

# Guidelines for Environmental Risk Assessment and Management

## Green Leaves III



Green Leaves III is the latest edition of the Government's Guidelines for Environmental Risk Assessment and Management. The document provides generic guidelines for the assessment and management of environmental risks.

The guidelines supersede earlier versions published in 1995 by the Department of the Environment, and in 2000 by the Department of the Environment, Transport and the Regions and the Environment Agency. This revision brings the guidelines in England and Wales in line with current thinking in the field of environmental risk management.

### Advances

Developments in the field of risk assessment and management are reflected in this revision. These include pre-assessment considerations that help formulate the risk management question, tools and techniques to deal with uncertainty, and the identification of a broader range of options to manage the risk as a continuing process.

Methods are described for estimating the probability of harm to, or from, the environment, the severity of harm, and uncertainty. The guidelines focus on generic principles, rather than domain-specific risks, such as from river flooding, animal disease or hazardous wastes.

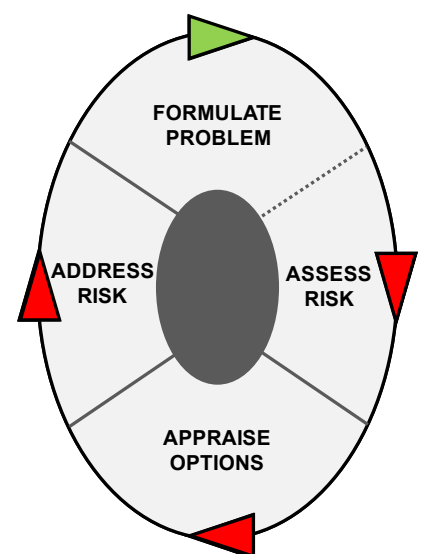
This work is part of a wider portfolio of work completed by the Collaborative Centre of Excellence for Understanding and Managing Natural and Environmental Risk (the Risk Centre), to build a network of risk practitioners and to encourage a more consistent approach to environmental risk assessment and management within Defra.

### Framework

A cyclical framework for environmental risk management is provided to offer structure in what would otherwise be a complex array of considerations for the decision-maker. The framework also offers a mechanism through which the process of environmental risk assessment and management can be explained to stakeholders, and acts as a valuable aide-mémoire to multidisciplinary teams conducting risk assessment.

Four main components of risk assessment are identified:

- 1) formulating the problem;
- 2) carrying out an assessment of the risk;
- 3) identifying and appraising the management options available; and
- 4) addressing the risk with the chosen risk management strategy.



Each component has a dedicated chapter in the document that provides guidance for completing that stage. The importance of iteration, communication and learning is woven throughout the guidelines and reinforced in the closing chapter.

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### Essential components

Essential components of environmental risk assessment and management that are conveyed in the document can be summarised as follows:

- risk questions are best informed by a range of stakeholders;
- when a risk problem is highlighted, the source, pathways and receptors under potential threat should be recognised;
- an assessment plan is then needed to outline the data requirements for assessment and the methods needed for data collection and synthesis;
- resources for the assessment can be allocated following initial risk screening and prioritisation;
- identifying the hazard at the beginning of the assessment should clearly define the harm to the environment that is of concern;
- an estimation of the potential consequences of the hazard being realised and an evaluation of the probability of impact can then be carried out
- this evidence collected is used to provide judgement as to the significance of the risk.

### The risk management strategy

It is advisable to employ suitable techniques to analyse and understand uncertainties within the risk assessment when possible. The risk management options should then be considered in terms of their positive and negative effects according to technical and economic factors, environmental security, social issues and organisational capabilities.

The chosen strategy will usually involve terminating, mitigating, transferring, exploiting or tolerating the risk. The implemented strategy should be monitored to ensure the risk is controlled to an acceptable level. If this is not the case, iterations of the risk assessment and management processes should proceed as necessary.

In all the above, a clear organisational and people framework is required to ensure accountabilities are understood. When communicating the risk management strategy to the public, it is essential to highlight that the public have a responsibility to take reasonable care.

### Case studies illustrating good practice

Publication of this revised, peer-reviewed guidance emphasises not only developments in scientific knowledge and information that supports risk assessment, but also improves the relevance of risk assessment through case studies that demonstrate good practice.

### Who the guidelines are for

This document is intended to guide policy and regulatory staff in Government and its agencies, those assessing and managing environmental risks for Government, and other parties interested in the principles of managing environmental risks. The document assumes little prior knowledge.

As with previous versions, we expect these guidelines to be consulted widely by environmental risk practitioners across the UK Government and their agencies, by practitioners providing risk advice to Government, and by other stakeholders with an interest in how environmental risks are assessed and managed.