



# The concept of sustainable remediation being applied in NanoRem

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environmental  
technology



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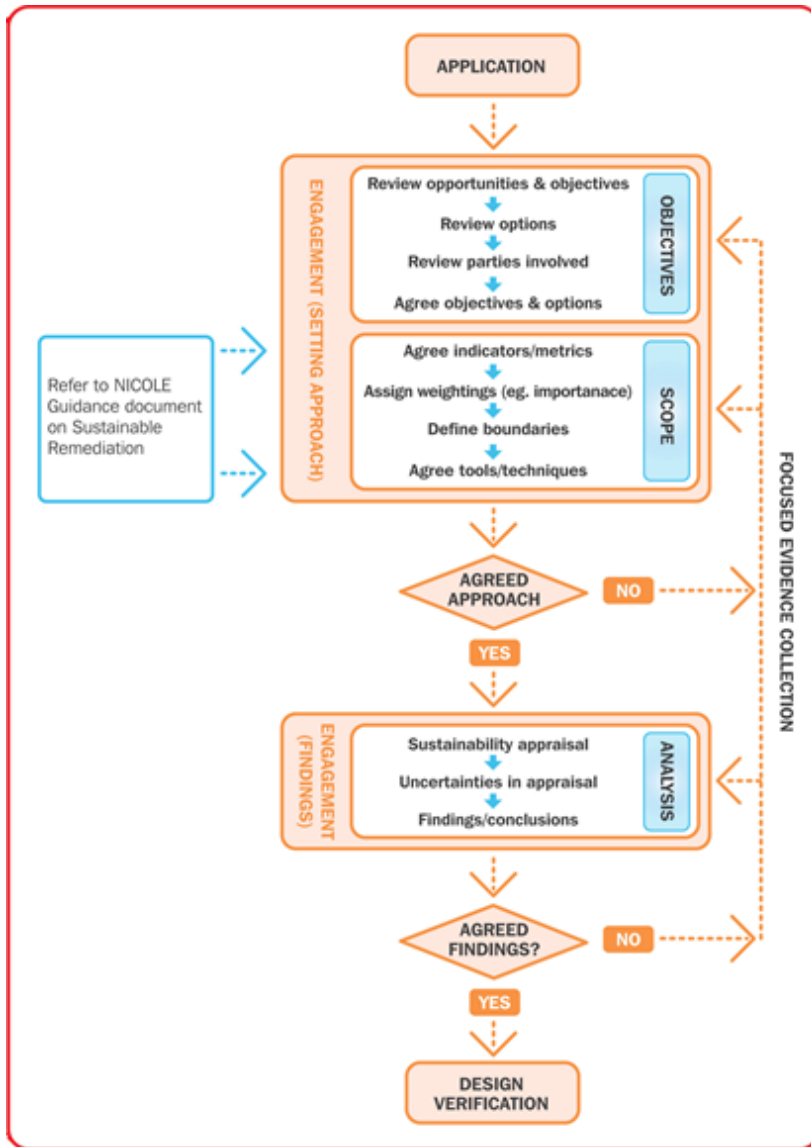
- Definitions of sustainable remediation
- NICOLE and SuRF-UK concepts used
- NanoRem sustainability assessment procedure
- How these will be applied to case studies
- Next steps
- What we would like out of today

# Definitions

- Definitions of sustainable remediation are remarkably consistent
- In broad terms it is the achievement of a net benefit across a range of environmental, economic and social concerns that are representative of sustainability
- They are applied alongside the risk-based land management approach that is adopted throughout Europe
- NanoRem will use the NICOLE description of sustainable remediation and will apply the SuRF UK methodology for sustainability assessment.

# NICOLE and SuRF-UK concepts used

- NICOLE has published a pan-European “road map” for sustainable remediation, so it makes sense for a pan-European project to adopt this approach
- The NICOLE Roadmap offers concepts and definitions, but only limited methodology
- SuRF-UK has developed a detailed qualitative methodology and indicator concepts which are consistent with / usable within NICOLE’s broad approach
  - It is the most elaborated EU methodology available
- NICOLE and SuRF-UK approaches have been subject to detailed scrutiny and review during development

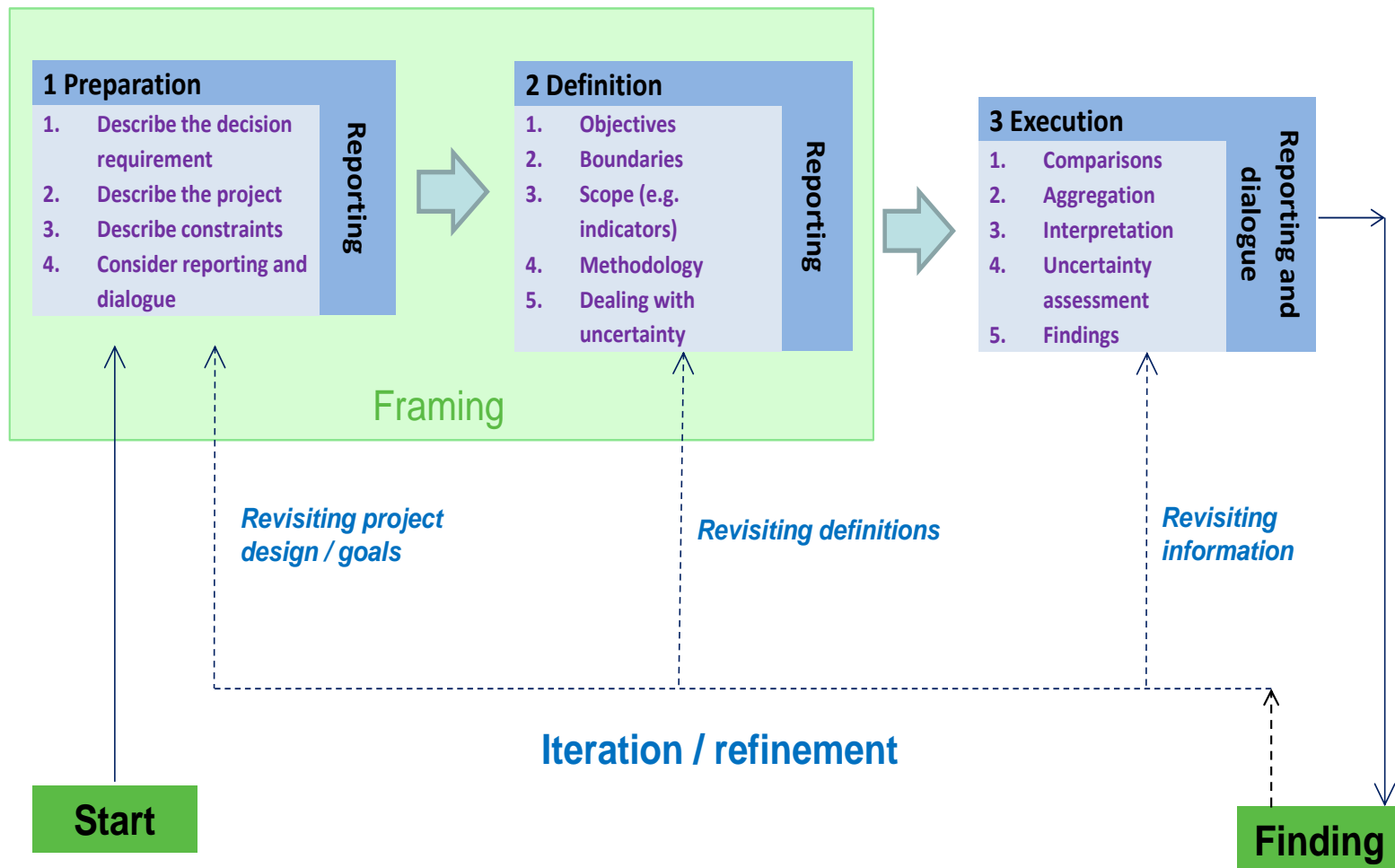


NICOLE sustainability  
assessment procedure

No specific methodologies  
published

# SuRF-UK sustainability assessment procedure

Detailed qualitative methodology available at [www.claire.co.uk/surfuk](http://www.claire.co.uk/surfuk)



# NanoRem's Case Studies

- A major part of NanoRem's work is operational testing at demonstration scale
- One part of ensuring that the findings are convincing at an EU level is understanding how “sustainable” the nanoremediation work was
- We will do this by benchmarking against alternative site options, but this is only possible in a qualitative and retrospective way as the technology selection decisions are already made
- So NanoRem is therefore interested in parallel to understand what wider international stakeholders perceive as likely sustainability drivers →Oslo meeting

# Next Steps after our World Café™ Today

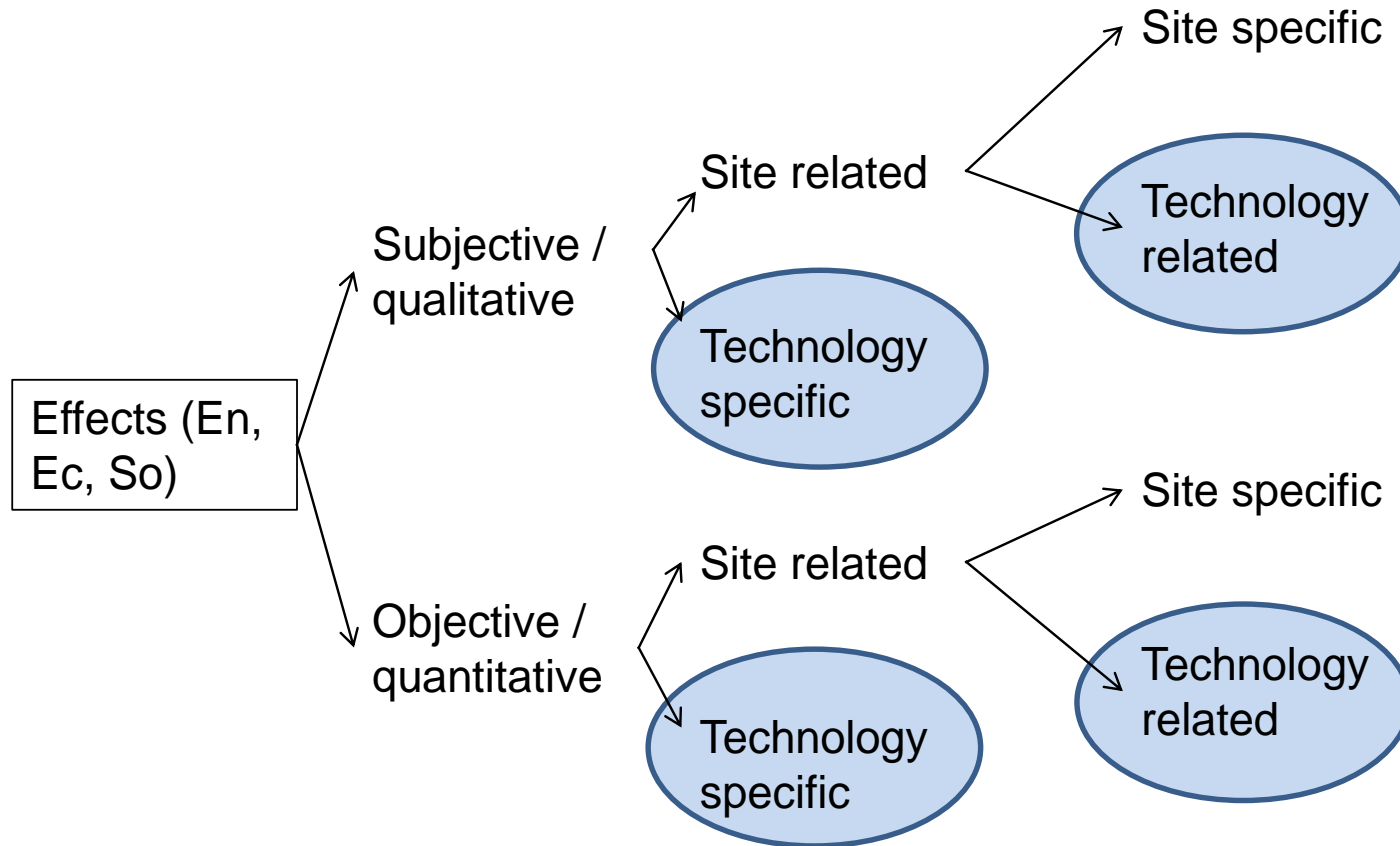
- NanoRem case study methodology available for download
- First case study assessment carried out with stakeholder involvement
- External / expert opinion workshop Oslo and Ferrara reporting
- Interim deliverable (expected May 2015)



# What we would like out of today

- What might be key sustainability benefits and concerns for nanoremediation?
- Are there any generic issues related to the technology?
- Can we group these, may be using the SuRF-UK “headlines”, but at least as
  - Environmental
  - Economic
  - Social

# Technology vs. Site specific



# Overarching SuRF-UK Sustainable Remediation Considerations (CL:AIRE 2010)

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

# Acknowledgements



This project received funding from the European Union Seventh Framework Programme (FP7 / 2007-2013) under Grant Agreement No. 309517.

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# Thank You

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