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Soil quality — Sustainable remediation

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National foreword

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Contents

Page

Foreword ... **v**
Introduction ... **vi**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Abbreviations ... **3**
5 Sustainable remediation, (re)development and regeneration ... **3**
6 Risk-based contaminated land management ... **4**
7 Integrated assessments, metrics and evaluations ... **4**
7.1 General ... 4
7.2 Tiered assessments ... 5
7.3 Tiered assessment frameworks ... 5
7.4 Sustainable remediation assessment techniques ... 5
7.4.1 General ... 5
7.4.2 Qualitative ... 6
7.4.3 Semiquantitative ... 6
7.4.4 Quantitative ... 7
7.5 Holistic sustainable remediation indicator sets ... 7
8 Decision making ... **7**
8.1 General ... 7
8.2 Project framing ... 8
8.3 How to identify a sustainable remediation approach ... 8
8.4 Key principles in decision making ... 9
8.4.1 Principles ... 9
8.4.2 Stakeholder engagement ... 10
8.4.3 Selection of relevant indicators ... 10
8.4.4 Assessment of agreed indicators ... 10
8.4.5 Selection and implementation ... 10
9 Economic dimension ... **11**
9.1 General ... 11
9.2 Economic indicators ... 11
10 Social dimension ... **12**
10.1 General ... 12
10.2 Social indicators ... 12
11 Environmental dimension ... **13**
11.1 General ... 13
11.2 Environmental indicators ... 13
12 Indicators and metrics ... **14**
12.1 General ... 14
12.2 Setting objectives for remediation ... 15
12.3 Quantification and qualification ... 17
12.4 Options for indicator and metric selection ... 17
13 The role of sustainable remediation assessment tools ... **17**
13.1 Sustainable remediation assessment ... 17
13.2 Intended objectives addressed by tools ... 18
13.3 Pre-determined indicators and metrics ... 18
13.4 Geographic and process specific information ... 18
13.5 General questions for understanding tool use and applicability ... 19

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AVA Documents
Document Sharing Hub
Full document details: BS ISO 18504:2017

14 Communication **19**
15 Promoting sustainable remediation **19**
16 The role of governance and institutional structures **20**
Bibliography **21**

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Full document details: BS ISO 18504:2017

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 7, *Soil and site assessment*.

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Introduction

This document is intended to provide procedures for sustainable remediation. It contains accepted terminology and understanding of the features of sustainable remediation and of means of assessing the relative sustainability of site-specific alternative remediation strategies. Determining what is and is not sustainable remediation at a specific site will be influenced by many local factors and the governance context. Therefore, this document seeks to preserve local flexibility and freedom of action.

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Soil quality — Sustainable remediation

1 Scope

This document provides procedures on sustainable remediation. In particular, it provides:

— standard methodology, terminology and information about the key components and aspects of sustainable remediation assessment;

— informative advice on the assessment of the relative sustainability of alternative remediation strategies.

This document is intended to inform practitioners about contemporary understanding of sustainable remediation. It is not intended to prescribe which methods of assessment, indicators or weights to use. Rather, it is intended to inform consideration of the concept of sustainable remediation in a local legal, policy, socio-economic and environmental context.

The scope of this document is restricted to sustainable remediation — that is demonstrably breaking the source-pathway-receptor linkages — in a manner that has been shown on a site-specific basis under a specific legal context to be sustainable.

The concepts of "green remediation" and "green and sustainable remediation" (so called GSR) that in some parts of the world are conflated with sustainable remediation are neither endorsed nor discussed in this document.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
brownfield
sites which

— have been affected by former uses of the site or surrounding land;

— are derelict or underused;

— are mainly in fully or partly developed urban areas;

— require intervention to bring them back to beneficial use;

— may have real or perceived contamination problems

3.2
environmental justice
combination of environmental rights and environmental responsibilities that asserts that everyone has

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— a right to healthy places to live, work, play, learn and enjoy themselves;

— a right to a fair share of nature's benefits and ecosystem services, such as food and water;

— a responsibility to look after the planet for others and for future generations

3.3
indicator
single characteristic that represents a sustainability effect, whether benefit or negative impact, which may be compared across alternative remediation strategies, comprising one or more remediation techniques and/or institutional controls, to evaluate their relative performance

EXAMPLE Greenhouse gas emissions.

3.4
metric
measurement of an *indicator* (3.3)

EXAMPLE Tons/Tonnes CO_2.

3.5
remediation strategy
one or more remediation technologies and associated works that will meet specified contamination-related risk reduction objectives

3.6
remediation technology
technology that pre-processes, processes or post-processes the ground or contaminant as part of risk management

3.7
sustainable development
development that meets the needs of the present without compromising the ability of future generations to meet their own needs

Note 1 to entry: Sustainable development is about integrating the broader expectations of society as a whole of a high quality of life, health and prosperity with environmental justice and maintaining Earth's capacity to support life in all its diversity. These social, economic and environmental goals are interdependent and mutually reinforcing.

[SOURCE: ISO 26000:2010, 2.23, modified — The Note has been modified and the last sentence has been deleted]

3.8
sustainable redevelopment
component of *sustainable development* (3.7) that results in the return to use of abandoned, derelict, underused and potentially contaminated sites in a way that increases their environmental, economic, and social benefits

3.9
sustainable regeneration
component of *sustainable development* (3.7) that reverses the economic, social and environmental decline of places

3.10
sustainable remediation
elimination and/or control of unacceptable risks in a safe and timely manner whilst optimising the environmental, social and economic value of the work

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3.11
threshold
limit of acceptability for an indicator that may not be crossed or carries an unacceptable consequence if it is crossed, such as regulatory non-compliance

3.12
unacceptable risk
level of risk that requires remediation

Note 1 to entry: The level of risk could be evaluated by comparison to a numeric threshold or by benchmarking against a narrative definition. Different levels of risk are deemed unacceptable in different countries or even by different laws within a country.

4 Abbreviations

BTU	British Thermal Units
CBA	cost benefit analysis
CCP	climate change potential
ESTCP	Environmental Security Technology Certification Program
GHG	greenhouse gas
GSR	green and sustainable remediation
LCA	life cycle assessment
MCA	multi-criteria analysis
MNC	multi-national corporation
RBLM	risk-based land management
SuRF	Sustainable Remediation Forum
US EPA	United States Environmental Protection Agency
WBCSD	World Business Council for Sustainable Development

5 Sustainable remediation, (re)development and regeneration

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs[1] is considered to constitute sustainable development. In the case of brownfield sites, remediation is a prelude to physical redevelopment and ultimately socio-economic regeneration. Sustainable regeneration provides multiple benefits. For example, it empowers local communities, provides new employment opportunities, enhances the aesthetics of an area and supports environmental justice.

Since remediation often links into the beneficial redevelopment and reuse of a site, sustainable redevelopment is inherently connected with sustainable remediation.[2] Considering the reuse of a site from the beginning of a remediation project is a fundamental component of sustainable remediation, and therefore sustainable remediation may act either as a natural precursor to, or as a subset of, sustainable redevelopment. Much value may be achieved through successfully integrating remediation into the redevelopment process to exploit synergies while minimizing costs and environmental impacts associated with bringing sites back to beneficial use.

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