driven' way. This involves using a wide range of instruments, from (informal) influence via a warning letter to formal enforcement, such as a public warning, as well as administrative measures, such as the order subject to a fine and the administrative fine.¹⁰⁹ Supervision of the CSRD is still evolving and will be mainly conducted under private law. The AFM oversees the sustainability reporting of the 150 largest listed companies. These are not necessarily the very largest companies. In addition, it supervises the auditors who sign off on sustainability reports. The AFM can fine auditors who approve a report without actually carrying out the necessary checks. The CSRD also requires an external auditor to provide assurance on the non-financial information prepared based on the ESRS (AFM, 2023). The AFM supervises the larger listed companies, part of the approximately 3,000 companies covered by the obligation. Unlisted companies are not directly supervised in terms of sustainability reporting, but accountancy firms are. The AFM sees this as a lever that increases the impact of supervision (AFM employee, personal communication).

The AFM's supervisory mandate mainly exists under private law. Therefore, the supervision of the CSRD differs from other domains within the purview of the AFM, which also allow for the imposition of measures under administrative law, as has already been mentioned.

The Netherlands Enterprise Court is the highest private-law body to adjudicate in cases of misstatements in sustainability reporting. These misstatements may emerge during AFM investigations into the content of sustainability reporting and upon comparison with public sources. The AFM may request an explanation if things appear to be incorrect or inconsistent with other (public) information available to it. If there are questions about the accuracy of the reporting, the AFM can request further information from the company. This could happen, for example, if the report makes claims about the sustainability of the activities that experts say are not (or cannot be) true. The Netherlands Enterprise Court can order an in-depth investigation. In addition, stakeholders, such as environmental organisations or competitors, may submit complaints about a company's reports to the Netherlands Enterprise Court.

¹⁰⁸ <https://www.ser.nl/thema/duurzaamheid/eu-duurzaamheidsrapportage#:~:text=De%20CSRD%20is%20een%20Europese,%2C%20ook%20wel%20ESG%20genoemd.> Anyone googling ESG will by now find a large number of consulting and (often) communication agencies willing to assist companies in drafting up reports.

¹⁰⁹ Explained in more detail on the AFM's website: <https://verslaggeving.afm.nl/onze-handhaving-perspectief/risicogestuurd-toezicht>

For example, the AFM cannot yet demand records or interview people for this purpose. However, efforts are reportedly being made to somewhat strengthen the AFM's powers on this front. The AFM also aims to have administrative-law instruments at its disposal in the future, precisely because of the increased public importance of sustainability reporting (AFM employee, personal communication).

The expert meeting discussed the fact that, in order to arrive at net-zero emissions by 2050, companies will want to offset some of their emissions, for example by procuring certificates from foreign carbon capture projects. This creates a pressing need for data to account for the offsets. Data providers must provide data that meets customer expectations, giving them a strong position in the market. Monitoring the flow of data will be another challenge.

Supervision is regulated by the Financial Reporting (Supervision) Act, and the specific position of this subject compared to other AFM matters is dictated by the fact that the matter is complex and the reporting is mainly aimed at investors. Investors often have their own expertise to make a proper assessment of the reports, and they can also submit a matter to the Netherlands Enterprise Court. They do not need the same protection from deception as ordinary consumers do. The subject is considered a matter between equal parties that should not be interfered with by other monitoring and enforcement forms.

In reporting, honesty is paramount. For instance, a report is considered acceptable if a company reports a failure to meet certain ESG targets or expectations, although this could attract the attention of other regulators (interview with an AFM employee). The WED can be invoked if a company fails to promptly disclose its sustainability reports. No specific investigations into fraud or forgery are conducted. There are no known cases up to now where charges have been filed or criminal law has been invoked in any other fashion.

Conclusion

In terms of combating greenwashing and introducing reporting requirements on sustainability (and ESG in a broader sense), three European directives are important: the Green Claims Directive (GCD), the Corporate Sustainability Due Diligence Directive (CSDDD), and the Corporate Sustainability Reporting Directive (CSRD).

The Green Claims Directive focuses mainly on protecting consumers from false or unsubstantiated claims that a product or service is provided in a ‘climate-neutral’ way or companies stating they will start meeting such standards in an unspecified future. It also protects competing companies that do play by the rules.

If a claim is called into question, competitors, environmental organisations, and individuals can complain to the Advertising Code Committee. If a Committee recommendation is not followed up on by the company concerned, it will be put on a list of ‘non-compliant’ companies and brought to the attention of the ACM, which may take further action.

The CSDDD focuses mainly on companies' duty of care for the environment, society and fair trade (collectively referred to as Environment, Social, Governance, ESG). An important aspect is that companies must make a plan outlining how they will become climate-neutral and what steps they will take to achieve this. Responsibility for supervision is vested in the Consumer and Market Authority, which mainly imposes administrative measures to correct reports that are not in order.

The CSRD focuses on sustainability reporting, which will become increasingly important to the general public, and especially to investors, in the context of making decisions. Such reporting allows anyone wishing to buy a product or service or invest money to make sure that the value chain of the company in question does not include activities that unreasonably or excessively affect the climate or local communities, and that the company takes care not to engage in corruption. Supervision of compliance with the CSRD rests with the AFM. This will mainly be of a private-law nature for as long as the AFM has not yet been given powers under administrative law with respect to its supervision on reporting.

Criminal law is thus unlikely to enter the picture when enforcing these three EU directives. It does play a role if wilful deception in the form of fraud or forgery can be proven, however.

Experts note that the fact that reporting requirements for companies will lead to more transparency on how companies are combating climate degradation is at least a positive development.

Findings

The main findings with regard to the GCD, the CSDDD, and the CSRD are summarised in Table 3.2.

Table 3.2. Findings on greenwashing and reporting requirements

	GCD	CSDDD	CSRD
Purpose	Countering 'greenwashing'	Making (large) companies accountable for climate change and human rights (ESG) violations throughout the value chain	Obligation to report on sustainability in the value chain. No obligation to act. But awareness and image are important
	Protect competition and consumers from false green claims		
Essence	Criteria for clear and reliable claims	Obligation to prepare and submit a climate transition plan with measures on environment, human rights	'Revolution in reporting': also focus on the environment and not just profitability and the like
	Should also be independently verified	Actual action required	Of interest to investors, but also NGOs, for example
Reach	Advertising and other public communications	Large companies, smaller ones to follow later	Only large listed companies
	Claims not already arising from other obligations		Other companies indirectly via accountant
Supervision	RCC and ACM	ACM	AFM and ACM
Sanctions	RCC 'Non-compliant list'	Administrative action in case of insufficient commitment	Private law so far, proceedings before the Netherlands Enterprise Court possible
	ACM may take measures under administrative law	WED can be invoked when no plan is submitted	Administrative-law instruments are being worked on
	Criminal law only in the picture in case of forgery or fraud		WED can be invoked in case of no reporting

References

All referenced websites were checked at the time of publication of this report.

ACM. (2023). *Leidraad duurzaamheidsclaims, Versie 2, 2023. Autoriteit Consument en Markt*. <https://www.acm.nl/system/files/documents/acm-leidraad-duurzaamheidsclaims-versie-2.pdf>

Acosta, C.M. (2024, 5 maart). EU efforts to slow the influx of illegal Russian timber marred by poor enforcement. International Consortium of Investigative Journalists. <https://www.icij.org/investigations/deforestation-inc/how-russias-timber-trade-is-sidestepping-the-eus-ukraine-war-sanctions/>

AFM. (2023). *CSR: geen tijd te verliezen! Verkenning toepassing nieuwe regelgeving duurzaamheid in jaarverslag (CSR) bij beursgenoteerde ondernemingen en accountantsorganisaties*. Autoriteit Financiële Markten.

Ajanovic, A., Sayer, M., & Haas, R. (2022). The economics and the environmental benignity of different colors of hydrogen. *International Journal of Hydrogen Energy*, 47, 24136-24154. <https://doi.org/10.1016/j.ijhydene.2022.02.094>

Belastingdienst. (2024). Carbon Border Adjustment Mechanism (CBAM) https://www.belastingdienst.nl/wps/wcm/connect/nl/douane_voor_bedrijven/content/carbon-border-adjustment-mechanism-cbam

Berkenhout, A., Creemers, S., Stienstra, A.M., & Weusten, M. (2023). Buitenlandse investeringen en multinationals. *Nederland Handelsland. Export, import & investeringen 2023*. <https://longreads.cbs.nl/nederland-handelsland-2023/buitenlandse-investeringen-en-multinationals/>

Blay-Roger, R., Bach, W., Bobadilla, L. F., Ramirez Reina, T., Odriozola, J. A., Amils, R., & Blay, V. (2024). Natural hydrogen in the energy transition: Fundamentals, promise, and enigmas. *Renewable and Sustainable Energy Reviews*, 189, 113888. <https://doi.org/10.1016/j.rser.2023.113888>

Broecks, K., Schiele, J., & Slingerland, S. (2024). Opties voor scope 3-beleid in Nederland. *Verkenning sectoren, koplopers, aanpalend beleid en handelingsopties*. TNO Publiek.

Carbon Market Watch. (2021). The Phantom Leakage, Industry windfall profits from Europe's carbon market 2008-2019. <https://carbonmarketwatch.org/?s=phantom+leakage>

CE Delft. (2022). *Bijmengverplichting groen gas Ontwerpopties en effectenanalyse*. <https://ce.nl/publicaties/bijmengverplichting-groengas/>

CE Delft. (2023). Vervolgstudie bijmengverplichting groen gas. Haalbaarheid en betaalbaarheid. <https://ce.nl/publicaties/vervolgstudie-bijmengverplichting-groen-gas-haalbaarheid-en-betaalbaarheid/>

Centraal Bureau voor de Statistiek (2023, 28 september). Nederland grootste importeur van soja, palmolie en cacao van de EU. <https://www.cbs.nl/nl-nl/nieuws/2023/39/nederland-grootste-importeur-van-soja-palmolie-en-cacao-van-de-eu>

Cohen, L.E. & Felson, M. (1979). Social Change and Crime Rate Trends: A Routine Activity Approach. *American Sociological Review*, 44(4), p. 588-608.

Cornelissen, E. e.a. (2021). Klimaatverandering laat deze criminelen koud: de Illegale handel in F-gassen. In: Neve, R. (Red.), *Dreigingsbeeld Milieucriminaliteit 2021*. Strategische Milieukamer.

EIA (2020). *Implementing Effective Emissions Trading Systems*. Environmental Investigation Agency https://iea.blob.core.windows.net/assets/2551e81a-a401-43a4-bebd-a52e5a8fc853/Implementing_Effective_Emissions_Trading_Systems.pdf

EIA. (2024). *More chilling than ever, Tackling Europe's ongoing trade in HFC climate super pollutants*. Environmental Investigation Agency. <https://eia-international.org/report/more-chilling-than-ever/>

Erbach, G., & Svensson, S. (2023). EU rules for renewable hydrogen: Delegated regulations on a methodology for renewable fuels of non-biological origin. *European Parliamentary Research Service*. [https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI\(2023\)747085](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2023)747085)

ESMA. (2022). *Final Report: Emission Allowances and associated derivatives*. European Securities and Markets Authority https://www.esma.europa.eu/sites/default/files/library/esma70-445-38_final_report_on_emission_allowances_and_associated_derivatives.pdf

Europees Parlement. (2022). Minder Uitstoot door vliegtuigen en schepen: EU-maatregelen toegelicht. <https://www.europarl.europa.eu/topics/nl/article/20220610STO32720/minder-uitstoot-door-vliegtuigen-en-schepen-eu-maatregelen-toegelicht>

Europese Raad. (2024). Fit for 55. <https://www.emissieautoriteit.nl/onderwerpen/wat-is-emissiehandel#:~:text=Emissiehandel%20is%20de%20handel%20in%20rechten%20om%20broeikasgassen%20uit%20te,de%20afgelopen%20jaren%20fors%20gestegen.> Geraadpleegd: 20/05/2024.

Europol. (2009). Carbon Credit Fraud causes more than 5 billion euros damage for European Taxpayer. <https://www.europol.europa.eu/media-press/newsroom/news/carbon-credit-fraud-causes-more-5-billion-euros-damage-for-european-taxpayer>

Europol. (2022). *Environmental crime in times of climate change, Environmental Crime Threat Assessment*.

FAO and UNEP. (2020). The State of the World's Forests 2020. Forests, biodiversity and people. Rome. <https://doi.org/10.4060/ca8642en>

Fisher M.R, Obidzinks K., Alves A.M., & Ekaputri, A.D. (2024). *Commodities and Global*

Climate Governance: Early Evidence From the EU Deforestation-free Regulation (EUDR). AsiaPacific Issues. 27 (165): 1 – 11.
<https://www.eastwestcenter.org/publications/commodities-and-global-climate-governance-early-evidence-eu-deforestation-free>

Forest Europe. (2020). State of Europe's Forests 2020.

Greenpeace (2023, 26 juni). *De Europese Ontbossingsverordening – European Deforestation Regulation – EUDR*. <https://www.greenpeace.org/static/planet4-netherlands-stateless/2023/06/613d2587-factsheet-eudr-final.pdf>

Hassan, Q., Abdul Hafedh, S., Mohammed, H. B., Abdulrahman, I. S., Salman, H. M., & Jaszczur, M. (2024). A review of hydrogen production from bio-energy, technologies and assessments. *Energy Harvesting and Systems*, 11(1), 20220117.
<https://doi.org/10.1515/ehs-2022-0117>

Hassan, Q., Sameen, A. Z., & Salman, H. M. (2023). Hydrogen energy horizon: balancing opportunities and challenges. *Energy Harvesting and Systems*, 11 (1), 20220132.
<https://doi.org/10.1515/ehs-2022-0132>

Hellemons, S. (2023). *Biobrandstoffen in beeld*. (Masterthesis Rotterdam).

ILT. (2019). *Signaalrapportage. Fraude met certificering duurzame biodiesel*. Inspectie Leefomgeving en transport. <https://www.ilent.nl/documenten/leefomgeving-en-wonen/productlabels--markeringen-en-energiemaatregelen/voertuigen-en-verkeersproducten/signaalrapportages/fraude-met-certificering-duurzame-biodiesel>

ILT-IOD & NEa. (2020). *Integrale Ketenanalyse duurzame biobrandstoffen*. Inspectie Leefomgeving en Transport – Inlichtingen en Opsporingsdienst & Nederlandse Emissieautoriteit
<https://www.tweedekamer.nl/kamerstukken/detail?id=2020D26677&did=>

Internetconsultatie (z.j.). *Memorie van toelichting Jaarverplichting groen gas*
<https://www.internetconsultatie.nl/groengas/b1>

Interpol. (2013). *Guide to carbon trading crime*. Lyon, France: Interpol Environmental Crime Programme.

IPCC. (2023). Sections. In: *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647

Kamerstukken II, vergaderjaar 2022-2023, 32813, nr.1283. Nadere uitwerking bijmengverplichting groen gas.

Kamerstukken II, vergaderjaar 2023-2024, 32813, nr.1352. Aanpassingen bijmengverplichting groen gas.

Khan, N., Kalair, E., Abas, N., Kalair, A. R., & Kalair, A. (2018). Energy transition from molecules to atoms and photons. *Engineering Science and Technology, an International Journal*, 22, 185-214.
<https://doi.org/10.1016/j.jestch.2018.05.002>

LIFE ETX. (2021). EU ETS 101 – *A beginner's guide to the EU's Emissions Trading System*. LIFE Emissions Trading Extra https://carbonmarketwatch.org/wp-content/uploads/2022/03/CMW_EU_ETS_101_guide.pdf

Lopik, S.J. (2022). Ecocide, een fair label? De terminologie van een populaire nieuwe milieu strafbaarstelling met hooggespannen verwachtingen. *Nederlands Juristenblad*, 2022/1353.
https://www.inview.nl/document/id7c1f3eb24c8e423b92b5ba0b816e7d15/nederlands-juristenblad-ecocide-een-fair-label?ctx=WKNL_CSL_85&tab=tekst

Lopik, S.J. (2023) A Criminal Law Response to Climate Change: Positive Obligations under the ECHR?
<https://strasbourgobservers.com/2023/04/04/a-criminal-law-response-to-climate-change-positive-obligations-under-the-echr/>

Lopik S.J. & S.H. Stax. (2020). Klimaatverandering en strafrecht: een verkenning, *Boom Strafblad* 2020-3, p. 117-126

Moody's. (2024, 22 januari). Risky Business? *The seven indicators of shell company risk. Unmasking financial risks and potential corporate crimes with Moody's Shell Company Indicator*. <https://www.moodys.com/web/en/us/about/insights/data-stories/kyc-innovation-shell-company-indicator.html>

NEa. (2023). *Interventiebeleid 2024 Hernieuwbare Energie*. Nederlandse Emissieautoriteit.
<https://www.emissieautoriteit.nl/onderwerpen/handhaving-energie-voor-vervoer/documenten/publicatie/2023/11/29/interventiebeleid-he-2024>

NEa. (2024a). *Wat is emissiehandel?* Nederlandse Emissie Autoriteit
<https://www.emissieautoriteit.nl/onderwerpen/wat-is-emissiehandel#:~:text=Emissiehandel%20is%20de%20handel%20in%20rechten%20om%20broeikasgassen%20uit%20te,de%20afgelopen%20jaren%20fors%20gestegen>

NEa. (2024b). *Algemene en praktische informatie CBAM*. Nederlandse Emissie Autoriteit
<https://www.emissieautoriteit.nl/onderwerpen/algemeen-cbam#:~:text=Het%20CBAM%20is%20een%20EU,en%20waterstof%20buiten%20de%20EU>

Neve, R. (Red.) (2021). *Dreigingsbeeld Milieucriminaliteit 2021*. Strategische Milieukamer.

Neve, R. (2023). Focus op milieumarkten: het Dreigingsbeeld Milieucriminaliteit. *Justitiële verkenningen*, jrg. 49, nr. 4, p. 28 – 41.

Neve, R, J. Liezen, A. Nieuwdorp, K. Redder & G. van der Zon. (2012). *Milieucriminaliteit in Nederland, een inventarisatie voor het Nationaal Dreigingsbeeld 2012*, Deel 2. Zoetermeer: KLPD-Dienst IPOL.

OECD. (2018). *OECD Due diligence guidance for responsible business conduct*. Organisation for European Cooperation and Development.

OXFAM Novib. (2024, 6 maart). Omstreden vleesbedrijf JBS wil hoofdkwartier vestigen in Nederland. <https://www.oxfamnovib.nl/nieuws/vleesbedrijf-jbs-komt-naar-nederland>

PBL. (2023). *Klimaat- en energieverkenning 2023, Ramingen van broeikasgasemissies, energiebesparing en hernieuwbare energie op hoofdlijnen*. Den Haag: Planbureau voor de Leefomgeving.

PBL. (2024). *Klimaatrisico's in Nederland, de huidige stand van zaken*. Den Haag: Planbureau voor de Leefomgeving.

Sand, M., Skeie, R.B., Sandstad, M. et al. A multi-model assessment of the Global Warming Potential of hydrogen. *Commun Earth Environ* 4, 203 (2023). <https://doi.org/10.1038/s43247-023-00857-8>

Setzer J. & C. Higham. (2022). *Global trends in climate change litigation: 2022 snapshot*, London: Grantham Research Institute on Climate Change and the Environment and Policy, London School of Economics and Political Science.

Spoelstra, M. (2022). *Kennisbundel transport van waterstof (draggers)*. Instituut Fysieke Veiligheid. <https://nipv.nl/wp-content/uploads/2022/06/20220302-IFV-Kennisbundel-Transport-van-waterstof.pdf>

UNODC/WWF. (2023). *Crimes that affect the environment and climate change*. United Nations Office for Drugs and Crime. https://files.worldwildlife.org/wwfcomprod/files/Publication/file/8mie6esklg_Crimes_that_Affect_the_Environment_and_Climate_Change.pdf

Van Brederode, L. & Goemans, P. (2021). Nog steeds een onverantwoord overschot: mestfraude. In: Neve, R. (Red.), *Dreigingsbeeld Milieucriminaliteit 2021*. Strategic Environmental Chamber.

Van den Berg, E.I.A.M. (1995). *De markt van misdaad en milieu, deel 1*. The Hague: Research and Documentation Centre.

Regulation (EU) 2021/0366 of the European Parliament and of the Council concerning the making available on the Union market and the export from the Union of certain raw materials and products related to deforestation and forest degradation, and repealing Regulation (EU) No 995/2010 (OJEU 2021, COM (2021) 706 final)

Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 concerning the making available on the Union market and the export from the Union of certain raw materials and products related to deforestation and forest degradation, and repealing Regulation (EU) No 995/2010 (OJEU 2023, L 150/206)

Zegels, J. (2024). *De schaduwzijde van zonnepanelen in Nederland*. Master thesis Erasmus University Rotterdam.

Zhang, L., Jia, C., Bai, F., Wang, W., An, S., Zhao, K., Li, Z., Li, J., & Sun, H. (2024). A comprehensive review of the promising clean energy carrier: Hydrogen production, transportation, storage, and utilization (HPTSU) technologies. *Fuel*, 355, 129455. <https://doi.org/10.1016/j.fuel.2023.129455>

Annexe to Chapter 3: overview of experts consulted

Authority	Job title	Inventory	Interview and similar	Expert meeting
ACM	Senior supervision official		●	
AFM	Policy official		●	●
FP	Senior policy official	●	●	
FP	Secretary		●	●
FP	Senior policy advisor		●	●
Infrastructure & Water Management	Lawyer	●		
Infrastructure & Water Management	Senior policy official	●		
ILT	Programme leader	●	●	
ILT	Inspector		●	
ILT	Inspector		●	
ILT	International cooperation official		●	
ILT	Coordinating inspector		●	
ILT	Inspector		●	
ILT	Policy official		●	●
ILT-IOD	Criminal investigator		●	
Justice & Security	Policy advisor	●	●	
NEa	Policy officer		●	●
NEa	Inspector		●	
NVWA	Coordinating specialist advisor	●	●	

Annexe to Chapter 3: overview of experts consulted

Authority	Job title	Inventory	Interview and similar	Expert meeting
NVWA	Coordinating specialist advisor		●	
NVWA	Senior inspector		●	
NVWA	Senior inspector		●	
Police	Expert broker		●	
Police	OS		●	
UL	Lawyer	●	●	●
UVW	Policy advisor	●		

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