

Barriers and Impediments to Sustainable Remediation in Decision Making

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Global Perspectives on Green Remediation
– Making Clean “Green”

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The SuRF White Paper

“Integrating Sustainability Principles, Practices and Metrics into Remediation Projects”

- Collect, clarify, and communicate the thoughts and experiences of SURF members on sustainability in remediation.
 - Introduction and Scope - Dave Ellis (DuPont) & Paul Hadley (DTSC)
 - Current Status of Sustainability in Remediation – Dick Raymond (Terra Systems)
 - Sustainability Concepts and Practices in Remediation – Stephanie Fiorenza (BP)
 - Impediments and Barriers – Dave Major (Geosyntec)
 - A Vision for Sustainability – Paul Favara (CH2M Hill)
 - Success Stories – Brandt Butler (URS)
 - Summary, Conclusions, and Recommendations – Dave Ellis & Paul Hadley
- To be published as a special issue of “*Remediation*” 2Q 2009

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Barriers to Sustainable Remediation

The Machiavelli World View of Change

“There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things.

For the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in all those who would profit by the new order, this lukewarmness arising partly from fear of their adversaries ... and partly from the incredulity of mankind, who do not truly believe in anything new until they have had actual experience of it.”

Niccolo Machiavelli (1469-1527)

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Updated Machiavelli World View of Change

1. *Anything that was in the world when you were born is normal and ordinary and is just a natural part of the way the world works*
2. *Anything that's invented between when you're fifteen and thirty-five is new and exciting and revolutionary and you can probably get a career in it*
3. *Anything invented after you're thirty-five is against the natural order of things*

Douglas Adams –Salmon of Doubt

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Societal Barriers

- Current established process for remedy selection
- Knowledge of reliability of sustainable remedies
- Understanding of cost-benefit vs. other societal risks or goals

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Technical Barriers

- Universal definition is lacking
- Metrics are not clear
- Guidance is lacking
- Resources are distributed and variable
- Validation via cases studies are few
- Source treatment/removal paradigm
- Risk assessment –real vs potential

Organization Barriers

- Economic – the business case
 - Perception of incremental cost vs outcome
 - Must be a level playing field
- Organizational
 - Type (Government, Industry) have different mandates
 - Clarity of goals vs mission, valued and measured by the leaders

Regulatory & Legal Barriers

- Survey Results
 - Not widely understood, or understood differently
 - No consistent view of how or who should regulate it or if it should be a mandatory requirement for remedy evaluation
- Current regulations
 - No definition
 - Does not explicitly include sustainability evaluation, but does not preclude it

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Final thought

*“ I can't understand why people are
frightened of new ideas, I'm frightened by
the old ones”*

John Cage (1912-1992) Composer of avant-garde music

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