

DRAFT FOR COMMENT

**SAFEGROUNDS GUIDE TO THE COMPARISON
OF LAND MANAGEMENT OPTIONS**

Outline contents

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VERSION CONTROL

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Section 1 Introduction and Scope

The guidance covers steps 4 and 5 in the generic SAFEGROUNDS flow diagram (www.safegrounds.com/flow_diagram_log.htm). It also relates to the stage of “identifying the preferred option for managing the contaminated land” in version 1 of the LMG.

The document will emphasise practical guidance and provide specific advice on its application. It will cover contaminated land situations ranging from the simple (small patch on a site) to the complex, and from defining strategies to implementing them. It is intended to apply to the range of types of site considered by SAFEGROUNDS, and will make clear specific considerations for each type – such as potential regulatory requirements.

This section of the guide will provide the reader with information as to the nature of the document, its intended area of application, and how it relates to version 2 of the SAFEGROUNDS LMG and other requirements (e.g. associated with regulatory regimes) and guidance. The type of information included will be as follows:

- Description of the background and context, with reference to SAFEGROUNDS and its overall scope, and the importance of options comparison in the LMG;
- A statement on the scope of the document, including the range of situations to which it can be applied, the range of sites, and the main audience for the document;
- A description of how the document fits into the SAFEGROUNDS guidance, including key points of interaction (e.g. how and where key principles are addressed, information requirements from site characterisation, stakeholder involvement issues etc);
- An indication of the regulatory context, noting that different regimes apply to different types of sites and indicating how the guidance helps fulfil the need for formal options comparisons for the range of contaminated land situations that might be encountered (regulatory issues will also be addressed in advice on the practical application of methods, discussed later);
- Links to other relevant guidance, indicating any important differences;
- Relevant assumptions and caveats; and
- Status of the guidance (including comments on any differences in the guidance to the description of options comparison in version 1 of the LMG).

Question 1:

Is the right range of issues suggested for the scope of the document? Are any sufficiently important to warrant detailed description in a specific section of the report?

Section 2 Principles and Guidelines for Options Comparison

2.1 Guiding Principles

In the first round of consultation, there was general agreement that it would be beneficial to provide some “guiding principles” for options comparison in the context of contaminated land management. Where relevant they will be cross-referenced to SAFEGROUNDS key principles. Some suggested guiding principles are presented below. These are primarily concerned with the approach to options comparison, rather than content.

- Comparison of land management options should be undertaken in a structured, systematic and transparent manner with the involvement of stakeholders.

- The level of detail in which the options are compared must be commensurate with the magnitude of the contaminated land issue, whether it is strategic or specific, and its potential impact on people.
- The options comparison process will require information and data, which should be at an appropriate level of detail for the study. Uncertainties should be identified and taken account of in the options comparison.
- The extent of stakeholder involvement depends on the technical and societal significance of the contaminated land problem. **Further discussion of this issue is included in the consultation of the contents of LMGv2.**
- The output of the options comparison must be a clear record of the information considered, the views expressed, and the conclusions reached. There should be a clear description of the pros and cons of each option. Unless issues of national security dictate, it should be available to all relevant stakeholders.

2.2 Guidelines for the Implementation of Options Comparison Methods

In addition to guiding principles for option comparisons, it is noted that general guidance can be offered on specific stages in the process (e.g. selection of attributes). It is therefore proposed to include a series of “guidelines” for each of the key stages in a generalised options comparison process. Some suggested guidelines are included below.

2.3 Guidelines for Identifying Options

- A wide range of options should be considered – from the minimum to the maximum effort to deal with the contamination.
- The number of distinct options considered should not be impractical to compare in practice. Typically about 5 – 10 is appropriate.
- Each option should be clearly described in terms of its key features.

2.4 Guidelines for Screening Options

- Options may not be practicable if they are not legal or grossly disproportionate in terms of benefits and detriments.
- Other problem-specific constraints may be agreed, eg not meeting immutable objectives for the site (such as making a defence site suitable for sale or part of a nuclear-licensed site able to be delicensed).
- If there is good evidence that an option is not practicable, it need not be considered in detail.
- The reasons for screening any options should be clearly recorded.

2.5 Guidelines for Identification and Selection of Attributes

- Options should be compared in terms of key attributes, which reflect the issues of importance to the decision maker and stakeholders. The attributes should cover health, environmental, technical, social & economic and cost issues.
- Attributes must be chosen to reflect the issues of importance for a given contaminated land situation. If an important issue is not covered it can be missed in the options comparison.
- Attributes should be included that address issues related to protecting people and the environment, such as sustainability, precautionary action, avoidance of irreversible effects and environmental justice.

2.6 Guidelines for Assessing Options

- The objective of assessing options is to determine the key pros and cons of the options.
- The options comparison should make use of available information or, failing that, the judgement of specialists. Uncertainties and limitations in the quality of information available should be reflected in the options comparison.
- It is not necessary to compare options in quantitative terms (e.g. by “scores”), although this can be a convenient approach. If scores are allocated, the rationale behind them should be recorded.
- If weighting factors are used they should take account of the views of stakeholders who are participating in the comparison.
- If stakeholders are involved in the options comparison process, they should have the opportunity to provide views on the relative merits of options.

2.7 Guidelines for Understanding and Using the Outcomes

- Options comparison informs decisions, but the process of taking a decision about a strategy or particular course of action is separate and is discussed in the LMG.
- There is more to an options comparison than identifying a best-rated option. A structured analysis of the options comparison results should be undertaken to reveal the key messages and issues which can inform on the main trade-offs between options.
- In some circumstances there may be value in examining the influence of key assumptions and uncertainties with specific analysis techniques.

The guidelines will be reflected throughout the guidance, and in particular in the description of the options comparison methods in Section 3 and Appendix B.

Question 2:

Is the suggestion of guiding principles and guidelines sensible? Do you have any comment on the proposals, including suggestions for other guiding principles and/or guidelines?

Section 3 Key Features of Option Comparison Methods

Although there is limited guidance on specific methods for options comparison in the context of contaminated land management, a range of methods have been applied in practice. Many have used an approach that involves “scoring” options for a range of key factors (often termed “attributes” or “criteria”) that reflect the issues of importance to the decision. These are collectively termed “multi-attribute methods” here. However, other less onerous approaches are also used.

It is therefore proposed to group methods as “Multi Attribute Options Comparison Methods” and “Other Options Comparison Methods”. A range of approaches will be presented – relevant to simple and complex contaminated land situations. It is suggested that about five methods be presented. Given the lack of existing guidance/published methodologies, these will be developed based on experience and with reference (as relevant) to decision theory. The approaches that could be considered include the following.

Multi Attribute Options Comparison Methods generally follow a common approach and structure, but can vary according to the magnitude of the issue considered and the extent to which the options are capable of being defined very specifically or not (i.e. strategic compared with implementation options). A range of methods will be presented, encompassing:

- A typical multi-attribute approach for the **implementation** of a problem of **limited significance** (e.g. limited number of options, limited number of attributes, simple relative scoring, limited input from stakeholders, etc.);
- A typical multi-attribute approach for the **implementation** of a problem of **substantial significance** (e.g. detailed consideration of options, more detailed attributes, formalised scoring with scoring scales, greater degree of involvement of stakeholders, perhaps including weighting, etc.);
- A typical multi-attribute approach for the **development of strategy** for a **specific problem** (e.g. a range of fairly specific strategic options linked to specific technologies, formalised scoring, some involvement of stakeholders).
- A typical multi-attribute approach for the **development of strategy** for a **whole site** (e.g. emphasis on broad strategic options and attributes, with considerable stakeholder involvement).

Other options comparison methods can be adopted in situations where the land contamination is limited in extent and/or the range of options is constrained:

- Assessment of pros and cons in terms of a few key factors, discussion with relevant stakeholders (likely to be regulators) and documentation of a rationale for the identified way forward;
- Comparison of options to identify key differences, assessment of the importance of the differences, discussion with relevant stakeholders (e.g. regulators) and documentation of a rationale for the way forward.

This section in the main body of the report will summarise the options comparison methods, with more details being given in Appendix B. In this section, each method would be presented in a tabular format, highlighting its key features against a common set of headings such as:

- Scope and level of detail
- Information requirements
- Stakeholder involvement
- Key steps in the process
- Generation of options
- Comparison of options
- Documenting the outcomes

Question 3:

Is an appropriate range of options comparisons methods suggested? Is the suggested way of summarising them sensible?

Section 4 Selecting a Comparison Method

This section will deal with identifying an appropriate options comparison method (or combination of aspects of various methods) for a given context and situation. It will provide guidance on the level of detail and stakeholder involvement required for a particular situation. It will also provide advice on the requirements of particular regulatory regimes, and how these might influence the approach required.

The section will cover:

- Determining the nature and magnitude of the contaminated land;
- Assessment of the available information, and significance of uncertainties;
- Determination of the stage in the overall land management process (e.g. strategic or specific);
- Determining the scope, objectives and requirements of the options comparison in relation to regulatory requirements, corporate objectives and practical management issues;
- Determining the extent to which stakeholders should be involved (**note that this issue is discussed in the consultation on LMGv2**);
- Identification of any constraints or external factors that influence the choice of approach.

This range of considerations will be used as the basis for determining an appropriate options comparison method (or combination of methods). A structured way of determining the most appropriate course of action will be presented. For example, consideration will be given as to whether the selection of a comparison method can be represented with a decision tree or other diagrammatic illustration. The method will incorporate a degree of flexibility and illustrate how one of the documented options comparison methods might be modified, if necessary. In particular, it will be noted how different degrees of stakeholder involvement would be incorporated into a given approach. The advice on the extent of stakeholder involvement will be carefully linked to LMGv2.

In addition to presenting a structured approach for determining the most appropriate options comparison method, a summary will show the broad areas of application of each options comparison method. This will be complemented by a summary of the main advantages, disadvantages, and requirements in terms of effort of each method. The methods will also be cross-referenced to regulatory requirements.

Question 4:

Do you have any views on how options comparison methods should be selected? What do you believe are the key factors to be considered?

Section 5 Applying an Options Comparison Method in Practice

The final section will present practical guidance that is relevant at some level to all the recommended options comparison methods. It will highlight some of the specific issues to think about in respect of particular types of site, for example. It will be noted that there is a detailed description of each options comparison method in Appendix B, with illustrations on the practical application of each in Appendix C.

General issues to be discussed by reference to LMGv2 include:

- Role of options comparison in the practical management of a site – where, when and frequency of review;
- Broader context in which options comparison is undertaken;
- Stakeholder involvement in options comparison; and
- Compliance with relevant regulatory requirements for different types of site.

Specific issues to be discussed include:

- Difference in context when considering strategic and specific options;
- Issues to consider when identifying options (with reference to Appendix A);
- Factors that are relevant to screening out options;
- Identification of an appropriate suite of attributes (or other factors used to discriminate between options);

- Characterising options them in terms attributes/discriminating factors;
- Practical methods for the assessment of options;
- Practical methods for gaining stakeholder views on options (including guidance on weighting);
- Understanding the outcomes of the process as an input to decision-making; and
- Documenting an Options Comparison, including presenting information to the public, regulators and other key groups of stakeholders.

Question 5:

What practical issues are of concern to you in the application of options comparison methods? What advice is important to give?

Appendix A Technical Options for Managing Land Contamination

The feedback from the first round of consultation on the document indicated that a brief summary concentrating on key features of the main technical options for the management of contamination should be included. The proposed approach is to describe technical options in an appendix. In each case, the options would be described in terms of a number of common aspects such as:

- Applicability to various categories of contaminants;
- Volume capacity;
- Availability/lead time;
- Resource requirements;
- Discharge and waste management aspects;
- Potentially detrimental externalities of options;
- Risks and uncertainties; and
- Costs.

The information in the existing SAFEGROUNDS document¹ would form the main input, but it would be reviewed and updated. References would be included to relevant supporting information and technical details.

Question 6:

Is the suggested information on technical options sufficient?

Appendix B Detailed Descriptions of Options Comparison Methods

This section will present each method in detail. In each case the method will be described in terms of a number of steps, with an accompanying flow diagram. At each step, reference will be made to the objective, the method, and factors to consider. There will also be a clear description of how and when stakeholder involvement can take place, as well as an indication of stakeholder involvement methods that can be considered. The methods will also be cross-referenced to the SAFEGROUNDS key principles and potentially relevant regulatory requirements.

¹ Mallett H (2004). Technical Options for Managing Contaminated Land Enviro report to CIRIA CIRI-6349A, April 2004. http://www.safegrounds.com/pdf/technical_options_april04.pdf

Question 7:

Do you have any views on the structure of the section describing options comparisons methods in detail? Should it depend on the method or follow a common structure?

Appendix C Worked Examples

The first round of consultation indicated that real or hypothetical examples would be an effective way of providing practical guidance on the application of options comparison methods. It is therefore proposed that a suite of examples be presented in an appendix.

The examples would all be hypothetical, but relevant to the types of situations likely to be experienced. The whole suite of examples would cover the range of situations that could be expected on the sites under consideration. Whilst it would be desirable to present examples that correspond to all combinations of site and scale of problem, this is not considered to be practicable in the scope of the document. Therefore, it is suggested that one example would be presented for each options comparison method – where there may differences in application of the method (due to the nature of the contamination or the type of site, for example), a “call-out” would identify the issue and note how the application of the method might differ in a different context.

Question 8:

Is the suggested range of examples sufficient? Are hypothetical examples better able to illustrate the methods or should real case studies be presented (if available)?