Importance of sustainable remediation in the new soil strategy

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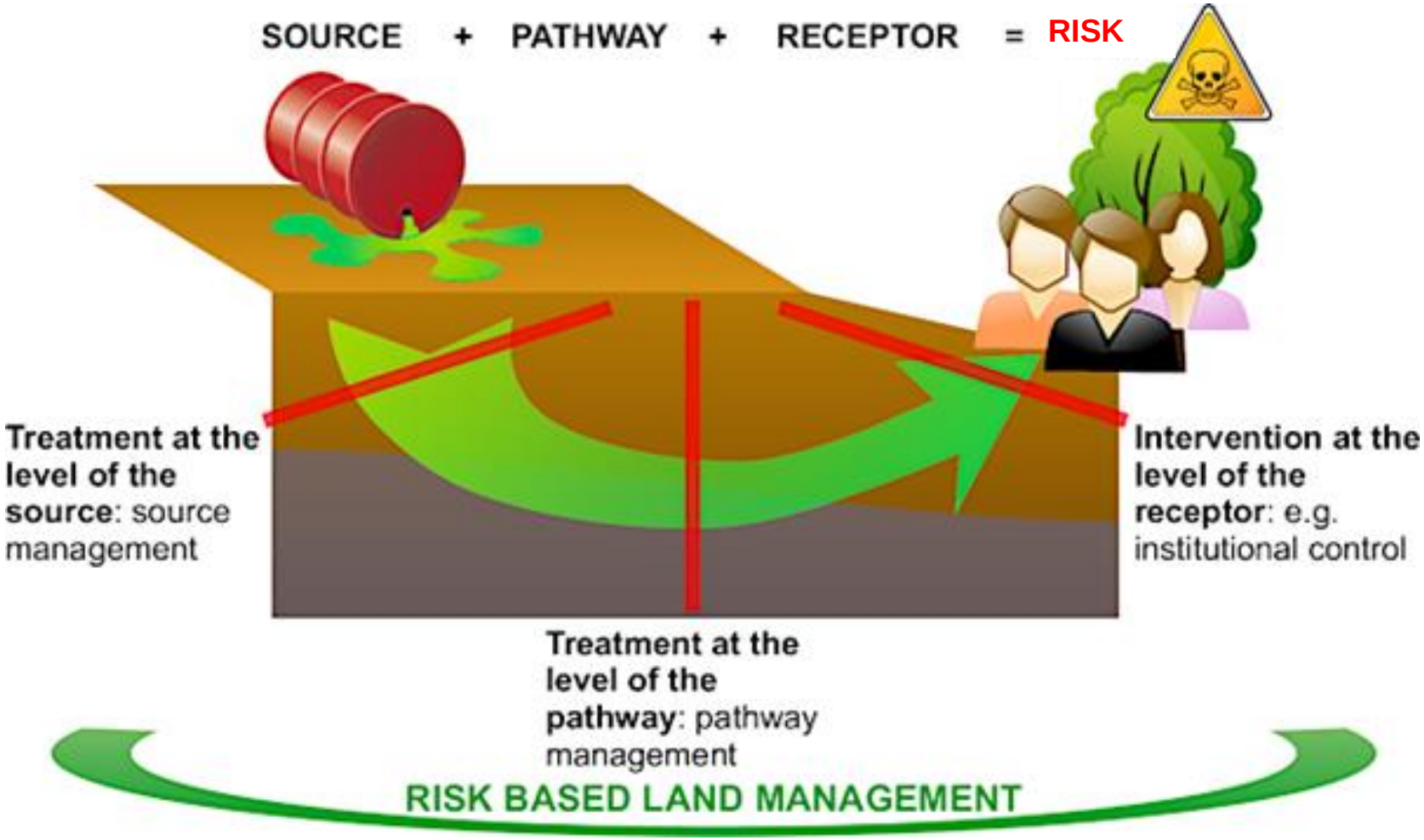
Sustainable remediation in a few minutes

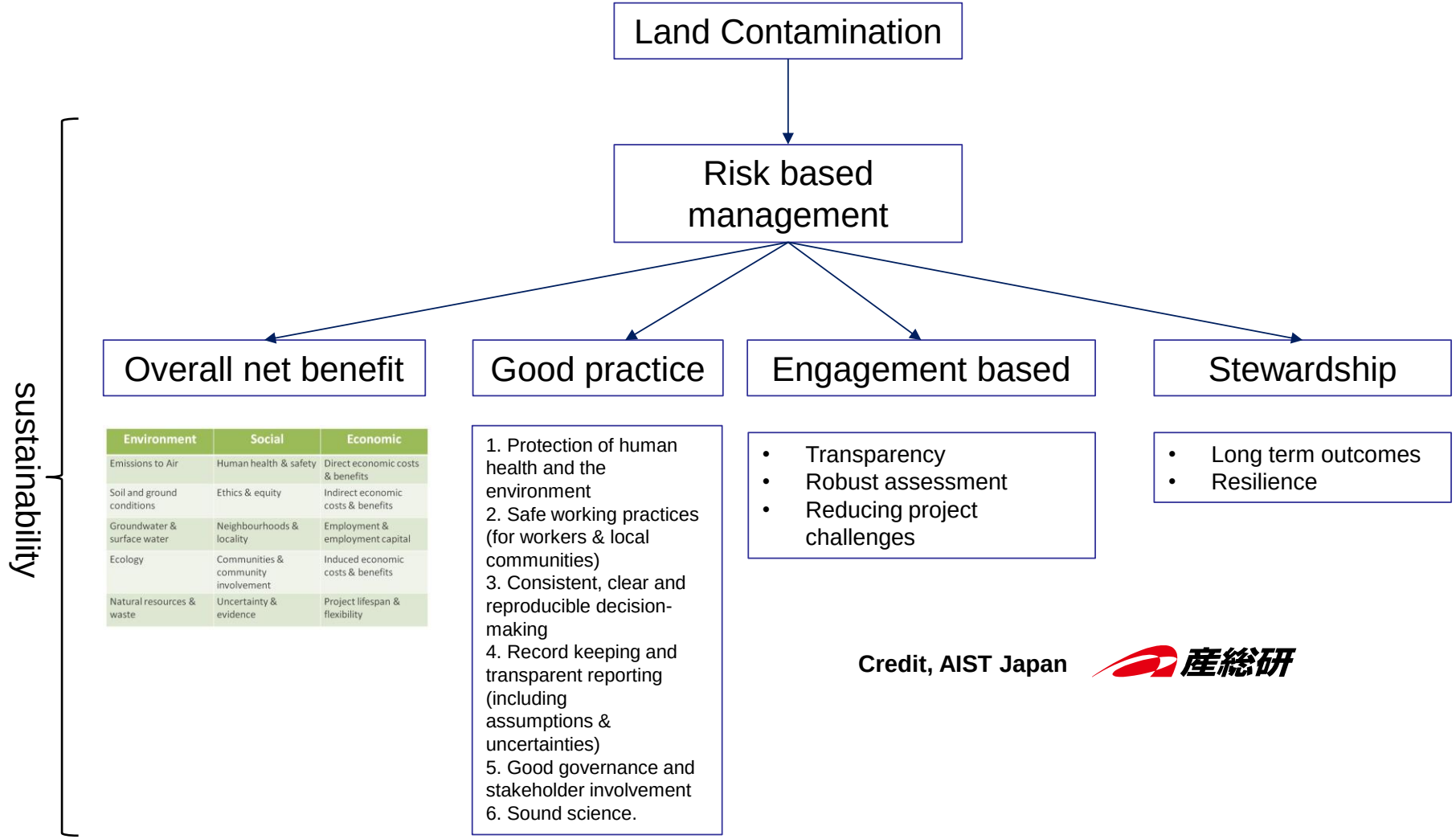
- www.claire.co.uk/surfuk (short animation with multilingual subtitles)

Risk-based land management



Adapted from: Tack, F.M.G., and Bardos, P. (2020) Overview of soil and groundwater remediation, IN "Soil and groundwater remediation technologies - A practical guide", editors: Yong Sik Ok, Jörg Rinklebe, Deyi Hou, Daniel C W Tsang and Filip M G Tack, published by CRC Press, Taylor & Francis Group

Sustainable remediation and risk-based land management



Credit, AIST Japan

Benefits of SRBLM

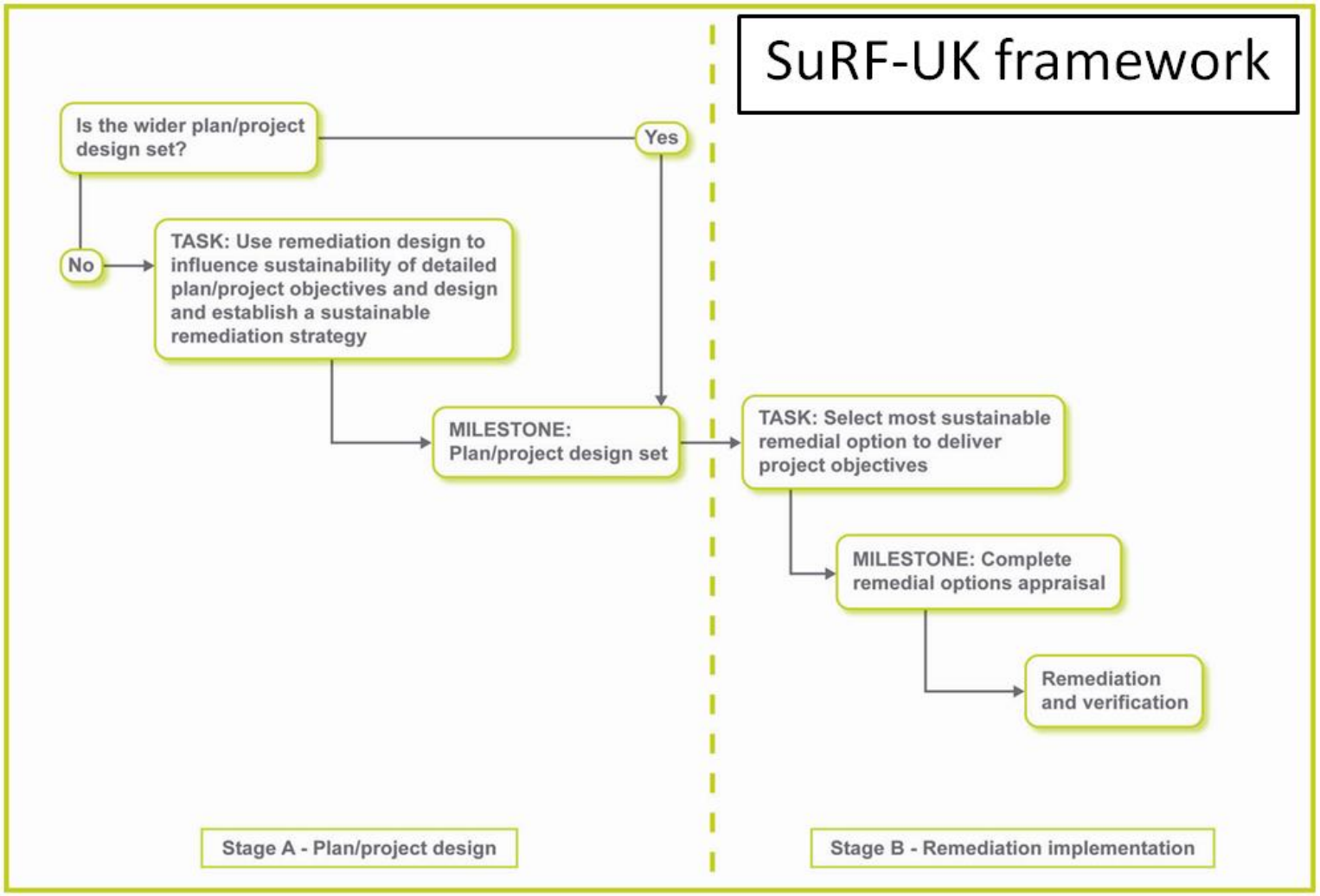
RBLM

- Objective understanding of likely harm
- Methodological framework and rationale for effective remediation
- Ability to prioritise resources to the most significant / urgent problems

Including sustainable remediation

- Better optimised risk management (e.g. reduce secondary impacts)
- Wider benefit and greater value
- → Better cost effectiveness
- Identifying and avoiding project risks
- Clearer linkage to UN SDGs, & government and/or corporate policies and goals for sustainable development
- Positive impact on reputation and public relations

Benefits of early sustainability assessment



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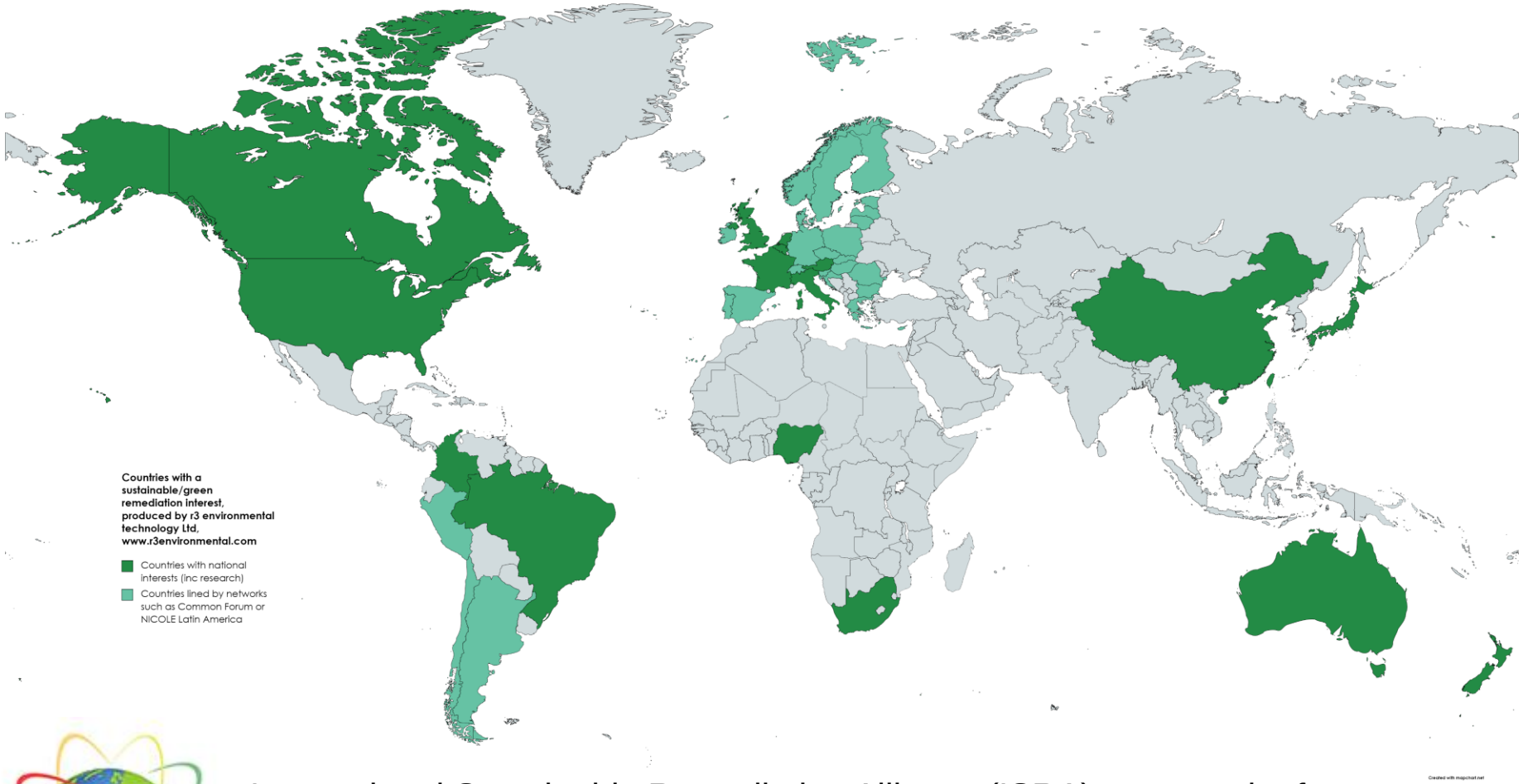
SUSTAINABLE REMEDIATION FORUM UK

Global interest in sustainable remediation



International Sustainable Remediation Alliance (ISRA), a network of networks open to all countries:
https://www.claire.co.uk/projects-and-initiatives/isra-surf-int-l

International consensus achieved (also an ASTM standard on green and sustainable remediation)

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ICS › 13 › 13.080 › 13.080.01

ISO 18504:2017

Soil quality — Sustainable remediation

ABSTRACT PREVIEW

ISO 18504:2017 provides procedures on sustainable remediation. In particular, it provides:

- standard methodology, terminology and information about the key components and aspects of sustainable remediation assessment;

- informative advice on the assessment of the relative sustainability of alternative remediation strategies.

ISO 18504:2017 is intended to inform practitioners about contemporary understanding of sustainable remediation. It is not intended to prescribe which methods of assessment, indicators or weights to use. Rather, it is intended to inform consideration of the concept of sustainable remediation in a local legal, policy, socio-economic and environmental context.

The scope of ISO 18504:2017 is restricted to sustainable remediation ? that is demonstrably breaking the source-pathway-receptor linkages ? in a manner that has been shown on a site-specific basis under a specific legal context to be sustainable.

The concepts of "green remediation" and "green and sustainable remediation" (so called GSR) that in some parts of the world are conflated with sustainable remediation are neither endorsed nor discussed in ISO 18504:2017.

BUY THIS STANDARD

FORMAT	LANGUAGE
✔ PDF + EPUB	English
PAPER	English

CHF 118 BUY

https://www.iso.org/standard/62688.html
Also in French

EU Soil Strategy

- The EU soil strategy for 2030 sets out a framework and concrete measures to protect and restore soils, and ensure that they are used sustainably. It sets a vision and objectives to achieve healthy soils by 2050, with concrete actions by 2030. It also announces a new Soil Health Law by 2023 to ensure a level playing field and a high level of environmental and health protection.
- https://ec.europa.eu/environment/strategy/soil-strategy_en#:~:text=Soil%20strategy%20for%202030&text=It%20sets%20a%20vision%20and,of%20environmental%20and%20health%20protection.
- *Note the last attempt at a Soils Directive was not well aligned with sustainable and risk-based land management.*

EU Soil Strategy key actions have a close linkage to sustainable remediation

EU Soil Strategy Actions	Sustainable and remediation
Legislative proposal on soil health by 2023 & achieve good soil health by 2050	Sustainable and risk based land management is the optimal approach at least for legacy issues
Making sustainable soil management the new normal	For land contamination and brownfields SRBLM is already becoming the norm on a global basis, may be offers lessons for other soil contexts
Wetlands organic soils and peatlands … mitigate and adapt to climate change	Don't forget the contribution from better management of land contamination; and the need for remediation to be resilient
Investigating streams of excavated soils legally binding "soil passport" for the circular economy	Aligned with SuRFs, examples already exist in BE, NL, UK and possibly elsewhere
Restoring degraded soils and remediating contaminated sites	Sustainable and risk based land management is the optimal approach
Preventing desertification	Lessons to be learnt from the successful international SRBLM consensus process?
Increasing soil research, data / monitoring	Allows for better optimisation of SRBLM processes and decision making
Mobilising the necessary societal engagement and financial resources	Sustainable remediation provides a transparent approach to engagement and valuation

Scope of sustainability and soil health

Soil health →

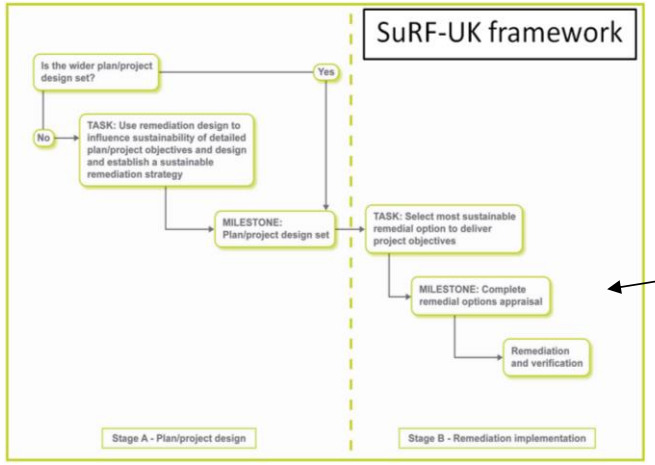
Environment	Social	Economic
Emissions to Air	Human health & safety	Direct economic costs & benefits
Soil and ground conditions	Ethics & equity	Indirect economic costs & benefits
Groundwater & surface water	Neighbourhoods & locality	Employment & employment capital
Ecology	Communities & community involvement	Induced economic costs & benefits
Natural resources & waste	Uncertainty & evidence	Project lifespan & flexibility

Many tools and approaches developed for sustainable remediation, e.g. for SuRF-UK

SuRF-UK User Guides

 **Learner**	 **Promoter**	 **Practitioner**
Discover more about sustainable remediation	Share information and raise awareness of sustainable remediation	Apply sustainable remediation on a project
Starting point: Animation. The video animation above provides a quick overview.	**Starting point:** Animation. The video animation above provides a quick overview. **Key Reading:** • Debunking the myths about Sustainable Remediation (PDF download) • Supplementary Report 1 of the SuRF-UK Framework: A General Approach to Sustainability Assessment for Use in Achieving Sustainable Remediation. (PDF download)	**Key Reading:** • Supplementary Report 1(SR1) of the SuRF-UK Framework: A general Approach to Sustainability Assessment for Use in Achieving Sustainable Remediation (PDF download) • Supplementary Report (SR2) of the SuRF-UK Framework: Selection of Indicators/Criteria for Use in Sustainability Assessment for Achieving Sustainable Remediation (PDF download) • SuRF-UK Framework for assessing the Sustainability of Soil and Groundwater remediation • Tier 1 Sustainability Assessment Spreadsheet Tool • Sustainable Management Practices for Management of Land Contamination

Green remediation / sustainable remediation / resilient remediation



Green remediation focus = Stage B (socio-economic considerations already made)

+

Environmental	Economic	Social
ENV1: Emissions to air	ECON1: Direct economic costs and benefits	SOC1: Human health and safety
ENV2: Soil and ground conditions	ECON2: Indirect economic costs and benefits	SOC2: Ethics and equity
ENV3: Groundwater and surface water	ECON3: Employment and employment capital	SOC3: Neighbourhoods and locality
ENV4: Ecology	ECON4: Induced economic costs and benefits	SOC4: Communities and community involvement
ENV5: Natural resources and waste	ECON5: Project lifespan and flexibility	SOC5: Uncertainty and evidence

Resiliency / stewardship

Similar to US EPA Greener Clean-Ups

Figure 2. Best management practices of green remediation balance core elements of a cleanup project.

Conclusions: research needs

Sustainable remediation is well developed and part of a global consensus along with risk-based decision making

Sustainable remediation and EU Soil Strategy goals are well aligned

Sustainable remediation research needs

- Case studies and real world applications
- Validation trials
- Valuation tools: reliably linking sustainability and cost effectiveness
- “Big data”
- Engagement tools

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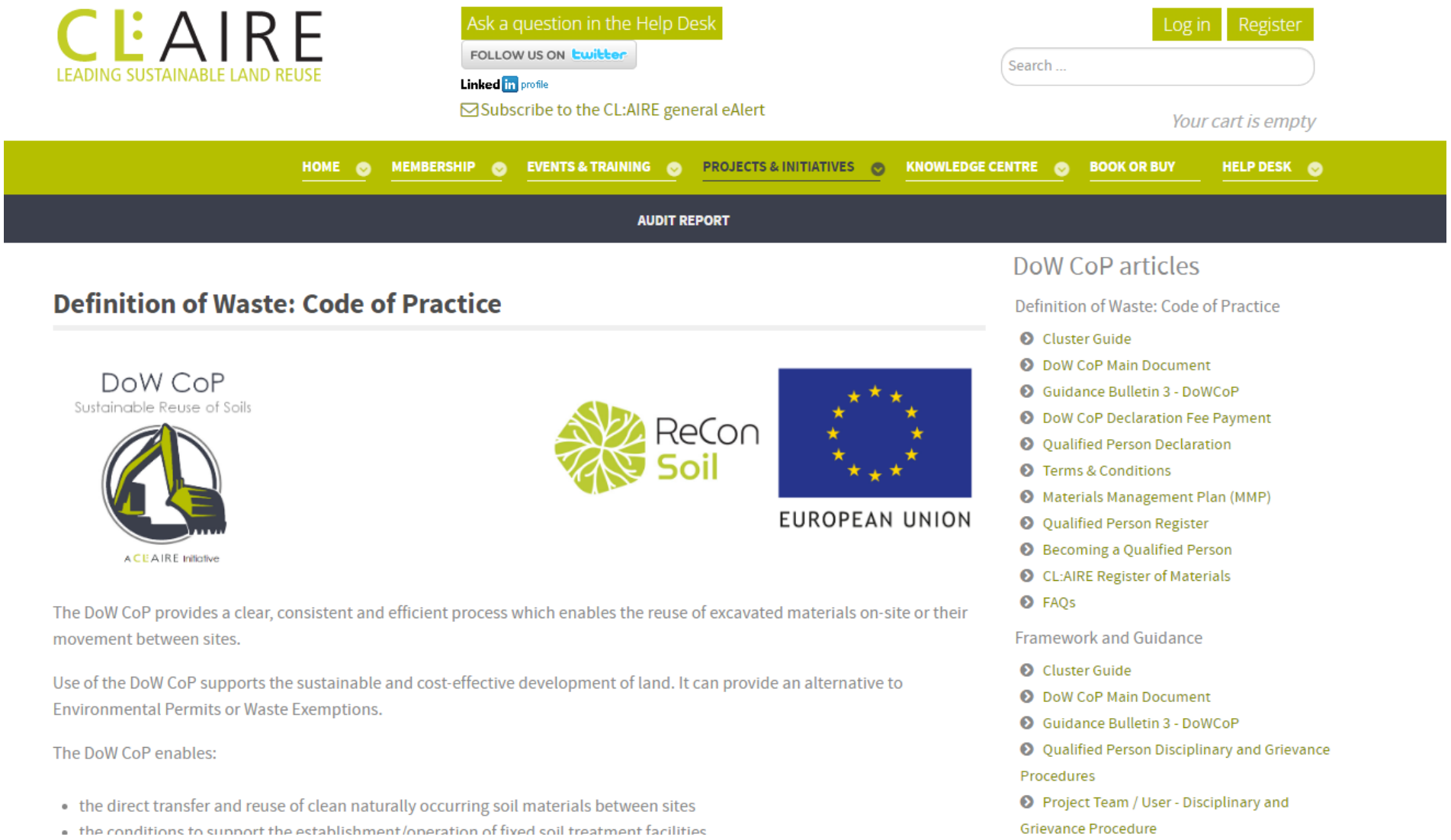
Extras

Related issue: excavated soils



Indicators – headline checklist (a)

ECON 3	Employment and employment capital	A. Job creation
		B. Employment levels (short and long term)
		C. Skill levels before and after (for people)
		D. Opportunities for education and training
		Possible individual considerations

Indicators – headline checklist (b)

Potentially quantifiable, but may be complex to achieve. At a qualitative level, an initial line of evidence could be consideration of how options compare in terms of their design in discussion between stakeholders.	Goals: 8.1	4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship 4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development 8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries
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Potentially quantifiable, but may be complex to achieve. A qualitative line of evidence would be consideration of the option design and likely delivery to assess impacts in discussion between stakeholders.	Goals: 4.4, 4.7	

Possible lines of evidence

Linkages to UN SDGs

USA example: Sustainable and (climate) resilient remediation

https://srr-1.itrcweb.org/