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Implementation of nature-based-solutions in neighborhoods - An opportunity for preservation of open urban soils

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Abstract

In recent years, the awareness of urban soils in urban planning has increased considerably, encouraged by the efforts to reduce soil sealing at the European level and by the growing demand of city dwellers for qualitative green spaces. The combination of a conventional surficial vision of soil in urban planning documents, with the acceptation of soil as a natural resource, is becoming a reality in order to increase access to the local resource, rather than continuing to use a raw material from outside the urban area.

This trend is certainly linked to the awareness of soil degradation, which has been integrated for example into the French climate and resilience law since 2021. We can also mention the rise in soil reconstruction techniques, using low-quality natural materials and urban by-products with interesting properties, particularly as support for vegetation or lightly trafficked roads.

However, we also propose to look at the concept of nature-based-solutions and the implementation of these solutions on the inclusion of soils in planning, sometimes indirectly but also directly, as in the case of the development of urban gardens. The literature on NBS has developed considerably in recent years, driven by European projects. The definition/classification of NBS has been consolidated in a few references documents and made explicit in projects such as Nature4Cities (H2020). As a demonstration project, URBINAT (H2020) proposes the concept of healthy corridor, as a cluster of NBS. It gives pride of place to actions to enhance the value of the soil: de-sealing, implementation of gardens, restauration of parks..... Beyond the architectural and planning approach, these actions question the quality of the soil: physical-chemical to encourage infiltration, agronomic to develop new gardens or bare soil to implement soft mobility. Urban plans before and after implantation of NBS and soil studies explain the impact of green infrastructures on soil preservation. The healthy corridors implemented in Nantes, Porto and Sofia, the frontrunners cities in URBINAT project are presented. In Nantes, the green spaces of the studied area are upgrading and a lot of linked-activities are defined around the gardening and the mobility. In Porto, the focus was on a multi-functional natural park. Sofia preserved soils to develop pathways through the studied area. Through various NBS implemented in deprived neighborhoods, we aimed at the preservation or improvement of soil functions in the context of renaturation of the cities.