

ENVIRONMENTAL CRIME

in the age of climate change

Threat assessment 2022

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FOREWORD

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I am delighted to present Europol's threat assessment on environmental crime. The aim of this report is to combine the analytical results of the 2021 Serious and Organised Crime Threat Assessment (SOCTA) with the operational intelligence gathered by Europol, in order to provide the most comprehensive analysis of environmental crime threats targeting the EU.

Environmental crime has become a key threat to global security and a profitable criminal activity, as much in the EU as worldwide. Crimes against the environment threaten the survival of all living species and have an enormous financial impact, which is set to increase further. Aside from the economic losses for all of society, organised crime is also partially responsible for climate change.

The link between climate change and serious and organised crime is complex. On one hand, criminals infiltrate legal businesses and organisations aimed at protecting the environment. On the other hand, criminal activities such as wildlife trafficking and illegal, unreported and unregulated fishing, but also illicit drug production, counterfeiting of goods, and several types of fraud have direct and indirect environmental impacts.

In the European Union's Serious and Organised Crime Threat Assessments of 2013, 2017 and 2021¹ Europol identified environmental crime as a key threat to the security of EU citizens². Europol has recorded a sharp increase in the number of cross-border cases in which the Agency was asked to support national authorities since 2017, when the EU Justice and Home Affairs Council included environmental crime in the list of key crime priorities for the EU.

The growing engagement of Europol in coordinated international investigations comes with the increasing availability of criminal intelligence in this area. Therefore, a comprehensive picture of the threats posed by the criminal networks involved in environmental crimes in the EU is now available.



INTRODUCTION

Environmental crime covers a range of activities that breach environmental legislation and cause significant harm or risk to the environment, human health, or both. These offences can include, but are not limited to the:

- ▶ improper collection, transport, recovery or disposal of waste;
- ▶ illegal operation of a plant in which a dangerous activity is carried out or in which dangerous substances or preparations are stored;
- ▶ killing, destruction, possession or trade of protected wild animal or plant species;
- ▶ production, importation, exportation, marketing or use of ozone-depleting substances.

Decades ago, criminal organisations started engaging in environmental crimes alongside other criminal activities³, driven by high profits and low penalties. Many of these criminals started out in legal businesses before opportunistically turning to crime to take advantage of vulnerabilities related to their industry. As in other forms of serious and organised crime, criminal acts are performed by a network of individuals, some of them with particular expertise. Legal business activities, be it industrial production, waste management, trade in fauna and flora, or production and sale of fuel, function as the main facilitator for environmental crimes and, at the same time, as the perfect facade to conceal illicit activities.

In 2016, the worldwide economic damage caused by environmental crime was valued at between EUR 76 billion and EUR 218 billion, and has continued to increaseⁱ. In 2019, the World Bank assessed that the global annual economic loss of wildlife trafficking, illegal logging and EU fishing reached USD 1-2 trillion⁴. In the EU alone, the profits of some criminal networks involved in environmental crimes generate millions of euros of losses every year.

Climate change functions as a push and pull factor for organised crime. The increasing scarcity of natural resources triggers organised crime interests in terms of profit over their future allocation. The renewable energyⁱⁱ sector will continue to grow in the next few years and will attract private investments as well as public funding, making it increasingly appealing to criminals. Decline in biodiversity will translate into more animal species under threat of extinction targeted by wildlife traffickers. In the future, climate change may lead to a shortage of essential products and higher prices for basic services, and criminal networks may offer harmful low-price alternatives. Extreme weather conditions and food insecurity in certain regions of the world will further exert political instability and trigger conflicts⁵, fostering demographic pressure and inducing mass migrations, while creating opportunities for smuggling, human trafficking and exploitation.

ⁱ According to a rapid response report published by the United Nations Environment Programme (UNEP) and INTERPOL in November 2016.

ⁱⁱ In 2018, the recast Renewable Energy Directive 2018/2001/EU entered into force, as part of the clean energy for all Europeans package, aimed at keeping the EU a global leader in renewables and, more broadly, helping the EU to meet its emissions reduction commitments under the Paris Agreement. The recast directive moves the legal framework to 2030 and sets a new binding renewable energy target for the EU for 2030, of at least 32 %, and comprises measures for the different sectors to make it happen.

Despite several legislative improvementsⁱⁱⁱ, in many Member States environmental offences do not yet fall within the framework of criminal law and are treated as administrative offences, with perpetrators receiving only pecuniary and administrative charges. Law enforcement investigations confirm instead that there is an organised crime arrangement behind most environmental crime schemes. Law enforcement has invested sufficient resources in this area in only a few Member States. This includes financial support, technical training and dedicated units with the necessary expertise to identify and prosecute environmental crime offenders.

To date, one of the main challenges for law enforcement remains the identification of the organised crime groups behind environmental offences. As a large part of the environmental crime activities are carried out by legal businesses, they are often labelled as corporate crimes (or 'white collar' crimes). The fact that criminal networks largely use businesses makes these offences less visible. The businesses are often rapidly opened and dissolved and commercial routes frequently change. This indicates the adaptability of the criminal networks and their tendency to use innovative schemes to conceal their operations.

For the production of this threat assessment, in-depth analysis was performed on strategic and operational intelligence contributed to Europol. This intelligence concerns hundreds of investigations and operations supported by Europol's Analysis Project EnviCrime, from its establishment in 2017 until the present. Intelligence and early warning reports, strategic and operational notifications produced by Europol, and material from Europol's partners have also been used. In addition, recent publications of relevant international organisations, think tanks and media outlets have been used to contextualise some of the main findings.

ⁱⁱⁱ The main EU legislative instrument is the Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law, which is under revision.

KEY FINDINGS

Environmental crimes have a big impact on societies. Despite an increase in cross-border environmental crime investigations, it remains challenging for law enforcement authorities to link cases to organised crime activities.

Criminal networks and criminal infrastructure

The majority of environmental crime actors are opportunistic legal business owners/operators who decide to increase their chances of profit by establishing a criminal venture. These networks are mainly composed of low-level associates who operate under the command of few leaders, who are located far from the criminal activities.

Specialised service providers support the core criminal network, such as technical, legal and financial specialists, brokers, and professional money launderers.

For the laundering of the illicit proceeds, criminals mainly use the same legal businesses in which they operate (i.e. waste management businesses, retail stores, fishing companies, etc.). Document fraud, abuse of discrepancies in legislation and widespread corruption are the cornerstones of the environmental crime infrastructure.

Waste and pollution crimes

EU criminal networks are increasingly targeting central and eastern Europe to traffic illicit waste produced in western Europe. Outside of the EU, EU traffickers mainly target South-East Asia as a destination for illicit plastic waste and end-of-life vessels, and Africa for waste of electric and electronic equipment (WEEE).

The declassification of hazardous waste as non-hazardous is the main modus operandi used to traffic dangerous substances.

The COVID-19 pandemic has increased the risks of criminal infiltration into the sanitary waste management business in healthcare institutions, due to the potential for increased profits.

Criminals involved in illegal trading of fluorinated gases (F-gases) in the EU are increasingly using legal online marketplaces or creating ad hoc websites in several languages to attract international buyers. Criminals offer illegal services using refillable cylinders, in order to decrease the possibility of detection by law enforcement.

EU criminal networks involved in biodiesel fraud buy non-EU mixtures of illicit substances to produce biodiesel and illegally obtain EU public subsidies.

Fraud related to the illegal use of Adblue emulators, used to reduce emissions of nitrous oxides (N₂O) and other polluting particles from diesel engines, is being increasingly investigated by the EU Member States.

Wildlife crimes

The EU functions as a hub for global wildlife trafficking. It is the main destination for trafficked wildlife but it is also a point of origin for endemic wildlife trafficked to other continents.

Laundering of species is a common modus operandi for the illegal trade of protected wildlife: specimens are labelled as non-CITES^{iv}, and the documents for the import of legal stock are also used for illegal purposes and for the final sale to end users.

Due to growing controls, European traffickers are increasingly targeting endemic non-CITES listed species, especially birds, trafficked from Europe to Africa.

In the last year, traffickers of glass eels have shifted from using mules to smuggling via airfreight containers due to increasing controls on air travellers. Criminal networks increasingly use facilities in the Balkan region, eastern Europe, northern Africa and western Asia as transit points for eel bulks, before their transfer to Asia, to diversify routes as a countermeasure against detection.

EU criminal networks are involved in illegal, unreported, unregulated (IUU) fishing across the entire chain of the EU fisheries sector. In the EU, one of the most dangerous crimes is related to IUU fishing of bluefin tuna in the Mediterranean Sea. Criminal networks are also increasingly engaging in IUU fishing of various species of molluscs due to high demand.

Across the EU, the majority of trafficked wildlife specimens are commercialised in online marketplaces and social media platforms.

^{iv} CITES (abbreviation for the Convention on International Trade in Endangered Species of Wild Fauna and Flora, also known as the Washington Convention) is a multilateral treaty to protect endangered plants and animals. It was drafted as a result of a resolution adopted in 1963 by the International Union for Conservation of Nature (IUCN). CITES entered into force on 1 July 1975. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species in the wild, and it accords varying degrees of protection to more than 35 000 species of animals and plants. As of October 2016, the convention has 183 parties, including 182 states and the European Union, and includes provisions and rules for trade with non-Parties. The full text is accessible at <https://cites.org/sites/default/files/eng/disc/CITES-Convention-EN.pdf>

The impact of other organised crime activities on the environment

The waste related to the production of synthetic drugs is an important source of environmental damage linked to organised crime in the EU.

Counterfeit goods pose considerable risks to the health and safety of consumers. They can have a significant environmental impact, as the materials used to produce them may not comply with environmental protection standards. Illicit and substandard pesticides can pollute ground waters and crops, posing serious health risks to local populations as well as end consumers.

EU fraudsters increasingly offer attractive investments on projects related to the preservation of the environment (green investments), persuading victims to invest in 'sustainable funds'. Criminal networks also exploit energy certificate systems and emission trading schemes and this fraudulent activity is set to increase.

CRIMINAL NETWORKS INVOLVED IN ENVIRONMENTAL CRIMES

Opportunities for high profits, legal discrepancies among countries, low risk of detection and marginal penalties make environmental crime a very attractive business for criminal entrepreneurs.

Criminal networks active in environmental crime in the EU can be divided into two main categories. Firstly, there are criminal networks that have been active for many years in other illicit activities, and began committing environmental crimes either as a shift in criminal activity^v, or as an extra source of profit. A second category consists of opportunistic owners and operators of legal businesses who decided to increase their chances of profit by establishing a criminal venture together with their business associates.

The two categories do not differ much in terms of capabilities. All environmental crime networks display high levels of sophistication and expertise, especially when operating behind the facade of legal business structures. In both groups, some members are simultaneously involved in other criminal activities or are cooperating with other criminals⁶. Cooperation often means sharing skills and expertise and the joint use of trafficking routes and other criminal infrastructures, such as means of transport, corruption, money laundering or document fraud, especially to curb operational costs.

Environmental crime networks mainly differ according to the type of offence(s), the scope (one or more activities or commodities) and the geographical dimension of their operations. Groups are usually made of low-level associates (i.e. poachers, employees, transporters, mules, couriers, cash launderers, etc.)⁷, who operate under the command of few leaders. The leadership is typically located far from the commodities and the areas of operations.

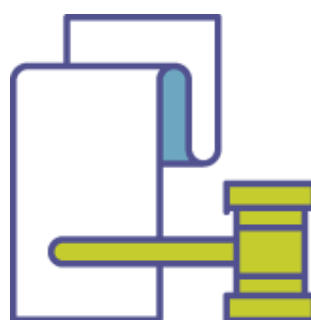
^v For instance, members of the Irish mobile organised crime group known as the Rathkeale Rovers moved from profitable activities in drugs, cigarettes, and counterfeiting into robbing museums of their rhino horns all over Europe to resell the ivory to buyers. Wildlife Justice Commission 2021, 'Convergence of wildlife crime with other forms of organised crime', accessible at <https://wildlifejustice.org/wp-content/uploads/2021/05/Crime-Convergence-Report-2021.pdf>

There are three pillars involved in the infrastructure that criminal networks use to operate:



EXTENSIVE USE OF DOCUMENT FRAUD

Traffickers transfer waste materials as well as endangered species across continents accompanied by false certificates, forged bills of lading^{vi}, fake analysis results and counterfeit authorisations, to hide the real nature of operations and circumvent customs controls and ecological protocols.



ABUSE OF DISCREPANCIES IN LEGISLATION

Environmental criminals know how to exploit the differences in product classification systems in various countries, the partial transposition of international protocols, the limited exchange of data among authorities, and the lack of harmonisation in prosecution rules across jurisdictions.



CORRUPTION AS KEY

Environmental criminals make use of corruptive practices at different levels and on a variety of targets (i.e. local authorities, accreditation bodies and border customs officers) to facilitate their transborder activities. Sometimes they even integrate them within the criminal network. Compared to other organised crime activities, environmental criminals are the ones who make the greatest use of corruptive measures for the perpetration of their criminal business.

Specialised service providers⁸ support the core of the criminal networks active in environmental crimes:

The subject-matter expert



Criminal networks often include individuals holding technical expertise in fields such as biology, zoology, veterinary, bioengineering and chemical engineering. Financial and legal consultants are also essential for the functioning of the criminal business, especially since networks usually operate through legal business structures across multiple jurisdictions. When they form part of the core group of members, these individuals are often highly ranked.

^{vi} A bill of lading is a document issued by a carrier to acknowledge receipt of cargo for shipment.

The broker



The role of the broker is essential for connecting criminal actors located in different countries. Brokers usually work for trading companies. Upon payment of a percentage or for a fixed sum, they identify the best deals, propose trafficking routes, officialise business agreements, obtain authorisations through bribes, and make sure that the criminal associates earn as much as possible. Brokers often serve multiple criminal networks simultaneously.

The professional money launderer



The volumes of illicit proceeds shape the *modi operandi* of the criminal network. Some generate millions of euros of illicit profits in just a few months. Networks often rely on the support of professionals that make use of a variety of schemes and commodities to conceal the illicit origin of profits (including cash, gold, real estate, luxury goods, and even cryptocurrencies) and multiple bank accounts located in various jurisdictions (especially in tax havens). The size and sophistication of laundering techniques varies depending on the criminal activity and the amount laundered⁹.

These individuals are not always permanent members of the criminal group. Criminal enterprises that do not possess the necessary expertise often use external providers of 'crime-as-a-service'^{vii}.

More detailed information on the *modus operandi* of these networks is outlined in the following chapters.

^{vii} Crime-as-a-service indicates the provision of criminal activities as a service between criminals.

THE MAIN TYPOLOGIES OF ENVIRONMENTAL CRIMES INVESTIGATED IN THE EU

Waste and pollution crimes

The management of waste has become a flourishing criminal industry. Established regulatory frameworks at national and international level make waste processing more complex and expensive, triggering a criminal market of services at lower prices.

Waste crimes^{viii} generate extensive air, soil and water pollution, severe damages to the physical environment and to human health, and produce significant losses to national reserves, endangering the market and the economy of countries and entire regions. The turnover of some networks involved in this criminal activity amounts to several millions of euros every year. In 2020, the annual revenues for the trafficking of hazardous waste in the EU were estimated at between EUR 1.5 billion and EUR 1.8 billion, while the profits generated by trafficking of non-hazardous waste ranged between EUR 1.3 billion and EUR 10.3 billion¹⁰.

Authorities in the EU Member States (MS) regularly investigate illegal trafficking and/or disposal of several types of waste, both hazardous and non-hazardous. The most common types of substances unlawfully disposed of are chemical waste, construction and demolition waste, urban solid waste, industrial waste, oils and oils blending, plastic waste, waste of electronic and electric equipment (WEEE), end-of-life vehicles and car parts (especially tyres and batteries), scrap metals, liquid manure, and black mass (powder derived from alkaline batteries).

Criminal networks involved in waste crimes

For the commission of waste crimes, a strong link between criminal actors and legal businesses evolved throughout time along with the evolution of waste management as a standalone economic sector. Compared to other organised crime activities, waste criminals are among those who make the greatest use of legal business structures for the perpetration of criminal activities. In the past, waste crimes were mainly perpetrated by criminals dumping waste on behalf of companies seeking to cut costs for the legal disposal of their waste materials (whether hazardous or not).

In the last decade, waste criminals have operated directly from within the legal waste management sector. Criminal networks are involved in the trade of illicit waste through private companies engaged at the various stages of the waste cycle, such as collection and treatment companies, recycling factories, trading and stock companies, transport firms and logistics businesses. Suspects work in waste management companies as managers or staff. The core group usually comprises the 'producer' of

^{viii} UNEP 1989, Basel Convention; UNEP 2015, Waste Crime – Waste Risks; DIRECTIVE 2008/98/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 November 2008 on waste and repealing certain Directives.

the waste material (especially in the case of industrial production substances), the ‘transporter’, and, when the waste is not dumped in nature, the owner of the site or of the company dealing with the retrieval, disposal or processing. Brokers connecting the waste producer(s) to the final disposer(s) play a significant role in international waste trafficking. Criminal brokers are in charge of illicitly obtaining the necessary authorisations for the international shipments of the waste across countries.

As a countermeasure, companies used in waste crime schemes frequently change management and terminate after a short period of activity, while a new trading entity, created by the same group of suspects, takes over the business. Networks voluntarily distribute the different stages of the waste cycle in multiple jurisdictions, in order to avoid law enforcement attention. The most successful waste traffickers control the entire processing cycle, from source to destination countries, and have significant human and financial resources. Some criminal networks operating in waste crimes are able to exert power on local businesses and leverage political and administrative authorities. One such network is the Camorra in Italy, which uses front companies to engage in public tenders, beating legal competitors by instilling fear of retaliation and psychological pressure. Other structured poly-criminal networks from Nigeria and China are also involved in waste crimes both in Europe and in their regions of origin.

Trafficking of illicit waste requires a high level of expertise and understanding of technical elements concerning the use and treatment of diverse materials and substances, sometimes of an extremely dangerous nature. It often involves persons with specific roles, such as chemical analysis technicians, who know how to misclassify waste, document forgers who falsify consignments’ documentation, or accountants, who manage the financial aspects to cover up the offences and launder the criminal profits. Criminal organisations sometimes also involve corrupted customs officials or other public supervisors, to obtain authorisations or to pass security checks.

Waste crimes are strongly linked to other supporting offences such as document fraud, corruption, extortion, public embezzlement and money laundering. Criminal networks are often also active in other trafficking crimes. Some suspects are reported to be involved in thefts, illegal drug production, migrant smuggling and labour exploitation, confirming the poly-criminal nature and the geographical dimension of some criminal networks involved. The use of common routes, criminal connections and logistical resources further reduces operational costs and increases profit margins.

Modi operandi and criminal infrastructure

The nature of the waste, its economic value and market fluctuations shape the modi operandi used by waste traffickers. Waste needs to be destroyed or disposed of when there is no other possible use for it. Alternatively, waste undergoes recycling processes when all or parts of it can be reintroduced into the economy. As part of this process, criminals undermine legitimate competitors offering low-price services, including removal of residues and transfer to recycling plants. Less commonly, criminal groups divert waste from the legal management flow to illegally resell it to other unlawful disposers. In just one case of illegal resale of stolen paper waste, losses for the legal market amounted to EUR 10 million.

When the illicitly gained waste is not valuable enough to be resold as a secondary raw material (e.g. recycled material that can be used in manufacturing processes), criminals mix it with cattle nutriment and/or with construction materials, illegally store it in warehouses, burn it or use it as fuel, bury it underground, or dump it in nature. A criminal network earned EUR 3 million over a few years by dumping animal blood into rivers and wells on behalf of a food-processing factory. The illicit burning of waste is steadily increasing in several EU Member States, and it has many severe consequences in terms of air pollution and health hazards¹¹.

Criminals also blend illicit waste with other types of waste, turning it into raw materials or by-products and reintegrating it into new production cycles. In other cases,

criminals operating as waste collectors label the waste as 'for recovery' and transfer it to colluding facilities that illegally dispose of it, instead of the reception facilities mentioned in the shipment documents where the lawful disposal should occur. Criminals also illegally sell waste as a secondary raw material, through trading and transport companies, forging documents and exporting the waste falsely declared as other types of waste (often without following the appropriate ecological protocols). In some cases, criminals steal electric and electronic waste components from EU waste facilities to extract valuable raw materials and sell them on black markets in Africa and Asia.

Hazardous waste is often trafficked by mixing it with normal waste or concealing it among other goods, and then dumping it in nature. While being transferred between countries, criminal networks frequently use trans-shipment points to obscure the route¹². When the trafficking occurs via land, the waste is usually transported in vans, trucks and lorries. Small electronic components, such as lead acid car batteries, are transported among other goods or in built-in compartments inside trucks or vans. For vehicle tyre trafficking, criminals usually store several tyres inside one another (also called 'tripling of tyres') to increase the number of items without altering the volume of the cargo.

The geographical dimension of waste crimes

Despite strict rules, illicit waste can be transferred easily across the EU Member States¹³. Western European Member States function as both origin and transit countries for illicit waste trafficking increasingly targeting central and eastern European Member States, with Poland, Bulgaria, Germany and Romania becoming key destinations¹⁴. Within the EU, mixed waste materials are transported via land on freight trains and trucks, with fraudulent papers or sometimes without any documentation. Major ports and the hinterland of Western Europe are used for movement of waste outside the EU via freight and maritime cargos.

Waste trafficking routes are not systematic. Criminal networks tend to frequently change trafficking routes to minimise detection. International trafficking outside the EU usually entails a first shipment of waste to another MS, often labelled as 'for recovery'. Criminal networks trafficking waste across the EU often operate via land between neighbouring countries, sometimes in cooperation with local criminal networks.

Africa remains the main destination for waste of electric and electronic equipment (WEEE) produced in Europe (such as refrigerators, freezers, scrap metals), end-of-life vehicles and car parts. Criminal networks are also starting to explore this region for the illegal export of plastic, household and urban waste, as a response to the ban imposed by several Asian countries, and more recently by Turkey¹⁵. Remnants of metals and other materials are also resold as halogens in various African markets. In the recent past, Nigeria has emerged as a key destination for waste trafficked outside the EU, along with Mali, Mauritania, Senegal, Burkina Faso, Libya, Guinea, Ghana and Iraq.

Plastic waste: a global illegal trade

In the past decade, plastic waste has progressively increased around the world by 10 million metric tonnes every year, to almost 370 million metric tonnes per year in 2019. Although China played a leading role in the management of plastic waste for many years, in early 2018 it imposed a ban on the import of several types of waste, including plastics. The ban has greatly affected the plastic industry in China and worldwide. As a result of the ban, new waste streams were directed towards other destinations in Asia, Africa and also Europe. Criminal businesses quickly prospered across the world,

exploiting the higher demand for plastic waste management and the bureaucracy of international trade legislation.

Following the Chinese ban, European waste traffickers started targeting Malaysia, which emerged as the world's largest importer of illicit plastic scrap. In addition, Indonesia, Vietnam, Thailand and Taiwan (Democratic Republic of China) became key destinations, while Singapore and the special administrative region of Hong Kong (China) remained key trans-shipment points. To a lesser extent, criminal networks also targeted Bangladesh, India, Laos, Pakistan, and mainland China. Apart from Asia, European plastic waste is also illegally transported to North Africa and even South America, where criminals exploit the many legal loopholes that still exist regarding waste importation. The waste transferred outside Europe usually travels loaded in containers onto cargo ships, transiting through several major EU ports before taking off to other continents accompanied by false customs declarations, invoices and bills of lading.

European criminal networks are involved in the global trafficking of plastic waste using legal businesses (usually companies dealing with waste collection and recycling). They cooperate with international brokers that organise the illicit business with other criminal organisations located outside the EU. A common modus operandi is the reintroduction of contaminated plastics into the recovery processes, declared as clean, used plastics ready for recycling.

Waste of electric and electronic equipment (WEEE) trafficked to Africa and Asia

Several MS are investigating criminal flows of WEEE from the EU towards other continents. Africa (in particular Nigeria, Senegal, Ghana, Togo, Equatorial Guinea, Burkina Faso, Mali, Mauritania, and Morocco) is increasingly a key destination for illegal WEEE originating from the EU. Refrigerators, washing machines, computers, freezers, vacuum cleaners, bicycles, household items, suitcases, televisions, microwaves, motorcycles, motor vehicle engines and other parts are the main goods that illicitly reach Africa. These are sold as second hand on black markets, or some components are extracted and sold separately.

The most common modus operandi is to use companies holding legitimate permits to receive waste, collect it at treatment plants and transfer it abroad (usually labelled as secondary raw materials, special waste or used electric and electronic equipment). Criminal organisations collect the WEEE from many locations and stock them in rented or private industrial warehouses, or at scrap metal facilities. Then, the waste is loaded into maritime containers and transported abroad via cargo ships. Other criminal networks use trading companies that are not authorised to export WEEE, and forge certifications, analyse results and licences, or obtain customs clearances through bribes. Networks also use trading companies not directly involved in the waste management business, which just buy and sell (accompanied by forged documentation) the WEEE to brokers located outside of the EU, who then organise the resale of the waste by local businesses operating on the black market.

Outdated solar panels: an emerging risk

The early generations of solar panels, installed in photovoltaic fields in many EU Member States around 20 years ago, are starting to be out of date and consequently dismantled. As WEEE containing toxic materials such as lead, old solar panels should be properly treated. Recent investigations have shown complex criminal schemes organised by European networks to collect the WEEE from several countries and ship them to Africa and Asia. The illegal trade involves sophisticated document fraud, associates located in several MS, multiple traders, waste treatment and other front

companies, logistics businesses and intermediaries in transit and destination countries. With more solar panels reaching their end date, it is highly likely that illegal trafficking of outdated solar panels will increase in the near future.



Figure 1. Seized solar panels loaded into a container as part of Operation Blacksun. The suspected companies were authorised to collect outdated solar panels from dismantled photovoltaic fields before transporting them to African and Asian countries to be illicitly disposed of.
Source: Italian Carabinieri



Figure 2. The seized solar panels stored in a warehouse as part of Operation Blacksun.
Source: Italian Carabinieri

The trafficking of end-of-life maritime vessels

Another development linked to waste and pollution crimes is the trafficking of end-of-life maritime vessels from Europe to other continents, mainly South-East Asia, to be demolished. Contravening the EU Ship Recycling Regulation^{ix}, which obliges EU ship owners to recycle their vessels in authorised yards, several European companies engage with organised criminal groups for their old vessels to be illicitly dismantled abroad¹⁶. In this criminal business, the companies save the fees for lawful recycling and organised crime networks profit from the illegal trade of valuable materials extracted from the vessels such as steel, copper, aluminium and zinc. Illegal shipbreaking, apart from being harmful for the coastal environment and the marine ecosystem, involves document fraud, the unsafe handling of hazardous materials, and other risks of injury or death for the workers employed.

^{ix} Regulation (EU) No 1257/2013 of the European Parliament and of the Council of 20 November 2013 on ship recycling and amending Regulation (EC) No 1013/2006 and Directive 2009/16/EC Text with EEA relevance, accessible at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1257&from=EN>

Waste crimes and the COVID-19 pandemic

The COVID-19 pandemic has increased the risks of criminal infiltration into the healthcare waste management business. Investigations carried out in several MS immediately following the outbreak of the pandemic in early 2020 have shown a series of criminal offences perpetrated around the disposal of the waste produced by healthcare institutions involved in the treatment of COVID-19 patients. The unlawful manipulation of potentially contagious sanitary waste could lead to severe health and environmental consequences.



Figure 3. At the beginning of 2020, Europol launched operation Retrovirus to tackle unlawful healthcare waste management. Image shows containers of sanitary waste irregularly disposed of and seized as part of the operation. Source: Spanish Guardia Civil SEPRONA



Figure 4. Toxic sanitary waste illegally stored and seized as part of Operation Retrovirus. Source: Spanish Guardia Civil SEPRONA

Pollution crimes

Pollution crimes represent a serious threat linked not only to waste crimes but also to many other environmental crime activities. For instance, the criminal use of illicit pesticides (mainly counterfeit and substandard) in agriculture severely contaminates land and crops. The abuse of cheaper illegal pesticides can result in millions of euros of illicit proceeds for the criminals involved (in one case, a company earned almost EUR 2 million over four years). MS have also reported cases of illicit use of pesticides in organic farming, endangering soil, harvests and consumers' health. Pollution is also generated by exceeding emission quotas through the handling or disposing of fluorinated gases or F-gases (HFC), ozone-depleting substances (ODS) and greenhouse gases (GHG), and using unregulated chemicals and substances in industrial production cycles.

Illegal trade of fluorinated gases (F-gases) and hydrofluorocarbons (HFC)

The illegal production, importation, exportation, sale or use of fluorinated gases (F-gases) and other ozone-depleting substances (especially R-22 and hydrofluorocarbons (HFC)) pose a serious threat to the ecosystem. HFCs are the most common refrigerant gases used on the market. These gases have multiple applications in refrigeration systems, for use in heat pumps, in the production of insulation foams, as propellants in aerosols, as fire protection fluids and as solvents. On the other hand, HFCs are greenhouse gases with heavy global warming potentials (GWP), and when emitted they rapidly aggravate atmospheric warming.

Since the entry into force of the EU F-Gas Regulation in 2015^x, the price of HFCs has started increasing as companies started stockpiling as a reaction to the uncertainty of future price fluctuations and market developments. The stockpiling led to a peak in prices in 2018^{xi}. EU manufacturers and users of HFCs have been prompted to make use of more climate-friendly alternatives and to respect an established quota system for bulk production and import of HFCs, which is progressively being phased down. The market scarcity created by the phasedown has further increased the price of HFCs, and the illegal trade of HFCs between producers, distributors and importers has thrived. Since 2018, tonnes of illegal HFCs have been increasingly seized in many EU MS.



Figure 5. The R-22 gas seized during the action day of Operation Malvarma. A criminal network was using a company in Spain to smuggle ten tonnes of R-22 refrigerant gas without a legal licence to Panama, generating up to EUR 1 million in profit.

Source: Spanish Guardia Civil SEPRONA

^x The EU introduced the first F-gas Regulation in 2006, which was then replaced by a second regulation which entered into force in 2015, establishing a quota system for bulk import and use of HFCs (with several phasedown milestones); a mandatory registration in the F-gas Portal and HFC Licensing System for all companies; and the banned use of HFCs in certain conditions. The quota system put in place by Regulation (EU) No 517/2014 on fluorinated greenhouse gases aims to reduce the use of HFCs by 79 % by 2030. Since 1 January 2015, a quota is required for producers and importers placing at least 100 tonnes of CO₂ equivalent of HFCs in bulk on the market in a calendar year. Since 2017, HFCs used in refrigeration, air-conditioning and heat pump equipment must be covered under the quota system. Registration in the F-gas Portal & HFC Licensing System is mandatory for companies to receive a quota. Emissions of these gases have dropped every year since 2014 as a result of the EU policy measures.

^{xi} The price of HFCs rose from EUR 1-4/CO₂ in 2015 up to EUR 40/CO₂ at the end of 2018.

There are two distinct criminal schemes for illegal trade of HFCs in the EU. The first involves illegal import of non-quota HFCs through the normal customs channels, while the second, organised by criminal networks, is the trafficking of mislabelled or concealed HFCs¹⁷. Criminals purchase gas at much lower prices from the production sites outside the EU (mainly China), and sell it for a much higher price, but still lower than the market price in the destination countries. They do this while also avoiding taxes and other fees and generating considerable profits. Some of the gases circulating illegally are substandard or even counterfeit¹⁸, pose greater threats to end users (operational failures are common) and are more harmful to the environment.

Criminal networks buy F-gases in bulk and import them into the EU via Russia and the Balkan route^{xii}. Trans-shipments sometimes occur via North Africa and criminal networks traffic the gases through logistics distribution companies. In the EU, the gases are deposited in warehouses awaiting distribution; in some cases, they are delivered directly to regular customers. The gases are often illegally transported in disposable cylinders, which are forbidden by EU legislation. In order to decrease detection of discarded cylinders, criminals increasingly offer illegal services using refillable cylinders¹⁹. The sale to final buyers occurs via known online marketplaces. Some criminals create ad hoc websites in multiple languages²⁰. To avoid detection, the advertisements are posted in categories under different products. Criminals offer international shipment, door-to-door delivery and better prices for bundles and wholesales. Payments can be done online, in cash after receiving the products or through bank transfers.

These criminal networks are usually composed of several groups spread along the trafficking route. The producers located in Asia cooperate with the distributors responsible for the transit from Asia to the EU. A second group of distributors is then in charge of intra-EU transport (often the two distribution networks belong to the same criminal organisation). Members transporting HFCs across the EU are often nationals of the transit countries. Commercial agents buy the gases from the distributors and organise the sale to the end-users. Criminals also illegally export tonnes of HFCs from Europe to other continents. In one case, this illegal business generated up to EUR one million in profits for the criminal network involved. Companies in many MS are increasingly filing reports of suspicious trading of HFCs. Many MS are taking significant steps to improve the application of the F-Gas Regulation, such as increasing inspections in warehouses and customs controls at borders, execution of heavier sanctions, as well as regular cyber patrolling activities on websites selling F-gases.

Fuel frauds

European criminal networks are also involved in several types of fraud related to the production and trade of fuel, and of specific technologies to curb CO₂ emissions from vehicles' engines.

Biodiesel fraud

The illicit production and trade of biofuel is a criminal business worth millions of euros. Biofuel is fuel produced from organic biomass, namely from living organisms such as plants and animals. The feedstocks used for the production of biofuel are crops and waste. Used cooking oils (UCO) are increasingly promoted for the production of sustainable low emission fuels. The current EU Renewable Energy Directive²¹ encourages the use of biofuels; however, there is no ban on importation of oils from third countries which do not comply with the EU regulations, even though they are

^{xii} The Balkan route is a complex network of various routes spanning the Western Balkans region. This route has been and continues to be used to smuggle illicit goods and people to the EU. These illegal goods may include drugs, firearms, counterfeit goods or many other illicit commodities.

often of suspicious origin and are produced by oil blending. European criminal networks buy mixtures of illicit substances from non-EU countries in order to produce biodiesel and illegally obtain EU subsidies. In the mixtures, they also often use palm oil, fraudulently declared as UCO. Criminal networks also generate illicit profits by setting up multiple companies that sell falsely labelled biodiesel to each other as sustainable and more expensive.

Low-quality fuel traded to West Africa

European criminals are involved in the production and export of low-quality fuel (containing high levels of sulphur) to several West African countries via trading companies. Low-quality fuel contributes to the fast-paced increase of air pollution and is linked to respiratory diseases, especially in overpopulated urban areas. Around 50 % of the low-quality fuels destined for Africa are produced in the Amsterdam-Rotterdam-Antwerp region²². Africa's loose fuel requirements (due to a significant presence of old, second-hand vehicles) allow criminal EU traders to sell cheap oil blend stocks, markedly reducing their production costs. Investigations have also shown the involvement of trading companies based in Switzerland²³.

Illegal trade of Adblue emulators

In order to comply with the maximum emission limits set by the EU directives, truck manufacturers are obliged to manufacture diesel engines that ensure efficient combustion, in combination with gas treatment techniques that considerably reduce the emissions of nitrous oxides (N₂O) and other polluting particles. One of the most common methods of reducing emissions from diesel engines is the selective catalytic reduction (SCR) technology, which is based on the treatment of exhaust gases by adding a so-called diesel exhaust fluid (DEF; also known as AUS 32 and marketed as 'AdBlue'). This is injected into the exhaust gases before the gases are passed through the catalytic converter. The resulting chemical reaction transforms polluting N₂O into nitrogen gas and steam. However, this revolutionary system has created a number of inconveniences for users, such as the need for Adblue refuelling, breakdowns, power reductions, maintenance costs, etc. Criminals are now producing and selling emulators (unauthorised devices manipulating vehicles' gas emissions system and making the use of Adblue fluid unnecessary) to transport companies as well as to individuals that want to circumvent these complications. Criminals sell these illegal emulators on online marketplaces and retail stores. Pollution crimes and economic fraud related to the illegal trade and use of Adblue emulators are being increasingly investigated in the EU.

Wildlife trafficking

Wildlife crime refers to poaching, collecting, trading (i.e. supplying, selling or trafficking), importing, exporting, processing, possessing, obtaining and consuming wild fauna and flora, including timber and other forest products, in contravention of national or international protocols. Wildlife trafficking also typically entails other predicate offences such as corruption, document fraud, money laundering and tax evasion. The EU is a key hub for global wildlife trafficking and an origin for endemic wildlife trafficked abroad.

Wildlife crimes endanger the survival of fauna and flora, increase the risk of species extinction, compromise biodiversity, and generate risks to human beings via the potential transmission of diseases. Wildlife crime is an extremely lucrative business,

which fosters an illegal economy, relies on money laundering and tax evasion, and generates loss of revenue for many countries.

Criminal networks operating in Europe traffic both exotic fauna (i.e. tigers, leopards, rhinos, narwhals, whales, elephants, devilfish, toucans, parrots, iguanas, insects, lizards, snakes, frogs, corals, sea dates and sea cucumbers, etc.) and exotic flora (especially cacti), some of which are commonly traded under the label of medicinal products. Traffickers operating in Europe are increasingly targeting less monitored endemic non-CITES listed species, in particular songbirds and big cats, but also sturgeons, seahorses, eels, salamanders, snakes, amphibians, insects, lynxes, wolves, otters, deer, and bears), which are trafficked to both EU and non-EU destinations. The illegal trafficking of European eels alone generates EUR 2 to 3 billion in yearly criminal profits.

Wildlife traffickers benefit from a general culture of impunity, which fosters the idea that this type of crime does not really affect human beings and therefore is less significant. Recent changes in the regulatory framework at international level resulted in a decrease in the number of incidents involving poaching of species at risk of extinction^{xiii} (in particular concerning the trafficking of elephants' ivory). Nevertheless, European airports continue to be used as transit points for the ivory illegally traded between West Africa and Asia²⁴.

Criminal networks involved in wildlife crimes

Criminal networks dominate the illegal trade of fauna and flora across continents. Some are fully dedicated to illegal trade of wildlife, and usually are composed of both EU and non-EU nationals, dispersed across origin, transit and destination countries. Other criminal networks are involved in other crime areas and have added wildlife crimes to their 'portfolio'²⁵, dealing with trafficking of wildlife along with other illicit activities (i.e. excise fraud and drug trafficking). Certain cases have revealed opportunistic links between wildlife trafficking and other organised crimes²⁶ such as counterfeiting of goods and food fraud, labour exploitation, and weapons trafficking.

Trafficking networks are generally composed of individuals linked by common interests, friendship or family ties. In most cases, the criminal networks have a hierarchical structure and a majority of low-level actors (i.e. poachers, runners, mules, couriers, etc.). Exporters/importers are in charge of moving the specimens, often using trading companies. Experts in veterinary, biology and chemistry, but also lawyers and financial advisors, are part of the networks or sometimes cooperate in a crime-as-a-service mode.

The nationality of suspects depends on their role and on their geographical location. Usually members operate in their country of residence and/or citizenship. Criminal groups involved in trafficking of non-endemic species are often composed of both EU and non-EU nationals. Poachers and collectors typically originate from the country of origin of the trafficked specimens, while mules have often links to the destination countries. Sellers work in the destination countries, and use front companies to sell the specimens and for money laundering purposes. Collectors, hobbyists, users of Traditional Chinese Medicine (TCM) products and even enthusiasts are the most targeted customers, with whom the criminal sellers try to create strong bonds and build trust²⁷.

^{xiii} On 31 December 2017, China banned the trade of ivory and ivory products, in a major effort to protect the world's elephant population. WWF 2021, 'Demand for Elephant Ivory in China Drops to Lowest Level Since National Ban', accessible at <https://www.worldwildlife.org/press-releases/demand-for-elephant-ivory-in-china-drops-to-lowest-level-since-national-ban>.

Modi operandi and criminal infrastructure

Criminals collect or poach wildlife from their original habitat and trade them alive, dissected and/or derivatives. The modi operandi, the trafficked volume, the size and the final use (i.e. sale, breeding, etc.) differ according to the species. Wildlife trafficking mostly relies on know-how: compared to other crime areas, environmental criminals make large use of specialised expertise (especially in biology, chemistry and veterinary science) and of professional document fraudsters, who keep abreast with evolving national and international regulations.

Poachers nowadays use sophisticated instruments to locate and collect specimens in nature, such as GPS systems or night vision devices, which they buy in hunting stores or online. For the transfer, traffickers usually conceal the specimens among other goods. Specimens are trafficked in bulk via land using regular transport companies and by sea, loaded in containers on merchant vessels. For the transport of smaller consignments, such as live animals and plants, criminals use small vans or cars, or mules travelling via airplanes, who conceal the specimens inside checked-in luggage or attached to their bodies. For defence purposes and in case of detection, poachers and transporters often make use of weapons (rifles and knives have been seized). Wildlife traffickers are extremely adaptive: they change routes, concealment methods and means of transport every time there is a seizure or another form of law enforcement intervention.

Criminals use legal business structures such as pet stores, antique shops, jewellers, local restaurants, meat shops, international fairs, gardening stores, breeding companies, and even zoos to facilitate the trade of protected and non-protected species, particularly in destination countries, as well as for the laundering of illicit proceeds²⁸. Illegal trade in wildlife is a cash-intensive criminal business. The networks mostly operate using cash, especially in source countries (i.e. to pay poachers). Nevertheless, networks also make large use of bank transfers (using strawmen and front companies) in multiple jurisdictions, internet and mobile payments, prepaid cards, money transfer systems, *Hawala*, and cryptocurrencies²⁹.

Document fraud is key for perpetrating wildlife crimes. Goods are transferred accompanied by falsified shipping documents and permits. Often, live wildlife is falsely labelled as a captive breed. Corruption and bribing of public officials and monitoring authorities are largely used by all criminal networks involved in origin, transit and destination countries. Poachers intentionally establish contacts with CITES authorities and employees of conservation centres; mules corrupt customs and law enforcement officers, and retailers co-opt local authorities with money.

In the EU, illegally traded wildlife is sold depending on its typology via diverse legal channels (i.e. retail stores, catering industry, breeding companies or even zoos). Collectors buy illegal wildlife as pets, for breeding or sporting purposes, for private collections or to be displayed as hunting trophies. Specimens are also used to produce jewellery. Some derivatives (i.e. scales, bones, furs) are used for production of cosmetic ointments and medicines, and in certain instances, humans consume wild animals as food (i.e. African bush meat can be found in European restaurants)³⁰. Wild flora is also used for a variety of purposes: timber is used in the construction sector and as a fuel; exotic plants are used as both ornaments or gathered by private collectors.

Across the EU, the majority of trafficked specimens are advertised online, both on the surface web and on the dark web. Sellers use online marketplaces³¹, social media (hobbyists' groups and private profile pages) and specialists platforms, where they post their listings in different languages³², they meet buyers and discuss available merchandise and prices, or share knowledge and expertise on hunting, transport and breeding techniques. Criminal sellers frequently offer 'captive-bred' adult specimens for cheap prices, dispose of large numbers of juvenile offspring, and describe specimens as 'long-term captive' or 'nature-bred'³³. The distribution of items bought

online usually occurs using post and parcel services, but also at animal fairs or through retail stores³⁴.

The geographical dimension of wildlife crime

The EU is a key hub for global wildlife trafficking and is the origin for some endemic wildlife trafficked abroad. Some protected species illegally imported into the EU remain there, while others are transported to other continents. The major EU commercial ports and airports are key transit points along smuggling routes across America, Africa and Asia. Traffickers tend to vary routes and points of entry/exit and often use corruptive practices to pass border controls.

Most wildlife trafficked through Europe are animal and plant-derived products and medicines destined for China and Vietnam. Europe is also a destination for exotic fauna and flora poached in other continents. Concerning flora, most are medicinal products already packaged (in pills or in liquid) arriving from various Asian countries, containing extracts of various species of plants, flowers and roots native to Asia but also to other continents. Asia is also the origin for exotic fauna and animal-derived products such as sea horses, coral, sharks, sea cucumbers, sperm whales and killer whales, antelopes (mainly seized in wax balls and pills), leopards, panthers and tigers' body parts or in powder, but also elephants, tortoises, alligators, snakes, scorpions and many bird species. This illegal trade responds to an internal demand for wildlife products, which are consumed as food, cosmetics and as medicines inside the EU. Apart from Traditional Chinese Medicine (TCM) users, traffickers target animals native to Asia, Africa and America to be sold to European buyers. Africa is a key origin point for elephants, zebras, lions, hippopotamuses, alligators, tortoises, scorpions and lizards. Central and South America are the main origins of parrots and toucans, illegally traded to the EU, while raptors mostly originate from the Middle East and to a lesser extent Africa, South-East Asia and Oceania.

Europe is also the origin of endemic species trafficked abroad and/or sold internally to EU buyers. Criminal networks poach the European eel and European medicinal leech in Europe and transfer them to Asia, where they are processed and packaged (the eel as filets and the leech as cosmetic cream and balm, respectively) and then reintroduce them to the EU consumers' market. Reporting has also increased on trafficking of European raptors and songbirds to Africa, sold mainly for collection, hunting, and as food. Some of these species, even if non-CITES listed, are protected by the EU Wildlife Regulation^{xiv} and their poaching and export are forbidden. European suspects also cooperate with illegal breeders and buyers located in other continents through local criminal networks. In one case, birds traffickers from Latin America and Africa were bartering exotic species for European specimens (poached by another criminal network), which they were then selling outside the EU.

The multi-billion euro trafficking of the European Eel (*Anguilla anguilla*)

Europe is a key origin of glass eels smuggled to Asia by criminal networks. In the last decade, the illegal trafficking of the European eel (*Anguilla anguilla*) to Asia has become a key environmental threat to the EU. Even though the number of investigations increased and several criminal networks were dismantled, this illegal trade is still fully functioning, with networks involved over many years adapting their

^{xiv} Since 1984, the European Union (then the European Economic Community) has been implementing the provisions of the Convention on International Trade in Endangered Species of Wildlife Fauna and Flora (CITES), through the EC Wildlife Trade Regulations, referred to as the EU wildlife trade regulations. More information is accessible at https://ec.europa.eu/environment/cites/pdf/trade_regulations/short_ref_guide.pdf

modi operandi to evade intervention by law enforcement. The production of eel meat is a multi-billion euro industry, which relies on the processing of newborn eels, known as glass eels, which are caught in the wild³⁵. River deltas in France, Spain, Portugal and the UK are the main locations where poachers operate.

Since eel meat is consumed all around the world, the livestock has drastically reduced in recent decades, especially in China. Consequently, the illegal trade of eels from America and Europe towards Asia has surged. European eel is an endangered species and has been CITES-listed since 2010: glass eel farming and restocking is a commercial business in many MS, but the law forbids its import or export abroad. Eel trafficking entails a combination of crimes, such as illegal fishing, fraud, document counterfeiting, money laundering, tax evasion and corruption. Around 100 tonnes of glass eels are trafficked to Asia every year, worth around EUR 200 billion to EUR 300 billion, making it a profitable crime worldwide.

Chinese and European criminal networks cooperate at different stages of this illegal activity. In the majority of cases, European criminals organise poaching in the riverbanks of several Western European MS and the preparation of the transfer outside Europe, which is then taken over by the Chinese partners through trading companies. In some cases, poachers collect specimens from multiple countries and transfer significant amounts of glass eels (sometimes several tons) to aquaculture facilities in other MS, before dispatching them to Asia to conceal their real origins. Criminal networks use more often facilities in the Balkan region, eastern Europe, North Africa, and western Asia, as transit points for large quantities of eels before their transfer to Asia. In just one season, a European network could orchestrate the poaching and transfer to Asia of up to 5 tonnes of living glass eels, for a total profit of EUR 10 million. In China, the profit of the Chinese networks has been estimated at around EUR 50 million per year of activity. In another case, a criminal network was engaging with multiple Asian clients at the same time, in order to maximise profits during the high season of eel births.



Figure 6. Vehicle trunk used for the transport of 15 kg of glass eels, discovered as part of Operation Lake II (ABAIA). Source: Spanish Guardia Civil SEPRONA



Figure 7. The EU aquaculture facility used before shipping the glass eels to Asia, discovered as part of Operation Lake II (ELVERS). Source: Spanish Guardia Civil SEPRONA

The transport to Asia occurs over a short period, as living specimens can only travel for up to 40-48 hours. Criminals employ numerous mules^{xv}, often Asians holding EU citizenship or residence permits, to travel via air with the glass eels concealed inside water-filled plastic bags or Styrofoam plastic boxes in their suitcases. The main destination remains China (often reached via Hong Kong), but also Vietnam, Japan, South Korea and Malaysia, where eels are handed over to local networks to be reared in aquaculture facilities until adulthood. The adult eels are then processed into filets, falsely labelled as non-CITES species (usually as *Anguilla rostrata* or *Anguilla japonica*). Criminal networks reintroduce them into consumers' markets in Europe, America, Russia, Canada, Japan, South Korea and other countries using trading companies, which sell them to legal fishmongers. Apart from the CITES and EU agro-food chain legislation violations, the risks emerging from consumption of eels raised outside the EU are linked to the unauthorised use of heavy chemicals as well as of prohibited antibiotics during the aquaculture process (which are forbidden by EU law), resulting in the presence of dangerous substances in the filets consumed by people. Additionally, authorities observed multiple ruptures of the cool chain during transportation, which can provoke poisoning and other health disorders.

The COVID-19 pandemic, which has resulted in a decrease in the number of air travellers and an increase in additional security checks carried out at airports, has led eel traffickers to increasingly use airfreight containers to transport illegal goods, falsely declared as other types of seafood products (i.e. carps, congers, and shrimps). This practice was discontinued around 2017 following increased scrutiny by law enforcement and growing risks of losing large quantities of eels, however it has restarted lately.

Financial investigations have shown that criminal financial streams regarding eel trafficking connect Europe not only to Asia but also to other continents. In one case, a criminal network was using companies in Central America to launder the proceeds of the illegal trade of eels to Asia. EU traffickers use shell companies and bank accounts held by strawmen, informal payments, *Hawala* and false invoicing to distribute the criminal proceeds among associates. Laundering of profits occurs through trading companies and cash payments to mules, and profits are used for the purchase of plane tickets, equipment, transport rentals, logistics, etc. Laundering also occurs through the purchase of real estate and luxury goods, gold, and even through false loans. Asian criminal networks also use retail stores, restaurants located in Europe to launder the illicit proceeds of the trade of eels.



Figure 8. The EU aquaculture facility discovered as part of Operation Lake II.
Source: Spanish Guardia Civil SEPRONA



Figure 9. Gold seized during the action day of Operation Lake II.
Source: Spanish Guardia Civil SEPRONA



Figure 10. The cash seized during the action day of Operation Lake II.
Source: Spanish Guardia Civil SEPRONA



Figure 11. Eels concealed in a box of oysters as part of Operation Lake V.
Source: Portuguese ASAE

^{xv} In one case, the network employed 14 people over a two-month period, and paid EUR 1 000 per trip.

Reptile trafficking

Europe remains a key transit region and a final destination for trafficked reptiles originating from Africa, America and Oceania³⁶. Reptiles are traded alive, dissected and/or as derivatives (i.e. reptile skins or skin products). The most common targeted specimens are iguanas, alligators, geckos, frogs, lizards, snakes, turtles and tortoises, which are sought by collectors, hobbyists, breeders and retailers as well as by individuals simply interested in owning reptiles as pets. The reptile trade is a lucrative business, since buyers around the world will pay significant amounts for unique reptiles. In one case involving the illicit trade of iguanas from Fiji, the value of the iguanas on the illegal EU market reached EUR 60 000 for one specimen. In many cases, criminals are legal operators (i.e. breeders, retailers or collectors), who have illegally extended their business to the trafficking of protected species. European criminals operate in connection with local poachers located in the countries of origin of the targeted species. In some cases, African countries are used as a transit point for wildlife originating from America. Specimens are stored there before arriving in Europe in order to divert attention from some of the more common trafficking routes.



Figure 12. Suitcases used by mules for the transport of reptiles from America to the EU, in the context of Operation Jungle V.
Source: Spanish Guardia Civil SEPRONA



Figure 13. Snakes seized in the EU in the context of Operation Jungle V.
Source: Europol

The transport of reptiles is carried out by mules (many with European citizenship), who conceal the specimens inside suitcases or taped to their bodies, travelling by air on commercial flights (in some cases, live animals are even transported refrigerated). Criminal traders in the EU, occasionally operating in a crime-as-a-service mode, are responsible for the collection at arrival and further distribution to European and Asian markets, via trading and transport companies. Reptiles are also hidden among other goods. Export and import documents are usually forged or totally fabricated. Often, the specimens are labelled as non-CITES, the same documents for legal import of stock are used for illegal purposes and for the final sale (the so-called laundering of species). Traders, couriers and mules often also make use of fraudulent travel and identity documents and regularly bribe CITES and other controlling authorities. In the EU, criminal traders sell reptiles at animal fairs and shows, in regular pet shops and online. Retailers operate on dedicated online marketplaces as well as on social media and other websites. Reptiles are also traded on the dark web. Sometimes, buyers attempt the illegal breeding of trafficked species, with associated risks for the ecosystem, through the introduction of alien species.



Figure 14. Live specimens sold illegally at a reptiles show, discovered in the context of Operation Jungle V.

Source: Spanish Guardia Civil SEPRONA



Figure 15. Live reptiles seized during the action day of Operation Jungle V.

Source: Spanish Guardia Civil SEPRONA



Figure 16. An illegal captivity breeding location discovered in the context of Operation Jungle V.

Source: Europol

Bird and bird egg trafficking

Trafficking in birds and bird eggs is a very lucrative crime, requiring veterinary expertise and the use of sophisticated equipment. Some species can reach several hundreds of thousands of euros on the black market. The demand driving this illicit trade comes from collectors and breeders, but also from those who want birds as pets. Poachers in Central America for example, sell toucans for EUR 50 euro each to traffickers operating in Europe, who then sell them to final customers for up to EUR 7 000 per bird. Parrots are also targeted by EU criminal traders, with many species threatened by extinction partly due to illicit pet trade³⁷.



*Figure 17. Parrots seized during the action day of Operation Citred.
Source: Spanish Guardia Civil SEPRONA*

Criminals involved in bird trafficking trade thousands of specimens each year. Some networks poach hundreds of specimens per day in protected areas, and make use of sophisticated high-tech tools for capturing the birds. Birds are particularly challenging to transport, and unfortunately, the death rate during the shipment can reach up to half of the smuggled livestock. Since smugglers are aware of these risks, poachers generally catch excessive amounts of birds that largely exceed demand, just to ensure that enough of the stock arrives alive at destination. One of the most common modi operandi for trafficking birds across continents is to transport eggs via air, in mules' suitcases or attached to their bodies (as eggs need a consistently warm temperature during the incubation period). In one case of birds trafficked from America, a local criminal group was poaching the birds and handing them to mules in transit areas of an international airport, already packaged inside suitcases, to be further transferred to Europe.



Figure 18. Dead specimens found during the action day of Operation Fennec. Source: Europol



Figure 19. Dead specimens found during the action day of Operation Free Wildlife. Source: Italian Carabinieri

Document fraud is an integral part of the birds' trade across countries. Transporters use forged CITES documents, or declare the trade of different species, or that the specimens are bred in captivity and not caught in the wild. Shipping companies falsify consignee statements and couriers use fraudulent identity documents while travelling. Increasingly, criminal sellers attach counterfeit rings to birds' legs captured in the wild, to pretend that they come from legal breeders. Transporters also make large use of corruptive methods and bribes to pass border controls. At arrival, birds are caged in warehouses while waiting to be sold. In many instances, illegally traded birds are sold online, in pet shops as well as at national and international fairs, which confirms once again the systematic links between legal business structures and illegal bird trafficking. Some networks also sell dead specimens as food in restaurants or to food processing factories.



Illegal, unreported, unregulated fishing (IUU)

Illegal, unreported and unregulated fishing (IUU) is a growing threat to the EU and the Mediterranean Sea is one of the seas most at risk. In the EU, organised crime activities linked to IUU occur across the entire fisheries sector, involving fraud, corruption, tax evasion, money laundering, human exploitation, and labour crimes.

Apart from significant environmental damages and economic losses, illegal fishing activities threaten food safety (the prevention of contamination of food) and food security (the availability of it)³⁸. Unfortunately, in many countries of the world fishery crimes are still not regarded as organised crime offences, resulting in low penalties and slow developments in terms of policy and legislation. However, IUU has recently

received increased attention within the international and EU law enforcement community due to the seriousness of this criminal activity.

The main types of IUU are:

- ▶ **Illegal fishing**, which is conducted in contravention of national and international law and includes fishing in a country's waters without permission. It also refers to fishing in areas beyond any national jurisdiction ('high seas'), violating the rules of the regional fisheries management organisation (RFMO) responsible for a designated area.
- ▶ **Unreported fishing**, which involves non-reporting or misreporting of information on fishing operations and their catches (so-called by-catch) to the relevant national or RFMO authorities.
- ▶ **Unregulated fishing**, which is conducted by vessels without a nationality, or by vessels from countries that are not part of a RFMO (and thus technically not obliged to abide by its rules), in a manner that is not consistent with RFMO rules. It also covers fishing in the high seas outside any RFMO responsibility.

Fishing outside permitted areas or exceeding permitted quotas is one of the most common crimes in the fisheries sector. The fishing system is currently under heavy strain. In all oceans, commercial fish stocks are in serious difficulty due to overfishing and often, due to destructive fishing methods: globally, 93 % of stocks are fully or excessively exploited³⁹. Taking advantage of the limited controls, criminal networks use legal companies to catch fish in contravention of national and international legislations, and commercialise it on the legal fish market. The fish is usually caught in unauthorised or contaminated areas, and sometimes criminals fish protected species not suitable for human consumption. Sometimes the fish is legally caught, but criminals sell it to fishmongers without following the proper safety standards and going through the necessary food safety controls. Criminals also illegally resell or wrongly dispose of by-catch (the unwanted fish and other marine creatures trapped by fishing nets during fishing for a different species), jeopardising the marine ecosystem and posing health risks to consumers. To conceal their illegal activities, they forge documents, bribe monitoring authorities, commercialise the fish abroad to disguise its origins, and at times use illegally employed staff (including victims of human trafficking and irregular migrants)⁴⁰. Organised crime groups launder the criminal proceeds through the same fishing companies used to perform the crimes. Some criminal networks also abuse the fishery sector for drug trafficking, smuggling of migrants, and piracy, sometimes in combination and frequently transnationally⁴¹.

Despite the existence of an international legal framework that safeguards legal activities related to fisheries, it remains very challenging for law enforcement to identify fish products that have been caught illegally. Supply chains are complex, and regulatory processes still involve a large amount of paperwork, leaving the system vulnerable to abuse. Additionally, the international seafood trade relies on large consignments and, as with all perishable goods, there is often limited time to conduct inspections at ports of entry and exit. Limitations in monitoring capabilities and a general lack of available technologies and tools exacerbate this problem. Other challenges remain, such as data sharing, communication and reporting among all stakeholders, both at national and international levels.

Illegal fishing of the European bluefin tuna (*Thunnus thynnus*)

In the EU, one of the most dangerous IUU crimes is related to the fishing of bluefin tuna in the Mediterranean Sea. Due to the high worldwide demand for consumption, bluefin tuna meat is one of the most profitable on the market. Bluefin tuna stocks must be constantly monitored, as they are essential in the marine food chain; a decrease of the livestock could have significant negative consequences for the survival of the marine ecosystem and its biodiversity. Criminal networks in several MS are involved in the illegal trade of bluefin tuna across the EU and further afield. The members of the criminal networks are most often composed of managers and staff employed in fishery enterprises, transport businesses, accounting firms, and food marketplaces. The tuna is fished in various national waters, transferred across countries via air, sea or land, following different routes and often passing through transit countries, to deceive security checkpoints. Sometimes the fish is sold to legal fishmongers without documents, and without heads and fins, which makes the identification possible only via a DNA test. The main risks for consumers' health are due to the unsanitary conditions in which the fish is transported and stored. The evisceration is performed in unauthorised facilities, and the cold chain is interrupted several times, with the fish often not being fit for consumption anymore. Sometimes the fish is hidden underwater after being caught, awaiting transportation. In one case, suspects even injected colouring substances into the fish meat in order to make it look fresher. Several cases of food poisoning were eventually detected among EU consumers. A criminal network generated profits of EUR 12.5 million in one year by selling between 10 and 15 tonnes of bluefin tuna weekly resulting in a total of 2.5 million kg of fish, which is double of the legally allowed volume.



Figure 20. Bluefin tuna dumped on a field discovered during the action day of Operation Tarantelo.

Source: Europol



Figure 21. Bluefin tuna specimens illegally stored in a truck, discovered in the context of Operation Tarantelo.

Source: Europol

Illegal fishing and trade of molluscs

Due to the high demand on the European food market, criminal networks are increasingly engaging in IUU fishing of various species of molluscs, generating profits of several millions of euros per year. Illegal trade in molluscs is linked to document fraud, money laundering, corruption, and often to labour exploitation on board fishing vessels, in clam catching locations and in processing facilities. Most of the reported cases concern clams illegally caught in southern Mediterranean MS and commercialised all over Europe. Within networks, poachers are low-level criminals, often of different nationalities (EU and non-EU), who collect molluscs in prohibited

areas (sometimes highly polluted), under the guidance of a coordinator, who is usually licenced for this practice. Once captured, the clams are stored in illicit aquaculture facilities and transferred, via land with private vans, to several intermediaries, who sell them to legal fishmongers, accompanied by fraudulent documents stating that they were harvested in permitted areas and underwent proper purification treatments. The lack of purification process poses serious health risks to consumers. In one reported case, a criminal network managed to cover the entire European fish market.



Figure 22. An illegal purification treatment facility discovered as part of Operation Txuspas.

Source: Europol

Illegal Chinese mitten crab trafficked across the EU (*Eriocheir sinensis*)

The introduction of live Chinese crab (*Eriocheir Sinensis*), also known as Wholandcrab, to EU markets, is illegal, as they are an invasive alien species causing severe damage to the endemic ecosystem. Several years ago, these crabs were brought into the EU from Asia, and nowadays they can be poached and exported outside the EU. However, they cannot be traded within the EU according to EU Regulation 1143/2014[1] on Invasive Alien Species⁴². Nevertheless, law enforcement in several MS are reporting the detection of Chinese crabs sold alive across the EU MS. Criminal networks of Asian origins located in the EU, with links to fishmongers and restaurants, traffic the specimens using trading and transport companies across various MS.



Figure 23. A specimen of Chinese crab seized during the operation in Italy, as part of Operation Krabs.

Source: Italian Carabinieri



*Figure 24. The Chinese crabs seized during Operation Krabs.
Source: Italian Carabinieri*



*Figure 25. The seized van in which the Chinese crabs were transported.
Source: Italian Carabinieri*

Other environmental crime phenomena

In addition to waste, pollution, and wildlife crimes, forestry crimes and the illegal pet trade are growing threats that are increasingly reported by law enforcement authorities in the EU⁴³.

Forestry crimes

Forestry crimes refer to the illegal logging of timber from forests and woods, as well as illegal land clearing through the intentional destruction of vegetation. Forestry crimes are among the most lucrative sectors for environmental crime⁴⁴ and are perpetrated extensively in all continents. These offences provoke severe effects for the environment, leading to deforestation, droughts and inundations, the increase of emissions of greenhouse gases and overall climate degradation. In addition, illegal logging weakens the legitimate forestry sector and hampers the efforts of governments to implement sustainable measures.

Europe is both an origin and a destination for trafficked timber. Tropical timber such as teak, rose wood, ipé and pernambuco are smuggled into Europe from Africa, Asia, and Central and South America⁴⁵. Illegal timber logging⁴⁶ is also carried out in Europe and certain criminal networks have been involved in heavy logging activities in Eastern Europe for decades. Illegal land clearing is another crime from which organised crime groups are generating profits. One of the most common *modi operandi* consists of criminals deliberately starting forest fires to free up land for agriculture, cattle rearing or construction. These criminals receive substantial payments from interested parties, who later engage with local and national authorities to modify by law the potential uses of such pieces of land. Suspects are increasingly targeting southern Europe, especially during the summer season. Connected to forestry crimes, criminals working in companies based in the EU have been linked to the falsification of phytosanitary treatments and fraudulent certification of wooden products (in this case pallets), which were distributed to EU enterprises to be used for packing purposes. This poses health risks due to the potential spread of parasites and associated pests to the transported goods.

Illegal pet trade

The detection of illegally traded pets is becoming increasingly common in the EU. The illegal sale of dog puppies is a very profitable business, as one dog bought for very little money can be resold for several thousands of euros. Criminal groups operate through pet companies, transport services and veterinaries, and purchase puppies from uncertified breeders mainly in eastern Europe and Asia, and resell them to private buyers and retailers all over Europe. Illegally traded pets are transported across countries in dangerous conditions and are put on sale online (in one case, 26 different websites advertising the same dogs were found) accompanied by falsified passports and vaccination certificates. This illegal practice can produce severe consequences, such as the potential spread of dangerous diseases from animals to humans (*zoonoses*)⁴⁷ and to other species. Potential links between trafficking in pets and bio-terrorism are also being investigated by law enforcement authorities in a number of MS^{xvi}, concerned about the potential use of viruses originating from illegally traded pets by terrorists. Europol also received information on breeders crossing wolves with dogs to improve their genetic and morphological features and sell them at higher prices.

^{xvi} More information on the AT-IT Bio-crime Project is accessible at <https://www.biocrime.org/project>

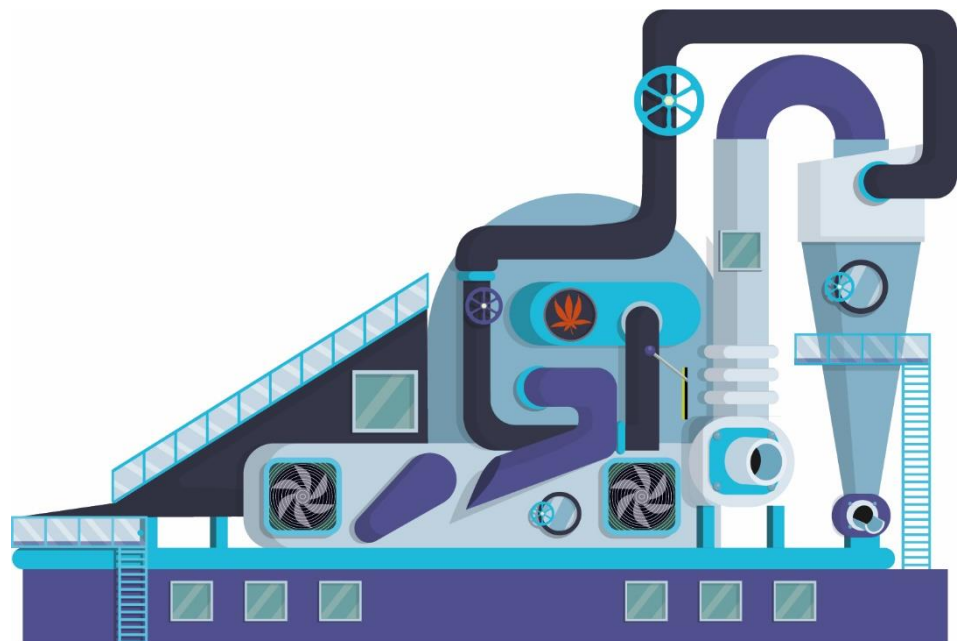
THE IMPACT OF OTHER ORGANISED CRIME ACTIVITIES ON THE ENVIRONMENT

Environmental crimes are not the only criminal activities that have an impact on the physical environment. A number of other offences in which organised crime is involved generate severe consequences to the ecosystem and pose risks to human health.

Extreme weather conditions, such as droughts and desertification, floods and inundations, as well as the spread of diseases and ultimately climate change, are consequences of harmful human activities, including environmental crimes. In some deeply affected regions of the world, environmental crimes also threaten people's food safety and food security, with effects in terms of growing poverty, political instability, conflicts and forced migrations.

Illicit drug production

In addition to the widely reported economic and public health impact of the drug trade, illicit drug production has a global environmental impact. The effect of drug production is increasingly visible in Europe, as the EU is a significant production area for synthetic drugs and cannabis, both of which may lead to substantial environmental damage.



Synthetic drug production

The production of synthetic drugs and the use of synthetic drug precursors are among the main sources of environmental damage linked to organised crime in the EU. A significant amount of waste is generated during the production of drugs and drug precursors. In most cases, the waste is reactive, explosive, flammable, corrosive and/or toxic, and poses significant risks to the environment. Criminals often dump production waste on land, bury it underground or discharge it into surface waters, contaminating fauna and flora and creating hazardous conditions as a result of the dissemination of chemicals into waterways⁴⁸. The dumping of chemical waste also requires high clean-up costs. The use of novel chemicals for producing precursors has exacerbated this issue.

Synthetic drug producers are constantly innovating in the use of novel chemicals in order to circumvent precursor and pre-precursor controls. Introducing new chemicals in synthetic drug production often entails additional synthesis steps, which result in higher waste outputs. Each year, small and large-scale drug production facilities are identified and dismantled in different MS. Waste found at production sites or otherwise improperly disposed of may weigh from a few kilograms to several tonnes. Between 2013 and 2020, MS reported the discovery of more than 1 500 illegal dumping sites where chemicals and/or equipment were found⁴⁹. A recent development observed in the EU is the steady decrease in the number of dumping sites discovered (the figure halved between 2018 and 2020). However, this could indicate that criminals may be devising novel ways of dumping residue chemicals to avoid detection. Burial of waste may be increasing, or it may even be exported abroad. Waste disposal linked to synthetic drug production is almost certainly underreported. Criminals use very elaborate disposal methods, including modified vans that pump waste onto the road while driving in rainy conditions.

The production of synthetic drugs in the EU is expanding and is expected to continue to do so in the near future. The laboratories used for the production of synthetic drugs discovered in the EU are becoming more professional and versatile, delivering increased production output and providing greater flexibility in terms of which substances are produced, and how they are produced⁵⁰. Innovative production methods, the use of mobile synthetic production facilities and diverse waste disposal methods will likely make the environmental dangers more complex and difficult to detect.

Cannabis production

Cannabis cultivation is believed to take place in all MS, albeit with different levels of sophistication and scale⁵¹. The indoor cultivation of herbal cannabis requires significant amounts of water and electricity, and often entails the use of chemicals discharged in land or waterways. Moreover, to ensure high temperatures and appropriate lighting conditions in indoor cannabis cultivation, the average cultivation facility has been estimated to produce 4 600 kg of CO₂ emissions per kilogram of finished product⁵². In one case, cannabis production in one MS was also linked to deforestation and soil erosion⁵³.

Counterfeiting

Counterfeit goods can have a serious impact on the health and safety of consumers, as well as negative environmental consequences. Most counterfeit goods are still produced outside the EU, so the impact on the EU stemming from production processes is relatively limited. However, customs and law enforcement authorities in the EU frequently detect counterfeit goods that pose dangers to consumers and the environment⁵⁴. In addition to risks for the health of consumers, detected counterfeit

goods usually have to be destroyed by the authorities, thus adding to the overall waste produced in the EU⁵⁵.

Counterfeit pesticides (as mentioned in the chapter on pollution crimes) are generally placed on the market without having been officially tested and authorised. In many cases, the products contain cheaper ingredients that are less active, while in other cases the ingredients may be more toxic than allowed. These goods can have a serious impact on the environment, affecting the ground, air or water for a long period of time⁵⁶. Counterfeit pesticides can also destroy crops and fields, and pollute water resources. Finally, they can have serious effects on the health of farmers using these types of pesticides and on consumers eating the food products⁵⁷.

Counterfeit car parts also pose considerable risks to the health and safety of consumers. They can have a significant environmental impact, as the materials used may not comply with environmental protection standards and waste management regulations⁵⁸.

Fraudulent schemes

Different forms of fraud can have a negative effect on the environment, hampering efforts of both public and private sectors to implement sustainable policies and protect the environment. Examples include investment fraud in the environmental sector and VAT fraud associated with carbon credits and guarantees of origin.

Investing in a green economy

Considering the increasing efforts of the EU towards a more sustainable economy, a variety of frauds is set to flourish in the green economy business. Investment frauds, misappropriation of funds, frauds in emission certificates and carbon credits, false certifications of quality and VAT fraud related to waste management and carbon credits are already happening and are likely to increase. Increasingly, fraudsters are offering attractive investments in business projects related to the environment (called eco-investments or green investments), persuading victims to invest in sustainable funds, which have profit potential and are increasingly popular. These methods are not new as such; however the type of investment opportunities have a novelty element⁵⁹. In the majority of cases, intermediaries are involved, offering contracts with contingency fees and other forms of commission. Often, financial transactions are performed through shell companies in offshore jurisdictions, making the monitoring and tracing more challenging⁶⁰.

Against the backdrop of the upcoming NextGenerationEU fund (NGEU) - a EUR 806.9 billion temporary recovery instrument to help repair the immediate economic and social damage brought about by the COVID-19 pandemic - subsidy fraud linked to the renewable energy sector is considered a potential threat. The NGEU fund in fact foresees that 30 % of the funds, the highest share, will be invested as part of a green policy to fight climate change⁶¹.

Exploitation of emission trading schemes and energy certificate systems

VAT fraud related to waste or renewable energy schemes is another crime area that is set to increase. Such forms of VAT fraud can result in massive losses in public revenues, undermining the credibility and effective implementation of sectorial strategies. One example of such a criminal scheme is landfill tax fraud, where waste is fraudulently declared so that it qualifies either as tax exempt or for the lower rate of landfill tax. Landfill tax levies are on the rise, making this type of fraud more attractive⁶².

Criminal networks exploit energy certificate systems and emission trading schemes as well, through falsification and speculations over price fluctuations of guarantees of

origin. An international criminal network managed to obtain EUR 27 million in subsidies linked to certification for energy efficiency (so-called white certificates), between 2016 and 2020. The illicit funds were then transferred to bank accounts in Germany, Switzerland and other MS in order to be laundered⁶³. The Electricity Market Directive (2009/72/EC) enables consumers to choose the source of the electricity they want to use and its associated environmental impact. The legal way is through the Guarantee of Origin (GOs) system. GOs are electronic documents that have the function of providing proof to a final customer that a given share or quantity of energy was produced from renewable sources⁶⁴. GOs can be traded on a voluntary basis among the members of the Association of Issuing Bodies (AIB)^{xvii}. In the EU, the prices of GOs differ according to several variables, including market demand. With the increasing demand for green electricity and increasing production output in some MS, the price of GOs is likely to continue to fluctuate, making the market more appealing to criminals involved in fraud.

Fraudsters also misuse carbon credits in VAT carousel fraud. Carbon credits are certificates which determine an organisation's cap of allowable carbon dioxide (CO₂) emissions. The credits system allows businesses to trade in unused credits. In this way, organisations that produce excess CO₂ can cover their emissions by purchasing credits from operators that underuse their allowance. The trading of carbon credits is not illegal in itself. However, since the transfer of such credits is taxable, the system provides opportunities for fraud. Criminals buy VAT-free carbon permits in one MS, and sell them on in another MS with VAT added. Instead of passing the VAT onto the relevant tax authority, the trader disappears (Missing Trader Intra-Community (MTIC) fraud). To counter such criminal schemes, since 2018 the MS could introduce reverse-charge VAT systems^{xviii}.

^{xvii} The Association of Issuing Bodies (AIB) was created to develop, use and promote a standardised system of energy certification for all energy carriers: the European Energy Certificate System (EECS). More information on the AIB is accessible here <https://www.aib-net.org/>

^{xviii} Reverse-charge refers to intra-community transactions and it occurs when the VAT is recorded by the buyer instead of the seller.

LOOKING AHEAD

Crimes against the environment are increasingly drawing public attention as climate change has become crucial in the agendas of policy makers. In the future, criminals will increasingly seek to infiltrate and exploit both environmental industry and climate finance. In order to cope with new and growing challenges, law enforcement must keep up with environmental criminals. Increases in budget, the development of specialised environmental units in every Member State, and filling technical knowledge gaps are key aspects that need to continue to be addressed in the coming years within the EU law enforcement community.



In the context of waste crimes, steps towards the alignment of legislative frameworks at national and international levels are improving the ability to monitor and enforce environmental protection, involving higher penalties for infringements. However, dedicated units countering waste crimes are present only in a few law enforcement bodies in the EU.

The growing environmental industry and the thriving waste management sector (especially waste recycling)^{xix}, will present new opportunities for criminal exploitation (in particular where legislation and controls remain fragile) and an increasing need for specialised units devoted to disrupting these crimes. Concerning plastic waste, the Basel Convention^{xx} was amended in 2019 to support the management of plastic waste

^{xix} The European Environmental Agency (EEA) reports that the Waste Framework Directive (2008/98/EC) sets a target of 50 % of municipal waste (more precisely specific types of household and similar wastes) to be recycled by 2020 in individual countries. In 2018, more ambitious targets were adopted: to increase the level of preparation for reuse and recycling of municipal waste to 55 % by 2025, to 60 % by 2030 and to 65 % by 2035. In 2018, new targets for packaging waste were also adopted: to achieve a minimum recycling rate by weight of all packaging waste of 65 % by the end of 2025 and a minimum of 70 % by the end of 2030.

^{xx} Basel Convention (1985, revised in 2019) on controlling transboundary movements of hazardous waste and their disposal.

in a more regulated and transparent framework^{xxi}. These changes became effective as of 1 January 2021, and some loopholes for potential criminal abuse have already been identified (i.e. increased illegal disposal of plastics in source regions, along with illegal imports in destination regions; increased non-compliance of stricter treatment limits; illegal trafficking of single-use plastic items).

Wildlife crime is set to remain a lucrative criminal business. Its impact on species at risk of extinction, as well as decline and loss of biodiversity, will be exacerbated in the future along with climate change. Wildlife traffickers operating in the EU may further concentrate their activities on endemic and non-CITES listed species, to circumvent the current legislative frameworks, which still mostly cover endangered wildlife.

Increasing efforts are being made by law enforcement in order to monitor the internet as the main marketplace of illegally traded wildlife. Nonetheless, more controls may divert some trading activities to more secure, anonymous areas (for instance the dark web), and prompt traffickers to increase their use of encrypted communications and other technologies such as Fintech and cryptocurrencies for financial transfers among criminals located in different continents.

^{xxi} The new version clarifies which types of plastics are presumed not to be hazardous, 'provided that the waste is destined for recycling and environmentally sound manner and almost free of contamination from other types of waste'.

LIST OF ABBREVIATIONS

AIB	Association of Issuing Bodies
CITES	Convention on International Trade in Endangered Species
CO ₂	Carbon dioxide
DEF	Diesel exhaust fluid (also known as AUS 32)
DNA	Deoxyribonucleic acid
EU	European Union
GHG	Greenhouse gases
GO	Guarantee of origin
GPS	Global Positioning System
GWP	Global warming potential
HFC	Fluorinated gases or F-gases
IUU	Illegal, Unreported, Unregulated
JHA	Justice and Home Affairs
MS	Member State
MTIC	Missing Trader Intra-Community
N ₂ O	Nitrous oxide
NGEU	NextGenerationEU
ODS	Ozone-depleting substances
R-22	Chlorodifluoromethane
RFMO	Regional fisheries management organisation
SCR	Selective catalytic reduction
TCM	Traditional Chinese Medicine
UCO	Used cooking oils
USD	United States Dollar
VAT	Value-added Tax
WEEE	Electric and electronic equipment waste

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