

**PRE-READING DOCUMENT**  
**for the Training Session on the**  
**IMPEL Project “Criteria for the Assessment of Environmental**  
**Damage (CAED)”**

**Topic of the Training Session of Wednesday morning, 16 October 2024**

Environmental damage assessment under Environmental Liability Directive.

**Goal of the Training Session**

Transfer to the trainee knowledge about the procedure, the methodology and the tools proposed by the IMPEL CAED Project and make the trainee able to use the IMPEL CAED Toolkit.

**Background knowledge**

The trainee should be already aware of the Environmental Liability Directive (2004/35/CE)<sup>1</sup> and the EU 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<sup>2</sup>.

**Which questions CAED training aims to answer?**

- How can I screen cases subject to the Environmental Liability Directive?
- What procedure and methodology can I follow to determine and assess damage?

**Who might be interested to this training?**

- 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

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<sup>1</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02004L0035-20190626>

<sup>2</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021XC0407%2801%29>

## **IMPEL CAED Project material**

This document has been produced from the results of IMPEL CAED Project. You can access the detailed information, project reports and other project documents by the link: <https://www.impel.eu/en/projects/criteria-for-the-assessment-of-the-environmental-damage-caed>

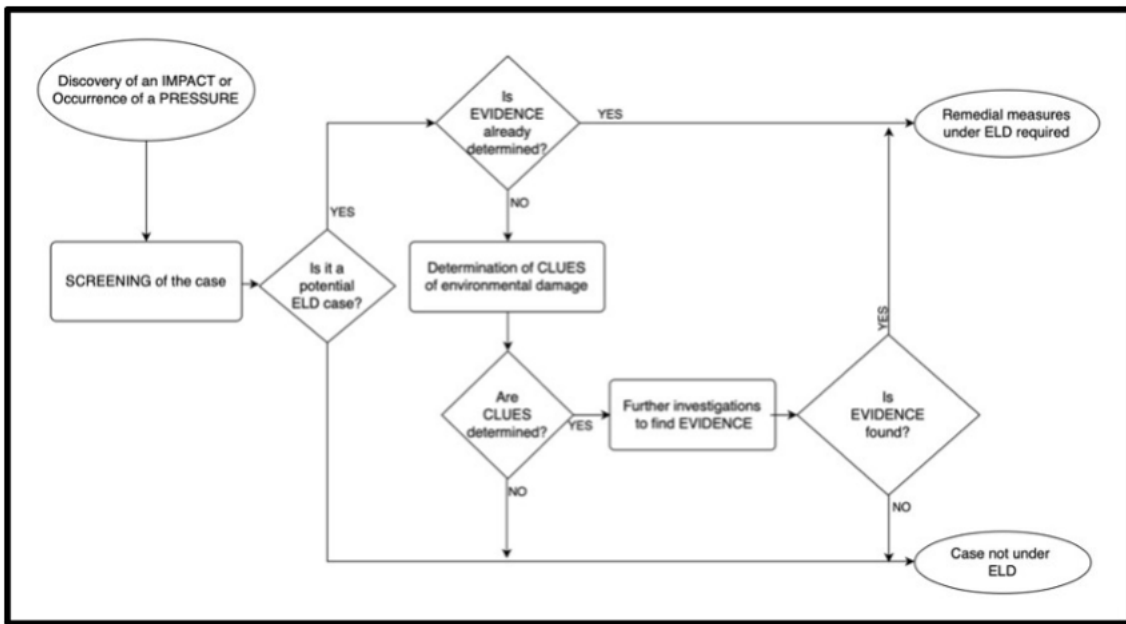
### **Introduction to the IMPEL Criteria for the Assessment of Environmental Damage (CAED) project Toolkit**

The IMPEL Criteria for the Assessment of Environmental Damage (CAED) project, driven by the IMPEL Network, aimed to address the practical challenges of the ELD implementation and enforcement by developing a procedure, tool, and evaluation criteria. These materials are meant to assist environmental authorities, along with both expert and non-expert practitioners, in interpreting the ELD's applicability and identifying the key aspects for damage assessment.

The CAED project produced a comprehensive CAED Toolkit, which includes a Practical Guide and Practical Tables, designed to addressing the question, “what is needed to determine and assess environmental damage under the ELD?” and assist operators and public authorities in handling emissions, events or incidents that might result in environmental damage. By quickly identifying cases that fall under the ELD, authorities can swiftly mandate investigations and remediation from liable parties, reducing delays and the likelihood of legal challenges. CAED project presents a methodical approach to environmental damage assessment, using pre-defined indicators compiled in the Practical Tables. These tables aid in screening cases, evaluating the significance of adverse effects on natural resources compared to baseline conditions, and determining the causal link between damage and the responsible operator's activities.

The Practical Guide primarily introduces a novel procedural approach for determining environmental damage under the ELD regime. It proposes three key stages for the assessment process: screening of the case, determination of clues, and determination of evidence.

Figure 1 shows a diagram of the assessment process, contextualizing these three key stages of the environmental damage assessment procedure under the ELD. The screening of the case involves a preliminary and precautionary evaluation of an event or incident and its environmental adverse effects to identify potential cases of environmental damage and imminent threats.



**Figure 1. General process diagram of environmental damage assessment proposed in the Criteria for the Assessment of the Environmental Damage (CAED) project.**

During this stage, authorities or practitioners should be able to identify non-ELD cases, directing their assessment under other environmental regulations if ELD requirements are not met (including the verification of ELD applicability), or if adverse effects are deemed limited and insignificant. For instance, minor, occasional violations are typically handled with administrative sanctions. The screening process entails verifying the applicability of the ELD, determining the actual or potential adverse effects on natural resources protected by the ELD, and assessing if the identified damage factors could affect the “reference concepts” related to these resources.

Cases that have passed the screening phase can undergo evaluation for the determination of clues of damage, particularly if evidence of damage has not already been established (Figure 1). The determination of clues involves the collection of short-term data and information, as well as preliminary assessments, with the aim of identifying potential cases of environmental damage and imminent threats requiring further investigation to uncover evidence of damage.

Clues of damage serve to identify suspected damage cases and serve as a trigger for subsequent investigation and assessment to either confirm evidence of damage or easily dismiss cases as non-candidates for environmental damage. The identification of clues of damage is particularly helpful in cases where environmental damage has not been clearly proven or determined, often due to the necessity of long-term data collection and evaluation. This allows competent authorities to reasonably request additional investigations from the operator to clarify the extent, duration, and broader impact of the adverse effects on other natural resources.

The determination of evidence of damage involves assessing the significance of environmental adverse effects according to the requirements of the ELD (refer to Figure 2). Typically, this process necessitates long-term assessment to confirm and quantify

environmental damage, including the calculation of interim losses and total debits that require remediation.

To distinguish between clues and evidence of environmental damage, practical examples can be offered. For example, a clue indicating damage to biodiversity might involve the observation of an unquantified selective cutting of typical trees species within a priority protected habitat in a forest. In contrast, evidence of damage would require an on-site assessment to verify that the cut deteriorated the habitat's favorable conservation status. Regarding land, a clue could be the detection of contaminant concentration levels exceeding established thresholds, suggesting potential land contamination. However, evidence of damage would involve identifying a significant risk to human health through a site-specific environmental health risk analysis. Additionally, the presence of eutrophication and persistently low dissolved oxygen levels downstream from urban wastewater discharges, where frequent permit limit violations occur, might be a clue of surface water damage. On the other hand, evidence would involve detecting a negative shift in the Biological Quality Element (BQE) "macroinvertebrates," leading to a deterioration in ecological status, as defined by the criteria in Directive 2000/60/EC.

The Practical Guide has been complemented by a valuable practical tool known as the Practical Tables, designed to assist both ELD experts and non-expert users in navigating the entire assessment process proposed by the CAED project (Figure 1).

These Practical Tables help in the collaborative collection, management, and evaluation of information and data. They include various sub-tools such as a checklist for screening potential ELD cases, a checklist for identifying imminent threats of damage, and the Impact, State, Pressure, Driver (ISPD) tables. The ISPD tables feature predefined indicators specific to the ELD and other relevant legislation, which help to define its scope and assist in determining environmental damage. Figure 2 illustrates the ISPD model, which is based on the widely recognized DPSIR model adopted by the European Environmental Agency (EEA). In this model, the cycle of interconnected components linked by cause-and-effect relationships is reversed, beginning with the IMPACT component and moving backward to the DRIVER component.

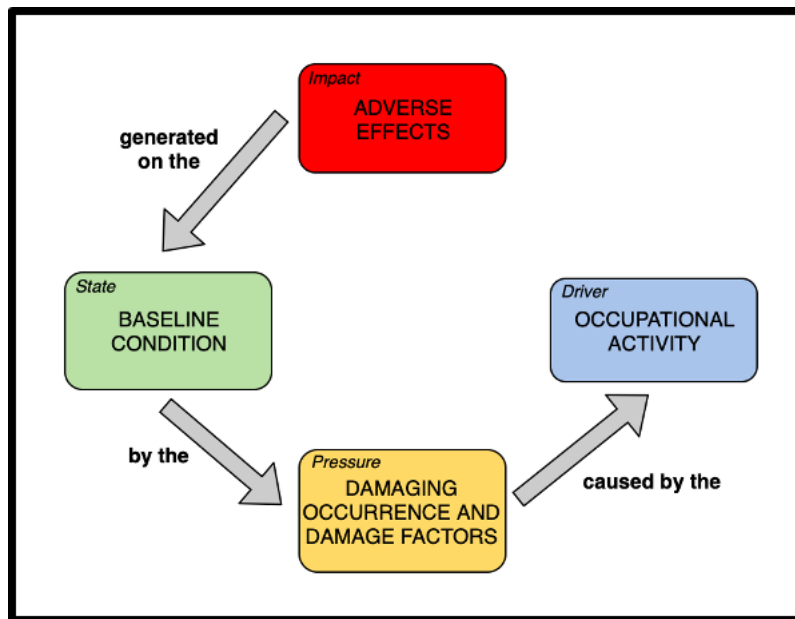


Figure 2. Impact, State, Pressure, Driver (ISPD) model for the environmental damage assessment derived from the DPSIR (Driver, Pressure, State, Impact, and Response) model.

The ISPD model comprises the following components, described in sequential order of appearance:

- IMPACT: refers to the adverse effects on the “reference concepts” of the natural resource.
- STATE: refers to the “baseline condition” of the natural resource, as defined in Article 2, paragraph 14 of the ELD. Therefore, the STATE represents the condition of the natural resources and services that would have existed had the environmental damage not occurred; it does not denote the “pristine” condition.
- PRESSURE: refers to the “damaging occurrence” and “damage factors” generated by the DRIVER, which have the potential to cause environmental damage under the ELD to the natural resources.
- DRIVER: denotes the occupational activities listed in Annex III of the ELD, as well as other occupational activities (in cases of fault or negligence) that generate the “damaging occurrence” and “damage factors.” The DRIVER table incorporates indicators that aid in identifying the responsible occupational activity, whether the damaging occurrence is known from the outset of the investigation or remains unknown.

The reversal of the DPSIR cycle is necessary because, in determining clues and evidence of environmental damage, the focus is first on assessing the adverse impacts (IMPACT) on natural resources compared to their baseline condition (STATE). In fact, the ELD Directive starts with defining environmental damage, making the identification of adverse effects central. Additionally, in cases where the responsible occupational activity (DRIVER) is unknown, authorities are still required to assess the IMPACT. The ISPD model can be used right from the beginning of the assessment, whether the occupational activity is identified or not, and can guide the entire process of evaluating environmental damage (see Figure 1).

Each component of the ISPD model may contain data and information that can be used primarily to identify and assess clues of damage, with the goal of determining whether further investigation into environmental damage under the ELD is necessary. Secondly, evidence of damage may also be determined and assessed. However, as shown in Figure 1, in some cases evidence of damage can be directly determined without first identifying clues. This happens, for example, when early-stage data and information are sufficient to assess the significance of adverse effects on natural resources as defined by the ELD.

The IMPEL CAED project also focused on identifying indicators to include in the ISPD tables for each component of the ISPD model which help determine clues and evidence of environmental damage. Each table categorizes indicators based on different assessment “objectives,” specifying the information needed to fully understand the case being assessed under the ELD. The consistent use of ISPD tables throughout all stages of the process depicted in Figure 1 allows for a systematic and structured approach to collecting both key and supplementary indicators required for gathering and analyzing data during the determination and assessment phases. Moreover, the assessment process outlined in the CAED project, as shown in Figure 1, highlights the importance of identifying clues or evidence of damage. This process includes an additional stage, specifically for identifying clues of damage, as shown in Figure 3. This embedded process underscores the use of ISPD tables to identify and determine clues of damage through a specialized evaluation process illustrated in Figure 3.

The indicators established by the CAED project provide a framework for individuals without environmental damage assessment expertise to pinpoint the essential and supplementary information needed for data collection, determination, and evaluation, or to request such data from the operator. Primarily qualitative, but sometimes quantitative, these indicators are assigned a “value” and undergo intermediate and overall evaluations. This process facilitates the identification of clues or evidence, or the classification of the case as “non-ELD,” often with the support of expert judgment.

Figure 3 provides a schematic representation of the procedure for identifying clues of environmental damage based on the ISPD tables and indicators. The analysis depicted in Figure 3 will be described at the ELD Workshop.

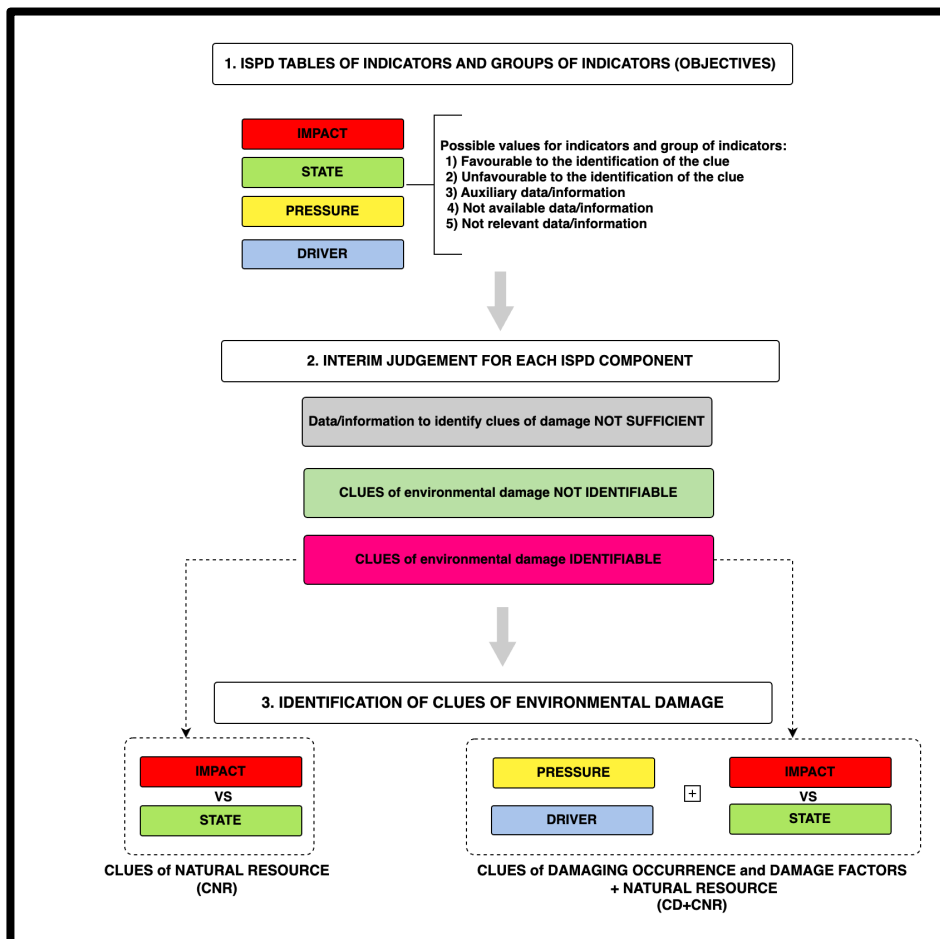


Figure 3. Impact, State, Pressure, Driver (ISPD) model for the environmental damage assessment derived from the DPSIR (Driver, Pressure, State, Impact, and Response) model.

To conclude, the IMPEL CAED project introduced a new practical approach for assessing environmental damage under the ELD, incorporating an ISPD model adapted from the DPSIR model to suit the requirements of the ELD. This methodology was consolidated into a Practical Guide and Practical Tables, together forming the CAED toolkit. These tools provide a comprehensive framework for assisting both experts and non-experts in handling the complex, interdisciplinary assessment of environmental damage and imminent threats. The predefined indicators were systematically organized into tables, and evaluations were performed in a unified manner, streamlining the management of ELD cases for authorities, operators, and practitioners.

The IMPEL CAED project marks the first European project dedicated exclusively to the ascertainment and investigation stages of the environmental damage assessment process. It introduces crucial concepts like identifying clues of damage, which allow competent authorities to seek further data, information, or investigations from operators when environmental damage or imminent threats are suspected.

This project aims to streamline the efforts of competent authorities and practitioners, enhancing the effectiveness and efficiency of ELD enforcement.

## Terminology used in the CAED Toolkit

Term (alphabetical order)	Definition
<b>Ascertainment</b>	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.
<b>Biodiversity</b>	The term “Biodiversity” is used in these Practical Guide and Tables with the meaning of species and natural habitats protected by the Habitats and Birds Directives and – if a Member State has adopted the extension – those included in equivalent provisions of national nature conservation legislation.
<b>Damage factors<sup>3</sup></b>	<p>Factors that cause adverse effects to the natural resource protected under ELD. They represent the source of the environmental damage.</p> <p>Note that according to EU COM Notice, until the damage factors have caused environmental damage, they should be called potential damage factors. In this Practical Guide, for simplicity, they will always be called damage factors.</p>
<b>Damaging occurrence<sup>4</sup></b>	<p>The range of possible occurrences which may cause environmental damage, whether it is an accident, on-going pollution, over-abstraction, killing of animals, etc.</p> <p>Note that according to EU COM Notice, until the damaging occurrence has caused environmental damage, it should be called</p>

<sup>3</sup> See EU COM Notice.

<sup>4</sup> See EU COM Notice.



	<p>potential damaging occurrence. In this Practical Guide, for simplicity, it will always be called damaging occurrence.</p>
<p><b>Determination of clues of environmental damage</b></p>	<p>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.</p> <p>The purpose of the determination of clues is to identify candidate cases of significant environmental damage and imminent threat of damage and to dismiss non-candidate ones.</p> <p>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.</p> <p>For example, clues of environmental damage may concern the exceedance of the screening concentration values for soil potentially contaminated.</p>
<p><b>Determination of evidence of environmental damage</b></p>	<p>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 measures for land, and primary, complementary and compensatory measures for water and biodiversity damage (where required).</p> <p>The purpose of the determination of evidence is, thus, to confirm the occurrence of significant environmental damage or</p>

	<p>imminent threat of damage cases in light of the requirements of the ELD.</p>
<b>DRIVER</b>	<p>It is the occupational activity responsible for damage and/or imminent threat of damage.</p> <p>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.</p> <p>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.</p>
<b>ELD case and non-ELD case</b>	<p>ELD case is a case where the environmental damage or imminent threat is found significant in light of the requirements of the ELD.</p> <p>Non-ELD case is a case where the environmental damage under ELD has not occurred or is not determined.</p>
<b>Environmental damage</b>	<p>Article 2(1) of the ELD provides that “environmental damage” means:</p> <p>(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;</p> <p>Damage to protected species and natural habitats does not include previously</p>

	<p>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.</p> <p>(b) water damage, which is any damage that significantly adversely affects:</p> <p>(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</p> <p>(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.</p> <p>(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.</p> <p>Refer to EU COM Notice as regards all aspects of the definition of “environmental damage”.</p>
<p><b>EU COM Notice</b></p>	<p>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</p>

	environmental damage” and published on 25 March 2021.
<b>Immediate Management of Damage Factors<sup>5</sup></b>	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).
<b>Imminent threat of damage</b>	Art. 2, par. 9, ELD defines it as a “sufficient likelihood that environmental damage will occur in the near future”.
<b>IMPACT</b>	Adverse effects on reference concepts of a natural resource under ELD.
<b>ISPD Tables</b>	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.
<b>PRESSURE</b>	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.
<b>Reference concepts<sup>6</sup></b>	EU COM Notice states: “For all three categories of natural resource, the definition of “environmental damage” uses a reference

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<sup>5</sup> See EU COM Notice.

<sup>6</sup> See EU COM Notice.

	<p>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, 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.”</p>
<p><b>Screening</b></p>	<p>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).</p> <p>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).</p> <p>For instance, screening is conducted on information and data communicated by the operator or by an authority through a notice reporting about the event.</p> <p>For example, the screening can be useful for environmental inspectors to recognise possible environmental damages or imminent threat of damages as a result of</p>

	non-compliances discovered during routine/non-routine inspections of regulated/unregulated sites.
<b>STATE</b>	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.