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# Debunking Myths about Sustainable Remediation

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Shell Global Solutions (UK) Ltd

# Take-away messages

- Sustainable Remediation concepts have developed rapidly in the past decade
  - SuRF-UK and related organizations
  - guidance has been prepared in numerous countries
  - ISO Standard 18504:2017
- The alignment in thinking necessary to develop an ISO standard also allowed joint statements of intent from practitioner and policy maker groups regarding sustainable remediation (NICOLE & Common Forum, 2013).
- Despite the consistent standards and guidance/frameworks, there continues to be occasional misunderstanding of the goals of sustainable remediation.
- This presentation collates some of the common misconceptions, inaccurate claims and statements about sustainable remediation, and presents a view from a SuRF-UK Framework/ ISO Standard author.

# For the full paper

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## RESEARCH ARTICLE

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### Debunking myths about sustainable remediation

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#### Abstract

Sustainable remediation concepts have evolved during the decade 2007–2017. From the establishment of the first Sustainable Remediation forum (SURF) in 2007, to publication of ASTM and ISO standards by 2017. Guidance has been developed around the world to reflect local regulatory systems, and much has been learned in applying sustainability assessment to contaminated site management projects. In the best examples, significant improvements in project sustainability have been delivered, including concurrent reduction of the environmental footprint of the remediation program, improved social performance, and cost savings and/or value creation. The initial advocates for the concept of sustainable remediation were quickly supported by early adopters who saw its potential to improve the remediation industry's performance, but they also had to overcome some inertia and scepticism from other parties. During the debates and discussions that occurred at numerous international conferences and SURF workshops around the world, various opinions were formed and positions stated. Some proved to be correct, others not so. With the recent publication of ISO Standard 18504 and the benefit of a decade's-worth of hindsight on sustainable remediation programs implementation and project delivery, this paper summarizes a number of myths and misunderstandings that have been stated regarding sustainable remediation and seeks to debunk them. Sustainable remediation assessment shows us how to manage unacceptable risks to human health and the environment in the best, that is to say the most sustainable, way. It provides the contaminated land management industry a framework to incorporate sustainable development principles into remediation projects and deliver significant value for affected parties and society more broadly. In dispelling some myths about sustainable remediation set out in this paper, it is hoped that consistent application of ISO 18504/SuRF-UK (or equivalently robust guidance) will facilitate even wider use of sustainable remediation around the world.

#### KEYWORDS

ISO 18504, SuRF-UK, sustainable remediation

#### 1 | INTRODUCTION

The concept of sustainable remediation (SR) of contaminated soils and groundwater was first formally articulated in 2007 when the Sustainable Remediation Forum (SURF) was established in the USA. In the following decade to 2017, it progressed from the idea of a few far-sighted advocates to the mainstream in the remediation industry. It is now the subject of both an ASTM International (ASTM International, 2013) and International Organization for Standardization (ISO) standard (ISO, 2017). The application of SR has spread around the world rapidly, and guidance has been prepared in numerous countries

to encourage appropriate application. These have largely been instigated by the various national SR fora (the SuRFs), as well as collaborative contaminated land-practitioner organizations such as the U.S. Interstate Technology & Regulatory Council (ITRC; [www.itrcweb.org](http://www.itrcweb.org)), the EU's Network for Industrially Co-ordinated Sustainable Land Management in Europe (NICOLE; [www.nicole.org](http://www.nicole.org)) and the EU Common Forum ([www.commonforum.eu/](http://www.commonforum.eu/)) that bring policy-makers, regulators, consultants, industry, and academia together (Exhibit 1). The alignment in thinking necessary to develop an ISO standard also allowed joint statements of intent from practitioner and policy maker groups regarding SR (NICOLE & Common Forum, 2013).

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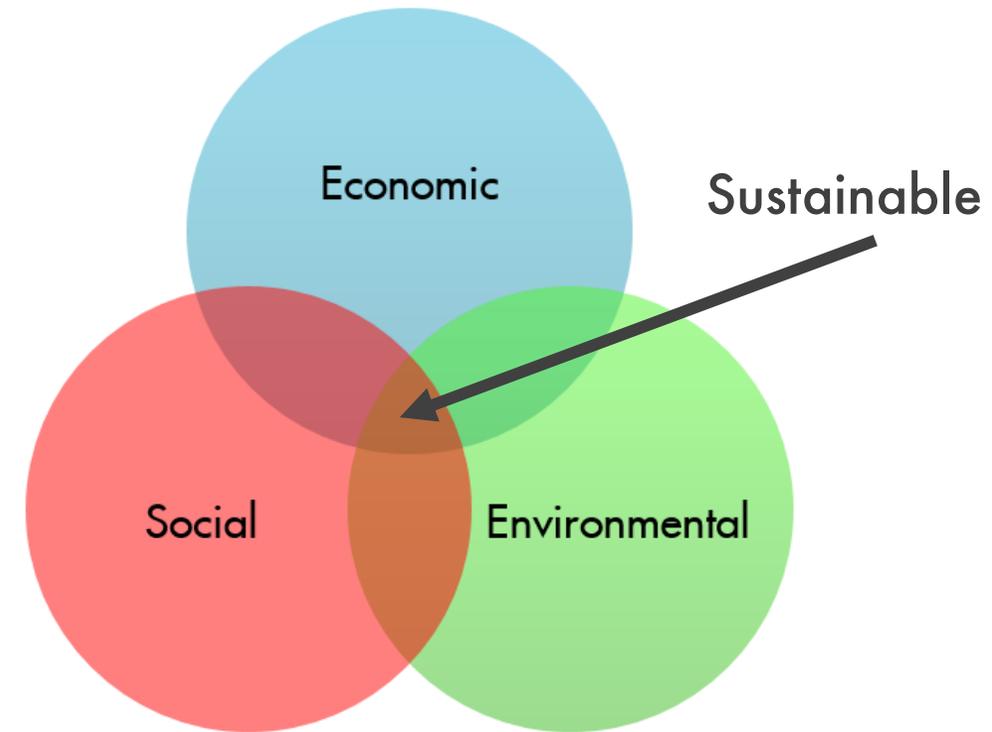
# What is Sustainable Remediation?

## ■ SuRF-UK

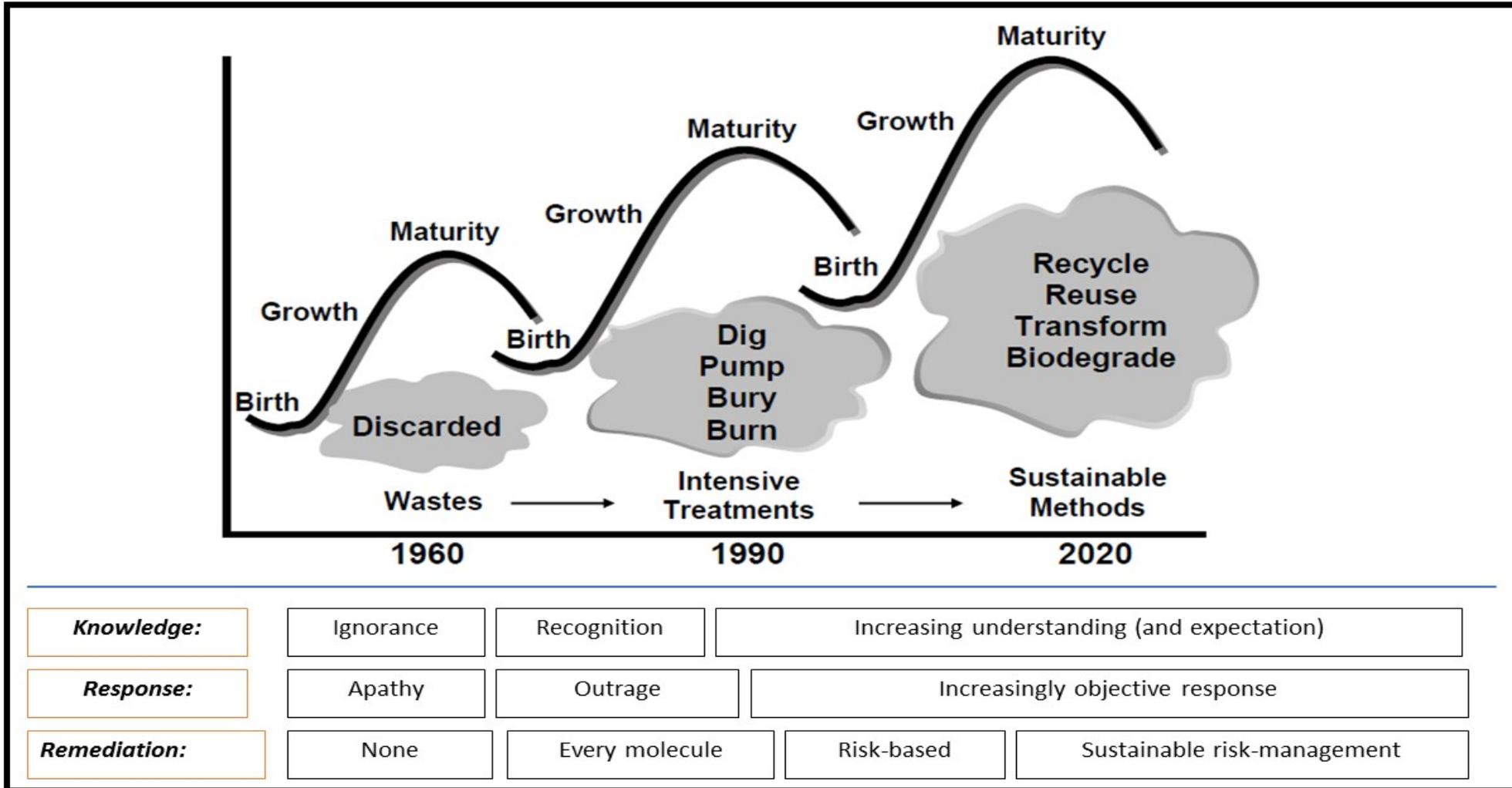
- “The practice of demonstrating, in terms of environmental, economic and social indicators, that the benefit of undertaking remediation is greater than its impact, and that the optimum remediation solution is selected through the use of a balanced decision-making process.”

## ■ ISO 18504:2017

- “elimination and/or control of unacceptable risks in a safe and timely manner whilst optimising the environmental, social and economic value of the work”



# The contaminated land management journey



[after: Smith, 2019]

# ISO 18504 Soil quality: Sustainable remediation

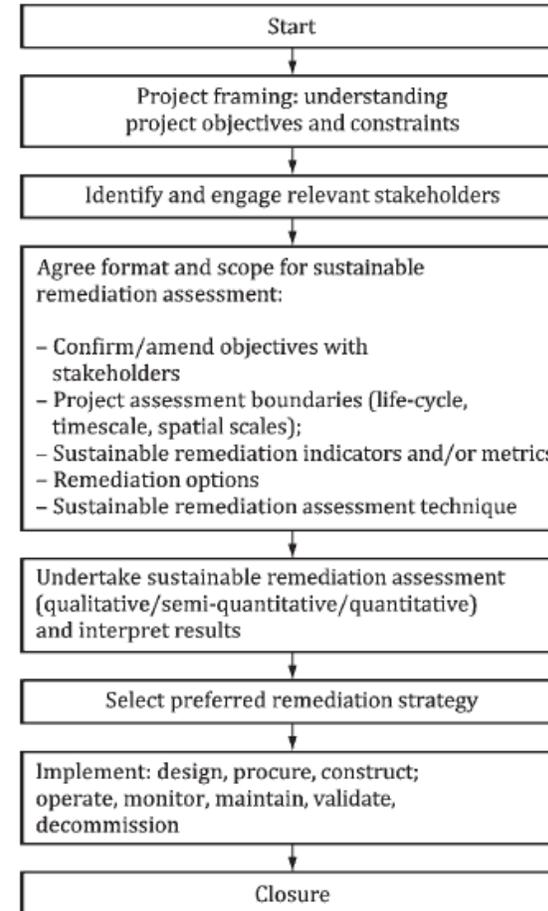
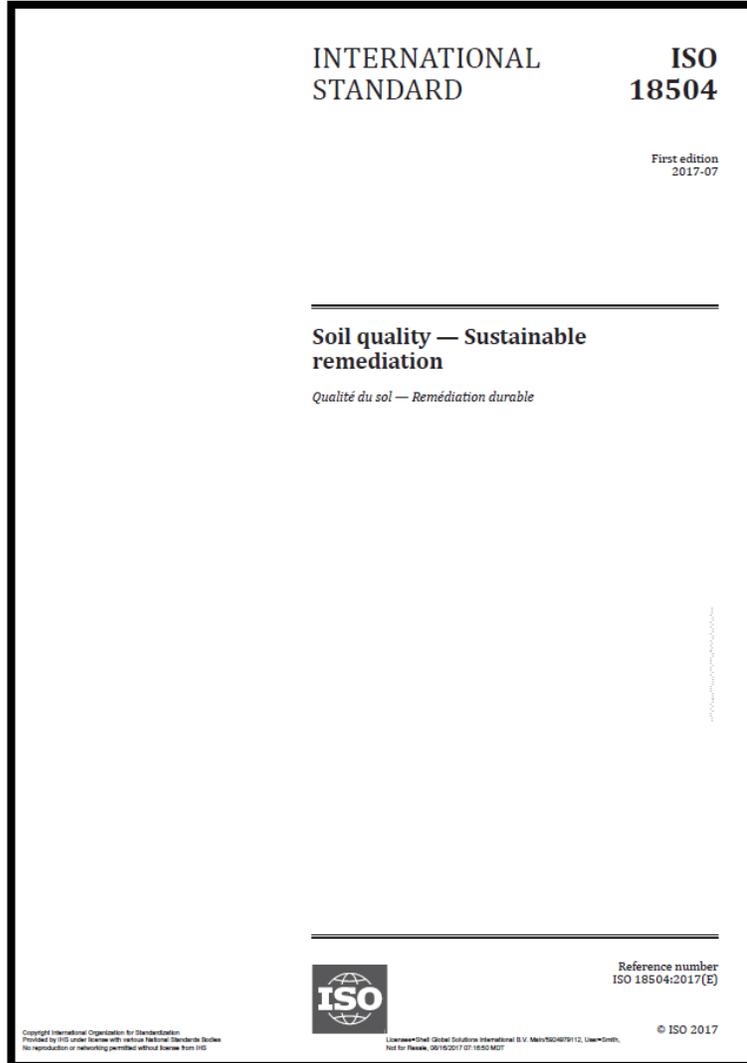


Figure 1 — Stages of sustainable remediation strategy assessment, selection and implementation

# Myth 1. Sustainability means you can do less remediation and leave unacceptable risks in place

- Most contaminated land frameworks are risk based.
- There have been suggestions that if sustainability assessment demonstrates that there is no remedial solution which can be shown to be 'sustainable', then it is acceptable to implement no risk management or remediation.
- This suggestion is not supported by ISO Standards, and in fact, ISO Standards require that unacceptable risks are managed.
- Sustainability should not be used as a reason to fail to manage unacceptable risks.
- Sustainability assessment is used to identify the best way to manage unacceptable risks and to identify and avoid unintentional consequences to maximise the benefits.

## KEY MESSAGE:

Risk prevails over sustainability as the criteria to trigger remedial action. Sustainability assessment informs us of the best way to manage unacceptable risks.

## Myth 2. Just saying a project is 'sustainable' makes it so

- Over the past decade Sustainable Remediation has become a globally accepted best practice concept. However claims regarding the sustainability of certain remediation products or projects have sometimes been called into question.

### KEY MESSAGE:

Unsupported claims bring the reputation of sustainable remediation into question.

Claims of 'Sustainable remediation' should be demonstrated by compliance with relevant best practice documents.

- Simply stating that a project is sustainable does not mean that it meets the requirements of the relevant framework or standard.
- Sustainable remediation is a process that ensures environmental, social and economic aspects are considered when identifying the optimum remedial solution.

## Myth 3. It is only about saving money

- Sustainable remediation seeks to compare the economic impacts and benefits of different remediation options alongside both the social and environmental impacts and benefits.
- 'Direct e... ability
- indicators
- The SuR... that is not
- biased t... in the
- the ap... UN 'Bronfman report' (UN, 1987), into contaminated land management decisions.
- The efficient use of capital and resources is a key component to consider in sustainable remediation and sustainability assessment may identify remediation strategies / techniques that will result in potential cost savings whilst delivering the same risk management benefit.

### KEY MESSAGE:

Efficient use of capital is important, but an SR assessment also considers environmental and social considerations.

Sustainability assessment can lead to significant value creation across all three pillars of sustainability economic, social and environmental

## Myth 4. Green Remediation and Sustainable Remediation are the same thing

- The evolution of Sustainable Remediation has been mirrored by the development of a similar concept by the USEPA called Green Remediation.

- The core elements of GR are similar to the environmental criteria given by SuRF-UK (CL:AIRE 2011) and include

- Social
- the U

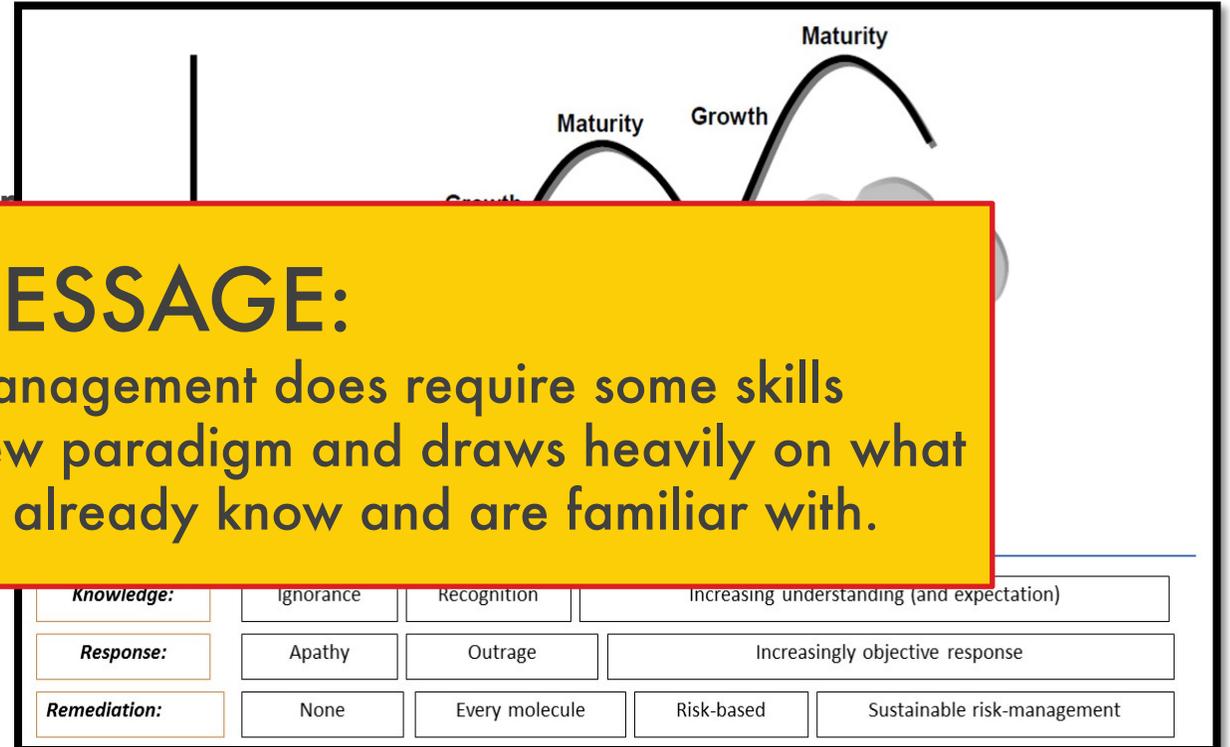
- It is p
- Remediation definitions, neither the best nor optimum solution, i.e. not 'sustainable'.

- The term 'Green and Sustainable Remediation' has been used widely. However SR and GR are different concepts.

- The GR approach has been exported to other countries that do not have the same robust economic and social considerations present in the USA. It is potentially being adopted without a full understanding of the context of its use in the USA.

# Myth 5. It is a new paradigm that requires much expertise, time and expense

- Sustainable remediation is a development of the risk based approach.
- The contaminated land industry have evolved over time. New responses to the social and environmental challenges of the 21st century have emerged.
- The SURF approach is a development of the risk based approach. It is a risk based approach which range from simple qualitative assessment to more complex quantitative assessment. The effort, time and cost of an assessment should be commensurate to the scale/complexity of the remediation project.



## Myth 6. Sustainability assessment is the same as conducting a CO<sub>2</sub> footprint analysis

- Sustainable remediation should involve a broad, holistic assessment of the relative performance of remediation options against relevant sustainability criteria.
- Rather than adopt a holistic approach, some assessments have been led by the tool that is available or selected, often CO<sub>2</sub> footprint analysis, are
- Assessments that focus only on CO<sub>2</sub> / GHG emissions are not a valid and balanced assessment. K
- CO<sub>2</sub> / GHG emissions are an important consideration, but not the only one.
- Decisions made using a single criterion in isolation may result in a decision that is not 'sustainable' when a full, holistic assessment is undertaken.

## Myth 7. The assessment of social performance requires complex input from social scientists

- Sustainability assessment includes social issues as one of its three pillars. Consideration of the social criteria *may* be a new element to consider in remediation projects.
- Some have suggested a requirement for complex or extensive social science analysis.

### KEY MESSAGE:

The use of existing governance structures, and fair and proper consideration of the effects of different remediation options on the range of stakeholders present is possible within existing structures and systems.

- Relative comparison of remediation option performance against the social indicators is therefore often straight-forward, although quantification is more challenging.

## Myth 8. Sustainability can be directly and precisely measured

- Sustainability assessment relies on the comparison of the *relative* performance of various remediation options against a set of relevant sustainability indicators.
- Sustainability has no SI (Système international ) units.
- This  
mea
- It is  
app
- In the end it is the process of holistic assessment that is important, considering appropriate stakeholder input.

### KEY MESSAGE:

It is the relative performance of the remediation options, and the selection of one, is  
after appropriate stakeholder input, as the best or most sustainable option.

# Conclusions

- Sustainable remediation assessment shows us how to manage unacceptable risks to human health and the environment in the best, most sustainable, way.
- Sustainable Remediation provides a framework to incorporate sustainable development principles into remediation projects and deliver significant value for affected parties and society more broadly.
- In debunking some myths about Sustainable Remediation it is hoped that consistent application of ISO 18504:2017/SuRF-UK framework (or equivalently robust guidance) will facilitate even wider use of Sustainable Remediation around the world.

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# Questions and Answers

Q&A

