

Building a Common Understanding on Sustainable Remediation: the SuRF-UK experience

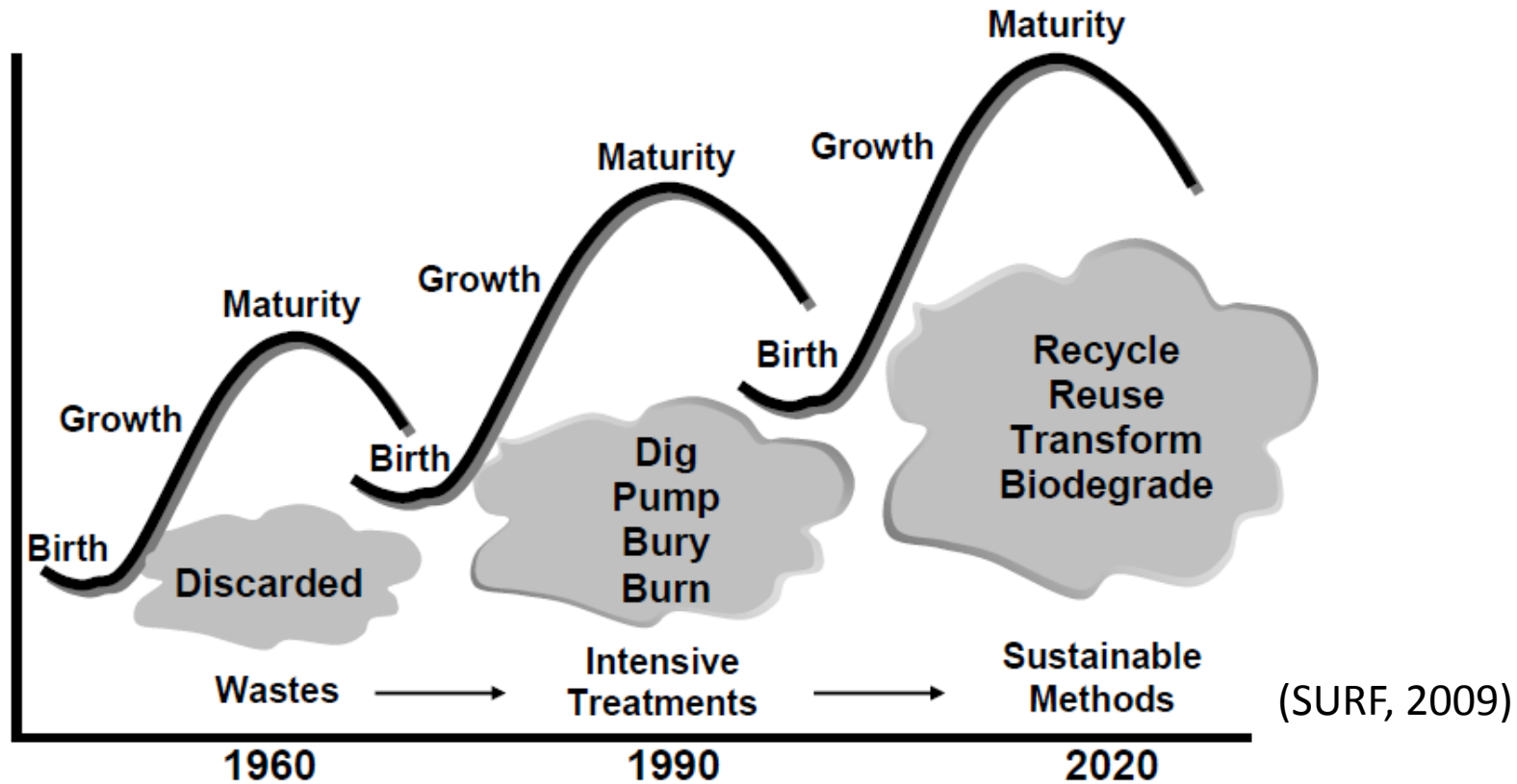
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Chair, Sustainable Remediation Forum-UK

Presented to: SURF21, Washington DC, December 2012

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- What is sustainable remediation?
- What is SuRF-UK
- SuRF-UK outputs
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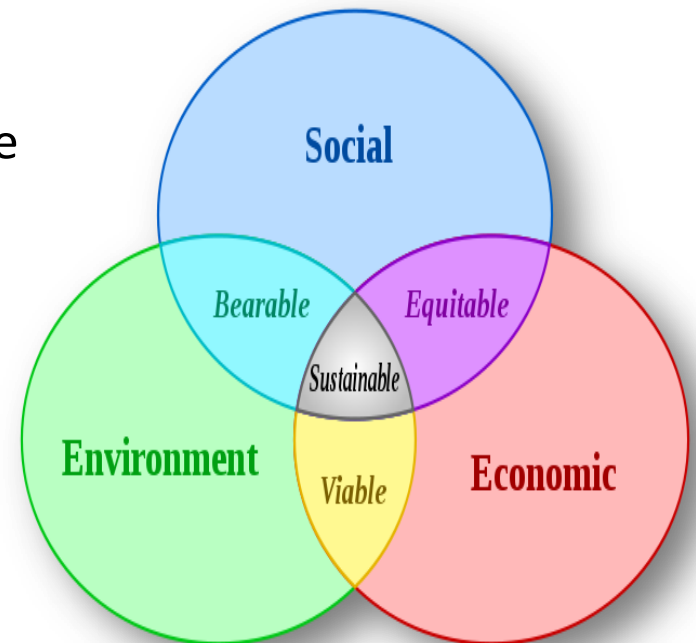
Evolution of contaminated site management



| | | | | |
|---------------------|-----------|------------------|--|--------------------------|
| Knowledge: | Ignorance | Recognition | Increasing understanding (and expectation) | |
| Response: | Apathy | Outrage | Increasingly objective response | |
| Remediation: | None | Complete removal | Risk-based | Sustainable & risk-based |

Sustainable Development

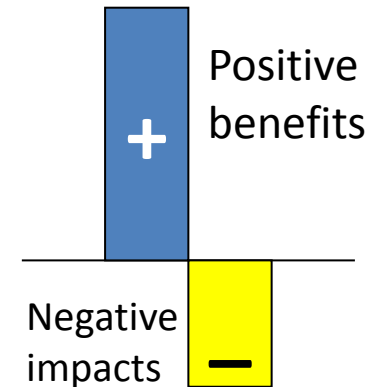
- Sustainable development
 - ‘Development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (Report of the World Commission on Environment and Development 1987, the Brundtland report)
 - Often applied as a Triple-Bottom Line analysis
- Sustainable remediation
 - Application of the principles of sustainable development to soil and groundwater remediation decisions



Is all remediation beneficial?

- Remediation seeks to reduce risks associated with soil and groundwater contamination, but also;

- uses energy, natural resources;
- can generate wastes;
- introduces health and safety risks.



- **Key issue:** Remediation is not sustainable *per se*, and certain strategies / technologies may cause more damage than they solve.

Recent British legal cases

- Corby BC found negligent over steelworks remediation, 2009;
 - 16 birth defects allegedly due to exposure to contaminated dust
- Cotswold Geotechnical Holdings guilty of 1st corporate manslaughter charge brought in the UK
 - Geologist died in 2008 when site investigation trench collapsed
 - GCH found guilty, Feb 2011



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Families win birth defect battle

Families who claim their children were born with defects caused by exposure to toxic waste in Northamptonshire have won a legal battle at the High Court.

They sued Corby Borough Council, saying deformities to hands and feet were due to mothers being exposed to a "soup of toxic materials" between 1985 and 1999.

The council was found negligent over work to reclaim a steel plant. It said it was "disappointed" at the ruling.

The judge found in favour of 16 of the 18 claimants.

Simone Atkinson: 'They called me four-fingered freak'



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15 February 2011 Last updated at 18:53 104 Share f t e

Company guilty of Cheltenham geologist's manslaughter

A Gloucestershire firm has become the first company to be convicted under new corporate manslaughter legislation.

Geologist Alexander Wright, 27, from Cheltenham, died at a development site in Brimscombe Lane, near Stroud, when a trench collapsed on him.

Cotswold Geotechnical Holdings denied killing Mr Wright in the accident which happened in

Mr Wright, who worked as a soil engineer for more than two years, was also an assistant Scout leader

Sustainable remediation is

- *“..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”*

[SuRF-UK, 2010]

What is SuRF-UK?

- UK-based collaboration of industry, regulators, academics and consultants
- Established in 2007, following the lead of SURF (US)
- Independent co-ordination by CL:AIRE
(www.claire.co.uk/surfuk)
- Secretariat has been funded by UK government and industry. In-kind support from industry, regulator, consultants etc.
- **Aims**
 - A framework for assessing sustainable remediation that is effective, practical and achieves regulatory acceptance
 - Develop relevant sustainability indicators
 - Support use of sustainability thinking in contaminated site management in the UK
 - Workshops and self-help

SuRF-UK framework

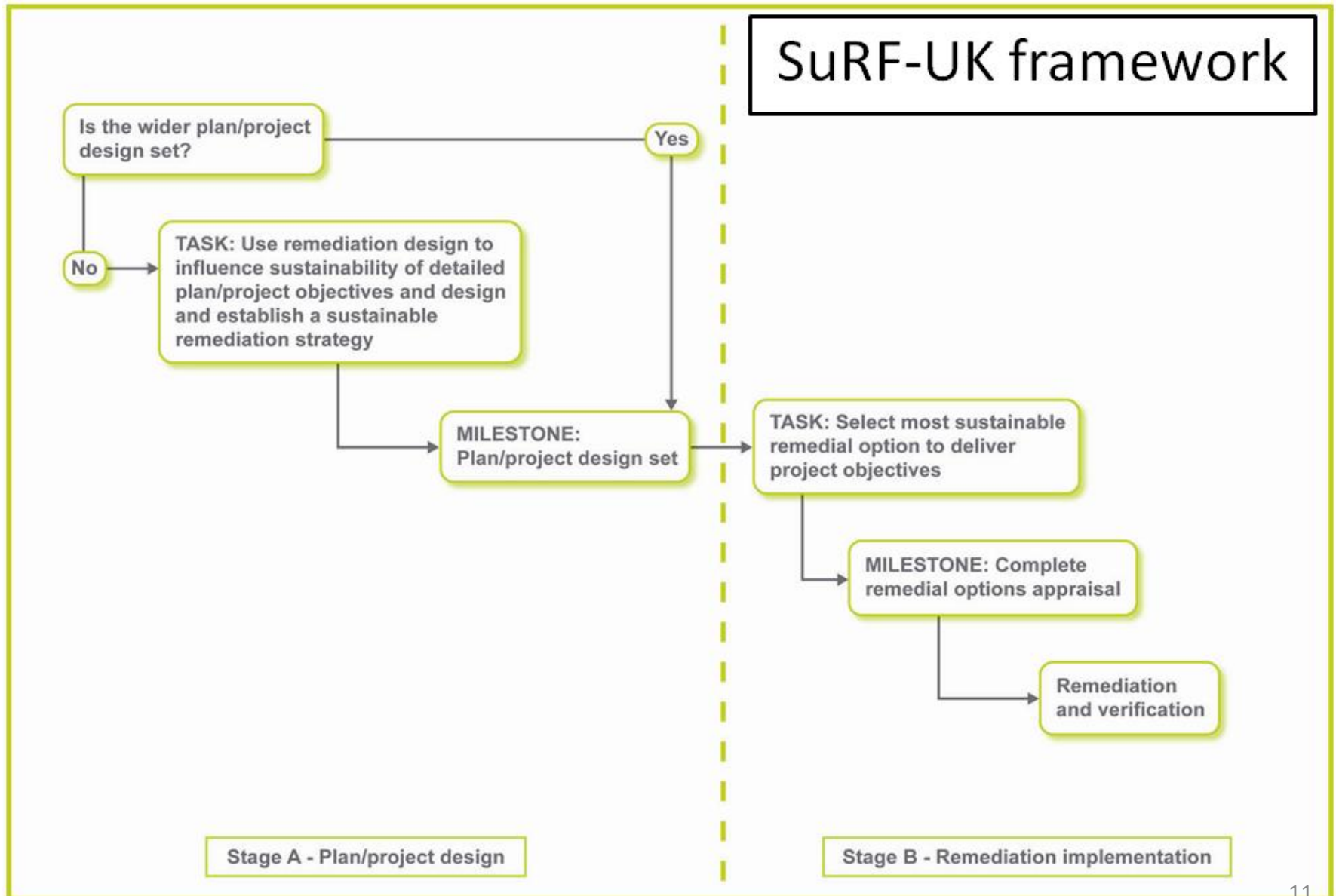


- SuRF-UK Framework (2010)
 - **Protection of human health and the environment a pre-requisite**
 - Identify best way to manage risks having regard to environmental, social and economic factors
 - Broad scope - holistic
 - Tiered approach to appraisal
 - SR indicator categories

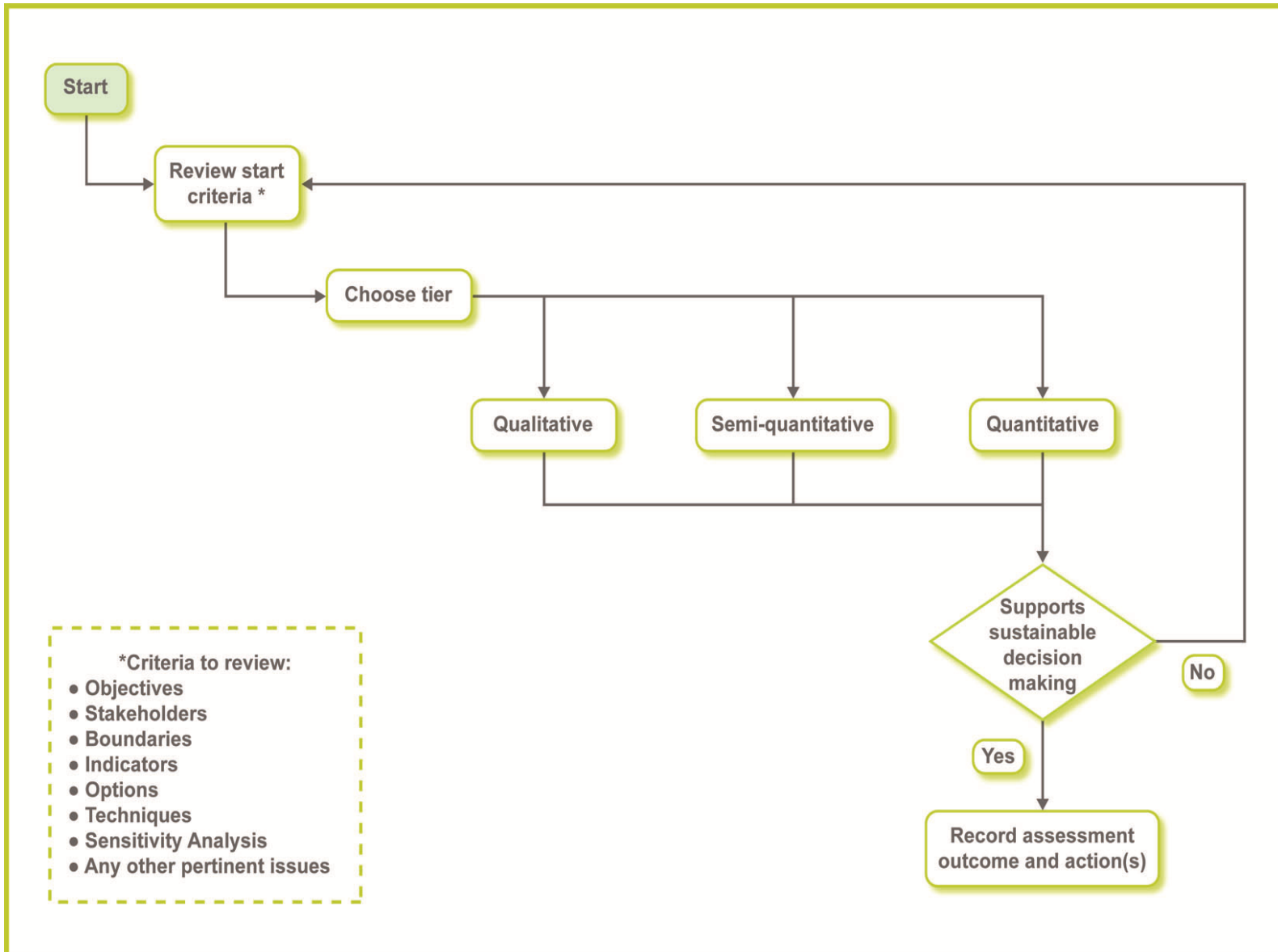
Key Principles

- Protection of human health and the environment
- Safe working practices (for workers & local communities)
- Consistent, clear and reproducible decision-making
- Record keeping and transparent reporting (including assumptions & uncertainties)
- Good governance and stakeholder involvement
- Sound science

SuRF-UK Framework



A Tiered Approach



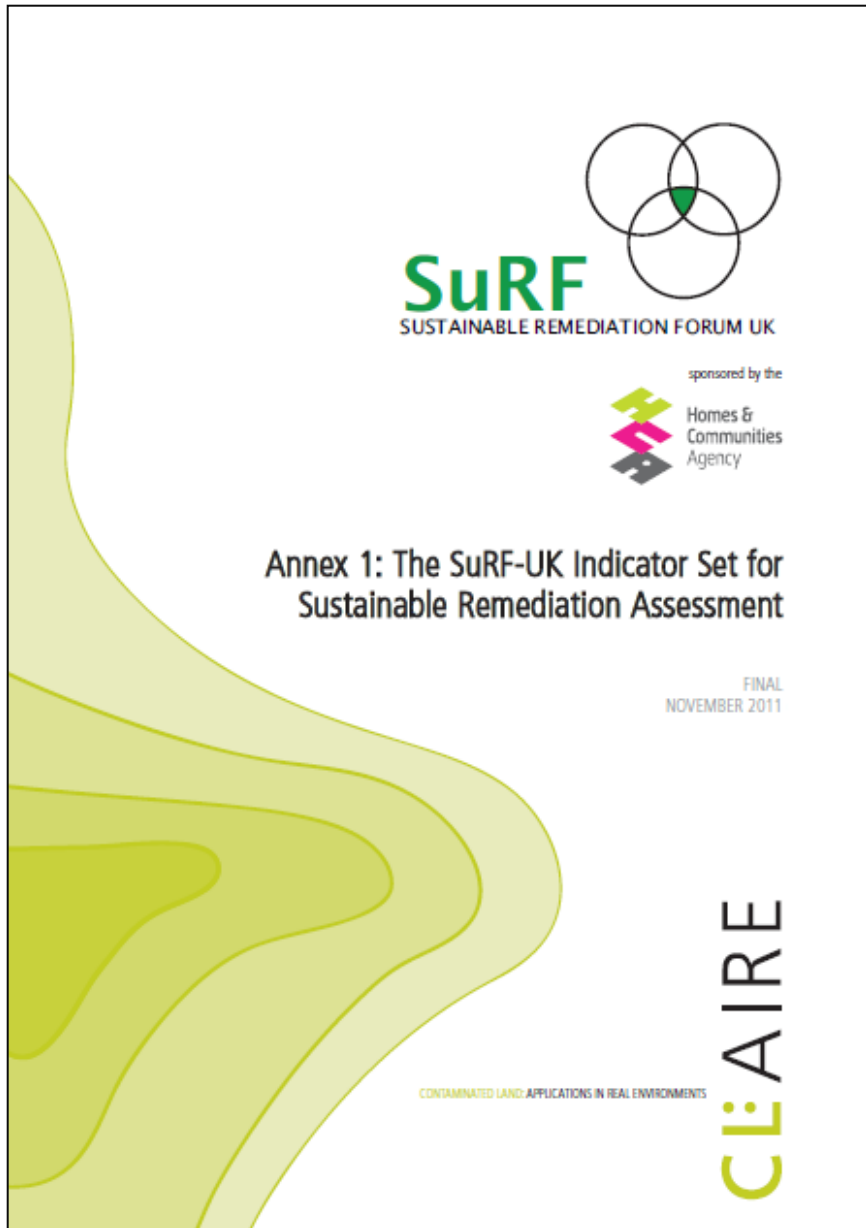
Key factors in appraisal process

- Objectives
 - Project objectives. What decision is the appraisal used for?
- Stakeholders
 - Who affects, or is affected by, the project decision?
- Boundaries
 - Project boundaries – Spatial, Temporal, Lifecycle
- Indicators
 - Which factors are relevant to sustainability?
- Options
 - Remedial options being assessed
- Techniques
 - Sust Rem appraisal techniques – Qual., Semi-quant., Quant
- Sensitivity analysis

Indicator Sets

| Environment | Social | Economic |
|-----------------------------|-------------------------------------|------------------------------------|
| Emissions to Air | Human health & safety | Direct economic costs & benefits |
| Soil and ground conditions | Ethics & equity | Indirect economic costs & benefits |
| Groundwater & surface water | Neighbourhoods & locality | Employment & employment capital |
| Ecology | Communities & community involvement | Induced economic costs & benefits |
| Natural resources & waste | Uncertainty & evidence | Project lifespan & flexibility |

Indicator categories



- SR indicator categories (2011)
- Expanded guidance and explanation of the 15 SuRF-UK categories
 - Definitions;
 - Inclusions and exclusions

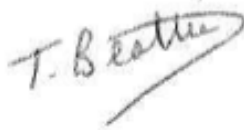
Regulatory acceptance?



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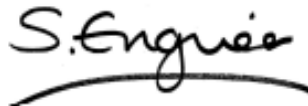
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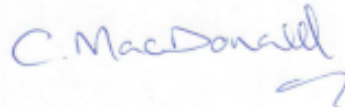
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Scottish Environmental
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Theresa Kearney
Principal Scientific Officer
Northern Ireland
Environment Agency within
the Department of the
Environment

UK regulatory update

Department for Environment,
Food and Rural Affairs

Environmental Protection
Act 1990: Part 2A

Contaminated Land
Statutory Guidance

April 2012

www.defra.gov.uk

 HM Government

- Revised Contaminated Land Statutory Guidance (2012)
 - requires regulator assessment of the elements of sustainability;
- *“The overarching objectives of the Government’s policy on contaminated land ...are: To identify and remove unacceptable risks to human health and the environment....proportionate, manageable and compatible with the principles of sustainable development.”*
- *“...should...consider the various benefits and costs of taking action, with a view to ensuring that the regime produces net benefits”*
- SuRF-UK approach recommended in new Environment Agency guidance on soil and groundwater remediation (GP3 Part 5)

Lessons Learned

- **Involve all the key stakeholders in developing your Sustainable Remediation framework and guidance**
- Definitions objectives, scope and meanings must be clear to all parties
- The objective is to *make a site-management decision* using a proportionate, balanced and holistic appraisal
- **Keep it a simple!** Use the simplest approach that produces a reliable management decision.

Next steps: SuRF-UK Phase 3

- Assessor guide for Tier 1 sustainability appraisal. ‘SuRF-UK briefcase’;
- Best Management Practices aligned to SuRF-UK 15 indicator categories;
- Case studies. 7 and counting.
- Industry workshop
- Webinar
- Training resources

Other SuRF-UK output

REMEDATION Spring 2011

Applying Sustainable Development Principles to Contaminated Land Management Using the SuRF-UK Framework

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Brian Bone

Richard Boyle

Dave Ellis

Frank Evans

Nicola D. Harries

Jonathan W. N. Smith

In the past decade, management of historically contaminated land has largely been based on prevention of unacceptable risks to human health and the environment, to ensure a site is "fit for use." More recently, interest has been shown in including sustainability as a decision-making criterion. Sustainability concerns include the environmental, social, and economic consequences of risk management activities themselves, and also the opportunities for wider benefit beyond achievement of risk-reduction goals alone. In the United Kingdom, this interest has led to the formation of a multistakeholder initiative, the UK Sustainable Remediation Forum (SuRF-UK). This article presents a framework for assessing "sustainable remediation"; describes how it links with the relevant regulatory guidance; reviews the factors considered in sustainability; and looks at the appraisal tools that have been applied to evaluate the wider benefits and impacts of land remediation. The article also describes how the framework relates to recent international developments, including emerg-

- Workshops and discussion
- Peer reviewed paper
- Webinar / podcast
- Case studies


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The SuRF-UK Framework for Assessing the Sustainability of Soil and Groundwater Remediation

Presented by:
Jonathan Smith and Paul Bardos
representing SuRF-UK

12th May 2011
SuRF-UK Webinar 1

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SuRF
SUSTAINABLE REMEDIATION FORUM UK

05:38

Press and hold to fast-forward

Summary – SuRF-UK

- A framework for assessing the sustainability of remediation is available in the UK
- Supported by all UK environment agencies
- Development and road testing assisted by focussed workshops
- Indicators sets developed and defined
 - But need to be populated (metrics)
- Supports **balanced** decision-making process

Further reading

- CL:AIRE, 2009. *A review of published sustainability indicator sets: How applicable are they to contaminated land remediation indicator-set development?* SuRF-UK report. SuRF-UK report, May 2009.
- CL:AIRE, 2010. *A framework for assessing the sustainability of soil and groundwater remediation.* SuRF-UK report, March 2010.
- CL:AIRE, 2011. *A framework for assessing the sustainability of soil and groundwater remediation, Annex 1: The SuRF-UK Indicator Set for Sustainable Remediation Assessment.* SuRF-UK report, November 2011.
- SuRF-UK reports and podcast available at: www.claire.co.uk/surfuk
- Bardos RP, Bone BD, Boyle R, Ellis D, Evans F, Harries N, & Smith JWN, 2011. Applying sustainable development principles to contaminated land management using the SuRF-UK framework. *Remediation*, **21(2)**, 77-100.
- SuRF-UK Phase 3 output coming soon:
 - Guidance on SR Best Management Practices; aligned to 15 indicator categories
 - Assessor Pack for Tier 1 (Qualitative) Appraisals

Thank you.
Any questions?

