

The 2007 Kerner von Marilaun Declaration on Soils

The fourth report of the Intergovernmental Panel on Climate Change¹ makes it clear that global temperatures are on the rise due to human activities. The role of soils in global climate change merits immediate attention due to its paramount importance for human sustenance.

Soils perform a multitude of key environmental, economic, social, and cultural functions. These functions include production of food and other biomass products; provision of resources; and the storage, filtering, and transformation of materials (such as water) that are vital for life. Soils are a physical and cultural environment for humankind, a natural habitat, and they sustain the largest gene pool in the biosphere.

Pressures on soils are increasing dramatically. Soils need to become central to global change discussions in order to advise policy makers in their understanding of the potentials, limits, and vulnerabilities of soils. In particular, strategies for sustainable management of soils in a rapidly changing world require a better understanding of soil-human interactions.

We are in the midst of a dramatic acceleration of agricultural change as the world strives to meet the food and energy needs of a growing population within the framework of resource limitations and the desire to reduce greenhouse gas emissions. In its scope and size the challenge is comparable to the transformation of agriculture which took place as part of the Industrial Revolution of the nineteenth century and its extension by the introduction of synthetic fertilizer and pesticides during the twentieth century.

The recent global environmental outlook by the United Nations Environment Program² understates the vulnerability of soils when stating that land degradation is more reversible than other processes of global change - such as sea-level rise and species extinction. Soils are a non-renewable resource, with soil building times between 10.000s and 100.000s of years. Degradation is exacerbating the natural limitations of soils, in particular by affecting a wide range of processes that maintain soils.

Human impacts on soils are complex and site specific; resulting in pressures on biodiversity, water availability and quality, and the atmosphere. Our rapidly increasing needs for food and energy place growing and conflicting demands on soil. Development issues, food security, nature conservation, our dependence on fossil fuels, social inequality, and armed conflict, all have a bearing on soils.

Well informed, effective public policy requires integrated knowledge of soils, water, air, and biota. It requires that we understand the role of soils as mediators in global water and element fluxes and the linkages between site specific and global processes. Human-soil interactions must be a center of concern if we are to meet the challenge of providing future generations with productive soils.

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¹ IPCC AR 4, Synthesis Report: Climate Change 2007. Release: November 17, 2007

² Global Environment Outlook GEO 4, Environment for Development, ed. United Nations Environment Programme, 2007.

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