



REMEDE

Resource Equivalency Methods for Assessing Environmental Damage in the EU

FP 6; Priority 8.1 – 1.5, Project No. 022787

Questionnaire: Assessment of Current Practices Regarding Environmental Liability in Member States

Name [Please insert text here.]		Address [Please insert text here. Use as much space as you need.]
Job Title [Please insert text here.]		
Institution [Please insert text here.]		
Department [Please insert text here.]		Country [Please insert text here.]
Telephone [Please insert text here.]	Fax [Please insert text here.]	Email [Please insert text here.]
Administrative Unit to which answers refer (name of the region / province / river basin / sub-basin) [Please insert text here.]		

Aim of the Questionnaire

This survey deals with environmental liability schemes in EU Member States and tries to assess the current practice of natural resource damage assessment methodologies in these states. Environmental liability is defined in this survey as a means to compensate the public for environmental damage. Environmental damage may include polluted waters, damaged habitats, decreased viability of species or forgone recreational opportunities in natural areas as a consequence thereof (e.g., closed swimming beaches or restricted fishing or hunting). It does not include damage to human health. Compensation for such environmental damage may include restoration projects that provide environmental resources in lieu of the damaged resources, or some other type of compensation payment by the responsible polluters to, for example, the public authorities.

With this survey we hope to identify what type (if any) of environmental and Natural Resource Damage Assessment schemes are already used in the Member States.

This survey is part of the EC funded research project **REMEDE (Resource Equivalency Methods for Assessing Environmental Damage in the EU¹)**. The results of the survey will be available in a report sent to those participating.

This document uses terminology from the April 2004 Environmental Liability Directive (Dir 2004/35/EC, 21.4.2004, OJ 2004 L 143/56). If you are not already familiar with these terms, you'll find for your convenience a special annex at the end of this document, explaining each relevant term (indicated by an asterisk in the text).

Main topics are:

- Current uses and approaches of resource equivalency methods;
- Methodologies used to assess damage to natural resources ;
- Impediments to the implementation of the Environmental Liability Directive (ELD) and other related directives (e.g. the Birds and Habitat Directives and Environmental Impact Assessment Directive (EIA Directive)).

If you have any questions please don't hesitate to contact:

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¹ See www.envliability.eu for more details.

Please return the filled form to the email addresses above electronically or the postal address as a hard copy.

Thank you for taking the time to complete the survey

1 Legal Status of Natural Resource Damage Assessment and Environmental Liability in your Country

1.1 Is the environmental liability directive (ELD, Nr. 2004/35/EC) already implemented in your national law?

Yes No

1.2 If NO, please describe the stage it has reached by now.

- a) Official draft by the responsible ministry
- b) Reading in the Parliament
- c) Public hearing
- d) No initiative as of now
- e) Other (specify)

[If other, please insert text here. Use as much space as you need.]

1.3 Have resource equivalency methods (e.g. Habitat Equivalency Analysis*) ever been used in your country?

Yes No Don't know

1.4 Do you have other regulations in place requiring the mitigation and compensation of impacts to natural resources (e.g. damage to habitats, species, water bodies, etc.) stemming from projects or developments? This can be done either ex-ante (e.g. EIA) or ex-post (e.g. ELD)

Yes No

If yes, please name.

Name 1: _____ Abbreviation 1: _____

Name 2: _____ Abbreviation 2: _____

(Please give the regulations (reg) an abbreviation, which can be used in the following sections of the questionnaire. In section II, please include this (or these) abbreviation(s) in the empty spaces provided in the question headers, and evaluate the regulations according to the characteristics enquired.)

1.5 Which agency is responsible for the enforcement of the regulations? What are the personnel resources dedicated for this obligation?

[Insert text here. Use as much space as you need.]

1.6 Who is responsible for the assessment of liability or damages?

- a) A designated government department
- b) An independent regulator
- c) Accredited organisations/auditors
- d) Others
- e) Please name institution, if possible: [Insert text here. Use as much space as you need.]

1.7 The mentioned law(s)/regulation(s) provide for (see Annex 1 for definitions):

	ELD	reg 1	reg 2
a) Strict liability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Fault-based liability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Nature of liability varies with activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2 Application of the ELD and/or equivalent regulations dealing with environmental compensation in your country

In this section, please insert the abbreviation(s) for alternative regulations you provided in the answer to Question 1.3 under the column headers “reg 1” and “reg 2” and fill in the tables accordingly.

2.1 What kind of environmental damages do the respective existing regulations cover?

	ELD	reg 1	reg 2
a) Damage to species and habitats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Land	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Others or specifications of the above (please list): [Insert text here. Use as much space as you need.]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.2 Which of the approaches below are used for estimating the environmental damage?

	ELD	reg 1	reg 2
a) Measurement of resources (e.g. area of habitats, number of species etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Measurement of services impacted (e.g. uses by humans e.g., flood control, water purification, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Measurement of values (placed by humans on resources)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Does the above include extra effort to measure non-use values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Others (please specify): [Insert text here. Use as much space as you need.]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.3 (a) Which of the approaches and methods mentioned below are used for determining the nature and extent of remediation measures ?

	ELD	reg 1	reg 2
a) Resource-to-resource*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Service-to-service*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Value-to-value*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Value-to-cost*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Don't know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(b) What is the name of the methodologies indicated in 2.3(a) and why have they been chosen? Please describe briefly their main advantages and disadvantages.

Name of method (and if possible internet link)		ain advantages	ain problems
[Insert text here. Use as much space as you need.]	<input type="checkbox"/> Resource-to-res. <input type="checkbox"/> Service-to-serv. <input type="checkbox"/> Value-to-value <input type="checkbox"/> Value-to-cost <input type="checkbox"/> Other:	Insert text here. Use as much space as you need.]	Insert text here. Use as much space as you need.]
[Insert text here. Use as much space as you need.]	<input type="checkbox"/> Resource-to-res. <input type="checkbox"/> Service-to-serv. <input type="checkbox"/> Value-to-value <input type="checkbox"/> Value-to-cost <input type="checkbox"/> Other:	Insert text here. Use as much space as you need.]	Insert text here. Use as much space as you need.]

2.4 What environmental metrics are commonly used to assess environmental damage?

	ELD	reg 1	reg 2
a) Measure of assets lost or affected, e.g. number of species lost, area of land affected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Economic value	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Ordinal scaling (first, second, third, etc..)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Cardinal scaling (one, two, three, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Not pre-determined	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.5 Is there a mandatory methodology that has to be applied (e.g. like the German ‘biotope value procedure’) ? Please name and quote (e.g. web link):

[Insert text here. Use as much space as you need.]

2.6 Is an entry/ lower threshold defined (e.g. liability only in cases of significant damages) below which no or only a simplified assessment procedure is applied?

Yes No

If yes, please state what the limit values are: [Insert text here. Use as much space as you need.]

2.7 Are any compensation payments made used for:

- a) On-site environmental remediation
- b) Off-site environmental remediation – always allowed
- c) Off-site environmental remediation – allowed only if on-site remediation is impossible
- d) Both
- e) Not clearly specified by the law
- f) Other (please specify):

[Insert text here. Use as much space as you need.]

2.8 How are the remediation projects selected?

	ELD	reg 1	reg 2
a) There is a standard set of criteria and procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Expert judgement is used, without fixed procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A mix of both, but with greater reliance on standard criteria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) A mix of both, but with greater reliance on expert judgement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Other methods (please specify): [Insert text here. Use as much space as you need.]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.9 If a standard set of criteria for the selection of remediation projects is used, what are the key criteria? Please rank them according to their relevance.

Relevance	high	medium	low
a) Cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Likelihood of success	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Time taken for restoration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Geographical linkage to the damaged site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Effect on public health and safety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Combination or others (please list) [Insert text here. Use as much space as you need.]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Hierarchy of criteria available [Insert text here. Use as much space as you need.]If possible please provide a copy of the standard set of criteria as annex.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.10 Who carries out the remediation?(use more than one “x” if necessary)

a) The polluter

b) A public authority

If so, please provide the authority’s name. [\[Please insert text here.\]](#)

c) A third party paid for by the polluter

2.11 Is an evaluation of the success of the remediation measure foreseen?

Yes No

2.12 If yes,

a) who monitors and verifies the remediation?

a) A designated government department

b) An independent regulator

c) Accredited organisations/auditors

d) Others

Please name institution, if possible:

[\[Please insert text here. Use as much space as you need.\]](#)

b) when (e.g. in case of natural recovery) ; if done on regular intervals, how frequently?

[\[Please insert text here. Use as much space as you need.\]](#)

2.13 Are there any mechanisms such as habitat banking* established in your country to facilitate off-site remediation?

Yes No if yes, which? _____

2.14 How is the baseline* defined for remediation?

a) Flat*

b) Dynamic*

c) Not specified so far

2.15 Is there a requirement to compensate for interim losses incurred between the time at which the environmental damage was caused and the completion of remediation measure?

Yes No

2.16 In case of monetary compensation, how is the amount of money to be paid calculated?

- a) Damages equalised to the costs of remediation actions
- b) Damage assessment incorporates the social and/or economic values lost (use and non-use values)

2.17 Which methods are used and accepted by the public authorities to measure the economic value of natural assets, if value-to-value remediation is used?

- a) Travel costs*
- b) Hedonic pricing*
- c) Replacement costs*
- d) Willingness to pay/accept*

2.18 Do you have further information about the scale, either in terms of number of incidents or the extent of damage, of environmental liability incidents in the last three years in your country?

Approximate number of cases: [\[Please insert value here.\]](#)

Main kind of environmental resource affected (species, habitats, water or land?):

[\[Insert text here. Use as much space as you need.\]](#)

Main economic sectors involved (e.g. agriculture, chemical industry etc):

[\[Insert text here. Use as much space as you need.\]](#)

3 Main challenges for the implementation of natural resource damage assessment methodologies and the Environmental Liability Directive in your country

3.1 In your opinion, what have been the key problems in implementing the law/regulations previously described?

	Very important	Important	Of minor importance
a) Size of liability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Selection of remediation options	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Enforcement of existing regulations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Difficulty of identifying responsible polluter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) High costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Others (please specify): [Insert text here. Use as much space as you need.]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.2 Have there been legal disputes relating to natural resource damage assessments / liability so far in your country? Please briefly give details and references (e.g. web-links, publications, contact persons) if so.

[Insert text here. Use as much space as you need.]

3.3 What has been the average time duration between incidence of damage and the beginning of remediation? Please give your answers as approximate percentages of total cases.

- a) % of total cases within 12 months
- b) % of total cases within 36 months
- c) % of total cases over 36 months

3.4 If there have been disputes about the assessment of environmental damage and/or remediation projects and/or determination of liability or monetary compensation, what were the main points of dispute? Please list available references for further details)

- a) Size of the liability
- b) Transfer into monetary values
- c) Adequacy of remediation
- d) Identification of polluter
- e) Others (please specify):

[Insert text here. Use as much space as you need.]

3.5 What are the key concerns you have for the implementation and/or (future) application of the ELD?

- a) Administrative burden
- b) Impacts on competitiveness
- c) Others

[Insert text here. Use as much space as you need.]

Any other comments or expectations about the implementation of the Environmental Liability Directive in your country

Any case studies from your country that might be of interest (please add name, contact person and web link if available):

Please recommend experts you know in this field whom you think we should interview as well

First name:

Last name

e-mail:

Affiliation:

First name:

Last name:

e-mail:

Affiliation:

Annex I: Short definitions of some of the central terms used in this questionnaire

- **Strict Liability:** Actors are liable for damages caused by their action even when there is no proof of negligence or deliberate omission
- **Fault-based Liability:** Actors are liable only if there is a fault or negligence
- **Baseline:** resource condition at the time of damage that would have existed had the damage not occurred. A **flat** baseline does not take into account trends, seasonality or cyclicity in the resource condition. A **dynamic** baseline does attempt to account for trends in the resource condition to the extent possible with the available information.

Kind of Remediation

- **Primary remediation actions:** Restoration on the damaged site.
- **Complementary remediation actions:** Remediation towards the original condition but not to it, if primary remediation is not possible.
- **Interim Losses:** means losses which result from the fact that the damaged natural resources and/or services are not able to perform their ecological functions or provide services to other natural resources or to the public until the primary or complementary measures have taken effect. It does not consist of financial compensation to members of the public
- **Compensatory remediation actions:** Compensation for “interim losses”.

Methods of Assessing Remediation

- **Resource-to-resource:** This refers to remediation which tries to match the actual lost resources themselves with new ones. For this method to work, one must discern which organisms are lost to a particular impact and which are gained by a particular remediation. For example, if the comparison of gains and losses is made on the basis of the amount of habitat lost (e.g. hectares), then a Habitat Equivalency Analysis (HEA) can be undertaken. Here, the main challenge is to differentiate the environmental impact losses and remediation gains of interest from population fluctuations caused by other factors, such as immigration, emigration, competition, and other ecological constraints.
- **Service-to-service:** Actions that provide natural resources or services of the same type, quantity and quality as those damaged. The focus here is on services, not resources: because services per unit of resource are not necessarily the same at the damage and remediation sites. ‘services’ and ‘natural resources services’ mean the functions performed by a natural resource for the benefit of another natural resource (such as purification of water) or the public (e.g. recreational opportunities). The trade-off may not be one-to-one in resources, i.e. the physical size of the remediation could be more or less than the physical size of damage. Therefore, matching between the type of services provided and the size of the population affected are as important as the matching of physical quantities.
- **Value-to-value** scaling can be applied to the variety of situations that are not well-suited for resource-to-resource or service-to-service equivalency. For example, in instances where (a) proposed remediation projects provide different natural resources, habitats, or services than those damaged; (b) organism numbers, habitat area, or important services (as

defined by ecosystem experts or the general public) cannot be measured accurately in damage or remediation cases; or (c) differences between damage losses and remediation gains are more important than similarities that could potentially be compared directly between remediation and damage. The fundamental approach here, as with all of the resource scaling methods, is to match remediation to damage: in this case, to equate the value of the environmental damage to the value of the environmental benefits generated through remediation projects.

- While not specifically a resource equivalency method, Annex II of the Environmental Liability Directive also stipulates that a **value-to-cost** method can be used (within the discretion of the Member States) if it is not possible to use resource-to-resource, service-to-service or value-to-value methods. This method involves estimating the ‘value’ of the environmental damage and selecting remediation options that have a financial cost equivalent to this value.

Other terms:

- **Habitat Equivalency Analysis (HEA)** is a methodology used to determine compensation for resource injuries. The principal concept underlying the method is that the public can be compensated for losses of habitat resources through habitat replacement projects providing additional resources of the same type.
- **Habitat banking:** The banks sell "credits" to developers, who, in turn, use them as mitigation for environmental damage they cause elsewhere. This means, that one party offers large, pre—established, established areas, restored and preserved to compensate for impacts to habitats/species the other party is liable for.
- **Hedonic pricing:** The method is used to estimate economic values for ecosystem or environmental services that directly affect market prices. It is most commonly applied to variations in housing prices that reflect the value of local environmental attributes.
- **Replacement cost method:** This technique looks at the costs of replacing a damaged asset e.g. water quality standard to recover its original state.
- **Travel cost method:** The basic premise of the travel cost method is that the time and travel cost expenses that people incur to visit a site represent the “price” of access to the site. Thus, peoples’ willingness to pay to visit the site can be estimated based on the number of trips that they make at different travel costs.
- **Willingness to pay/accept studies (WTP/WTA):** WTP/WTA or Contingent valuation studies are a survey-based technique for the valuation of non-market resources, where the interviewed persons state their willingness to pay for the provision/conservation of a given environmental asset directly.