Funded by the European Union

European Union Network for the Implementation and Enforcement of Environmental Law

IMPEL CAED Training Course

Training material from the Environmental Liability Directive (ELD)

PILOT WORKSHOPS 2024-2025

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IMPEL Criteria for the Assessment of Environmental Damage (CAED) Procedure:

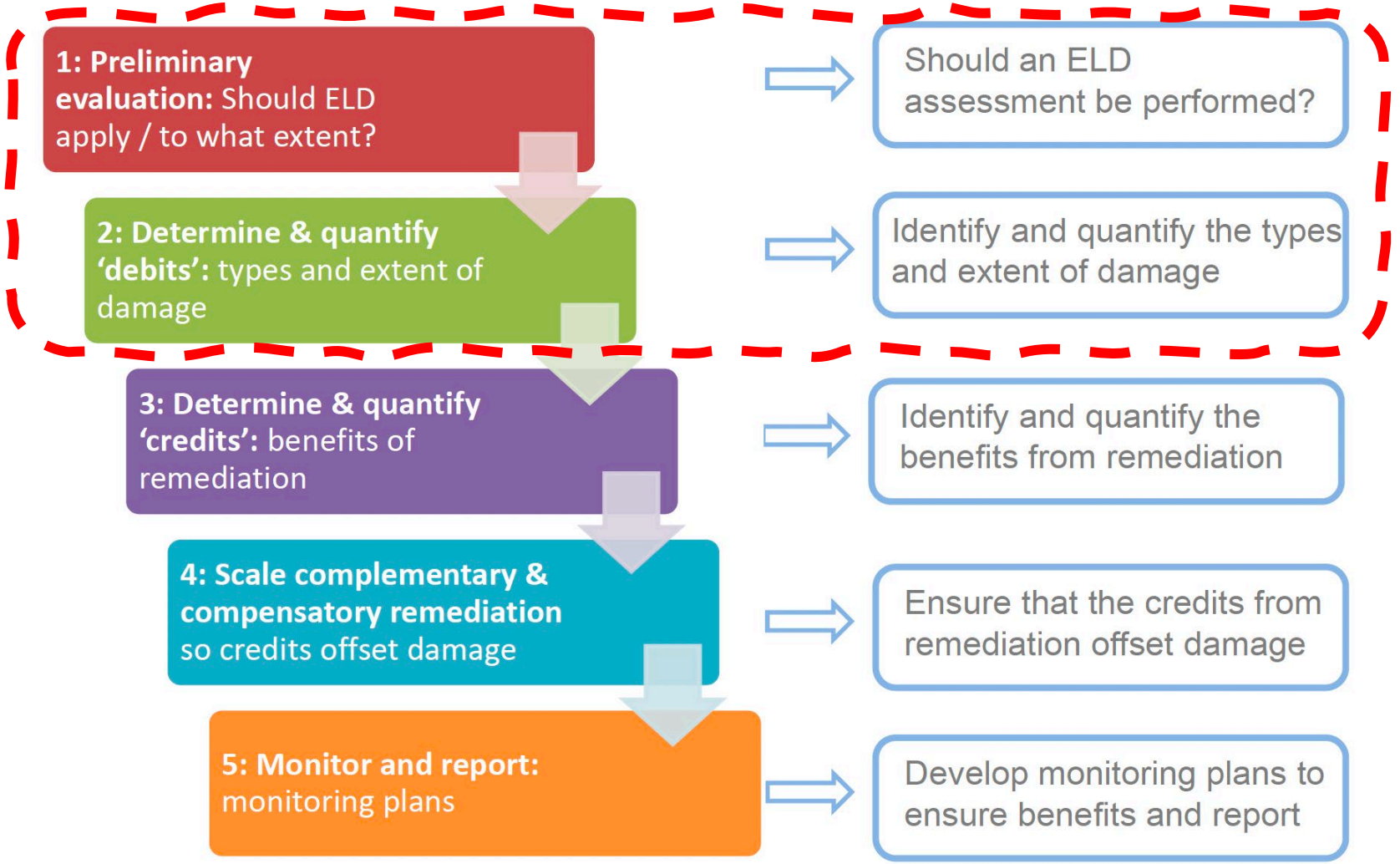
Screening of ELD cases

SCOPE of CAED

CAED Scope

Criteria Assessment Environmental damage

The ELD Assessment Process

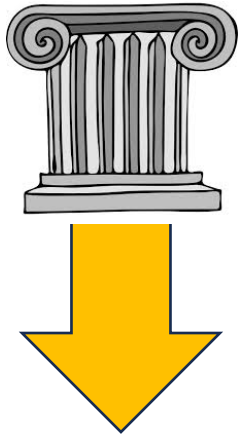


- **Disparities** in the achievement of objectives
- **Inefficiencies** and **delays** in the adoption of preventive or remedial measures

Can environmental damages be ascertained and assessed **using a common and systematic approach**…to increase the probability or assure the polluter pays for environmental damage?

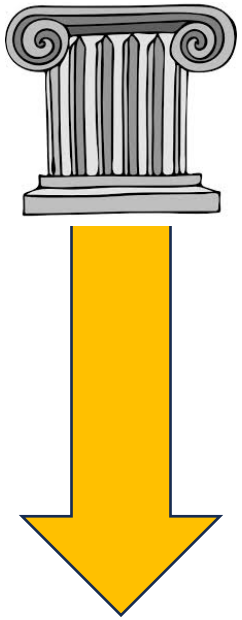
PILLARS OF THE ASSESSMENT UNDER ELD

1) ELD applicability and screening of cases



Verify occupational activity, regime of liability, natural resources, temporal scope, exceptions

2) ELD implementation

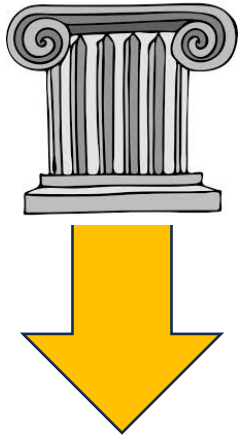


Determine Significance

and guarantee measurability

of the adverse effects

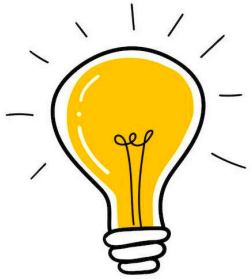
3) Application of the Polluter pays principle



Determine causal link between the damage and the operator activities

Source of the image: https://freesvg.org/vector-image-of-column-pillar

TOOLKIT



1

Check-list for screening potential ELD cases

STEP 1 → **STEP 2**

Non-ELD case

Potential ELD case

2

Check-list for identifying imminent threat of damage

Preliminary check

Check for determining a 'sufficient likelihood that environmental damage will occur in the near future'

Threat!

3

Impact-State-Pressure-Driver (ISPD) Tables

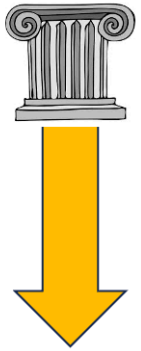
WHAT ONE SHOULD DO TO…

1. **Screen** potential ELD cases?

2. Determine **clues** of environmental damages?

3. Determine **evidence** of environmental damages?

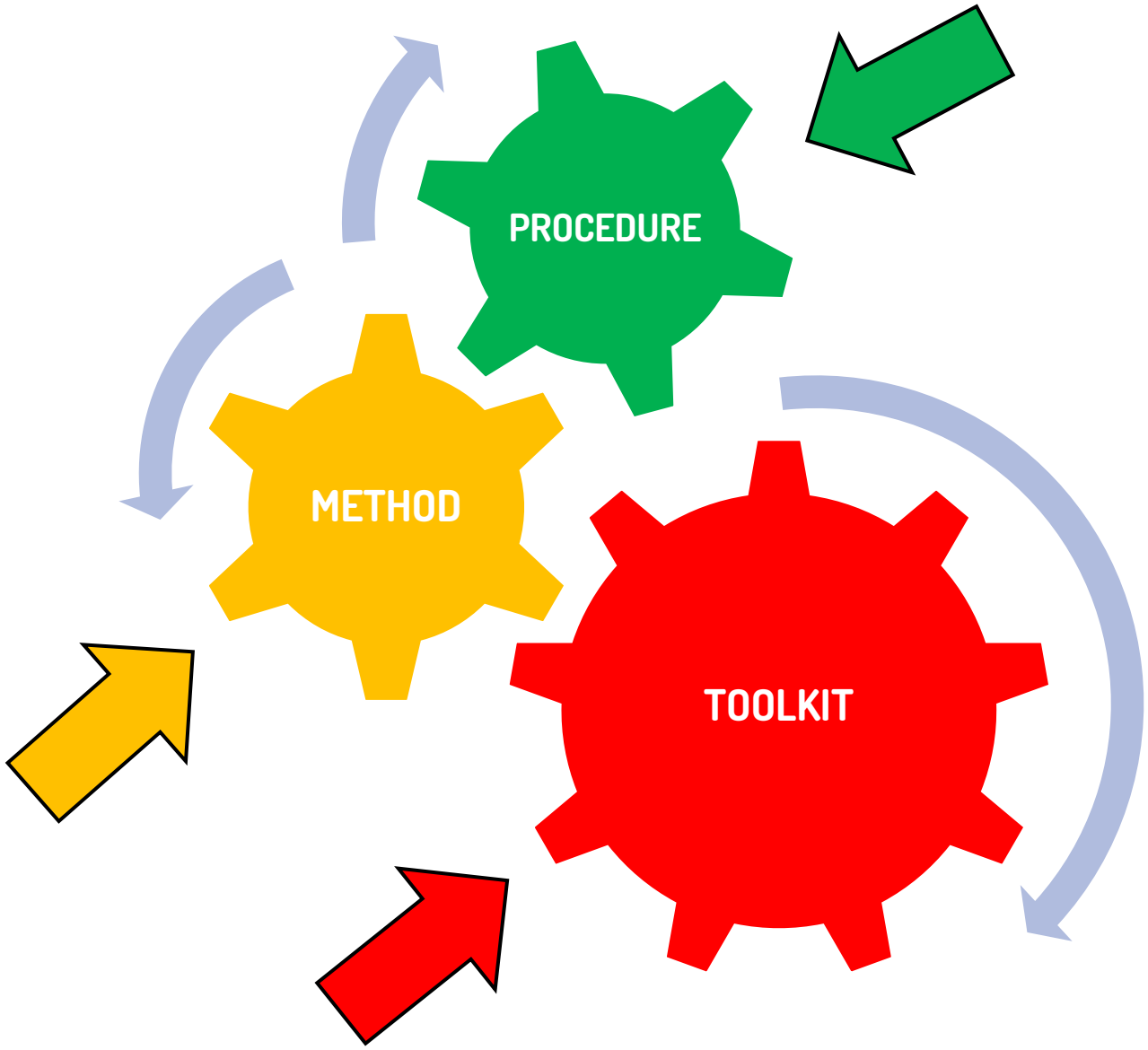
2) ELD implementation

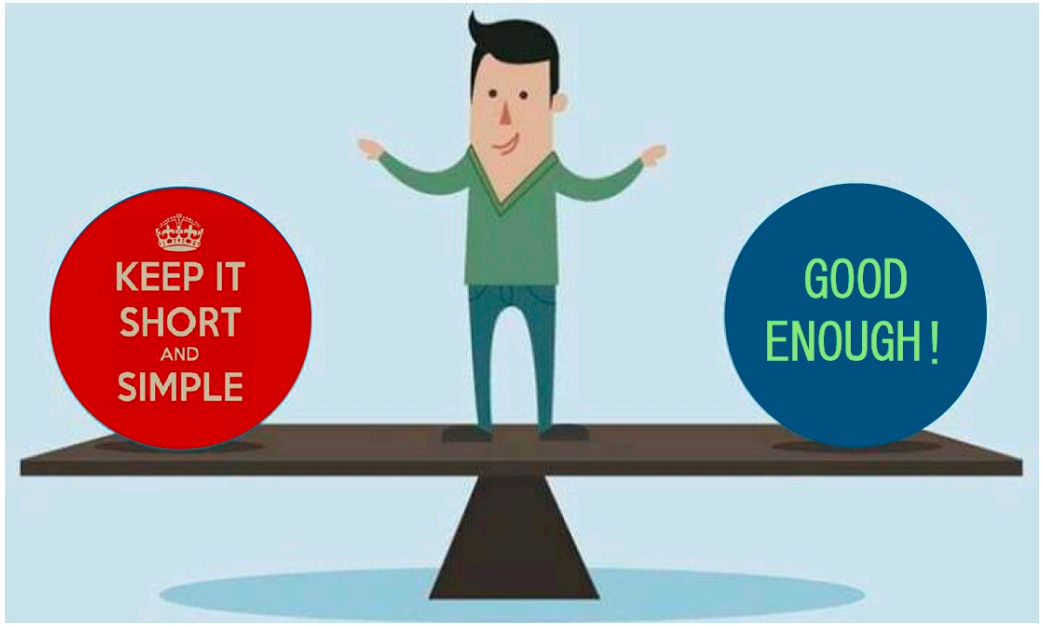


Determine Significance and guarantee measurability of the adverse effects

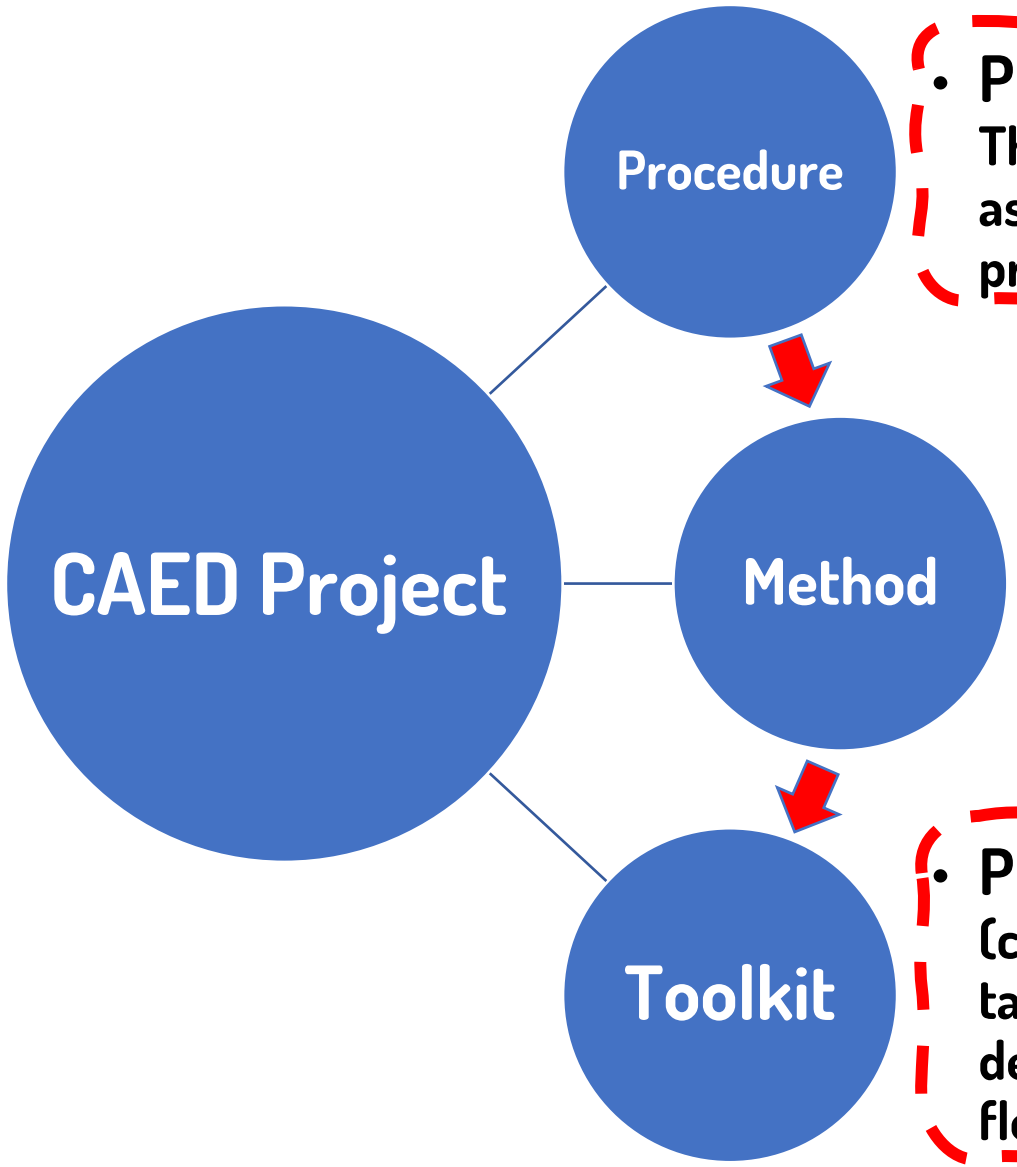
Sources of the images:
https://freesvg.org/vector-image-of-column-pillar
https://lazitellafelice.wordpress.com/2013/01/23/scuola-di-felicita-13-il-gioco-della-lampada-di-aladino/

CAED project team has developed:





FOCUS and GOALS of today's CAED training

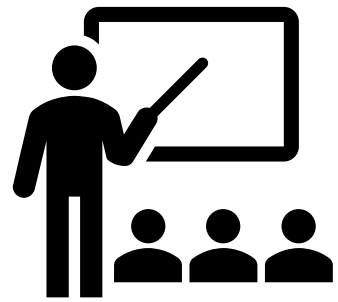


- **Practical Guide**
  Three steps ascertainment procedure

- **Practical Guide**
  ISPD model
- (DPSIR model adapted to environmental damage)

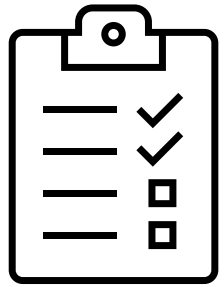
- **Practical Tables**
  (check-lists, ISPD tables of indicators, decision-making flowcharts)

OVERVIEW



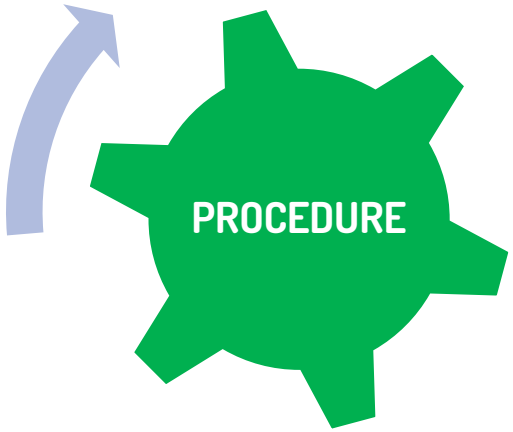
TODAY's GOALS

Make you able to use the ISPD tables



ELD concepts + CAED concepts

CLUES OF DAMAGE
REFERENCE CONCEPTS
IMPACT
NATURAL RESOURCES AND SERVICES
DRIVER
DAMAGING OCCURRENCE
SCREENING OF NON-ELD CASES
ENVIRONMENTAL DAMAGE
PRESSURE
ELD CASE AND NON-ELD CASES
IMMINENT THREAT OF DAMAGE
DPSIR
DAMAGE FACTORS
STATE
BASELINE CONDITION
EVIDENCE OF DAMAGE



CAED project proposed a NEW PROCEDURE

SCREENING PROCESS

The **screening of potential environmental damage** and imminent threat of damage cases

Potential ELD cases

DETERMINATION OF CLUES

The **determination of clues** for the **identification of candidate environmental damage** and imminent threat of damage cases

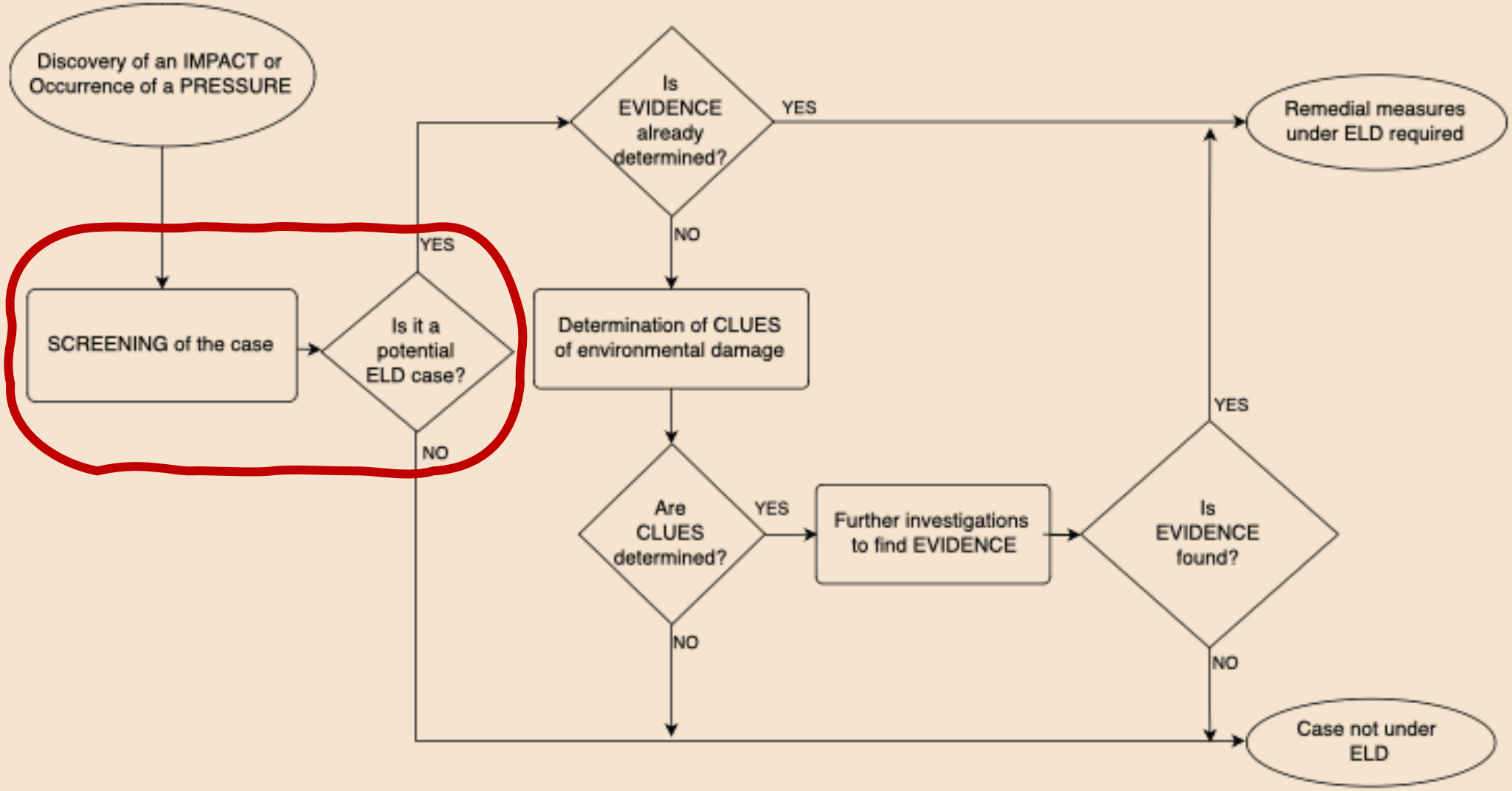
Candidate ELD cases

DETERMINATION OF EVIDENCE

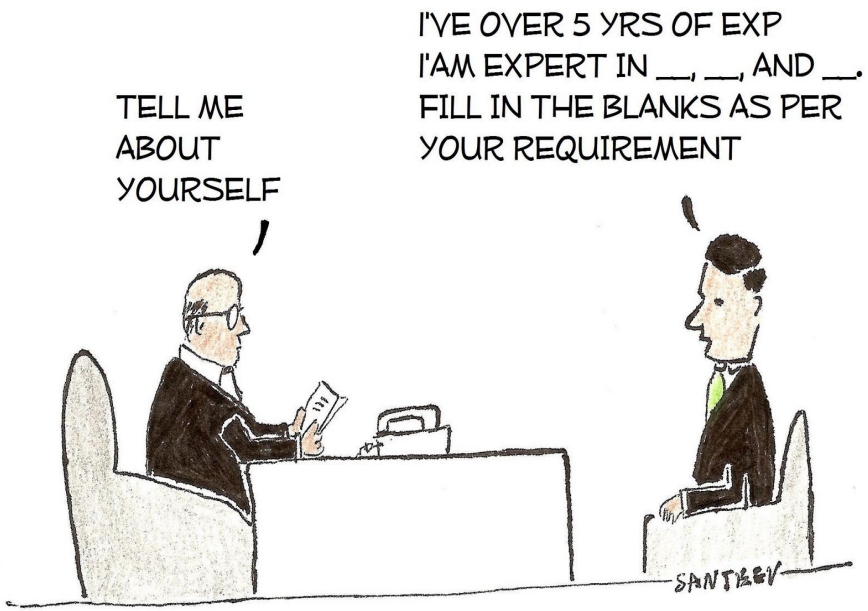
The **determination of evidence** for the **confirmation of environmental damage** and imminent threat of damage cases

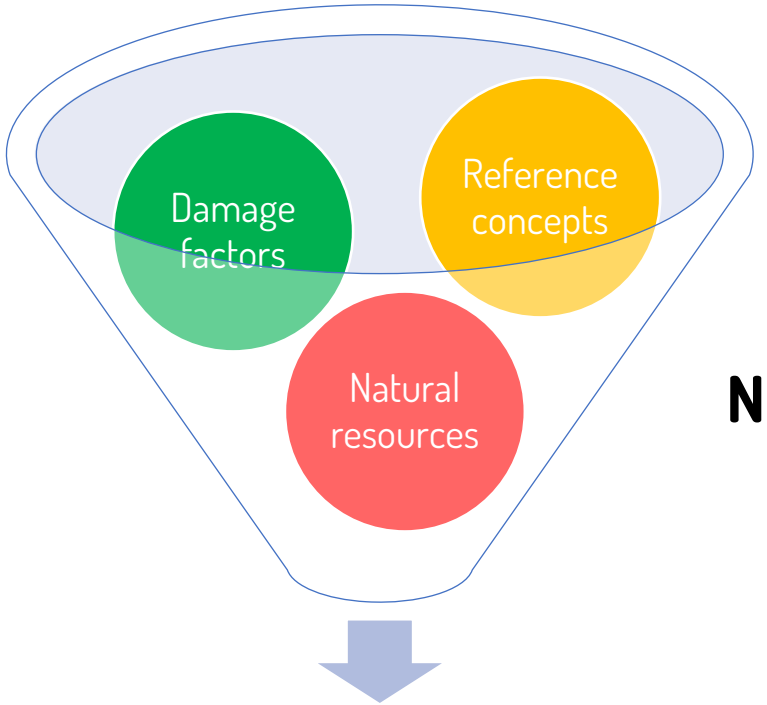
The three steps may or may not be conducted in a sequential manner

GENERAL PROCESS DIAGRAM



SCREENING PROCESS





Non-ELD cases

Potential ELD cases

Source of the image: https://blog.cherre.com/2018/06/25/the-art-of-screening-candidates/

Examples of screening of severe environmental harms in non-ELD legislation and guidelines

Example of screening in Scottish guidance - Waters

Indicators of significant adverse effects include where there is a serious impact on the water environment from pollution, abstraction or impoundment, for example:

- **Significant visible pollution** e.g. large oil slick
- **Entry of toxic and persistent pollutants**
- **Threat to drinking water supply**
- **Significant biological impact**, e.g. fishkill, damage to wetland
- **Sediment contamination**

Consider whether the impact is likely to be have an **appreciable spatial extent** (see table on the right for surface waters) **and be sustained for example in a sensitive waterbody** (e.g. upper catchment surface waters) **or a water body with low flushing rate** (loch, groundwater) **or result in an ongoing source of pollution** (e.g. contaminated river sediment).

Spatial Extent

Type of water body	High Ecological Status	Other ecological status
River >0.5km	0.5km	1.5km
Inland loch	5 % surface area	15% surface area
Transitional water	$0.5km^2$	$1.5km^2$
Coastal water	$0.5km^2$	$1.5km^2$
Impoundments	Severe barrier to fish migration	

SEPA from the Schedule 4 of The Scotland River Basin District (Standards) Directions

Example of screening in French guidance - species, waters, land

«European scale of industrial accidents»

Environmental consequences		1	2	3	4	5	6
Env10	Quantity of wild animals killed, injured or rendered unfit for human consumption (t)	Q < 0,1	0,1 ≤ Q < 1	1 ≤ Q < 10	10 ≤ Q < 50	50 ≤ Q < 200	Q ≥ 200
Env11	Proportion P of rare or protected animal or vegetal species destroyed (or eliminated by biotope damage) in the zone of the accident	P < 0,1 %	0,1% ≤ P < 0,5%	0,5 % ≤ P < 2 %	2 % ≤ P < 10 %	10 % ≤ P < 50 %	P ≥ 50 %
Env12	Volume V of water polluted (in m^3) *	V < 1000	1000 ≤ V < 10 000	10 000 ≤ V < 0.1	0.1 Million ≤ V< 1 Million	1 Million ≤ V< 10 Million	V ≥ 10 Million
Env13	Surface area S of soil or underground water surface requiring cleaning or specific decontamination (in ha)	0,1 ≤ S < 0,5	0,5 ≤ S < 2	2 ≤ S < 10	10 ≤ S < 50	50 ≤ S < 200	S ≥ 200
Env14	Length L of water channel requiring cleaning or specific decontamination (in km)	0,1≤ L < 0,5	0,5 ≤ L< 2	2 ≤ L< 10	10 ≤ L < 50	50 ≤ L< 200	L ≥ 200

* The volume is determined with the expression Q/C_{lim} where:

- ✓ Q is the quantity of substance released,
- ✓ C_{lim} is the maximal admissible concentration in the milieu concerned fixed by the European directives in effect.

https://www.aria.developpement-durable.gouv.fr/in-case-of-accident/european-scale-of-industrial-accidents/?lang=en

Example of screening in Latvian guidance

Determination of the significance of the damage caused to the environment in occasion for action in accidents and emergency situations

Importance in terms of environmental damage

Minor localized damage	**1**
Local damage (within one municipality)	**2**
Significant damage on a local scale (within two municipalities)	**3**
Regional scale (within several municipalities) damage	**4**
National and cross-border damage	**5**

Options for stopping damage to the environment

The spread of damage in the environment is controlled	**1**
The opportunities to stop environmental damage are great	**2**
The chances of stopping the damage to the environment are medium	**3**
The chances of stopping the damage to the environment are minimal	**4**
There is no way to stop the damage to the environment	**5**

The significance of the damage caused to the environment

Score	The number of points for the importance of damage to the environment	Description of the significance of the damage caused to the environment
1	15 - 25	**The damage to the environment is extremely significant**
2	9 - 14	**The damage done to the environment is very significant**
3	4 - 8	**The damage to the environment is significant**
4	**1 - 3**	**The damage to the environment is insignificant**

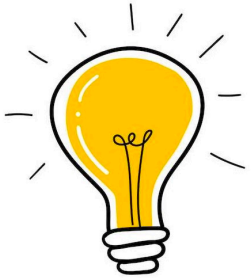
FORMULA: Importance of environmental damage (1-5) x Options for stopping environmental damage (1-5) = Significance of environmental damage (1-25).

CAED Screening ≈ US NRDA (Natural Resource Damage Assessments)

Oil Pollution Act of 1990, 2024 - 15 CFR Part 990 (up to date as of 1/25/2024)

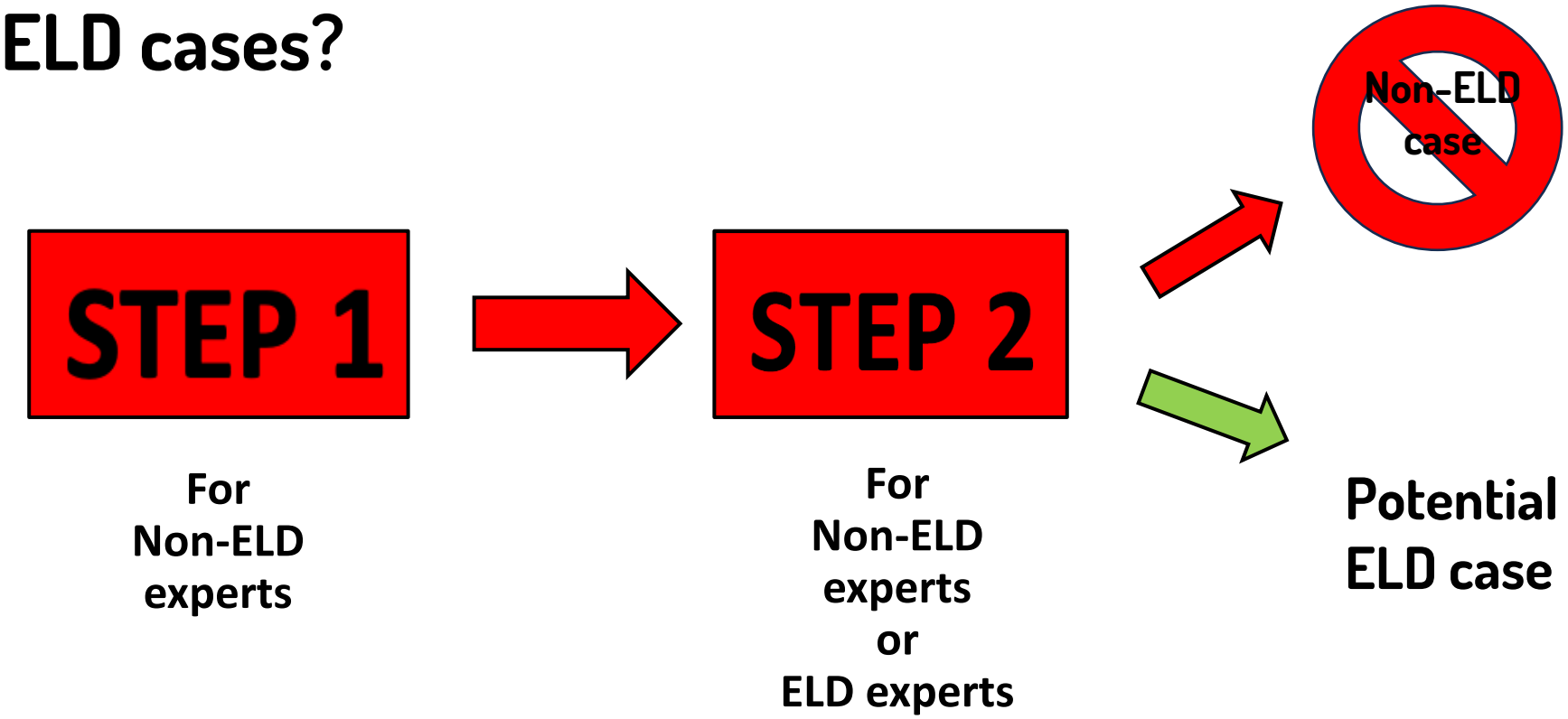
Determination of jurisdiction	*Upon learning of an incident, trustees must determine whether there is jurisdiction to pursue restoration under Oil Pollution Act (OPA).*
Determination on restoration planning	*Trustees must determine whether:* • *Injuries have resulted, or are likely to result, from the incident;* • *Response actions have not adequately addressed, or are not expected to address, the injuries resulting from the incident; and* • *Feasible primary and/or compensatory restoration actions exist to address the potential injuries.*
Data collection	*Trustees may collect and analyze the following types of data during the Preassessment Phase:* • *Data reasonably expected to be necessary to make a determination of jurisdiction or a determination to conduct restoration planning;* • *Ephemeral data*

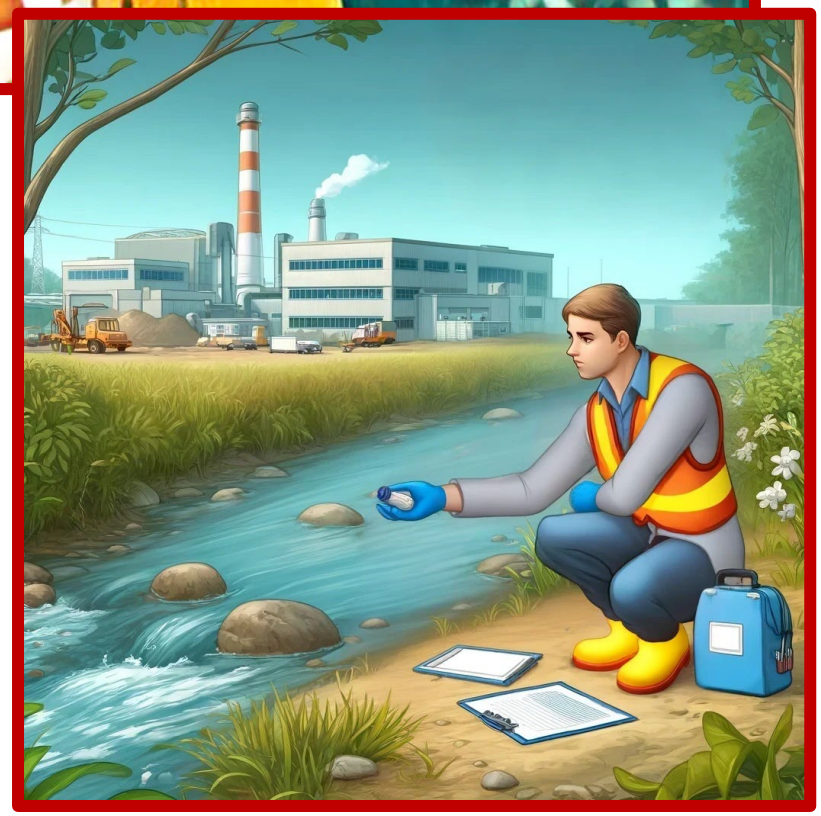
TOOLKIT – PRACTICAL TABLES



1. Screen potential ELD cases?

Check-list for screening potential ELD cases:





SCREENING

- ✅ STEP 1 — To Non-ELD experts
- ✅ STEP 2 — To Non-ELD experts

POTENTIAL ELD CASE

ELD COMPETENT AUTORITY

- ✅ STEP 2 — To ELD experts

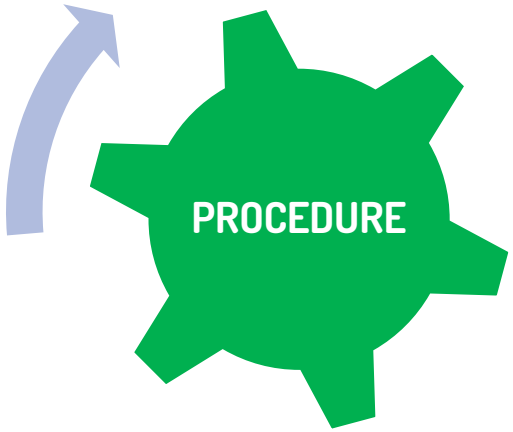
VIDEO on the SCREENING CHECK-LIST

https://www.youtube.com/watch?v=DL56S-zfsA4&t=147s

Get ready for the exercise no. 1

IMPEL CAED Project Procedure:

Clues of environmental damage



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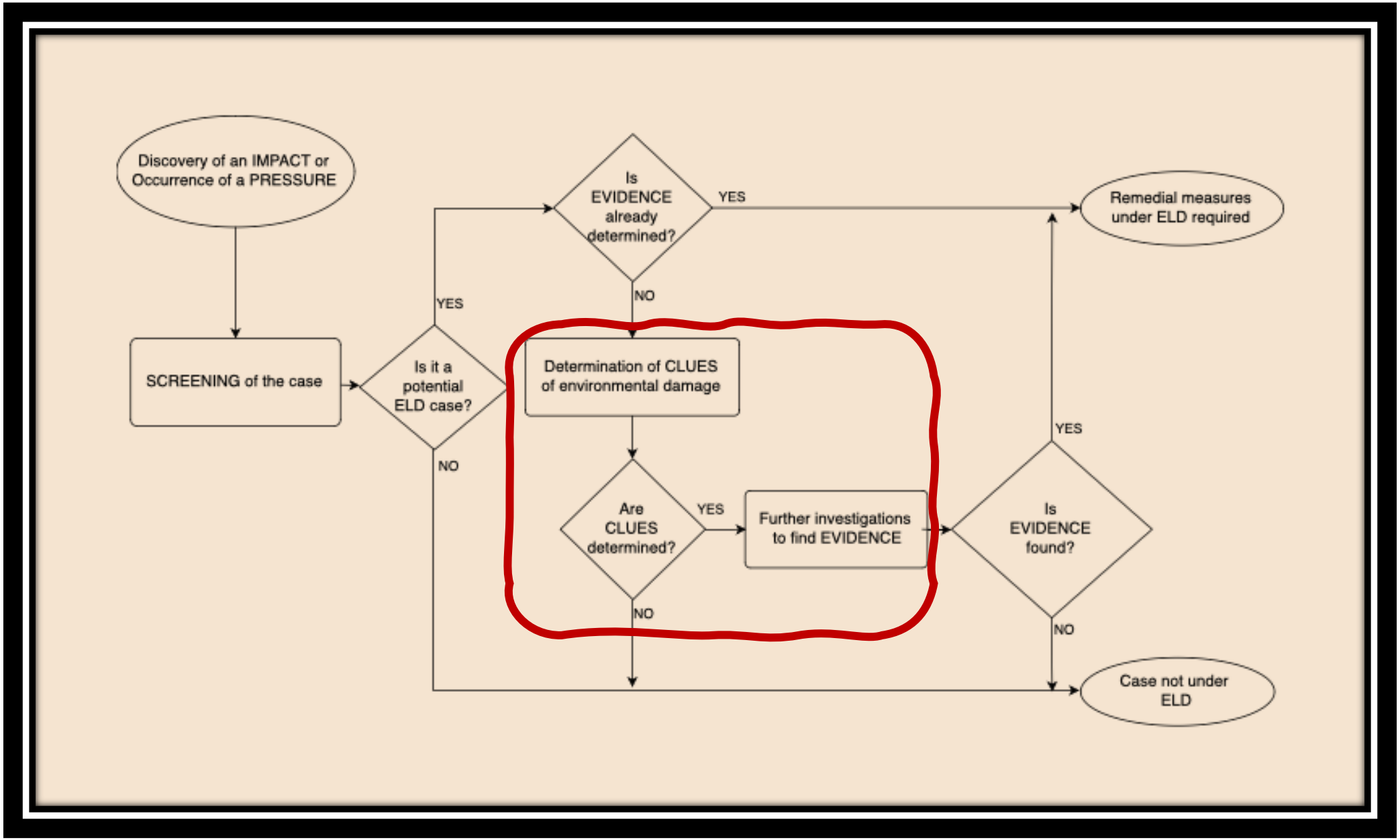
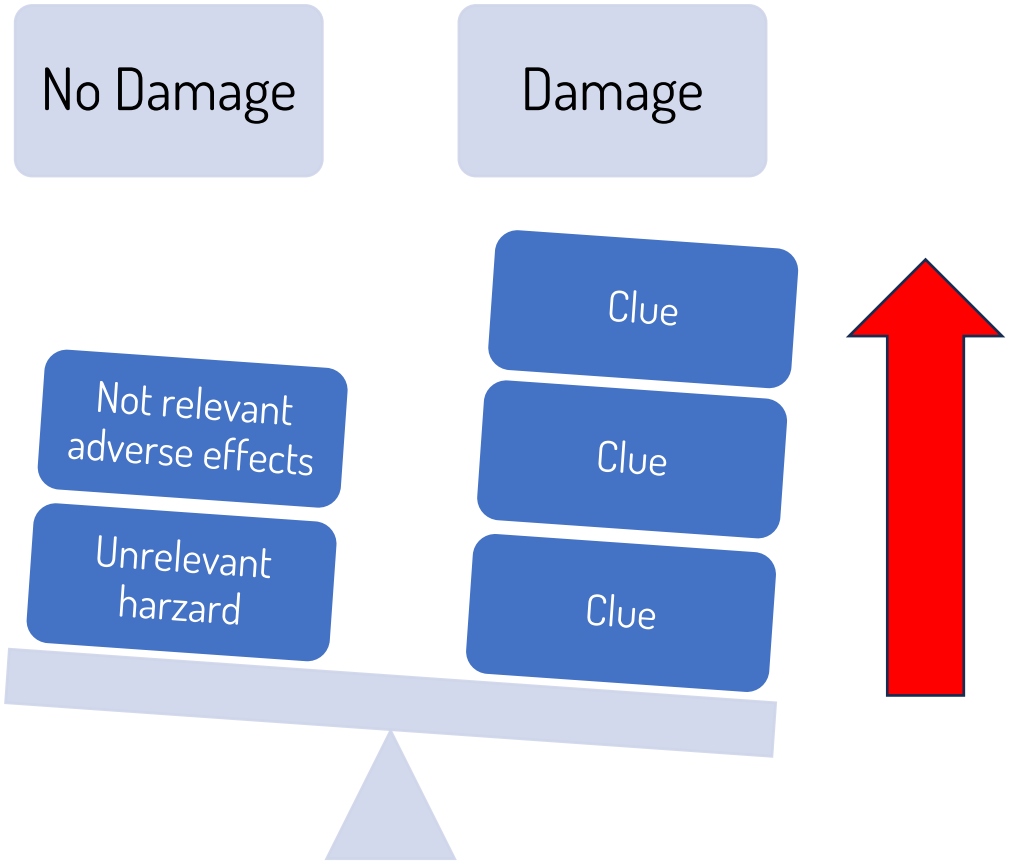


WHY CLUES?...



Your suspicion grows...

...that an environmental damage occurred...

...but you still haven't determined evidence of it...

Examples of clues of severe environmental harms in non-ELD legislation and guidelines

Example of clues in Irish legislation - Groundwater

- "Threshold values" have been established for pollutants that are causing a risk to groundwater bodies.
- Exceedance of a relevant threshold value at a representative monitoring point **triggers further investigation to confirm whether the criteria for poor groundwater chemical status are being met**.
- **If the criteria for poor chemical status are being met by one or more of the test procedures in Schedule 7**, then a body or a group of bodies of groundwater is classified as being at poor chemical status.
- Threshold values are expressed as annual arithmetic mean concentrations.
- For the drinking water test, **further investigation includes an assessment of significant and sustained upward trends in concentration of the relevant pollutant at the monitoring point**.

"SCHEDULE 5

Groundwater Threshold Values

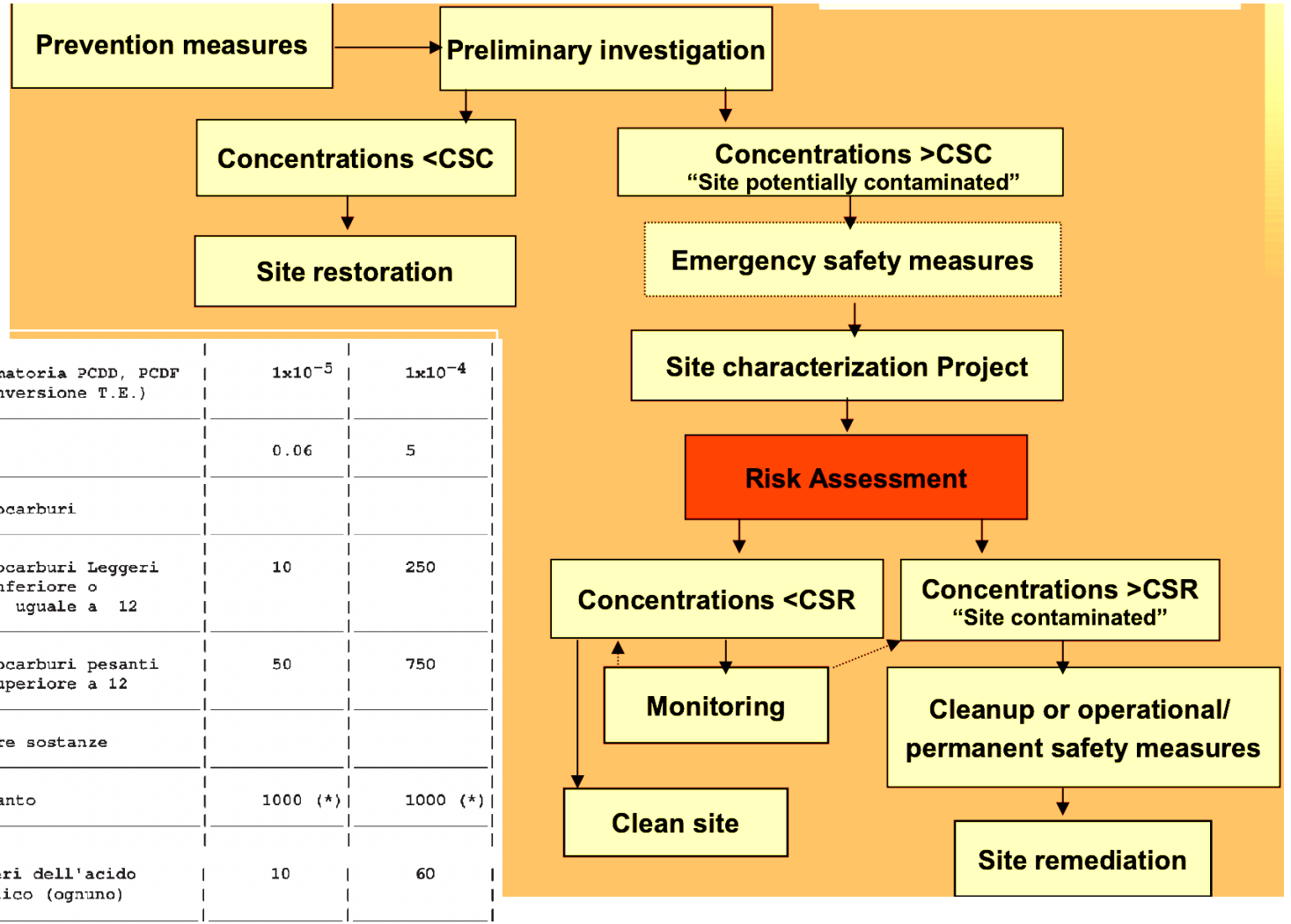
Parameter	Units	Threshold Values for Chemical Status Tests [1]				Overall Threshold Value Range
		Column 1 Test: Assessment for the presence of saline or other intrusions	**Column 2** Test: Assessment of adverse impacts of chemical inputs from groundwater on associated surface water bodies	**Column 3** [2] Test: Assessment of whether groundwater intended for human consumption in drinking water protected areas is impacted by pollutants and/or is showing a significant and sustained rise in pollutant levels	**Column 4** [3] Test: Assessment of the general quality of groundwater in a groundwater body in terms of whether its ability to support human uses has been significantly impaired by pollution	
Inorganic & Metals						
Electrical Conductivity	µS/cm @25°C	800	-	1875	1875	800 — 1875

STATUTORY INSTRUMENTS No. 9 of 2010, amended S.I. No. 366 of 2016

Example of clues in Italian legislation - Land

Environmental Code: Decree no. 152/06, Part IV, Title V

		A	B
		Siti ad uso Verde pubblico, privato e residenziale (mg kg^{-1} espressi come ss)	Siti ad uso Commerciale e Industriale (mg kg^{-1} espressi come ss)
	Composti inorganici		
1	Antimonio	10	30
2	Arsenico	20	50
3	Berillio	2	10
4	Cadmio	2	15
5	Cobalto	20	250
6	Cromo totale	150	800
92	Sommatoria PCDD, PCDF (conversione T.E.)	$1x10^{-5}$	$1x10^{-4}$
93	PCB	0.06	5
	Idrocarburi		
94	Idrocarburi Leggeri C inferiore o uguale a 12	10	250
95	Idrocarburi pesanti C superiore a 12	50	750
	Altre sostanze		
96	Amianto	1000 (*)	1000 (*)
97	Esteri dell'acido ftalico (ognuno)	10	60



Example of clues in Dutch legislation - Land

Soil Protection Act of 1987

	Background value	Soil interven-tion value (IV)	IV indica-tive level (IL)	Soil human risk limit
Substance	**mg/kg ds**	**mg/kg ds**		**mg/kg ds**
1. Metals				
antimony (Sb)	0.8	15		15.7
arsenic (As)	20	76		576
barium (Ba)	190	920		9340
beryllium (Be)	1.5	30	IL	233
Boron (B)		7	*a*	1000
cadmium (Cd)	0.6	13		28
chromium (Cr)	55	180		2760
cobalt (Co)	15	190		**43**

Example of clues in Portuguese Guidance – Surface water and Groundwater

- Conceptual methodology to determine **whether a given occurrence or hazardous event on water resources leads to a substantial adverse effect** on them
- Such situation can be **measured and classified by the technical-scientific index for the clarification of illicit actions on water resources (I_{TC})**.
- The methodology aims to define the effective outcome of a given occurrence or hazardous event resulting **from actions likely to cause substantial adverse effects on surface water and/or groundwater**
- When the I_{TC} expresses an unacceptable outcome for water resources, it means that **the occurrence or hazardous event has resulted in substantial adverse effects on water that are considered to cause significant damage to surface water and/or groundwater resources**

Technical-Scientific Index of illicit for water resources (I_{TC})

$$I_{tc} = \frac{P_{occurrence} \times Effect_{adv} \times P_{impair\ WR\ (SW\ or\ GW)}}{81} \times f_{add}$$

Table 13: Prioritization of the technical-scientific index for the clarification of illicit actions on water resources (surface or groundwater)

I_c	Description
$I_{tc} \geq 4$	The event or hazardous occurrence determines an unacceptable outcome for the surface water and/or groundwater, and therefore can/should be considered as significant for water resources
$I_{tc} < 4$	The event or hazardous occurrence determines an intermediate to acceptable outcome for water resources

SCOPE - Substantial damage to surface water in the context of environmental crimes

CAED Clues determination ≈ US NRDA

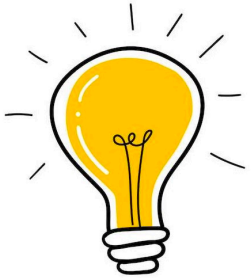
Pre-Assessment Screen (PAS) phase

The PAS is an evaluation process to discern whether Natural Resource Damage Assessment and Restoration (NRDAR) activities are warranted, with a reasonable probability of making a successful damages claim

The authority evaluates whether sufficient data exist, or could be attained at reasonable cost, to determine the extent of the injury and actions needed to restore the resources and compensate for interim loss of services

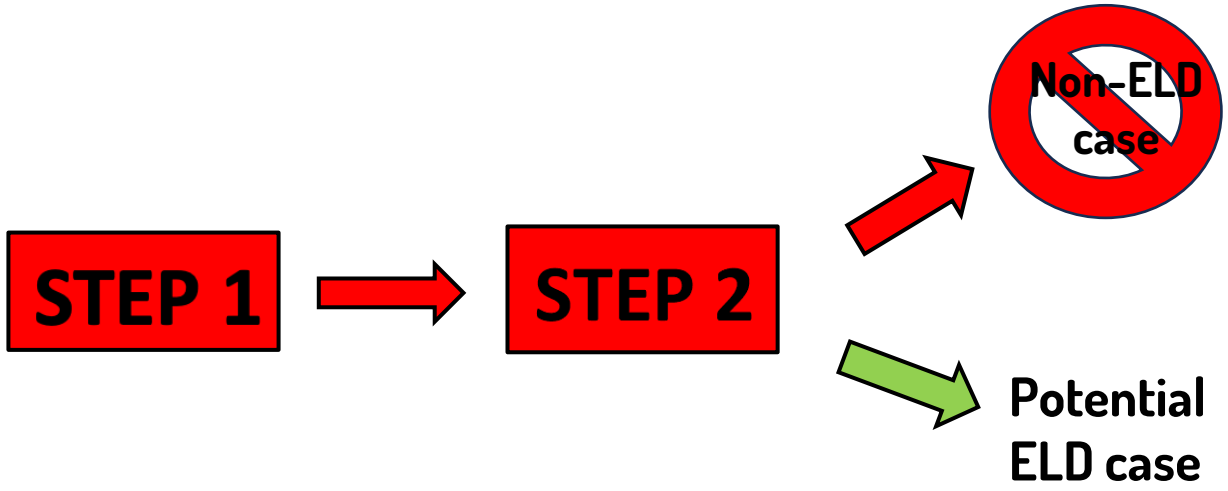
If additional data are needed to determine the extent of injury caused by a release of hazardous substances or oil spill, or if analyses are needed to calculate the cost of restoration or the value of the service loss, then the trustees should plan and implement an assessment of injury and damages. The major assessment steps are the assessment plan including a preliminary estimate of damages, injury determination, injury quantification, and damage determination, including preliminary restoration planning.

TOOLKIT – PRACTICAL TABLES



1. **Screen potential ELD cases?**

Check-list for screening potential ELD cases



2. **Determine clues of environmental damages?**

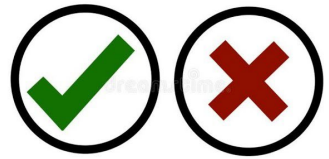
3. **Determine evidence of environmental damages?**

Impact-State-Pressure-Driver (ISPD) Tables

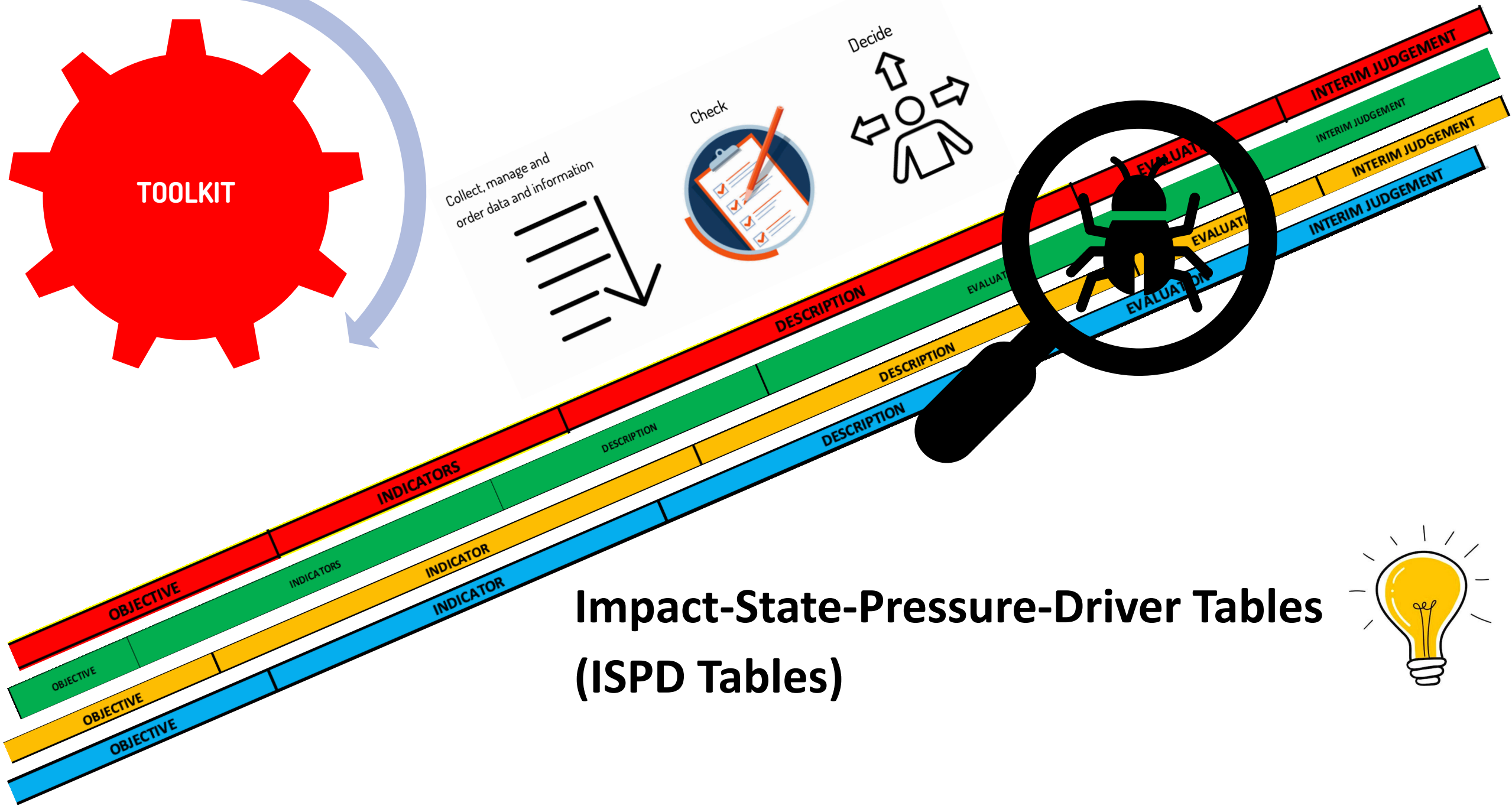
1. **Check-lists**, **decision-making flowcharts**, and **tables** can offer guidance for ascertainment and assessment of environmental damages under ELD

2. The **use of tables with pre-defined indicators/parameters can help in:**

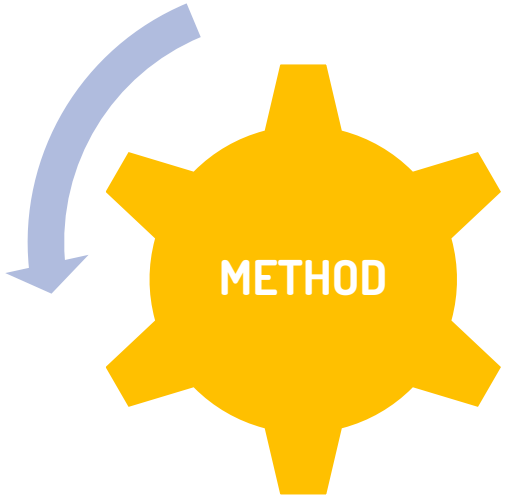
- ✓ Organizing data systematically, preventing information loss
- ✓ identifying investigative priorities
- ✓ aiding in interpretation of information/data for the case screening and the evaluation of adverse effects with a systematic approach
- ✓ collecting standardized data by different subjects
- ✓ establishing causal links with responsible activities
- ✓ …



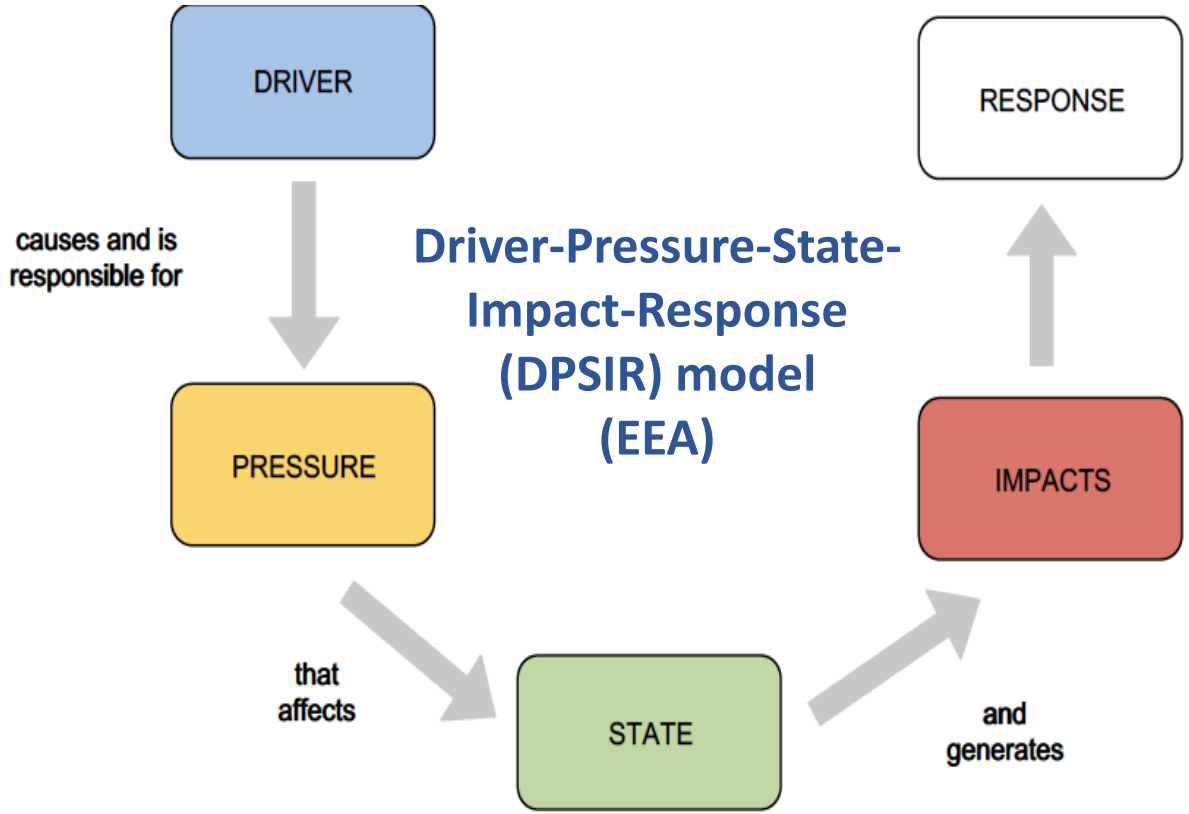
Do you AGREE or DISAGREE ???



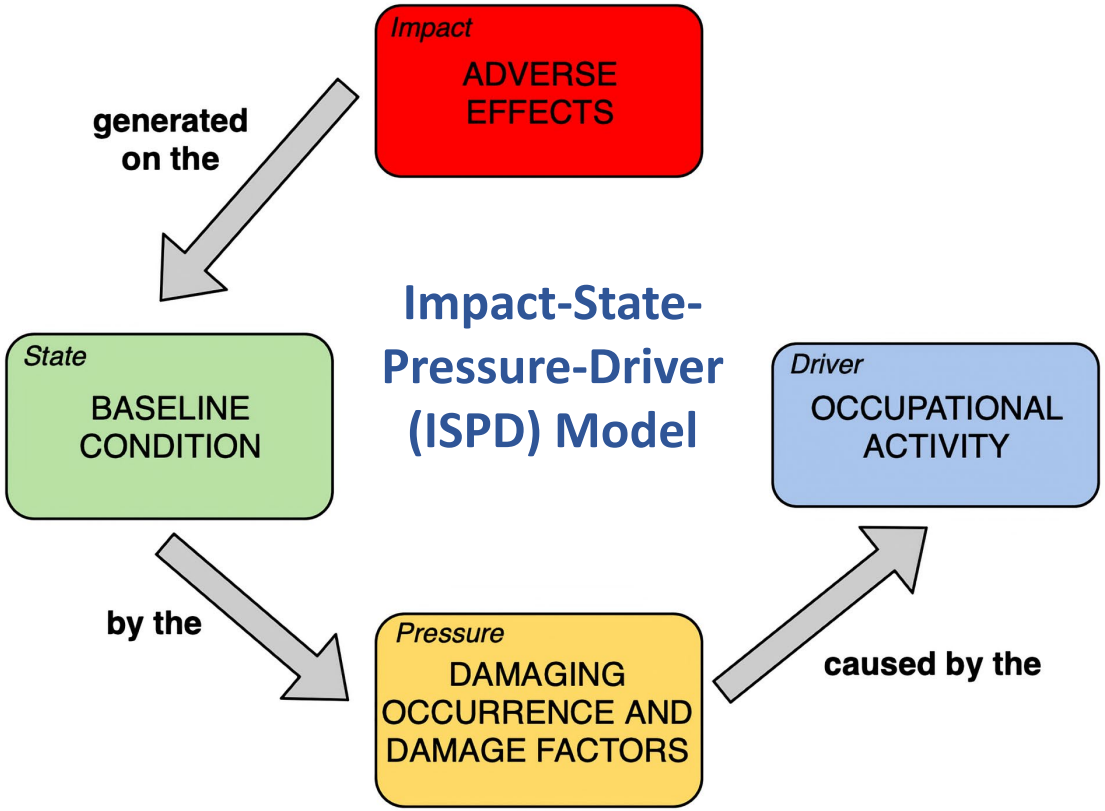
Impact-State-Pressure-Driver Tables (ISPD Tables)



CAED proposed a DPSIR model adapted to the environmental damage assessment (ISPD Model)

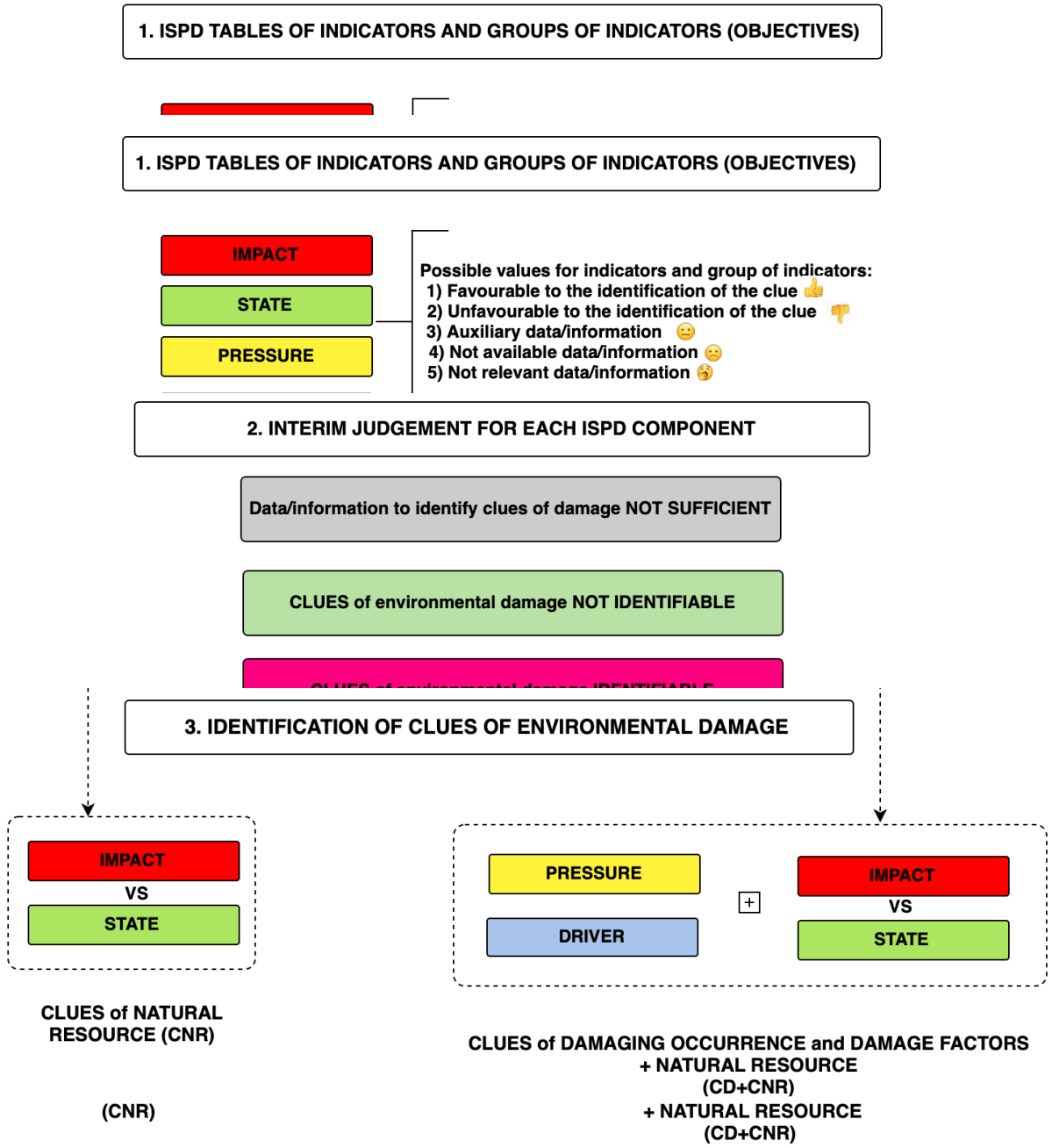


Driver-Pressure-State-Impact-Response (DPSIR) model (EEA)



Impact-State-Pressure-Driver (ISPD) Model

PROCEDURE FOR CLUES DETERMINATION



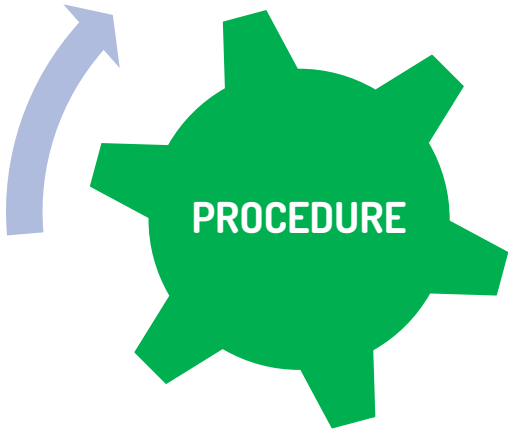
VIDEO on the ISPD Tables

https://www.youtube.com/watch?v=6JvVgCF8DDI

Get ready for the exercise no. 2

IMPEL CAED Project Procedure:

Evidence of environmental damage



CAED project proposed a NEW PROCEDURE

SCREENING PROCESS

The **screening of potential environmental damage** and imminent threat of damage cases

Potential ELD cases

DETERMINATION OF CLUES

The **determination of clues** for the **identification of candidate environmental damage** and imminent threat of damage cases

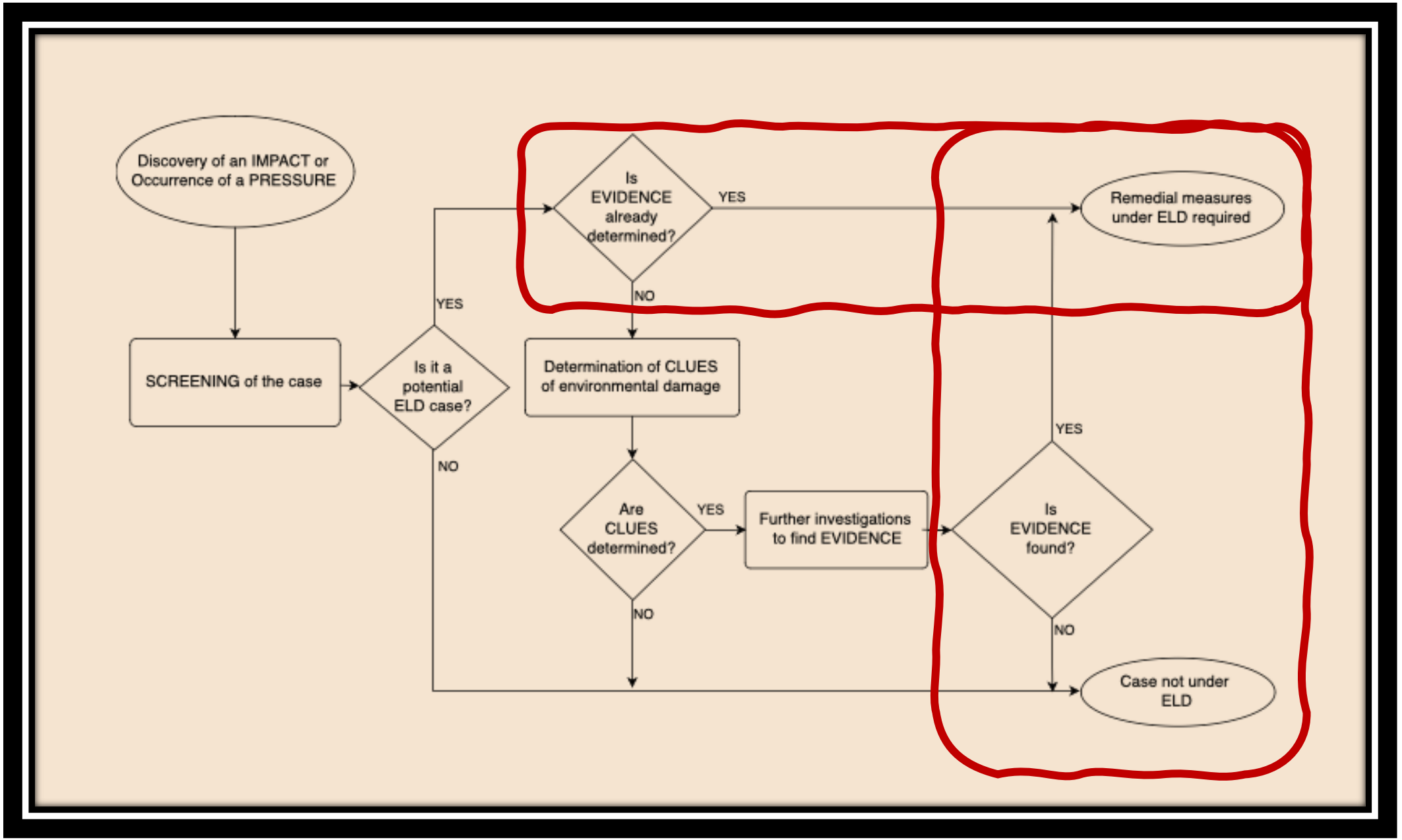
Candidate ELD cases

DETERMINATION OF EVIDENCE

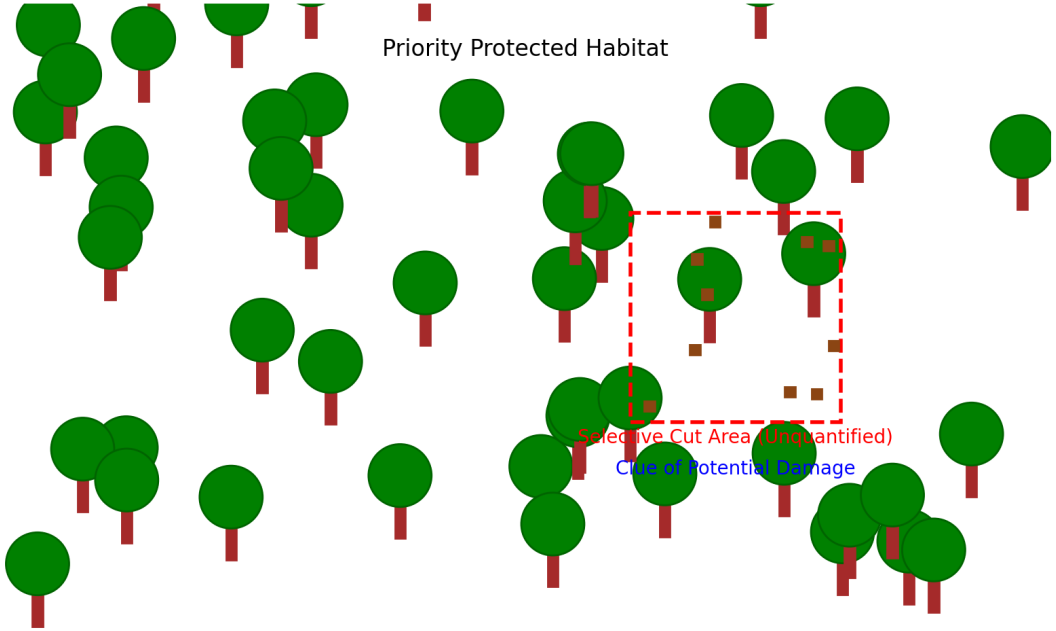
The **determination of evidence** for the **confirmation of environmental damage** and imminent threat of damage cases

The three steps may or may not be conducted in a sequential manner

GENERAL PROCESS DIAGRAM



CLUE



BIODIVERSITY

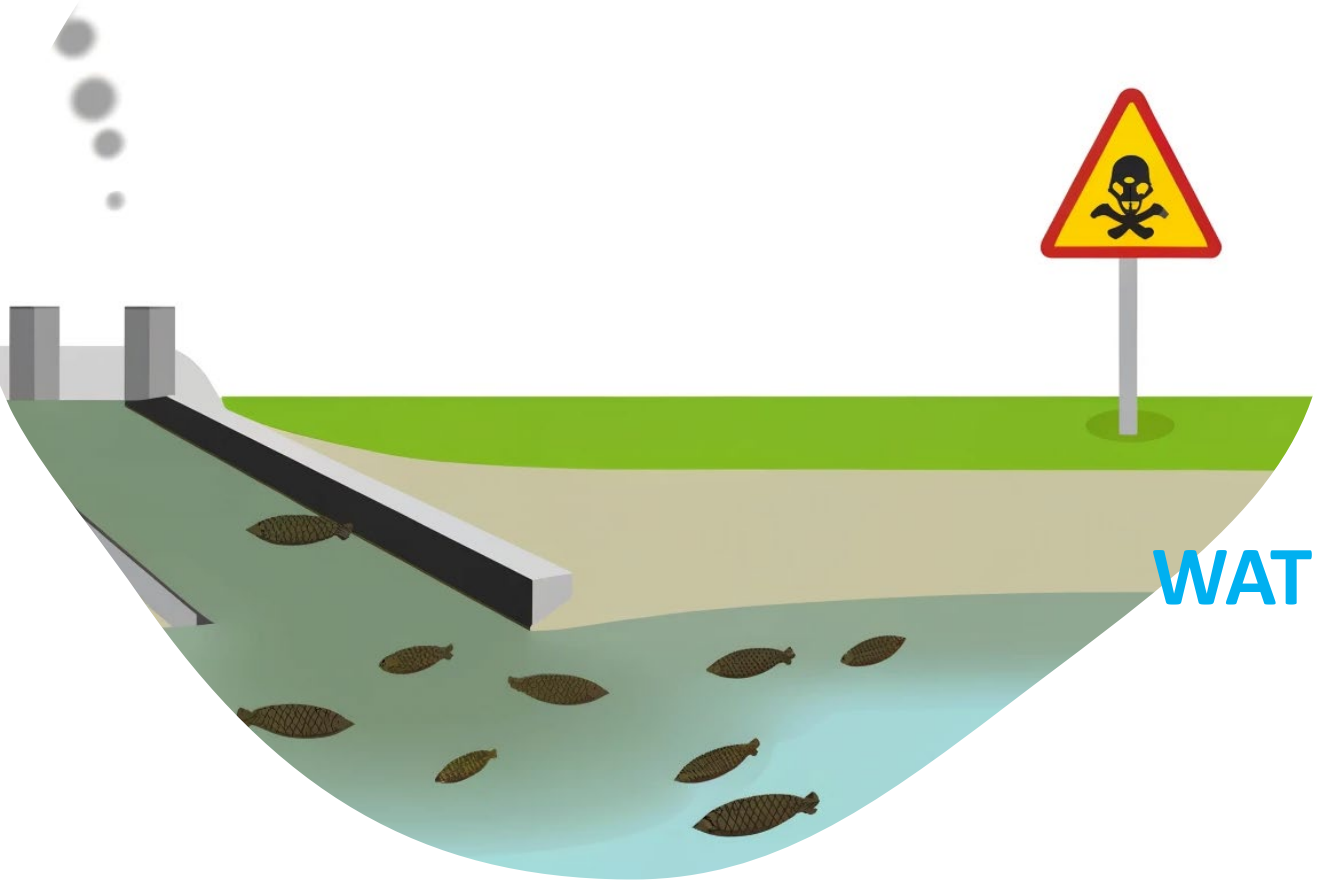
EVIDENCE

CLUE

LAND

EVIDENCE

CLUE



WATER

EVIDENCE

CAED Evidence determination ≈ US NRDA

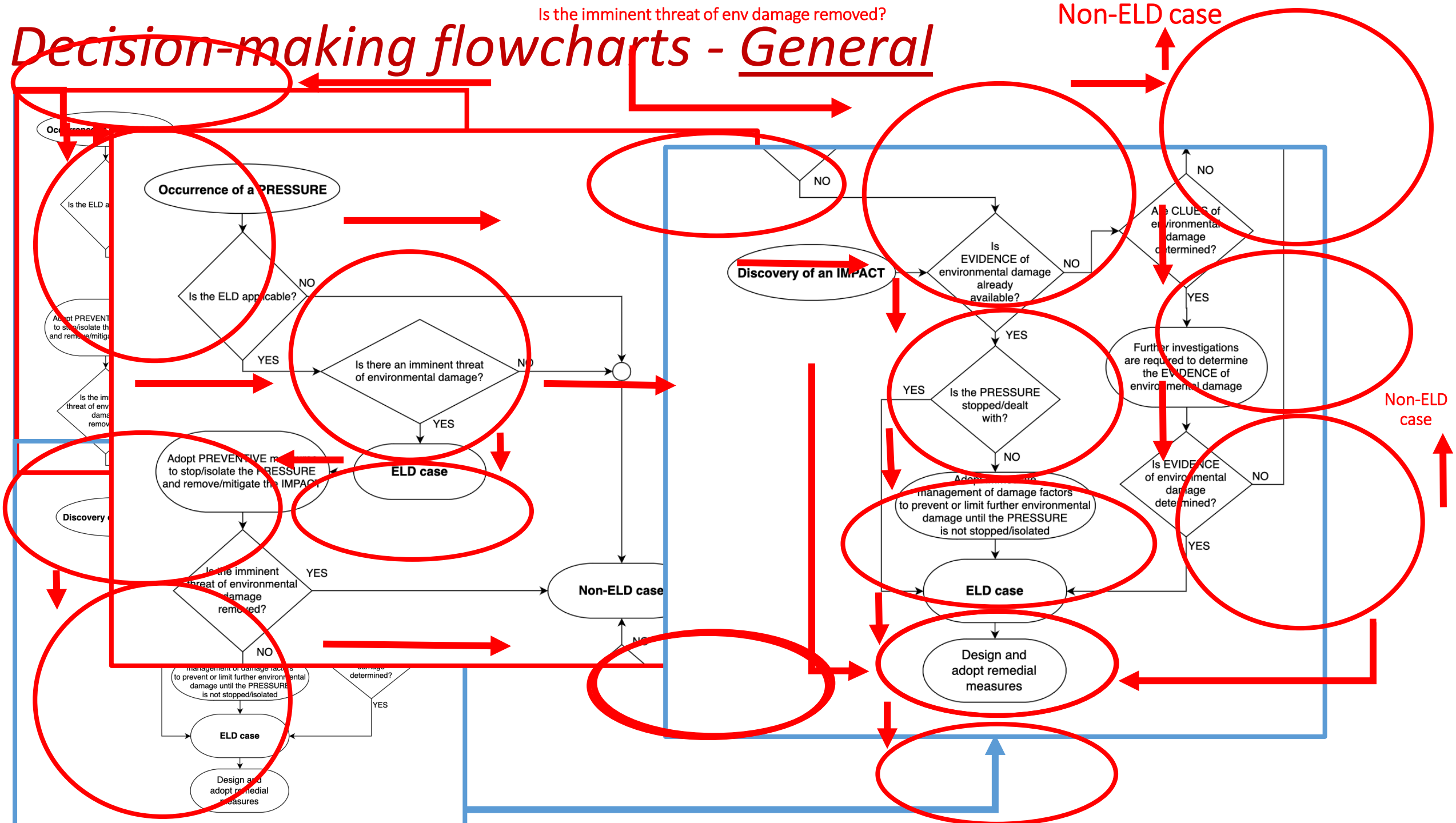
Injury assessment—Injury determination phase

Determining injury – *if the definition of injury has been met […]; and […] an injury to a natural resource or impairment of a natural resource service has occurred as a result of response actions or a substantial threat of a discharge of oil*

Selection of injuries to include in the assessment When selecting potential injuries to assess, trustees should consider factors such as:

(1) The natural resources and services of concern;
(2) The procedures available to evaluate and quantify injury, and associated time and cost requirements;
(3) The evidence indicating exposure;
(4) The pathway from the incident to the natural resource and/or service of concern;
(5) **The adverse change or impairment that constitutes injury;**
(6) **The evidence indicating injury;**
(7) **The mechanism by which injury occurred;**
(8) **The potential degree, and spatial and temporal extent of the injury;**
(9) The potential natural recovery period; and
(10) The kinds of primary and/or compensatory restoration actions that are feasible.

Decision-making flowcharts - General



Get ready for the exercise no. 3

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- ✓ European Scale of Industrial Accidents, France - https://www.aria.developpement-durable.gouv.fr/in-case-of-accident/european-scale-of-industrial-accidents/?lang=en
- ✓ Methodological instructions for action in accidents and emergency situations, page 13, par. 12 “Determination of the significance of the damage caused to the environment”. State Environmental Service, Latvia.
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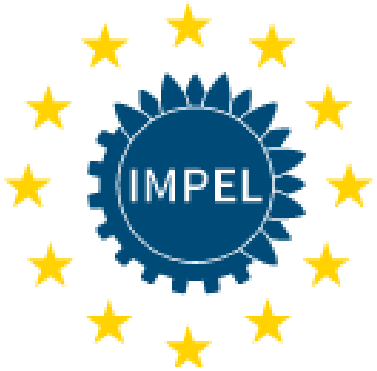
Thanks for your kind attention!



European Union Network for the Implementation and Enforcement of Environmental Law