

Sustainable Remediation and Redevelopment Case Studies State of the Art Workshop Ferrara, Italy, 18 Sept. 2014

Overview

The *Sustainable Remediation and Redevelopment Case Studies State of the Art* workshop was presented at the III^o International Conference on Sustainable Remediation, in Ferrara, Italy, 17-19 September 2014.

The workshop stimulated an international exchange on the optimal ways to document and communicate the value of sustainable remediation to key stakeholders (including practitioners, regulators and community representatives).

Four case study initiatives were presented by a panel representing the Sustainable Remediation forums for the United Kingdom, Australia and New Zealand, the United States, and NICOLE (an industry group based in Europe).

Fifteen diverse case studies from around the world highlighted the objectives of SustRem III^o, and how sustainable remediation can contribute to sustainable development and community resiliency.

Addressing an International Demand

Mr. Hans Slender (NICOLE and SuRF-NL) noted that case studies were “indispensable for wider acceptance.” **Mr. Richard Bewley** (SuRF-UK) emphasized the importance of a “credible sustainable solution.” He echoed the commonly-expressed need to avoid potential “greenwash” perceptions by highlighting the robustness of the technical approach, and by including an independent technical review and follow up by the author as needed.

Mr. Gary Smith (SuRF ANZ) noted that most consultants and regulators focus on site-specific remediation (i.e., practical methods) due to specific statutes and jurisdictional mandates. Client confidentiality was cited by most as a major obstacle to obtaining case studies, along with the time required to complete case studies.

The panel outlined the following key themes of successful case studies:

- Site overview
- Regulatory mandates
- Integral sustainability appraisal, optimal environmental gain
- Stakeholder engagement
- Combined benefits demonstrations to facilitate stakeholder buy-in and regulatory approval

The four case study initiatives shared many common parameters, with differences designed to address each organization’s priorities. (See Attachment.)

The SURF USA team (**Ms. Barbara Maco**) developed its case study template to be informative, user-friendly, and concise. Another priority for SURF USA is a case study inventory to facilitate a knowledge exchange among members and with external stakeholders. The inventory focuses on green and sustainable remediation tools, best management practices, and lessons learned.

During the workshop **NICOLE** presented another concise but comprehensive inventory:

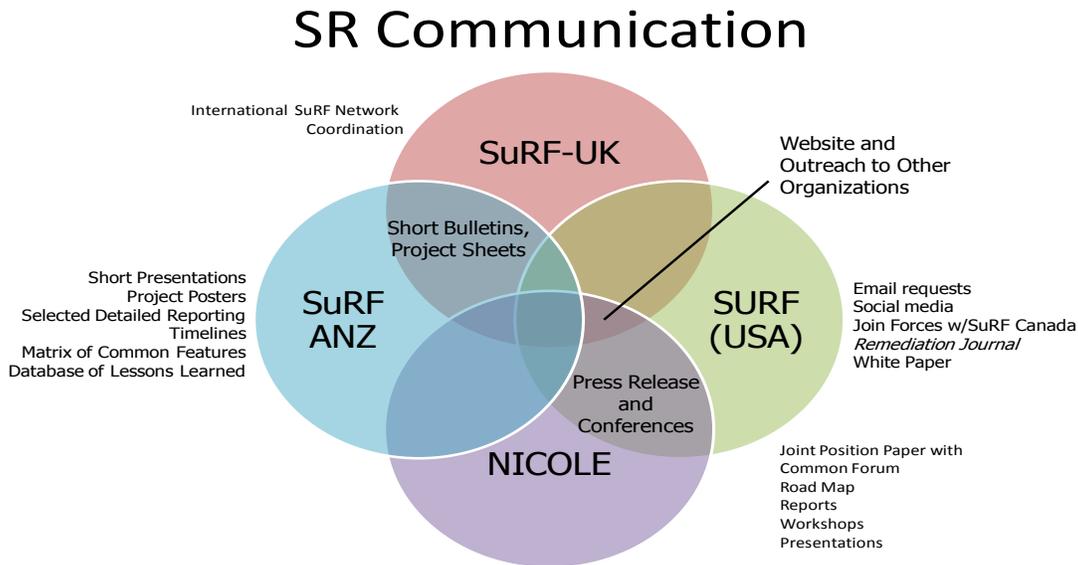
NICOLE SR Case Study Inventory

Site Location	P	UK	UK	NL	UK	I	UK	NL
COC	TPH	MGPS	TPH	VOC, TPH	Coal Tar (NAPL)	TPH	Solvents	pesticides
Property end use	Mixed	Parkland	vacant	Railway, housing	Industrial	all	Industrial	Industrial
Sustainability settings by	Client consultant	Stakeholders	Client consultant	Stakeholders	Client, regulator, consultant	Stakeholders	client, consultant	client, consultant
Sustainability aspects considered	Net Ben. PPP	Net Ben. PPP	Net Ben. PPP	Net Ben. PPP	Net Ben. PPP	Net Ben. PPP	Net Ben. PPP	Net Ben. PPP
Metrics/indicators	Y	Y	Y	Y	Y	Y	Y	REC
Metric prioritisation?	Y	Y	Y	Y	Y	Y	Y	Y
Quantitative qualitative	Semi	-	Qualitative	semi	quantitative	quantitative	Quantitative and qualitative	quantitative
Remediation option selected	en.bio	ex situ bio	ex situ bio	MNA, excav.			DPVE	MNA
Reference and/or contact email	URS	RSK	WSP	ARCADIS	WSP	CH2M	ERM	Tauw

SURF Italy recently published **Libro Bianco 2014**, to present “the principles, the scope, and the main activities that coincide with a sustainable approach to the process of remediation in Italy.” (http://www.surfitaly.it/documenti/SURF%20Italy%20Libro%20Bianco_2014_FINAL.pdf). The White Book also includes 10 case studies, two of which were presented in this workshop.

Communicating the Value of Sustainable Remediation/Redevelopment

The panelists discussed a number of current and proposed outreach mechanisms to disseminate information on existing case studies and obtain more examples. See diagram below:



Case Studies Presentation

Fifteen case studies from countries around the world (including Taiwan, Brazil, Netherlands, Canada, Italy, the United States, Portugal, Australia and New Zealand) exemplified the objectives of **SustRem III**^o, including Brownfield redevelopment, the environmental footprint, increased cost-effectiveness, environmental & social improvement, renewables, and combined benefit approaches.

The Workshop case studies documented sustainable remediation at private sector sites, both large and small, but the majority of the case studies presented were public sector success stories, including those in Canada, Taiwan and the USA.

Sustainable redevelopment included a new kindergarten in New Zealand, housing on a former chemical plant site in Australia and on a former railroad yard in the Netherlands, and the largest landfill-to-park project in the world, Freshkills Park in New York City. NYC's largest solar farm is also planned for Freshkills.

The two cases studies from **Italy** highlighted comprehensive environmental footprinting tools that also provided visually-compelling evidence of the combined benefits (particularly ecological services and economic gains) for both sustainable groundwater treatment (**Ms. Anna De Fina of Golder Associates**) and the Lake Maggiore sediment cleanup.

Sustainable remediation cases in **Taiwan** presented by **Dr. Colin S. Chen** (National Kaohsiung Normal University) highlighted remediation by the military that also assessed job creation while minimizing the environmental footprint.

Dr. Olivier Maurer of CH2M HILL presented integrated strategies to sustainably remediate large mining and industrial sites in **Brazil**. The GSR Strategy including partnership with authorities and a local university early-on and throughout the project execution, road map, sustainability performance indicators, and use of an integrated team to assess the environmental, social and financial benefits for the property, community and region.

The combined benefits approach at two sites in the **Netherlands** demonstrated reduction in the carbon footprint and a large cost saving for the client, strategies that were fully endorsed by the regulators, the water board and the soil protection agency. (**Mr. Hans Slender**).

In **Sydney**, working with government planning and community endorsements, a former Union Carbide plant is being transformed into apartments. The **New Zealand** case study demonstrated how the land legacy did not compromise the vision of a not-for-profit kindergarten association to build a school for a community in need. (**Mr. Gary Smith**).

Two case studies in **Canada** showed the value of SR planning, quantification and combined benefits. At the Fort Nelson Airport site, the government diverted 100% of all applicable waste from the landfill and reduced fuel consumption by 42% in one year. The **New Aiyansh, B.C.** fisheries and ocean field office remediation resulted in a small environmental footprint and high social benefit and high economic stimulus, with the local First Nations community providing the prime remediation contractors.

At Joint Base Cape Cod, a 22-acre multi-use military and public facility in Massachusetts, **USA**, the military leads the Superfund cleanup using three 1.5-MW wind turbines to power 100% of the 12 million gallons treated/day. Green cleanup jobs were also among the combined benefits of their GSR strategy. (**Ms. Barbara Maco**).

On what was once the world's largest landfill (receiving up to 29,000 tons/day), the new Freshkills Park New York City, **USA**, is the largest landfill-to-park project in the world, three times the size of Central Park. Sustainable remediation measures include methane harvesting that heated 10,000 homes in 2013, and generated \$3.35 million in revenue. Alternative energy generation is planned via a 47-acre, 4–10 MW solar power facility. (**Ms. Barbara Maco**).

An appraisal of redevelopment scenarios for the former Madeira Oil Terminal, **Portugal** included a substantive sustainability assessment of remedial options and recommended that cost benefits should be viewed in the context of the regeneration scheme as a whole rather than just remediation alone. (**Mr. Richard Bewley**).

Developing More Case Studies

Audience discussion focused on the importance of case studies documenting community involvement and whether case studies should represent a gold standard of sustainable remediation. The panel suggested that a range of case studies would be of optimal value, and public involvement should be targeted appropriately to site and community needs. (See Attachment for how the 15 case studies addressed stakeholder/community involvement).

Mr. Paul Favara (CH2M HILL-USA) ended the workshop with a presentation summarizing the obstacles to implementation of sustainable remediation and how these challenges can be overcome. The presentation included a tool that can be used to maximize the value of sustainable remediation at important project life-cycle phases.

The Attachment includes the entire Workshop presentation in pdf, with contact information for each of the case studies and the various SURFs and NICOLE case study initiatives.

For more information or to submit comments, please contact the workshop chair:

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