ROADSOIL - Assessment methodologies and mitigation measures for the impacts of road projects on soils

Project summary

Road construction has considerable negative impacts on soils, both in the long and short term, through land-take, soil sealing, soil compaction, soil storage and changes to local hydrology during construction, and redistribution of potentially contaminated soils in the operation phase. This calls for methods to assess the impact of road projects and for mitigating measures for offsetting, compensating and minimising the impacts of national road projects on soils.

In the ROADSOIL project, we aim to develop methods and tools to assess the impact of road construction on soils by combining knowledge syntheses with novel approaches of data mining and modelling; to evaluate measures and best practices to mitigate and compensate for the impacts of roads by analysing expert knowledge and practical experiences; and to develop feasible practices that are effective in soil protection.

We will pursue these objectives in a set of work packages, first to evaluate concepts, data sets and performance indicators to assess the impacts on soil functions due to road construction projects, and explore drivers and effects of soil degradation in the context of soils impacted by road construction using existing data sets. We will refine a decision support tool to allow prediction of the risk of soil compaction induced by construction machinery. A major task is to compile and evaluate best practices established to mitigate and compensate for impacts of road projects on soil functions including the reuse of surplus soil and management of contaminated soils. The approaches will be a literature and document analysis in different European countries, a survey and workshop among international soil and road experts as well as narrative documentations of practical experiences on road construction sites. The research results will be disseminated in guidelines, a decision support tool, and workshops for practitioners.

The expected outcome is a new understanding of how road projects affect soils, methodologies and indicators of how this impact can be quantified and alternative measures to reduce this impact in planning, construction and operation of roads. We expect this outcome to be of high

relevance for national road administrations all across Europe by showing ways of better soil management in upcoming road construction projects.

The ROADSOIL project team includes partners from the Norwegian Institute for Bioeconomy Research (coordinator), Swiss Federal Institute for Forest, Snow and Landscape Research, Swedish University of Agricultural Sciences, Department of Soil and Environment

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