



The properties and evolution of artificial soil-like bodies in the urban environment

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Technogenic sediments as well as urban brownfields make to 90 % from the area of territory of Moscow. Today, in Moscow soil remediation and reclamation occurs by designing and constructing of lawns. Both naked sediments and mature city soils – urbanozems (according prof. M.Stroganova, Urbic Thechnosol - according WRB), are exposing by this reclamation. The reclaiming soil-like bodies named tehnozems (Technosols?). After their creation, tehnozems begin to operate under natural soil processes. This, in our opinion, can be considered the zero-moment for city soil formation The purpose of our research was to reveal the basic trend in technozems transformations, and also to understand the effectiveness of reclamation through construction on various tehnozem bases.

In our research we examine sites within the city boundaries on various elements of a relief with various ages and different histories of nature management. The most typical objects of research - different varieties of city soils and soil-like bodies - have been allocated on these sites. With these objects we perform a set of physical, chemical and biological analyses. The following characteristics were identified: pH(H₂O), organic carbon, soluble potassium, available phosphorus, total content of heavy metals (Zn, Cu, Cd, Pb), Red-Ox potential, penetration resistance, bulk density, cellulosolytic activity, species composition of soil animals and microbiological inoculation on anitrogenous medium

Then, having learned the properties of city soils and soil-like bodies, we have tried to construct a trend of anthropogenous transformation of soil-like bodies. I. Natural soils collapse under action on settlements and covered by a technogenic ground. Then it is imposed a peat compost mix on them, for reclamation this territories. II. However, recultivation is unable to occur, and weed vegetation begins growing along with the formation of underdeveloped soils (Regosols and Arenosols). Furthermore, in a soil-like body, as well as in underdeveloped soil, soil processes are progressed, for example: humification, calcification, zooturbation, etc. Technozems are also becoming Regosols, but humic horizon is forming in both cases in different time (from 5-6 to as many as 30 years) III. Carbonate dust, trace materials, and other products of urban activity are added to soil surface. Then all this products are included in process of soilformation. This urban depositions change soil properties. Accumulation of carbonates, heavy metals, and artifacts is taking place. As a result the special urban soil – urbanozem is forming. It grows till the certain moment while it again not reclamation with formation the tehnozem on urbanozem basis.

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