

## The Ten Principles of Good Soils and Stones Management

The following ten basic principles of good soils and stones management provide a common framework to underpin a circular, sustainable economy:

1. Implement soils and stones management practices to drive sustainable economic growth.
2. Preserve, protect, and enhance the value of all soils and stones in situ.
3. Promote and enhance the inherent value of soils and stones as part of a wider integrated environmental system (e.g., for carbon sequestration, food security and biodiversity).
4. Use a common standard for soil health in relation to land-use, taking underlying soil conditions and functions into account in the management of land.
5. Use common quality standards for soil based on principle #4 for excavated soils, stones and dredgings to be used in specific end-uses.
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 soils and stones according to their value as an end-use resource and avoid the intention to discard them as surplus to the needs of the project. Protect undisturbed soils to enhance soil health.
7. Develop and implement a resource hierarchy for the management of land, soils and stones.
8. Implement financial metrics for the life cycle of all projects based on the impact on soil value in order to drive the market for offsetting (e.g., metrics for biodiversity loss, carbon sequestration and loss of food security).
9. Implement a national policy progressively to harmonise legislation, regulation, best practice guidance and monitoring programmes to protect soils. Include the fields of planning, land contamination, forestry, agriculture, ecological restoration, and waste management. Aim to promote integrated markets for soils and stones, offset trading and policies thereby allowing land values to reflect optimum soil health based on metrics in principle #4.
10. Periodically benchmark the natural and economic value of UK soils against both base-line UK and international metrics, taking into account global social, economic and environmental sustainability (e.g., the supply chain impacts of ensuring UK food security, and the valuation of soils and stones).

## **General**

Recommendation HLaP3 (Harmonising Legislation and Policy) of the April 2021 SocEnv [Soils and Stones Report](#) was for "*Reviewing existing legislation and regulation for protection and restoration of healthy soils, for their sustainable use and management, with simpler common regulations within a common 'Soils and Stones Framework' and an ACoP for all soils reuse and recycling.*"

This recommendation covered a range of issues but identified the overarching need for a framework against which to review and to improve regulation. SocEnv has therefore developed ten principles of good soils and stones management to promote a regulatory framework and common focus for sustainable economic growth.

The ten principles are intended to be a universal framework for all custodians of the land (including the agricultural, forestry, development, and leisure sectors), for legislators, developers, planners, consultants, soils practitioners and for the waste management, aggregate and landscaping industry sectors. The framework proposes a hierarchy of management options to protect and enhance soil health.

### **Principle 1: Sustainable Economic Growth**

The first principle promotes sustainable economic growth across all sectors through practices that improve soil functions and health, avoiding the degradation of a natural asset on which future generations will rely for their quality of life.

### **Principle 2: Preserve, Protect and Enhance Natural Soils and Stones**

This fundamental principle seeks to preserve the natural capital value of soils in situ. In view of the complex nature of soils, their relation to geology, local climate and landscape, and their connectivity through, for example, mycorrhizal networks, this principle sets out to preserve natural soil structure as a living system. Even ploughing disrupts soil structure, and the principle will support regenerative agriculture as well as in situ remediation of damaged soils. The principle recognises that soil structure can be quickly destroyed, but can take centuries to recover, putting soil biodiversity, carbon sequestration potential and fertility under stress. By promoting sustainable growth, this principle can be achieved without disturbing natural soils by, for example, designating soil protection zones in, on and around the redline boundary of a development. This principle will also support the avoidance of soil compaction, soil sealing and contamination.

### **Principle 3: Valuing our Soils and Stones**

The third principle relates to natural capital. It not only repeats the principle of preservation but extends it to promotion, to include, for example, research and development. The three most important aspects of natural capital are listed, as these should be quantifiable and critical to sustainability. The principle does not, however, preclude other elements of natural capital, or the value of soils for water retention and natural flood management.

## **Principle 4: Quality Standard for Natural Land and Soils**

Principle 4 proposes a quantifiable standard for in situ soil health based on fertility, carbon sequestration and biodiversity specific to the use of land (e.g., agriculture, forestry, recreation, and amenity). Soil fertility metrics are well established for NPK and some trace elements (cf. [RB209](#) and the [Fertiliser Advisers Certification and Training Scheme](#)). The carbon sequestration potential of soils is developing fast. Soil biodiversity is a less mature science; for example, a measure based on mycorrhizae has yet to be fully evaluated. Developing such standards will allow optimum soil health to be determined for the specification of soil improvement targets, and for offset trading, where soils are unavoidably damaged or removed during development. The principle also promotes land-use that is appropriate to the soil (e.g., to improve food security), and its location.

## **Principle 5: Quality Standard for Soils and Stones Re-use**

Principle 5 extends the soil quality standard to ex-situ soils, such as those moved from one site to another, those manufactured from source materials or recycled from waste soils, dredgings, sludge, silt and gulley waste. It ties the standard to an optimum value for specific end-uses (e.g., agriculture, forestry, recreation, amenity, site restoration, aggregates, and substrates).

## **Principle 6: Soil Valuation in Planning and Development**

The sixth principle focuses on development projects, and puts the material consideration of soil health and the natural capital of soils at the heart of planning any project. Projects should primarily focus on principle #2 to protect undisturbed soils. Surplus soils and stones will, be defined by their value as a resource in the first instance. This will avoid their automatic definition as “waste” by virtue of being surplus to the specific project. This will set a new basis for a UK legislative framework, allowing the current somewhat cumbersome application of permits, exemptions and frameworks, such as [DoWCoP](#), to be amended to focus on resources. This will avoid discarding valuable resources, and support targets for soil health by valuing natural soils in all circumstances, in line with the drive for a circular economy.

## **Principle 7: Soils and Stones Resource Hierarchy**

Principle 7 proposes a hierarchy of resource options to support principle #2. The hierarchy will protect virgin soils in situ wherever possible, with a ranking of options that will include: remediation, use as a resource and, with the lowest rank, disposal to landfill.

## **Principle 8: Project Life Cycle - Offsetting the Impact on Soils**

Behind these principles lies an opportunity to drive the economic advantages of soils management, particularly for meeting a need for biodiversity and carbon offsets for new developments. This is based on the understanding that soil health improvements require more than altruism in reaction to the science of long-term environmental degradation. By offering a solution to meeting sustainability targets through a system of soil assay such as is used for ore by JORC ([Joint Ore Reserves Committee](#)), soil health can be monetised.

## **Principle 9: Harmonising Soils and Stones Regulation and Guidance**

The ninth principle reflects the focus of the 2021 Soils and Stones Report to simplify and harmonise soils legislation, regulation, standards and advice. This commitment to an holistic approach to soils management will take time to achieve. Changes to regulation and standards should always be aligned to the ten principles to effect long-term harmonisation. This principle therefore sets out the route that all changes to regulation will follow to realise the vision of the other principles. This principle will allow regulation and guidance to accommodate mitigation of, resilience against, and adaptation to climate change in soils management practice.

This principle also provides a solution to the WIIFM (“what’s in it for me”) question. It proposes to link the monetary value of land to its soil health. These principles will therefore benefit major landowners. Their capital investment to effect soil health improvements (either through self-funding or from offsets) and resultant losses incurred by taking land out of agricultural production, will be reflected in, and offset by, increasing land value based on soil health metrics. This approach builds on principles #4 and #8 by incentivising the drive to grow the environmental capital of soils.

## **Principle 10: Benchmarking the Natural and Economic Capital of UK Soils**

This principle recognises that the UK is a global economy and part of a global environment. It relates to “natural capital” (*see the explanatory note to principle #3*), and the monetisation of soils to increase the value of UK soils as an asset with tradable options for carbon sequestration and biodiversity offsets. The principle promotes the use of Life Cycle Analysis to account for all impacts on the global environment from changes in UK land use. About 40% of UK food security already depends on imported food, and this will rise if significant areas of UK land are taken out of production without a major compensatory intensification of UK agricultural practice. This principle demands that a global account is made of any changes to achieve these ten principles in the UK, such that improvements in UK soil health is not at the expense of soil health elsewhere in the world (through, for example, deforestation, biodiversity loss, unsustainable agricultural practice and net soil carbon emissions). Anything that we do to improve soil health in the UK must therefore be within global sustainability goals and show that the UK has not simply outsourced its carbon footprint and biodiversity losses.

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