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### **POLLUSOLS: diffuse contamination from land to sea**

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Human activities (transport, industry, agriculture,...) are sources of many contaminants that can be disseminated into the environment through various ways, impacting soils and sediments. Small quantities of any compound dispersed over a large area may amount to “a nonpoint source pollution”, with a persistence of several decades.

POLLUSOLS is a research program focusing on the issues of nonpoint source pollution on the land-to-sea continuum. It aims at a) structuring research teams from different fields (biology, sociology, chemistry, psychology, physics, economics,...), b) improving the understanding of the pollution cycle, and c) proposing relevant tools for managing soils and sediments impacted by diffuse pollution.

The partners apply a common methodology on different types of experimental sites reflecting environmental and societal issues on the Loire Estuary: vineyards, urban areas (former landfills, allotment gardens, and road environment), former uranium mines, and the estuary. The methodology considers three main connected steps: sources of contamination (origin and characterization), transfers (mobility in the environment, evolution of use) as well as impacts and heritage (including management options and patrimonial considerations).

We focus on classical and emerging contaminants: metals that are toxic at low doses like lead and mercury, oligo-elements such as copper and zinc that become toxic at high doses, emerging contaminants such as PGE (platinum-group elements) or pharmaceuticals, and radionuclides including uranium and its decay chains. In addition to site-scale approaches, Cu contamination is studied at the regional scale. Indeed, the content of Cu has doubled within the last 30 years in the mussels of the Loire estuary, the receptacle of all water-borne contamination.

The multidisciplinary and even interdisciplinary approaches developed within the POLLUSOLS program will be illustrated (case of urban sites and former mines). The partners are looking forward to European collaboration. They can offer their “in the field” experience around various sites and watersheds.