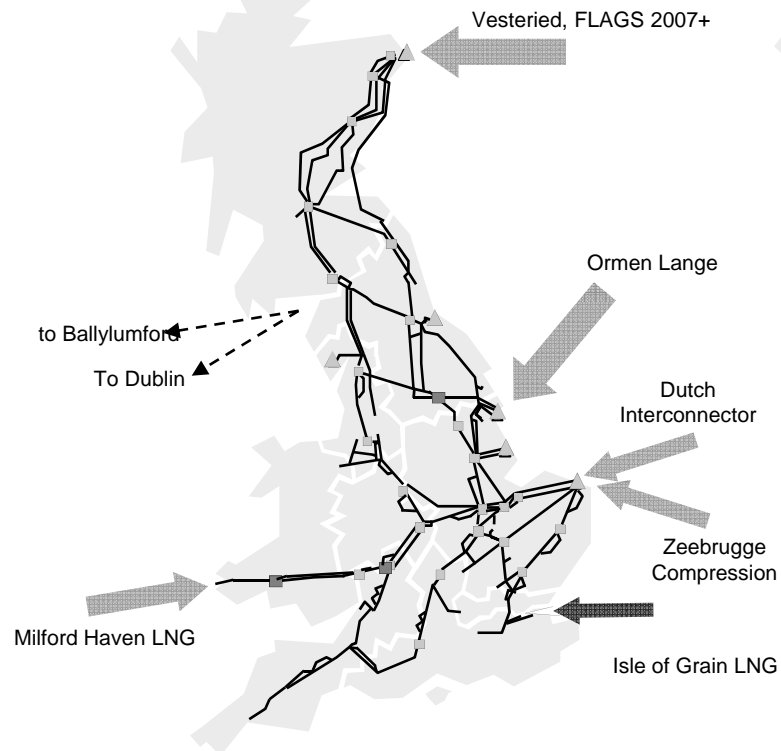


Understanding Sustainable Remediation

Frank Evans, October 2010

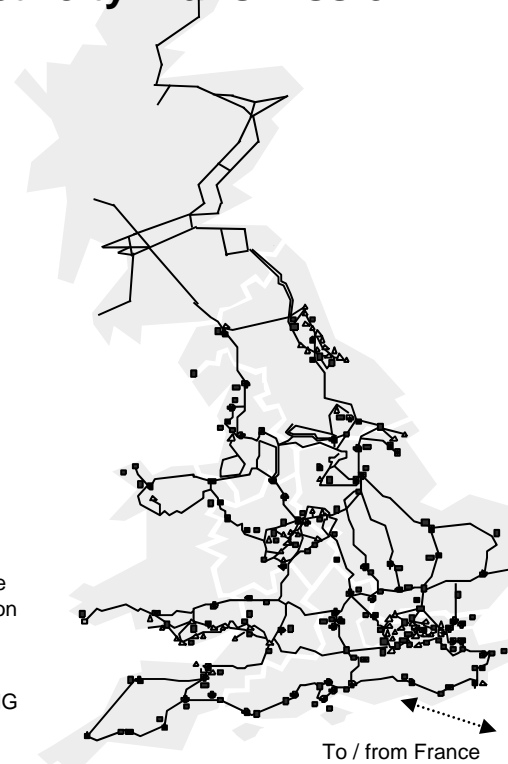
National Grid in the UK

Gas Transmission



7,400km high pressure pipe, 26 compressor stations

Electricity Transmission



7,200km overhead line, 675km underground, 334 substations

Gas Distribution



**132,000km of pipes
Distribute gas to 11m consumers**

National Grid – Company profile

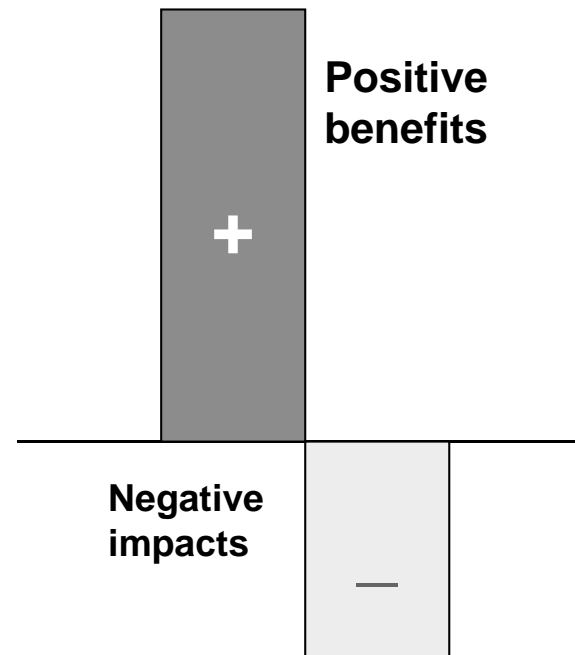
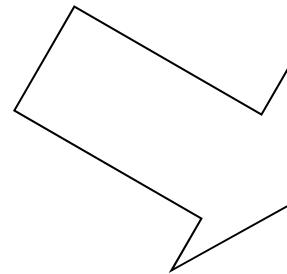
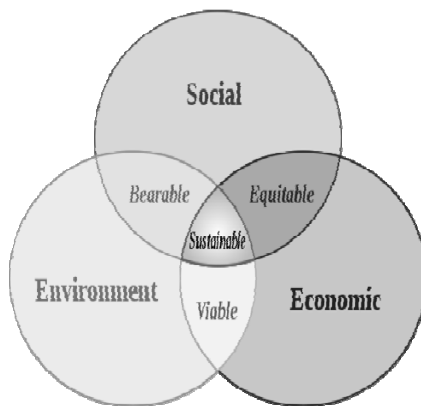
- ◆ International electricity and gas company (**UK & US**)
- ◆ High voltage electricity transmission network
- ◆ High pressure gas transmission system
- ◆ Gas distribution to 11M homes and businesses
- ◆ Electricity distribution to 3.3M customers in NE states
- ◆ Electricity generation on Long Island
- ◆ Gas distribution in NE states
- ◆ Related businesses such as Liquefied Natural Gas (LNG) importation and storage, land remediation and metering

Outline of presentation

- ◆ What is Sustainable Remediation?
- ◆ Why is it important?
- ◆ Comment on global initiatives
- ◆ Progress to Date
- ◆ Next stages and Challenges
- ◆ Risk Assessment

What is Sustainable Remediation?

**‘Sustainable Development’
Brundtland (1987)**



....a net benefit

Global Definitions

SuRF-UK	NICOLE	SURF	US EPA
<p>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</p>	<p>an approach which the stakeholders involved with a project have agreed has a broad balance of beneficial environmental economic and social consequences</p>	<p>In fulfilling our obligations to remediate sites to be protective of human health and the environment we will embrace sustainable approaches to remediation that provide a net benefit to the environment</p>	<p>Green Remediation: The practice of considering all environmental effects of remedy implementation and incorporating options to maximize net environmental benefit of cleanup actions.</p>

The Legacy Factor

- *Development that meets the need of the present without compromising the ability of future generations to meet their own needs (Brundtland, 1987)*
- Past development by our predecessors was not sustainable, it contaminated the ground.
- Remediation...
 - tackles the legacy of an unsustainable past
 - occurs in the present, we can eye the future but we are correcting a past contaminating activity
 - creates impacts – what makes it sustainable is a demonstrable net-benefit

Why is it important?

- Move to a low carbon – zero waste society
- Remediation is generally captured by the Construction sector (who are setting their own agenda, e.g. zero waste by 2020)

- European Directives
 - Draft EU Soil Protection Framework Directive (Feb 2009):
‘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*
- Create our own future. Take the lead and not be lead by others

UK – an opportunity to lead

- We recognise a ‘Suitable for use’, risk-based approach which fundamentally underpins sustainable remediation
- We have a regulatory regime that recognises cost-benefit factors in decision making
- European regulatory risk-based framework not consistent, represents a challenge to pan-European sustainable remediation and for NICOLE
- We have a ready made Stakeholder engagement process via Town and Country Planning
- SuRF-UK framework is a leading and influential document in the global discussions

Who is active?

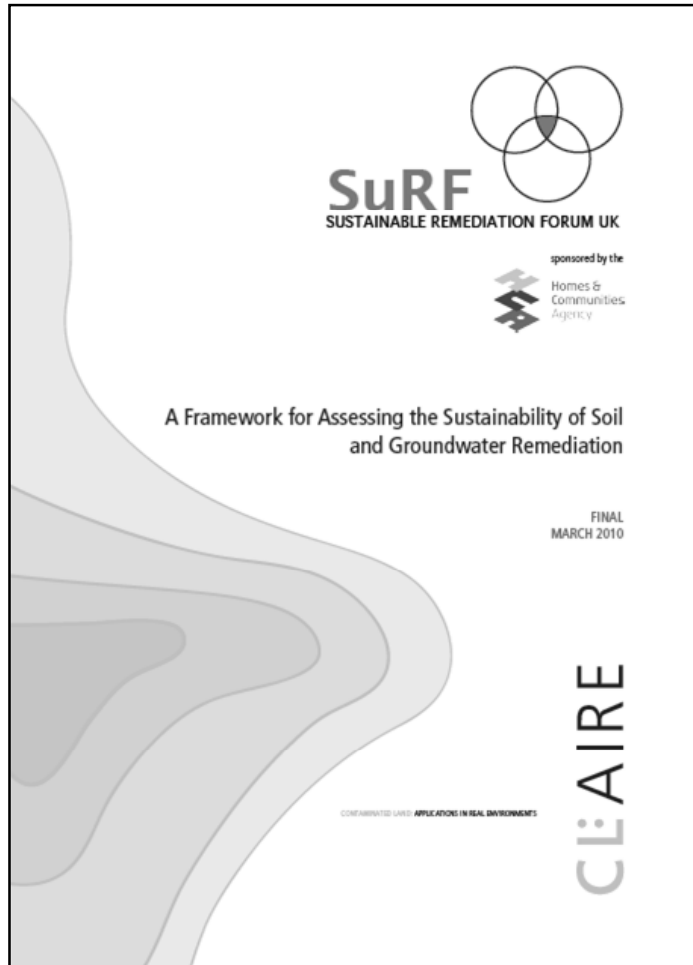
- European
 - SuRF-UK
 - NICOLE working group

- US
 - SURF
 - ASTM
 - EPA Green Remediation

Progress of European work to date

- Sustainable Remediation is considered in terms of Economic-Social-Environment factors
- Sustainable Remediation can be most sustainable where an holistic approach is taken and remediation is better by design
- Process map tabled that outlines stages of assessing sustainable remediation

SuRF-UK Framework Document



CL:AIRE



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

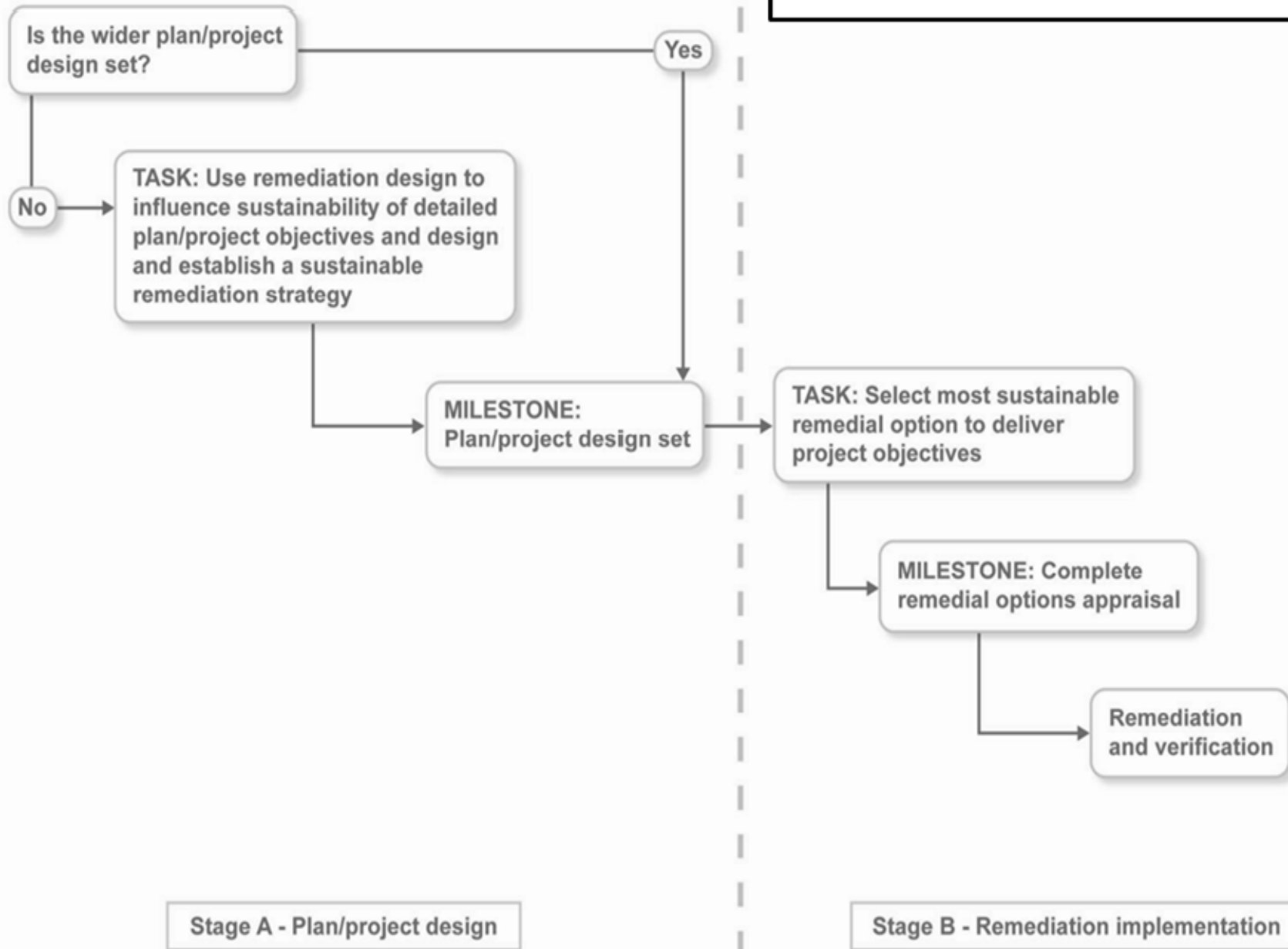
Gareth Hall
Director General, Department for the
Economy and Transport
Welsh Assembly

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

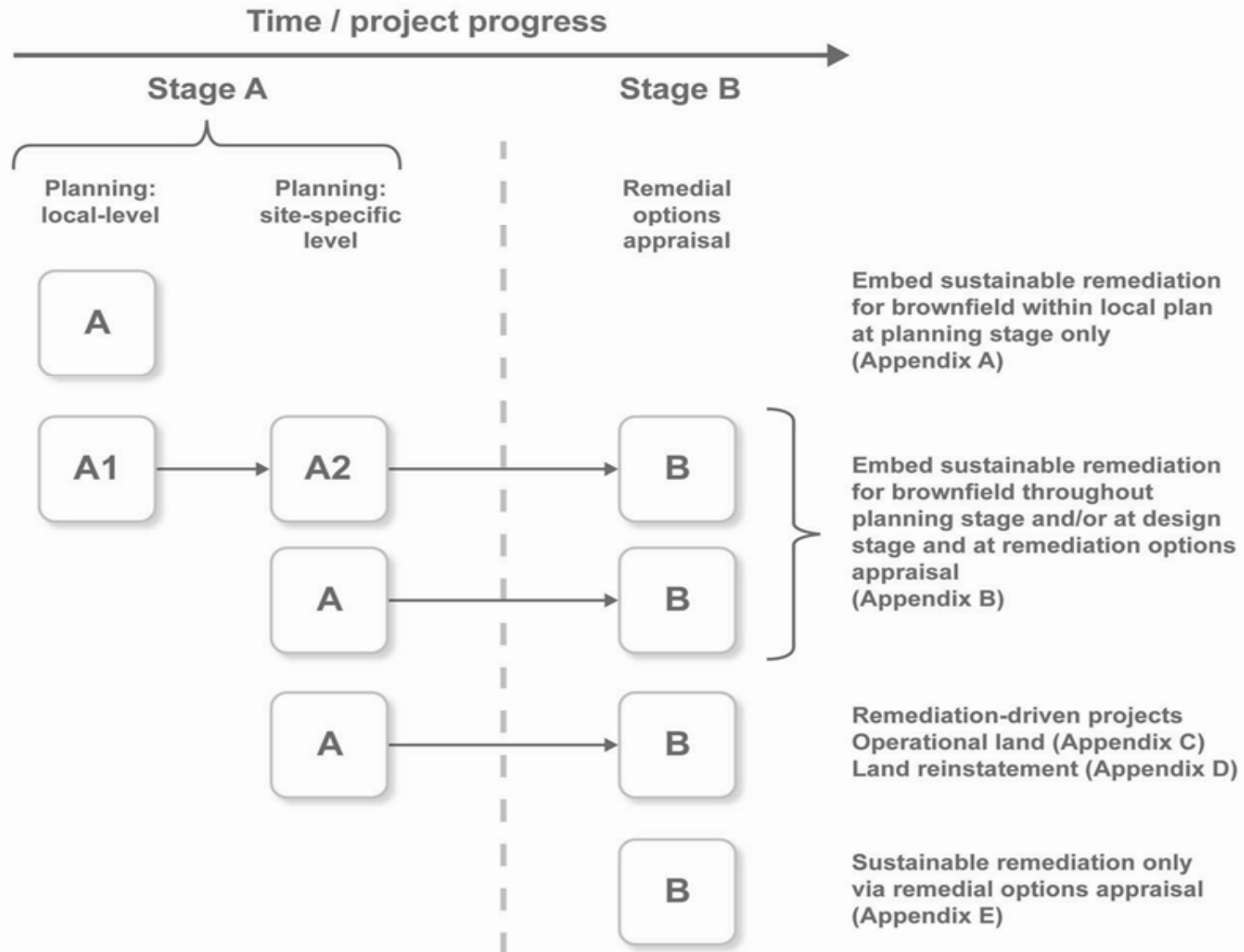
SuRF-UK framework



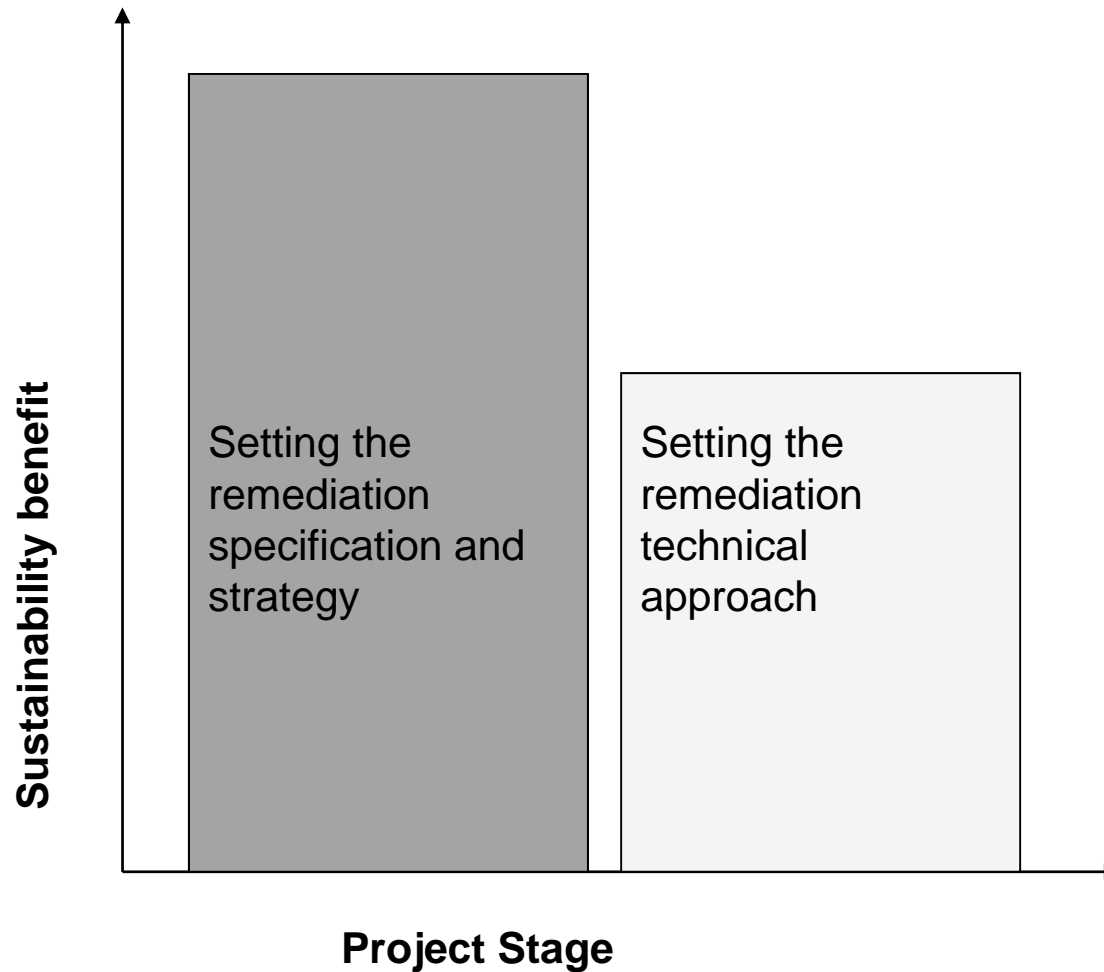
Role of SuRF-UK Framework

- Defines when sustainability decisions should be considered
- Recognises two main stages:-
 - Project planning/design stage – embed sustainability in design. Better by design
 - Point of remediation implementation – selection of remediation approach
- Flexible
 - Property lifecycle
 - Remediation scenarios
- Aligns to CLR11

Remediation Scenarios



NICOLE Road Map

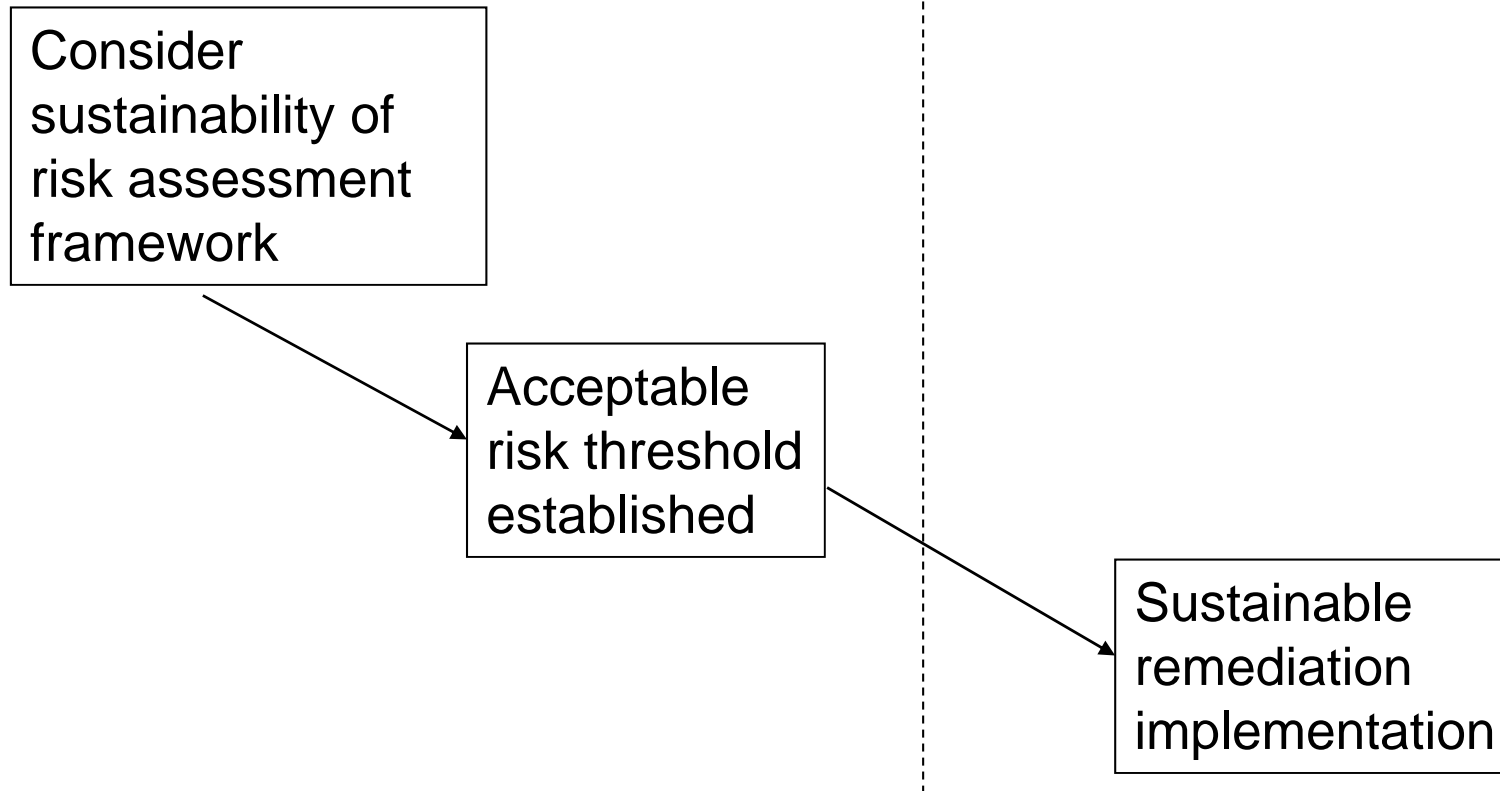


The next stages & challenges

- Test the framework and approach to sustainable assessment with case studies
- Establish what the different tiers feel/look like
- Develop the indicator set to support decision-making

- The search for a common indicator
- Overlap between risk assessment and sustainability
- Conflict between Indicators

Risk Assessment



Non-negotiable position on what constitutes unacceptable risks

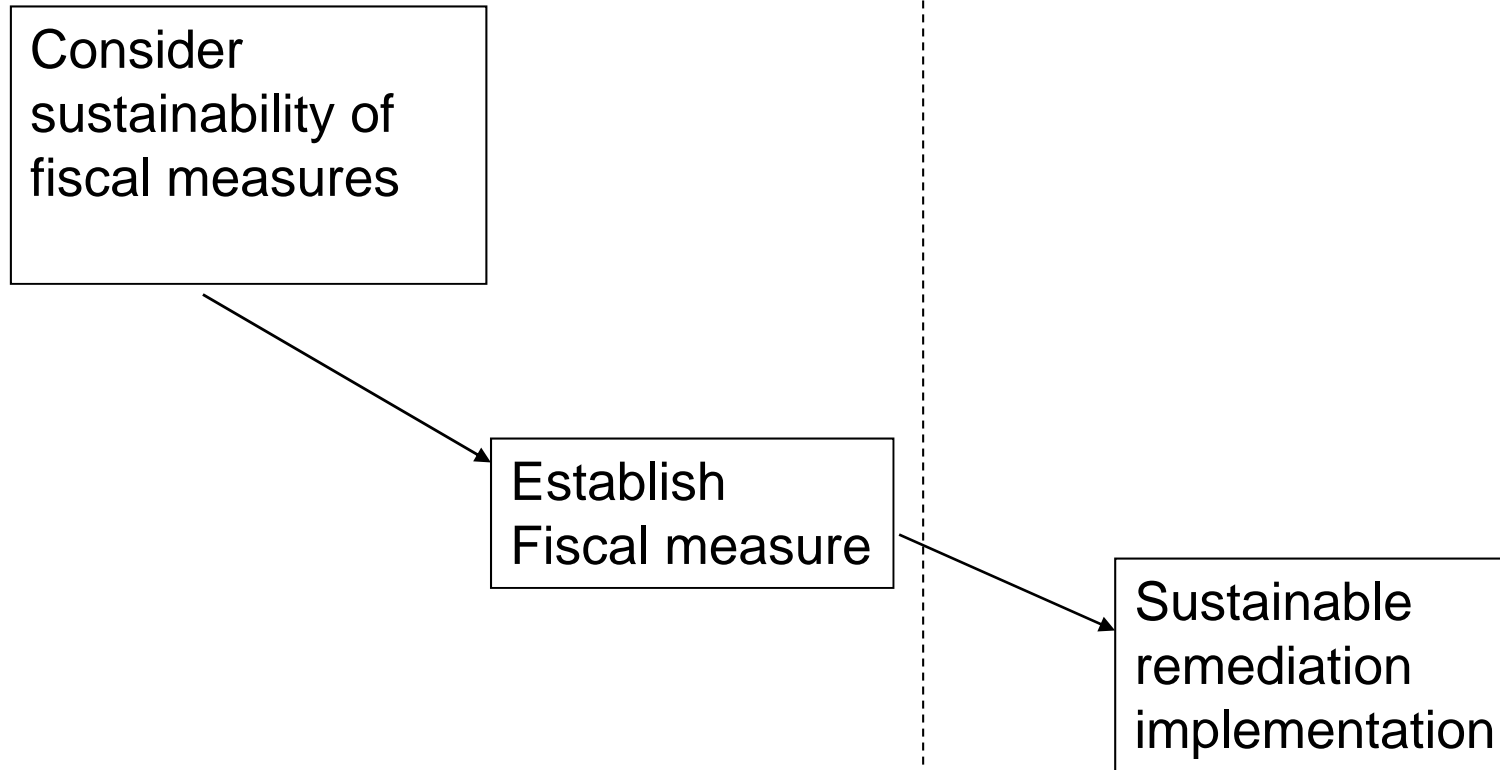
Risk Assessment & Sustainability:

Stage	Consider sustainability	Reasoning
Policy-level: Establishment of underpinning risk assessment principles (e.g. threshold levels)	Yes	Political decisions. Sustainability reasons can influence policy decisions
Existing use, site-specific risk assessment	No	Unacceptable risks identified. Respect output Non-negotiable
Future use, site-specific risk assessment	Yes	Embed sustainability e.g. receptor locations

Conflict between Indicators

- Thermal project highlighted conflict between ‘green’ policy agendas
- Tarry wastes exceed WAC due to %TOC. Options appraisal:-
 - Pre-treat below WAC & landfill (current preference); or
 - Thermally treat for re-use
- Post 2012 – landfill option will subject to landfill tax
- Post 2012 – thermal methods likely to be most cost-effective but associated with highest carbon footprint
- What is sustainable remediation solution?

Fiscal Measures



Cost-base fixed due
to fiscal measures

Summary and conclusions

- UK leadership position and opportunity
- Foundations in place
 - Regulatory Framework
 - SuRF-UK
- Case Studies
- Potential for framework to be applied more widely
 - Establish risk assessment thresholds that are sustainable
 - Establish fiscal measures that are sustainable