



PRINCIPLES FOR SUSTAINABLE SOIL MANAGEMENT

-  **Protect** soil from physical, chemical and biological degradation, limit erosion and avoid deforestation.
-  **Restore** soils on degraded, stranded and marginal lands.
-  **Maintain** soil-based ecosystem services, water availability and quality.
-  **Enhance** soil productivity according to its natural capacity.
-  **Develop** extension services, knowledge systems, and promote innovation.
-  **Communicate** the importance of soil.

Building on the Sustainable Development Goals and Agenda 2030

Soil should be factored into the wider context of sustainable development and the Food and Agriculture (FAB) Principles that encompass the entire agricultural value chain. Soil is not an isolated element, and several issues impact soil health both directly and indirectly.

We can protect soils most effectively by empowering those who work on the land to be the primary social, economic and environmental caretakers. They need their human rights to be respected, land tenure and access, and the ability to sustain their lives and livelihoods.

We should reduce the pressure on soil to produce more by reducing loss in delivering produce from farm to table and being conscious of food waste. Integrated cooling, storage, transportation and market connectivity systems are positive contributions to reducing the workload on soil, especially in developing countries with large agricultural bases.

The most complex soil management issues are best addressed through strong public–private partnerships. More investment in sustainable soil management practices will create inclusive agricultural value chains and support efficient markets. When viewed in the wider context of Agenda 2030, companies that support the Soil Principles will catalyze investment and action in support of the world’s soils and contribute to the implementation of SDG2 and SDG15.



SDG 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture



SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

INTRODUCTION

Soil, air and water are essential for human life on earth. The urgency to maintain air quality and protect our water sources is obvious to us today, but the significance of soil is only now being properly recognized. As the most significant medium for agriculture, soil is the chief enabler for feeding and nourishing everyone on earth. Soil has incalculable economic, environmental and social value – as a habitat for billions of living organisms, a source of biofuel energy, medicines and clothing, by providing ecosystem services such as filtering water, and by naturally sequestering carbon to help build resilience against events caused by climate changes.

The United Nations Global Compact Principles for Sustainable Soil Management (“Soil Principles”) build on the United Nations Global Compact Food and Agriculture Business (FAB) Principles. They respond to the call of the Sustainable Development Goals and Agenda 2030¹ to eliminate poverty,² hunger,³ and promote sustainable use of terrestrial ecosystems.⁴ They aim to increase the understanding of key actors for the urgency to protect soils through long-term programs, and to strengthen existing policies for soil conservation. The Soil Principles are an expert reference for strategies to intensify agriculture and conserve ecosystems.

The Diminished Element

Soil is typically not valued as a critical resource, and soil quality is often taken for granted. Consequently, soil is poorly managed in many parts of the world and soil systems are under great stress. Policy makers, businesses, farmers and the public are not well informed of what is ‘healthy’ soil or the factors that affect soil health.

Using soil for agriculture directly affects its quality, and good practices can both maintain and enhance the productive capacity of soils. But several economic activities have indirect effects on soil health and performance. Deforestation leads to soil erosion. Grasslands are overgrazed and abandoned to become deserts. Fertile soils around towns are built-upon as they grow into cities, at a pace increased by population growth, migration and urbanization.

In the worst cases, soils are so polluted they can no longer produce food or provide ecosystem services such as drainage and filtration. Freshwater quality is declining and climate change will push the drought and flood cycles to greater extremes, thereby placing even further pressure on soils. Rising sea levels will claim fertile coastal habitat and farmlands. All this limits the ability of our soils to capture and sequester carbon, a vital function lost as we face the onset of climate change.

¹ Ref for SDG/Global Goals and Agenda 2030

² Ref for SDG/Global Goal 1

³ Ref for SDG/Global Goal 2

⁴ Ref for SDG/Global Goal 15

<https://sustainabledevelopment.un.org/topics>

Consuming our Future

As humans grow in absolute numbers, we demand that our soils yield more crops. We must be fed, and we must feed the animals and fish we farm for protein. Also, the most effective way to lever small farmers out of poverty is to help them increase agricultural productivity. These demands and poverty-alleviation policies create pressures on soil that are rarely balanced with better soil management practices. Consequently, many soils are stripped of nutrients and their natural reserves are continually mined but not replenished. Meanwhile other soils suffer from overuse of fertilizer and inputs that lead to nutrient imbalances and acidity. Both conditions negatively impact our nutrition.

The loss of produce in developing countries due to poor storage, or infrastructure for bringing harvests quickly to market, means higher yields draw down soil resources - only a percentage of which may be consumed. Conversely, developed countries see a high percentage of food and produce wasted by consumers and retailers. Whether lost or wasted, our soils are strained and drained to produce even more. Soil and farmland is also a victim in conflict and war, which degrade the health of soils by pollution, poisoning or making it impassable or unworkable for years.

People who work the land are often the poorest on earth. They are not empowered socially or economically to be good caretakers. Their tenure is often in question and their rights as pastoralists or farmers are usually unrecognized. Gender equality and children's rights are often compromised and they lack access to credit. Coordinated global action is necessary to mitigate the threats and protect our soils for generations to come.

It's Not Too Late

Despite these challenges, soil is forgiving. After decades and, in some cases, centuries of misuse, our soils are now showing stress. Soil forms very slowly and requires longer than a human lifetime to regenerate with help. This is why the preservation and restoration of soils must be a global priority.

Agriculture using soil is the largest economic activity on earth and involves the greatest number of humans. As our global population grows, the opportunities for responsible investment delivering sustainable returns are considerable. Soil must be recognised as a 'scarce resource'. It should be mapped, classified and become a foundation for all policy on sustainable agriculture and food security. It is imperative that all businesses join governments and other actors in coordinated efforts to protect and rebuild our soil systems.

EXPANDING UPON THE PRINCIPLES

During the development of the Soil Principles several experts suggested pathways to global soil health. These are reflected in the following section. This list is not exhaustive, and there is no implied hierarchy or order of importance in sequencing. Many practices support more than one Soil Principle. For the sake of brevity, these are listed only once.

1.



PROTECT SOIL FROM PHYSICAL, CHEMICAL AND BIOLOGICAL DEGRADATION, LIMIT EROSION AND AVOID DEFORESTATION

Maintain our current soil quality. Prevent soil loss, erosion, toxicity and compaction and eliminate deforestation:

- Keep soil covered.
- Avoid the unnecessary disturbance of soils; encourage conservation agriculture, no-till, and the proper drainage of soils.
- Choose geographically and agro-ecologically appropriate cropping systems, and encourage crop rotation.
- Employ established practices that control erosion and invest in the development of new approaches to prevent erosion.
- Limit the likelihood of soil contamination from all sources.
- Eliminate deforestation and allow our forests to naturally sequester carbon, while investing in reforestation.
- Discourage the cultivation of physically marginal soils.
- Establish sustainable grazing patterns to prevent overgrazing and potential desertification, and build buffers to prevent the expansion of deserts.
- Reduce the urbanization of agricultural land.

2.



RESTORE SOILS ON DEGRADED AND MARGINAL LANDS

Recover the stranded, idle, economic and environmental assets that are degraded and marginal lands:

- Conduct assessments of soil and land degradation.
- Understand to what level soils have degraded, examine the timeline involved and prepare appropriately for what it will take to bring the soil back to productivity.
- Rebuild soil structure, actively increase or maintain soil carbon and organic matter levels, and rebuild nutrient content and balance.
- Restore topsoil to historic depths.
- Encourage whole systems management at the global, national and local levels.

3.



MAINTAIN SOIL-BASED ECOSYSTEM SERVICES, WATER AVAILABILITY AND QUALITY

Recognize and manage and sustain the ecosystem services and habitat that soil provides and contributes to:

- Manage soil and water in tandem.
- Use the appropriate balance of fertilizers at the right time of year, in the right amount while avoiding ecologically sensitive areas of the field.
- Encourage and protect beneficial microbial and biochemical activity in soil.
- Promote soil resilience as a gateway to climate resilient agriculture.
- Create buffers and riparian margins between agricultural land and water sources.
- Choose geographically appropriate and sustainable irrigation practices.
- Encourage 'crop stability assessments,' 'environmental impact assessments' and 'high conservation value assessments,' especially when considering land use change.

4.



ENHANCE SOIL PRODUCTIVITY ACCORDING TO ITS NATURAL CAPACITY

Ensure global food security through 'sustainable intensification', narrowing the 'yield gap' and replacing the nutrients we remove from the soil:

- Sustainably intensify productive agricultural systems.
- Employ an integrated approach to soil fertility management and replenish nutrients removed by the crop harvest.
- Maximize the organic cycle, utilizing organic and mineral fertilization as appropriate and apply the right balance of crop nutrients – both macro and micro.
- Make the appropriate crop selection for climate and soil type.
- Maintain crop residue cover.
- Manage the integration of livestock as a nutrient management tool.
- Reduce soil salinity and correct soil pH appropriately.
- Encourage the use of pyrolytic stoves among smallholders and the use of biochar.

5.



DEVELOP EXTENSION SERVICES, KNOWLEDGE SYSTEMS, AND PROMOTE INNOVATION

Rebuild our global agricultural extension system to meet the demands of the twenty first century:

- Encourage increased investment in private sector and public extension services.
- Ensure that women and young people are specifically targeted by extension services.
- Provide hands-on training for farmers and agri-dealers.
- Encourage investment in innovation and the development of responsible and ecologically sustainable new technologies including improved farming practices, fertilizers, crop protection systems, seed varieties and species.
- Test, classify and map soils. Integrate existing data and provide specific fertility and management recommendations by crop and soil type.
- Create knowledge sharing platforms to promote best practices, make soil data widely accessible and develop long-term soil monitoring systems.
- Encourage appropriate mechanization while avoiding soil compaction.

6.



COMMUNICATE THE IMPORTANCE OF SOIL

For the general public, farmers, policy makers, business and civil society:

- Advertise the importance of soils, economically, socially and environmentally.
- Promote knowledge sharing and partnership between government, business, academia and civil society that sets a minimum standard for soil awareness, management and protection.
- Provide training and advice for policy makers so that they can make informed decisions.
- Establish an agricultural curriculum in schools and encourage young people to explore advanced education and a career in agriculture.
- Take the pressure off soil to produce so much food by educating the value chain from consumer to farmer on how to reduce food waste.

How Can Companies Use the Soil Principles?

The UN Global Compact encourages companies to support the Principles for Sustainable Soil Management:

- **Make** a commitment to global soil health
- **Partner** with stakeholders to work for healthy soil
- **Share** and promote better soil management practices
- **Include** soil health in strategic and operational planning

Companies are invited to support the Soil Principles, develop policies and practices and report on progress on an annual basis through the Global Compact Communication on Progress (COP).

Companies and other stakeholders are **not expected to sign on to the Soil Principles. Reporting through the COP will demonstrate how an organization has aligned policies and practices with the Soil Principles** in contributing to meeting the global challenges of food security and sustainable agriculture.

About the Soil Principles

Business is a necessary partner to governments and other stakeholders in designing and delivering effective, scalable and practical solutions to make food systems secure and agriculture sustainable. To advance the positive contributions that business can make, the UN Global Compact facilitated the development of these voluntary Principles for Sustainable Soil Management. The “Soil Principles” are a framework for principle-based collaboration between companies, the UN, governments, civil society and other stakeholders.

The Soil Principles, under the umbrella of the UN Global Compact Food and Agriculture Business (FAB) Principles, offer a frame of outcomes and actions for companies to align with the Sustainable Development Goals and Agenda 2030.

The Soil Principles were developed through a broad and inclusive multi-stakeholder process including over 200 global experts, participating in 5 global workshops and an online consultation, with businesses, UN agencies and civil society organizations involved in agriculture, nutrition and food systems.

Annex – Participants in Soil Principles Meetings

This annex lists all individuals who participated in one or more of the Expert Advisory Group meetings in New York, Bonn, Singapore, Nairobi and Sao Paulo or who engaged with the UN Global Compact extensively during the development of the Soil Principles.

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The Earth Institute at Columbia University, New York, offered expert support to the process and discussions leading to the development of the present Soil Principles. The UN Global Compact would like to express its utmost gratitude to the Earth Institute for lending its expertise to this important undertaking and to thank Mr. Chris P. Lambe for his contribution.

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