5. Urban soil quality: data and tools from a European experience

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Abstract:
In Europe, more than half of the population lived in cities already in 1950 and is projected to reach 80% by 2030. Urban soils are thus a crucial part of the ecosystem of million of people. This has implications on the environmental, social, economic and sanitary aspects of citizen's life.

We collate here results of a number of studies conducted on the city of Torino (Italy), taken as the prototype of a post-modern European city. A comprehensive survey of the quality of the soils revealed a high and variable contamination from heavy metals at different scales. Lead, Cr, and Ni appear to be the most frequent metals in soils their origin being traffic and industry, with a contribution from lithology. The search for more specific or efficient indicators of environmental quality was directed towards the chemical fractions of metals, physical fractions of soil particles, in particular those related with health. The results confirm that the metals represent a threat to the urban environment because they are very often in available forms and tend to accumulate in the finer particles. These would in turn constitute a potential carrier of heavy metals into the human body.

An attempt was also made at defining a new approach to the evaluation of soil quality in urban areas. As the usual tools for soil quality evaluation are not suitable for use in urban areas a system of urban soil quality evaluation was developed that which can be used for urban soil quality management, soil quality evaluation for planning purposes and land use change impact assessment. These results stimulated further demand for research into management systems, identification of appropriate environmental indicators and application of soil properties into planning operations.

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