
4 Summary

The WU Soil Science cluster was established in 2018. The cluster consists of four chair groups: Soil Physics and Land Management (SLM), Soil Chemistry and Chemical Soil Quality (SOC), Soil Biology Group (SBL) and Soil Geography and Landscape (SGL) (Appendix 1A). The unit is interdisciplinary, increasingly multicultural and quite gender-balanced.

The main aims of the soil science cluster include:

- i) To be a world-leading academic group for high-impact research in the domain of our mission,
- ii) To generate and openly communicate science-based knowledge on sustainable soil/land management, serving multiple stakeholders from local to global,
- iii) To provide a world-renowned platform for research development through a range of global knowledge networks and state of the art research facilities, and
- iv) To develop the skills of new and current soil scientists (particularly graduate and early career) who will further enhance our mission and our contribution world-wide.

The Soil Science cluster research strategy for the last six years, which particularly supports our first three aims, has included development of Research Lines to contribute to more sustainable soil and land use for future generations, and the overarching themes within the programmes of both the WIMEK and PE&RC research schools. The Research Lines are: **Soil-water interactions, Multi-functional land evaluation, Bio-diverse agroecosystems, Nutrient cycling and contaminant mitigation** and **Soil carbon management and climate change**.

The Soil Science cluster combines fundamental and applied **research** at different spatial and temporal scale in different soil sciences disciplines, and includes socio-economic aspects to enable a more holistic understanding of the systems. The research focusses on environmental problems where soils play a major role and on related sustainable nature-based solutions, from local to global scales. Therefore, the Soil Science cluster has an important role and significant impact not only in the soil sciences research domain, but also on society through close interactions with a wide range of stakeholders.

The Soil Science cluster is a strong unit with inspired and productive staff, Postdocs and PhD candidates, good inter-cluster collaboration and sufficient financing. The unit provides continuing support and **training** to these different groups. The strategy during the past years has been to direct pro-active attention to wider collaboration in order to build the identity of the Soil Science cluster and further strengthen our capabilities and output. Part of this strategy included appointing of the soil cluster coordinator, and the creation of Research Line working groups composed of researchers and staff from different chair groups to support and further develop the Research Lines.

The Soil Science cluster **publications** over the past six years are well cited. The average Field Weighted Citation **Impact** is 2.53, which is well over two times the world average. Of all publications, 30% belong to the top 10% most cited publications (field weighted). Soil Science cluster publications were frequently mentioned in the news and in policy documents, and contribute to the public debate on planetary boundaries, sustainable food production, ecosystem services, climate mitigation and adaptation, and clean healthy soil and water systems. In the period 2015-2020 a number of Soil Science cluster researchers received prestigious grants, namely for NWO VENI (1 researcher), VIDI (1), and Marie Curie (2) grants. Furthermore, a wide spectrum of large international research projects have been initiated and acquired by staff members of the cluster, amounting to a total of more than 70 M€.

For the coming six years the Soil Science cluster's **outlook** is to further advance its high quality and high relevance research and its scientific and societal impact, and to address the weaknesses identified in the SWOT analysis of this review. The cluster aims to maintain and increase collaborations with societal stakeholders, and to address challenges and opportunities occurring in society. An important point that the Soil Science cluster will address is to strengthen the unit further and increase the opportunities for collaboration and co-creation within the cross-cutting Research Lines to build strong links among the soil chair groups and with external collaborators. The Soil Science cluster will place particular attention on maintaining a highly reputable scientific staff, developing skills of new and current soil scientists, and to support the research with proper funding.