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Demand and Supply of soil information in Switzerland – future perspectives for sustainable land use

Abstract:
By virtue of its properties, soil fulfils a wide variety of functions. Its value to society – in agriculture and forestry, drinking water production, protection against natural hazards such as flooding or earthquakes, and climate protection – is inestimable. Without adapted soil use, ecosystem services are lost. Soil in Switzerland is under threat from compaction, erosion and loss of organic material and biodiversity as well as from contaminant and nutrient input. Soil quality can only be taken into account if detailed soil data is available. In Switzerland, however, such data has only been generated for between 10 and 15 per cent of agricultural land.
In this respect Switzerland is a good example of a European country in terms of the very limited soil resources available and the many demands for land. About 10^6 ha of agricultural land (grassland and arable land) are located at the Swiss Plateau, i.e. 0.14 ha of agricultural area per capita. Urban areas increased by nearly 25% (584 km^2) between 1985 and 2009, and roughly 90% of urban areas were developed at the expense of agricultural soil. Urban development has occurred in many small towns and cities, so soil loss has occurred at urban peripheries across the whole of Switzerland. New regulations were recently introduced to limit urban sprawl, and tools have been developed to support the spatial planning decision-making process.
However, incorporating soil quality into spatial planning procedures might be only one cornerstone for a sound sustainable soil use in Switzerland. There are also strong demands for reliable soil information by many other actors in different sectors, such as soil policies and legislation, sustainable soil management in agricultural systems in conjunction with the direct payment systems, forestry, biodiversity, climate adaption, construction industry and others. In this talk the current status of soil resources concerning available soil information in Switzerland is presented and the need for a national soil mapping survey outlined. Furthermore, selected examples of existing tools for Swiss soils aiming on the prevention of soil threats and on sustainable soil use and soil management will be highlighted.