

Soil information for supporting new redevelopment and rural development processes in industrial areas: a case study in Sardinia (Italy)

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Industrial settlements may reduce agricultural land, causing its complete abandonment and compromising the quality of soils and the possibility of recovering the ancient agricultural vocation. This is the case in two industrial areas of southern Sardinia (Italy), where heavy chemistry plants were settled in 1960's in former agricultural land. The aim of the present study is to provide soil information to local authorities to identify and evaluate the extent of the phenomenon and for supporting new redevelopment and rural development processes. A GIS approach was used. Air photo interpretation with field checks allowed the analysis of the transformations of the agricultural landscape due to industrial activities. The following areas were identified: traditional areas (areas where agricultural use continues), abandoned areas (areas where agricultural use has been abandoned) and consumed areas (urbanized areas and industrial infrastructures no longer classifiable as rural areas). Existing and new soil data were collected to produce a Land Unit and Land Capability Map. Most of the map units represent soil consociations, while soil associations and complexes characterize few map units. Soil data were also used to assess five ecosystem services: habitat for soil organisms, soil purification capacity, potential carbon sequestration, potential food provision and potential water regulation-water storage. A single value for each ecosystem service was attributed to each map unit. Results provide a wide set of information about the characteristics and potential services of soils in the considered industrial areas, supporting local authorities in outlining new rural redevelopment strategies.

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