# Assessing damage during a trial. From an assessment of damage to an assessment of remedies

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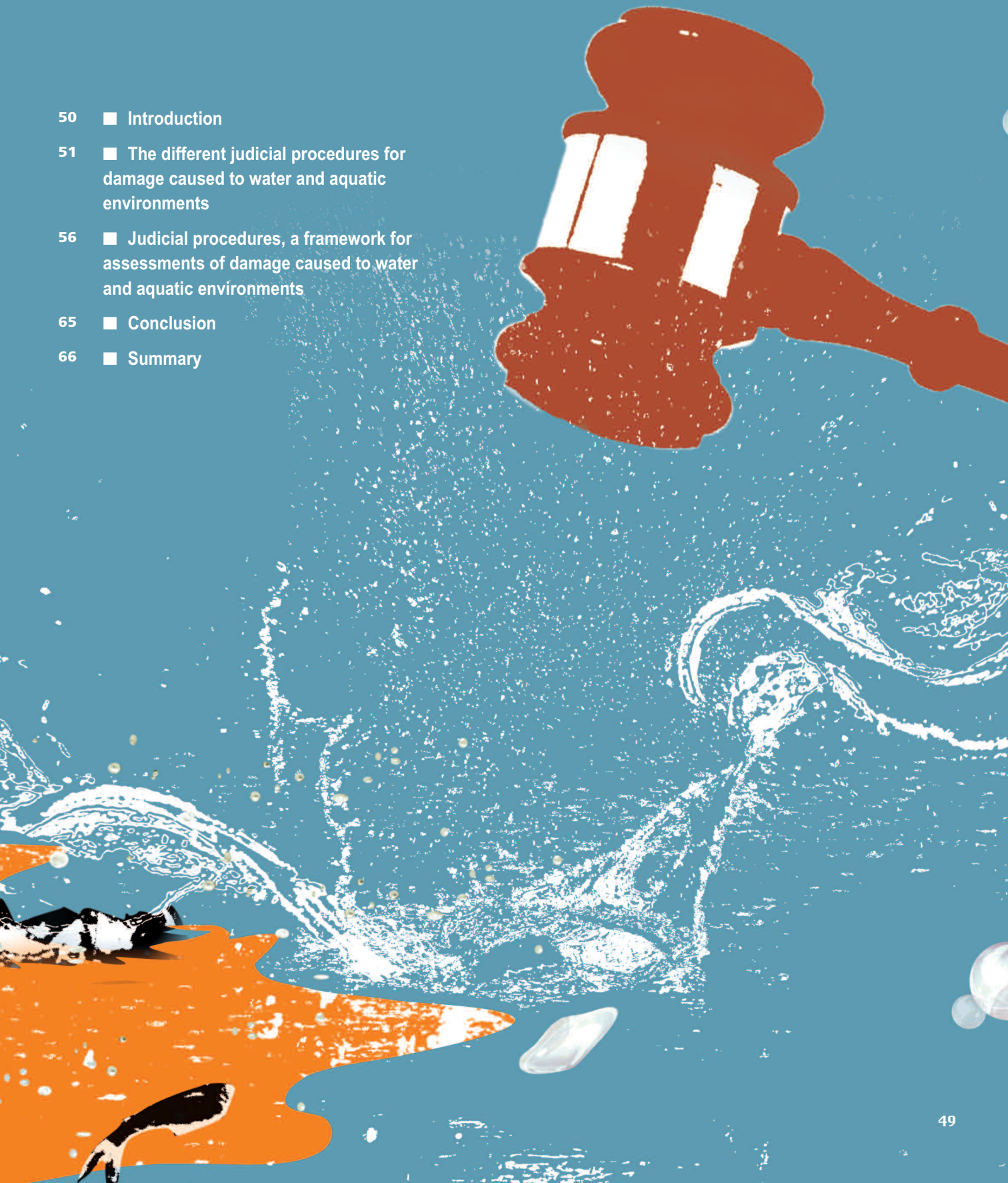


# Introduction

The decision to remediate an ecological tort depends on the independent judgement of the judge. It is always a decision by the court that creates or denies the existence of an ecological tort and determines whether the defendant must remediate the situation according to precise conditions. An assessment is therefore a means, among others, used by the judge during the procedure to justify and inform his decision (see Chapter 2). That being said, **it is a complex process in which the judge must proceed methodically, step by step** (Camproux Duffrène, 2010).

This is because it is necessary, for an assessment of damage to water and aquatic environments, first to determine what we are talking about. However, the term "assessment" is one of those words that allow for many different interpretations. The definition provided in dictionaries highlights the ambivalence of the term, which can mean both an action, i.e. the determination of a value, and the result of that action, i.e. the quantity or value determined. The verb "to assess" has numerous synonyms, where the most frequent are to evaluate, estimate, weigh, measure, count, gauge, hypothesise, examine, cost, sound, quantify, etc. This long list confirms the malleability of the term and suggests that an assessment may pursue a wide array of objectives. For example, an assessment of damage to aquatic environments may mean the work done to determine the quantity or the value of the damage, where the term value is understood *lato sensu*. The point here is not to precisely define the term, however it is possible to identify a few traits of assessments and to agree, in our context, that **to assess means to translate**.

But who does the translating? In what framework does the translation take place? What is translated? How is it translated? To provide some answers to these questions and to assist in gaining an overview, it is necessary to analyse the judicial procedures, to highlight their meaning, subtleties and objectives. This first step is indispensable in order to draw attention to the fact that **judicial procedures do not form a uniform ensemble**, they comprise multiple aspects that, undertaken separately or in conjunction with each other, follow different procedural paths. These procedural factors mean that the judge must advance in a methodical manner, even step by step for combined cases, a common situation where damage to water and aquatic environments is involved. We will then see that the framework for judicial procedures, within which the judge must operate, structures how an assessment may take place and can place it in a particular light. It will become clear that, though in everyday language the terms "assessment of damage" and "assessment of the tort" are often used synonymously, in the legal sector, these two terms are different. Assessments take place at two complementary, but different times in the procedure, which explains why it should be said that **the assessment of damage takes place before the assessment in view of remediating the tort**.

# The different judicial procedures for damage caused to water and aquatic environments

The concept of judicial procedures is vast and, where damage to water and aquatic environments is concerned, requires the existence of a wrongful act justifying remediation. It leads to one of three situations:

- a criminal case alone before a criminal judge;
- a civil case alone before a civil judge;
- a combined civil and criminal case before a criminal judge who will produce both a civil and a criminal judgement.

Each type of case brought before a given judge targets specific priorities, namely punishment of the offender and a dissuasive effect for criminal procedures and remediation of the damage for civil procedures. These two procedures may be conducted separately, however their obvious complementarity led the legislator to provide for a **combined procedure**. This last scenario is the most common for cases involving damage to water and aquatic environments.

## A criminal case to qualify and punish the offence that caused the damage

**An offence is a constitutive element of a criminal** because the act against the law causes damage that entitles society to punish the accused. **That being said, the purpose of a criminal procedure does not consist exclusively of punishment**. Criminal law enforcement is highly dissuasive due to the sanctions imposed and the publicity given to judgements (Drobenko, 2014). The term criminal or public procedure is the means by which a society calls on the judicial authority, acting in the name and in the interest of society, to determine whether the punishable act in fact exists, to prove the guilt of the accused and to impose the sanctions foreseen by the law in order to have the accused acknowledge the act before society and to dissuade him from repeating the act.

**Environmental inspectors are authorised by the law to investigate and report environmental offences** concerning water and nature, pursuant to the Environmental code and the Code of penal procedure (CPP) (see Boxes 10 and 11). They launch what is called a judicial-police procedure, i.e. they report offences against criminal law, gather evidence and attempt to identify the person(s) that committed the offence.
In this type of procedure, three elements are required to engage the criminal liability of an accused, whether a natural or legal person:

- a legal element, i.e. a legal text prohibiting the offence (Art. 111-3 in the Penal code);
- a material element, i.e. an effective offence;
- a moral element, i.e. a guilty intention (Art. 121-3 in the Penal code).

The judicial-police procedure starts when an environmental inspector, or any other agent authorised to investigate and report offences against the Environmental code, investigates or per chance observes an offence, in compliance with all procedural rules, and ends when the agent sends the citation and any accompanying documents to the State prosecutor.

In this context, the reporting agent, who operates as the judicial police under the authority of the State prosecutor, always keeps in mind that the evidence gathered is intended for the prosecutor who must, when bringing a case, provide sufficiently solid information to convince the judge. In compliance with article 427 in the Code of penal procedure (CPP), a judge may base his decision exclusively on the proof or on the evidence freely debated during the hearing that is brought to his attention. The State prosecutor must therefore provide "sufficient evidence" of guilt on the part of the defendant, who is presumed innocent and benefits from any doubt. For more serious or complex offences, an investigation may be requested by the State prosecutor in order to obtain more information than that provided in the citation (MEEM, 2015).

Box 10

**Legislation governing agents active in the judicial police in the field of water, nature and natural sites, contained in the Code of penal procedure (CPP)**

**Article 12 CPP**

"The work of the judicial police is carried out, under the instructions of the State prosecutor, by the officers, civil servants and agents designated in this title."

**Article 14 CPP**

"Its mission, in compliance with the distinctions laid out in this title, is to report offences against criminal laws, to gather evidence on the offence and to identify the responsible person(s) as long as a criminal procedure (assigned by the prosecutor to an investigating judge, prior to a judgement) has not been opened.
Once a criminal procedure has been opened, the judicial police complies with the requests and executes the orders of the investigating judge(s).

**Article 15 CPP**

"The judicial police comprises:
1. officers of the judicial police;
2. agents and deputy agents of the judicial police;
3. civil servants and agents to whom certain judicial-police functions are assigned by the law."

**Article 28 CPP**

"The civil servants and agents of the administrations and public services to whom special laws assign certain judicial-police powers exercise those powers under the conditions and within the limits set by those laws."

**Article 40 CPP**

"All authorities, public officers and civil servants who, in the execution of their functions, gain knowledge of a crime or misdemeanour must immediately inform the State prosecutor and transmit to the prosecutor all relevant information, citations and other documents."

**Legislation governing civil servants and agents assigned certain judicial-police functions by the Environmental code**

**Article L. 172-1**

"I. In addition to judicial-police officers and agents and other public agents specially authorised by the present code, persons authorised to investigate and report offences against the provisions of this code, all enacting documents and the provisions of the Penal code concerning the disposal of waste, refuse, materials and other objects include the civil servants and public agents assigned to the State services in charge of implementing said provisions, to the National agency for hunting and wildlife, to the National agency for water and aquatic environments, to the National parks and to the Agency for marine protected areas. These agents are called environmental inspectors."

"II. To carry out the missions exposed in section I., the authority granted to environmental inspectors is divided into two categories:

1. Authority concerning water and nature, which gives them the right to investigate and report offences contained in Title II, VI and VII in the present book, Chapters I to VII in Title I of Book II, Book III, Book IV and Titles VI and VIII in Book V of the present code and the enacting documents, as well as the offences contained in the Penal code concerning waste, refuse, materials and other objects;

2. Authority concerning regulated installations for environmental protection, which gives them the right to investigate and report offences contained in Titles II, VI and VII in the present book, Book II and Titles I, II, III, IV, V and VII in Book V of the present code and the enacting documents."

"III. Environmental inspectors are commissioned by the administrative authorities and sworn in to investigate and report all or part of the offences mentioned in 1. and 2. of II of this article. The enacting conditions of this article are set by decree taken in the *Conseil d'État*."

The start of a criminal procedure thus depends on the State prosecutor who decides on the outcome of all citations received, on the basis of article 40-1 in the Code of penal procedure (CPP). There are a number of possibilities:

- no procedure following immediate (Art. 40 CPP) or conditional (Art. 41-1 CPP) closing of the case;
- alternatives to criminal charges via mediation (Art. 41-1-5 CPP), penal transaction (Art. 6 CPP) or penal composition (Art. 41-2 and 41-3 CPP) (see Box 12);
- simplified criminal charges via set fines (Art. 529 and R.48-1 CPP), a penal ordinance (Art. 524 CPP) or a summons following admission of criminal liability (Art. 495-7 and following, CPP);
- criminal charges via immediate summary trial (Art. 397 and following, CPP), a summons (Art. 388 and following, CPP) or the opening of a judicial investigation (Art. 80 CPP).

Box 12

### Brief description of a penal transaction

A penal transaction is a procedure that puts an end to a criminal case. It avoids bringing criminal charges while providing a solution for the faulty behaviour. The transaction must be accepted by the defendant and approved by the State prosecutor.

A penal transaction is proposed by a departmental or maritime Prefect, prior to being approved by the State prosecutor, whereas all other alternative procedures intended to avoid criminal charges lie exclusively in the domain of the judicial authorities. The State prosecutor is responsible for all criminal procedures in his geographic area. That is why it is necessary to involve the prosecutor in implementing this procedure, jointly, in compliance with the guidelines for criminal policy set by him, and that can be laid down in writing in the agreement signed with the Prefect and the public agencies in charge of inspections. In exercising his power to decide on the usefulness of pressing criminal charges, the prosecutor determines, case by case, whether he approves the proposals for penal transactions, once they have been accepted by the accused, or opposes the proposals, taking into consideration the overall savings provided by the proposals.

The decision to transact or to close the case is not made public.

A transaction does not preclude the civil case.

If the State prosecutor decides to press charges and the criminal procedure is launched, the case is transmitted to the criminal judge who must determine the existence of the offence in order to punish the non-observance of the law by ascertaining a sanctionable act, demonstrating the guilt of the accused and applying the sanctions foreseen by the law. In other words, the role of the criminal judge is to characterise the damage and to assess its impacts in order to pronounce a sentence proportionate to the reprehensible act. The characterisation of the damage is consequently an essential step in the criminal procedure because if there is no damage, there can be no condemnation. **The damage caused by the offence is a constituent element in the criminal procedure.**

The criminal judge may be confronted with the criminal procedure alone, or the plaintiff(s) may also bring the civil procedure seeking remediation before the criminal judge. In which case the judge must manage both the criminal and the civil procedures. That being said, whether the criminal procedure is carried out jointly or not with the civil procedure, the objectives and the steps of the criminal procedure remain the same. A criminal procedure is punitive in nature and sanctions the non-observance of the law in as much as it caused damage. In this sense, it suspends the civil procedure until the criminal procedure is terminated because only an effective tort can be remedied.

## A civil procedure to request remediation of a tort

The main objective of a civil procedure is to oblige the defendant to remediate the tort caused. The essential factor here is the remediating effect of the civil liability (see Chapter 1). Contrary to a criminal procedure, which is carried out in the name and the interest of society, a civil procedure is specific to a person entitled to act. It is that person who decides on how to undertake the procedure.

A civil procedure may be conducted independently of a criminal procedure. This manner of proceeding is the most common before the general courts. It opposes a plaintiff and a defendant before a civil court presided by a civil judge.

However, a person entitled to act may also decide to attach the civil procedure to the criminal procedure (Art. 3 CCP). Though combined procedures are simply an option, they are nonetheless the most frequent situation in civil law concerning damage to water and aquatic environments. In this case, it is the adjunction of the civil suit to the criminal procedure that enables the plaintiff to request remediation of the tort caused by the damage resulting from the offence. In other words, the offence triggers both the criminal and the civil procedures. The existence of the offence entitles society to punish the defendant and any directly concerned persons to request remediation. This is a positive factor in that the plaintiff explains before the court the links between the offences and the interests requiring remediation. Even though the criminal law in fact applies (it does not require any justification), the civil proceedings are a chance to clarify the link between the damage and the tort.

Given that an ecological tort infringes not on an individual interest, but on collective interests, the right to take legal action seeking civil liability for the tort in question has been granted to several categories of legal persons, but not, to date, to natural persons. In the field of water and aquatic environments, plaintiffs are essentially certified non-profits for environmental protection (groups formally established for over five years when the reprehensible event occurs and active in the field of water or regulated installations) and the fishing federations (Art. L. 142-2 C. Env.). In addition, these groups may be mandated by natural persons having suffered individual torts caused by a given person and having a common origin (Art. L. 142-3 C. Env.). Recently, class actions1 were made possible for non-profits in the environmental field (Art. L. 142-3-1 established by Law 2016-1547 (18 November 2016, Art. 89).

These suits seeking civil remediation may also be brought by certain public agencies and institutions, such as Onema (now AFB), the Water agencies, Ademe, etc. (Art. L. 132-1 C. Env.). On the basis of the new law to restore biodiversity and the new article 1386-19-2 in the Civil code, “Civil litigation to remediate ecological torts may be undertaken by the State, State prosecutors, the French biodiversity agency, local governments and their constituent units when their territory is concerned, as well as all persons entitled and having a legitimate interest”.

This possibility to take action in favour of aquatic environments is derived from the fact that all legal persons whose main objective (legal or according to their statutes) is environmental protection in a given area, as well as all legal persons whose particular attributes in the environmental field place on them special responsibilities concerning the protection, management and conservation of a territory may request remediation of ecological torts, as defined by article L. 161-1 in the Environmental code, that harm the collective interests that these persons (legally or according to their statutes) are charged with defending before all the relevant jurisdictions.

The request for remediation in a civil procedure may be either:

- a request for compensation in kind, i.e. restoration of the damaged environment or ecological compensation;
- a request for monetary remediation, i.e. a monetary award.

This explains why, concerning damage to water and aquatic environments, the idea of an assessment is instinctively and generally linked to that of the ecological tort and consequently to that of a civil procedure whose objective is to remediate the tort(s). The assessment is thus linked to the choice concerning the type of remediation and to how the remedy is calculated. This instinctive reaction is not erroneous, however it is only partially true because, on paying closer attention to the steps involved in a combined (civil and criminal) procedure, the most frequent situation, it becomes clear that this is not exclusively the case. A particular type of assessment corresponds to each judicial procedure. That is why it is essential to correctly distinguish the assessment of ecological damage and that of ecological torts.

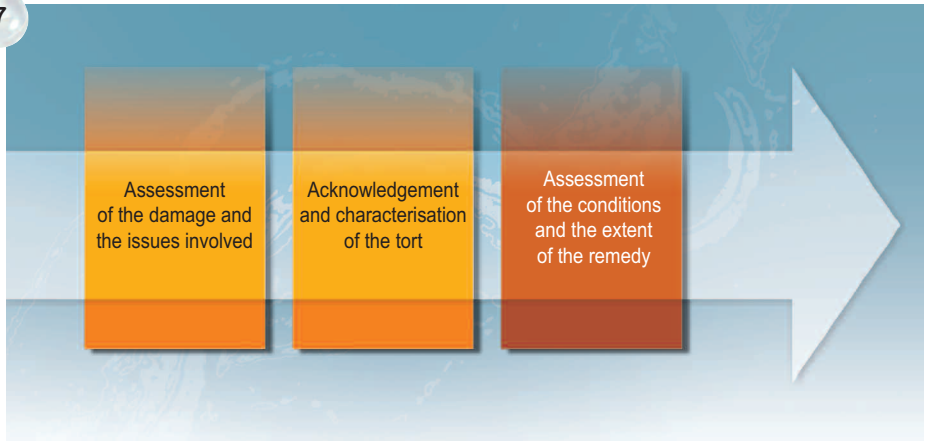
*1. It should be noted that the Law (24 May 2016) on modernising the justice system for the 21st century expanded the scope of class actions to the environmental field. However, an environmental class action is not intended to remediate an ecological tort. This new possibility marks a major step forward in remediating damages caused to persons (see Chapter 1), but not those caused to the environment.*

# Judicial procedures, a framework for assessments of damage caused to water and aquatic environments

During a criminal procedure, the assessment of damages caused to water and aquatic environments enables the judge to characterise the action and to transform the damage (the cause) into a legally recognised offence (the legal consequence). As noted above, this criminal procedure is generally triggered by a citation drawn up by an agent of the judicial police (or equivalent) and the decision of the State prosecutor to press charges. It is at this point in the judicial procedure that the agents may provide any and all factual information that will assist the judge in characterising the offence, in determining liabilities and, to that end, in understanding the issues involved in the damage to the aquatic environments (see Chapter 2). In short, the judge calls on all the available information enabling him to **assess the ecological damage**.

During the civil phase of the procedure, the plaintiffs request remediation for one or more torts and the assessments submitted will enable the judge, first of all, to determine whether the plaintiffs have provided proof of their affirmations and, secondly, to decide on the conditions and the extent of the remedy. It is clear that these two "translations" both participate in the same procedure, however the two operations should not be confused. The assessment of the damage is a step that takes place before the assessment of the means to remediate the tort (see Figure 17).

**Figure 17**




*The different types of assessment during a judicial procedure.*

## Assess the damage and the issues in order to identify and characterise a tort

An assessment of damages involves determining the impacts of a pollution or any other cause on the environment in order to express the damage in legal terms and determine whether one or more remediable torts exist (see Chapter 1). For the criminal judge, an assessment of damages therefore means gathering all the information required to make a final decision. In short, during this "investigative" phase, the judge assesses the damage to identify and understand the issues involved (see Box 13). It is during this phase that the judicial experts, knowledgeable persons and witnesses discussed in Chapter 2 participate in the procedure. As noted above, their role is the assist the judge in assessing the damage by providing solid, tangible proof of its existence. During this phase of the procedure, the objective is therefore to assess the effective damage done to ecosystems, i.e. to undertake an ecological assessment of the damage.

In this manner, similar to a situation involving the health of a person where the judge calls on medical experts to determine the degree of harm done, in a case involving ecological damage, the judge calls on ecological experts to assess an alteration to an environment, a pollution or destruction.

Box 13

### Understanding the issues involved in managing river discharges and the corresponding damage

The objective of the European water framework directive (WFD) and its enacting texts in French law is to restore all aquatic environments to good ecological status. Dams are an obstacle to the restoration of good status.

Since the beginning of human civilisation, men have attempted to manage the flow of rivers using dams and weirs. Today in France, there are at least 75 000 structures blocking rivers and streams, including several hundred that are over 20 metres high.

These structures were built during different periods and for different reasons, notably to control discharges (limit flooding and increase supply during low-flow periods), to establish reserves, produce energy, raise fish, facilitate navigation and, more recently, create recreational areas, etc. However, today, approximately half of all the inventoried structures serve no identifiable purpose.

Dams and weirs disturb river functioning in many different manners. They modify the hydrological regime, disturb ecological conditions both upstream and downstream of the structure, reduce the river's self-cleansing capacity, modify erosion and sediment-transport processes, collect sediment and pollutants, fragment habitats of aquatic species and block the travel of long-distance migratory fish. Finally, they represent a danger if they rupture and can increase flooding risks upstream.

Where applicable, all the above issues should be brought to the attention of the judge.

This first step is crucial because it puts the judge in a position to proceed with the **legal assessment of the tort *stricto sensu***, i.e. an evaluation of the infringed right followed by a check that the right was effectively infringed (Camproux-Duffrène, 2010). Using the information provided by the experts on ecological damage, the judge translates the ecological damage into legal terms, i.e. he checks that the damage represents an infringement on a right having legal standing. Not all damage is reprehensible. Only damage fulfilling the criteria of the various liability regimes is remediable.

In other words, only damage infringing on a legally protected right or interest (see Chapter 1) can produce an effect in law. The absence of a legal basis for damage is consequently an obstacle to remediation. If damage is not recognised as such by the law, the judge cannot take it into account nor assess it, even though the ecosystem has in fact been damaged in ecological terms.

These two phases (first analyse the damage, then express it in legal terms) put the judge in a position to conclude concerning the existence of one or more torts (see Table 1). Once the existence of a tort (ecological or other) is clear, the judge then draws the legal consequences in terms of the remediation during the civil phase (see Box 14 and Figure 18).

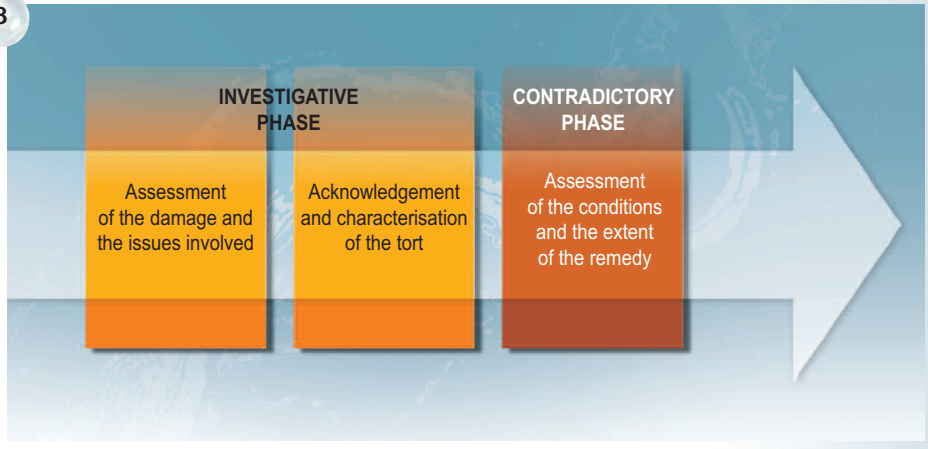
Box 14

### From the diagnosis to remediation

In a case involving bodily harm, the medical assessment, carried out by a medical expert, describes and "costs" according to a "medical tariff" all the physiological and psychological aspects of the damage done to the person. The calculation of the damages by the judge aims to set the monetary amount of the financial compensation. The remedy consists of a monetary equivalent for the damages incurred. The medical assessment is the key factor in correct compensation because neither the insurance company, nor a jurist or lawyer, nor the judge can determine whether a given tort has been correctly assessed or whether there exists a link between it and the initial damage (an accident, attack, medical incident, etc.).

The same is true for ecological damage. For example, the ecological assessment by a knowledgeable person serves to describe and evaluate, according to "ecological indicators" the damage done to the environment. The assessment produces a type of diagnosis. And without an in-depth analysis of the damage, optimum remediation is not possible.

Figure 18




*From the diagnosis to remediation.*

When assessing the damage, the judge can use methods specifically designed for that purpose. There exist only a small number concerning this very specific phase. However, one example that does exist is the V2I method developed by AFB.

The **V2I method** was developed in 2002 by the personnel of the High council on fisheries (CSP, which later became Onema and then AFB) during an initial study on the assessment of ecological damage in rivers. This method is based on the assumption that the ecological damage is equal to the difference between the initial ecological value and the value resulting from the damage (Nihouarn, 2007). In assessing the damage, it brings four parameters into play, used to characterise the natural patrimony (environment and species) and the disturbance (duration and intensity). It focusses on ecological damage to continental aquatic environments (rivers, lakes) and impacting essentially the quality of water and habitats. This method attempts to better assess the non-market aspects of damage to aquatic environments. It was presented during a symposium organised by the *Cour de cassation* (Nihouarn, 2007) and subsequently used by a number of District Courts (see Box 15).

The advantage of this method, developed by personnel continuously confronted with problems concerning the legal interpretation of the offences reported by them, is that it was designed specifically with judges in mind. However, the method is also confronted with a number of limitations, notably the fact that it has been used in only a small number of cases, all concerning rivers and where the judges used and interpreted the method in different manners (see Box 15). That is why Onema launched an effort to consolidate the method for damages noted in rivers and to adapt it for use with other environments, in particular wetlands.

Box 15

### The different uses of the V2I method by three District Courts

In assessing ecological damage and the resulting ecological torts, the V2I method was used in conjunction with three legal decisions made by the District Courts in Tours (2008), Albi (2012) and Laval (2013). In all three decisions, using the rationale developed by the method, the judges acknowledged the existence of a purely ecological tort. However, in each of the three cases, the method was understood and used differently by the judges.

In the legal decision rendered by the Tours District Court in 2008, it was deemed necessary to take into account both objective (fish mortality, cleaning of the river, restocking with fish, efforts to inform the public) and more subjective aspects (nostalgia for the landscape and prior fishing conditions, original beauty of the site, the spirit of the area and the history of the people). The factors used to assess the damage and the remediation of the tort were the irreversibility of the situation, the impact on the biomass, the patrimonial value and the “work to remediate the accident” (creation of aprons to oxygenate the water, creation of habitats in deep waters). The impacted surface area was calculated as a function of the length, slope and average width of the river bed where the worst of the pollution took place. The method, designed to estimate the cost of restoration work, was used to calculate the value of the habitat. This value was then adjusted on the basis of the patrimonial value (with respect to brown trout), of the irreversibility coefficient (which also takes into account the need for restocking migration in order to restore, at least partially, the previous state) and the loss of function (on the basis of population numbers of brown trout before and after the pollution event).

In the decision by the Albi District Court in 2012, the compensation for the tort was directly linked to the damage to the aquatic environment and more specifically to the quality of the water and habitats. The calculation took into account the length of the impacted river bed and the aptitude of the environment to return to its baseline condition, i.e. the state prior to the pollution and the loss of function in the aquatic environment. The loss of function is equal to the ratio of the number of species present before the pollution to the number present after the pollution. In addition, in this case, it was judged that the disturbance would continue until the environment had returned to a level of ecological functioning equivalent to that prior to the pollution. The threatened or vulnerable species and the efforts undertaken to protect them and their habitats were thus taken into account. A period of five years was set as the time required for restoration.

Finally, for the decision by the Laval District Court in 2013, the method was interpreted as a means to estimate the cost of the loss of fish species and the cost to restore a deep-water habitat by setting up a specific monitoring procedure. In order to produce a cost in monetary terms for remediation of the ecological tort, the ecological damage was assessed by using the method to evaluate separate reaches of the river impacted by the pollution. The remedied tort was derived from the assessment of the ecological damage taking into account the initial value of the environment per reach of impacted river, the reversibility coefficient of the aquatic environment, the patrimonial coefficient per fish species and the loss of function calculated on the basis of the loss of fish following the pollution.

## Remediation conditions and extent in compensating a tort

Remediation of the tort(s) raises the issue of the remediation conditions (a financial indemnity or compensation in kind through restoration of the impacted environment or ecological compensation) and its extent (the degree of remediation).

During the civil procedure before the civil judge or before the criminal judge, in the case of a combined procedure (where the criminal judge takes on the role of the civil judge once the verdict has been pronounced in the criminal procedure), the proceedings initiated by the plaintiffs launch the "**contradictory phase**". The civil judge must determine the remediation conditions and extent. It is primarily at this point in the procedure that the judge can undertake a monetary or non-monetary assessment of the remediation using the existing methods.

In French law, the judge alone may decide which type of remediation is the most suitable, whatever type of remediation was in fact requested. He may decide in favour of compensation in kind or prefer to grant financial damages, even if the plaintiffs sought compensation in kind. In some cases, financial damages are the only possible solution. This occurs when compensation in kind is impossible, for example when there is a legal obstacle, the damage is irreversible, the cost of restoration is excessive, compensation in kind would be ineffective or if no technical solution exists (Jourdain, 2006).

### ■ Compensation in kind

Where possible, **compensation in kind** is favoured because it is, in theory, the best means of remediating an ecological tort (see Box 16 and Figure 19). The ministerial circular dated 21 April 2015 confirmed this position by making compensation in kind the systematic first option for prosecutors. The Biodiversity law also deals extensively with this issue and encourages compensation in kind wherever possible.

## Compensation in kind

In the upper section of the Drac River, years of sand and gravel mining, combined with the creation of transverse structures, resulted in the complete disappearance of rocks and pebbles in the river. In the process, the soft, underlying rock was rapidly eroded and the water level dropped significantly, undercutting the water table and destabilising the banks. The resulting situation threatened the human uses of the river (supply of drinking water, use of the banks and nearby land, recreational uses, etc.) and gravely impacted the aquatic living communities. The restoration work consisted of injecting stones into the river bed, in order to halt the down-cutting, while widening the bed.

**Figure 19**


*The damage and the compensation in kind of the tort.*
*a) Gravel mining, b) restoration of the Drac by reloading the bed with sediment.*



This option is favoured above all for **technical reasons**. Compensation in kind consists *stricto sensu* of measures targeting the restoration of the destroyed or degraded environment and its ecological functions (Didier, 2013) (see Box 16). The objective is to restore the environment and the living conditions of the threatened species in order to ensure their survival, restock the areas impacted by pollution and to inject resources equivalent to those destroyed (sediment, etc.). In some cases, compensation may consist of the purchase, at some other place, of land in order to reconstitute natural resources or to create a nature reserve in replacement of the destroyed site. Compensation in this case is in the form of a substitution.

This option is also favoured for **social reasons**. Only compensation in kind can effectively restore the natural environment to its original state because it is clear that the payment of financial damages cannot guarantee that the funds will be devoted to actual restoration work (Mabile, 2015). However, in order to produce a legally effective and socially acceptable result, remediation must achieve its objective, which is to remediate the damage done to the natural environment. This objective in turn targets sustainable development and protects the interests of future generations.

The problem is that **compensation in kind is not always possible.**

A legal obstacle may make it impossible. This is the case for activities that, even though they cause damage, have received administrative authorisation or for buildings and structures created on the basis of a building permit. Due to the separation of powers, the judicial judge may not decide on measures to restore or to cease activities if they run counter to an administrative authorisation, though special considerations may apply, e.g. drought conditions for regulated installations. The same is true when the irreversible nature of the damage makes an attempt at restoration pointless.

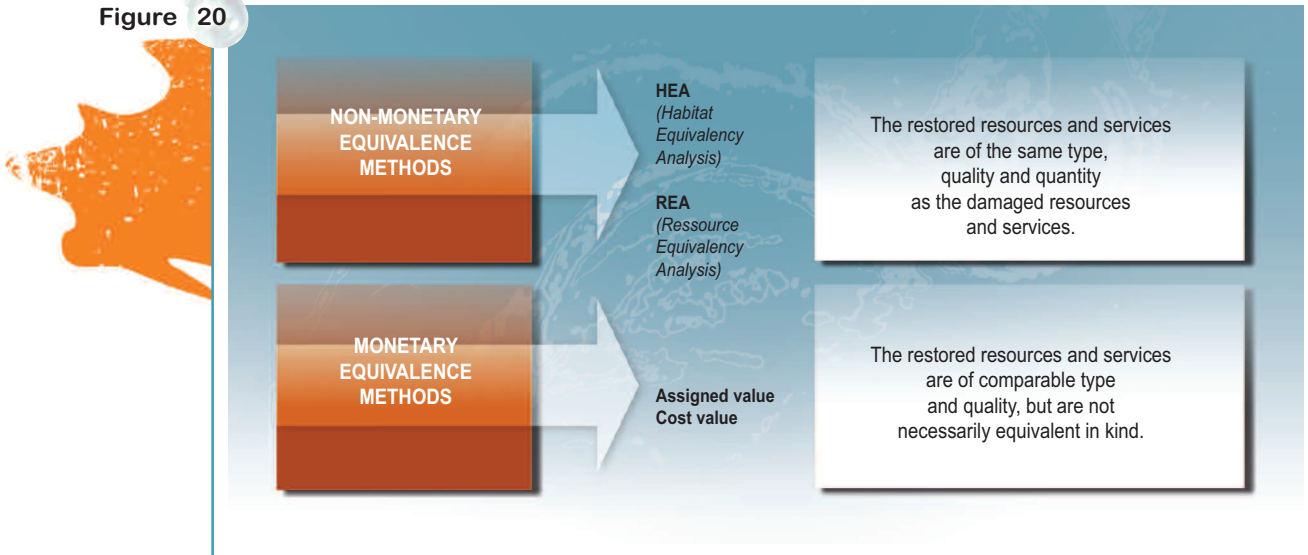
An irreversible situation means it is effectively impossible to return to the *status quo ante*. In terms of ecological damage, it means that the damage is definitive, not remediable and consequently not restorable. When irreversible damage has occurred, e.g. the disappearance of a species, there may be no solutions other than the payment of financial damages.

In social terms, case histories have shown that measures to restore or to safeguard the environment are often decided and funded only if the cost is deemed "reasonable" (Fipol work group, Hay *et al*., 2008; Grenelle de la mer, 2010; Symposium on the protection of nature through criminal law, 2015). The case of the ship Zoe Colocotroni, though somewhat dated, illustrates this aspect of reasonable cost in restoration measures. The court decided that value of the calculated damage caused to a mangrove, a forest along the coast, by an oil spill, had to remain within the limits of a "reasonable cost" to restore the mangrove or to return it to its baseline condition, or to a state as close as possible "without grossly disproportionate expense". A few years later, the analysis had not changed, but the acknowledgement of ecological torts and their compensation in kind, encouraged by the Biodiversity law, had made possible a different outcome.

Finally, on the technical level, it should not be forgotten that there are cases where we simply do not have the technical means to restore the environment. There are other situations where the notion of compensation in kind is not applicable. For example, in cases of acute (as distinguished from chronic) pollution that has destroyed all the aquatic animal species in the area, there is no means to remediate the situation, no technique available. The only solution is to wait until natural recolonisation has produced its effects, even though the damage is considerable and remediation is required. This is a frequent situation. In such cases, financial damages are the only possible solution.

In assessing compensation in kind, two assessment methods are available. On the one hand, assessment methods based on the principle of equivalence of ecological functions, i.e. on non-monetary methods. On the other, assessment methods based on value approaches that also call on the equivalence principle, but produce a monetary equivalence (see Figure 20) (CGDD, 2009).

**Figure 20**

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*Equivalence methods.*

The equivalence methods for ecological functions are assessment methods specifically designed for compensation in kind, where the fundamental concept is to take into account the damaged natural environment as a whole. These methods are based on three fundamental assumptions, namely the fungibility of the initial and restored resources and services, the constant value of resources and services over time and the homogeneity of individual preferences. The most well known methods are Habitat Equivalency Analysis (HEA) and Resource Equivalency Analysis (REA) (Bas and Gaubert 2010; Lipton J.L., 2007; Gaubert and Hubert, 2012).

The value-based methods take into account the losses of well-being perceived by society. They are of use when the data required for non-monetary equivalence methods are not available. They are based on individual preferences.

## ■ Payment of financial damages

The payment of financial damages (see Box 17 and Figure 21) aims to fulfil above all the remedial function, but also the punitive and preventive functions of civil liability. The objective is to assign a monetary value in euros to the degradation of a good or service. The assessment consists of determining a value expressed in monetary units. There are essentially two types of method, depending on whether the objective is to determine the cost of restoring the degraded environment or the loss of well-being following the degradation.

■ The purpose of monetary methods based on an assessment of the costs to restore and maintain the ecological potential is to determine the costs incurred by the damage to an ecosystem by measuring what its restoration would cost. An example is the "Léger method" (1910), which was updated in 1970 by the High council on fisheries (CSP, which later became Onema and then AFB) and received the name "Léger-Huet-Arrignon" method. The method devised in 1970 set legal precedent and is still applied by the French courts. It is based on an assessment of the theoretical productivity (the "biogenic capacity") of the river. It quantifies the loss of fish biomass following a disturbance and determines to restocking costs (Arrignon, 1971).

■ The monetary methods based on an assessment of the loss of collective well-being are used to evaluate the damage affecting non-market values (contingent-valuation method, joint-evaluation method, etc.) or the damage impacting uses linked to commercial activities (travel-cost method, hedonic-pricing method, etc.) (CGDD, 2012).

Box 17

### Payment of financial damages

Financial damages, i.e. the payment of a sum of money, are supposed to be equivalent to the tort. In this case, the financial damages are the only compensation awarded for the damage. This type of remedy is necessary when compensation in kind is impossible or insufficient, which is often the case in cases involving damage to water and aquatic environments.

Figure 21


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b, Béatrice Saurel

*The damage and the payment of financial damages. a) Landfill along the Boivre River, b) money awarded to the plaintiff.*

A number of objections have been made to the concept of financial damages.

First of all, in French law, the **principle that funds may be used as the recipient sees fit** means that it is not possible to ensure that they are applied to the purpose for which they were awarded. A non-profit for environmental protection that receives a sum of money following damage to fish populations may use the funds to replant trees in a forest. In addition, during the Erika case, several entities authorised to launch legal procedures did so and received financial damages, which raised the issue of the cumulative damages not corresponding to the principle of **complete remediation**. In the case of administrative authorities, the question arose as to which entity was best positioned to sue, the local town, the public board for inter-municipal cooperation (EPCI), the department or the region. That is a problem in cases involving ecological damage where there is a legitimate need to check the uses to which funds are put in order to avoid their misuse. This led to the request that the Biodiversity law require that any funds awarded be devoted to the restoration and reconstitution of the environment (if possible), or to measures designed to prevent ecological damage in the future. This requirement would run contrary to the principle concerning the free use of funds awarded to entities authorised to initiate a civil procedure on behalf of nature, a principle that is generally applicable in tort law, however a number of legal commentators are of the opinion that an exception is warranted here due to the specific nature of ecological damage (Jegouzo report, 2013). The free use of funds awarded is justified in the case of human victims, but does not bear the same weight in the presence of damage impacting nature and must give way to the need to ensure to the greatest extent possible the preservation and/or restoration of the environment. What is more, in that the funds are intended to remediate a collective, ecological interest, it is important to make sure that they do not serve a personal interest. This explains why it has been proposed that the recipients of funds, i.e. non-profits and public entities, be required to use to funds for ecological purposes.

A second objection deals with the principle of monetary assessment of ecological damages itself. A central point is the absence of a means to determine the value of nature “in and of itself”. In addition, given the lack of a market value for environmental goods and of reliable economic reference points, a monetary assessment is particularly difficult. For many years, this difficulty in making an assessment impacted the concept of financial damages itself. The lack of market values and of economic reference points makes the monetary expression of ecological damage difficult, however these factors are subjected to other criticisms as well. They are accused of promoting an economic approach to the valuation of natural elements whose ecological value is not taken into account. Most of the legal decisions that refer implicitly or explicitly to one or the other of these methods take into account essentially the economic and/or commercial consequences of damage to the environment. The damage done to biodiversity, to the regenerative capacity of nature and to the ecological patrimony is largely ignored. What is more, all of these methods make clear the difficulty of addressing ecological damage without making any reference to human interests. Even when the economic consequences are not the main consideration, the assessment never succeeds in fully freeing itself from the preoccupation with human interests and always expresses, to a more or less greater degree, the sentimental, cultural or tourism value that humans assign to the damaged resource. That being said, these methods, for all their lackings and approximations, are essential for environmental protection.

# Conclusion

Assessments, whether monetary or non-monetary, are, generally speaking and independently of the ecological issues, useful means of expressing value that have been acknowledged by the State administrations and jurists for a number of years for evaluating both the damage incurred and remediation of torts. However, these assessments must be used with caution in light of certain approaches to nature, deemed overly “utilitarian” and “anthropocentric”. In addition, as noted above, in the specific field of ecological damage, an in-depth understanding and accurate legal characterisation of the assessed items are necessary prerequisites in defining assessment processes that are consistent with the on-going changes in legal procedures and in optimising the effectiveness of existing assessment methods.

The above does not imply a parallel development in the administrative jurisdictions which to date have not yet acknowledged the existence of ecological torts. The European directive 2004/35 theoretically applies to all jurisdictions, however the administrative jurisdictions refuse to implement it (CAA Nancy, 19 Dec. 2013, ASPAS; Drobenko, 2016) and changes in the administrative code of justice will probably be required to change that. It may be said that the Erika accident was indeed the turning point for changes in the Civil code.

# SUMMARY of chapter 3

**Assessing damage during a trial. From an assessment of damage to an assessment of remedies.**

## Key concept

It is always a decision by the court that creates or denies the existence of an ecological tort and determines whether the defendant must remediate the situation according to precise conditions. The assessment is therefore a means, among others, used by the judicial judge during the civil procedure to justify and inform his decision. The same is true when the judge must characterise an offence and, to that end, understand the issues involved in the damage, during the criminal procedure. In both cases, the assessment serves to translate the situation in legal terms.

## Key points in understanding the subject

Though in everyday language the terms “assessment of damage” and “assessment of the tort” are often used synonymously, in the legal sector, these two terms correspond to different acts that, though complementary, are not the same. The two assessments take place at different times, i.e. during the criminal procedure to evaluate the damage and during the civil procedure to evaluate the tort(s). In short, the assessment of the damage is a step that takes place before the assessment of the means to remediate the tort.

## Key points to remember

There are two types of procedure in the judicial sphere, criminal and civil. These procedures target different objectives that are complementary, namely punitive and dissuasive objectives for the criminal procedure and remedial objectives for the civil. In cases involving damage caused to water and aquatic environments, the two procedures are often combined.

However, combined procedures should not obscure the different steps in a case and the resulting different types of assessment that the judges (criminal and civil) may use.

An assessment of damage involves determining its impacts on the environment in order to express the damage in legal terms and determine whether one or more remediable torts exist. An assessment of a tort, on the other hand, consists of determining the remediation conditions (monetary or in kind) and extent. Judicial procedures constitute a framework for assessments on damage caused to water and aquatic environments. Assessment methods must necessarily take this framework into account in order to remain not only useful, but useable and used.