



European Union Network for the Implementation
and Enforcement of Environmental Law

Report of the 4 Networks Conference

Cooperation in Strengthening Environmental Enforcement

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Introduction to IMPEL

The European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) is an international nonprofit association of the environmental authorities of the European Union (EU) Member States and of other European authorities, namely from acceding and candidate countries of the EU and European Economic Area (EEA). The association is registered in Belgium and its legal seat is in Brussels, Belgium.

IMPEL was set up in 1992 as an informal Network of European regulators and authorities concerned with the implementation and enforcement of environmental law. The Network's objective is to create the necessary impetus in the European Community to make progress on ensuring a more effective application of environmental legislation. The core of the IMPEL activities concerns awareness raising, capacity building, and exchange of information and experiences on implementation, enforcement, and international enforcement collaboration as well as promoting and supporting the practicability and enforceability of European environmental legislation.

During the previous years IMPEL has developed into a considerable, widely known organisation, being mentioned in several EU legislative and policy documents, e.g. the 8th Environment Action Programme that guides European environmental policy until 2030, the EU Action Plan: "Towards a Zero Pollution for Air, Water and Soil" on Flagship 5 and the Recommendation on Minimum Criteria for Environmental Inspections.

The expertise and experience of the participants within IMPEL make the network uniquely qualified to work on both technical and regulatory aspects of EU environmental legislation.

Information on the IMPEL Network is also available through its website at: www.impel.eu

<p>Title of the report:</p> <p style="text-align: center;">Report of the 4 Networks Meeting - Strengthening Enforcement Through Cooperation</p> <p>Rapporteur: Ana Sofia Abreu (IGAMAOT - General Inspection of Agriculture, Sea, Environment and Spatial Planning, Portugal)</p> <p>Speakers in Annex II. Biographies, and Abstracts</p>	<p>Number report:</p> <p>2022(VIII)WG8</p>
<ul style="list-style-type: none"> ➤ Annex I. Agenda ➤ Annex II. Biographies, and Abstracts ➤ Annex III. Final Statement <p>The workshop presentations are made available at: 4 Networks – Cooperation in Strengthening Environmental Enforcement</p>	<p>Report adopted at IMPEL General Assembly Meeting:</p> <p>26-28 June 2024, Brussels</p> <hr/> <p>Total number of pages: 28</p> <p>Report: 28</p>
<p>Executive Summary</p> <p>International cooperation and alignment are very important when enforcing European Union (EU) environmental legislation. To improve collaboration and alignment of enforcement, enforcement authorities must have structural, personal, and frequent contact moments to strengthen their network, exchange experiences and best practices, discuss ongoing cases, and align their enforcement activities.</p> <p>The target audience is the Public authorities and environmental agencies, inspectorates (European Network for the Implementation and Enforcement of Environmental Law (IMPEL), law enforcement agencies (EnviCrimeNet), European Network of Prosecutors for the Environment (ENPE), and European Forum of Judges for the Environment (EUFJE), having this meeting of relevant organisations the purpose to discuss joint efforts to combat environmental crime. The main themes of this conference were:</p> <ol style="list-style-type: none"> 1. How new techniques can be used to prevent and detect environmental offences? 2. How can the administrative and criminal law enforcement complement each other? 3. How to make environmental crimes unprofitable? 4. How to assess, remediate, and compensate for the damage incurred? 5. How to measure enforcement results? <p>The workshop presentations are made available at: 4 Networks – Cooperation in Strengthening Environmental Enforcement</p>	

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This report is the result of a project within the IMPEL network. The content does not necessarily represent the view of the national administrations or the Commission.

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1. Introduction

The Four Networks, [IMPEL](#) - European Union Network for the Implementation and Enforcement of Environmental Law, [EUFJE](#) - The European Union Forum of Judges for the Environment, [ENPE](#) - European Network of Prosecutors for the Environment, and [EnviCrimeNet](#), took place on 28-29th September 2023 in Rome, with the possibility of attendance online, hosted by the Italian Carabinieri, with the support from European Commission and many international organisations from more than 35 countries, where Speakers and active brought relevant contributions, sharing knowledge and presenting solutions and proposals to move forward for strengthening cooperation and environmental enforcement.

This conference builds on the success of the last 4 Networks online event – Together in the fight against environmental crime in 2021, as well as the two previous 4 Networks conferences held in person in Oxford in 2017 and Utrecht in 2016.

The European Commission is working on a better implementation of environmental legislation, also with the new proposal Environmental Crime Directive, considering environmental crime is the fourth largest criminal activity in the world noting, at a global level, the progressive worsening of the situation, referred to by reports from many institutions.

The focus on better implementation of legislation highlights the importance of the framework that will benefit the work of legislators, permit writers, inspectors, police and customs authorities, prosecutors, and judges, and the cooperation and feedback between all elements of this compliance chain strengthens our strategies, plans, programs, procedures and actions, and the probabilities of successful cases in practice, in the context of environmental crime, administrative and civil contraventions, and its enforcement.

Opening statements were made by Massimo Planera, Arma Dei Carabinieri, and Anne Brosnan, Environment Agency England and President of ENPE, Chairs of the conference, followed by welcome speeches by General D. Claudio Domizi, Commander of the Carabinieri Officers School, Deputy Chief of staff for the Minister of Environment - Massimiliano Conti, Representing the Minister of Environment and Energy Security and Lieutenant General Andrea Rispoli, Commander of the Carabinieri for the Protection of the Environment, Forestry and Agri-foodstuffs, representing the Commander General of the Carabinieri Corps.

The representatives of the 4 Networks, Ana Garcia, Chair of IMPEL, Ondrej Koprec, Chair of EnviCrimeNet, Van den Berghe, from EUFJE, and Anne Brosnan, President of ENPE, provided an updated context introduction on their specific focus regarding the themes of the conference, incomplete implementation in member states and the need for improvements in the efficiency and effectiveness of prosecutors in combating environmental crime.

Concerning Environmental Crime and the European Political Perspective, Vita Jukné, Head of Unit, Compliance, Environmental Rule of Law & Governance, Governance & Support to Member States from the Directorate-General for Environment (DG ENV), provided an update on the new proposal for the Environmental Offences Directive and the state of its negotiation.

The four networks selected 5 key topics highlighted as crucial to overcome obstacles and address challenges, presentations that are addressed in the next chapters:

- How new techniques can be used to prevent and detect environmental offences;
- How can the administrative and criminal law enforcement complement each other;
- How to make environmental crimes unprofitable;
- How to assess, remediate, and compensate for the damage incurred;
- How to measure enforcement results.

The workshop presentations are made available at: [4 Networks – Cooperation in Strengthening Environmental Enforcement](#)

2. How new techniques can be used to prevent and detect environmental offences?

Geospatial Intelligence for Environmental Compliance Assurance: Pieter Beck - Joint Research Centre (JRC) of the European Commission, and Ion Nedelcu - Romanian Space Agency.

Presentation on geospatial intelligence for ensuring environmental compliance, providing examples of its practical use. Reference to *Copernicus* and its use in different dimensions, with data that provides added value of information to support environmental monitoring and protection, based on images obtained via satellite; to images acquired via drones, and the creation of a European network of operators of these devices, mentioning the countries where it already operates. Pointed out that although this data offers new opportunities for improving, monitoring, and investigating compliance with the law, it's not yet used to its full potential. Stressed that ensuring environmental compliance across Europe can benefit from the possibilities now offered by these and other *Copernicus* services to generate geospatial intelligence (Presentation P5 T1.1A).

Also, a presentation on GEOINT4ENV, a *Copernicus* User Uptake (FPCUP) activity, supported by the DG ENV, which aims to develop activities to support research into the performance of remote sensing and geospatial intelligence (GEOINT) methods to respond to information needs (where, when, what, why, who) related to illegal activities affecting the environment, such as waste, water, air pollution, and forestry, taking into account relevant EU legislation and actions to improve environmental compliance and governance. Provided real-life use cases, such as the detection of methane leaks. Mentioned that this technology can also be used to detect mining activities, tunnelling, and overexploitation of aquifers, identify areas at risk of thaw-related flooding, and forecast avalanches. It also aims to achieve several specific objectives: sharing practices, including information on costs and benefits; identifying common technical and regulatory user requirements; developing case studies; addressing the need for training; providing best practice guidelines for industry and regulatory bodies; addressing regulatory obstacles; addressing obstacles to sharing and using relevant data and information; and addressing investment issues (Presentation P5 T1.1B).

Artificial Intelligence and its Application: Pasquale Fimiani - Advocate-General at the Court of Cassation Rome and member of ENPE, and Giuseppe Sgorbati - Co-leader in the National Peer Review Initiative (NPRI) project, IMPEL.

Summarisation of the activities carried out by the Fondazione Vittorio Occorsio (FVO) through a specific working group made up of members of the judiciary, environmental authorities, and policy experts, to create the conditions for timely choices and decisions on the use of artificial intelligence (AI) in environmental jurisdiction, with the foundation's main objective being the renewal of legal culture and instruments, keeping them up to date with the rapid evolution of society. Stated that FVO also carries out educational activities with public institutions working around the area of environmental criminal jurisdiction and participates in relevant conferences.

Addressed the definition of an AI system adopted by the European Parliament. Mentioned some AI tools that can be adapted to environmental jurisdiction, namely risk assessment, general data analysis, predictive policing, computer vision, natural language processing, and speech recognition, providing real examples and the respective legal framework, including the new proposal for the Environmental Offences Directive. Stressed that this use is reflected in the definition of enforcement programs in different environmental sectors, through machine learning based on administrative and environmental databases, in the water and waste discharge sectors; in the use of automatic recognition systems, in aerial images (plane or satellite), of illegal waste deposits or unauthorised polluting installations; the principles of computer vision, carried out using learning tools to automatically analyse large portions of territory in search of sites that correspond morphologically to critical environmental situations and in detecting the presence of fraud in the self-monitoring information provided by operators.

Proposal on opening a specific area of interdisciplinary work within the 4 Networks, also considering the need to address the issue following all the different operational dimensions of environmental protection involved in managing the results of AI enforcement: inspection, police action, and criminal prosecution (Presentation P5 T1.2).

The End-of-waste Database as a Tool to Promote the Market of Secondary Raw Material and Support Permitting and Inspection Processes: Romano Ruggeri - Project leader of the Waste Management & Circular Economy (WMCE), IMPEL Project.

Presentation of the IMPEL project WMCE. Reference to the different interpretations of the end-of-waste criteria defined in the Waste Framework Directive in the different Member States (MS), of reception and departure. Stressed the need to harmonise approaches to waste situations in the secondary raw materials market, referring to the lack of EU and national criteria. Reference to a database ("EoW"), which can help provide licensing and inspection authorities (as well as the operators themselves) with information that makes compliance with the required criteria clear and transparent,

and to a "passport" also included in the tool. The tool has been approved by DG ENV (Presentation B1 T1.1).

The role of geolocation in the Amazon rainforest: Faustino Gudín - Judiciary of Spain, member of EUFJE.

Mention of global warming and climate change and the role of the Amazon rainforest in this context. Reference to the problems of deforestation, oil exploration, gold mining, land speculation, and the expansion of agriculture, as the technologies used to identify these problems, namely the use of satellite images, drones, smartphones, infrared images that detect chemicals, devices with heat sensors and cameras to capture intruders in protected areas, audio detection devices from reused mobile phones, and solar panels that can be hidden in the treetops to capture stray noises, and also to the benefits of these uses. Emphasised the important role of indigenous communities in protecting the Amazon (Presentation B1 T1.2).

The EMERITUS project: a tangible example of how EU-funds are addressing the illegal trafficking of waste: Federico Benolli - Senior Associate at Fondazione SAFE.

Presentation of the EMERITUS project, which is an innovation project that aims to support environmental law enforcement authorities, including border police, in investigating and gathering evidence against waste-related environmental crimes, with the participation of 9 countries and 20 partners. Mention the main targets, and the expected results in the medium and long term, aiming to improve the prevention, detection, and deterrence of environmental crimes, as well as the development of evidence-based policies in this field at national, cross-border, and international levels, and also the implementation of a protocol for the effective investigation of environmental crimes, taking advantage of the integration of innovative monitoring and analysis technologies (e.g. drones, satellite data, virtual sensors, geo-intelligence data, etc.), as a complementary training programme. Presented the methodology for achieving the objectives, as well as some real cases (Presentation B1 T1.3).

- ❖ Emphasised from the questions and discussion after the preview three presentations, that there are several projects on this topic, which involve a large financial investment, but without coordination between them that would allow better synergy and useful results, as well as the fact that their use is quite restricted given the need for technical training for users.

Impact of Sustainability in the Criminal Interests Connected to the Environmental Sector - Focus on CO2 Credits Market: Massimo Planera - Arma dei Carabinieri.

Presentation on greenwashing policies and the issue of sustainability, in the light of the ecological transition processes that are taking place worldwide, with the development of new economic and financial sectors (such as CO2 credits or Environmental, Social, and Governance scoring) that have already attracted the attention of criminals and need to be investigated with innovative and efficient methodologies to avoid having a significant negative impact on the environment (Presentation B2 T1.1).

Setting up a New Techniques Department in Slovakia: Michal Kortiš - Head of the Department of Technological Innovations at the Slovak Environmental Inspectorate (SEI).

Presentation of the Technological Innovations Department of the SEI; the implementation of IMPEL's National Peer Review Initiative (NPRI); the technical equipment acquired; examples of activities and plans and challenges provided. Pointed out that the main aim of the department is to apply the latest techniques and technologies in the field of environmental protection and to provide professional support to inspectors, planning to soon introduce sophisticated methods such as drone surveying (photogrammetry) and manage in-house training in this area (Presentation B2 T1.2).

Contribution of Earth observation and geostatistics on information needs related to eco-criminal acts: Federico Filipponi - ISPRA.

Presentation on monitoring environmental disturbances using geostatistical analysis. Considerations about the improvement of procedures for monitoring and classifying disturbances using satellite Earth observation data, with the development of algorithms, with a significant contribution offered by the recent satellite constellations (Copernicus Sentinels), whose high frequency of revisits, observation scenario, and guaranteed continuity encourage the development of operational monitoring services, considered valuable tools for assessing pre-existing environmental conditions, allowing a posteriori evidence to be produced. Stressed the synergistic use of Earth observation data and geostatistics makes it possible to assess environmental conditions qualitatively and quantitatively before and after an investigated eco-criminal act, helping to specifically characterise the nature and severity, assess the spatial extent of the affected area, identify the temporal occurrence and quantitatively estimate variations in specific biophysical parameters. Presentation of specific cases, affecting various environmental matrices such as water and biodiversity, demonstrates the ability to identify and map disturbances, supporting the detection of environmental offences (Presentation B2 T1.3).

3. How can administrative and criminal law enforcement complement each other?

Administrative and judicial cooperation in the fight against environmental crime - The Flemish Approach: Sara Boogers - Head of the Environmental Crime Unit at the Prosecutors office, Antwerp, and Sigrid Raedschelders - Head of the Enforcement Division of the Department of Environment and Spatial Development, Flanders.

Overview presentation of Flemish legislation on environmental enforcement and sanctions, highlighting the interaction it incorporates between administrative and judicial enforcement, harmonisation in supervision, corrective measures, and sanctions. Explanation of how the whole chain, i.e. administrative authorities, police forces, and the judiciary, try to achieve a cohesive enforcement policy, as well as practical agreements on the interaction between administrative and judicial actors. Reference to the desire for a vigorous environmental policy, the guarantee of a high-quality living environment for present and future generations, the involvement of all links in the enforcement chain, and the repair of damage, as well as sanctions in response to illegal behaviour. Presented strategies and instruments used, as well as concrete examples of cases. Stressed the importance of coordination, cooperation, transparency in the information shared, specialisation of all those involved, networking, and evaluation of annual results (Presentation P6 T3).

Enforcement of legislation related to environmental crime in North Macedonia: Darko Blinkov - State Environmental Inspectorate, North Macedonia.

Presentation regarding relevant EU legislation, namely the Environmental Crime Directive 2008/99/EC and international law, national legislative framework, institutional framework; the compatibility/compliance assessment; implementation and history, current plans/projects/financial estimates, and future compliance plans and deadlines (Presentation B1 T3.1).

A more resolute enforcement policy through inspections and sanctions: Leentje Timmerman - Enforcement Division of the Department of Environment & Spatial Development of the Flemish Government.

Presentation of a more resolute enforcement policy, with a repressive approach that focuses on both achieving remediation and the possibility of resolute punishment,

reflected in both the inspections and sanctions of the Enforcement Division. Resolute thus means more rapid deployment of coercive instruments depending on recovery and the possibility of sanctions, more denunciations, and sanctions, and paying more attention to the results achieved in the field. Mentioned: the aim to guarantee uniformity and legal certainty, better compliance behaviour, and more compliance with standards to improve the quality of the environment; the adoption of a gradual approach as a starting point, with strict deadlines and follow-up for inspections, with immediate use for certain risks, target groups, or types of violations; more coercive instruments; and use of the policy lines of the multi-annual environmental enforcement programme and the enforcement initiatives of the annual environmental enforcement plan to determine, for each priority and each issue, when an official report is drawn up or an administrative measure imposed.

Stressed that as far as sanctions are concerned, processes are underway to increase the possible fines according to the financial capacity of large companies and to strengthen the use of the instrument of deprivation of benefits, and an enforcement framework decree was proposed in 2022, which provides for a standard regime for corrective measures and gives the authority responsible for fines in the Enforcement Division an integrated mission of administrative criminal prosecution and sanctioning, making it even less profitable to commit environmental offences (Presentation B1 T3.2).

OLAF and Environmental cases. Enhancing cooperation between administrative and criminal enforcement: Luigi Igiño-Garruto - Investigator of the European Antifraud Office (OLAF).

Presentation of OLAF as the only EU body with direct investigative powers, set up to investigate cases of fraud against the EU budget or misuse of EU funds. Reference to the legal basis for OLAF's actions and particularly the legal basis for its actions concerning waste traffic.

Characterisation of the supranational dimension of the crime, in terms of the structure of the criminal organisation, the place of commission of the crime, concurrence with other crimes, and money flows. Mentioned the importance of international cooperation as a synonym for efficiency, and broadened of OLAF network: not only European and non-European Customs, and natural partners, but also other entities (Market Surveillance Authorities, Agencies specialising in the environment, health, specialised police forces) with specific knowledge in the areas of interest, which will allow for a rapid and effective investigative response, the aim being to combine administrative and criminal investigations.

Reference to the most important results obtained when the results of administrative controls acquired in judicial proceedings, with obvious benefits. Gave examples of acquisition of information and documentary evidence from third-country organisations, on-the-spot inspections, raising the threshold of border controls for future activities, an early warning system for joint "investigative" activities, seizures of illicit products, the dismantling of transnational criminal groups and the establishment of operational networks (Presentation B1 T3.3).

Use of the Dutch legal Duty of Care obligation in improving the quality of gasoline and diesel blended in the Netherlands and exported to low and mid-income countries, a multi-intervention approach: Sjimien Roosma - Human Environment and Transport Inspectorate, Netherlands.

Presentation of conclusions from reports published by the Human Environment and Transport Inspectorate concerning high levels of certain substances in fuels that lead to much higher emissions of particulates (volatile organic compounds) than fuels used in Europe. Emphasised that the use of these fuels in the importing has a detrimental effect on catalytic converters and particulate filters, leading to substantial additional emissions of pollutants. Reference to other reports stating that these additional emissions lead to reduced air quality and health problems and contribute to premature deaths, for example in urban areas in West African countries, as to a programme to improve the quality of exported petrol and diesel using the legal "duty of care" obligation of the Netherlands Environmental Management Act. Mentioned an enforcement campaign in which offences are subject to administrative and criminal sanctions (Presentation B1 T3.4).

4. How to make environmental crime unprofitable?

The European Public Prosecutor's Office, environmental crimes and asset recovery:
Jennifer Vanderputten - European Public Prosecutor's Office (EPPO).

Mention of the emergence of the EPPO under Article 86 of the Treaty on the Functioning of the EU, its timeline, and legal framework, which began in 2013 and currently has 22 member states, and the EPPO competencies, namely, investigation, prosecution, bringing to justice the perpetrators or accomplices of crimes affecting the EU's financial interests. Reference to the strategic objective of following the money and making sure that crime doesn't pay, Implementing a proactive approach to asset recovery from the outset; pursuing the identification, tracing, seizure, and confiscation of criminal proceeds as a priority; use of multidisciplinary tools involving relevant stakeholders; use of all possible sources and channels to follow the money trail through (parallel) financial investigations and gather relevant information on assets; make use of the full legal arsenal of attachment and seek efficient alternative (administrative) means; minimise/recover damages before trial; respectively request attachment measures intending to repatriate illicit assets to the MS and EU budget. Mention of the EPPO intends to broaden its competencies in the future, emphasising the link between money laundering crimes, for which they have competence, and environmental crimes (Presentation P5 T2).

Beaching break-up is a waste crime: Marc Van Cauteren - member of ENPE.

Presentation of a real case concerning the process of dismantling a ship at the end of its operational life, providing the legal basis, the mistakes made, similar cases and their results, and new processes to improve the investigation and prosecution of offenders. Reference to an IMPEL project on this subject. Emphasised the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, which is applicable worldwide but has not yet been adopted due to the high standards for entry into force. Conclusions and promotion of a discussion, with questions to the audience (Presentation B1 T2.1).

Choosing a regulatory pathway: Australian examples: Kate Robinson - Australian Lawyer.

Presentation of the basic legislation relating to the Australian electricity grid, putting them in perspective on motivations and achievements. Mentioned the energy transition by 2050, the energy mix used, and the challenges. Showed real cases, alternative solutions, and made an update on climate change litigation (Presentation B1 T2.2).

North American perspectives: Joe Poux - US Department of Justice and Jeff R. Bray - Office of Maritime and International Law at Coast Guard Agency.

Presentation of real cases and their sentences concerned investigations, vessel authorisations, bail agreements, environmental compliance plans, and sentencing options Reference to a pilot programme of compensation and recovery incentives (Presentation B1 T2.3).

Glass eel trafficking - cooperation between criminal and administrative authorities: Nuno Saavedra - ICNF, Nature Conservation Authority, Portugal.

Presentation of the ICNF, legal basis, competencies, mission, and national and international responsibilities. Emphasised the need for close cooperation between the criminal authorities and the administrative authorities, with their experts, involving different areas. Presentation of the problem of glass eels: characteristics, smuggling methods, approach to the specific nature of the crime, legal framework, authorities involved, the difficulties and needs, the sophistication and profile of the criminals and their evolving adaptation, the investigations and the results achieved, concerning the amounts seized. Presentation of case studies, regarding the relationship between money laundering offences, and the IMPEL project around the area of nature protection, "EU action plan against wildlife trafficking", which includes joint inspections, workshops, and the realisation of a guide to good practices (Presentation B2 T2.1).

Transnational Cooperation in Combating Illicit Wildlife Trade in Asia, Africa, and Latin America: Giovanni Broussard - Coordinator for Africa of the United Nations Office on Drugs and Crime (UNODC) Global Programme on Crimes that Affect the Environment.

Reference to the benefit of environmental criminal networks and the lack of detection during the supply chain; how arrests and prosecutions have little impact on network revenues; and how over the last decade law enforcement authorities and prosecutors across Africa, Asia, and Latin America have created formal and informal networks to

disrupt illicit trade and make it less profitable, with some networks more successful than others. Presentation of why, with an example of an overview of some of the forms of cooperation between MS supported by UNODC and other international organisations. Relationship with international conventions, money laundering legislation, corruption, and criminal law. Challenges posed by the different legal frameworks in different countries. Presentation of the main lessons learned, with cooperation and networking as key elements. Presentation of the key points for future action, emphasising financial investigations. Presentation of some operations carried out and some suggestions on how to make environmental crime less profitable. The final phrase was "It takes a network to fight a network" (Presentation B2 T2.2).

Criminal Trends in Plastic Waste Market and a Coordinated Response: Michele Viale - Interpol.

Presentation concerning Illicit flows and emerging criminal trends in the plastic waste sector. Reference to the joint report, which produced a strategic assessment aimed at helping authorities develop strategies to combat plastic waste-related crime and which highlights how criminals have exploited market transformations to develop criminal businesses in vulnerable countries and poor waste management, taking advantage of confusion in the market, as well as using the increase in plastic waste imports to cover the trafficking of other goods. Emphasised the increasing adoption of approaches by countries towards a more circular economy, where waste becomes a resource, could mean changes soon, considering that if the changes are not well regulated, they could offer opportunities for the growth of new criminal businesses, as has been observed in the plastic waste sector.

Considerations about the need for a more collaborative and coordinated approach to better prevent crime in the global waste sector. Mentioned that this type of crime is driven in part by structural deficiencies in the waste market, such as limited waste collection capacities in importing countries and a shortage of recycling capacities in exporting countries, affecting household waste management in both cases. Suggestions for improvement were mentioned (Presentation B2 T2.3).

- ❖ Emphasised, from the questions and discussion following the last three presentations, the importance of cooperation between different environmental law enforcement bodies in the fight against environmental crime is a key element in improving the effectiveness of results; Sharing information and experience; the need for a holistic approach; and investment in financial and money laundering investigations.

5. How to assess, remediate, and compensate for the damage incurred?

General Introduction: Ann Carette - Council for permit disputes, University of Antwerp.

Presentation of a brief overview of the different forms of damage caused by environmental crime (personal injury and ecological damage) and their assessment challenges, noting that regardless of these challenges, remediation of the environmental damage in the context of enforcement is of great importance. Reference to acceptance of the concepts and definitions of remediation, compensation, restoration, and clean-up, as to the importance of remediation of ecological damage and restitution to those who have been harmed by the environmental crime, and also to the various trends in international law, including the 15th Conference of the Parties, the EU's 2030 Biodiversity Strategy, Resolutions of the Human Rights Council, the United Nations General Assembly, and case law from the European Court of Human Rights (Presentation P6 T4).

"Environmental" and "substantial" damage in the context of the Environmental Liability Directive (ELD), and Environmental Crime Directive (ECD)": Francesco Andreotti - Head of the Emergency Planning and Response Unit of the Area for Environmental Emergencies on Land, Italian National Institute for Environmental Protection and Research (ISPRA), Anabela Rebelo - Senior officer, water resources department, Portuguese Environment Agency (APA), and António Quintas - Inspector, IGAMAOT.

Introduced the background to the ELD, concerning its chronology, scope, applicability, principles, main objectives, and synergies with other legislation. Reference to important definitions and the main issues in implementing the ELD, compensation, and remediation, and possible solutions for improving the effectiveness and efficiency of the ELD (Presentation P6 T4.2A).

Presentation of a conceptual methodology, supported by classic mathematical methods for characterising risks and knowledge-based models, but considering in all

cases the temporal and spatial references where the hazardous event has already occurred or is in progress, emerging the guide for establishing Criteria for Substantial Damage to Water Resources, explaining the need to investigate and understand the various effects, step by step, between the episode of occurrence and the damage itself, developed by APA (coordination), in conjunction with IGAMAOT, the Public Prosecution Service and the Portuguese Judicial Police. Key technical-scientific and legal concepts were explained, as well as the technical and scientific methodology, supported by risk assessment, multiple types of hazardous occurrences/events, and impacts on surface and/or groundwater. Emphasised the need for a common language. Reference made to the Technical-Scientific Index for Clarifying Illicit Water Resources (ITC), which is based on an equation that considers factors such as Occurrence Potential, Negative Effect (the type of occurrence and severity), and Potential Water Resources Affected, and an *excel* tool that was developed to integrate the data obtained and carry out an automatic calculation. Information regarding the validation of the guide by the APA in real cases, allows for a quicker and easier assessment by the inspectorate/police/agents, promoting a better and holistic approach to supporting inquiries. Several training sessions have already taken place (Presentation P6 T4.2B).

Explanation of real examples in the application of the Technical-Scientific Index for the clarification of illicit water resources, namely concerning dredging and reparation and the Municipal Wastewater Treatment Plant. Reference was made to inspection procedures, difficulties, and possible strategies, planning implementation, considering the parameters chosen, and providing possible guidelines for more efficient application. Considered the methodology of great practical use (Presentation P6 T4.2C).

A short introduction to the Bioval project: Jan Van den Bergh - EUFJE.

Brief presentation of the BIOVAL project, a joint project between EUFJE, IMPEL, and ENPE, which aims to create a practical, non-binding instrument for assessing ecological damage in court, not focussing on sanctions but on financial restoration. Similar instruments are used to assess the value of compensation for health, material, economic, and ecological damage.

The Greek Ombudsman's (GO) role in the implementation of environmental liability legislation: Angeliki Bosdogianni - Greek Ombudsman, and Emilia Liaska - Senior Investigator at the Greek Ombudsman Institution.

Presentation of the GO, structure, competencies, and contribution to improving the quality of services provided by the public administration and promoting a new

administrative culture to ensure the implementation of environmental liability legislation. Reference to the implementation of the ELD in Greece and the national legal basis - considerations. Emphasised the importance of the role of citizens in the successful implementation of the ELD, the power of environmental transparency, and the implementation of the principles of the Aarhus Convention in the implementation of the ELD regime.

Presentation of three case studies on the reparation and compensation of damage suffered, investigated by the GO, which combine environmental liability with environmental crime legislation: the uncontrolled dumping of barrels of caustic waste in Piraeus; environmental damage caused by the fire that broke out on the premises of a private recycling center in Attica; and the recovery of a cave where uncontrolled disposal of municipal waste was taking place (Presentation B1 T4.1).

The Inspection, monitoring, and remediation of old landfills to prevent environmental damage: Marco Falconi - ISPRA, Water and Land Expert Team leader, IMPEL and Nino Tarantino - Commissioner for Remediation of Illegal Landfills.

Addressed the importance of managing abandoned landfills and focusing on real projects with real results.

The Remediation of the Steelworks Waste Site on Haulbowline Island, Cork: Cormac Ó Súilleabhá - Cork County Council.

Presentation on the Haulbowline Island remediation project which from 650,000 m³ of steel waste, a negative legacy of the island's industrial past, has been transformed into a magnificent public recreational facility for the beneficial use of residents, local labour, and visitors. It required the application of innovative and customised engineering solutions from start to finish. It was internationally recognised and provided an enhanced public realm offer (Presentation B1 T4.3).

Bioval - a practical tool to calculate compensations for damage to wildlife: Jomme Desair - Researcher Institute for Nature and Forest Research, Flanders.

Reference to ecological damage deliberately and illegally inflicted by a perpetrator or caused in the context of permitted activities, which must be taken to court. Emphasised that deciding such cases is far from straightforward: whether primary reparation is possible, on what temporal and spatial scale compensatory and complementary reparations are considered, etc. Use when part of the damage is irreparable or reparation measures are unfeasible, in which case monetary compensation may be requested. Reference to the questions of who should be compensated how, and how an amount can be determined. Presentation of the

research process in which judges, jurists, and ecologists sought to overcome the conceptual, scientific, and pragmatic barriers to developing a practical instrument that provides such robust figures, based on a transparent and adaptable calculation for vertebrate species. Presented criteria used and methodology and indicative list of values that can be used in hearings and court decisions. Discussion of strengths and weaknesses in comparison with existing calculations and proposal of avenues for future applied research, as well as recommendations for application (Presentation B1 T4.4).

6. How to measure enforcement results?

OECD Initiatives on environmental compliance promotion and enforcement: Olga Olson - Project Manager, Environmental Compliance Assurance and Liability Regimes, in the Organisation for Economic Co-operation and Development (OECD), Environment Directorate.

Presentation of strategies and instruments for promoting and enforcing compliance, measuring results, as well as on the use of digital technologies for the design and implementation of public policies and on environmental crime in OECD member countries; Recommendations on OECD environmental compliance and future challenges (Presentation P6 T5.1).

The Experience Drawn from Shipments of Waste Enforcement Actions Project (SWEAP): Katie Olley - Project Leader for IMPEL's SWEAP.

Presentation of the SWEAP project, brief history of waste shipment data collection; measuring the impact of enforcement; digital solutions and issues, and recent results. Stressed that the reporting of waste shipment enforcement results isn't harmonised across Europe and faces several challenges, such as data availability, quality, comparability, and reliability. Analysis of the ideal situation, the real situation, and possible practical changes. Statistical analysis of the destination of waste (2022-2023). Reference to the future steps (Presentation P6 T5.2).

Measuring the Effectiveness of our Enforcement against Waste Crime: Using Combined Approaches: Kerry Thompson - Gilroy, Environment Agency, England.

Background on waste crime, noting that as regulation expands, so do the lucrative opportunities for criminals, including organised crime groups. Stressed that the scale of this type of crime continues to increase, evolving as quickly as environmental regulation does, and that the current measure of law enforcement effectiveness

against waste crime is a single metric based on a historical profile of criminal activity in the waste sector, needing to consider a new approach.

Presentation of a set of measures that are expected to cover the breadth of the waste life cycle, the wide-ranging nature of different types of waste crime, and give us an indication of the "hidden" levels of crime that cannot be measured directly. The challenge of measuring the effectiveness of enforcement in waste crime is explained. The aim is to combine data from a National Survey on Waste Crime and an estimate of the Deterrence Index, to chart the evolution of this environmental crime scenario and to measure effectiveness (Presentation B1 T5.1).

A Study on Indicators to Measure Enforcement Results: Martine Blondeel - senior Environmental and Spatial Enforcement Policy Expert, Government of Flanders, and project leader of the Cross-Cutting Issues Expert Team, IMPEL.

Presentation of a study to expand the set of indicators to measure the results of enforcement, namely, a first set of indicators focuses on monitoring and evaluating the implementation of policy enforcement actions, making it possible to verify that the policy is being implemented by all stakeholders, and a second set of indicators focuses on enforcement activities related to priority planning issues. Stressed that action-oriented tried and tested indicators should make it possible to monitor the deployment of people, resources, and instruments for these enforcement actions, as to the attention to be paid to monitoring and evaluating the effects of these actions on the environment and behaviour, using effect-oriented indicators (Presentation B1 T5.2).

The Green Light: Using environmental data to prevent and deter harm in Wales: Martin Davies - Senior enforcement policy advisor in the Future Regulation Team in the Evidence, Policy and Permitting (EPP) Directorate and Martyn Evans - Natural Resources Wales.

Background and presentation by Natural Resources Wales, the main environmental regulator in Wales, an organisation that considers data collection, monitoring, and analysis to be synonymous with measuring progress and success. The field of application is no exception. Presentation: a) How information on patterns, trends, and risk factors relating to incidents, non-compliance, and illegal activities informs strategic and frontline enforcement; b) The impact of data-driven analysis on the identification of evolving threats, the effectiveness of different interventions and, when combined with various socio-economic factors, the development of evidence-based policies aimed at addressing underlying causes and behaviours; c) How the measurement of compliance and enforcement data promotes transparency,

accountability, and public trust, through the open communication of key enforcement metrics and the promotion of public access to enforcement data; d) The pressures on the natural environment in Wales and how data supports the development of new tools and approaches to prevent and deter damage to the environment (Presentation B1 T5.3).

- ❖ As a result of the presentations made, methodologies for measuring enforcement results were explained. A reflection of the need to process data resulting from inspection actions in an automated and expeditious manner to support decision-making.

Performance Measurement of Local Authorities Environmental Enforcement: Valerie Doyle - Senior Inspector, Environmental Protection Agency (EPA), Ireland.

Presentation of the Local Authority Performance Framework, developed by the EPA which assesses the effectiveness of local authority inspection activities in addressing key environmental issues, in 20 priority areas (known as National Enforcement Priorities) to measure local authority actions and their outcomes. Each of these priorities is scored according to a four-point scale: Excellent, Strong, Moderate, or Limited. Achieving a Strong or Excellent score demonstrates that the local authority has a comprehensive system for detecting and monitoring environmental enforcement activities and that progress has been made toward an environmental outcome under that priority. Stated that the overall aim is to achieve environmental improvements in the quality of air, water, air, noise, and waste management. Mentioned the methodology, results, and key lessons learned. (Presentation B2 T5.1).

US EPA Case Study in Using Performance Measures to Drive Programme: Amy Porter - the United States Environmental Protection Agency (US EPA).

Presentation of the US EPA, mission and principles, and the long-term performance target it has developed, which reflects, among other things, the enforcement programme's commitment to addressing non-compliance as quickly as possible and reducing the time between identifying violations and returning to compliance. The enforcement process with the greatest potential for improvement is the number of open legal cases, with an explanation of the methodology, targets and tools to measure and reduce the number of older cases (Presentation B2 T5.2).

IMPEL IRI programme: Rob Kramers - Rijkswaterstaat, Netherlands

Presentation of the IMPEL Review Initiative (IRI), which is a voluntary peer review where environmental authorities from IMPEL member countries help each other to improve the implementation of EU environmental legislation. Stressed that having an

IRI, the host receives free advice to further improve their work, and best practices are exchanged throughout the European community. Stated that in the past, the IRI focused mainly on inspections; today, the IRI covers the entire regulatory cycle, with the main objectives of providing advice to environmental authorities; encouraging capacity building of environmental authorities in IMPEL member countries; encouraging exchange of experiences and collaboration between these authorities on common issues and problems; disseminate good practice. Also stated the informality of the review, not an audit, aimed at identifying areas of good practice for dissemination, together with opportunities to develop existing practices within the authority and authorities in other IMPEL member countries (Presentation B2 T5.3).

6. UKRAINE SESSION

Activity of the State Environmental Inspectorate of Ukraine during War and Consequences for the Environment: Ihor Zubovych - State Environmental Inspectorate, Ukraine

Presentation dedicated to the impact of the Russian Federation's armed aggression on the environmental situation in Ukraine. Mentioned the creation of the Operational Headquarters to record and organise information on the damage caused by armed aggression and the amendments to the Regulations of the Environmental Inspectorate to extend its powers to calculate damage. Mentioned the methodologies for calculating losses and damage caused, with total losses amounting to around 52 billion euros, including soil, air, and water pollution. Presentation of the EcoZagroza initiative, which serves to record and analyse environmental threats and the impact of military aggression on the environment. Description of the consequences of the weakening of the Kakhovka Hydroelectric Dam during armed aggression (Presentation B2 U1).

Ukrainian response and first steps for the environmental protection activity since the beginning of the Russian invasion in 2022. Circumstances and intermediate outcomes: Olena Kryvoruchkina - Committee on Environmental Policy and Nature Management of the Ukrainian Parliament.

Reference to the start, on 1st March 2022, of the establishment of the Operational Headquarters based on the State Environmental Inspectorate of Ukraine, being the center of coordination between the list of Ukrainian authorities for fixing, documenting, and forming the register of environmental damage and losses, and the creation of an Expert Working Group due to the importance of using internationally recognised methodologies and the use of calculations and assessments. Reference to

the interim results and next steps needed, not only to make Russia pay for all the losses but also to avoid such catastrophic environmental circumstances in the world in the future (Presentation B2 U2).

Enforcement of environmental law implementation and strengthening the activity of the State Environmental Inspectorate of Ukraine: Andrii Moroz - Secretary of the Science-Expert Council.

Presentation of the Science-Expert Council of the State Environmental Inspectorate of Ukraine (SEI) and its legal basis, and the current state of Ukraine's environmental legislation. Reference to how to relate war-related environmental issues to war crimes and compensation mechanisms for all types of damage (including environmental damage) and stressed the need to implement EU environmental legislation also added to the need to strengthen its activity in the process of collecting data on environmental damage and developing post-war remediation (Presentation B2 U2).

Ukraine Prosecutor (ENPE) Presentation: Maksym Popov and Borys Indychenko - Prosecutor's General's Office of Ukraine.

Presentation of an impactful video showing the before and after of armed aggression, in the occupied territory of Ukraine, in figures of environmental damage in the various environmental aspects, and on how to prosecute environmental war crimes (ecocide); facts - nature and scale, applicable legal framework, information on the "Kakhovka" dam case, main challenges, priorities, progress (video and presentation B2 U4).

8. CONCLUSION

The conference was closed with final remarks and next steps by the representatives of the four networks, with the regulators, police, prosecutors, and judges perspectives, respectively, IMPEL, EnviCrimeNet, ENPE, and EUFJE.

The conference aimed to contribute to improve the collaboration and alignment of enforcement, it is essential that enforcers have structural, personal, and frequent contact moments where they can strengthen their network, exchange experiences and best practices, discuss ongoing cases and align their enforcement activities together.

The rule of law needs to be put in practice, and conditions to ensure a proper enforcement of environmental law by practitioners on daily basis is today, more than ever, a crucial challenge.

Combating environmental offences with emphasis on reacting to situations that already occurred when environmental damage and impact is already real and many times impossible to prevent and remediate, and where the responsible ones are much more difficult to track and identify, is not effective. It often leads to unsuccessful and costly investigations and failure of objectives and targets related to environment, health and economic and social well-being and the decrease of public confidence in authorities and governments.

Addressing the main drivers behind the rise of environmental crime – high profit, low detection rates and low risk of punishment, and consequently a high chance of not having a sanction and imposition to repair the damage caused – will rise the probability of detecting and prosecute illicit actions with success.

To be more successful the 4 Networks highlighted the need to focus on prevention rather than reaction, and legislation, regulation and resources must promote, ensure and support the action of the authorities to this purpose, by a joint declaration on the conference, transcribed, concluding:

1. We need new techniques to prevent and detect environmental offences.

Relying only on physical inspections to detect environmental offences is a goal impossible to achieve, due to the disproportion of the number of operators whose installations/activities might have an impact on the environment and human resources from authorities associated with the need to inspect targets in a convenient frequency. No organization has such staff capacity, and time available, especially in a context of many competing and demanding priorities and technically complex, also in juridical interpretation, legislation.

Authorities detain already a big amount of data that arises from permitting and monitoring/reporting - also from duty holders that need to prove to authorities that they are complying with the law (self-monitoring or self-reporting), a requisite that should be more credible and widely used, as a practical application of the polluter pays principle.

We need intelligence-led action and more support on the use of techniques such as geointelligence, big data analysis, and artificial intelligence that will enable authorities to detect and act on early breaches, by a sound risk analysis to define priority areas and targets and focus their action.

2. We need administrative and criminal law enforcement to complement each other.

Authorities must have all the necessary legal resources to stop in due time breaches to administrative law by applying administrative sanctions followed by criminal sanctions, when necessary, effective, proportional, and dissuasive.

To prevent and correct infringements there is a need for more tools and wide use of orders, namely for revision, suspension or revocation of permits, restoration of legality and remediation of damage.

We need a wider use of precautionary approach, also directed to offences that might be committed recklessly or negligently, and an intensive combined use of strong tools provided by administrative and criminal law that must be reflected in the rule of law and fully applied to have an effective action in enforcement against threats to environment and health.

3. We need to make environmental crime unprofitable.

Acting on the main drivers behind the rise of environmental crime – high profit, low detection rates and low risk of punishment, and consequently a high chance of not having a sanction and imposition to remediate the caused damage – and addressing each driver, will rise the probability of detecting illicit actions.

Measures like preventive confiscation of assets, investigating money laundering, preventing “fake” insolvencies or closure and use of “paper” front companies, prosecution of natural and legal persons will support the investigation and connection between profit and environmental crime, for more successful cases. Ensuring damage remediation and repair costs to environment, public health, and society are paid by the ones that commit such crimes will also ensure that the ones that comply with the law are not at a disadvantage.

We also need to take measures with a broader impact, such as to diminish the amount of waste produced by stopping its transfer to countries with less environmental regulations and enforcement, with cheap costs for operators and high costs to environment, public health, and society.

4. We need to assess, remediate, and compensate for the damage incurred.

“Damage” at present, both in ECD and in ELD mean in practice undefined and complex “thresholds”, difficult to prove, and giving rise to different interpretations and understandings and subject to easy arguments in court that such thresholds are not crossed.

The law must be implemented individually by each Member State in its domestic legislation so any ambiguity or vague terms may lead to variations in legislation across the EU and even more to continue the current situation of poor implementation of civil liability and criminal law concerning environmental offences.

We need clear criteria on how the assessment of damage, costs and compensation will be made, who shall do it, in which stage of the enforcement chain. Practitioners need a common language and comprehension of environmental problems combined with a more technical juridical concrete explanation of terms, bringing together the work from the judiciary, environmental authorities, and citizens in concrete cases, to support an effective and harmonized application of the law “on the ground” and create a more level playing field between countries and continents.

5. We need to measure enforcement results.

To understand if we are heading on the right direction or if we must take actions to correct our path, implies measuring the outcomes related to complying legislation and a better

environment, health, and economic and social well-being. It also implies understanding their relationship with outputs, such as permits, monitoring of operators' performance and environment, inspections, prosecutions, or court decisions. Not only with numbers, but mainly if their application is aligned and brings the intended results, meaning the achievement of outcomes objectives and targets.

Measuring enforcement results implies a deep understanding of its relationship with inputs/resources, and with the processes that transform inputs/resources into outputs, namely procedures, plans, programs, and strategies.

We need sound empirical indicators connected to features such as: the characteristics of the universe of operators/activities/installations and their fulfilment of legal obligations; cooperation, collaboration and sharing information; capacity, training and specialization; quality, credibility and availability of data connected to monitoring of operators' performance and environment, but also permits, inspections, investigations, prosecution, adjudication; risk analysis, proportional action and prioritization.