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EVENT REPORT

Ten principles of good soils and stones management

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BY IAN GRANT

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The influential 'Soils and Stones' report, published in 2021 by the Society for the Environment (SocEnv), set the scene for the recent launch of a framework document entitled, 'The ten principles of good soils and stones management'.

This document provided the focus for the Brownfield & Regeneration Network webinar of the same title. For this event Martin Ballard, chartered environmentalist and lead of the SocEnv Soils and Stones project, and Rob Earl, chartered environmentalist and fellow of the Institute of Water, explained the principles, outlined how to use and re-use soils and stones sustainably, and showed how the framework can be used to improve existing legislation and regulations.

The answers are in the soil, said Rob Earl — adding that the principles are a call to action to acknowledge and protect soils and stones under our feet.

"Soils and stones are the poor relation of environmental protection," he said. "The Environment Act 2021 had no soil targets. Maybe the government put it into the 'too difficult' box, despite what Michael Gove said about soil fertility eradication in the UK in 30-40 years."

The 2021 Soil and Stones report had support from 32 professions and was underpinned by an agreement that we should stop treating soil like dirt.

But, said Earl, "we needed a strategy".

Soil is a skin covering the earth – not just top-soil and subsoil but parent material underneath, Earl explained. But both he and co-presenter Martin Ballard think soil is up against the law from the start. "When you excavate top-soil with high organic matter it can be classified as non-inert waste," said Earl. "The background mineral content can push the definition of excavated soils towards hazardous waste. These are natural resources, but there are obstacles to [their] reuse in UK law."

Our terrestrial biodiversity focuses mostly on what lives on the soil, not in it, Earl pointed out. "We have recorded 1.5m species – [but] there are probably 65m on the planet, with a lot of those in the soil. We have a low understanding of soil biodiversity. Is it measured via a count of species in a bucket of soil? Or by symbiotic links in the soil, the presence of mycorrhizal networks, [making it] a living system?"

The aim of the 'Ten principles' framework is to provide a means to review and improve existing legislation and regulations, with common principles that can drive policy for all environmental professionals. "We want to give soils a quantifiable value — preserve, protect, remediate and enhance soils as a living system; present a hierarchy of options for excavated soils and stones, and make soil a material consideration in all land-use and development projects," said Earl.

The principles also support sustainable economic growth in line with the UN SDGs, as they provide the foundations to support practices that improve soil resilience and health. The hope is that income from improved soil health and offsetting will drive more research training and increased governance.

Martin Ballard added that the importance of proportionality in relation to sustainable economic growth, with a focus on improvements in soil health, was partly what inspired the framework. “Irrespective of the land use sector, we needed a robust common framework for lawmakers, and standards to be delivered for the protection and improvement of soils.” But, he said, a question remains: “Is it a ‘voluntary standards’ drive or a mandatory approach to increase soil health and land value? We need consistency for common principles — leading to a simple way to manage a complex natural material.”

The ten principles of good soils and stones management

1. Implement soils and stones management practices to drive sustainable economic growth.

Earl said mentioning economic growth has upset some purists, but that **“**we can’t pretend the UK economy or environment is in a good state”. The government’s recent Environmental Improvement Plan (EIP), he said, implies cost benefit and proportionality. “A dose of What’s in it For Me (WiiFM) has to be there to make it work. We make no apologies for linking soil health with sustainable economic growth.”

2. Preserve, protect and enhance the value of soils and stones *in situ*. Adopt practices that don’t seal the soil.

Practices that support regenerative agriculture, should be welcomed, said Earl. In the context of development, practices with no compaction of soil should be adopted and soil protection zones should be designated around developments.

3. Promote and enhance the inherent value of soil and stones as part of a wider integrated environmental system (carbon sequestration, food security and biodiversity).

This puts stones and soils at the forefront in tackling the three major threats of biodiversity, climate change and food security. “We import 40% of food. The situation is fragile. We live in an interconnected world and the understanding of links can be partial. Solutions need to be integrated. Only then can we feed 10 billion mouths without making vast areas uninhabitable.”

4. Use a common standard for soil health in relation to land-use, taking underlying soil conditions and functions into account in land management.

This focuses on the EIP ‘rectification at source’ principle. “What is soil health for different land uses? Soil fertility is a common value. Soil carbon sequestration is understood. Soil biodiversity is less understood. Is it measured by worms or mycorrhizal networks? We need a new regulatory framework.”

5. Use common quality standards for soil based on principles for excavated soils, stones and dredgings, for specific end uses.

This will generate investments, according to Earl, as it means what is in the circular economy can be used with confidence, with an economic and environmental value.

6. Understand and identify site-specific soil conditions at the start of project planning or change of land use. Define the status of any excavated soil and stones according to their value as an end-use resource and avoid discarding them as surplus to needs of the project. Protect undisturbed soils to enhance soil health.

This aligns with the 'rectification at source' and precautionary principles. Practitioners should leave soils undisturbed and think 'resource', not 'muckaway'.

7. Develop and implement a resource hierarchy of management of land, soils, and stones.

This uses the EIP principle of 'polluter pays' and puts a monetary value on soils. There is a need for a hierarchy of options, from leave *in situ* to remediate *ex-situ* to reuse at a third party site.

8. Implement a financial metric for the life cycle of all projects, based on impact on soil value, to drive a market for offsetting (based on metrics for biodiversity loss, carbon sequestration and loss of food security).

This aligns with the 'polluter pays' principle and offsetting. If you measure soil value, said Earl, it can be transferred to a monetary value and net gains can be achieved. The mining industry uses an assay system for ore; a similar one could be used for soil health, he added.

9. Implement a national policy to harmonise legislation, regulation and best practice guidance and monitoring programmes to protect soils. Include planning, land contamination, forestry, agriculture, ecological restoration and waste management, promote internal markets for soils and stones and offset trading, thereby allowing land values to reflect optimum soil health based on metrics in principle.

"The long-term goal is for values to reflect soil health. That's the WiiFM for landowners. It will guard against mining away natural capital for short term gains."

10. Periodically benchmark the natural and economic value of UK soils against baseline UK and international metrics taking into account global, social and economic and environmental sustainability. (E.g. the supply chain impacts of ensuring UK food security, and the valuation of soils and stones).

This, said Earl, is about EIP integration in a global context. We could rewild vast areas of the UK, but should not outsource our carbon creation and biodiversity losses by importing more food.