

Soil Classification – Reflection of our Knowledge on Soils

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Similar to any branch of natural sciences soil classification deals with the systematic categorisation of soils based on distinguishing characteristics as well as criteria dictating choices in its use. We should admit that a uniform and generally accepted classification theory and systems are lacking for almost all natural sciences. Therefore we are under continuous development, discussions and proposals. Alternatively we are compromising between scientific and applied (practical) oriented approach. Marlin Cline (Soil Science, 1949) stated the basic rationale behind utilitarian classification. "The purpose of any classification is to organise our knowledge so that the properties of objects may be remembered and their relationships may be understood most easily for a specific objective. The process involves formation of classes by grouping the objects on the basis of their common properties. In any system of classification, groups about which the greatest number, most precise, and most important statements can be made for the objective serve the purpose best". To do so we need to have some basic knowledge on the object (soil) to classify, and objectives to satisfy (our utilitarian needs). Following the attempts to classify Latvia soils, studying the proposed and used schemes from the very beginning up to present, and analysing shortages of currently used systems we can follow the needs, functions and objectives we expect from the soil, (e.g. biomass production only or more complex segment of ecosystem) and extent of knowledge we have or we endeavour to reach.

Professor Jānis Vītiņš who developed the first schemes in 1927 is the founder of scientific soil classification for Latvia. Good soil science knowledge was obtained from the Russian soil science school and practical experience in Russia but since 1921 also in Latvia. The objectives were very understandable – development of Latvia Land Cadastre which included relevant soil evaluation and large-scale mapping.

The first scheme developed was rather simple (from the present point of view); however it gave a possibility for Prof. K. Krūmiņš to propose more extensive one in 1930. The third and fourth schemes (1936/37) already were the synthesis of efforts and collaborative work of soil scientists, and fit well for the set up objectives.

The period after World War II marked new objectives. Firstly, harmonisation and integration of Latvian classification into the USSR system following the governing Soviet theoretical concepts in soil science. Secondly, provision of the needs for ongoing large-scale soil mapping, supporting of soil drainage activities, and later on – also for soil evaluation and land cadastre. This period up to 1990 was characteristic with many practice-oriented investigations, methodological developments, and theoretical discussions. Many people (K. Brīvkalns, K. Bambergis, A. Boruks, H. Mežals, R. Skujāns, R. Stolbovs, I. Gemste et al.) contributing a lot for the data acquisition, map and survey production as well in soil research were involved in the development of theoretical and practical issues. Numerous soil data, publications, large scale soil maps covering all agricultural land area etc. were acquired during this period.

The year 1990 providing another economic situation and possibilities, and also other objectives was a new milestone. Firstly, we had to consider that soil is not only a resource where plants grow but the functions of land are more comprehensive. Therefore entirely agronomic soil classification was not the solution. It meant that soils should be studied, properties recorded, and interpretations developed more widely, comprehensively, and profoundly. New advanced soil parameters are under current interest. Secondly, incorporation of Latvia into the European and global information network requires the application of new (international) data standards. It means the use of non-traditional field and laboratory tests, new parameters, terminology, and interpretations etc., and possibility to use the internationally accepted systems of soil classification as well. If we want to tell somebody about our soils, we need to do it in a language the person understands. This is the new paradigm we are facing with. Consequently we need to reconstruct our soil research, classification, data archives etc. in such a way that they are still understandable and usable for traditional local users, while simultaneously

also applicable for external data needs. Thus we have to implement the international standards, approach, criteria, classification, and to find the compatibility possibilities for comparison of different data formats. We are not so powerful to loose (or make unintelligible) the huge amount of soil data accrued almost over the century, and to obtain the new ones instead. Nevertheless our objective is ambitious due to the fundamental differences between what we have and what we would like to have.

Key words: soil data format, compatibility studies, soil science.