Ad-Hoc INDUSTRY

NATURAL RESOURCE MANAGEMENT GROUP

IMPLEMENTATION OF THE EUROPEAN UNION ENVIRONMENTAL LIABILITY DIRECTIVE: SUMMARY OF GUIDING PRINCIPLES AND RECOMMENDED BEST PRACTICES

PREPARED BY, FOR AND IN COOPERATION WITH THE EU INDUSTRIAL COMMUNITY

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FOREWORD

This document has been prepared by the Ad-Hoc Industry Natural Resource Management Group (Group) -- a group of multinational industrial companies representing all major sectors – for Europe-based business and industry and other interested parties. Since the European Union (EU) Environmental Liability Directive (ELD) was enacted in 2004, the Group has served as a formidable resource to industry on this matter and has assumed a key role in facilitating communication and practice exchange between industry and government officials. The Group has held numerous meetings, seminars and workshops involving industry and government and it has prepared many documents aimed at fostering a reasonable, balanced and predictable practice as the ELD is implemented by Member States. Additional information on the Group and its activities related to the ELD can be found at www.NRDonline.org. We also invite you to contact us at group@NRDonline.org.

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EXECUTIVE SUMMARY

This document has been prepared by the Ad-Hoc Industry Natural Resource Management Group ("Group") to further discussions on certain key issues that are likely to arise in the implementation of the European Union ("EU") Environmental Liability Directive ("ELD") in actual practice. This document briefly describes what constitute essential legal, administrative, technical and economic principles in order to ensure successful implementation of cost-effective remediation of environmental damage pursuant to the ELD and Member State implementation laws. Detailed discussion concerning key *administrative* and *legal* issues and recommended best practices is contained in Part A of this document. Detailed discussion concerning the key *technical* and *economic* issues and recommended best practices is contained in Part B.

We hope that this document will continue to serve as a basis for constructive discussion of these issues. We expect to continue to revise this document based on comments received from participants at the Group's 3 February 2009 Expert Seminar "Emerging Member State Guidance and Recommended Best Practices Concerning the Implementation of the EU Environmental Liability Directive" and others. As new ELD-related information and experiences are gained in various Member States, the document can be revised and expanded accordingly.

In 2009, the Group will work with the European Commission to solicit and compile information concerning "ELD cases" to aide development of a European Commission "ELD cases" database.

Following are some general guiding principles for ELD implementation, as well as summaries of best administrative, legal, technical and economic best practices.

GENERAL GUIDING PRINCIPLES FOR ELD IMPLEMENTATION

- A reasonable, balanced and predictable liability regime is the overarching goal in transposing the ELD.

- A clear and reasonable definition of liability will permit parties to focus on prevention and remediation by creating the appropriate incentives to responsibly manage the risk. Provisions in the Directive that limit its application to significant, quantifiable harm at the species and habitat levels provide an important means to focus restoration efforts on the most significant damage. They should be faithfully observed in transposition and implementation.

- Experience implementing the ELD will illuminate the great variety of factual, legal, economic and technical issues that will arise. The case studies illustrate a subset of the potential issues. It is inevitable that issues will arise for which the answer is not clear under the Directive or its implementing legislation.

- It is not appropriate to attempt to address the complexity of implementation issues by fine tuning implementation legislation. Legislation should address basic

principles and leave complex details to be worked out in guidance and associated best practices.

- The permit and state of the art defences are reasonable and balanced provisions that promote predictability, and should be implemented. They also provide the appropriate incentive for responsible parties to focus on prevention.

- In multiparty cases, proportional liability is preferable to joint and several. Joint and several liability should be used only if there is no other legal, scientific, or economic basis for allocating the liability among the parties.

- Consistent with the Directive's focus on the polluter pays principle and on prevention, the operator definition and the third party act defence should be interpreted to promote prevention by placing liability on the party that caused the damage.

  1. Parties should avoid the temptation to expand the operator definition to include deep pocket entities which did not cause the damage;

  2. The third party act defence should likewise be broadly interpreted to put liability on the party that causes the damage.

- Harmonization on fundamental principles is desirable to achieve reasonable consistency across Europe on implementation issues. A mechanism for consensus building among member states and affected parties would aid this process.

- Appropriate insurance will develop through market forces if a reasonable, balanced and predictable liability regime is implemented.
- Insurance issues should be viewed in the context of broader mechanisms for insuring financial responsibility (including self-insurance, parental guarantees, letters of credit, performance bonds, etc.).

SUMMARY OF BEST LEGAL PRACTICES

- Design and implement environmental management and response systems that ensure compliance with the obligations imposed on operators under ELD-transposing legislation.

- Respect the operator's primary responsibility for taking preventive and remedial measure, if operators, in fact, meet their obligations.

- Secure access to specialized legal, ecological, and economical expertise.

- Establish line of communication with other authorities such as permitting authorities for Annex III activities, and nature protection authorities.

- Determine whether a case falls under the ELD-transposing before initiating further procedures under such legislation.

- Document properly the decision in respect of whether a case falls under the ELD-transposing legislation.

- Assess whether the environmental damage at issue (i) falls under ELD's definition of environmental damage, (ii) constitutes damage to protected species and habitats, (iii) is caused by a covered emission, incident, or event after ELD's effective date, (iv) is significant, as defined in Annex 1 of the ELD, and (v) is caused by an activity falling under the scope of the EU environmental directives listed in Annex III, or by a non-listed activity but only if there is negligence (and then only as far as damage to protected habitats and species is involved).

- Determine whether any exception to the ELD's scope applies or the operator can invoke a defence before initiating further proceedings under the ELD.

SUMMARY OF BEST ADMINISTRATIVE PRACTICES

- Consistent with the operator's primary responsibility and its ownership/possessory interest, follow a step-by-step approach in ensuring that the necessary preventive measures are taken, with the authority taking preventive measures only as a last resort.

- Consistent with the operator's primary responsibility and its ownership/possessory interest, follow a step-by-step approach in ensuring that the necessary remedial measures are taken, with the authority taking measures itself only as a last resort.

- If the CA intends to proceed with measures, the operator is invited to comment on the measures that the CA proposes to execute. The CA always pursues the least cost option that achieves effective remediation. The CA takes a security interest in the operator's property, if there is a serious risk that the operator will otherwise not reimburse the CA's reasonable cost. The operator has access to cost recovery under the same conditions as those applying to the CA.

- In cases of multiple instances of environmental damage, the operators involved provide relevant information to the CA, and the CA determines whether all such instances of damage are covered by the ELD, ranks the various cases in terms of remediation priority, and considers with respect to environmental damage that does not have remediation priority, whether it is appropriate not to require compensatory remediation for interim losses.

- Review carefully review any request from third parties to ensure that they meet the applicable legal requirements, give the operator an opportunity to review and comment on the request, and consider all information, data, and comments submitted before making a decision.

- Review carefully whether any administrative review or appeal by a third party is admissible. If the requested review or appeal is found to be admissible and sufficiently substantiated, the operator concerned is notified and invited to participate.

- If a concurrent civil action is filed with respect to an instance of environmental damage, review to what extent there is potential of double recovery or overlapping actions. Consider staying the ELD procedures if there is significant potential for double recovery or conflicting opinions.

- Build a case file that includes only sound, relevant and reliable data meeting high data quality standards, so that sound decisions supported by the facts can be made.

- When obtaining external advice, define the issues on which external advice is needed, the scope of assignment and procedure for the expert's examination of issues and developing report ("terms of reference"), consider whether terms of reference should be made available for public comment, carefully select a well qualified expert, manage the expert, and make expert report available for comments from stakeholders.

- Define rules for stakeholder access to information held by the CA, and define exceptions to access.

- Define rules and modes for public participation, define groups of persons that have a right to participate, define responsibilities of participants, and define where in procedure public participation takes place.

- Ensure that investigation of facts is careful and sound. Consider interests involved with the decision. State sound and persuasive reasons for decisions that are supported by the facts and the applicable law, and justify why key arguments made by stakeholders are rejected. Notify the decision to the persons concerned, and indicate any available review or appeal procedures.

SUMMARY OF BEST TECHNICAL AND ECONOMIC BEST PRACTICES

- Select only the most relevant and affected resources or services and restrain from trying to evaluate all possible services.

- In determining environmental damage, do not equate risk to species and habitats with damage; rather, focus on accurate measurement of quantifiable changes in relevant service flows as an indicator of the potential for significant environmental damage (SED). Identify metrics of actual adverse effects that are quantitative indicators of SED.

- In determining the proper level of baseline, use reliable data to characterize baseline as completely as for all resources being assessed. Develop methods for establishing baseline in the absence of complete and reliable information.

- Causation analysis is a key step in the damage determination process that must be thoroughly performed. Only when the causal link is proven, and the criteria for damage have been met (e.g. quantifiable), is this SED.

- Standardize approaches for rapidly assessing the potential for SED following an environmental incident.

- To properly determine damage to biodiversity, identify methods that measure changes to protected species and habitats and are also practical for use in damage assessments.

- To properly determine damage to water, identify metrics that reliably measure ecological or chemical status and that are good indicators of actual damage as defined in the ELD.

- To properly determine damage to land, develop reliable methods for translating risk results into damage estimates.

- Develop a standard assessment framework that Competent Authorities and Operators can follow when performing damage quantifications.

- To develop data, (1) clearly specify the research objectives; (2) use an interdisciplinary team to cover the relevant ecological services; (3) review and evaluate existing data to determine that they meet data quality standards, including web-based data portals, to determine whether new data are needed; and (4) *collect only the relevant data needed to answer key questions.*

- In using Resource or Habitat Equivalency Analysis, select a metric that is the most ecologically relevant to the particular service flow being evaluated. If more than one service flow is impacted, then multiple metrics may be appropriate.

- To quantify service losses, (1) clearly specify the baseline conditions; (2) use an interdisciplinary team to estimate service losses to cover the relevant ecological services; (3) estimate service losses as a range not a single point; (4) incorporate information on primary and/or complementary remediation where appropriate; and

(5) conduct a sensitivity analysis for key assumptions or where data uncertainties exist.

- To quantity compensatory remediation gains (1) clearly specify the relevant time periods for the project including the start date, growth path, and period; (2) use an interdisciplinary team to estimate service gains to cover the relevant ecological services; (3) estimate service gains as a range not a single point; (4) incorporate information on primary and/or complementary remediation where appropriate; and (5) conduct a sensitivity analysis for key assumptions or where data uncertainties exist.

- To measure restoration costs (1) develop potential restoration projects onsite and offsite; (2) use site specific data on costs for both onsite and offsite projects; (3) develop a range of costs assuming both best case and worst case that might arise at a specific site; (4) develop restoration projects that are likely to produce equivalent services; (5) evaluate cost effectiveness of various alternatives; and (6) conduct a sensitivity analysis for key assumptions or where data uncertainties exist.

- When using surveys as a scaling method, (1) use a survey only when no other alternative approach is feasible; (2) develop alternatives that are equal in terms of restoration costs so that the survey is providing information on relative importance of alternatives vs. absolute value; (3) develop alternatives in close consultation with ecologists to ensure that equivalent ecological options are being presented or that if they differ, those differences are ones that the public can understand and express a preference about; (4) pretest survey questionnaires thoroughly; (5) use cost-effective data collection methods such as internet based surveys when possible; and (6)include reliability tests within the survey design.

- To perform cost effectiveness analyses, (1) ensure that all projects being compared provide similar benefits; (2) consider the full range of restoration alternatives including actions such as conservation easements; (3) array the potential projects in terms of costs.; (4) include all relevant costs for each alternative including any operating and maintenance or monitoring costs that may be relevant; and (5) choose the alternative that is the most cost-effective.

The concepts and suggestions contained in this document are intended to continue dialogue among key stakeholders in order to lead to the development of other documents and guidance and ensure a balanced, reasonable and predictable implementation of the ELD in actual practice.

PART A: RECOMMENDED BEST PRACTICES FOR LEGAL AND ADMINISTRATIVE ISSUES

1 INTRODUCTION

1.1 Purpose

Part A of the Draft Document discusses best legal and administrative practices relevant to procedures under member state legislation transposing and implementing the EU Environmental Liability Directive (ELD). At the European level, thus far, little attention has been paid to how *principles of good administrative behavior* should be applied in the context of ELD procedures. There is no doubt that these principles can and should play an important role in the application of the national ELD regimes and the various procedures under these regimes, but what exactly do these principles mean in the specific context of the ELD? How should the principles shape procedures and influence the behavior of stakeholders involved with the ELD regimes? And how should the principles be translated into best legal and administrative practices? These are the questions that Part A of the Draft Document seeks to address.

The answers to these questions cannot be found in the ELD itself. The ELD requires that the Member States (1) bestow national authorities with certain powers in connection with administering the national regimes transposing the ELD, and (2) establish procedures for administering key aspects of the ELD's regimes and for managing cases of environmental damage. It also imposes broad prevention, remediation, and reporting obligations on operators. There is not much detail in the ELD on these procedures and obligations, however, and much is left to Member States' discretion. This, in turn, implies that each Member State will have to analyze the issues and make decisions in respect of the details of administrative procedures and practices under the ELD. The same applies to industry, which has to determine how it will meet its prevention, remediation, and reporting obligations and how it will interact with the authorities. Part A is intended to assist Member States and industry with identifying best legal and administrative practices relevant to the national administrative procedures under ELD-transposing legislation.

For purposes of the discussion, we have referred to the ELD, not to any national legislation implementing the ELD. We have assumed that the national ELD-transposing legislation closely tracks the ELD's provisions.

1.2 Scope

The focus of Part A is on practices in ELD procedures. It does not seek to provide a comprehensive analysis of principles of good administration, nor does it seek to discuss all details of the ELD procedures. It does, however, discuss the main characteristics of the European principles of good administration and their legal underpinning so as to lay the basis for thinking coherently about best administrative practices in ELD procedures. This section does not provide all the answers; rather, it explores important issues, suggests possible approaches, and identifies relevant best practices.

This section comprises seven parts, including this introduction. In the next part, a brief overview is provided of the responsibilities of the competent authorities under ELD-transposing legislation and the powers they must have, the implications thereof for the authorities' expertise, and their place within the administration. The third part discusses

the right to good administration stipulated in the EU Charter of Fundamental Rights and common European principles of good administration. This discussion is summary in nature, more detail can be found in Annex 1 attached to this White Paper. In the fourth part, the focus shifts to an important legal threshold issue: does the ELD-transposing law apply? This analysis, of course, precedes the initiation of any ELD remediation proceedings. The discussion focuses on best legal practices relevant to deciding this threshold issues. The fifth part discusses the various procedures under the ELD, such as the preventive action procedure and the remedial measures procedure, and identifies some best administrative practices specific to these procedures. The sixth part focuses on best administrative practices in respect of common elements of ELD procedures, such as data collection and analysis and participation by stakeholders. In the fifth and sixth parts, the principles of good administration, which are summarized in part 3, are applied to the procedures under the ELD to identify possible best administrative practices. The last part summarizes the main conclusions.

2 COMPETENT NATIONAL AUTHORITIES

The ELD contemplates an important role for so-called "competent authorities" (the "CA"), i.e. the authorities empowered by the member states to execute certain administrative requirements and administer procedures under the ELD. The CA have important responsibilities under the ELD. As discussed below, however, the CA under the ELD have a role and responsibilities that is very different from the role of the authorities under core environmental regulations, such as the Integrated Pollution Prevention and Control ("IPPC") Directive.

In this part, we briefly review the tasks and responsibilities of the CA under the ELD, the powers that the CA should have, the CA's requisite expertise and staffing, and its place in the member state's administrative organization.

2.1 Tasks and Responsibilities

The tasks and responsibilities of the CA differ in two important respects from the tasks and responsibilities of other environmental authorities. These differences are relevant to the role of the ELD CA, its organization, and staffing.

- First, the CA under the ELD are not the typical authorities under other environmental legislation. Most environmental authorities administer permitting, reporting and other regulatory regimes affecting the day-to-day operation of industrial and other operations. These regulatory activities deal with normal operations of regulated activities and typically produce a steady stream of work for the authorities. The ELD CA, on the other hand, are involved with imminent threats to environmental damage and instances of actual environmental damage, which are, by definition, exceptional situations. This is so because accidents and incidents causing environmental damage covered by the ELD are expected to be relatively rare (with the possible exception of land damage, which might be a somewhat more common situation) I recently read in a pertinent paper of the German insurance association that currently about 85% of environmental damage would fall under the notion of "water damage" in Germany. In other words, there will not be

new, large cases under the ELD on a regular basis. Rather, like accidents, there will be a new large case, which will require much of the ELD CA's attention, only once every so often. This implies that the ELD CA should focus on how to handle "peak loads," as one big case might require significant resources but only for a short period of time.

BEST ADMINISTRATIVE PRACTICE CHALLENGE: How to deal with peak loads in connection with large cases under the ELD

- Second, the CA under the ELD do not have primary responsibility for the design and execution of preventive and restorative action under the ELD. Under the ELD, it is the operator that has primary responsibility for preventive action and remediation. In respect of prevention, Article 5(1) of the ELD provides that, if there is an imminent threat of environmental damage occurring, "the operator shall, without delay, take the necessary preventive measures." In respect of remediation, Article 6(1) of the ELD provides that if environmental damage has occurred, "the operator shall, without delay, (…) take all practicable steps to immediately control, contain, remove or otherwise manage the relevant contaminants and/or any other damage factors (…) and [take] the necessary remedial measures." These provisions clearly put the onus on the operator to take measures, the CA's role is to supervise the operator's actions. As Recital 16 of the ELD puts it, "[r]estoration of the environment should take place in an effective manner ensuring that the relevant restoration objectives are achieved. A common framework should be defined to that end, the proper application of which should be supervised by the competent authority." The operator's primary responsibility for taking measures on-site is also consistent, if not required by, the operator's ownership or possessory interest (see also Annex 1 attached hereto for a discussion of the principle that rights of the parties involved be respected).

These particular features of the ELD CA's tasks and responsibilities set it aside from other environmental authorities, and should have consequences for staffing and the like.

As the parties bearing primary responsibility for preventing and restoring environmental damage, operators have a special responsibility under the ELD. They will normally be in charge of taking prevention and mitigation measures. They also have the responsibility for designing remediation plans and executing remediation measures. Being able to meet these obligations when an accident causing environmental damage occurs, is a challenge for many operators. They will have to design and implement suitable environmental management and emergency response systems to ensure compliance with the ELD.

BEST LEGAL PRACTICE FOR OPERATORS: Design and implement environmental management and response systems that ensure compliance with the obligations imposed on operators under ELD-transposing legislation.

The mirror image of the operator's primary responsibility is the CA's supervisory responsibility. If operators do what the ELD requires, the CA's role will be limited to review and supervision.

BEST LEGAL PRACTICE: Respect the operator's primary responsibility for taking preventive and remedial measure, if operators, in fact, meet their obligations.

2.2 *Powers*

The ELD identifies the powers that must be conferred on the competent national authorities under ELD-transposing legislation. Article 11 of the ELD requires that Member States designate the competent authority (or authorities) responsible for fulfilling the duties provided for in the ELD. Specifically, this article provides that "[t]he duty to establish which operator has caused the damage or the imminent threat of damage, to assess the significance of the damage and to determine which remedial measures should be taken with reference to Annex II shall rest with the competent authority. To that effect, the competent authority shall be entitled to require the relevant operator to carry out his own assessment and to supply any information and data necessary." Further, Member States must ensure that the competent authority may empower or require third parties to carry out the necessary preventive or remedial measures.

Thus, the ELD requires that the CA has the following authority and power:

- To determine which operator has caused environmental damage;
- To assess the significance of the damage;
- To determine which remedial measures should be taken;
- To require the operator to carry out his own assessment and to supply information;
- To empower or require third parties to carry out preventive or remedial measures.

In addition to the powers that are explicitly required by the ELD, the CA will likely need also the following powers:

- Require that operators or any third parties provide information;
- Instruct third party experts to provide advice to it (see also below); and
- Require that an operator take preventive or remedial measures if that operator has been found to have caused an imminent threat or actual environmental damage.

2.3 Expertise, Staffing, and Place in Administrative Organization

The responsibilities of the CA suggest that the CA should have strong expertise available to it in respect of investigating and assessing environmental damage, causal links between environmental damage and activities, and identifying remediation options and determining preferred remediation measures. This requires that the CA has access to

specialized environmental, technical, ecological, and economical expertise, as well as legal expertise.

BEST LEGAL PRACTICE*:* Secure access to specialized legal, ecological, and economical expertise.

This expertise should be available to these authorities in executing their tasks either directly within its staff or indirectly through relationships with external consultants. The CA's staffing should also be sufficiently flexible so that it can handle peak loads.

In light of the tasks and responsibilities of the ELD CA, it is important that this CA has good working relationships with other environmental authorities. How the ELD CA fits into the administrative organization of a member state, of course, depends on national law and the existing administrative organization. The ELD CA can be a separate authority, agency or department or the ELD CA's tasks can be performed by an existing authority, agency or department that also performs other functions. In either case, to properly perform its tasks, the ELD CA needs information from other authorities. For instance, the CA should have a line of communication with the permitting authorities to determine whether a particular preventive measure is appropriate, whether an activity is covered by Annex III, to assess a permit compliance defence, etc. In respect of damage to protected habitats and species, the CA will want to contact the authorities responsible for nature protection.

BEST LEGAL PRACTICE: Establish line of communication with other authorities such as permitting authorities for Annex III activities, and nature protection authorities.

3 FORMAL AND SUBSTANTIVE PRINCIPLES UNDERLYING BEST LEGAL AND ADMINISTRATIVE PRACTICES

This part briefly discusses the principles that form the basis for the legal and administrative practices discussed in parts 5 and 6 of this section.

In the legal order of both the EU and the EU member states a "right to good administration" and "principles of good administration" have developed. As principles, they provide general guidelines for administrative behavior that must be translated into more specific requirements in specific cases.

The principles of good administration, however, are more than non-binding guidelines. Most Member States, with the notable exception of the common law countries, have adopted detailed administrative procedure acts setting forth principles of good administration. In some cases, there are other laws that provide specifics for certain areas (e.g. planning and zoning), which supplement the requirements in the administrative procedure acts. The legal order of most EU member states embody formal (procedural) and substantive principles of good administration. Likewise, the EU has adopted formal and substantive principles of good administration and codes of administrative behavior that govern the behavior of officials of the EU institutions (see below).

A set of principles of good administration can now be identified that is common to EU member states. The principles of legality/lawfulness, impartiality and fairness, as and

the principles of non-discrimination and proportionality are often stipulated in national Constitutions. Rights of persons involved administrative procedures, such as the right to have one's affairs handled within reasonable time, to be heard, to have access to one's file are typically laid down in administrative procedure acts with varying degree of specificity. Further, the obligation for the administration to state reasons for their decisions, to give notice and indicate remedies, and even "service-mindedness," are also often enacted through an administrative procedure act. The right to access to documents, on the other hand, is typically laid down in a freedom of information act or similar act.

Note that the word "principles" in this context does not indicate that we are dealing with non-binding, advisory guidelines. To the contrary, the principles of good administration are legally enforceable rights, which means that they are justiciable and can be applied and enforced by courts. They function, in general terms, to restrain the administration in areas where it can make discretionary decisions.

Annex 1 attached to this Draft Document provides further detail on the EU right to good administration, and the main principles of good administration common to the member states. It discusses both formal (procedural) and substantive principles of good administration.

4 CRITICAL THRESHOLD ISSUE OF APPLICABILITY OF THE ELD

Before commencing any preventive action or remediation action procedure under the ELD-transposing law, the CA should determine that the ELD-transposing law applies to the particular case at issue. By doing so, the CA promotes adherence to several administrative law principles discussed in part 3, above, and Annex 1 attached hereto. First, a careful determination of whether the ELD law applies will promote the principle of legality, since it will allow the CA to distinguish with precision between cases over which it has jurisdiction and cases over which the law has not granted it authority. Second, it will enhance legal certainty inasmuch as strict compliance with the law will make the CA's decision more predictable. It will also promote administrative efficiency because it allows the CA to focus its resources from the start on those cases over which it has jurisdiction. Operators should cooperate in this process so that the relevant decisions can be made expeditiously.

BEST LEGAL PRACTICE: Determine whether a case falls under the ELD-transposing before initiating further procedures under such legislation.

This section identifies the various threshold issues that the CA faces before it may assert jurisdiction over a case. It, of course, is conceivable that not the CA under the ELD, but another authority should deal with the case. The process of determining whether the ELD applies is a best legal practice. It should be documented by the CA so that its decisions are transparent. For this purpose, the CA can use a checklist or "decision tree;" as soon as a point is reached where the checklist or decision tree indicates that a case falls outside the scope of the ELD, the process can be terminated.

BEST LEGAL PRACTICE: Document properly the decision in respect of whether a case falls under the ELD-transposing legislation.

4.1 Scope

The ELD's scope of application is limited (i) in terms of type of damage, (ii) geographically, (iii) temporal (no retroactive effect), (iv) in terms of size of the damage, and (v) to activities falling under the scope of listed EU environmental directives (Annex III), and to non-listed activities only if there is negligence (and then only as far as damage to protected habitats and species is involved). We briefly discuss each of these issues in turn below.

- **Is the damage covered by the definition of environmental damage set forth in Article 2(1) of the ELD?**

  The ELD applies to (1) damage to protected habitats and species, (2) water damage, and (3) land damage. Each of these three terms are defined under the ELD. Thus, the first step in the determination of ELD applicability is to determine whether the damage (or imminent damage) is falls under any of these three heads of damage.

- **If the damage involved is "damage to protected habitats," is the damage to (i) an area included in the Natura 2000 network (or a breeding site or resting place of a protected species), or (ii) an area protected by national law, as designated by the ELD-transposing law?**

  National law may extend the geographic areas protected under the ELD to include areas protected under national law. This, of course, is an issue that should be examined specifically for each member state.

- **Is the damage (i) caused by (a) an emission, event or incident that took place before 30 April 2007, or (b) an emission, event or incident which takes place subsequent to 30 April 2007 but derives from a specific activity that took place and finished before that date, or (ii) the result of an event or incident that occurred more than 30 years ago?**

  The ELD is not intended to have retroactive effect. The explicit provisions of Article 17 exclude from the ELD's scope damage that results from events that occurred before the ELD's effective date.

- **Is the damage measurable and "significant?"**

  The ELD does not apply to all instances of environmental damage, but only to such instances exceeding a threshold. The threshold chosen by the ELD is "significant" damage. Each of the definitions of the three types of covered environmental damage (damage to protected species and habitats, water damage, and land damage) includes the word "significant' or "significantly." To be able to determine whether damage is significant, it has to be measurable, as Annex I of the ELD emphasizes. Annex I also provides criteria for determining positively whether damage is significant or negatively whether damage is insignificant.

- **Has the damage been caused by an activity covered by the legislation listed in Annex III, or by the operator's negligence if the activity is not so covered?**

If the activity that has caused the damage falls under the legislation listed in Annex III, strict liability applies for all three types of environmental damage that has occurred. If, however, the activity does not fall under this listed legislation, the CA must find that (i) the operator's negligence caused the damage, and (ii) the damage involved constitutes damage to protected species and habitats.

Determining the causal link between an activity and an instance of environmental damage may be complicated and raise a series of issues. For a discussion of these issues, please refer to the NRD Group's White Paper on Technical and Economic Issues Associated with Assessment and Remediation of Environmental Damage.

BEST LEGAL PRACTICE: Assess whether the environmental damage at issue (i) falls under ELD's definition of environmental damage, (ii) constitutes damage to protected species and habitats, (iii) is caused by a covered emission, incident, or event after ELD's effective date, (iv) is significant, as defined in Annex 1 of the ELD, and (v) is caused by an activity falling under the scope of the EU environmental directives listed in Annex III, or by a non-listed activity but only if there is negligence (and then only as far as damage to protected habitats and species is involved).

4.2 Exceptions

In addition to defenses (see section 4.3, below), the ELD provides for exceptions from its scope of application. If an exception applies, the instance of environmental damage involved is not covered by the ELD. The CA therefore needs to determine whether any exception applies before proceeding with proceedings under the ELD-transposing legislation. Operators should cooperate with the CA in this process.

- **Do any of the exceptions listed in Article 4 of the ELD apply in the case at issue?**

  Armed Conflict: Article 4(1)(a) states that the ELD does not cover environmental damage or an imminent threat of environmental damage that is caused by "an act of armed conflict, hostilities, civil war or insurrection." This exception applies to generalized fighting in a particular area. Such fighting could be a war between countries but also a civil war or similar fights within a country. Likewise, it could apply to more sporadic acts of aggression, such as the recent riots in Paris and other cities throughout France.[1] I must say that I have not yet investigated

[1] Needless to say, operators do take safety measures, but safety measures cannot prevent all outside interference. The level and stringency of such measures is a function of the risks associated with the activity and outside interference therewith. Safety measures cannot be designed to protect against the risks of interference with the activity during times of war, civil unrest, or riots. Under these extraordinary circumstances, safety measures may not be sufficient and the resulting damage is entirely beyond the operator's control, this, in essence, is the rationale for the exception.

on the application or jurisdiction regarding this type of exception. In my preliminary view, major riots such as the ones in France could be possibly covered by this exception (presumably "hostilities") but only courts in the MS and – as for authoritative interpretation of Community law – the ECJ could give a definite answer.

Exceptional Natural Phenomenon: Article 4(1)(b) similarly states that the ELD does not cover environmental damage or an imminent threat of environmental damage that is caused by "a natural phenomenon of exceptional, inevitable and irresistible character." Earthquakes, storms, extreme temperatures, extreme humidity, and the like can interfere with operations and cause damage. Facilities are built, and installations and processes are designed, to withstand common natural phenomena. However, they cannot practicably be built and designed to withstand extraordinary natural phenomena. Again, under such circumstances, any damage that may result is entirely beyond the operator's control. Holding operators liable for such damage does not serve the ELD's prevention objective, because operators cannot take any reasonable additional measures to protect against these risks.

International Conventions: Article 4(2) provides that the Directive does not apply to environmental damage or an imminent threat of such damage that arises from an incident for which liability or compensation is within the scope of certain International Conventions. The applicable conventions are listed in Annex IV, and the exception only applies if the convention is in force in the relevant member state.[2]

Pollution of a diffuse character: Article 4(5) limits the application of the Directive in the case of environmental damage (or the threat thereof) from pollution of a diffuse character. The Directive will only apply "where it is possible to establish a causal link between the damage and the activities of individual operators." Recital (13) in the opening text of the ELD explains the policy rationale for this exception as follows: "Not all forms of environmental damage can be remedied by means of the liability mechanism. For the latter to be effective, there need to be one or more identifiable polluters, the damage should be concrete and quantifiable, and a causal link should be established between the damage and the identified polluter(s). Liability is therefore not a suitable instrument for dealing with pollution of a widespread, diffuse character, where it is impossible to link the negative environmental effects with acts or

[2] Thus, for the exception to apply, it is critical that the Member State ratify these international conventions.

failure to act of certain individual actors."[3] Global warming due to carbon-dioxide and other emissions (greenhouse gasses) and dying forest due to acid rain are two other problems of (perceived or real) widespread and diffuse harms that are subject to this exception to the ELD. The ELD does not apply if there is only generalized causation, but no individual causal link. The ELD does not entertain theories of "polluter share" liability, which resemble the market share liability doctrines that have evolved under product liability laws in some countries.4 The ELD requires an individualized causal link between the damage and a specific operator's activities.

Preservation of Maritime Liability Limitations: Article 4(3) preserves the right of an operator to limit its liability pursuant to national legislation implementing either the 1976 Convention on Limitation of Liability for Maritime Claims or the 1988 Strasbourg Convention on Limitations of Liability in Inland Navigation.

Nuclear Risks: Article 4(4) provides that the "Directive shall not apply to such nuclear risks as may be caused by the activities covered by the Treaty establishing the European Atomic Energy Community or caused by an incident or activity in respect of which liability or compensation falls within the scope of any of the international instruments listed in Annex V." Although the omitted language above does refer to "environmental damage," the comprehensive "Directive shall not apply" language causes this exception to operate more broadly.

[3] The Commission's Frequently Asked Questions provide the following example: "Liability is only effective and cheap to implement when it is possible to identify, clearly the polluter responsible for the damage. This is practically impossible with diffuse pollution where many different actors contribute very small amounts to the overall problem. A good example is the pollution caused by road traffic. We have more effective and efficient policy tools to deal with diffuse pollution, such as road pricing and technical standards for vehicles."

[4] These theories have been developed in the US with its extravagant civil liability regime. They have been first applied in cases involving so-called "long tail" damage caused by pharmaceutical products. See, e.g., Hymowitz v. Eli Lilly and Co., 73 N.Y. 2d 487, 539 N.E. 2d 941 (1989), cert. denied sub nom. Rexall Drug Co. v. Tigue, 110 S. Ct. 350 (1989).

4.3 Defences

In addition to exceptions, the ELD also provides for defences. The operator, in principle, must prove the existence of the circumstances giving rise to the defence. Some defenses are required by the ELD (mandatory defenses), while other defenses may be provided for under national law if a member state, at its discretion, so decides.

4.3.1 Mandatory Defences

The CA should ask whether the operator has established that one of the following defenses applies:

- The environmental damage[5] or imminent threat of such damage:

  (a) was caused by a third party and occurred despite the fact that appropriate safety measures were in place; or

  (b) resulted from compliance with a compulsory order or instruction emanating from a public authority other than an order or instruction consequent upon an emission or incident caused by the operator's own activities.

In such cases, Member States are required to take the appropriate measures to enable the operator to recover the costs incurred.[6]

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[5] Note that, as with the case of certain of the Directive's exceptions, these defences operate through the defined term "environmental damage." Nevertheless, they apply to both Annex III and non-Annex-Ill operators because of the interaction among the definitions of "environmental damage," "damage," and "protected species and natural habitats." This is a very interesting observation, probably deserving further consideration, as this sort of defences (third party intervention, compliance with compulsory order) are typically linked to strict liability. If fault has to be established anyway, the value of these defences seems at least limited, if not useless at all.

[6] Because this provision employs the phrase "an operator shall not be required to bear the cost," a superficial reading could suggest that the defence applies only in the case of cost recovery actions and does not protect a party from obligations or orders to prevent or remediate. This interpretation is implausible. If the defences were to be construed to apply only to cost recovery actions, whenever an operator could invoke a defence, the authority would simply issue orders to the operator to take measures, rather than take measures itself and then recover the cost. The defence would become largely meaningless. Rather, by using the term "cost," the legislature made clear that, where a defence applies, the operator should not be exposed to cost, either directly (as a result of cost recovery) or indirectly (through orders to take measures). An operator "bears cost," in the sense of the pertinent provision of the ELD, whether he takes measures himself or has to repay the cost of measures taken by the authorities; whether it is one or the other, is immaterial. I am afraid this is not as clear-cut. The Directive could be well understood in the sense that operators may be instructed to carry out the necessary preventive, limitation or remedial measures, for example if in a given case best positioned to prevent or limit

4.3.2 Optional Defenses

If national law provides for one or both of the optional defenses, the CA should determine whether the operator has proven the presence of the exculpating circumstances.

The optional defences allow the operator not to "bear the cost"[7] of "remedial actions"[8] where the operator demonstrates that he was "not at fault or negligent" and the "environmental damage" was caused by either:

> the permit compliance defence -- an emission or event expressly authorized by and in accordance with the conditions of a permit or authorization issued under any of the legislation listed in Annex III of the Directive; or
>
> the state-of-the-art or state-of-the-science defence -- an "emission or activity or any manner of using a product" that was "not considered likely to cause environmental damage according to the state of scientific and technical knowledge at the time when the emission was released or the activity took place."

BEST LEGAL PRACTICE: Determine whether any exception to the ELD's scope applies or the operator can invoke a defense before initiating further proceedings under the ELD.

5 PROCEDURES UNDER MEMBER STATE LAW IMPLEMENTING THE ELD

In this part, we briefly review the various procedures under the ELD. The CAs of the member states will be in charge of conducting these procedures under the ELD-transposing legislation. We discuss each procedure and, based on the principles of good administration discussed in part 3, above, and Annex 1 attached hereto, *best administrative practices* relevant to that procedure. The last section of this part identifies the elements that are common to many procedures.

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further damage. This would be in line with Articles 5 and 6 (for instance Art 5.3(b), (c), 4.1st sentence, Art. 6.2(b), (c), (d), 3. 1st sentence. We know already at least from one practical example which is the Spanish transposition of the ELD with respect to the two optional defences under Art 8.4: Spain allows operators to invoke both defences (permit, state of the art) in order that they get their costs reimbursed but nevertheless maintains the obligation for operators to carry out first preventive and remedial actions. In my view this would not be incompliant with the Directive.

[7] This language is not entirely clear. If one the these two defenses applies, the CA could decide not to apply the ELD or to apply it in a way that the operator bears no cost.

[8] Based on the wording of the Directive, the optional defences apply to remedial measures only, whereas the mandatory defences apply to both preventive and remedial measures.

5.1 "Preventive action" Procedure

The operator, not the CA, has an obligation to take preventive measures if there is an imminent threat of environmental damage (Article 5(1), ELD). The operator, however, must inform the CA when appropriate and in any case whenever an imminent threat of environmental damage is not dispelled despite the preventive measures taken by the operator (Article 5(2), ELD). Thus, where the preventive measures taken by the operator are effective, the CA will not be informed.

Pursuant to Article 5(3), the CA may, at any time,

- require the operator to provide information on any imminent threat of environmental damage or in suspected cases of such an imminent threat;
- require the operator to take the necessary preventive measures;
- give instructions to be followed by the operator on the necessary preventive measures to be taken; or
- itself take the necessary preventive measures.

The CA should itself take the necessary preventive measures only if the operator has failed to do so. Under Article 5(4), the CA must first require that the preventive measures be taken by the operator. If the operator fails to comply with its obligations, cannot be identified or is not required to bear the costs under the ELD, the CA may (but is not required to) take these measures itself.

Thus, the CA could take the following steps in the preventive action procedure:

- The CA reviews the information received from the operator in respect of the imminent threat and the preventive measures taken, and, if necessary, requests additional information.
- The CA reviews (i) the facts reported by the operator to confirm that there is an imminent threat, and (ii) the preventive measures taken by the operator to determine whether such measures are adequate.
- If the CA concludes that the operator has not taken all of the necessary measures, the CA instructs the operator (i) to take additional preventive measures within a reasonable period of time (which may be short in light of the imminent threat), and (ii) to report back to the CA.
- If the operator has not taken the measures required by the CA by the deadline, the CA may inform the operator that it will proceed to take itself the necessary measures.
- The CA may proceed to take the necessary measures and inform the operator.

BEST LEGAL PRACTICE: Consistent with the operator's primary responsibility and its ownership/possessory interest, follow a step-by-step approach in ensuring that the

necessary preventive measures are taken, with the authority taking preventive measures only as a last resort.

5.2 "Remedial action" Procedure

The remedial action procedure is regulated in Articles 6 and 7 of the ELD. As in the preventive action procedure, the operator has primary responsibility for taking measures. Pursuant to Article 6, if environmental damage has occurred, the operator must (i) without delay, inform the CA of all relevant aspects of the situation and (ii) take 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 to prevent further environmental damage and adverse effects on human health or further impairment of services and the necessary remedial measures.

Pursuant to Article 6(2), the CA may, at any time:

- require the operator to provide supplementary information on any damage that has occurred;
- take, require the operator to take or give instructions to the operator concerning, 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 to prevent further environmental damage and adverse effect on human health, or further impairment of services;
- require the operator to take the necessary remedial measures;
- give instructions to the operator to be followed on the necessary remedial measures to be taken; or
- itself take the necessary remedial measures.

Under Article 6(3), the CA must require that the remedial measures be taken by the operator. If the operator fails to comply with its obligations, cannot be identified or is not required to bear the costs under the ELD, the CA may (but is not required to) take these measures itself, as a means of last resort.

Article 7 of the ELD regulates the procedure and substantive criteria for determining which remedial measures are to be taken. Again, the operator drives this process and must identify, in accordance with Annex II, potential remedial measures and submit them to the CA for its approval, unless the CA has already taken remedial measures (which, as noted, is only a means of last resort). Upon receipt of the operator's report, the CA is to decide which remedial measures are to be implemented in accordance with Annex II (which sets forth rules regarding primary, complementary and compensatory restoration), and with the cooperation of the relevant operator, as required. The CA must invite persons affected or likely to be affected by environmental damage, having a sufficient interest or alleging impairment of a right, including the relevant NGOs and in any case the persons on whose land remedial measures would be carried out to submit their observations and must take them into account. Pursuant to Annex II, except in the case of land damage, the CA may decide that no further remedial measures should be

taken if (a) the remedial measures already taken secure that there is no longer any significant risk of adversely affecting human health, water or protected species and natural habitats, and (b) the cost of the remedial measures that should be taken to reach baseline condition or similar level would be disproportionate to the environmental benefits to be obtained.

Thus, the CA could take the following steps in the remedial action procedure:

- The CA reviews the information received from the operator in respect of the environmental damage and the mitigating measures taken, and, if necessary, requires additional information.

- The CA reviews (i) the facts reported by the operator to confirm that there is environmental damage, and (ii) the mitigating measures taken by the operator to determine whether such measures are adequate.

- If the CA concludes, based on a sound investigation of the facts, that the operator has not taken all of the necessary mitigating measures, the CA instructs the operator (i) to take additional mitigating measures within a reasonable period of time, and (ii) to report back to the CA.

- If the operator has not taken the mitigating measures required by the CA by the deadline, the CA informs the operator that it will proceed to take itself the necessary measures, and informs the operator of their execution.

- The CA proceeds to take the necessary mitigating measures and informs the operator.

- The CA reviews the remedial measures proposed by the operator against the ELD's criteria (Annex II) and invites the land owner and other persons affected or likely to be affected by environmental damage or interested parties, including certain NGOs (i.e. those who meet any requirements under national law)to comment.

- Having heard the land owner and other interested parties, based on the ELD's Annex II criteria, the CA may approve, reject, or conditionally approve, the remediation measures proposed by the operator (including primary, compensatory, and complimentary restoration measures, as applicable).

- The operator proceeds to execute the approved remediation plan within the timeframe approved by the CA, and reports back to the CA on progress and completion.

- During the remediation process, at regular intervals, and in any event at the operator's reasonable request, the CA reviews whether a decision that no further remediation has to be undertaken is justified, and, if so, notifies the operator accordingly.

- If the operator has notified the CA that remediation has been completed, the CA reviews the situation, request additional information as necessary, and (i) confirms that remediation has been completed or (ii) requires further action, and, once such action has been taken, confirms that remediation has been completed.

- If the operator fails to execute the approved remediation measures, the CA may proceed to inform the operator that it will execute the remediation measures itself.

- The CA may proceed to execute the remediation measures and inform the operator and land owner accordingly.

BEST LEGAL PRACTICE: Consistent with the operator's primary responsibility and its ownership/possessory interest, follow a step-by-step approach in ensuring that the necessary remedial measures are taken, with the authority taking measures itself only as a last resort.

5.3 Cost recovery actions by the authorities and by operators

The ELD is based on the polluter pays principle. Thus, unless an exception applies or the operator has a defense, the operator of a covered activity that has caused environmental damage is to bear the costs of the preventive and remedial actions taken pursuant to the ELD. This principle applies also in case the CA takes the necessary preventive and remedial measures. In those cases, the CA is to initiate a cost recovery action against the responsible operator, if the damage is environmental damage as defined by the Directive, the operator's listed activity caused the damage, and he has no defense.

The ELD requires that the CA recover, inter alia, via security over property or other appropriate guarantees from the operator who has caused the damage or the imminent threat of damage, the costs it has incurred in relation to the preventive or remedial actions taken under the ELD. The CA, however, may decide not to recover the full costs where the expenditure required to do so would be greater than the recoverable sum or where the operator cannot be identified.

Likewise, the operator has a right to recover the cost it has incurred in connection with measures under the ELD if it can invoke one of two mandatory defenses (third party action despite appropriate safety measures, and compliance with compulsory government order) or, depending on national law, one of two optional defenses (permit compliance and state of the art). (The operator may also refuse to take measures and not incur cost if it can invoke any of the defenses, but if it decides to take measures, it has a right to recover the cost. As discussed above, I would not necessarily share this view) The ELD provides that in such cases, Member States must take the appropriate measures to enable the operator to recover the costs incurred, but does not provide further detail.

The following best administrative practices could be considered by the stakeholders in respect of such cost recovery actions:

- Before taking any measures, the operator informs the CA that it has a defense and is not required to bear cost under the ELD, stating all relevant facts, and the CA and operator discuss how best to handle the situation.

- If the operator has a right not to be exposed to cost, the CA will not require that the operator take any measures, not sure, see above (I think MS have the choice. If they go for remediation obligation for the operator in case he has a defence, this would be acceptable as would be the other choice, i.e. not to impose on the operator to take action in case he has not to bear the costs. But I am open to further discuss …) unless the operator offers to do so, in which case cost recovery is to be ensured.

- The CA may take measures itself only as a last resort, after the operator has been given the opportunity to do so and has been put on notice by the CA. It is – unfortunately – only an option not an absolute obligation for MS authorities to take the required measures as last resort – several MS commit the authorities to do so, for example Hungary as far as I know, but not all.

- If the CA proceeds to take measures, it invites the operator to comment on the proposed measures and endeavors to minimize cost and implement the cheapest compliant option. It is true but one should avoid giving a biased overall picture. Therefore, I would suggest to mention somewhere that cost-effectiveness is indeed one criterion, but one which figures among a list of several criteria to be considered in the individual case according to Annex II.1.3.1 ELD

- Before initiating a cost recovery action, the CA has determined that doing so is cost-efficient.

- In cost recovery actions, the CA takes a security interest in the operator's property, if there is a serious risk that the operator will not reimburse the CA's reasonable cost. I think the idea is to recover the costs from the operator where it was established in line with the Directive (and the referred principles) that he has to pay for the environmental damage. Now, I understand that the Directive mentions as examples for cost recovery "security over property or other appropriate guarantees" but I may be wrong.

- Cost recovery is limited to reasonable and necessary cost (see the discussion of the proportionality principle in Annex 1 attached hereto) that has been properly documented.

- In a cost recovery procedure, the operator has a right to raise any issues relating to the ELD and its proper application to the case at issue.

- An operator who, despite having a defense available to it, has taken measures, has a right to recover the cost incurred through procedures that should mirror the cost recovery procedures available to CAs.

BEST ADMINISTRATIVE PRACTICE: If the CA intends to proceed with measures, the operator is invited to comment on the measures that the CA proposes to execute. The CA always pursues the least cost option that achieves effective remediation. As commented above, I think some qualification would seem reasonable in order to avoid wrong expectations: least cost option must be always considered but also other aspects be factored in within an overall assessment. In the end the absolute cheapest option might not be the one in line with the Directive's requirements if for example the effect on public health and safety or prevention of collateral damage is disproportional bad. The overall assessment has to take account of all criteria and come to the best solution, legally governed by the proportionality principle. The CA takes a security interest in the operator's property, if there is a serious risk that the operator will otherwise not reimburse the CA's reasonable cost. The operator has access to cost recovery under the same conditions as those applying to the CA.

5.4 Procedure for deciding the order of restoration where there are two or more cases of environmental damage

The ELD provides, in Article 7(3), that, where several instances of environmental damage have occurred in such a manner that the competent authority cannot ensure that the necessary remedial measures are taken at the same time, the competent authority is entitled to decide which instance of environmental damage must be remedied first. In making that decision, the competent authority must have regard, inter alia, to (i) the nature, extent and gravity of the various instances of environmental damage concerned, (ii) the possibility of natural recovery, and (iii) risks to human health.

The following best administrative practices are relevant to this procedure:

- Where several instances of environmental damage have occurred, the CA first confirms that (i) each of these instances fall within the ELD's scope, and, if so, that no exception or defense applies, and (ii) it cannot be ensured that the necessary remedial measures are taken at the same time.

- The operators involved provide the CA with all relevant information in their possession required for deciding the remediation priority of the various instances of environmental damage. If the information provided is insufficient, the CA calls on the operator concerned to provide additional information in its possession.

- The CA assesses, in respect of each instance of environmental damage, the nature, extent and gravity of each instance of environmental damage, the possibility of natural recovery, and risks to human health, and on that basis, ranks the various instances of damage in terms of remediation priority.

- The CA confirms that simultaneous remediation is not a viable option, and, if so, determines in which order the various instances of damage should be remediated.

- Where an instance of environmental damage cannot be remedied promptly because it is not given priority, the CA determines whether it is appropriate not to require compensatory remediation for interim losses that have accrued

during the delay. This sounds reasonable but I cannot find the legal basis in the ELD to confirm it

BEST ADMINISTRATIVE PRACTICE: In cases of multiple instances of environmental damage, the operators involved provide relevant information to the CA, and the CA determines whether all such instances of damage are covered by the ELD, ranks the various cases in terms of remediation priority, and considers with respect to environmental damage that does not have remediation priority, whether it is appropriate not to require compensatory remediation for interim losses. See aforementioned remark

5.5 Requests from third parties

Under the ELD, natural or legal persons (i) affected or likely to be affected by environmental damage or (ii) having a sufficient interest in environmental decision making relating to the damage or, alternatively, alleging the impairment of a right (where administrative procedural law of a Member State requires this as a precondition), are entitled to submit to the competent authority any observations relating to instances of environmental damage or an imminent threat of such damage of which they are aware and they may request the competent authority to take action under the ELD. What constitutes a "sufficient interest" and "impairment of a right" is determined by the Member States, but the interest/rights of any non-governmental organization promoting environmental protection and meeting any requirements under national law must be deemed sufficient for this purpose. Such a request for action should be accompanied by the relevant information and data supporting the observations submitted in relation to the environmental damage in question.[9]

Where the request for action and the accompanying observations show in a plausible manner that environmental damage exists, the CA is to consider any such observations and requests for action. In such circumstances, the CA is to give the relevant operator an opportunity to make his views known with respect to the request for action and the accompanying observations. The CA is required, as soon as possible and in any case in accordance with the relevant provisions of national law, to inform the persons that submitted observations to the authority, of its decision to accede to or refuse the request for action and provide the reasons for it. Member States may decide not to apply this procedure in cases of imminent threat of damage.

The following best administrative practices are relevant to this procedure:

- An interested third party submitting a request for action to the CA has responsibility for ensuring that the facts provided in support of such a request are accurate.

[9] Recital 25, ELD, explains the rationale for these provisions: "Persons adversely affected or likely to be adversely affected by environmental damage should be entitled to ask the competent authority to take action. Environmental protection is, however, a diffuse interest on behalf of which individuals will not always act or will not be in a position to act. Non-governmental organisations promoting environmental protection should therefore also be given the opportunity to properly contribute to the effective implementation of this Directive."

- When a third party makes a submission, the CA determines whether (i) this third party has standing to make the submission, (ii) the submission is accompanied by relevant information and data supporting the request, and (iii) the data show persuasively that environmental damage has been caused by an operator.

  If so, the CA can proceed to review the submission.

  If not, the CA informs the third party that the submission is not admissible.

- The operator is notified of the request and are given an opportunity to access the filing and submit comments to the CA. If they respond, they have responsibility for ensuring that they facts they state are accurate.

- Thereafter, the CA considers all information submitted to it, makes a decision on whether to initiate proceedings under the ELD, and notifies its decision to the third party involved, the operator, and any other interested parties. Under Article 12.4, only the persons referred to in 12.1 have to be informed of this decision. This makes in my view sense, as they were the ones who submitted the observations and triggered the procedure in which also the operator provided his views. In a possible next step, in case the CA takes a decision which imposes preventive or remedial measures, the operator gets a reasoned decision by the CA, against which he will have legal remedy rights according to Article 11.4 ELD.

BEST ADMINISTRATIVE PRACTICE: Review carefully review any request from third parties to ensure that they meet the applicable legal requirements, give the operator an opportunity to review and comment on the request, and consider all information, data, and comments submitted before making a decision.

5.6 Review or appeal proceedings regarding decisions, acts or failure to act by the authorities

Under the ELD, the persons that are entitled to request action by the CA (see under 5.5, above) also have a right of access to a court or other independent and impartial public body competent to review the procedural and substantive legality of the decisions, acts, or failure to act of the CA under the ELD. This procedure, however, is without prejudice to any provisions of national law which regulate access to justice and those which require that administrative review procedures be exhausted prior to recourse to judicial proceedings.
Note that this provision does not cover any rights of review or appeal that the operator may have against decisions by the CA made pursuant to ELD-transposing legislation. Under the national administrative laws of the Member States, an operator has a right of administrative review or appeal against a decision addressed to it. In implementing the ELD, Member States are well advised to review whether any such general rights are adequate with respect to the ELD CA's decisions addressed to operators, or are to be supplemented with more specific rights of review and appeal.

BEST ADMINISTRATIVE PRACTICE: Review carefully whether any administrative review or appeal by a third party is admissible. If the requested review or appeal is found to be admissible and sufficiently substantiated, the operator concerned is notified and invited to participate.

5.7 Simultaneous civil actions prevention of double recovery

The ELD provides explicitly that it does not prevent Member States from adopting appropriate measures, such as the prohibition of double recovery of costs, in relation to situations where double recovery could occur as a result of concurrent action by a competent authority under the ELD and by a person whose property is affected by environmental damage. Note that the ELD is merely permissive, it allows, but does not require, that the member states adopt procedures to prevent double recovery. How such situations are best addressed is primarily a function of national law. In addition to preventing double recovery, Member States also have an interest in preventing conflicting opinions from governmental bodies (in this case, the ELD CA and a civil court) on the same issue.

BEST ADMINISTRATIVE PRACTICE: If a concurrent civil action is filed with respect to an instance of environmental damage, review to what extent there is potential of double recovery or overlapping actions. Consider staying the ELD procedures if there is significant potential for double recovery or conflicting opinions.

5.8 Common Elements of Main ELD Procedures

Although the various ELD procedures are all *sui generis* and differ in important respects, they also have some elements common. These common elements include:

- Data collection and analysis;

- Opinions from external experts and advisory bodies;
- Access to information held by the CA;
- Participation by stakeholders; and
- Preparing and making decisions.

Rather than discussing them multiple times, each of these common elements are discussed in the next part of this White Paper.

6 BEST ADMINISTRATIVE PRACTICES IN RESPECT OF COMMON ELEMENTS IN ELD PROCEDURES

As noted in section 5.8, above, many procedures under the ELD have common elements. In this part, we review best administrative practices in respect of such common elements.

6.1 Data Collection and Analysis

Data collection is critical to building a sound basis for careful and reasoned decision making. The process of data collection involves (i) establishing data requirements, (ii) data gathering, and (iii) data analysis and selection, which involves an assessment of the data collected to determine whether this data meets basic scientific and methodological standards (data quality). This process requires substantive expertise and methodological expertise.

As discussed below in Part B of the Draft Document, (see discussions on baseline and assessment of environmental damage), the case file should be as complete as possible but include only sound, relevant, and reliable data. Conversely, the case file should not include invalid, irrelevant or unreliable data, which would impede sound, rational decision making. Thus, once all data that could possibly qualify has been selected, the key task is to sort sound, relevant and reliable data from other data.

The objective of data collection and selection is to ensure that the right decisions can be made and that these decisions can be supported by the facts. If the case file includes only sound, reliable data that meet high scientific and methodological standards, the CA will have laid a foundation for sound decision making. Proper data collection thus promotes the administrative principle of reasoned decisions by providing the CA with the factual basis for developing sound reasons. It is also required by the principle that administrative decisions be made after a careful and sound investigation of the facts (see Annex 1 attached hereto).

BEST ADMINISTRATIVE PRACTICE: Build a case file that includes only sound, relevant and reliable data meeting high data quality standards, so that sound decisions supported by the facts can be made.

6.2 Opinions from advisory bodies and external advice

Cases of environmental damage often raise complex technical, economic and legal issues. This means that the CA needs access to a range of experts when handling a case under the ELD. Not all CA's will likely have that expertise available on their staff ("in-house"). This, in turn, implies that a CA may want to call on outside experts to provide advice on issues relevant to making the critical decisions in a case of environmental damage. In some situations, the CA may want to obtain an opinion of an existing advisory body, in other cases, it may want to hire an outside consultant or expert to advise on specific issues.

Whenever the CA involves other bodies or persons in a procedure under the ELD, a series of issues arise.

- First, the specific issue on which expert advice is required is identified and described in objective terms (it may not be appropriate to ask an expert a question that essentially involves a public policy choice).

- Second, the terms of reference for the expert are developed. The terms of reference define the issues to be examined, the scope of assignment, and the procedure for the expert's examination of issues and developing the report, and set a timeline for the process, including the draft report and final report. In some cases, it is appropriate to make draft terms of reference available for comment from stakeholders. In any event, the final terms of reference are made available to stakeholders. In terms of the procedure to be followed by the expert, consideration should be given to promoting contacts and communications between the expert and the stakeholders involved in the case. It may be appropriate to require that the expert communicate regularly with stakeholders, obtain their input on specific issues, or hold a public consultation. This is a matter of practical implementation. The suggestions appear sound and reasonable and could come under the broader cover of cooperation with the relevant operator (Article 6.2 ELD). It is however the question, what is to be understood under the term of "stakeholders"? If this defines another group of persons different from the operator, a legal requirement in the strict sense is not there. Please note, that in practice any workable arrangements might be pursued with the agreement of the involved actors and "stakeholders", I only have to indicate that a legal obligation under the ELD to involve stakeholders who are different from the operator does not exist in my view.

- Third, the expert should be selected. Again, input from stakeholders in the process of expert selection may be helpful. Experts should be well qualified for the task (possess the relevant academic and scientific qualifications), and be able and willing to comply with the terms of reference. It may be useful to involve the operator and other stakeholders in this process.

- Fourth, the expert is managed by the CA in accordance with the terms of reference. The CA will typically review at least one draft of the expert's report to confirm that it meets the terms of reference.

- Fourth, the final expert report is submitted to the CA and made available for inspection and comments by the operator(s).

BEST ADMINISTRATIVE PRACTICE: When obtaining external advice, define the issues on which external advice is needed, the scope of assignment and procedure for the expert's examination of issues and developing report ("terms of reference"), consider whether terms of reference should be made available for public comment, carefully select a well qualified expert, manage the expert, and make expert report available for comments from the operator(s).

6.3 Access to information held by the CA

Cases of environmental damage handled by the CA will vary from well understood cases of land damage to highly complicated cases involving damage to protected habitats and species, water damage and land damage. The amount of data and information required by the CA will therefore vary dramatically.

Rules for access to the information held by the CA are needed. Please note that the Environmental Information Directive 2003/4/EC applies to environmental information held by public authorities. In particular, Art 2.1I would in principle cover the relevant information in the present context ("measures (including administrative measures), such as policies, legislation, plans, programmes, environmental agreements, and activities affecting or likely to affect the elements and factors referred to in (a) and (b) as well as measures or activities designed to protect those elements;"). In general, the operator and other interested parties should have access to the complete file relating to the case in which they are involved, subject to legitimate confidentiality concerns and other recognized exceptions. As discussed in part 3, above, and Annex 1 attached hereto, access to information has become an important pillar of modern administrative law. In the environmental area, this concept has been laid down also in the Aarhus Convention.[10] Access to information not only promotes openness and democracy in government decision making, but also helps to improve data quality. There is a public interest in ensuring that information and data on file with the CA be as sound, robust, complete, and reliable as possible. Broad scrutiny of data by stakeholders can help to achieve this objective. This is also true in ELD cases.

In exercising their right of access, operators and stakeholders should be reasonable. They should not expect immediate access to new information just submitted in a case, they should exercise their access right in a way that does not unduly interfere with a proper running of the procedure, etc. It is generally recognized that exceptions to access are appropriate. In ELD cases, business confidentiality, for instance, is a legitimate reason for denying access to certain information. Other reasons for refusing access are set forth in Article 4 of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. In addition, the above quoted Environmental Information Directive has already transposed the access to

[10] CONVENTION ON ACCESS TO INFORMATION, PUBLIC PARTICIPATION IN DECISION-MAKING AND ACCESS TO JUSTICE IN ENVIRONMENTAL MATTERS, done at Aarhus, Denmark, on 25 June 1998.

information-pillar of the Aarhus Convention into secondary Community law, compare for example Art. 4 ("Exceptions"), and especially the exception in Art. 4.2.(d) ("the confidentiality of commercial or industrial information where such confidentiality is provided for by national or Community law to protect a legitimate economic interest, including the public interest in maintaining statistical confidentiality and tax secrecy").

BEST ADMINISTRATIVE PRACTICE: Define rules for stakeholder access to information held by the CA, and define exceptions to access.

6.4 Participation by stakeholders May be a definition of "stakeholders" somewhere included would be helpful and clarify. Specific participation rules for certain "stakeholders" (but I would rather say "parties") are included in Art. 11.4 and 12.3 EL***D.***

Like access to information, public participation in government decision making has become a cornerstone of modern environmental law. It has the same rationale as access to information: it promotes openness and democracy in government decision making and helps to enhance the quality of government decisions.

There are several ways in which stakeholders may be able to participate in administrative procedures under the ELD. Modes of public participation include, but are not limited to, internet consultation, "notice and comment" procedures, public hearings, and meetings by invitation. Given that environmental damages vary widely in terms of complexity, the modes of participation in ELD procedures are best selected on a case-by-case basis.

Participation by stakeholders in ELD procedures requires rules and procedures. Several issues should be addressed:

- First, general rules and procedures for stakeholder participation in ELD procedures are defined. Modes of participation are also defined.

- Second, the persons that have a right to participate are identified. This group includes, but is not limited to, the operator, land owner and the persons that have a right to request action by the CA.

Participation is not just a right, it is also a responsibility. Operators and other stakeholders participating in ELD procedures should ensure that the information they submit is correct, and not misleading, they should cooperate with the CA and assist with ensuring that the file of the case meets the standards.

BEST ADMINISTRATIVE PRACTICE: Define rules and modes for public participation, define groups of persons that have a right to participate, define responsibilities of participants, and define where in procedure public participation takes place.

6.5 Preparing and Making Decisions

In part 3, above, and Annex 1 attached hereto, we discussed administrative law principles that directly relate to decision making by the CA. The key principle is that decisions should be adequately reasoned and, as a related matter, be based on a careful

and sound investigation of facts and consideration of interests concerned. Under administrative law, decisions are to be supported by sound and persuasive reasons based on the facts and the applicable law (here for instance: Art. 11.4). The reasons supporting the decision should justify why key arguments made by stakeholders are rejected. Further, authorities are to notify their decisions to (i) the persons to whom the decision is addressed, and (ii) other interested parties, and to describe any administrative review or appeal procedures and how and by what date any such action should be lodged.

BEST ADMINISTRATIVE PRACTICE: Ensure that investigation of facts is careful and sound. Consider interests involved with the decision. State sound and persuasive reasons for decisions that are supported by the facts and the applicable law, and justify why key arguments made by stakeholders are rejected. Notify the decision to the persons concerned, and indicate any available review or appeal procedures.

7 CONCLUSION

Part A of this document discusses issues that are critical to proper implementation and application of the ELD. It discusses a wide range of issues in procedures under the ELD and, based on established principles of administrative law, identifies possible best administrative practices in such procedures. Although based on practices in other areas, the recommendations in this paper are tentative and should be adapted based on further dialogue, analysis, and experience. It should also be recognized that ELD procedures operate under national law in member states with their own administrative traditions. Nevertheless, even if they cannot everywhere be adopted wholesale, best administrative practices can provide guidance where national authorities and other stakeholders are able to shape ELD procedures.

The Group expects to engage in continued dialogue with stakeholders on administrative principles and practices in ELD procedures. The document is intended to raise broad awareness of the issues and of possible approaches among key stakeholders, including specifically the competent authorities and industry. It also serves to define and disseminate the expectations and responsibilities of industry stakeholders in ELD procedures. Indeed, operators have important responsibilities under the ELD, since they bear primary responsibility for preventing and remediating environmental damage. In short, the Group offers these recommended best practices in the hope that it will spur sound and creative dialogue to ensure that application of ELD will be balanced, reasonable and predictable.

PART B: RECOMMENDED BEST PRACTICES CONCERNING TECHNICAL AND ECONOMIC ISSUES

1 INTRODUCTION

This section is intended to further discussion of the key technical and economic issues that are likely to arise in the implementation of the European Union (EU) Environmental Liability Directive (ELD). The goal of Part B of this Draft Document is to describe the key technical and economic principles that will be crucial to the successful implementation of cost-effective remediation of environmental damage pursuant to the ELD and Member State implementation laws. The discussion of some of these issues is necessarily brief so that the sections below have a reasonably broad coverage of all the major issues. We have used examples throughout the text to illustrate the practical issues that are likely to arise in connection with damage assessment, quantification, causation, and preparing remediation plans. As part of this discussion, we offer the best practice recommendations for addressing the important technical and economic issues.

2 KEY CONCEPTS AND TOPICS FOR ELD IMPLEMENTATION

This section describes key concepts and important topics that are likely to arise in implementing the ELD. The approach taken is to discuss each topic briefly and then present preliminary best practice recommendations for that topic.

2.1 Ecological Services

As defined in the ELD, ecological or natural resource services mean the functions performed by a natural resource for the benefit of another natural resource or the public. The Millennium Ecosystem Assessment (2005) suggests a useful categorization, which groups these functions as provisioning, supporting, regulating, cultural, and preserving services. From an ecological perspective, provisioning includes services such as breeding and foraging habitat, shelter, and food (prey) to higher trophic levels. Supporting services include nutrient cycling, assimilative capacity, and primary production. Regulating services include physical functions such as climate or flood regulation and water purification. Cultural services are services provided to humans, including recreational, educational, and spiritual experiences. Over-arching everything are the preserving services, reflected as biodiversity (species and genetic diversity). Any occupational activity that has the potential to significantly reduce ecological service flows may constitute environmental damage, if the definitional criteria are met and the case falls within the scope of the ELD.

The scope of ecological services as defined above is more comprehensive than those services that can be readily quantified in an environmental damage assessment, or that may be applicable under the ELD. For example, abundance or productivity of individual species is more amenable to quantification methods than measurements of overall changes in biodiversity. Similarly, structural changes in habitats (changes in extent of areas or species composition) are simpler to detect and quantify than reductions in supporting or regulating services. Consequently, while a comprehensive identification of

potentially affected services should be performed during initial evaluations, it is important to emphasize those services that can be more readily and reliably measured to ensure that the magnitude of damage is correctly characterized.

BEST PRACTICE PRINCIPLE: Select only the most relevant and affected resources or services and restrain from trying to evaluate all possible services.

2.2 Damage

As defined by the ELD, damage must be quantifiable and there must be a causal link between the polluter and the damage. Environmental damage specifically applies to species and habitats (protected by EC law), water, and land if contamination creates a significant risk to human health. The ELD also establishes a threshold that significant environmental damage (SED) must produce adverse effects. For species and habitats, SED relates to the requirement of reaching or maintaining a favourable conservation status. For waters, SED relates to attaining suitable ecological, chemical or quantitative status and/or ecological potential. Annex I to the ELD further specifies that the adverse effects must exceed the bounds of natural variation as described by a baseline condition.

In considering what constitutes SED, an important point is that damage to species and habitats, as specified by the ELD may be different than the concept of risk as determined through the environmental risk assessment (ERA) process, depending on the receptors. Traditionally, ERA has focused on risks to individual organisms, populations and communities, but additional methods may be required to quantify reductions in service flows. The data used in an ERA, although they may be applicable to a damage assessment, are interpreted and applied differently under an ERA. In an ERA, the data are interpreted to assess whether an organisms' exposure to substances in the environment poses a quantifiable risk of adverse effects, including some estimation of the uncertainty, and this is done to help determine appropriate decision-making for site clean-up and risk reduction. In contrast, if the Millennium Ecosystem Assessment definitions of ecological services are applied, as cited above, a SED determination must show that exposure to the substances has resulted in a reduction in the ecological services provided by the resources. Additional tools than are currently used in a typical ERA may be needed to provide the required information about service losses to make this determination.

While an accurate determination of SED is essential to ensure that primary remediation is sufficient and appropriate, it is most crucial for the purposes of compensatory remediation. Primary and complementary remediations are required to return damaged resources or services to baseline conditions. However, the interim losses that accrue during the period from onset of the damages until return to baseline must be mitigated through the use of compensatory remedial actions. The extent of required compensatory remediation will be largely determined by the magnitude of the loss and the temporal duration of that loss until recovery to baseline is achieved. Both these factors are very sensitive to identification of the most relevant resources and service flows and selection of appropriate metrics for quantifying damage to these services.

BEST PRACTICE PRINCIPLE: Do not equate risk to species and habitats with damage; rather, focus on accurate measurement of quantifiable changes in relevant service flows as an indicator of the potential for SED.

2.3 Quantification of Damage/Service Loss

This section discusses the two most critical concepts that relate to the quantification of environmental damage and potential losses in ecological services: baseline and causation. Key points are described for each concept and then best practice principles are provided.

2.3.1 Baseline

Baseline condition is defined as the condition that would have existed at the time of the damage of the natural resources and services had the environmental damage not occurred. An accurate assessment of baseline in a damage assessment is critical, as baseline will be used to determine the remediation goals for resource services (primary and complementary remediation) and to quantify "lost use" damages or compensatory remediation. Baseline includes the normal range of physical, chemical, and biological conditions, including normal fluctuations in these conditions. However, baseline also includes all the other anthropogenic influences on these conditions that are independent from the incident in question, including other pollution sources, habitat loss or modification, and recreational or commercial harvesting of resources. In most liability cases, baseline will not equate to pristine conditions.

An important concept not fully captured in the ELD definition is the understanding that baseline conditions are not necessarily static, and the condition at the time of the damage is only a "snapshot" of a dynamic baseline condition. For example, population size for a species may be increasing or declining over time. This trend needs to be captured by the baseline level set for determining the completeness of primary restoration. For example, if it theoretically takes 10 years for recovery to baseline following an incident, the relevant baseline would be the population size at that point 10 years hence, not necessarily the population size at the time of the incident. Failing to adjust for these dynamic changes will result in an inappropriate level of compensation, either too little or too much. Similar considerations of temporal dynamics need to be considered for resources such as habitats and water.

Additionally, the temporal dynamics may be different for different resources; some may have been improving over time, some deteriorating, and some being static. The metric used to measure baseline must be the same as the one used to measure the magnitude of service losses. For example, if the alleged service loss is a reduction of bird or fish populations, appropriate metrics could include nesting success, abundance, or changes in population age structure. Historical information simply reporting presence or absence of species would be insufficient for setting a baseline to determine the extent of service reductions, and could necessitate selecting an alternative metric.

Methods that can be used to determine baseline include establishing pre-release conditions, upstream or reference site sampling in locations that are similar to the

affected area but for the release, modeling (hindcasting), or reconstructing baseline from historical site information. Also, national and regional data may be available for comparing biological or geological data, e.g. water quality monitoring programmes or biological records centres/databases. Determination of baseline is not an easy process, as in many cases the information needed to recreate the historical baseline may be absent or incomplete. However, this is a critical step in the damage assessment process and one that should not be overlooked or diminished.

BEST PRACTICE PRINCIPLE: Use reliable data to characterize baseline as completely as for all resources being assessed.

2.3.2 Causation

The concept of causation is not specifically addressed in the ELD, yet this will be an important consideration when determining whether observed effects are due to the release or spill under investigation, particularly if those effects are deemed to have significant adverse effects on natural resources or service flows. In the event of an incident considered to be appropriate for the ELD, it is important that the Competent Authority consider causation thoroughly.

Determination of causation can be difficult because of the range of confounding factors that can interact with the putative causal agent or that can produce similar effects. Furthermore, many biological responses to stress that are used as measures of effect, and hence causation, are non-specific to the stressor under consideration. Examples of these would include generic screening values that do not take into account site-specific conditions, laboratory toxicity tests that fail to recreate in situ conditions, and generic enzymatic or physiological biomarkers of exposure. The use of all assessment methods should be relevant to the types of services and contamination. Furthermore, causation must address not just the alleged effect, but also the service loss that is the focus of the liability assessment. For example, if the service loss from a release of metals into a river is assumed to be decreased provision of food to fish as a result of toxicity to benthic organisms, causation must not only demonstrate that the metals in question were toxic to the benthos, but also that the toxicity led to reduced supply of food ford fish.

Because of the complexity of factors that need to be considered in a causation analysis, these assessments will typically rely on a weight-of-evidence approach using independent lines of evidence. Criteria identified by Hill (1965), Fox (1991) and Suter (1993) could be useful for this purpose. These criteria can include:

- Specificity
- Strength of association
- Consistency of association
- Predictive performance
- Demonstrated stressor-response relationship

- Theoretical or biological plausibility

Other approaches, such as the use of chemical fingerprinting, could also be used to evaluate causation in the case of incidents such as oil spills.

BEST PRACTICE PRINCIPLE: Causation analysis is a key step in the damage determination process that must be thoroughly performed. Only when the causal link is proven, and the criteria for damage have been met (e.g. quantifiable), is this SED.

3 APPROACHES TO ASSESSING POTENTIAL DAMAGES UNDER THE ELD

This section discusses the approaches for assessing potential ecological damages under the ELD. Key topics include the determination of significant environmental damage and the role that baseline plays in that process and the translation of significant damage into ecological quantification practices. It also includes a discussion of key implementation issues and best practice challenges that arise. Finally, it provides preliminary recommendations of best practice principles.

3.1 Significant Environmental Damage (SED)

3.1.1 Definitions of SED

Although widely used in the ELD, the concept of significant damage is not explicitly and quantitatively defined. SED is that which is judged to adversely affect the favourable conservation status of species and habitats or the quantitative status or potential ecological status of waters. Annex I provides some guidance on how to assess SED for species and habitats by reference to the baseline condition at the time of the damage. This assessment relies on the availability of measurable data on species abundance or density, conservation status, population dynamics or the capacity of the species or habitat to recover within a short time to the pre-damage baseline. Annex I states that variations that are considered to be in the range of natural fluctuations do not have to be classified as SED.

Damage to water is defined by way of reference to the Water Framework Directive 2000/60/EC. The WFD provides narrative descriptions of what constitutes high, good, or moderate ecological status for various types of surface waters, but frequently uses non-specific terms such as "slight" and "moderate" changes that provide little guidance on how to quantitatively assess significance. Chemical quality standards are more clearly defined, but many of these guidelines are established on ecological risk assessment principles, and as discussed earlier in this White Paper, ecological screening values may only be one tool in the toolbox for determining if reductions in resources or service flows have occurred as a result of a damage event.

BEST PRACTICE PRINCIPLE: Identify metrics of actual adverse effects that are quantitative indicators of SED

3.1.2 Role of Baseline

Baseline is a key factor in the determination of significant adverse effects. As discussed in Section 2, a critical component for any damage assessment will be to correctly characterize baseline at the time of an event, and also the dynamic trend of that baseline over time, so as to accurately measure the extent of damage and required compensatory restoration. The criteria for evaluating significance that are expressed in Annex I of the ELD indicate that baseline is critical in this respect. There is inherent natural variability in species distribution and abundance due to factors including seasonality, population cycles, and ecological effects such as competition or predation. This inherent variability will need to be characterized to determine whether effects attributed to a contamination event push this variability outside the naturally occurring range in order to make a determination of SED.

BEST PRACTICE PRINCIPLE: Develop methods for establishing baseline in the absence of complete and reliable information.

3.1.3 Translating SED into operational/practical damage assessment

To ensure that efforts are not spent conducting damage assessments for non-significant events, it is vital that Competent Authorities identify the most relevant resources or service flows and make an early determination whether the putative effects on these resources are significant or not. It may not be possible to make a definitive evaluation of SED until site-specific investigations have been conducted. However, a screening process should be conducted to make an early determination of the likelihood of significant damage and the potential for a causal linkage. This screen should also identify the major uncertainties that limit the ability to determine SED and assess whether these uncertainties could be reduced with further data collection and evaluation. An important concept to consider is that risk does not necessarily equate to adverse effects to resources or services, but is akin to SED. In particular, exceedances of screening values or toxicity benchmarks may indicate a potential for SED but other ecological techniques (e.g. ecological surveys) are likely to be needed to support a decision on SED. Relevant data for early determination of potential adverse effects would be information on population or community characteristics that relate to pertinent service flows. For example, indications of reduced benthic community abundance or diversity in areas where chemical contamination of sediment has occurred may indicate that services provided by the benthos have been affected.

For wildlife species, one option for evaluating significance would be to judge the proportion of the total population affected (e.g., killed in an acute exposure event). There is some precedence for this approach. Article 9(1)(c) of the Wild Birds Directive authorizes hunting of certain birds, such as waterfowl, in "small numbers." The European Commission's Second report on the application of Directive 79/409/EEC on

the conservation of wild birds (COM(93) 572, 24 November 1993) states that the ornithological committee interprets "small numbers" to mean any sample of less than 1 percent of the total annual mortality rate of the population in question for non-hunted species and on the order of 1 percent for those species that may be hunted. This interpretation recognizes that a limited take on a population can be absorbed due to the population dynamics of the species. This is consistent with the Annex I criteria stating that significant adverse changes to the baseline condition only occur if the species' capacity for propagation (according to the dynamics specific for that species or population) is affected to an extent that cannot be accommodated by the inherent self-regulatory capacities of the species. While effects of a chemical release are not completely analogous to hunting pressure on a population, this precedent could be useful for determining if the observed mortality is considered to have significant adverse effects on sustainability of the population. The same approach could be applied to other groups of animals, although potential differences in life history strategies should be considered, as some species may be able to tolerate a larger take, especially species with high reproductive capacity, whereas others, such as endangered species, may need a lower threshold. Population modeling techniques may assist in determining whether reductions in survival or fecundity are likely to result in reductions in population abundance or favourable conservation status.

Where data are not available then the professional judgment of experts is likely to be needed to determine whether the observed effects meet the criteria for significance outlined above.

BEST PRACTICE PRINCIPLE: Standardize approaches for rapidly assessing the potential for SED following an environmental incident.

3.1.4 Challenges for Member States

With regard to issues discussed in this section, the two biggest challenges for Member States will be determining what constitutes a significant damage and what is the appropriate baseline for quantification purposes. Because the ELD is vague on the definition of significance, the onus will be on Competent Authorities to make that determination, which is likely to result in considerable variation among damage cases and uncertainty on the part of Operators for determining whether their actions have resulted in a significant effect. Because of the wide array of resources or service flows that can be assessed and the considerable natural variability inherent in these resources (e.g., abundance, distribution, survival or reproductive rates, etc.), no single criterion will suffice in all cases. However, Member States should consider developing some general guidelines on what constitutes SED that can be applied during an initial screen when a rapid determination of potential significance is required. In particular, in reference to species and habitat characteristics described in Annex 1, some quantitative guidance on key issues, such as what is meant by "short recovery times" and "capacity for propagation" or "capacity for natural regeneration", would help to simplify decision-making at the initial stages when a rapid determination of potential significance is required.

The Draft Document has stressed the importance of baseline in the damage determination process and the need for adequate pre-event data to ensure an accurate characterization. However, in most cases, baseline data are going to be incomplete or not relevant to the resources and service flows affected by the release. Competent Authorities or Operators will have to determine whether it is technically feasible and cost-effective to perform the investigations needed to better determine baseline, or whether assumptions can be factored into equivalency analyses that allow for some discretion in the extent of compensatory remediation to account for uncertainties in baseline and determining whether primary remediation has returned service flows to that baseline.

3.2 Key ELD Implementation Issues/Questions

3.2.1 Damage to biodiversity

According to the Convention on Biological Diversity, adopted in 1992, biological diversity, or biodiversity, means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. Damage to biodiversity is not defined nor is it explicitly considered in the ELD, although it is implied, particularly in reference to damages that may affect the favourable conservation status of protected habitats. Biodiversity is, however, an inherent characteristic of terrestrial and aquatic biological communities and often measured in terms of species richness and abundance. Environmental liability is only one tool contributing to prevention of the loss of biodiversity and, as per the ELD, is limited to protected species and habitats[11].

For aquatic biological communities, assessment of environmental damage to protected fish typically focuses on the reduction of the numbers of fish caused by a release. While some mortality may occur, the key consideration for maintenance of "favourable conservation status" is that the mortality does not lead to population-level effects. Measurement of population-level effects can be difficult, but there are models available to predict such effects. In practice, however, the diversity and abundance of the fish community at the impacted site is compared to an unaffected upstream reach or other reference area that exhibits the same characteristics (conservation status), but for the release. For protected benthic macroinvertebrate communities, assessment of environmental damage focuses on species diversity and abundance and is measured as the area over which there is a significant reduction, relative to baseline, of species diversity and/or abundance.

For protected terrestrial biological communities, biodiversity includes all plant and animal species associated with the protected community. Protected habitat is designated in accordance with the Wild Birds Directive[12] and the Habitats Directive[13] and is often

[11] If Member States, during transposition of the ELD into national law, expand the definition of damage to habitats to include all natural areas, not only protected habitats, then biodiversity damage may apply more broadly.
[12] 79/49/EEC
[13] 92/43/EEC

referred to as Natura 2000 sites. Although specific plant and animal species associated with a protected site are listed in the Directives, the attributes on which these species are dependent, listed or not, should be preserved. Assessment of adverse effects to protected terrestrial (and aquatic) Natura 2000 sites is determined by a significant reduction compared to baseline in the structure and/or function of the protected site.

BEST PRACTICE PRINCIPLE: Identify methods that measure changes to protected species and habitats and are also practical for use in damage assessments.

3.2.2 Damage to waters

Water damage is defined in the ELD as any damage that significantly adversely affects the ecological, chemical and/or quantitative status and/or ecological potential, as defined in the Water Framework Directive (WFD)[14]. The WFD provides definitions of "good status" and "good potential" for ecological characteristics of surface waters, "good chemical status" for surface waters and groundwater, and "good quantitative status" for groundwater and describes objectives for achieving good status for all water. The WFD also describes procedures for Member States to develop environmental quality standards for water, sediment, or biota.

For purposes of the ELD, reduction of service below baseline levels is still the key measure of environmental damage regardless of the conservation status of a resource as defined by the WFD.

BEST PRACTICE PRINCIPLE: Identify metrics that reliably measure ecological or chemical status and that are good indicators of actual damage as defined in the ELD.

3.2.3 Damage to land

Land damage is defined in the ELD as 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 above land, of substances, preparations, organisms, or microorganisms. Human health risk is determined through application of accepted human health risk assessment methods. All potential exposure media related to the contaminated land should be considered including air, surface water, groundwater, soil, and vegetation via direct ingestion, inhalation, and dermal exposure pathways. Specific toxicological characteristics of the released substances, including their availability, should also be considered.

Calculated risks should be compared to baseline conditions. The ELD does not specify a level of increased human health risk that constitutes land damage. There are no quantitative cleanup levels in use in Member States.

[14] 2000/60/EC

BEST PRACTICE PRINCIPLE: Develop reliable methods for translating risk results into damage estimates.

3.3 Tools to Guide the ELD Decision-making Process

A generic decision-making framework can be developed that outlines the principal steps that will need to be followed in performing a damage assessment. The steps in that process would include:

- Identify resources/services of concern;
- Conduct screening assessment to determine whether ELD applies to the incident in question;
- Evaluate significance

If significance is found continue to the following steps:

- Determine baseline
- Determine quantification methods;
- Evaluate causation;
- Identify damage thresholds;
- Identify damage metrics;
- Conduct equivalency analyses or another valuation technique; and
- Identify compensatory remediation requirements.

Depending on the nature of the incident under evaluation and the severity of effects to resources or service flows, it may not be necessary to perform all steps listed above. In some cases, it may be possible to circumvent some of the detailed quantification procedures if options exist for establishing primary remediation objectives that would negate the need for complementary or compensatory remediation. For example, in cases where the severity and duration of chemical contamination are short, and rapid response can return affected resources or services to baseline, additional compensatory remediation may not be needed.

The early stage of the framework described here is analogous with frameworks describing an ecological risk assessment process (those that extend beyond a quotient approach). However additional tools are required, e.g. evaluating costs associated with damage, which can be incorporated into the damage assessment framework to help streamline the process. As one example, chemical concentrations in environmental media could be compared with screening values commonly used in risk assessment. If concentrations are below screening values, then it can be concluded with high confidence that there is no quantifiable damage. However, exceedance of screening values does not imply that significant damage has occurred, but may indicate further assessment is needed. Similarly, the potential for damage to wildlife could be evaluated through

modeling techniques that are common in risk assessment, such as food web exposure modeling. The outcome of such modeling procedures may indicate if exposure is high enough to suggest the potential risk of adverse effects. If so, this again may indicate the need to conduct more detailed assessments to determine if the risk corresponds with a significant damage.

BEST PRACTICE PRINCIPLE: Develop a standard assessment framework that Competent Authorities and Operators can follow when performing damage quantifications.

4 DATA SOURCES/AVAILABILITY

Data availability is a key determinant for any technical or economic evaluation. In many instances, it may be necessary to collect site-specific data to conduct the relevant evaluations. In these cases, it is important to have a coherent comprehensive data collection that addresses primary, complementary and compensatory remediation. Such an approach will avoid the need for multiple mobilizations and sampling. However, before any data is performed, it is critical to review and assess the data that may already exist for a site. In doing so, it may be possible to narrow the scope of new data that might be needed to complete the assessment. As part of this exercise, it may be useful to determine the degree of precision that could be attained if only the existing data are used. If the resulting outcome is sufficiently precise, no additional data may be needed. Thus, the goal of the data evaluation is to collect only the information that is essential to answering the key needs of primary remediation, damage quantification and the scaling of compensatory remediation. With regard to biodiversity there may be national or regional data describing species and Natura 2000 habitats. In the case of land, geological maps and geochemical information often exist.

Useful sources of data on technical and economic issues include the OECD and the EC, especially the Institute for Environment and Sustainability (IES). The IES maintains a series of data portals that cover a wide range of environmental topics. It also coordinates and distills data from various member states on environmental topics including the Rural, Water and Ecosystem Resources Unit. This unit maintains data that may be useful in ELD implementation. This list of the potentially relevant materials includes:

- Action 21107 - Integration of Environment Concerns into Agriculture
- Action 22001 - Aquatic and Terrestrial Ecosystems Assessment and Monitoring
- Action 22002 - European Ecological Water Quality and Intercalibration
- Action 22005 - Environmental Assessment of European Wastes and the Sustainable Management .

These sources should be reviewed for applicability and reliability on a case-by-case basis.

Finally, the availability of data changes rapidly as new materials are linked from universities and governmental agencies through the Internet. For example, the EC has recently proposed the development of a comprehensive, pan-European environmental information clearinghouse. This clearinghouse would tie together the dozens of existing environmental reporting systems in one centralized online access point. The Shared Environment Information System (SEIS) would link data-gathering and information flows from all Member States using the internet and satellite technology. Such an ambitious system may provide useful information for ELD implementation, provided there is a rigorous evaluation of data quality.

BEST PRACTICE PRINCIPLES for data development:

1. Clearly specify the research objectives.

2. Use an interdisciplinary team to cover the relevant ecological services.

3. Review and evaluate existing data to determine that they meet data quality standards, including web-based data portals, to determine whether new data are needed.

4. Collect only the relevant data needed to answer key questions.

5 SCALING METHODS

This section describes two methods for scaling ecological services: habitat equivalency analysis (HEA) and survey methods. Each section includes a brief example and a list of best practice recommendations.

5.1 Habitat Equivalency Analysis

HEA is a method that has become favored among natural resource trustees in the United States and has been used in a number of natural resource damage assessment ("NRDA") cases recently.[15] Developed by two natural resource economists, Dr. Richard Bishop and Mr. Robert Unsworth (1994), HEA seeks to estimate the ecological value of lost resource services and scale compensatory restoration without assigning a monetary value to the services. HEA is intended to be used when the service losses are primarily ecological, not direct human use services, such as recreation.[16] In cases where affected habitat and other ecological services are easily identifiable and restoration through equivalent services is possible, HEA can be an effective tool for estimating losses and gains in

[15] The HEA method is discussed in Dunford, Ginn, and Desvousges (2004). It also was the subject of a recent panel discussion at the Department of Interior workshop on natural resource damage assessment practices that included presentations by both Unsworth (2007) and Desvousges (2007).

[16] The value of human use services, such as fishing and wildlife viewing, directly translate into observable choices that people make. Therefore, it is more meaningful to observe the choices that people make than to estimate the value of those choices using HEA.

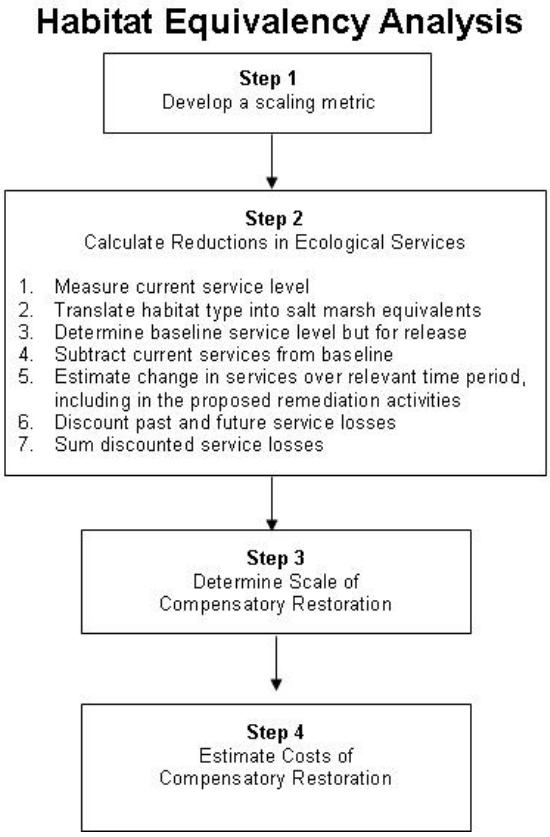
ecological services. HEA also may be useful in evaluating the potential gains and costs of alternative restoration options.

The objective of HEA is to provide compensatory services that are equal to the value of the services that are lost as a result of a specific release or incident, such as the discharges of oil and hazardous substance. The services are usually expressed in terms of acre-years of equivalent habitat, such as salt marsh habitat. However, HEA requires several restrictive assumptions be met to provide a reliable estimate of the appropriate scale of compensatory restoration:

- A proper service metric must be determined to scale service losses and gains;
- Baseline conditions must be clear; and
- The type, quality, and quantity of services provided must be comparable to those affected.

These key assumptions are the basis of the HEA analysis. Using salt marsh as an example, the four step process described below shows how a proper HEA analysis addresses these critical assumptions and incorporates the relevant site specific data and analysis.

Figure 1: Four Key Steps in Conducting a HEA



5.1.1 Develop a Scaling Metric

The first step is to choose a specific metric to scale habitat losses and gains. The role of the metric is to provide a convenient way to summarize the relevant services provided by the relevant habitat. The metric should be capable of capturing the most critical service flows provided by the habitat. This particular example uses acres of salt marsh habitat, but HEA can be used for any type of habitat such as woodlands, uplands, or fresh water marsh. In this example, there are four parts to the Site, each of which consists of salt marsh habitat. Table 1 lists the four areas and the amount of salt marsh in each area.

Table 1: Affected Hectares

Site	Salt Marsh Hectares
1	25
2	20
3	10
4	10

BEST PRACTICE PRINCIPLE: Select a metric that is the most ecologically relevant to the particular service flow being evaluated. If more than one service flow is impacted, then multiple metrics may be appropriate.

5.1.2 Calculate Potential Reductions in Ecological Services

The first and most crucial part in estimating service losses is to identify the baseline level of services. This is the level of habitat services that would occur at the site but for the release of oil or a hazardous substance. The analysis of the baseline conditions considers the quality and functioning of the habitats at each location. Critically important is to separate out the effects of the construction and operation of the facility, or any external factors from the release of oil and hazardous substances.

Service losses are often calculated as a range of potential reductions from baseline. In the example, we assign a date for the start of recovery of the resource and the date when services will return to baseline.[17] For example, the 25 hectares of salt marsh in Area 1 may be in an area that has been disturbed by road construction or by other activities in the nearby area. Because this area is disturbed, the baseline level of services is 50% of what an undisturbed marsh area would be. An additional service reduction resulting from contamination is estimated to be 10% to 20% resulting in a net service loss from baseline of 5% to 10%. The determination of service loss percentages involves using a combination of information: the potential toxicity of the substances that was released, the bioavailability of that substance, and how the substance might interact with the functioning of the salt marsh habitat. Because of uncertainties in the process, it is best to express the potential service losses as a range.

Table 2 shows similar information for the other three salt marsh areas. Additionally, Table 2 shows that service losses begin in 2007 and the resource will recover naturally in 30 years (2037). It may also be useful to estimate the recovery period as a range as part of a sensitivity analysis.

Table 2: HEA Inputs

Area	Hectares	Year losses begin	Year losses reach maturity	% service losses - low	% Service losses - high	Year services begin to return	Year services reach baseline
1	25	2007	2007	5%	10%	2008	2037
2	20	2007	2007	20%	40%	2008	2037
3	10	2007	2007	30%	50%	2008	2037
4	10	2007	2007	5%	10%	2008	2037

[17] If the area is subject to primary remediation, that factor can be incorporated into the service loss calculation. For example, services may drop in the first year of remediation, but then recover quickly to their baseline level.

BEST PRACTICE PRINCIPLES for quantifying service losses:

1. Clearly specify the baseline conditions.

2. Use an interdisciplinary team to estimate service losses to cover the relevant ecological services.

3. Estimate service losses as a range not a single point.

4. Incorporate information on primary and/or complementary remediation where appropriate.

5. Conduct a sensitivity analysis for key assumptions or where data uncertainties exist.

5.1.3 Determine Scale of Compensatory Remediation

To quantify service losses, the HEA uses the concept of discounted service hectare years (DSHaYs). This concept measures the loss in services over the affected area from the time of the discharge to when the services return to baseline. Table 3 presents the lost services for each of these areas. The DSHaYs are the result of the present value calculations using a three percent discount rate. These calculations enable the service losses for each year to be expressed in a common ecological currency. These DSHaYs can be added together to provide the total amount of service loss that needs to be compensated for as a result of the release.

Table 3: Summary of Range of Potential Service Losses

		DSHaYS	
Area	**Salt Marsh Hectares**	**Low**	**High**
1	25	30	60
2	20	100	200
3	10	50	100
4	10	10	20
Total		190	380

The second half of the HEA calculation determines how many hectares are required to offset the 190 to 380 DSHaYs. It is important that these services be of the same type and quality of those that were lost, or salt marsh habitat in this example. Thus, to offset these losses, a comparative amount of salt marsh habitat services needs to be created. In this example, each hectare of created salt marsh habitat is assumed to provide habitat services for every year that the habitat exists into perpetuity. It also assumes that it will take 10 years for the created salt marsh habitat to reach maturity and that the maximum productivity will reach 95 percent. Based on these assumptions, and using the discounting process within the HEA, one acre of salt marsh habitat created in 2012 (allowing for construction time) will produce 25 DSHaYs of benefits into perpetuity. Thus, dividing the DSHaYs lost by the gains from the restoration actions indicates that 7.6 to 15.2 hectares of salt marsh habitat would need to be provided to offset the potential loss in salt marsh services in this example.

Finally, as part of a sensitivity analysis, it may be useful to calculate a time period of less than perpetuity, but that would only be relevant if such an outcome were likely in a particular case. It also is possible to estimate non-linear growth patterns in the services in the first few years, but such alternatives usually have little impact on the final results.

BEST PRACTICE PRINCIPLES for quantifying compensatory remediation gains:

1. Clearly specify the relevant time periods for the project including the start date, growth path, and period.

2. Use an interdisciplinary team to estimate service gains to cover the relevant ecological services.

3. Estimate service gains as a range not a single point.

4. Incorporate information on primary and/or complementary remediation where appropriate.

5. Conduct a sensitivity analysis for key assumptions or where data uncertainties exist.

5.1.4 Estimate Costs of Compensatory Remediation

The last step of the HEA analysis is to estimate the cost of restoring the acres of salt marsh habitat that were determined in the HEA. These costs represent the range of damages that result from the HEA. In this example, costs are shown for both onsite and offsite restoration projects. There are various factors to consider in developing the candidate restoration projects and their costs. These factors can range from technical feasibility to consistency with overall restoration planning in an area. Additionally, there may be other factors to consider that are unique to a specific site in evaluating the potential restoration options.

The calculation of the potential damages is relatively straightforward once the restoration projects have been developed and costed. For example, as shown in Table 4 below, the potential damages would range from 400,000€ to 450,000€ for onsite restoration projects while the offsite restoration projects would cost from 880,000€ to 1,125,000€. In this particular example, there are substantial cost advantages to completing the restoration onsite. However, the situation could easily be reversed depending on the specific factors at each site. Therefore, it is informative to investigate compensatory remediation options both at the impacted site and at an offsite location to determine which is more cost effective, which is discussed further below. This example also assumes that the compensatory projects would produce the same level of salt marsh services at each of the locations. This assumption is important to ensure that equivalent outcomes are being compared in the analysis.

Table 4: Range of Potential Restoration Costs (euros per Hectare)

	Onsite		**Offsite**	
		Salt-water Marsh		**Salt-water Marsh**
15 Hectare project		30,000		75,000
8 Hectare project		50,000		110,000

BEST PRACTICE PRINCIPLES FOR measuring restoration costs:

1. Develop potential restoration projects onsite and offsite.

2. Use site specific data on costs for both onsite and offsite projects.

3. Develop a range of costs assuming both best case and worst case that might arise at a specific site.

4. Develop restoration projects that are likely to produce equivalent services.

5. Evaluate cost effectiveness of various alternatives.

6. Conduct a sensitivity analysis for key assumptions or where data uncertainties exist.

5.2 Survey methods

Survey methods are also considered an alternative for scaling ecological service losses. However, as discussed in this section, such methods have severe limitations and should be used only under exceptional circumstances.

One of the most common survey methods employed by economists is conjoint analysis. In this approach, people answer questions that require them to trade off different combinations of attributes of a product or service. For example, people might chose between two alternatives that described different characteristics of wetlands: how far the site was from their home, the size of the wetland area, the type wetlands, the kind of access to the wetland, and the types of services provided. A statistical analysis is used to estimate the relative importance of each attribute on people's stated choices. For example, it is possible to estimate the distance that people's stated choices predict they would drive visit a wetland area or to have better public access such as a boardwalk or viewing platforms. Thus, conjoint provides information that potentially can be combined with or compared to answers based on actual recreation site choices.

Conjoint analysis has some advantages compared to other valuation studies, such as the focus on having people trade off attributes of goods or services (Mathews, et al. 1995). Such trade-offs are a closer approximation to the kinds of decisions that people make in real market situations. Conjoint also may be less subject to some of the payment vehicle or starting point biases that have been found in other studies. If properly designed and implemented, conjoint may also include various tests to evaluate the reliability of people's answers (Johnson and Mathews 2001).

However, despite the initial optimism over the potential for conjoint analysis to represent an improvement over CV in environmental applications, recent experience indicates that significant reliability problems remain. For example, a study of the Fox River in Wisconsin, USA used conjoint questions that required people to trade off reduced fish consumption advisories with other attributes, including the distance traveled to the recreation site (Desvousges, MacNair and Smith 2000). The study showed that people say in response, to hypothetical questions, that they are willing to travel a lot further (more than 100 kilometers) than they actually will travel (less than 20 kilometers).

Clearly, the Fox River study demonstrates that hypothetical bias is alive and flourishing in conjoint data, with people failing to realistically trade off distance traveled relative to lower consumption advisories. The results from the Fox River study are especially troubling because they represent a situation in which one would expect conjoint to perform well because of the considerable experience anglers have in evaluating the choice (fishing trips). Moreover, the study employed rigorous statistical designs and contain large sample sizes, which limit the potential for the results to have been caused by some design flaw. Nevertheless, the results are discouraging for the continued use of conjoint analysis in damage assessments.

Finally, using conjoint analysis to have people value losses and or gains in ecological services is even more problematic. In this situation, people would have far less experience in making the kinds of trade-offs between attributes of ecological services that conjoint analysis requires. Additionally, people are unlikely to have more than a superficial knowledge about the kinds of attributes that are important in the provision of ecological services. It also is very difficult for ecologists or other scientists to develop the service information that would be required for the conjoint analysis to reflect the actual circumstances at the site. Moreover, it is not possible to calibrate ecological services against an actual choice as is the case in the fishing models. Given these limitations, and

the continued presence of substantial hypothetical bias even in the human use applications of conjoint analysis, it is clear that conjoint analysis has significant limitations.

BEST PRACTICE PRINCIPLES for Using Surveys as a Scaling Method:

1. Use a survey only when no other alternative approach is feasible.

2. Develop alternatives that are equal in terms of restoration costs so that survey is providing information on relative importance of alternatives vs. absolute value.

3. Develop alternatives in close consultation with ecologists to ensure that equivalent ecological options are being presented or that if they differ, those differences are ones that the public can understand and express a preference about.

4. Pretest survey questionnaires thoroughly.

5. Use cost-effective data collection methods such as internet based surveys when possible.

6. Include reliability tests within the survey design.

6 COST-EFFECTIVENESS ANALYSIS

Cost-effectiveness analysis is a widely applied economic concept. Cost effectiveness is especially useful for evaluating situations where there are several alternative ways to remediate an environmental habitat. Cost-effectiveness is based on the principle of providing the maximum level of services at the least cost. In performing a cost-effectiveness analysis, it is important that all the projects provide the same environmental benefits. If that requirement is not met, then a more general cost-benefit analysis is required in which the benefits and costs of each alternative are quantified and then, the one with the largest net benefits is the most preferred option. For simplification purposes, the following discussion assumes that all the projects provide the same benefits, so cost effectiveness is the appropriate approach.

Additionally, it is important to note that cost effectiveness is not the same as least cost. For example, if three potential restoration projects are developed that provide the same level of services and are equally feasible, then the project with the least cost would be the most cost-effective because it would provide the same amount of services for the least cost. However, if the least expensive project did not provide the same services, it would not meet the cost-effectiveness criterion.

Measuring the cost as the cost per unit of benefit provides the clearest comparison of cost effectiveness. For example, Table 5 provides three examples of potential restoration projects. Although Project B is the least cost overall, it has the highest cost per DSHaY, or the highest cost per unit of benefit that it provides. Projects A and C, although they do not have the same overall cost, have the same cost per unit of benefit; therefore, they are equivalent in terms of cost effectiveness. Consequently, Projects like A and C should be selected over Projects like B. Continuing with this same example, if a total of 1,000 DSHaYs of benefits were required to fully offset the losses from a hazardous release, more than one of these projects would need to be completed in order to fully compensate for the losses. If Projects A and C were selected and additional projects of a similar nature with the same cost/DSHaY, the total cost of restoration, or damages, the responsible party would be required to pay, would be 1 million€. If Project B and additional projects with the same higher cost/DSHAY were selected, the total damages would be 2 million Euros.

Table 5: Cost Effectiveness Example

Project	Hectares	DSHaYs	Cost (Euros)	Cost/DSHaY (Euros)
A	10	250	250,000	1,000
B	20	100	200,000	2,000
C	10	300	300,000	1,000

The intent of the ELD is to make the public as well off as they would have been if the hazardous release had not occurred. Conducting cost-effective restoration results in the greatest benefits to society as a whole. Conducting restoration that is not cost- effective is inefficient because money is spent unnecessarily to provide society with the same level of benefits. That additional money could have been spent elsewhere to improve services, reduce pollution, or increase jobs. Therefore, it is useful to conduct a cost-effectiveness analysis to guide the selection of restoration projects to offset ecological service losses.

BEST PRACTICE PRINCIPLES for Cost Effectiveness Analyses

1. Ensure that all projects being compared provide similar benefits.

2. Consider the full range of restoration alternatives including actions such as conservation easements.

3. Array the potential projects in terms of costs.

4. Include all relevant costs for each alternative including any operating and maintenance or monitoring costs that may be relevant.

5. Choose the alternative that is the most cost-effective.

7 CONCLUSION

Part B of the Draft Document is intended to continue discussions on key technical and economic issues related to the ELD. However, it does not attempt to provide the "last word" on any topic. It includes both technical and economic principles and best practices. Ideally, it will help to integrate the discussion and analysis of key ELD concepts: primary remediation, complementary remediation and compensatory remediation. We view the technical and economic best practices provided above to serve as a complement to the well-received case study document prepared by the Group last year ("Industry Case Studies: an Examination of Potential Effects of the EU Environmental Liability Directive (ELD) in Practice and Options Available to Member States", February 2007) and attempts to build on that foundation.

The Group expects to engage in continued dialogue with stakeholders on technical and economic principles and practices in ELD procedures. This Draft Document has identified practices that we believe will, if adopted, simplify and streamline damage quantification and remediation under the ELD, and assist competent authorities and industry to address these issues in a technically appropriate, predictable manner when incidents subject to the ELD occur in the future. Because operators have primary responsibility for preventing and remediating environmental damage under the ELD, providing them a clear set of best practices will minimize the likelihood of such damage occurring, and reduce uncertainty as to what constitutes significant damage to the environment while optimizing environmental recovery when such damage does occur.

ANNEX 1: PRINCIPLES OF GOOD ADMINISTRATION

This Annex briefly discusses the EU right *to good administration*, and the main *principles of good administration* common to the member states, as referenced in Part A Section 3 above.

3.1 Right to good administration

The EU has recognized a right to good administration. In a series of cases, the European Court of Justice has interpreted the Treaty and the "rule of law" concept (and the similar German law concept of "Rechtstaat") to mean that EU institutions have legally enforceable obligations vis-à-vis individuals and companies that are affected by the decisions they make in executing EU law. In other words, under EU law, natural persons and companies have rights that must be respected by EU institutions in administrative proceedings and decision making.

Reflecting the current law, a "right of good administration" has been laid down in the European Charter of Fundamental Rights. This charter was adopted in December 2007 and has the same legal standing as the EU Treaties.[18] The Charter imposes legally binding obligations on the EU and the member states, subject to limited exceptions for the UK and Poland relative to the justiciability of the Charter. The Charter will enter into force upon ratification of the Treaty of Lisbon (of which it is a part) by the member states.

The right to good administration is set forth in Article 41 of the Charter, which has four sections. Reflecting various EU Treaty provisions, this article embodies 6 more specific rights:

- The right to have one's affairs handled *impartially, fairly and within a reasonable time;* these requirements are in most in not all MS law orders implemented in their laws on administrative procedures and statutes of state officials;, etc.
- The right *to be heard* before any individual measure is imposed in the administrative procedural codes of the MS;
- The right to have *access to his or her file in access to information/documents legislation, but probably not all MS have such broad access laws, they all have however transposed the abovementioned Environmental Information Directive*;
- The obligation of the administration *to give reasons for its decisions in the administrative procedure laws (or even in several Constitutions, I would presume;*
- The right to have the EU *make good any damag*e caused by its institutions or by its servants; there are usually specific rules on liability for state authorities ("Amtshaftung" in German – "Office liability"?) to be distinguished from State liability

[18] The Treaty article referring to the Charter reads as follows: "The Union recognizes the rights, freedoms and principles set out in the Charter of Fundamental Rights of the European Union of 7 December 2000, as adapted at Strasbourg, on 12 December 2007, which shall have the same legal value as the Treaties."

- The right to write to the institutions of the Union *in one of the languages* of the Treaty. This is unique to the EU

Although the wording of Article 41 refers only to the EU institutions, it is generally accepted that the right to good administration applies also to member states when they apply EU law. Thus, there is a strong argument to be made that, once the Charter enters into force, the Member State authorities must recognize these rights in applying their ELD-transposing legislation.

3.2 Legality of administrative acts and decisions

This principle is also known as the *principle of lawfulness*. It reflects the basic concepts of separation of powers and the rule of law. The legislature makes the law and the executive administers the law. To prevent abuse of power, the responsibilities, authorities and powers of the executive are laid down specifically in statutes. In administering the law, the executive is required to respect the procedural and substantive provisions of the statute on which its authority is based.

In short, this principle emphasizes that the administration, in exercising its authority, is bound by the law. Where the executive violates the law, its decisions will be null and void.

3.3 Respect the rights of the parties involved

Closely related to the legality principle, this principle requires that the administration's acts and decisions respect the rights of the parties involved. The rights of the parties have their mirror image in obligations of the administration. Thus, where a party has a right (e.g. a property right) the freedom of the administration to act or decide is limited (e.g. expropriation is subject to a comprehensive set of rules designed to protect the owner's interests).

In modern administrative law, this principle has also been interpreted to require that the executive notify decisions to the parties involved and provide an indication of remedies available to addressee and other persons concerned. It also covers the right to have one's affairs handled within a reasonable time. In modern administrative law, the citizen is even entitled to a good level of government service, with a corresponding obligation for the government to be service-minded.

3.4 The principle of careful and sound investigation of facts and consideration of interests concerned

This principle is related to the prohibition on arbitrary decision making and to the principle that decisions should be adequately reasoned (see below). Before making a decision, the administration must carefully investigate the relevant facts and consider the interests affected by its decisions. In some member states, the requirement to investigate the facts and consider the interests involved is viewed as a specific application of the right to have one's affairs handled impartially and fairly.

3.5 The principle that decisions should be adequately reasoned see Art. 11.4 and 12.4 ELD

The European Court of Justice has held in several cases that the EU institutions are required to state reasons for their decisions. Under the national laws of many if not all EU member states, there is a similar requirement imposed on executive agencies to provide adequate reasons for decisions.

This principle is related to many other principles. A statement of reasons prevents against arbitrary decision making and helps to assess the legality of a decision. It also helps to promote equality before the law inasmuch as the administration must explain why the case at hand differs or is similar to other similar cases. Further, a statement of reasons allows the persons affected to assess on which facts the administration's decision was based and how their interests were taken into account.

3.6 Equality before the law

Equality before the law is the idea that the administration must treat persons in equal cases equally. This concept is based on the prohibition of arbitrariness and reflects the right to non-discrimination that every person has. No one may be treated differently from other persons similarly situated, unless there are good reasons for doing so. In other words, the administration will have to be able to justify why it treats a person differently and support its decision with adequate reasons.

3.7 Legal certainty

The principle of legal certainty requires that the administration's acts and decisions be predictable so that the regulated community can tell with reasonable precision when the administration will intervene and what it will require. Put differently, this principle instructs the administration to be consistent in making decisions.

Like the principle that decisions should be adequately reasoned, the legal certainty principle relates to several other principles. Predictable decisions are typically decisions based on precedent, i.e. on the principle that persons similarly situated should be treated equally (see above). Further, decisions tend to be more predictable if they are based on the applicable law, correctly interpreted, which is the legality principle.

3.8 The principle that legitimate expectations should be met

The principle that legitimate expectations should be met implies that if the administration through its acts or statements has created legitimate expectations on the part of interested persons, it cannot then make a decision that is inconsistent with such prior statements or acts.

A similar principle is part of contract law. Not each and every expectation has to be met, but as soon as an expectation that the administration will do or not do a certain act, is legitimate based on the administration's own statements and acts, where the administration has discretion, such legitimate expectation must be honored by the administration.

3.9 The prohibition on "detournement de pouvoir" whilst all other principles are well known, if not fundamental law principles by tradition common to the European States, this one sounds to me a bit more specific if not to say "strange". I would be interested to hear where it derives from. I presume it might belong to the common law. In continental law, it would be covered anyway by other general law principles, mainly by the "rule of law" and the State based on it

The government may not abuse its power. A more specific application of this principle, the government may not engage in "detournement de pouvoir," i.e. it may not use its power for a purpose other than the purpose for which the power has been granted. Thus, for instance, an environmental agency may not deny a permit on the ground that the applicant failed to pay income tax, because the power to deny a permit has not been granted to enforce the tax laws.

3.10 The principle of independence/neutrality

This, of course, is very basic principle of justice. The administration should not take sides, and may not favor the interests of one particular person over the interests of other persons involved. Adherence to this principle will contribute to the fairness of decisions.

3.11 Transparency and Participation

Recent administrative law principles, transparency and participation are inspired by a trend towards "democracy" in government decision making. Persons that are directly affected by government decisions should be able to access the file on which the government bases its decisions. They should also have a right to participate in the decision making process. More specifically, they should have a right to be heard, before any individual measure is taken that could affect them adversely.

Further, the person affected has a right to submit comments on documents in the file, on the draft decision, and on other important documents. This implies that the executive should keep registers of administrative procedures and properly document each administrative procedure.

3.12 The proportionality principle

Article 5 of the EC Treaty sets forth the proportionality principle. This principle is not explained further, but a series of decisions of the European Court of Justice has developed the meaning of this principle. Under national law, there is a very similar principle.

In terms of substantive meaning, this principle requires that the government's acts and decisions are proportional to the interests at stake and that government intervention does not go further than necessary to achieve the objectives pursued by the law on which the intervention is based. If a government decision imposes an excessive burden on one person and generates relatively little benefit in relation to the public interest, that decision can be called disproportional.

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