

SuRF-UK framework for evaluating sustainable remediation options

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Content

- SuRF-UK
- Sustainability and remediation
- EU and UK legislative context
- SuRF-UK framework for sustainable remediation
- What next?: SuRF-UK Phase 2
- Conclusions

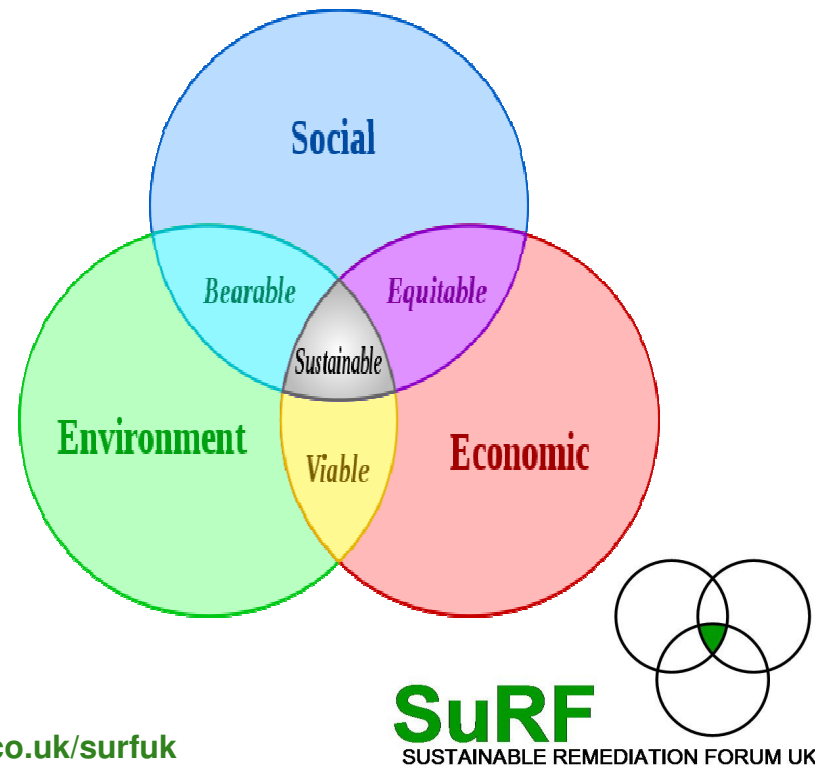
SuRF-UK initiative

- Established in 2007, following the lead of SURF.
- UK-based collaboration of regulators, industry, academics and consultants. Open forum meetings.
- Independent co-ordination by CL:AIRE (www.claire.co.uk/surfuk)
- Focus on holistic sustainability assessment of
 - remediation input to high-level land-use planning
 - remediation input to overall site / project design ('Better by design')
 - remedial strategy selection and remediation technology selection
 - remediation implementation and verification
- Goals
 - A framework for assessing sustainable remediation
 - effective, practical, regulatory acceptance
 - Sustainability indicator review

Sustainable development

- *“development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs”*

Brundtland Commission, 1987

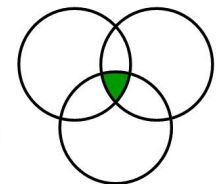


Is all remediation beneficial?

- Remediation seeks to reduce risks associated with soil and groundwater contamination, but has other consequences, e.g.:
 - uses resources / recycles resources
 - affects neighbourhoods. e.g. nuisance but also improvement
 - worker health and safety risks vs. long term risk reduction
 - can limit soil functionality / can improve soil functionality
 - wider economic consequences: firm goes bust / new opportunities
- *Key issues:*
 - Remediation is not sustainable *per se*, and certain strategies / technologies may cause more damage than they solve.
 - In many cases some approaches may be “better” than others
 - What is “more sustainable” is site specific and subjective

Why is sustainable remediation site specific and subjective?

- Sustainability is wide ranging in scope: aspects important at one site may not be important at another
- Not all aspects are quantifiable
 - A beautiful landscape, buried archaeology?
- Stakeholders vary
 - Who they are / What they are interested in?
- Compliance and reporting needs vary, especially where several organisations are involved (e.g.)
 - Local plans / zoning
 - Corporate targets and CSR
- *Key issues*
 - Decision making should be persuasive and evidence based
 - Decision making should be transparent and verifiable
 - Decision making should be validated by all key stakeholders



Drivers

- Good practice
- Business ethics
- Sustainable procurement
- CSR
- Planning
- Soil framework Directive
- Worldwide interest:
 - EU (NICOLE, SURF-UK, SURF-NL?, EURODEMO+)
 - USA (e.g. SURF, US EPA “green remediation”, ASTM)
 - Canada, Australia

European Union legislative context

- Draft EU Soil Protection Framework Directive (Feb 2009, stalled):
‘Remediation shall consist of actions on the soil...due consideration to social, economic and environmental impacts...’
- EU Water Framework Directive: *achieve good status unless ..infeasible ..disproportionate cost ..and the preferred solution is considered best balance of social, economic and environmental costs [i.e. sustainable]*

UK Legislative context

- Planning Policy Statements 1 and 23: underpin sustainable development through Town & Country Planning process
- Environment Act 1995 (s4) requires environment agencies to '*contribute to the goal of achieving sustainable development*'
- Environment Act 1995 (s39): environment agencies required to '*take account of the likely costs and benefits*' in enforcing powers
- Part 2A EPA1990: Contaminated Land remediation must meet '*test for reasonableness*'

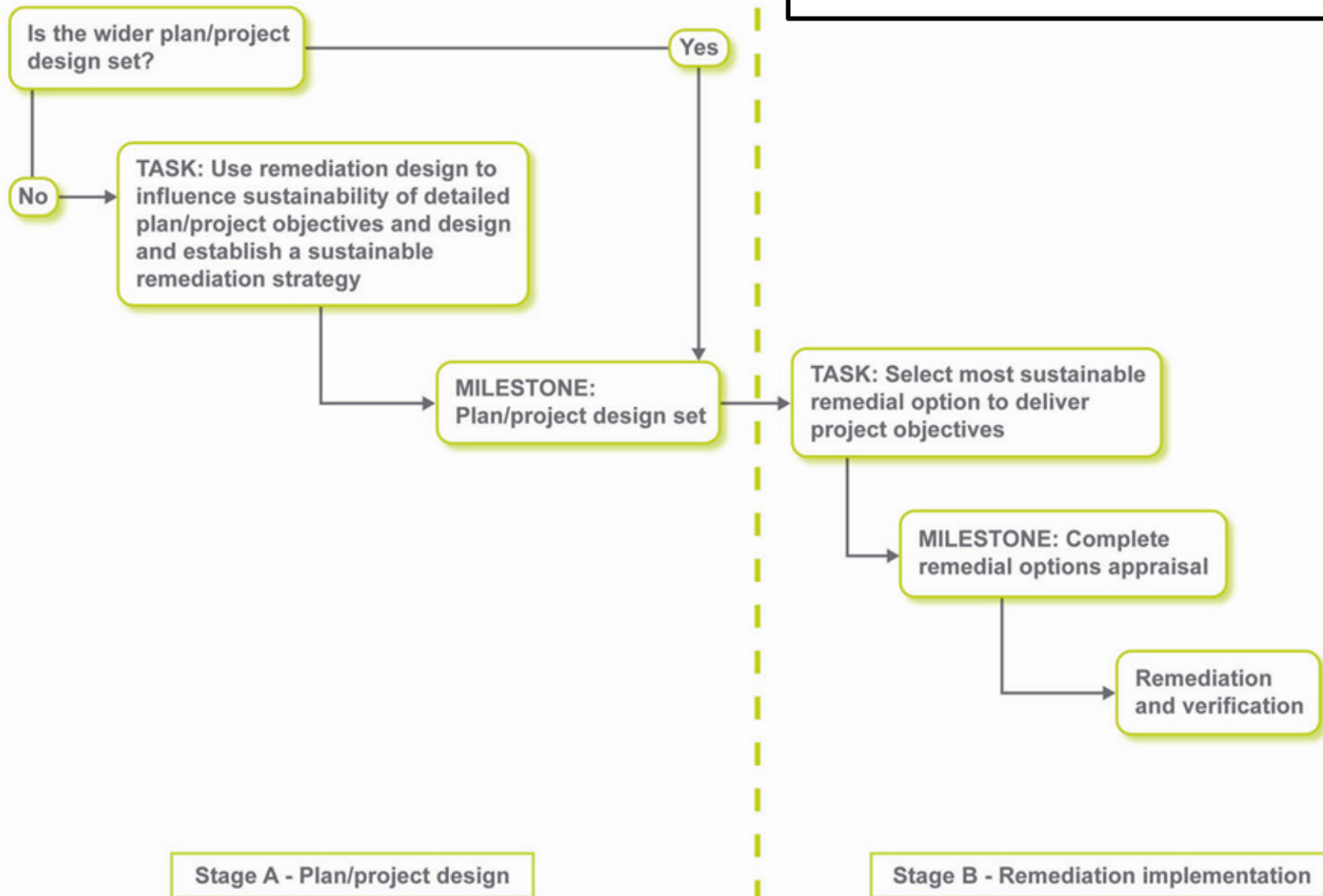
SuRF-UK definition

- *‘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’*

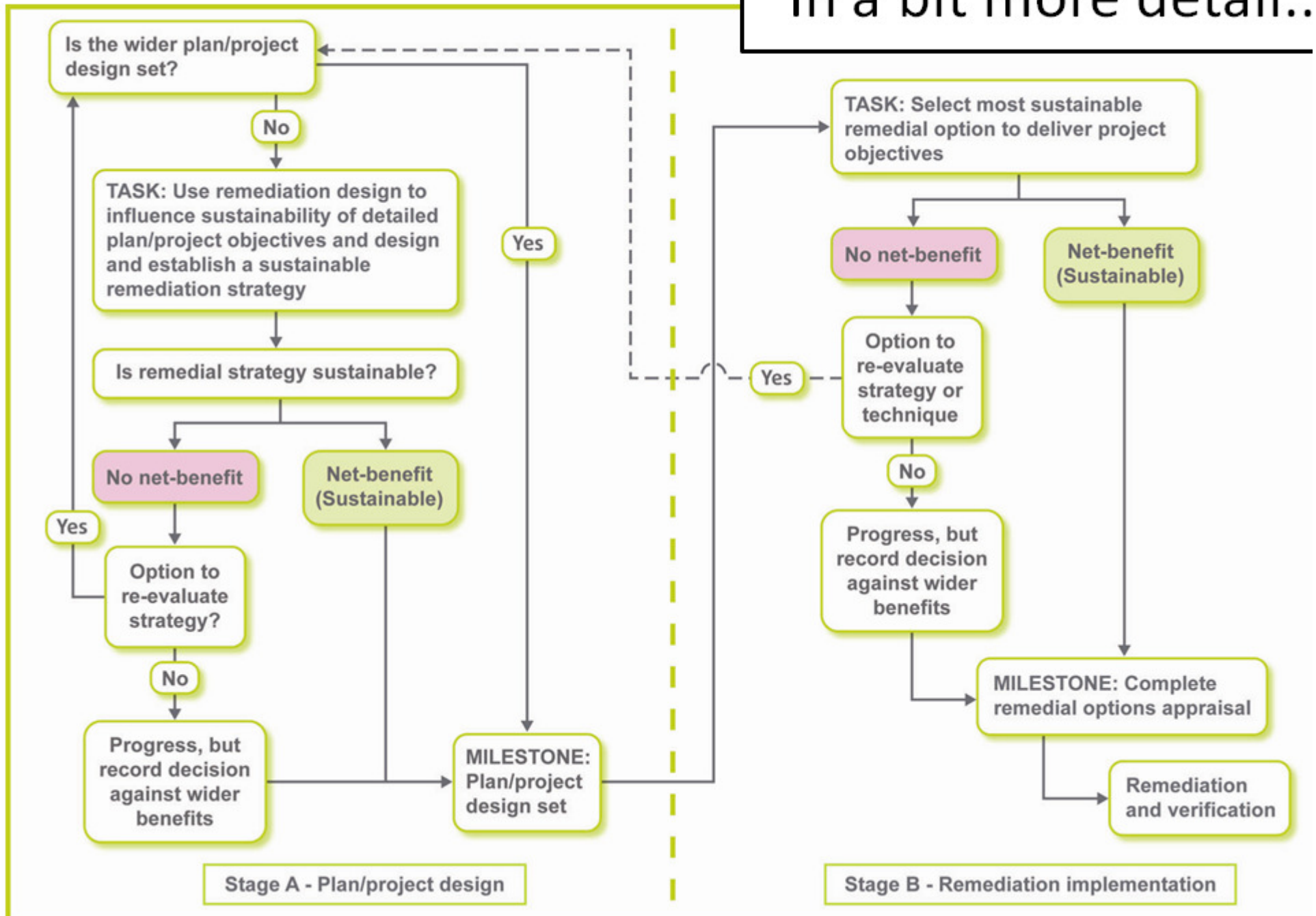
SuRF-UK: Key principles

- Optimise risk-management based on consideration of social, environmental and economic factors, but always ensure:
 - Principle 1: Protection of human health and the wider environment
 - Principle 2: Safe working practices
 - Principle 3: Consistent, clear and reproducible evidence-based decision-making
 - Principle 4: Record keeping and transparent reporting.
 - Principle 5: Good governance and stakeholder involvement
 - Principle 6: Sound science

SuRF-UK framework



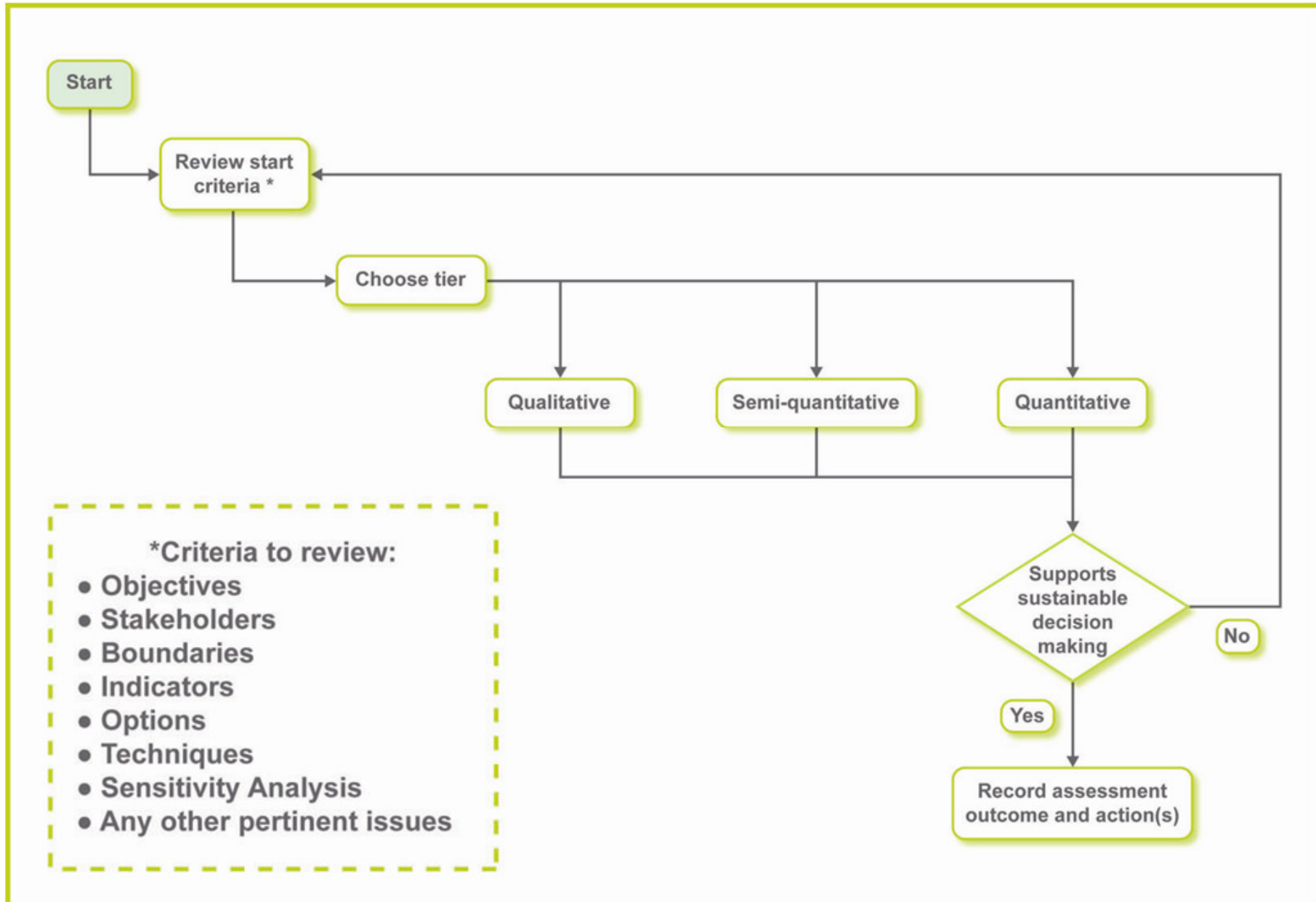
In a bit more detail..



SuRF-UK assessment points

CLR 11 Stage	Risk Assessment	Options Appraisal	Implementation of Strategy
CLR 11 Outcome of stage	<p>Robust conceptual model, risks and uncertainties indentified.</p> <p>Decision on need for remedial works, based on risk assessment.</p>	<p>Remedial options reviewed.</p> <p>Preferred strategy identified.</p>	<p>Remedial action complete and verified.</p> <p>Possible long-term monitoring.</p>
SuRF-UK Framework Stage A. Plan/project design	<p>Use remediation design to influence sustainability of detailed project objectives, to either</p> <ul style="list-style-type: none"> • Design-out unacceptable risks • Minimise action required to manage unacceptable risks • Look ahead and consider likely remedial options when developing risk assessment 		None
SuRF-UK Framework Stage B. Remediation selection and implementation	None	Select optimum remedial option to deliver project objectives	None

Tiered assessment



Possible sustainable remediation indicator categories

Environmental	Social	Economic
<ol style="list-style-type: none"> 1. Impacts on air (including climate change); 2. Impacts on soil; 3. Impacts on water; 4. Impacts on ecology; 5. Use of natural resources and generation of wastes; 6. Intrusiveness. 	<ol style="list-style-type: none"> 1. Impacts on human health and safety; 2. Ethical and equity considerations; 3. Impacts on neighbourhoods or regions; 4. Community involvement and satisfaction; 5. Compliance with policy objectives and strategies; 6. Uncertainty and evidence. 	<ol style="list-style-type: none"> 1. Direct economic costs and benefits; 2. Indirect economic costs and benefits; 3. Employment and capital gain; 4. Gearing; 5. Life-span and 'project risks'; 6. Project flexibility.

Key points for SuRF-UK

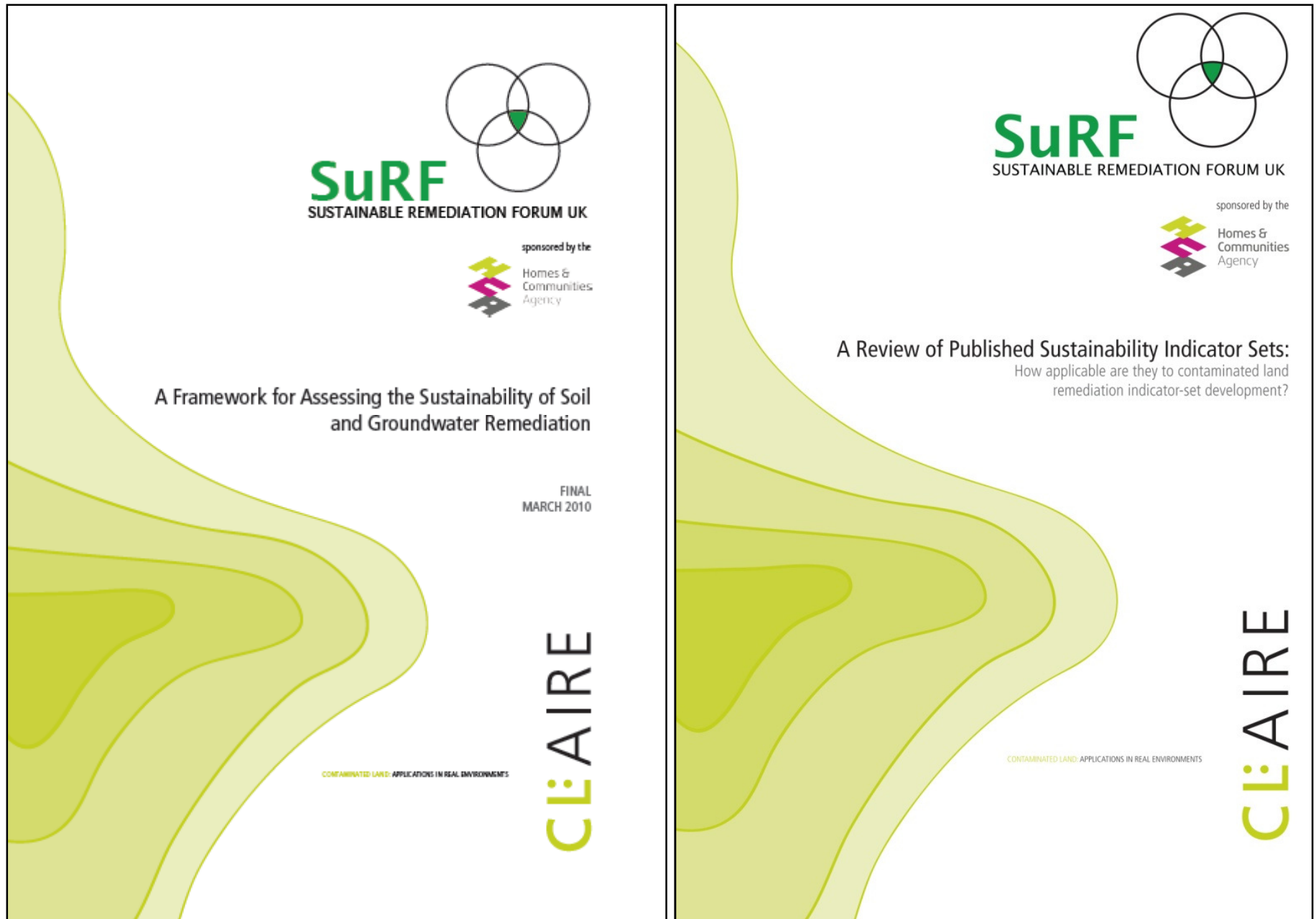
Sustainability is about Environment, Society and Economy, and short and long-term considerations (as per Brundtland);

Influence: Introduce sustainability thinking into the process at the earliest possible stage to maximise net-benefit ('better by design'). Inform policy and regional spatial planning.

Holistic: Scope of an assessment should initially be wide ranging. Then focus on those indicators that show variation between available options;

Efficient: Use the lowest tier (simplest assessment method) that produces a reliable management decision;

Clarity: Be absolutely clear what each sustainability category includes/excludes;



Regulatory acceptance: Foreword to report

CLÉAIRE



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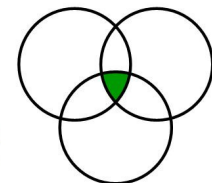
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SuRF
SUSTAINABLE REMEDIATION FORUM UK

SuRF-UK Phase 2

- Objectives:
 - Trial the framework with real cases studies
 - Investigate the indicator categories further
 - Identify appropriate metrics for a high-tier assessment
 - Benchmark low-tier and high-tier assessment methods for the same site(s)
- Timescale
 - April 2010 to April 2011
- Format
 - As phase 1

Summary

- SuRF-UK assessment framework recently published
 - Applies at a range of **stages** (regional planning, project design / site-specific risk-assessment, remediation options appraisal, implementation)
 - Adopts a **tiered** structure
 - Is holistic. Start wide-ranging and narrow down quickly
 - Requires consultation with stakeholders
 - Is flexible and voluntary
- Phase 2 starts imminently
 - Indicator development and refinement
 - Road testing framework
 - Benchmarking assessment tools