

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

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

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12th May 2011
SuRF-UK Webinar 1



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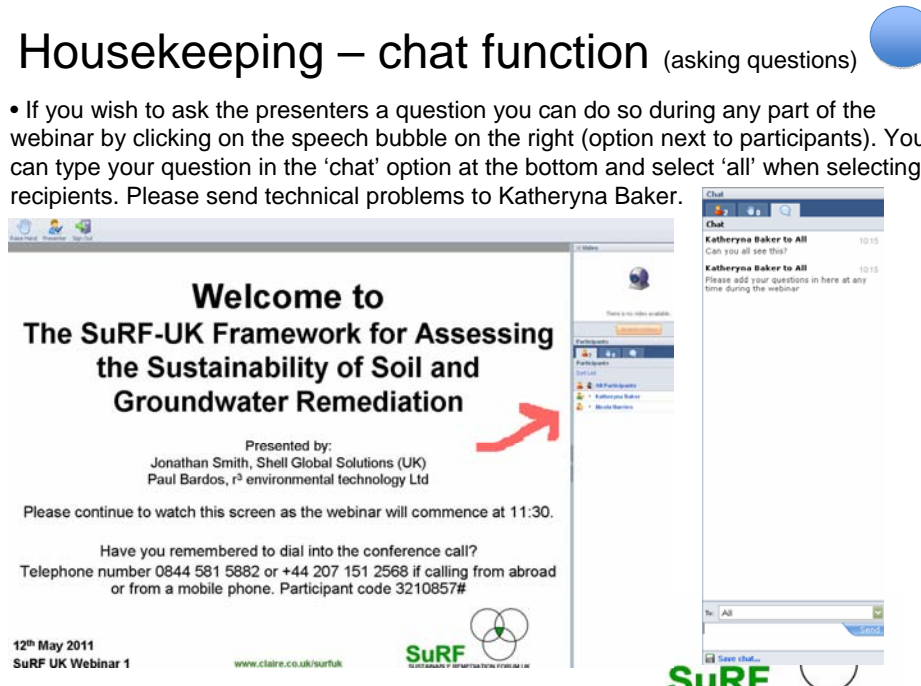
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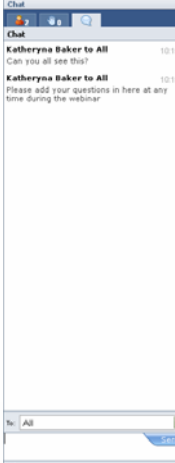
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Chat

Katheryna Baker to All
 (Can you all see this?) 10:15

Katheryna Baker to All
 Please add your questions in here at any time during the webinar 10:15

To: All

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Content

- Speaker introductions
- What is SuRF-UK?
- What do we mean by 'sustainable remediation'?
- Drivers for sustainable remediation
- The SuRF-UK framework
- How do sustainability considerations fit into the existing risk-based framework for soil and groundwater?
- SuRF-UK framework in a nutshell



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Your Presenters: Paul Bardos

- Managing Director: r3 environmental technology ltd (www.r3environmental.com)
- Visiting Professor at the Universities of Nottingham and Reading
- Originally a soil microbiologist
- Interests include: contaminated land management, recycling and composting, waste management and synergies with renewables as well as sustainable remediation more generally (since 1995), and increasingly soils / river basins
 - Sustainable Remediation Forum – UK
 - Manager EUGRIS (www.eugris.info)
 - Member EURODEMO (www.eurodemo.info)
 - UK representative to CLARINET (www.clarinet.at)
 - NICOLE information manager (www.nicole.org)
 - UK representative NATO/CCMS Remediation "Pilot Studies" 1988 to 2002

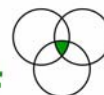


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Your Presenters: Jonathan Smith

- Senior Hydrogeologist at Shell Global Solutions (UK)
- Visiting Professor at the University of Sheffield
- Contaminant hydrogeologist
- Interests include: contaminated land and groundwater risk-assessment and risk-management, groundwater – surface water interactions
 - Chairman of SuRF-UK
 - Chairman on CONCAWE Soil & GW Task Force (www.concawe.org)
 - Member of Euro C'ion Working Group C (GW Directive)
 - (In former life) led development of Environment Agency Remedial Targets methodology (P20), MNA guidance, GW remediation Cost-Benefit Assessment guidance



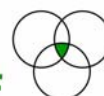
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What is SuRF-UK?

- UK-based collaboration of regulators, industry, academics and consultants. Open forum meetings.
- 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 HCA, with in-kind support from industry.
- 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



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SuRF-UK Steering Group

- Prof Jonathan Smith, Shell Global Solutions (UK)
- Prof Paul Bardos, r3 environmental technology ltd
- Dr Richard Boyle, Homes & Communities Agency
- Dr Brian Bone, Bone Environmental Consultant Ltd
- Ms Naomi Regan, National Grid
- Ms Alison Hukin, Environment Agency
- Dr Dave Ellis, Du Pont and SURF
- Ms Nicola Harries, CL:AIRE

- (formerly) Mr Frank Evans (National Grid)

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Isn't remediation always sustainable?

- Remediation seeks to reduce risks associated with soil and groundwater contamination, but also;
 - uses energy and natural resources;
 - can generate wastes;
 - can cause disturbance to neighbours (traffic, dust etc.);
 - introduces health and safety risks.
- *Key issue:* Remediation is not sustainable *per se*, and certain strategies / technologies may cause more damage than they solve.

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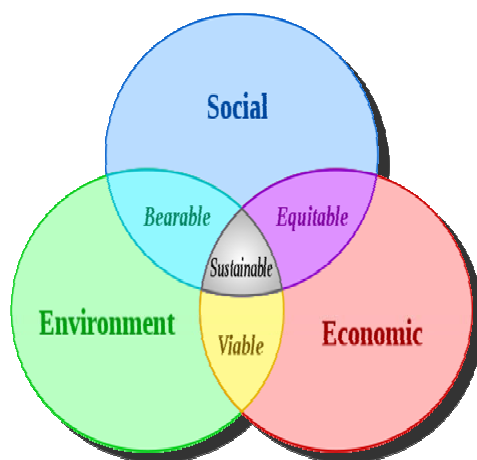
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Recent British legal cases

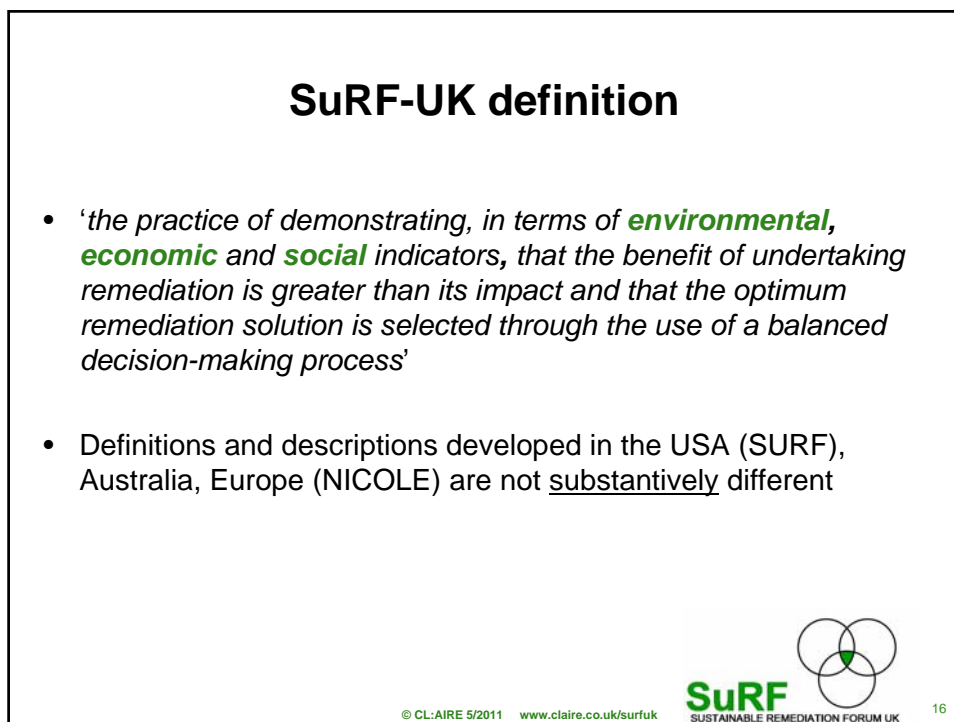
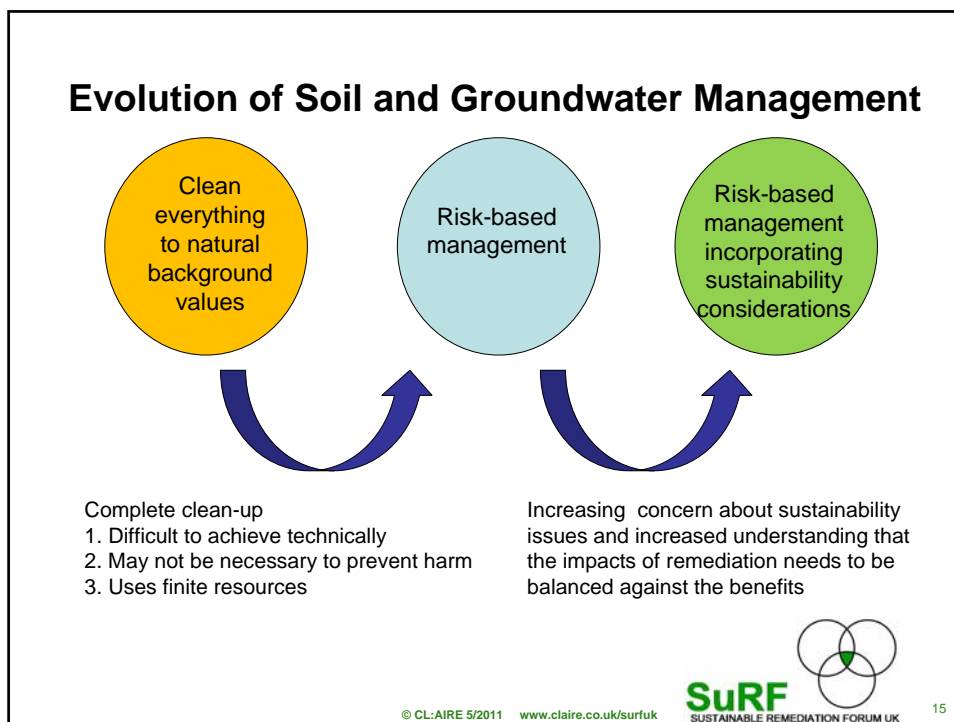
- Corby BC found negligent and in breach of statutory duty over steelworks remediation;
- Cotswold Geotech found guilty of corporate manslaughter
 - Geologist died (2008) when site investigation trench collapsed



What is sustainable development?

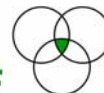


'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (1987, Brundtland)



Drivers for sustainable remediation

- Industry (e.g., SAGTA)
 - Corporate Social Responsibility (CSR), business ethics, sustainable procurement, Corporate SD policies
- Regulatory (and indeed cross-sectoral)
 - Appropriate and reasonable solutions
 - Planning and Contaminated Land Regimes
 - Water Framework Directive (and *draft* Soil Framework Directive)
- Planning
 - Sustainability tests in planning applications
 - Sustainability criteria in spatial planning
- Broad cross-sectoral backing in the UK
- Also response to worldwide interest:
 - EU (NICOLE, SuRF-UK, SuRF-NL?, EURODEMO+)
 - USA (e.g. SURF, US EPA “green remediation”, ASTM, ITRC)
 - Canada, SuRF-Australia



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But ... three common responses

- Can we use Sustainable Remediation?
 - Yes!
 - Regulations and guidance are already written in a way to embrace sustainable development concepts that can be applied to remediation
- What is the point of Sustainable Remediation?
 - Mitigate unacceptable risks to human health and the environment in a manner that derives the greatest overall (sustainability) benefit
 - Demonstrate compliance with public and corporate sustainable development policies and commitments
 - Makes discussions and communication with stakeholders easier
 - Makes planning applications stronger
 - Introduces a balanced way to bring in financial, social and environmental considerations
- Isn't this a lot more work?; doesn't it require more resources?
 - Not really!
 - Probably doing most of it already.
 - Most sustainability assessments are likely to be straight forward



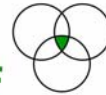
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European Union legislative context

- Draft EU Soil Protection Framework Directive (last draft March 2010): *'When deciding on the remediation actions, Member States shall give due consideration to social, economic and environmental impacts, cost-effectiveness and technical feasibility of the actions envisaged.'*
- 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]*



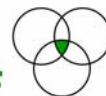
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UK Legislative context

- Planning Policy Statements 1 and 23: underpin sustainable development through 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 discretionary powers
- Part 2A EPA1990: Contaminated Land remediation must meet *'test for reasonableness'*



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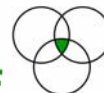
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SuRF-UK: Framework

• Key Principles

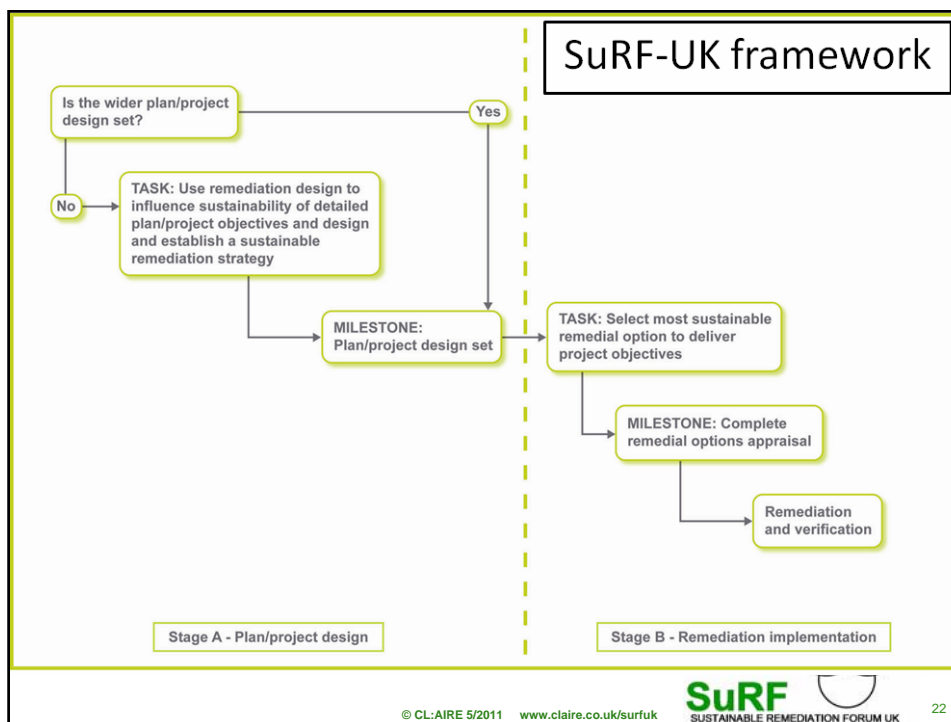
- Optimise risk-management based on consideration of social, environmental and economic factors, but always ensure:
 - **Principle 1:** Protection of human health and the wider environment
 - **Principle 2:** Safe working practices
 - **Principle 3:** Consistent, clear and reproducible evidence-based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

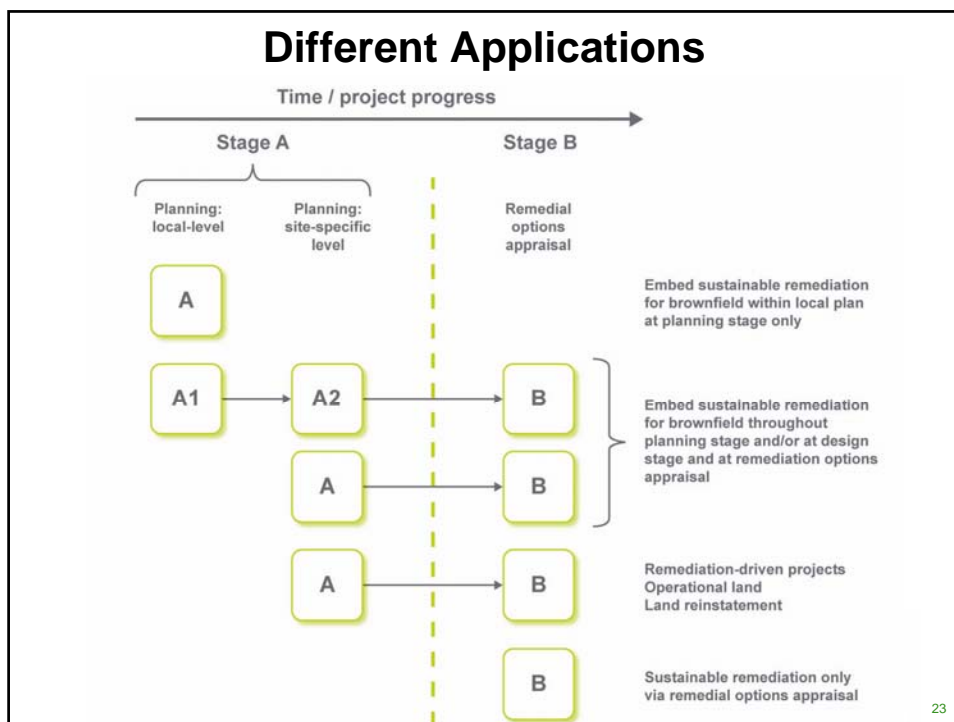


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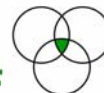


Stages in a sustainability assessment

- Agreeing objectives
 - What decision is the sustainability assessment going to inform?
 - What is being compared and why
- Agreeing which stakeholders to engage with
 - Those who significantly affect, or are affected by, the decision
 - Reviewing objectives accordingly
- Determining boundaries (e.g. project scope: spatial, temporal, lifecycle)
- Agreeing what sustainability is (which indicators to apply)
- Agreeing how these indicators will be assessed (the method or tool) and an overall “picture” of sustainability derived
- Executing the comparison
- Interpreting findings and carrying out sensitivity analyses

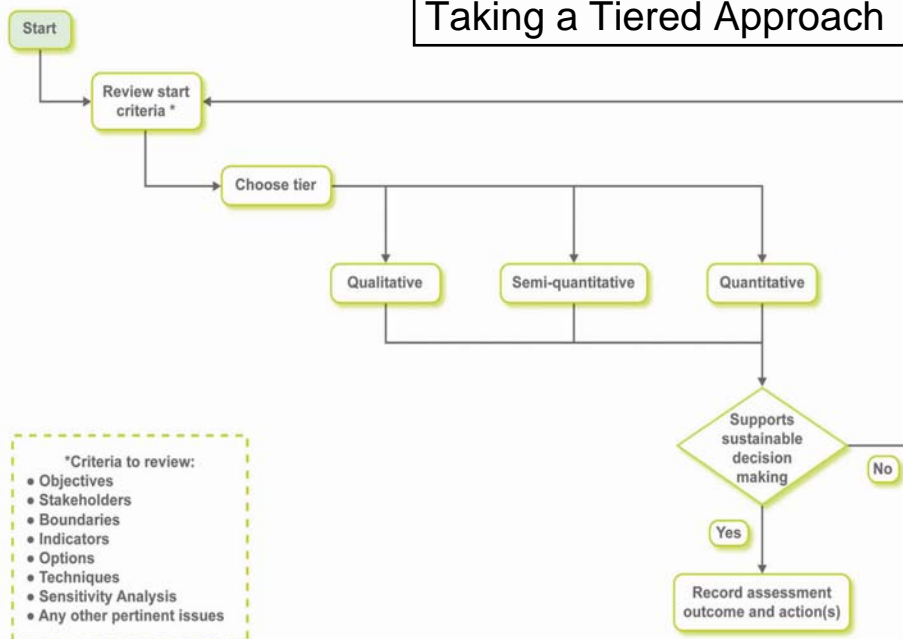
Possible sustainable remediation indicator categories

Environmental	Social	Economic
<ol style="list-style-type: none"> 1. Impact on air 2. Impact on water 3. Impact on soil 4. Impact on ecology 5. Natural resource use and waste generation 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. Induced economic benefit 4. employment and capital gain 5. life-span and 'project risks' 6. project flexibility



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Taking a Tiered Approach



Qualitative versus quantitative assessments

Qualitative

- Broad in scope (many indicators)
- More "involving" (especially for lay audiences)
- Transparent route from evidence through evaluation
- May be quicker and less resource intensive to carry out
- "Soft" information
- Policy, planning and participatory applications

Quantitative

- Seen as "hard" information
- Narrow in scope (typically fewer indicators)
- More "excluding"
- May be less transparent
- Tend to be more resource intensive and data-hungry process
- Corporate applications: e.g. financial and carbon reporting

A tiered approach may maximise effectiveness

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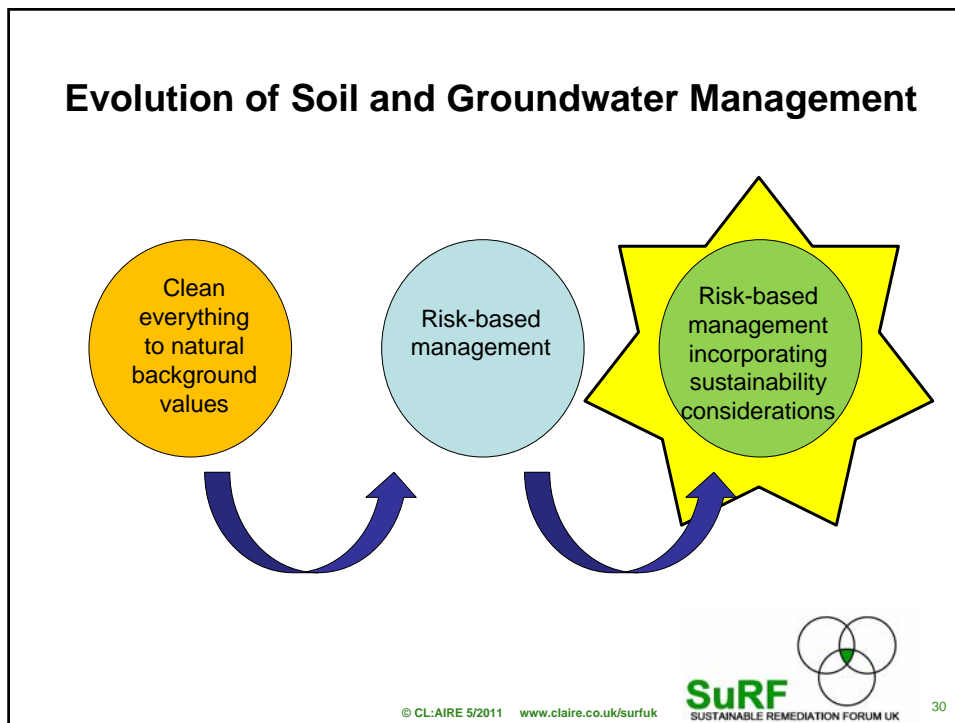
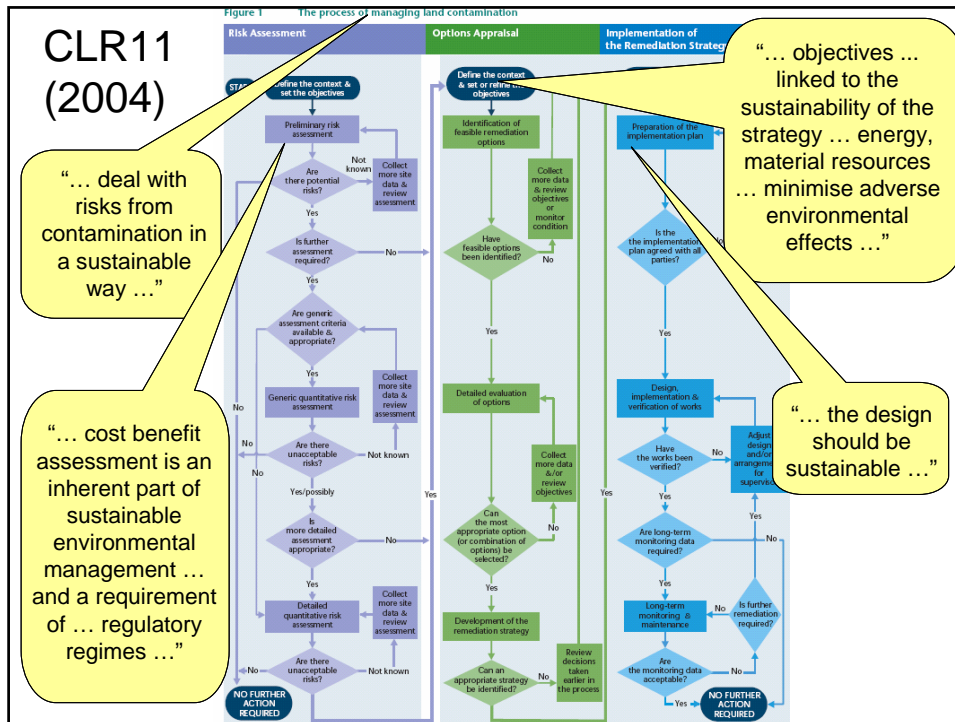
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How does using sustainability align with remedial decision making in the UK?

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Regulatory Acceptance: Foreword to Report



John Palfalvy
Policy Advisor, Brownfield Land
Department of Communities and Local
Government



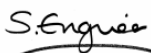
Tom Coles
Contaminated Land Policy Team
Department for Environment, Food and
Rural Affairs



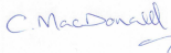
Trevor Beattie
Director Strategy, Performance, Policy &
Research
Homes and Communities Agency



Gareth Hall
Director General, Department for the
Economy and Transport
Welsh Assembly



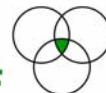
Sheena Engineer
Land Quality Policy
Manager
Environment Agency



Calum MacDonald
Director of Environmental
and Organisational Strategy
Scottish Environmental
Protection Agency



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



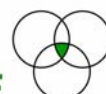
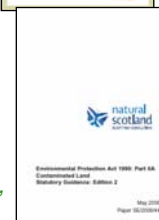
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Future Regulatory Issues

- Part IIA Consultation for England and Wales
 - Objectives stated from outset *“To ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable and **sustainable**.”*
 - Section 4(2) “Local Authority summary of its understanding” to show *“Would intervention be **sustainable**? Would non-intervention be more **sustainable**?”*
 - Section 6(d) “Reasonableness of remediation”. *“In deciding what is reasonable, the authority must consider various factors, having particular regard to: (a) the **practicability**, **effectiveness** and **durability** of remediation; (b) the **health** and **environmental** impacts of the chosen remedial options; (c) the **cost** which is likely to be involved; and (d) the **benefits** of remediation with regard to the seriousness of the harm [to HH] or pollution of controlled waters.”*
- Part IIA Consultation for Scotland considering similar issues
- Soil Framework Directive
 - Heavily focussed on sustainable remediation



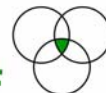
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SuRF-UK Framework in a nutshell

- First framework to set out what sustainable remediation is and how to evaluate it
 - Based upon consensus of views from a range of stakeholders
 - Wide acceptance of the principles by stakeholders and regulators
- Framework:
 - Complements sustainable development goals of planning and shows where gains can be made
 - Puts in place a mechanism to comply with regulations / adhere to guidance
 - Can minimise environmental and social impacts of remediation, and save money
 - Facilitates communication with stakeholders over complex issues
 - Holistic. Tiered.
- Shows how things can be done better
 - Case studies in preparation



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SuRF-UK Documents www.claire.co.uk/surfuk



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Indicators (draft) from SuRF-UK web site

Sustainable Remediation Indicators



Environmental Indicators

ELEMENT	CATEGORY	ISSUES THAT INDICATORS MIGHT NEED TO CONSIDERED
Environmental 1	Impacts on air	Emissions that may affect climate change or air quality, such as greenhouse gases (e.g. CO ₂ , CH ₄).

Environmental 2	Impacts on ground soil
Environmental 3	Impacts on surface water
Environmental 4	Impacts on groundwater
Environmental 5	Use of natural resources
Environmental 6	Intrusiveness

Sustainable Remediation Indicators



Social Indicators

ELEMENT	CATEGORY	ISSUES THAT INDICATORS MIGHT NEED TO CONSIDERED
Social 1	Human health and safety	Risk management performance of the project in terms of delivery of mitigation of unacceptable human health risks.

Sustainable Remediation Indicators



Economic Indicators

ELEMENT	CATEGORY	ISSUES THAT INDICATORS MIGHT NEED TO CONSIDERED
Economic 1	Direct economic costs and benefits	Direct financial costs and benefits of remediation for organization, consequences of capital and operation costs, and sensitivity to alteration (e.g. uplift in site value to facilitate future development, minimization of risk or impact of legal action).
Economic 2	Indirect economic costs and benefits	Long term or indirect impacts and benefits, such as financing debt, allocation of financial resources internally, changes in site/land/property values, and fines and punitive damages (e.g. following legal action, so includes solicitor and technical costs during defence). Consequences of an area's economic performance. Tax implications. Financial consequences of impact on corporate reputation.
Economic 3	Employment and employment capital	Job creation, employment levels (short and long term), skill levels before and after, opportunities for education and training, innovation and new skills.
Economic 4	Gearing	Creating opportunities for inward investment, use of funding schemes, ability to affect other projects in the area / by client (e.g. Cluster) to enhance economic value.
Economic 5	Life span and project risks	Duration of the risk management (remediation) benefit, e.g. fixed in time for a containment system; factors that might impact the chances of success of the remediation works and issues that may affect works, including community, contractual, environmental, procurement and technological risks.
Economic 6	Project flexibility	Ability of project to respond to changing circumstances, including discovery of additional contamination, different soil materials, or timescales. Robustness of solution to climate change effects. Robustness of solution to altering economic circumstances. Requirements for ongoing institutional controls. Ability to respond to changing regulation of its implementation.



Thank you.
Any questions?