European Union Network for the Implementation and Enforcement of Environmental Law

Criteria for the assessment of the Environmental Damage (CAED)

Practical Guide

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Introduction to IMPEL

The European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) is an international non-profit association of the environmental authorities of the EU Member States, acceding and candidate countries of the European Union and EEA countries. 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 a number of EU legislative and policy documents, e.g. the 7th Environment Action Programme and the Recommendation on Minimum Criteria for Environmental Inspections, and more recently in the General Union Environment Action Programme to 2030 and EU Action Plan: 'Towards Zero Pollution for Air, Water and Soil'.

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

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Executive summary:

Keywords

Environmental Liability Directive (ELD), Environmental Damage, Imminent threat of environmental damage, Determination of environmental damage, Environmental investigations, Environmental incidents, Environmental non-compliance, Environmental offences, Eco-criminal acts, Environmental Crime Directive (ECD)

Target groups

Competent authorities for environmental damage assessment and enforcement, industrial operators, environmental protection agencies, nature protection bodies, environmental inspectorates, environmental guard departments, environmental monitoring and research institutions, technical universities, environmental associations, NGOs, insurance companies and associations, environmental consultants.

As part of its 2016-2020 Strategic Work Programme, the IMPEL Network set up this project in the environmental damage thematic area, concerning the criteria for the determination of the environmental damage and imminent threat of damage, called CAED - Criteria for the Assessment of the Environmental Damage.

The CAED project takes guidance on key terms and definitions of Environmental Damage as a springboard and focuses on the technical/administrative procedures necessary to make determination of environmental damage.

The CAED project has been included in the ELD Multi-Annual Rolling Work Programme (MARWP) 2021-2024 of the EU Commission (as activity 1.3) as one of the activities for capacity building and it has strong links with the European Commission's publication on 25 March 2021, of the Commission Notice C(2021) 1860 final titled "Guidelines providing a common understanding of the term "environmental damage" as defined in Article 2 of Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage".

The ultimate goal of the project was to develop a guide and a useful tool proving criteria, methods, decision-making flowcharts, tables and check-lists to help screening, identifying and assessing environmental damage and imminent threat of damage under ELD, as well as conduct trainings on these products.

This Practical Guide proposes a new approach for the assessment of environmental damage based on three phases of ascertainment and on reference parameters relating to "evidence" and to "clue" of environmental damage, taking guidance on the Guidelines SNPA 33/2021 of the National System for Environmental Protection of Italy (see references) as a springboard.

Moreover, with reference to that SNPA Guideline, this Practical Guide proposes a new methodology consisting in using a DPSIR (Driver, Pressure, State, Impact and Response) model adapted to environmental damage assessment and a new tool made of tables of indicators based on the new approach of the ascertainment and the adapted DPSIR methodology. However, this Practical Guide developed a different and broader approach to the one of the SNPA Guideline.

This Practical Guide is therefore connected with a practical tool, namely the Practical Tables, which include check-lists and tables of indicators based on the new approach and methodology and referred to each natural resource protected by ELD.

These Practical Guide and Tables may be used both by ELD experts and non-ELD experts to screen, identify and assess environmental damage and imminent threat of damage under ELD.

In line with activity 1.3 of MARWP 2021-2024, this practical guide and the training activities conducted by the CAED project intend to contribute at improving capacity building of ELD experts and non-ELD experts in the determination of the environmental damage and imminent threat of damage pursuant to Environmental Liability Directive.

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Disclaimer:

1. This Guide is the result of a project within the IMPEL network. The content does not necessarily represent the view or the official position of IMPEL, the national administrations or the European Commission.
2. This Guide reflects only the authors' views and the authors themselves are not liable for any use that may be made of the information contained therein.
3. This Guide is subject to the Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information.

This Guide is intended as a reference document for competent authorities and practitioners. It does not prescribe what a competent authority should do. Instead, it aims to provide information to assist competent authorities in making better decisions about the ascertainment of environmental damage. In this way, it should contribute to improve protection of the environment and promote compliance with the "polluter pays principle".

Caveat:

The users of the Practical Guide and Tables must consider that the Practical Guide and Tables are only a tool to help the ELD expert and non-expert users in the assessment of environmental damage under ELD. Hence, they are not binding for ELD competent authority and, overall, for ELD implementation. Moreover, they should be adapted to each ELD national legislation, and they may be amended and/or integrated according to users needs.

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1. THE CAED PROJECT

1.1 Purpose

The CAED project aims to provide criteria, methods, and useful tools to enhance competent authorities and practitioner's capability in promptly and effectively determining the clues and evidence of environmental damage and imminent threats of damage caused by environmental incidents, non-compliances, offences, and criminal actions.

It is anticipated that the success of preventive or remedial measures may be improved, with such a framework of procedures, criteria, methods and planning and assessment tools for the determination of the environmental damage and imminent threat of damage. The purpose of this guide is to provide that framework by providing practical tools to support competent authorities in identifying potential cases of environmental damage under the Environmental Liability Directive (ELD). Early identification of clues of damage can facilitate rapid decision making, saving time, efforts, and money. The guide therefore focuses on preliminary assessments for the evaluation of potential cases of environmental damage and imminent threat of damage under ELD.

1.2 Scope

The Criteria for the Assessment of the Environmental Damage (CAED) project is primarily concerned with the Environmental Liability Directive 2004/35/CE (ELD) which concerns the environmental liability for the prevention and remediation of environmental damage.

In particular, the CAED project concerns the environmental damage to the natural resources protected by the ELD, namely, protected species and natural habitats (included in Habitat and Birds Directives), waters (under Water Framework and Marine Strategy Directives) and land[1] [2]. In addition, the scope includes areas protected by national legislation (such as protected areas, national and regional parks, wetlands) and international conventions (RAMSAR).

The CAED project is framed in the administrative procedure for the determination of environmental damage and imminent threat of damage, and it is devoted to the the early stages of environmental

[1] Natural resources protected by the ELD are surface inland and transitional waters, marine and coastal waters, groundwater, protected species and natural habitats (or relevant species and natural habitats in national protected areas), land.

[2] Impacts on land generated by GMOs and MGMOs are not included.

damage assessment, referred to as the phase of "ascertainment" or the "determination of environmental damage"[3].

The ascertainment can be divided into three steps of actions:

1) The **screening** of cases of possible environmental damage and imminent threat of damage under ELD *(to identify whether there are actual (or potential) adverse effects on natural resources)*[4]
2) The **determination of clues** of environmental damage and imminent threats of damage for the identification of candidate environmental damage and imminent threat of damage cases under ELD *(to establish whether there may be actual (or potential, in case of imminent threat) significant/sustained adverse effects on natural resources)*
3) The **determination of evidence** of environmental damage and imminent threats of damage for the confirmation of cases of significant environmental damage and imminent threat of damage *(to confirm whether there are actual significant adverse effects on natural resources (i.e. confirmed ELD cases for ELD resources))*.

Fig. 1 below shows the three steps[5]:

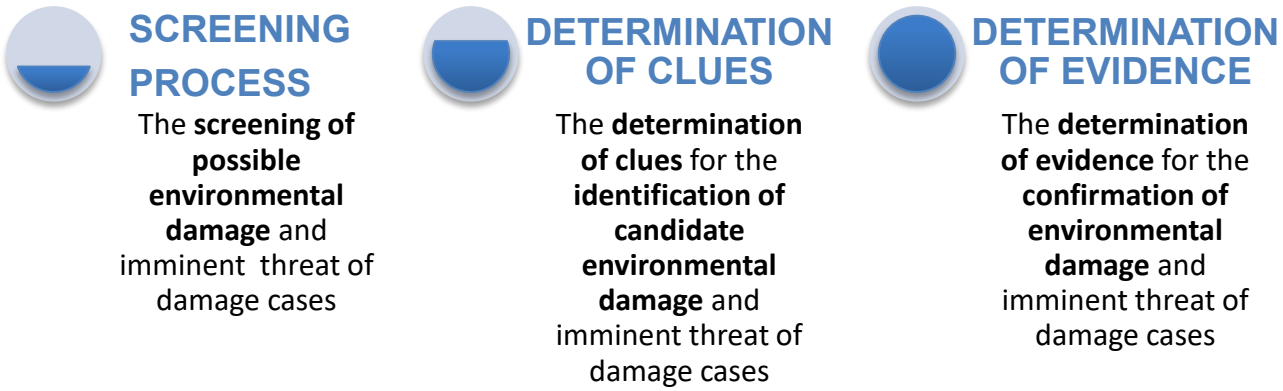

Figure 1 - Three steps of the determination of the environmental damage.

[3] This phase includes the activation phase (the event is discovered/notified by/to the authority), immediate action phase (the event is investigated by the authority), assessment phase (the imminent threat of damage or/and the damage is determined).

[4] For descriptions concerning the screening process and the determination of evidence of environmental damage consult the CAED report (2019) downloadable at: https://www.impel.eu/projects/criteria-for-the-assessment-of-the-environmental-damage-caed/

[5] The concept of "clues" and "evidence" has been proposed by the National System for Environmental Protection of Italy and they are defined in the the SNPA Guideline AA.VV.- "Metodologie e criteri di riferimento per la valutazione del danno ambientale ex parte sesta del Dlgs 152/2006" - Linee Guida SNPA 33/2021".

1.3 Background

As part of its 2016-2020 Strategic Work Programme[6], the IMPEL Network set up the Criteria for the Assessment of the Environmental Damage project (CAED) in the environmental damage thematic area, concerning the criteria for the determination of the environmental damage and imminent threat of damage. This project takes guidance on key terms and definitions of Environmental Damage as a springboard and focusses on the technical/administrative procedures necessary to make determination of Environmental Damage.

The CAED project has been included in the ELD Multi-Annual Rolling Work Programme (MARWP) 2021-2024 of the EU Commission (as activity 1.3) as one of the activities for capacity building and it has strong links with the Commission Notice C(2021) 1860 final titled "Guidelines providing a common understanding of the term "environmental damage" as defined in Article 2 of Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage" published on 25 March 2021 (hereafter called "EU COM Notice")[7].
Moreover, this guide is based on the outcomes of the first year of the CAED project (2019)[8] and it is linked to the EU COM Notice.

Finally, as Directive 2004/35/CE (ELD) concerns protected species and natural habitats, water and land, other connected directives are considered:

- Directive 79/409/EEC on the conservation of wild birds (Birds Directive).
- Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitat Directive).
- Directive 2000/60/EC establishing a framework for Community action in the field of water policy (Water Framework Directive).
- Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy.
- Directive 2006/118/EC on the protection of groundwater against pollution and deterioration.

1.4 Introduction to the new methodology

This is the fourth year of the CAED project. In Year 1 CAED Report (2019/18) was published. The CAED Report (2019/18) is available at the following link: https://www.impel.eu/actions/download-file/files/d7b01ce8-1820-47bc-b8ab-7ac889f48a0a/2019_18%20FR%20CAED%20report_22.06.2020.pdf

[6] Downloadable at https://www.impel.eu/publications/multi-annual-strategic-programme-2016-2020/
[7] Downloadable at https://ec.europa.eu/environment/pdf/eld/1_EN_ACT_part1_v5.pdf
[8] Downloadable at https://www.impel.eu/en/projects/criteria-for-the-assessment-of-the-environmental-damage-caed

The first CAED report contains a proposal for a new approach for the administrative procedure of environmental damage and imminent threat of damage determination, made of three procedural steps: the screening process, the determination of clues, the determination of evidence.

It included a collection of 32 case studies of “ELD cases” and “non-ELD cases” across Member States to identify common and different ascertainment and assessment approaches from a regulatory, practical, and technological point of view. Case studies were presented showing how the “clues” and the “evidence” of environmental damage and threats of damage are detected, identified, and evaluated.

The analyisis of the 32 case studies highlighted that there are significant differences between Member States, regarding the way they assess environmental damages that mainly depend on either in the implementation (especially in the parts of monitoring and assessments) of the Habitat Directive, Birds Directive, Water Framework Directive and in the existence, or not, of a national law for the protection of land.

The main challenges to implementing the ELD, identified in the report, concern the definition and measurement of "significant adverse effects" and the lack/scarcity[9] of corresponding criteria or thresholds to make a prompt accurate assessment and an effective remediation.

This Practical Guide is the product of the second year of the project, updated and upgraded in its current and final version in the fourth year of the project. It was produced by a project team gathered under the European Network for the Implementation and Enforcement of Environmental Law (IMPEL Network). The project team comprised different experienced practitioners, covering the relevant regulations such as ELD and other national legislations, working in various technical fields and having differing professional experiences.

In the second year of the CAED project, the project team collected and analysed existing indicators and flowcharts included in existing EU’s and country Guidelines related to ELD, to have a complete picture of the content of the current guidances, procedures and supporting tools for the determination of the environmental damage assessment (see References). A new methodological approach based on a DPSIR (Driver, Pressure, State, Impact and Response) model adapted to environmental damage assessment was proposed. Practical tools such as decision-making flowcharts, check-lists and tables of indicators to assist in the early-stage assessment of potential cases of environmental damage were produced. It is expected that the use of indicators, qualitative

[9] Some member State or jurisdiction has national criteria or threasholds to assess significant damage.

or quantitative ones, as well as flowcharts and check-lists to support and direct the decision-making process, is useful for the screening of ELD and non-ELD cases and for the identification and determination of the clues and evidence of damage and imminent threat of damage by ELD expert and non-ELD expert users, in lieu of the expert judgement (which might intervene whenever necessary).

1.5 Content of the Practical Guide

This Practical Guide is divided into the following main chapters:

- Chapter 1 details the scope, purpose and content of the Practical guide and the background to and method of the CAED project;
- Chapter 2 contains a short description of the scope and relevant content of the EU COM Notice;
- Chapter 3 contains a description of the check-list and criteria to screen ELD and non-ELD cases;
- Chapter 4 contains a description of the check-list and criteria to identify cases of imminent threat of damage under ELD;
- Chapter 5 contains a new methodology and indicators for the determination the clues and evidence of environmental damage under ELD;
- Chapter 6 contains decision-making flowcharts for the determination of the clues and evidence of damage under ELD.

The Practical Guide is complemented by ready-to-use "Practical Tables" in a separated excel file, containing check-lists to screen ELD cases and identify cases of imminent threat of damage, as well as tables of IMPACT, STATE, PRESSURE and DRIVER (hereafter called ISPD tables) based on the DPSIR model applied to environmental damage.

The "Practical Tables" excel file contains:

- A sheet containing authors and references
- A sheet containing terminology
- A sheet containing explanatory notes for the use of the Practical tables
- A sheet containing the tables of colour codes for the indicators/groups of indicators, as well as for the evaluation and the interim judgement
- A sheet containing the check-list to screen ELD cases
- A sheet containing the check-list to identify cases of imminent threat of damage
- A sheet containing the table of IMPACT and STATE for biodiversity
- A sheet containing the table of IMPACT and STATE for water
- A sheet containing the table of IMPACT and STATE for land
- A sheet containing the table of PRESSURE for all natural resources
- A sheet containing the table of DRIVER for all natural resources
- A sheet containing the table for the description and judgement of the case
- A sheet containing the data source (hidden sheet)

In this updated and upgraded version of the Practical Guide, the examples of the use of the Practical Tables (former annex VI) are not included.

1.6 Terminology

Term (alphabetical order)	Definition
Ascertainment	The determination of clues and evidence of environmental damage and imminent threat of damage through information and data collection, analysis and assessment of the event, the effects on natural resources, the environmental quality status ex-ante and ex-post. The ascertainment can be done also by other investigative methods, such as modelling, risk assessment, expert judgement, etc.
Biodiversity	The term "Biodiversity" is used in these Practical Guide and Tables with the meaning of "Protected species and natural habitats". Moreover, it concerns both the species and natural habitats protected by the Habitat and Birds Directives and those, included in natural protected areas under national legislation.
Damage factors[10]	Factors that cause adverse effects to the natural resource protected under ELD. They represent the source of the environmental damage. Note that according to EU COM Notice, until the damage factors have caused environmental damage, they shoud be called potential damage factors. In this Practical Guide, for simplicity, they will always be called damage factors.
Damaging occurrence[11]	The range of possible occurrences which may cause environmental damage, whether it is an accident, on-going pollution, over-abstraction, killing of animals, etc. Note that according to EU COM Notice, until the damaging occurrence has caused environmental damage, it shoud be called potential damaging occurrence. In this Practical Guide, for simplicity, it will always be called damaging occurrence.
Determination of clues of environmental damage	The process of evaluation of cases of potential environmental damage that passed the screening phase. This process is preliminary to the determination of the evidence. The purpose of the determination of clues is to

[10] See EU COM Notice.
[11] See EU COM Notice.

	identify candidate cases of significant environmental damage and imminent threat of damage and to dismiss non-candidate ones. It involves the collection and evaluation of data, circumstances and other elements of fact or law indicating the possible existence of significant damage or imminent threat of damage in the light of the requirements of the ELD. It concerns evaluations on the characteristics of the source of the impact and on the effects on natural resources. For example, clues of environmental damage may concern the exceedance of the screening concentration values for soil potentially contaminated.
Determination of evidence of environmental damage	The process of evaluation of candidate significant environmental damage cases that confirms them as significant environmental damage cases. This process is preliminary to the phase of designing of quantification of damage and definition and designing of remedial, complementary and compensatory measures (where required). The purpose of the determination of evidence is, thus, to confirm the occurrence of significant environmental damage or imminent threat of damage cases in light of the requirements of the ELD.
DRIVER	It is the occupational activity responsible of damage and/or imminent threat of damage. For ELD art. 2, par. 7. “occupational activity” means any activity carried out in the course of an economic activity, a business or an undertaking, irrespectively of its private or public, profit or non-profit character. For ELD art. 2, par. 6. “operator” means any natural or legal, private or public person who operates or controls the occupational activity or, where this is provided for in national legislation, to whom decisive economic power over the technical functioning of such an activity has been delegated, including the holder of a permit or authorisation for such an activity or the person registering or notifying such an activity.
ELD case and non-ELD case	ELD case is a case where the environmental damage or imminent threat is found significant in light of the requirements of the ELD. Non-ELD case is a case where the environmental damage under ELD has not occurred or is not

	determined.
Environmental damage	Article 2(1) of the Environmental Liability Directive provides that "environmental damage" means: *(a) damage to protected species and natural habitats, which is any damage that has significant adverse effects on reaching or maintaining the favourable conservation status of such habitats or species. The significance of such effects is to be assessed with reference to the baseline condition, taking account of the criteria set out in Annex I;* *Damage to protected species and natural habitats does not include previously identified adverse effects which result from an act by an operator which was expressly authorised by the relevant authorities in accordance with provisions implementing Article 6(3) and (4) or Article 16 of Directive 92/43/EEC or Article 9 of Directive 79/409/EEC or, in the case of habitats and species not covered by Community law, in accordance with equivalent provisions of national law on nature conservation.* *(b) water damage, which is any damage that significantly adversely affects:* *(i) the ecological, chemical or quantitative status or the ecological potential, as defined in Directive 2000/60/EC, of the waters concerned, with the exception of adverse effects where Article 4(7) of that Directive applies; or* *(ii) the environmental status of the marine waters concerned, as defined in Directive 2008/56/EC, in so far as particular aspects of the environmental status of the marine environment are not already addressed through Directive 2000/60/EC.* *(c) land damage, which is any land contamination that creates a significant risk of human health being adversely affected as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or micro-organisms.* Refer to EU COM Notice as regards all aspects of the definition of "environmental damage".
EU COM Notice	Commission Notice C(2021) 1860 final titled "Guidelines providing a common understanding of the term "environmental damage" as defined in Article 2 of Directive 2004/35/EC on

	environmental liability with regard to the prevention and remedying of environmental damage" and published on 25 March 2021.
Immediate Management of Damage Factors[12]	EU COM Notice defines it as "all practicable steps to immediately control, contain, remove or otherwise manage the relevant contaminants and/or any other damage factors in order to limit or prevent further environmental damage and adverse effects on human health or further impairment of services". Along with the necessary remedial measures they are required to be taken when environmental damage has occurred (see article 6(1)(a) of ELD).
Imminent threat of damage	Art. 2, par. 9, ELD defines it as a "sufficient likelihood that environmental damage will occur in the near future".
IMPACT	Adverse effects on reference concepts of a natural resource under ELD.
ISPD Tables	The ISPD tables are tables concerning the IMPACT, STATE, PRESSURE and DRIVER components of the DPSIR model that was adapted to environmental damage assessment and proposed in the CAED Guidelines and Tables. See the "Explanatory notes" sheet to know how their structure, content, and purpose.
PRESSURE	Potential damaging occurrences and related potential damage factors giving rise to an IMPACT or to a potential IMPACT on protected natural resources under ELD. In other words, PRESSURE represents potential damaging occurrences and potential damage factors exposing protected natural resources under ELD to an IMPACT or to a potential IMPACT.
Reference concepts[13]	EU COM Notice states: "For all three categories of natural resource, the definition of "environmental damage" uses a reference concept to determine whether adverse effects are relevant. For protected species and natural habitats, the reference concept is the favourable conservation status of these species and habitats. For water, it is the ecological, chemical or quantitative status or the ecological potential of waters under the Water Framework Directive and the environmental status of marine waters under the Marine Strategy Framework Directive,

[12] See EU COM Notice.

[13] See EU COM Notice.

	which have different dimensions. For land, it is risks to human health. The function of these reference concepts is to provide parameters and criteria against which the relevance of adverse effects can be examined. The concepts provide elements in respect of which adverse effects are to be measured.”.
Screening	A preliminary evaluation of cases to identify possible environmental damage and imminent threat of damage cases and to dismiss non-potential environmental damage and imminent threat of damage cases (from the beginning). The screening phase is the very early stage of the evaluation (before the determination of clues). It may be conducted without taking any action of ascertainment/investigation, hence, only in light of the first information/data available about the event and its consequences (no effects/impacts evaluated). For instance, screening is conducted on information and data communicated by the operator or by an authority through a notice reporting about the event. For example, the screening can be useful for environmental inspectors to recognise possible environmental damages or imminent threat of damages as a result of non-compliances discovered during routine/non-routine inspections of regulated/unregulated sites.
STATE	Baseline conditions of a natural resource, as defined in art. 2, par. 14 of ELD. The EU COM Notice provides some guidance on how to establish the baseline condition.

1.7 Acronyms

ARPA Regional Environmental Protection Agency
DPSIR Drivers, Pressures, State, Impact and Response
EA Environment Agency
ECD Environmental Crime Directive
EDR Environmental Damage Regulations
EPA Environmental Protection Agency
ELD Environmental Liability Directive
EU European Union
FCS Favourable Conservation Status
IED Industrial Emission Directive
ISPRA National Italian Institute for the Environmental Protection and Research
MARWP Multi Annual Rolling Work Programme
MoE Ministry of the Environment

MS Member State
SAC Special Area of Conservation
SCI Site of Community Importance
SEPA Scottish Environment Protection Agency
SPA Special Protection Area
SSSI Site of Special Scientific Interest
TFEU Treaty on the Functioning of the European Union
WFD Water Framework Directive

2. EU COM Notice: Guidelines providing a common understanding of the term environmental damage

The ELD was evaluated by the Commission in 2016[14] and one of the challenges identified in the evaluation was the inconsistent application of key concepts by Member States.

To address this issue, the ELD was amended in 2019[15] requiring the European Commission to develop guidelines to provide a common understanding of the term "environmental damage" as defined in Article 2 of the ELD.

The EU COM Notice takes the form of a Notice which provides an interpretation of many (but not all) of the legal faucets of ELD, with a primary focus on the term "environmental damage". However, they do not provide technical guidance on how to assess cases of environmental damage or imminent threat.

The Notice was prepared under the exclusive responsibility of the Commission, in consultation with stakeholders. The Notice is binding on the Commission but not binding on Member States.

The Court of Justice of the European Union (CJEU) remains solely competent to interpret EU law.

Rather than provide a full review, this section highlights details of the EU COM Notice which add to the understanding of the ELD and how it should be applied, providing clarity around the scope of application and understanding of key terms and concepts related to environmental damage which are relevant to this Practical Guide.

The EU COM Notice should be referred to directly provide context and detail around the topics referenced.

2.1 The broader context

The EU COM Notice notes that while the ELD is based on the polluter pays principle, all four of the principles upon which EU environmental policy is based are applicable and relevant in understanding and interpreting the term environmental damage. In addition to the polluter pays principle, there are the principles that preventive action should be taken and that environmental damage should as a priority be rectified at source, the precautionary principle and the proportionality principle. These principles should be borne in mind when considering the clues and

[14] REFIT Evaluation of the Environmental Liability Directive, SWD (2016) 121 Final https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD:2016:121:FIN

[15] Regulation (EU) 2019/1010

evidence of environmental damage (or imminent threat of same) and the burden of proof required to reach the thresholds for such environmental damage (and imminent threat of same).

The EU COM Notice introduces a number of new terms/phrases, or provides clarity on terms not defined in the ELD, including the following:

1. Damaging occurrences[16] – occurrences that gives rise to a causal link between an occupational activity and environmental damage. This occurrence may relate to an event or emission arising during either abnormal or normal operations, or as a result of an incident or accident.

2. Damage factors[17] – factors that cause adverse effects (*see below for further information on adverse effects*). These may be:

   (i) additive, for example, the release of a toxic substance or other such contaminant to the environment, or
   (ii) subtractive/extractive, such as abstraction from or damming of a river or the felling of trees, or
   (iii) destructive, such as the deliberate killing of individuals of a protected species.

3. Immediate management of damage factors[18] – the steps that operators are required to take where environmental damage has occurred to control, contain, remove or manage damage factors to limit or prevent further environmental damage.

4. Reference concepts[19] - for all three categories of natural resource, the definition of "environmental damage" uses a reference concept to determine whether adverse effects are relevant. For protected species and natural habitats, the reference concept is the favourable conservation status of these species and habitats. For water, it is the ecological, chemical or quantitative status or the ecological potential of waters under the Water Framework Directive and the environmental status of marine waters under the Marine Strategy Framework Directive. For land, it is risks to human health. The function of these reference concepts is to provide parameters and criteria against which the relevance of adverse effects can be examined. The concepts provide elements in respect of which adverse effects are to be measured.

[16] Paragraph 17 of the EU COM Notice.
[17] Paragraph 18 of the EU COM Notice.
[18] Paragraph 21 of the EU COM Notice.
[19] Paragraph 46 of the EU COM Notice.

Damaging occurrencies and damage factors which may cause adverse effects for each type of environmental damage are included in the PRESSURE table of this Practical Guide.
Reference concepts for each type of environmental damage are included in the IMPACT and STATE tables of this Practical Guide.

2.2 Definition of "Damage"

Damage is defined in ELD as "*measurable adverse change in a natural resource or measurable impairment of a natural resource service with may occur directly or indirectly*". The occurrence of damage does not trigger obligations, however, according to the EU COM Notice, the understanding of the term damage is material to understanding environmental damage.

The Notice outlines the four concepts in the definition of "damage" as:

1. The material scope of what is affected – a natural resource or service. The natural resources are further defined in ELD as protected species and natural habitats, water and land. Natural resource services means "the functions performed by a natural resource for the benefit of another natural resource or the public".

2. Adverse effects – adverse change or impairment of the natural resource itself and the natural resource service. Adverse effects for each type of environmental damage are listed in the Notice with reference to certain concepts, referred therein as "reference concepts" (see par 3.1 above), many of which are referred or alluded to in Annex I and Annex II of ELD. The concept of "damage" is not self-standing and needs to be read in the light of the definition of "environmental damage". Hence, for example, the impairment of the services that water provides must, therefore, be accompanied by significant adverse effects on the status of the waters concerned.

3. Scope of the adverse effects – the adverse change or impairment must be measurable.

4. Ways in which the adverse effects occur – directly or indirectly, e.g. the direct application of a pollutant to or into land which results in a significant risk to human health, or the dispersal of an air-borne pollutant to land which then poses a significant risk to human health indirectly.

These reference concepts are included in the relevant tables of IMPACT and STATE of this Practical Guide for assessing the clues of environmental damage.

2.3 Environmental damage and significance

Environmental damage is defined in the ELD in terms of damage to protected species and natural habitats, water damage and land damage. Central to these definitions, and absent from the definition of damage, is the concept of significance. Measures for the immediate management of damage factors, or remedial measures are only required in the ELD where adverse effects are found to be significant. Measures to prevent environmental damage are only required when adverse effects are becoming or are expected to become significant. The EU COM Notice list several considerations which should be applied to ensure a common understanding for the assessment of significance, including the circumstances in which the need for assessment of significance arises, the purpose of the assessment of significance, legal responsibilities regarding the carrying out of the assessment, the context(s) in which the assessment is to be carried out, the focus of the assessment, the carrying out of the assessment and the determination of significance.[20]

The Notice states that "*The importance of effects does not necessarily depend on their being present on a large scale. The concept of what is "significant" is related to the notion of measurable adverse changes and impairments found in the definition of "damage"*[21].

Each type of environmental damage, protected species and natural habitats, water, and land, is discussed in the Notice in terms of the material and geographical scope of the natural resource or service concerned, reference concepts for adverse effects on that natural resource or service, and the assessment of significance.

It should be noted that an impairment of a natural resource service, in the absence of a significant adverse effect on the natural resource, does not constitute environmental damage under the ELD[22].

2.4 The determination of significance

2.4.1 Burden of proof

Where there is an imminent threat of environmental damage or the immediate management of damage factors is necessary, a rapid assessment of potential significance must be completed based on readily available information. As such the assessment may largely be based on reasonable belief around general information about the damage factors, natural resources or services and the adverse

[20] Paragraph 51 of the EU COM Notice.
[21] Paragraph 78 of the EU COM Notice.
[22] Paragraph 146 of the EU COM Notice.

effects. Where environmental damage has occurred, and remedial measures are required, a more detailed and site-specific assessment should be completed for the design of remedial measures.

2.4.2 Baseline condition

Assessment of environmental damage is made relative to a baseline condition. The baseline condition is defined in ELD as "*the condition at the time of damage of the natural resource and services that would have existed had the environmental damage not occurred, estimated on the basis of the best information available*".

2.4.3 Scale of assessment

The EU COM Notice states that significance must be "*determined in relation to the actual physical area of land or water or (in the case of protected species) actual populations adversely affected or at risk of being affected, taking account of any pre-existing intrinsic characteristics or dynamic factors that may have been influencing the natural resources concerned independently of the damaging occurrence*"[23]. To this end, the Notice outlines the geographical scale to which the ELD applies for protected species and natural habitats must be meaningful at local level, and for water damage is the waters which have been adversely affected.

2.4.4 Protected species and natural habitats

With respect solely to protected species and natural habitats, it is important to note that Annex I of the ELD includes reference concepts for adverse effects which, at the discretion of Member States, do not have to be determined as significant. These concepts relate to short term adverse effects which are smaller than natural fluctuations, or resulting from normal management of a site, or where a protected species or natural habitat will recover within a short period of time. These discretions should be interpreted strictly when assessing whether damage is significant or not[24].

2.4.5 Water damage – Waters Concerned under the Water Framework Directive

The definition of water damage in the ELD speaks to a significant adverse effect on the status, as defined in the Water Framwork Directive, on the "waters concerned". The Notice states that the waters "concerned" are those affected by damage[25]. Therefore, the determination of environmental damage is not limited to the geographical scale of a waterbody as delineated under

[23] Paragraph 75 of the EU COM Notice.
[24] Case C-297/19, *Naturschutzbund Deutschland – Landesverband Schleswig-Holstein eV.*
[25] Paragraph 131 of the EU COM Notice.

the Water Framework Directive. The area where adverse changes are experienced may extend across several of these waterbodies, or may concern only part of a waterbody[26]. However, in some cases, it may be appropriate to apply the ELD to a delineated waterbody, for example, when the reference concept of relevance is the quantitative status of a groundwater body, where that groundwater body acts as a distinct hydrogeological unit for that purpose.

The status of waterbodies under the WFD is assessed every 6 years. The ELD necessitates a shorter-term identification of a significant adverse effect[27] and is not tied to this 6 yearly cycle, with the Notice stating that adverse changes will be significant where there is a measurable gap between the time when the adverse change occurs and the baseline condition is restored[28].

From the above it is clear that for an adverse effect to be considered significant, it is not necessary for a change in classification for the purposes of the Water Framework Directive to have occurred – though a change to a lower status classification may be a significant adverse effect requiring action under the ELD[29].

3. Check-list to screen ELD cases for non-experts in ELD

The first check-list included in the Practical Tables is a useful tool to screen cases and identify possible ELD cases.

For non-experts in ELD, the check-list helps to screen cases and identify ELD cases to notify to competent authority on Environmental Liability Directive (ELD) enforcement[30].

For instance, the check-list can make a connection between environmental inspectors (or non-experts in ELD in general) and the ELD experts in charge of assessing potential ELD cases.

In fact, during a routine or a non-routine inspection/site visit, a "damaging occurrence" (namely an event, emission or incident) may occur or may be discovered, or "an adverse effect" may also be discovered[31].

[26] Paragraph 151of the EU COM Notice.
[27] Paragraph 151 of the EU COM Notice.
[28] Paragraph 169 of the EU COM Notice.
[29] Paragraph 151 and 170 of the EU COM Notice.
[30] Note that ELD legislation may be applied simultaneously, not only in substitution, with other non-ELD legislation, provided that ELD applicability is met.
[31] Unforeseen, foreseen but uncontrolled events, as well as illegal, out-of-the-ordinary, unauthorised acts or situations must be considered. Moreover, in case of containment, mitigation and remediation measures are put in place during the event, what is impaired after the event and what is lost into the environment should be considered.

3.1 Criteria to screen ELD cases

The check-list to screen ELD cases is divided in two phases called STEP 1 and STEP 2.

STEP 1 is the first and easier and basic step of the evaluation of cases, while STEP 2 is more advanced. STEP 1 can be done by non-experts in ELD. It is the screening phase useful to identify cases to further submit to STEP 2.

STEP 1 useful to identify cases to notify to competent authority on Environmental Liability Directive (ELD) enforcement in order to assess environmental damage (or imminent threat of damage) under ELD regime. Anyhow, even if STEP 2 is addressed to ELD experts, it may be conducted by non-experts in ELD, thus the possible ELD case my be forwarded to competent authority on ELD subsequently.

The screening table STEP 1 aims to help the user non-expert in ELD to identify cases that should be handled under ELD regime, namely, when it is appropriate to submit the case to ELD competent authority. As a consequence, when the case is not identified as possible ELD case in STEP 1, it does not mean that it cannot be an ELD cases, because STEP 1 aims only to help identifying possible ELD cases and not the contrary, namely, to identify possible non-ELD cases. Thus, if the answer to the question is NO, it does not mean that you can be confident that the case is not an ELD case.

Note: The cases listed in the drop-down list of screening STEP 1 are some examples. The list is liable to be integrated or amended by the user, according to his needs.

Principle of STEP 1 is based on the fact that adverse effects to the environment should be seen/detected. In case adverse effect are not seen/detected, the damaging occurrence should be severe in order to proceed with STEP 2. This means that in case you don't see/detect any adverse effects on the natural resource, it means that most probably the damaging occurrence has not been as much severe as to cause a significant adverse effect on the natural resource.

Hence, in this case, in order to proceed with screening STEP 2, you should be in front of a severe damaging occurrence and, in order to evaluate severity of the damaging occurrence[32], the spatial (quantity, extent, mobility, spatial trend, etc.) and temporal (duration, time trend, etc.), as well as the intrinsic (hazardousness against the natural resources, etc.) characteristics of the damaging occurrence should be evaluated.

[32] The terms 'large scale' and 'prolonged' that user finds in the check-lists mean that the severity of the damaging occurrence may depend, in certain cases, on spatial (quantity) or temporal (duration) characteristics. However, since the terms 'Large scale' and prolonged' are indefinite, they should be evaluated case by case.

STEP 2 is a more advanced screening phase that includes the verification of the applicability of ELD[33], the identification of the natural resources protected by ELD and the verification of the consistency between damage factors and reference concepts.

The user may not have all useful information to screen the cases by the screening process STEP 2. In this case, the user can continue the assessment of the case by completing the ISPD tables as they include the assessments of screening process STEP 2.

3.2 Information required to screen ELD cases

Useful information (known or estimated) to screen ELD cases are:

1) For STEP 1:

- Actual or possible damaging occurrence
- Type, magnitude, duration and characteristics of damage factors
- Actual or possible adverse effects to the environment related to damage factors

2) For STEP 2:

- Actual or possible responsible occupational activity
- Time when the damaging occurrence took place
- Actual or possible adverse effects to the environment related to reference concepts

Note: Information and data collected, as well as the time when they are collected, is an issue that affects the screening checks.

Note: STEP 1 screening of cases of possible biodiversity damage has been divided in two groups depending on the area you are visiting/inspecting.

[33] Domestic legislation in individual Member States may contain additional and different criteria on applicability over time. So, please refer to domestic legislation, in addition to the ELD itself.

Note: The screening check-list STEP 1 aims to help the user non-expert in ELD to identify cases that should be handled under ELD regime, namely, when it is appropriate to submit the case to ELD competent authority. As a consequence, when the case is not identified as possible ELD case in STEP 1, it does not mean that it cannot be an ELD cases, because STEP 1 aims only to help identifying possible ELD cases and not the contrary, namely to identify possible non-ELD cases. Thus, if the answer to the question is NO, it does not mean that you can be confident that the case is not an ELD case.

Note: The user may not have all useful information to screen the cases by the screening process STEP 2. In this case, the user can continue the assessment of the case by completing the ISPD tables as they include the assessments of screening process STEP 2.

4. Check-list to identify cases of imminent threat of environmental damage under Environmental Liability Directive (ELD)

Art. 2, par. 9 of ELD defines "imminent threat of damage" as a "sufficient likelihood that environmental damage will occur in the near future".

The second check-list included in the Practical Tables may be used to identify cases of imminent threat of environmental damage under Environmental Liability Directive (ELD).

4.1 Criteria to indentify imminent threat of damage

To evaluate the existence of the imminent threat of damage the Source-Pathway-Receptor (SPR) Basic Model should be used. The basic model consists in finding linkage among source-pathway-receptors. If the SPR linkage is confirmed, an imminent threat of damage should be considered.

The SPR Model applied to the assessment of the imminent threat of damage should then consider all actual damaging occurrences (primary sources, secondary sources, etc.), all actual and possible pathways (direct and indirect), and all actual and possible receptors/targets among the natural resources protected by ELD.

The identification of an imminent threat of damage implies that the operator have to take preventive measures to prevent damage. So, the concept of imminent threat of damage is related to an evolving or potentially evolving situation and not to a stable and permanent situation.

Another important aspect of the identification of an imminent threat of damage is that natural resources may be either already be exposed to damage factors (adverse effects already occurred) or at risk of being exposed to damage factors (no adverse effects yet).

Following this aspect, the assessment of imminent threat of damage allows to use the precautionary principle, which implies this concept: if no preventive measures are taken, may I say that environmental damage will not occur beyond any reasonable doubt?

As a consequence, it is possible to use the precautionary principle instead of determining if adverse effects might become significantly enough to generate environmental damage in the near future.

At this regard, par. 72 EU COM notice C(2021) 1860 final says that for the purposes of applying preventive measures and immediate management of damage factors, the need for rapid assessment means that reliance will need to be placed on and conclusions reached on the basis of readily available information. General information about the nature of the damage factors and the exposure of a natural resource to their adverse effects will often be key, since there may be no time to wait for site-specific details to emerge. The application of the precautionary principle is necessary in such circumstances.

Moreover, footnote 92 EU COM notice C(2021) 1860 final says that in some situations, it is very difficult to assess the significance of environmental damage and in particular the imminent threat of it. This may be for different reasons, for example, there may be a lack of information in an emergency. In these situations, the precautionary principle can play a key role, by justifying intervention on the basis of a reasonable belief. It will enable the carrying out of the necessary preventive action and the launch of the corresponding administrative procedure.

The assessment of an imminent threat of environmental damage requires verification of following 5 elements:

1) presence of an ongoing damaging occurrence or damage factors still active (namely, presence of an evolving or potentially evolving situation)

2) presence of ELD natural resources liable to be harmed

3) presence of actual or potential exposure routes linking the damaging occurrence and/or the damage factors to ELD natural resources liable to be harmed

4) consistency of damage factors and/or adverse effects to reference concepts (according to ELD) of the ELD natural resources liable to be harmed

5) Presence of a “sufficient likelihood that environmental damage will occur in the near future”, which may be assessed in the light of 5 sub-elements such as:

5.a Period of the permanence of the damaging occurrence and damage factors *(This sub-element becomes relevant if the damaging occurrence and the damage factors do not extinguish rapidly but keep staying active for a time)*;

5.b Frequency of the damaging occurrence (in case the damaging occurrence is not a unique emission, event or incident) and damage factors *(This sub-element becomes relevant if the damaging occurrence is unique but severe or if the damaging occurrence is not severe but multiple and frequent over time)*;

5.c Magnitude, extent and hazardousness of the damage factors with respect to the ELD natural resource[34] *(This sub-element becomes relevant if magnitude, extent and hazardousness of damage factors are able to significantly affect ELD natural resource)*;

5.d Proximity of the ELD natural resource with respect to the damaging occurrence and/or damage factors *(This sub-element becomes relevant if the ELD natural resource is close and reachable by the damaging occurrence and/or damage factors)*; and

5.e Degree of exposure of the ELD natural resource with respect to the damage factors *(This sub-element becomes relevant if the ELD natural resource is vulnerable and highly exposed (quantitatively and temporally) to the damage factors)*.

The first 4 elements enable to evaluate the conditions for the existence of a possible imminent threat of damage (Preliminary check), while the 5th element (Check for determining a "sufficient likelihood that environmental damage will occur in the near future"), composed by 5 sub-elements, enable to evaluate if there is a sufficient likelihood that environmental damage will occur in the near future, namely if there is an imminent threat of damage.

The combined evaluation of the 5 sub-elements might arise the condition of sufficient likelihood that environmental damage will occur in the near future. Each one of them might be singularly in the condition of arising the likelihood that environmental damage will occur in the near future (see Practical Tables), however an overall assessment of them is required. It means that both:

- Imminent threat of damage cannot arise from single sub-element alone; and
- Imminent threat of damage may arise even if not all sub-elements are in a condition of relevance.

In the light of the assessment of the 5 elements above, the precautionary principle may be used in certain cases, especially in circumstances as the ones mentioned in par. 72 and footnote 92 of the EU COM notice C(2021) 1860.

[34] Magnitude (mass, volume), extent (area), and hazardousness of the damage factors should be evaluated with respect to their relevance in relation to the mass/volume, extention and vulnerability of natural resource.

In this regard, it may be useful to consider the possibility to apply, in certain cases, the concepts of clues and evidence also for the imminent threat of damage. In fact, they can represent two different triggers of intervention by the procedures for preventive measures envisaged in art. 5 of ELD[35].

In fact, the determination of clues of imminent threat of damage may correspond to the determination of an imminent threat of damage by using the precautionary principle while the evidence of imminent threat of damage may correspond to the determination of an imminent threat of damage without using the precautionary principle.

Especially in circumstances as the ones mentioned in par. 72 and footnote 92 of the EU COM notice C(2021) 1860, the determination of clues of imminent threat of damage may provide a reasonable proof for triggering intervention by the procedures for preventive measures under ELD[36] [37].

Note: The process of identification of an imminent threat under the ELD should not limit environmental officers (on the ground) or the operator to take any immediate in situ actions (suh as emergency, containment and mitigation measures) if deemed required and subsequently inform the ELD competent authority accordingly.

4.2 Information required to identify imminent threat of damage

The minimum information that should be known (or estimated) to identify imminent threat of damage are:

- Damaging occurrence (if not known, at least it is required to know the damage factors);
- Damage factors (possibly: magnitude, extent and hazardousness with respect to the ELD natural resource);
- ELD natural resources actually or potentially affected.

[35] Emergency, containment and mitigation measures put in place during and right after the event may correspond to the measures to prevent environmental damage.

[36] Especially when applying the precautionary principle, another important element that should be considered is that in some circumstances the imminent threat of damage may be identified even when the natural resource is not affected yet.

[37] The difference with the clues of the environmental damage is that they represent a trigger for undertaking further investigation and assessment of cases and not for undertaking remedial measures.

5. Methodology and indicators for the determination of the clues and evidence of environmental damage under ELD

5.1 Introduction

Environmental damage assessment may benefit from the evaluation of selected qualitative and quantitative indicators/parameters (or indexes).

These indicators may be derived from those used for the environmental impact assessment, or those included in international standard guides, or in EU's and countries' technical regulations on impacts on protected species and natural habitats, water, and land.

A new methodology for the environmental damage under ELD, based on grouping indicators around specific evaluation objectives aligned with the DPSIR (Driver, Pressure, Source, Impact, Response) model, is described below.

5.2 DPSIR Model adapted to environmental damage assessment

The assessment of environmental damage pursuant to the ELD is based on the study of the damaging occurrence and involves, the identification and characterization of the damage factors, the determination of the causal link between the occupational activity/damaging occurrence /damage factors and the adverse effects and, above all, the determination of the whether the adverse effects with respect to the baseline conditions of the protected natural resource are likely to be or are significant according to ELD requirements.

The determination of environmental damage may be based on selected indicators describing, firstly, the adverse effects on the baseline conditions of the natural resource (precondition to have environmental damage) and, secondly, the characteristics of the damaging occurrence and the damage factors.

A new methodological approach, an adapted DPSIR approach that can facilitate a straightforward and standardised determination of environmental damage, is proposed.

The DPSIR model has been adopted by the European Environmental Agency (EEA) as a general reference for an integrated approach in the reporting processes on the state of the environment, carried out at any European or national level. The model proposes a general reference structure to represent the set of elements and relationships that characterise any environmental theme, putting it in connection with the policies related to it.

The structure of the DPSIR model is made up of various components linked together by causal relationships (see fig. 2):

- DRIVER: actions, both anthropogenic and natural, capable of determining pressures on the environment;
- PRESSURE: pressures exerted on the environment by the determinands;
- STATE: physical, chemical and biological qualities of environmental resources;
- IMPACT: negative effects on ecosystems, human and animal health and economy;
- RESPONSE: responses and government actions implemented to address environmental pressures and impacts.

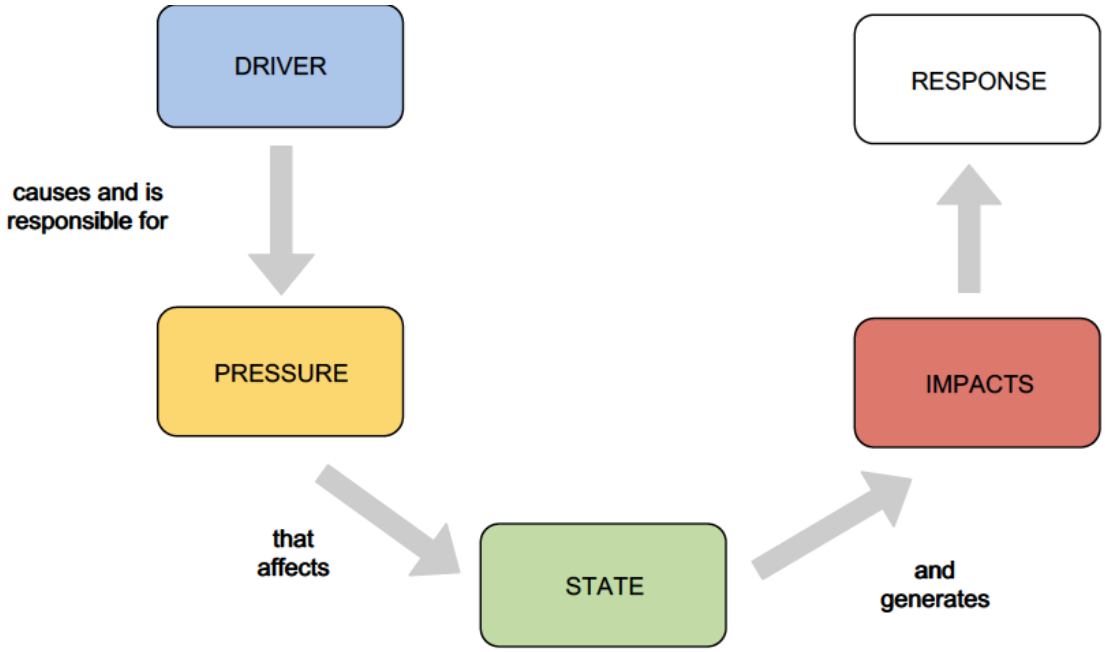

Figure 2 - DPSIR model applied to Environmental Impact Assessment.

To adapt the DPSIR model to the determination of environmental damage, the cycle is reversed, from the IMPACT to the DRIVER, as shown in see fig. 3 and described below[38]:

- IMPACT: adverse effects on the reference concepts of the natural resource, generated by the damaging occurrence and the damage factors;

[38] A similar approach is proposed in the Guideline AA.VV.- "Metodologie e criteri di riferimento per la valutazione del danno ambientale ex parte sesta del Dlgs 152/2006" - Linee Guida SNPA 33/2021" for the assessment of the environmental damage to water. In this practical guide that method was revised and extended for the assessment of damage to all the natural resources.

- STATE: the baseline conditions, in relation to the reference concepts and other characteristics, of the natural resource impacted by the adverse effects of the damaging occurrence and damage factors;

- PRESSURE: the damaging occurrence and damage factors generated by the DRIVER, which may cause potential environmental damage under ELD on the natural resource;

- DRIVER: the occupational activities listed in Annex III of the ELD and other occupational activities (in the event of fault or negligence[39]) that generate the damaging occurrence and damage factors.

- RESPONSE: the remedial measures that the responsible operator that caused the environmental damage is required to implement to restore the natural resource to or toward its baseline condition (primary remediation) or, if this is not possible, to intervene with complementary and compensatory (for interim-loss) remediation.

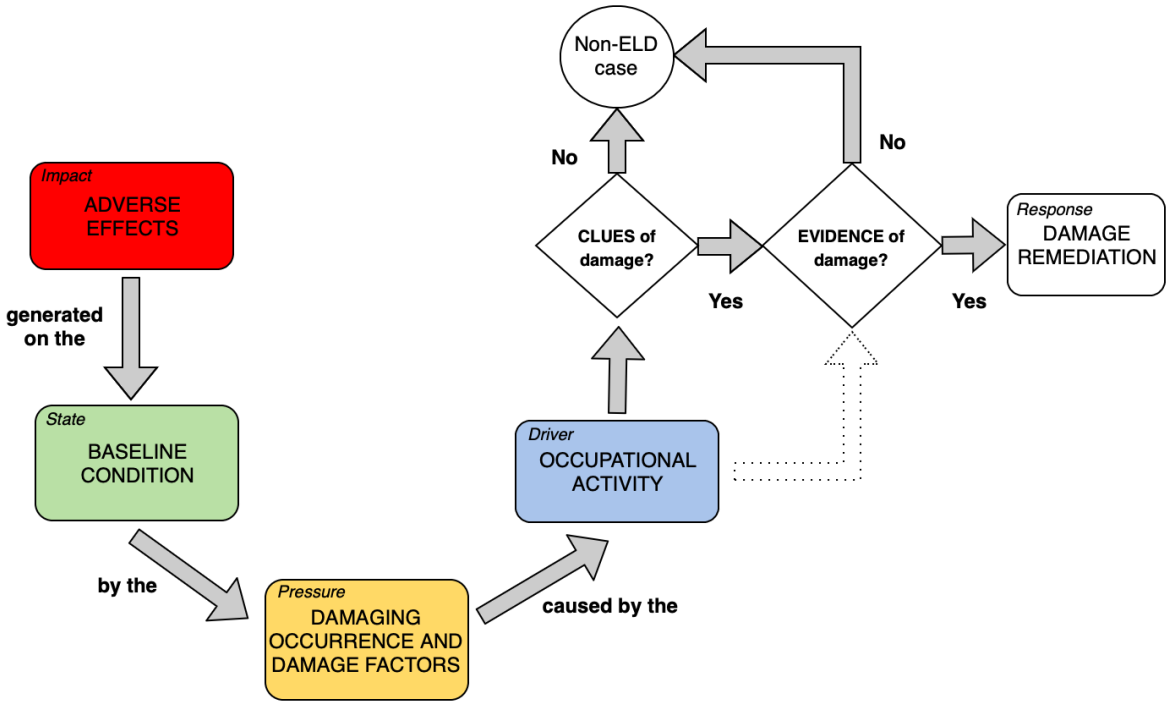

Figure 3 - DPSIR model adapted to Environmental Damage Assessment.

The DPSIR cycle is reversed because, when determining the clues and evidence of environmental damage, the most important and primary data and information to collect are related to the adverse effects (IMPACT) on the natural resources compared to their baseline (STATE), even after an

[39] In ELD the fault-based liability regime of other activities than those listed in Annex III is only referred to damage to biodiversity (see par. 5.3 below). Anyhow, in this practical guide the fault-based liability regime of ELD has been extended to water damage and land damage referring to some national legislation.

incident, where you have knowledge about the damaging occurrence and damage factors, but you may have lack of knowledge about adverse effects on natural resources. Next, the identification and determination of the magnitude and hazardousness of the damaging occurrence and damage factors (PRESSURE) contribute to the identification of clues of environmental damages where there is insufficient data and information on the adverse effects on the natural resources.
Finally, data and information on the damaging occurrence and damage factors (PRESSURE) as well as on adverse effects (IMPACT), compared to the characteristics of the occupational activity (DRIVER) are used to assess the causal link between the occupational activity and the adverse effects. In fact, the DRIVER table includes the indicators that help to identify the responsible occupational activity either in cases where the damaging occurrence is known or is unknown at first.

The adapted DPSIR model adapted to the determination of the environmental damage (hereafter called "DPSIR") may therefore be used from the early stage of the assessment, e.g., whether information on the occupational activity is known or unknown, to the end of the assessment process, i.e., during the whole process of determination of the environmental damage.

Note: the content of the RESPONSE component has not been developed at this project stage.

Each component (namely each box in fig. 3) of the DPSIR may "contain" data and information that may be assessed to identify and determine primarily the clues of damage to establish whether further investigation of evidence of environmental damage under ELD is warranted or not, secondly to identify and determine evidence of damage. However, as one's may see in fig. 3, evidence of damage may in some cases be identified and determined directly without passing by the determination of clues, when information available at the early stage of investigation are sufficient to determine the significance of adverse affects on natural resource pursuant to ELD.

Hence, each component of the DPSIR may be described with pre-defined lists of quantitative and qualitative indicators, to conduct the determination of the clues and evidence of environmental damage based on the evaluation of the values of data and information about the indicators.
The indicators that describe the different components of the DPSIR can be also characterised in terms of objectives, relevance, and significance into ISPD tables, for the purposes of assessing the case and identifying clues and evidence of environmental damage[40].

[40] A colour and symbol code has been used in the tables for this purpose.

5.3 Content and use of the Practical Tables

The Practical tables are a useful tool to screen, identify and assess ELD cases and determine environmental damage and imminent threat of damage.

As said, the tables of IMPACT, STATE, PRESSURE, DRIVER (ISPD tables) are based on the use of the DPSIR model adapted to environmental damage assessment and are constituted of pre-defined indicators classified and grouped according to their scope and objectives[41].

These ISPD tables are mainly constituted by indicators useful to:

1) Screen ELD and non-ELD cases[42]

2) Identify imminent threat of damage under ELD

3) Identify clues and evidence of environmental damage

To identify which indicators are related to actions above (1, 2 or 3), they have been coloured and dressed with symbols.

Note: the screening of ELD cases and the identification of cases of imminent threat of damage can be conducted by the dedicated check-lists included in the Practical Tables. However, both may be conducted directly by using of the ISPD tables themselves, when assessing a case. Thus, it is not mandatory to use check-lists before using the ISPD tables.

5.4 Identification of clues and evidence of environmental damage

As already mentioned, to determine the environmental damage it is necessary to verify the evidence of such damage.

However, the assessment and conclusion on whether environmental damage has occurred can be resource intensive, complex and take an extended period. The early identification of clues of environmental damage can be valuable therefore to facilitate a screening of the likelihood of environmental damage having occurred prior to committing these resources.

In practice, it is a matter of pre-defining those elements which, when evaluated in a preliminary phase of investigation, suggest the possible presence of environmental damage, and direct the investigation towards the phase of determination of the evidence.

In fact, when there are one or more clues of damage, other investigations are required to confirm the existence of the evidence of damage. On the contrary, if the clues are not found, the

[41] However, the tables are non-exhaustive, i.e. case-specific indicators could be added as long as they can be categorised by the objective of the evaluation.

[42] The screening of cases includes the assessment of ELD applicability.

environmental damage assessment under ELD may end with the case filing as “non-ELD case”, which means a case where the environmental damage under ELD has not occurred or is not determined (see par. 1.6 – Terminology). In addition, when there is insufficient data or information to enable a judgement, the possibility/legitimacy/needs/benefits of collecting/requiring further data/information through further investigations should be evaluated.

However, the ISPD tables, other than including indicators to identify the clues of environmental damage, have also included indicators that directly provide you, for their definition or analogy, evidence of environmental damage. In addition to these indicators of evidence, it is also to be noted that even some indicators for the clues can represent themselves a high probability of environmental damage when their value is significant.

Hence, the steps of preliminary assessment, namely the screening and the identification of the clues of damage, may be conducted also by non-expert users, in lieu of the expert judgement, thanks to this methodology based on the use of the DPSIR model adapted to environmental damage assessment, accompanied using ISPD tables of pre-defined indicators useful for the assessment of the potential ELD cases. Instead, the determination of evidence of damage under ELD, should be conducted by expert judgment for biodiversity assessments, water management and monitoring and for land contamination, for which the DPSIR adapted methodology and the ISPD tables may represent a helpful tool and a methodological guide for their expert judgement.

Note: the ISPD tables can be used during the whole investigation. This means that the ISPD tables may be used and filled of data, information, and evaluations since the screening phase until the determination of environmental damage.

For each component of the DPSIR model, ISPD tables containing indicators have been developed in which the following elements have been defined in columns:

- *OBJECTIVE*: containing the evaluation objective of each group of indicators;
- *INDICATORS*: containing the definition of each indicator;
- *DESCRIPTION*: containing the description of the possible indicator’s qualitative/quantitative values (quantitative values may be significance thresholds);
- *NOTES*: containing the indicator’s values for the case being investigated;
- *EVALUATION*: containing the evaluation of each group of indicators grouped by objective;
- *INTERIM JUDGEMENT*: containing the interim evaluation of the case being investigated.

Note: the ISPD tables are non exhaustive, i.e., case specific indicators could be added according to the user needs as long as they will be categorised by the objective of the evaluation.

5.5 Procedure for the identification of clues of environmental damage

Each indicator's value (in NOTES column), if available and relevant, and each group of indicators value (in EVALUATION column), may give indications towards or against the determination of the clues of environmental damage (or imminent threat of damage) or may provide auxiliary data/information (for a better understanding of the case), depending on the case being investigated.

When looking for clues of environmental damage, depending on the case, indicator's values and group of indicators may be either:

- *FAVOURABLE* to the identification of the clues of environmental damage; or
- *UNFAVOURABLE* to the identification of the clues of environmental damage; or
- *AUXILIARY* data/information; or
- *NOT AVAILABLE* data/information (in this case, the possibility/legitimacy/needs/benefits of collecting/requiring further data/information, for the identification of the clues of environmental damage, might be evaluated and expressed); or
- *NOT RELEVANT* data/information (in this case the indicator should not be considered)

The compilation of the ISPD tables after the screening phase, based on the available data and information, may be preparatory to the identification of the clues of environmental damage.
After compiling the ISPD tables for each component of the DPSIR an evaluation is initially made for each evaluation objective. This is followed by an interim judgement, considering the relative significance of each evaluation objective to the interim judgement.
The outcome of the interim judgement may be either:

- *CLUES OF DAMAGE IDENTIFIABLE*: the values assumed by the indicators are such as to provide useful data and information for the identification of the clues of environmental damage or rather favourable indicators are determined; or
- *ABSENCE OF CLUES OF ENVIRONMENTAL DAMAGE*: the values assumed by the indicators are such as not to provide useful data and information for the definition of the clues of environmental damage, or rather non-favourable indicators are determined; or
- *DATA/INFORMATION TO IDENTIFY CLUES OF DAMAGE NOT SUFFICIENT*: there is no sufficient data or information which enable to express a judgement. In this case, the

possibility/legitimacy/needs/benefits of collecting/requiring further data/information through further investigations should be evaluated and expressed.

It is possible that a judgement on the existence of clues of environmental damage can be reached even only from indicators relating to the IMPACT and STATE components. In the case that this judgement cannot be achieved due to the lack of sufficient data and information from IMPACT and STATE components, data and information relating to PRESSURE component may be fundamental for identifying the clues of environmental damage. Whereas, as already mentioned, the DRIVER component is mainly useful to identify and verify the causal link between the adverse effects and the occupational activity.

The clues of environmental damage identified and expressed in the final judgement may be of two types (see fig. 4):

- *CLUES OF NATURAL RESOURCE (CNR):* based on the identification of possible sustained adverse effects on the natural resources, deriving from the combination of the indicators of the STATE component, which represents the baseline of the resource, and of the IMPACT component, indicative of adverse effects caused by the damaging occurrence and damage factors (PRESSURE);
- *CLUES OF DAMAGING OCCURRENCE AND DAMAGE FACTORS + NATURAL RESOURCE (CD+CNR):* based on the identification of the hazardousness and magnitude of the damaging occurrence and damage factors (through the indicators of the PRESSURE component) in combination with a minimum level of information of adverse effects on the natural resources (through the indicators of the IMPACT and STATE components). In such a case, the combined information level (CD+CNR) may represent a sufficient level for identifying a clue of environmental damage.

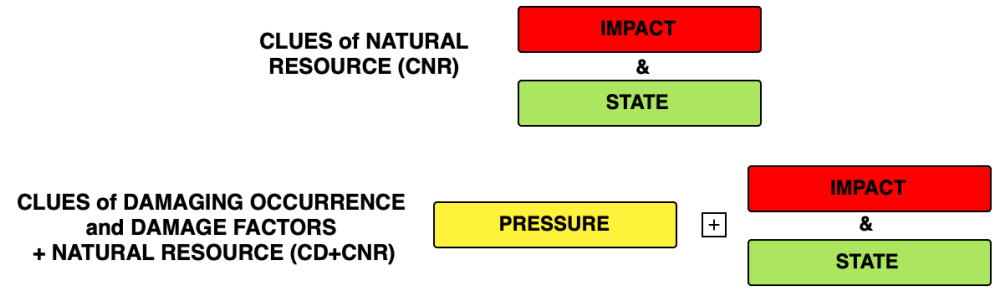

Figure 4 – Types of clues of environmental damage.

The phase of determination of the clues of environmental damage, hence, may be carried out through the investigation on the CNR and/or the CD+CNR.

When the clues are identified, the investigation would continue and the ISPD table may still be used and filled with data and information, otherwise in absence of clues the case is filed as “non-ELD case”. The following fig. 5 shows the procedure described.

Note: evalutation of data and information collected in relation to indicators is a prerogative of the users. No directions is provided for any evaluation of the “Description” columns outputs to be indicated in the “Evaluation” and “Interim Judgement” columns.

Note: the criteria for the evaluation of a single or a group of indicators which may lead to the determination of imminent threat of damage, as well as to clues and evidence of environmental damage, cannot be not provided as a template because it may depend on case by case. However, indicators useful to identify the imminent threat of damage, the clues and evidence of damage have been coloured and dressed with a symbol.

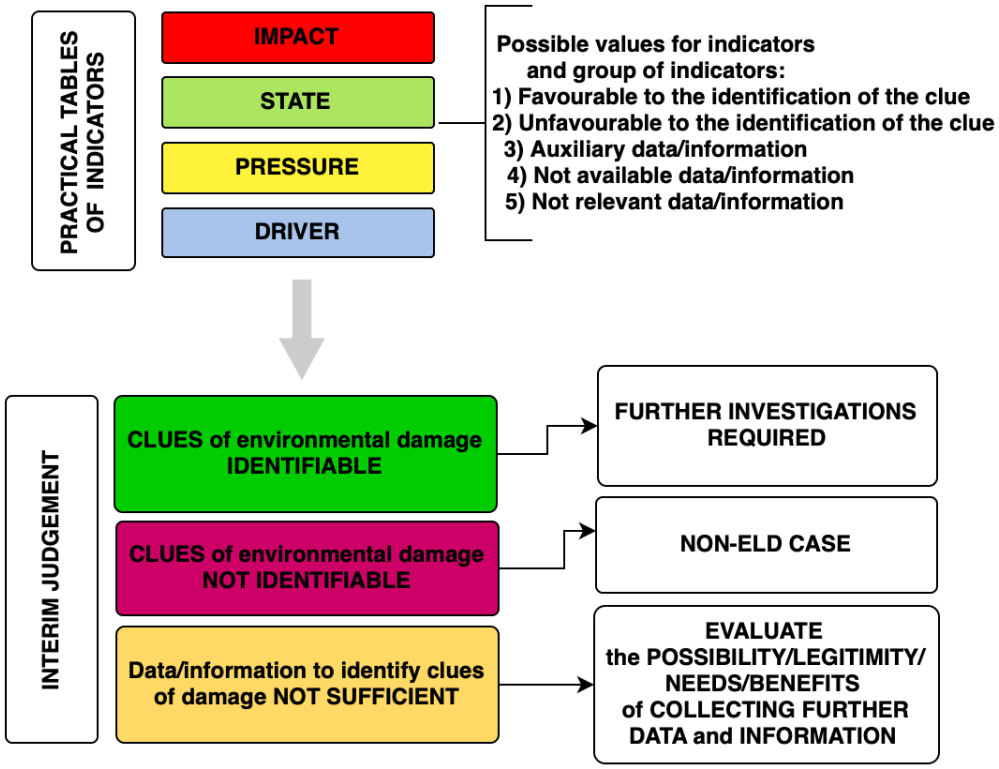

Figure 5 – Procedure for the determination of clues of environmental damage.

6. Explanatory notes for the use of the Practical tables (included also in the Practical Tables)

6.1 Scope of the use of the Practical tables

The Practical tables contain IMPACT, STATE, PRESSURE and DRIVER tables (so called "ISPD tables") and also useful additional check-lists for screening ELD cases and for identifying cases of imminent threat of damage. The ISPD tables can be used for a complete assessment, namely during the whole investigation: they contain indicators to conduct the screening of ELD cases, identify the imminent threat of damage, identify the clues of environmental damage as well as the evidence of damage. Hence, the check-lists for screening ELD cases and for identifying cases of imminent threat of damage are additional to ISPD tables and can be used indipendently for their specific purposes.

6.2 Purpose of the use of the Practical tables

The Practical tables may be used for different purposes: e.g. to exchange key information between the competent authority and the operator or among different competent authorities, to draft a damage and imminent threat assessment reports, to archive information and built an ELD database of cases.

The purpose of the Practical tables is to help expert and non-expert users to screen possible ELD cases, verify ELD applicability, identify clues and evidence of damage[43] and imminent threat of damage pursuant to ELD criteria (see "Colour codes" sheet).

6.3 Users of the Practical tables

Anyone may use the Practical tables: ELD competent authorities, ELD enforcement experts and practicioners, Habitats and Birds Directive experts, WFD and MSFD experts, contaminated soil experts, environmental inspectors, operators, insurance companies, environmental associations, NGOs, etc. However, it is advisable that the check-list screening STEP 1 of ELD cases is used by non-experts in ELD, while other check-lists such as screening STEP 2 and imminent threat of damage identification, as well as the ISPD tables are used by ELD experts.

6.3.1 How to use the check-list to screen ELD cases

The check-list to screen ELD cases is divided in two phases called STEP 1 and STEP 2 (see par. 3.1 for details).

[43] Note that domestic legislation in individual Member States (jurisdictions) may contain additional and different criteria on applicability over time. So, please refer to domestic legislation, in addition to the ELD itself.

6.4 How to use the check-list to identify imminent threat of damage

The assessment of an imminent threat of environmental damage requires verification of 5 elements and 5 sub-elements (for details see par. 4.1).

6.5 Preconditions to use the ISPD tables

At the beginning of the IMPACT, PRESSURE and DRIVER tables (not in the STATE tables) there are preconditions for the use of the tables. These preconditions refer to the applicability of the ELD.
If preconditions are met (or are likely to be met), then other screening indicators included in the tables should still be applied to be sure that the case should be investigated under ELD (see Colour code sheet). Anyhow, if the user has not yet sufficient information and data to verify preconditions and screening indicators, he can still decide to use the ISPD tables and verify ELD applicability and screening indicators when possible.

6.6 How to use the ISPD tables

The ISPD tables are tables concerning the IMPACT, STATE, PRESSURE and DRIVER components of the DPSIR model that was adapted to environmental damage assessment and proposed in the CAED Guidelines and Tables.
The ISPD tables are primarily composed of a table concerning the IMPACT component and a table concerning the STATE component for each ELD natural resource assessed (biodiversity, water, land).
The IMPACT and STATE tables should be used one by one for each single ELD natural resource of the same type, e.g. one for each species or natural habitat or surface water or groundwater assessed.
The tables are constituted by general sections followed by specific sections, that contain indicators referred only to a subgroup of natural resources (e.g. coastal and marine waters and groundwater in the tables for Water). In case a specific section of a table does not concern the natural resource under assessment, the user should skip to the next section of the table. In tables for Water, “surface waters” section should be used for evaluating both surface inland waters and coastal and marine waters.
The PRESSURE, except for the specific section “land”, and DRIVER tables are valid for each natural resource.
The STATE table for biodiversity contains DESCRIPTION columns for each level of baseline assessment (Local/Site level, National level, Bio-geographical/European level).

6.7 Quality assurance of data and information

To evaluate the possible damage to every types of natural resources, quality assurance of data and information is fundamental. In fact, relevance, quality, and reliability of data and information collected should be evaluated in the first instance to determine whether there are adequate data and information to make the determination of the clues and, consequently, the evidence of environmental damage possible. For this purpose, the ISPD tables include indicators about relevance, quality, and reliability of collected data and information.

6.8 Compilation of DESCRIPTION column of ISPD tables

The column “Description” should be compiled with the description and/or values (when available) of the relevant indicator for the case being assessed; the user may use drop-down lists and/or enter free text (manually entry); free text should stand either before or after user's selection from the drop-down list and must be separated by ";". Moreover, the user can make single or multiple selections from the drop-down list. In case the user selects a wrong element from the drop-down list, he can delete it by selecting it again.

Note: It is not mandatory to determine information/data and compile “Description” column for every indicator, but it would be useful to provide as much relevant information/data as possible about the case.

Note: In cases when the information and data included in the “Description” column are repeated in more than a box in the same or different tables, the user may decide to link boxes or to refers to the other boxes content etc. in order not to duplicate information/data and compilation efforts.

6.9 Compilation of EVALUATION and INTERIM JUDGEMENT columns of ISPD tables

Evalutation of data and information collected in relation to indicators is a prerogative of the users. No directions are provided for any evaluation of the “Description” columns outputs to be indicated in the “Evaluation” and “Interim Judgement” columns.

The criteria for the evaluation of a single or a group of indicators which may lead to the determination of imminent threat of damage, as well as to clues and evidence of environmental damage, cannot be not provided as a template because it may depend on case by case. However, indicators useful to identify the imminent threat of damage, the clues and evidence of damage have been coloured and dressed with a symbol.

6.10 Colour codes (included also in the Practical Tables)

Some indicators in "Indicators" column of each ISPD table are coloured and dressed with symbols in order to let the user identify their scope (fig. 6):

Colour and symbol code for the "Indicators" column	
ELD applicability indicators	*yellow
Indicators to screen ELD cases	#fuchsia
Indicators to identify imminent threat of damage or clues of damage	°orange
Indicators to identify evidence of environmental damage	^red

Figure 6 – Procedure for the determination of clues of environmental damage.

Note: indicators to verify applicability of ELD have been coloured in yellow because they are a subgroup of all indicators to screen cases according to ELD criteria. This choice was made because screening of potential ELD cases and verification of the ELD applicability may be conducted by different subjects/users.

Note: that indicators to identify imminent threat of damage or clues of damage have been coloured with the same colour. This is because sometimes an indicator can give an information either about an imminent threat of damage and/or a clue of damage, even if there is a clear difference between an imminent threat of damage and a clue of damage: the identification of an imminent threat of damage triggers preventive actions to avoid damage, while the identification of a clue of damage triggers further investigations to determine evidence of damage.

Indicators that are coloured in red represent circumstances of evidence of damage, namely damage according to the definitions of environmental damage in art. 2 of Environmental Liability Directive (ELD) as well as to the clarifications of Commission Notice C(2021) 1860 final of 24 March 2021 (see also Terminology sheet).

In case you determine damage consistent with the indicators for evidence of damage, you have found an environmental damage pursuant to ELD.

Moreover, the compilation of the ISPD tables may be supplemented by using a colour code for the "EVALUATION" column as well as for the "INTERIM JUDGEMENT" column for a better and easier check of interim outputs (see par. 3.3 and 3.4).

The following table in fig. 7 represents the colour code proposed for the outputs of the "Notes" and "Evaluation" columns:

Colour code for the "Description" and "Evaluation"columns	
Favourable to the identification of the clue (text box)	<– fuchsia
Unfavourable to the identification of the clue (text box)	<– green
Data/information not available (express the possibility/legitimity/needs/benefits of collecting/requiring further data/information) (text box)	<– grey
Auxiliary data/information (text box)	<– white
Not available data/information (empty box)	<– white
Not relevant data/information (empty box)	<– white

Figure 7 – Colour code proposed for the outputs for the "Notes" and "Evaluation" columns.

In addition, the following table in fig. 8 represents the colour code proposed for the outputs for the "INTERIM JUDGEMENT" column:

Colour code for the "Interim Judgement" column	
Clues of environmental damage (text box)	<– fuchsia
Absence of clues of environmental damage (text box)	<– green
Data/information to identify clues of damage not sufficient (express the possibility/legitimity/needs/benefits of collecting/requiring further data/information through further investigations) (text box)	<– grey

Figure 8 – Colour code proposed for the outputs for the "Interim judgement" column.

The column “Notes” may be compiled with a flag or description and/or values of the relevant indicator for the case being assessed. Moreover, multiple answers/options in column “Notes” are possible. The column “Evaluation” should be compiled with the evaluation of the group of indicators grouped by evaluation objective.

Note: the colour code is directly adopted by the user of the ISPD table, according to his

evaluations on for each specific case.

6.11 Compilation and output of the Practical tables (included also in the Practical Tables)

The following table format "Description and final judgement of the case" in fig. 9 should contain the relevant information about the case, its final judgement, as well as possible further investigations required:

DESCRIPTION and FINAL JUDGEMENT OF THE CASE	
Site/location	
Damaging Occurrence	
Damage Factors	
Natural Resources Impacted	
Adverse Effects on Reference Concepts	
Final Judgement	
Further Investigations Required	

Figure 9 – Table format that should contain the relevant information of the case, the final judgement, and the further investigations required.

In the “Final Judgement” box (fig. 6), a summary description of the outcomes of the investigation and assessment should be provided. Moreover, in case any clues have been determined, the type of clues should be specified - CLUES OF NATURAL RESOURCE (CNR) or CLUES OF DAMAGING OCCURRENCE AND DAMAGE FACTORS + NATURAL RESOURCE (CD+CNR).

7. Decision-making flowcharts for the determination of the clues and evidence of damage under ELD

7.1 Applicability of ELD over time

The temporal scope of the ELD is set out in Article 7 of the ELD. There are 3 situations in which the ELD does not apply to cases of damage. These are (see fig. 10):

1. Damage caused by an emission, event or incident that took place before 30 April 2007;
2. Damage caused by an emission, event or incident which takes place subsequent to 30 April 2007 when it derives from a specific activity that took place and finished before 30 April 2007;
3. Damage, if more than 30 years have passed since the emission, event, or incident, resulting in the damage, occurred.

Note: the domestic legislation in individual Member States may contain additional and different criteria on applicability over time. Hence, it is important to refer to domestic legislation, in addition to the ELD itself.

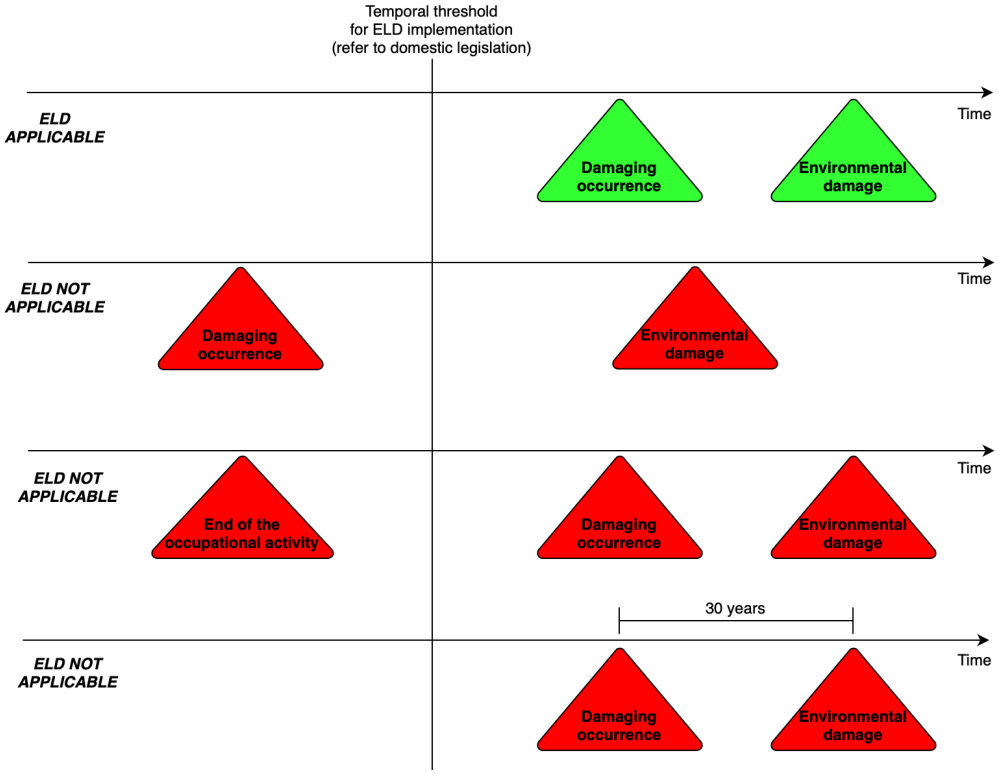

Figure 10 – Temporal scope for the applicability of ELD.

7.2 ELD Liability Regimes

The figure 11 below shows the circumstances in which strict or fault-based liability apply under ELD.

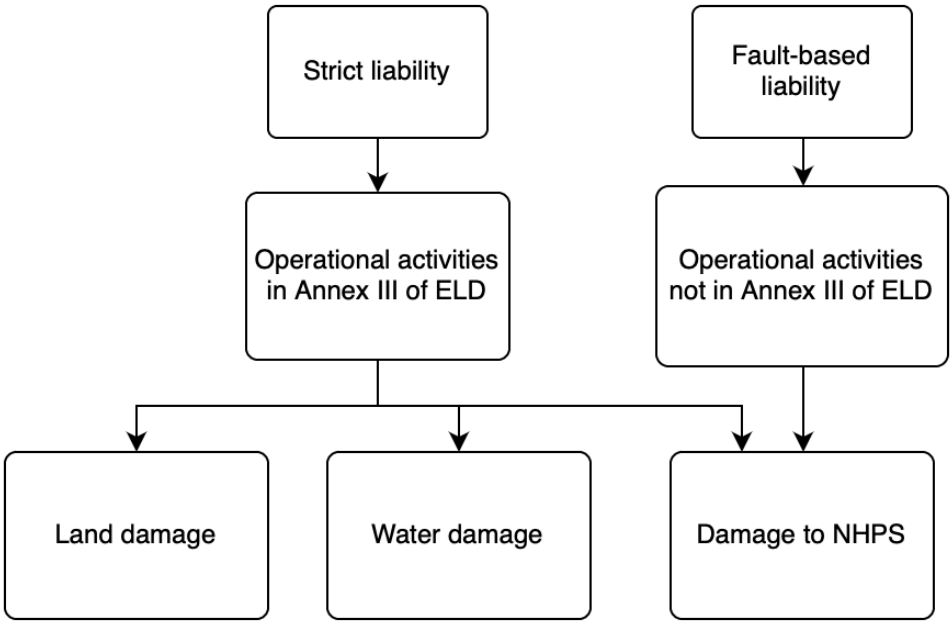

Figure 11 – Applicability of ELD liability regimes.

In ELD the fault-based liability regime of occupational activities other than those listed in Annex III applies only to damage to biodiversity.

Some jurisdictions in their national legislation extended the scope of water and land damage beyond Annex III activities where there is fault or negligence. Even in this practical guide, the scope of water and land damage is extended beyond Annex III activities where there is fault or negligence.

7.3 Flowchart for the applicability of ELD

For the ELD to apply, the following pre-conditions must apply:

1. None of the exemptions in Article 4 of the ELD must apply;
2. The damage or imminent threat and occupational activity must be within the temporal scope of the ELD;
3. There must be damage or an imminent threat of damage to a natural resource protected by the ELD;
4. The damage or threat must be caused by an occupational activity; and
5. For water and land damage, the damage or threat must be caused by an occupational activity listed in Annex III of the ELD.

Note: many individual Member States have extended the scope of their Environmental Liability

regimes beyond the scope of the ELD. Hence, it is important to refer to domestic legislation on the above points, in addition to the ELD itself.

Flowchart in fig. 12 provides a screening assessment for damage under ELD. The flowchart can be used either when you are aware of the PRESSURE (STARTING POINT X), or when you are not yet aware of the PRESSURE but you discover an IMPACT (STARTING POINT Y) on natural resources protected by ELD.

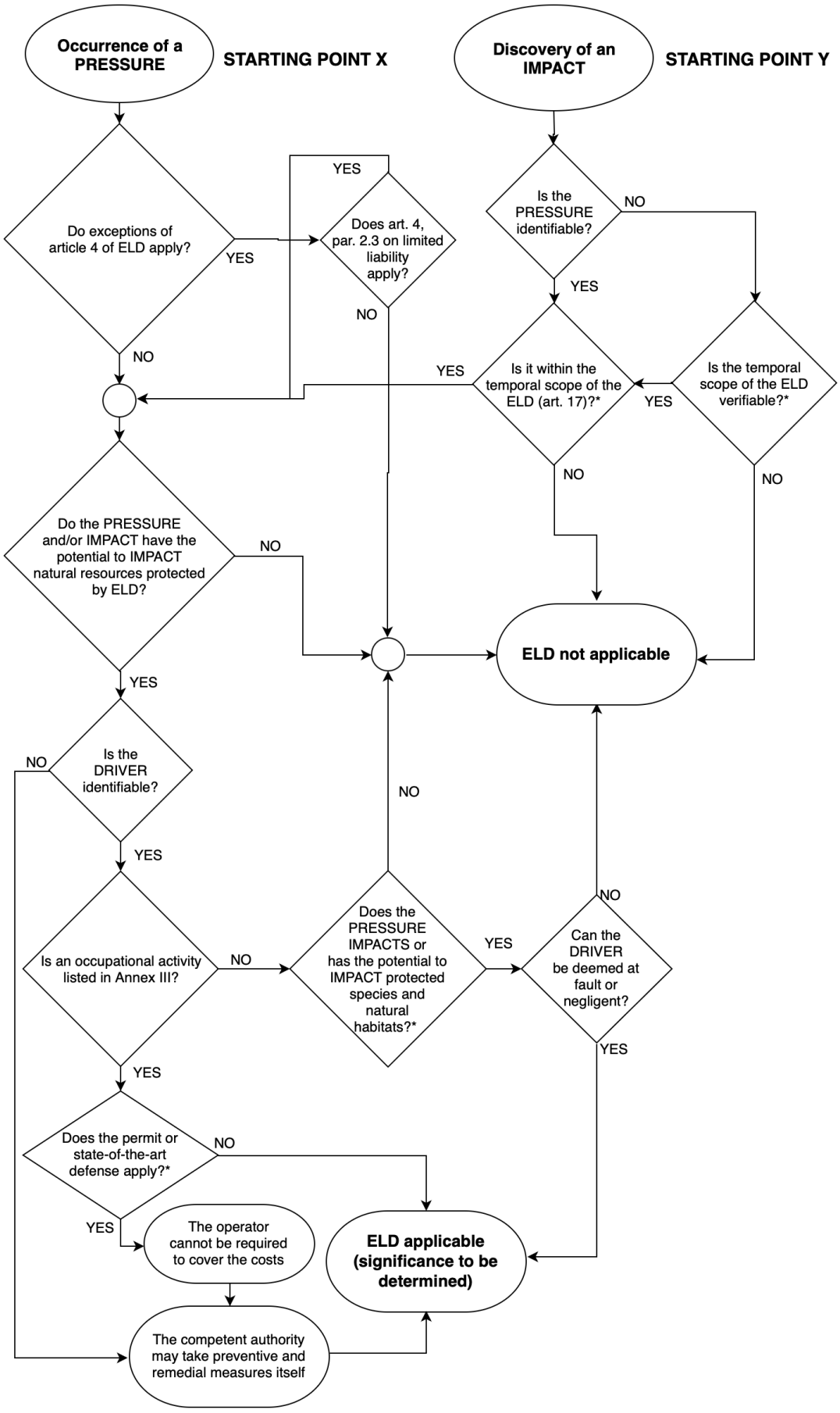

Figure 12 – ELD applicability flowchart.

** Refer to domestic legislation when evaluating:*

- temporal scope of ELD;
- application of strict and fault-based liability regimes to natural resources under ELD (in this practical guide, the scope of water and land damage is extended beyond Annex III activities where there is fault or negligence);
- application of the permit and state-of-the-art defenses.

Moreover, note that:

- "IMPACT" means adverse effects on reference concepts of a natural resource under ELD;
- "PRESSURE" means damaging occurrences and damage factors exposing protected natural resources under ELD to an IMPACT or to a potential IMPACT;
- "DRIVER" means occupational activity.

7.4 Explanatory notes for the users of the decision-making flowcharts

The following decision-making flowcharts are consistent with the implementation of the methodology that is proposed in this Practical Guide and may be used for the determination of the clues and evidence of environmental damage, and they include also the imminent threat of damage identification.

Note: each decision making flowchart should be used by ELD experts and not by non experts in ELD.

Note: flowcharts include both assessments and actions under ELD Directive and each flowchart takes either the occurrence of a PRESSURE or the discovery of an IMPACT as a STARTING POINT X or Y respectively and ends with the classification of a case as either ELD or non-ELD case.

7.5 General decision-making flowchart for the determination of the clues and evidence of damage

The following flowchart in fig. 13 provides a decision-making framework from the onset of a potentially damaging occurrence (a potential imminent threat or PRESSURE) through to the determination of whether the case is an ELD case or non-ELD case.

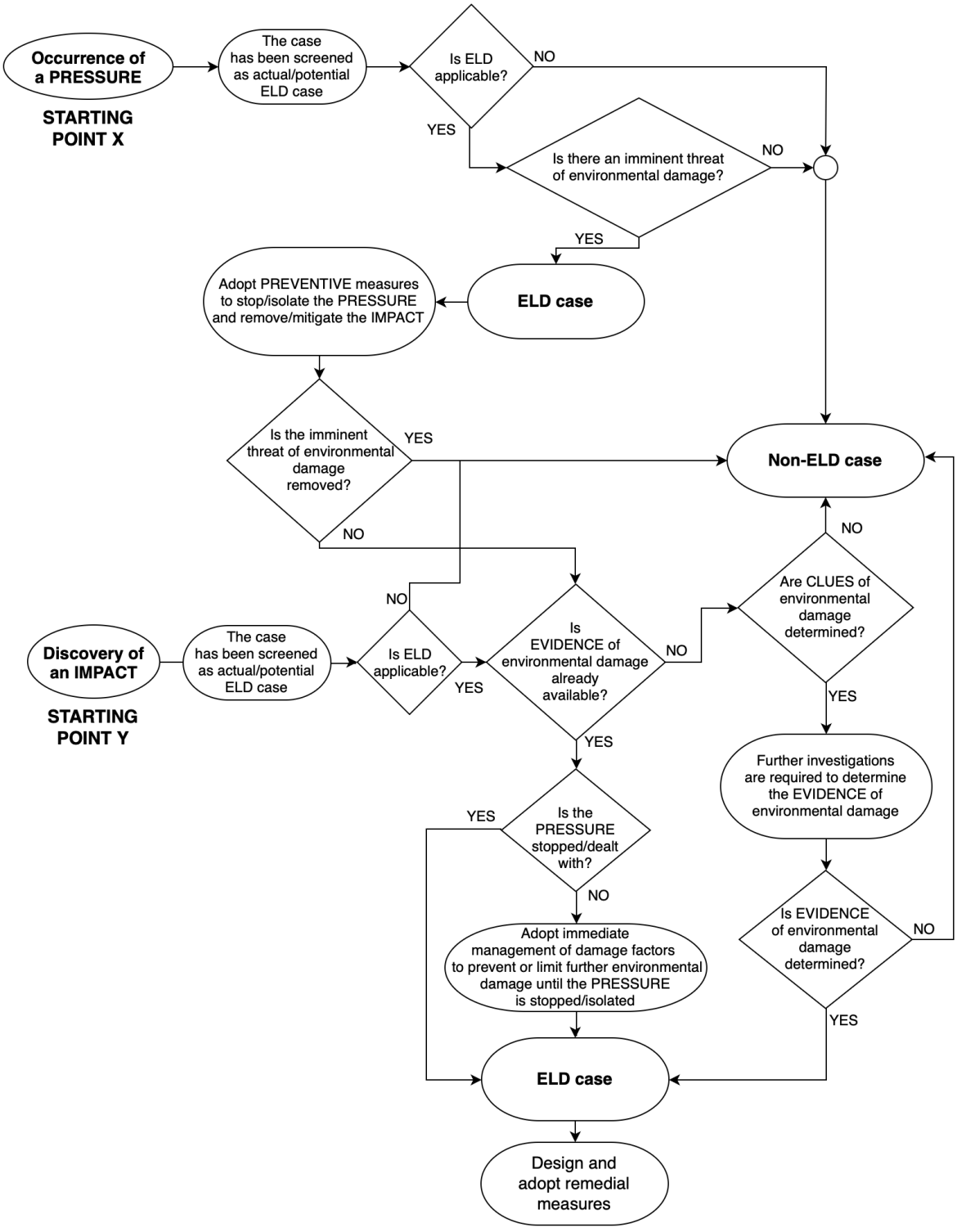

Figure 13 – General decision-making flowchart.

Note that:

- "IMPACT" means adverse effects on reference concepts of a natural resource under ELD.
- "PRESSURE" means damaging occurrences and damage factors exposing protected natural resources under ELD to an IMPACT or to a potential IMPACT.
- The flowchart can be used either in the case of occurrence of a PRESSURE or in the case of the discovery of an IMPACT.
- There is a duty on the the operator to inform the competent authority, without delay of all relevant aspects of the situation (Article 6(1) of ELD).
- ELD powers of entry and inspection must be used by the competent authority at the outset and competent authority and public bodies time and costs must be recorded for the purposes of cost recovery.
- Data and information on the PRESSURE, DRIVER, IMPACT and STATE must be collected by the operator and/or by the competent authority, as soon as possible to facilitate decisions and assessments of preventive measures, environmental damage and determine remedial measures.

7.6 Decision-making flowchart for the determination of the clues and evidence of damage to biodiversity

The determination of the clues of damage to biodiversity protected by the ELD can be done by considering as STATE the conservation status of the species and/or habitat at local (i.e. in the area where the event occurred), national and biogeographical level, for example on the basis of the Reporting data of the Habitat and Birds Directives[44] [45] [46], using the parameters available for the evaluation of the conservation status[47].

If a Natura 2000 site is involved, the evaluation should consider the standard forms of the European Community for Natura 2000 sites[48] (Special Protection Areas (SPA), Proposed Sites for Community Importance (pSCI), Sites of Community Importance (SCI) and for Special Areas of Conservation (SAC)).

If a Natura 2000 site is not involved, an evaluation should consider the possible deviation from the baseline of the parameters such as the rarity / density of the species, the area covered by the habitat and the resilience (recovery capacity) of species and habitats in the site negatively affected by the damaging occurrence and damage factors.

[44] https://cdr.eionet.europa.eu/help/habitats_art17
[45] https://cdr.eionet.europa.eu/help/birds_art12
[46] https://www.eionet.europa.eu/etcs/etc-bd/activities/reporting
[47] See Annex I of ELD as well as Habitat and Birds Directives.
[48] https://natura2000.eea.europa.eu/Natura2000/SDF.aspx?site=GR2520003#2

Reference should be made to the tables of IMPACT and STATE for the determination of clues and evidence of damage to biodiversity. The following fig. 14 represents the decision-making flowchart for the determination of the clues of damage to biodiversity protected by ELD:

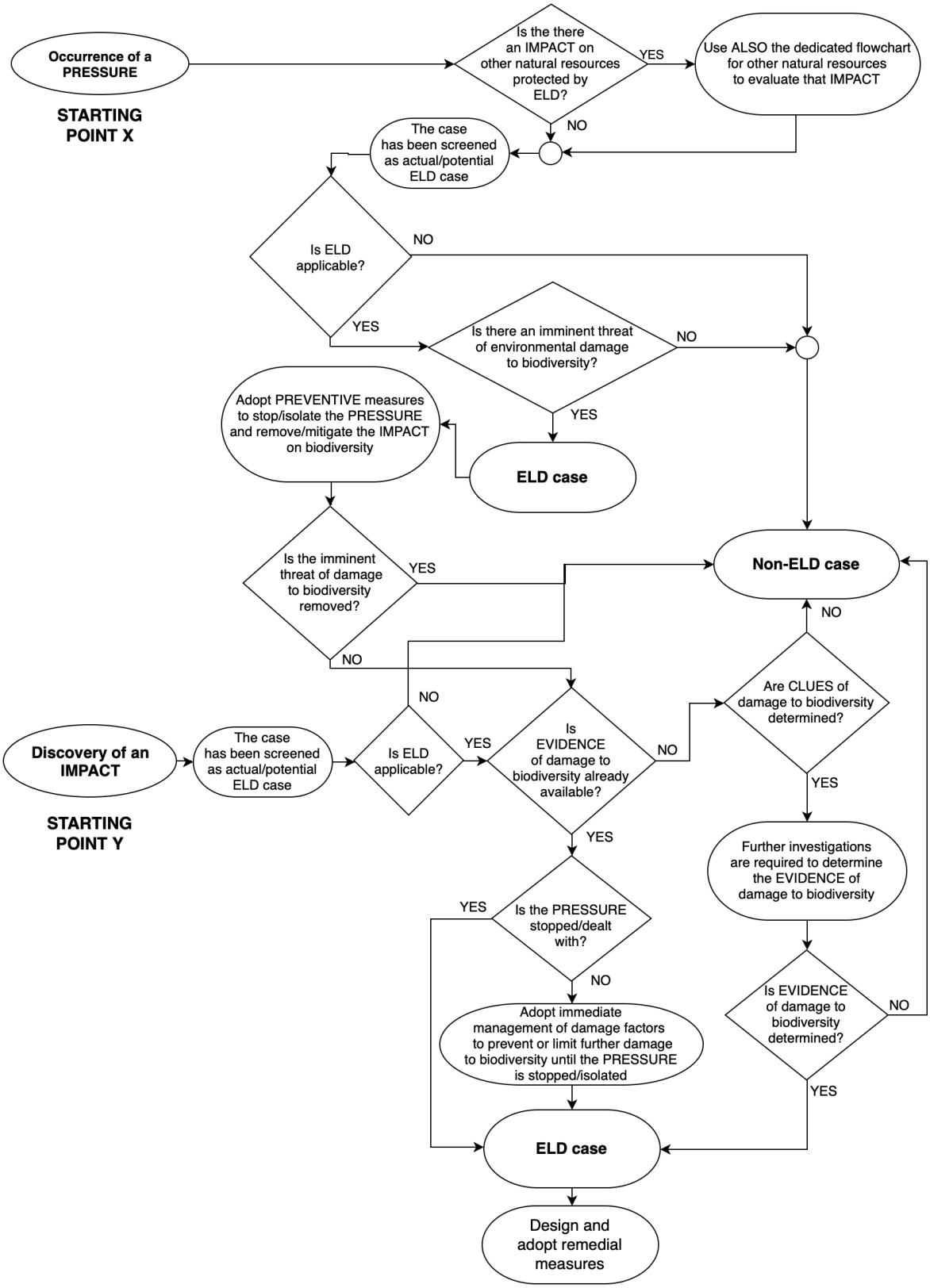

Figure 14 – Decision-making flowchart for the determination of the clues and evidence of damage to biodiversity.

Note that:

- "IMPACT" means adverse effects on reference concepts of a natural resource under ELD.
- "PRESSURE" means damaging occurrences and damage factors exposing protected natural resources under ELD to an IMPACT or to a potential IMPACT.

7.7 Decision-making flowchart for the determination of the clues and evidence of water damage

The following fig. 15 represents the decision-making flowchart for the determination of the clues and evidence of damage to Water:

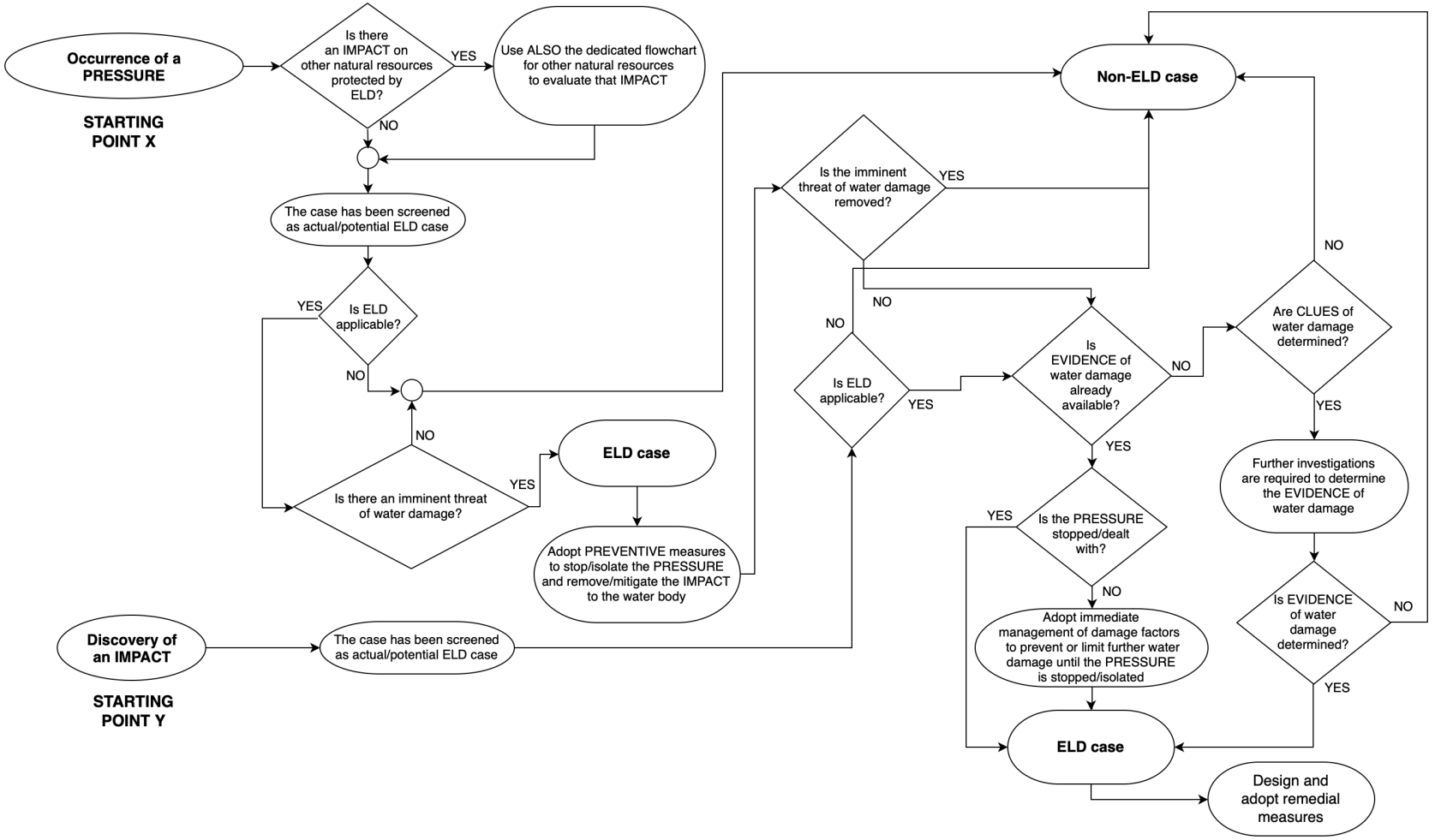

Figure 15 – Decision-making flowchart for the determination of the clues and evidence of water damage.

Note that:

- "IMPACT" means adverse effects on reference concepts of a natural resource under ELD (consider that in some jurisdictions significant risk for human health is considered as reference concept for water damage).
- "PRESSURE" means damaging occurrences and damage factors exposing protected natural resources under ELD to an IMPACT or to a potential IMPACT.
- as “Water body” it is refered to one or more bodies of surface water or/and bodies of groudwater as defined respectively in articles 2(10) and 2(12) of the Water Framework Directive.

7.8 Decision-making flowchart for the determination of the clues and evidence of Land damage

The following fig. 16 represents the decision-making flowchart for the determination of the clues and evidence of damage to Land:

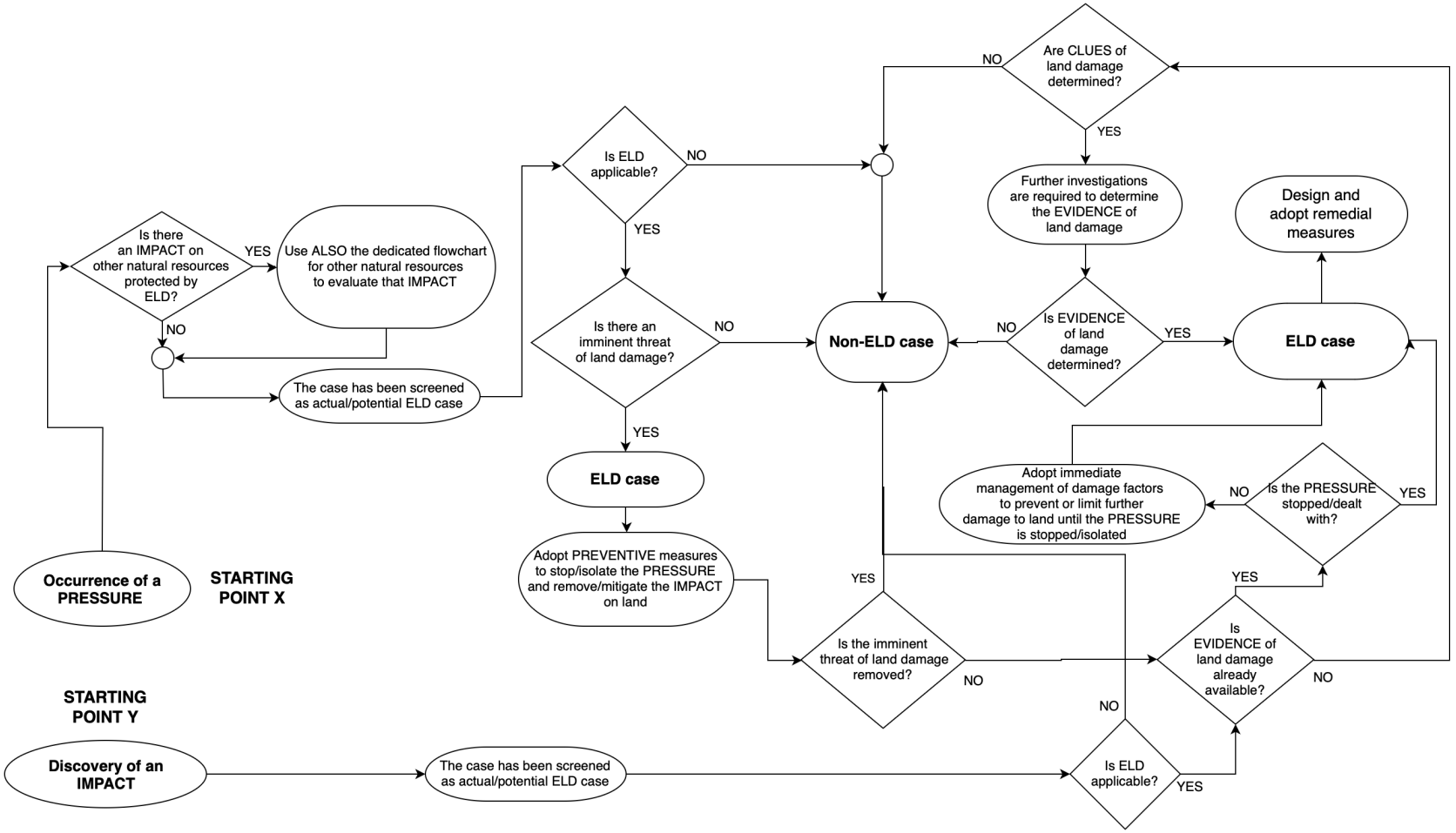

Figure 16 – Decision-making flowchart for the determination of the clues and evidence of land damage.

Note that:

- "IMPACT" means adverse effects on reference concepts of a natural resource under ELD (consider that the reference concept for land damage is “risks to human health”, hence a discovery of an IMPACT means that the land must be potentially contaminated.
- "PRESSURE" means damaging occurrences and damage factors exposing protected natural resources under ELD to an IMPACT or to a potential IMPACT.
- To evaluate the existence of the imminent threat of damage and to determine the clues of land damage the Source-Pathway-Receptor (SPR) Basic Model may be used. The basic model consists in finding linkage among sourcepathway and human receptors. If the SPR linkage is confirmed, an imminent threat of damage should be considered.
- “Further investigations” require the adoption of a human health risk assessment.

8. Follow up

It is envisaged that the follow up of this project year will include the following activities:

- Training and capacity building by sharing practical experience and identifying best practices and lessons learned in the determination of the clues and evidence of environmental damage and imminent threat of damage under ELD.

9. References

Documents are quoted in alphabetical order as: [Author/s, Year, Title, #]

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with regard to the prevention and remedying of environmental damage

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Annexes

10.ANNEX I. Practical tables (updated and upgraded version, 2023)

See the excel file downloadable at the following link:

https://www.impel.eu/en/projects/criteria-for-the-assessment-of-the-environmental-damage-caed