

Protecting water receptors - sustainable remediation and risk management

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In this presentation

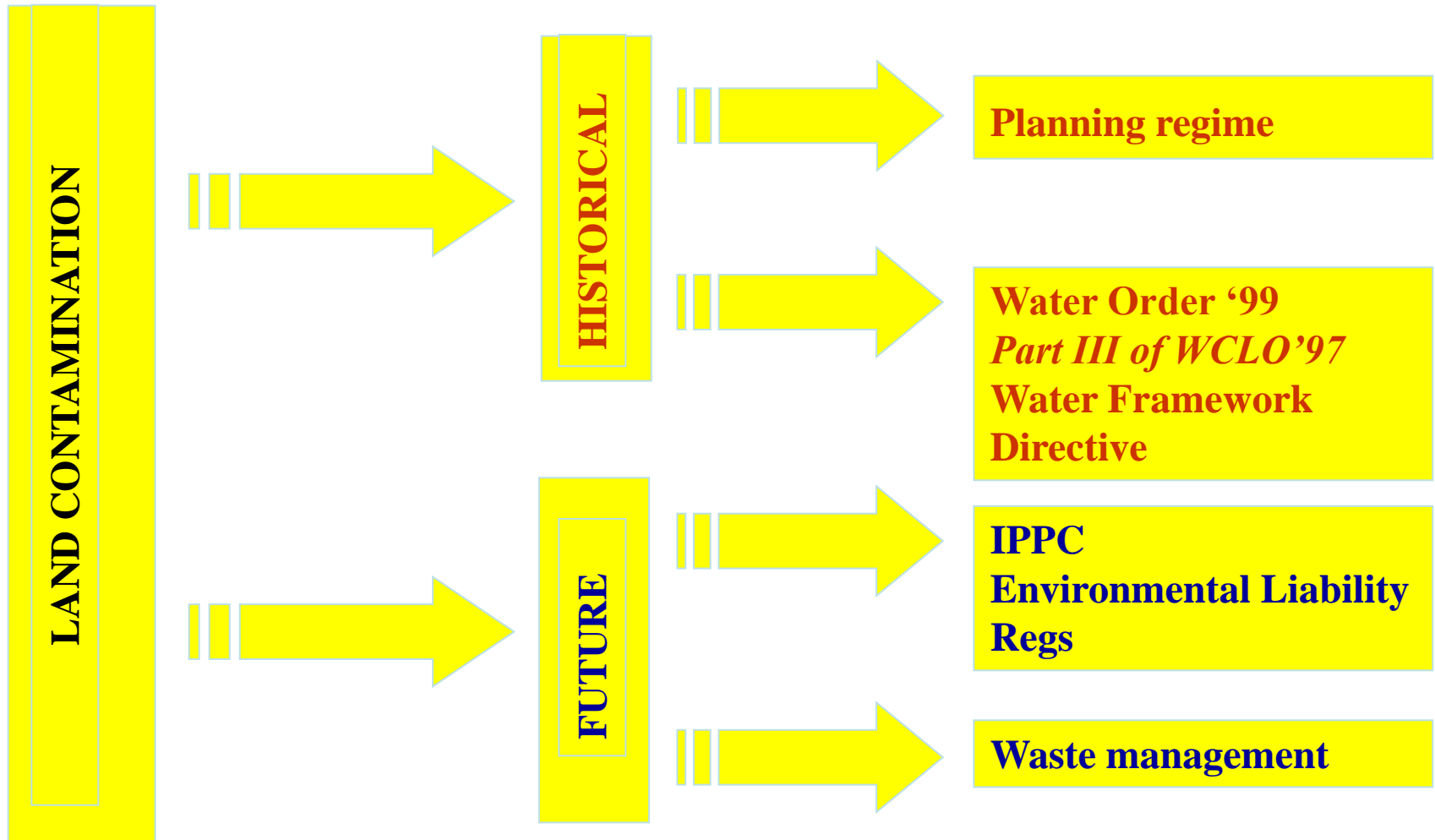
- Sustainable development & sustainable remediation / risk management in protecting water receptors
- Overview of legislative drivers for dealing with contamination;
- Developing the conceptual site model;
- Building confidence in groundwater risk management & remediation
- Concluding comments

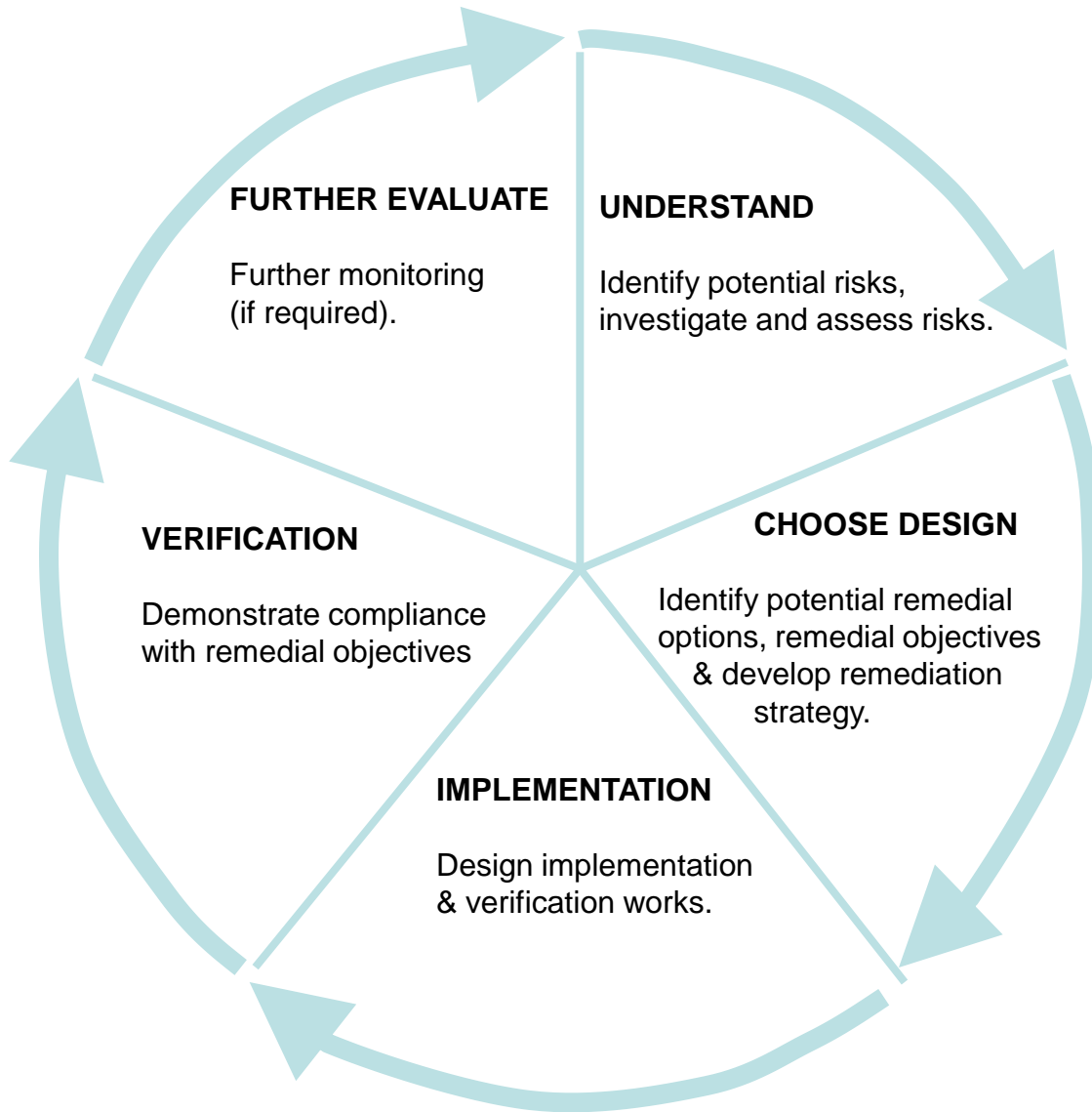
Sustainable development

- Redevelopment route provides an effective means of dealing with land contamination;
- Sustainability of remediation considered at a site specific level;
- Remediation aims to remove all unacceptable risks and enable the site to be suitable for its new use;
 - can have significant impacts on project sustainability
- Planning system generally provides for a higher standard of remediation

As a minimum, developed land should not be capable of being determined contaminated land under *Part 3*

Legislative drivers

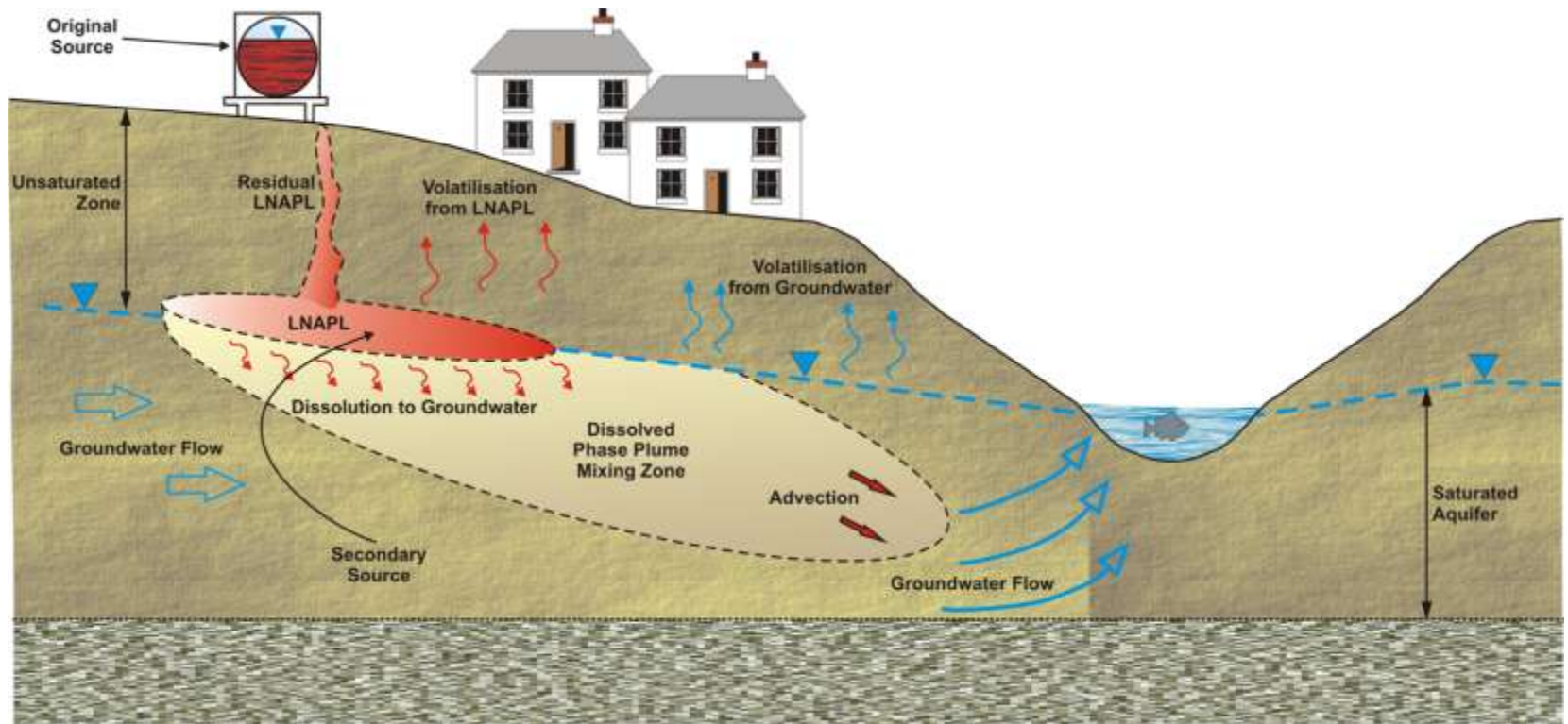




Model Procedures for management of land contamination

- tiered risk based process
- decision making structure
- add confidence in the outcomes

Conceptual model - risk assessment to remediation



Conceptual model

- Identify the location and types of receptors;
- Source – pathway – receptor linkages;
- Suitable environmental standards;
- Hydrogeological properties and groundwater regime;
- Contaminant fate and transport

A clear conceptual understanding is required to agree appropriate compliance points

Sustainable remediation

- Defined by SuRF-UK
-practice of demonstrating in terms of environmental, social and economic indicators that the benefit of remediation is greater than its impact
 - Sustainability criteria and indicators used to encourage consistency
 - Aid decision making
 - Engage with affected stakeholders

Selecting remedial options to remediate contaminated groundwater ...

- Site setting and hydro-geological characterisation
- Technically feasible / difficult
- More innovative technologies available;
 - How do you know they are being effective?
- Potentially create new environmental impacts;
 - Is more innovation needed?
- Social impacts
- Costs / timescales

Lines of evidence

- Will remediation targets be achieved?
 - is the option viable given site conditions?
 - will injection / monitoring points be sufficiently installed and spaced to affect the contaminants and control contaminant migration?
 - what are the critical inputs and controls – how will these be monitored?
 - Do we have cost effective tools to monitor priority groundwater contaminants and provide confidence in in-situ treatments?

***In-situ* pilot trials will provide some answers**

Building confidence - challenges

- Remediation needs to be considered at the project planning / design stage
- Submission of good quality risk assessments and remediation strategies to support development proposals;
- Need for confidence that remediation strategies can achieve remedial targets
 - importance of proving concepts at the site
 - effective implementation
 - verification and compliance with planning conditions;
- Do we have the tools to understand the effectiveness of *in-situ* treatments

Best practice guidance

- Model Procedures for the management of land contamination (CLR11);
- Ensure the most recent guidance is adopted and applied
 - refer back to the guidance source
 - staff skills are updated and refreshed via suitable training
- CL:AIRE – www.claire.co.uk
 - Sustainable Remediation Forum UK
(www.claire.co.uk/surfuk)

Concluding comments

- Opportunities to address contamination are likely to be most cost effective ahead of regulatory intervention via Part 3;
- Investment in understanding and managing risks is critical to inform knowledge based decisions
- Remediation strategies need to be integral in the development of sites;
 - Cost effective and sustainable groundwater remediation remains challenging
 - Innovative methodologies needed to assess and demonstrate the effectiveness of in-situ treatments
- Liabilities may remain on completion of a development;
- Verification is important in demonstrating management of risks and in building confidence among stakeholders

Our aim is to protect, conserve
and promote our natural and built
environment for the benefit of
present and future generations.

