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Evaluation of Historical Industrial Pollution in urban sediments

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Implementation of new tools and policies on urban management and planning have led to significant changes in land use in cities in the last decades. Better planning means that polluting industrial activities that once integrated urban scenario are now placed well outside city limits, where their impacts on the population are reduced. Relocating these activities has opened new possibilitiesfor urban refurbishing, and the vacant spaces previously occupied by these industries are now being taken over for other uses, such as housing, leisure and services. However, the impact of these industries in the urban environment is far from over. In fact, it is expected that previously released pollutants from these activities are still hidden within the city, and might pose a risk to the unaware city dweller and the environment in general. One of the possible reservoirs for pollutants within city limits are sediments in the bottom of streams.

In this work a survey is made of the sediments from 4 streams running through the city of Coimbra(Portugal) in an attempt to evaluate contamination due to previous industrial activities, now relocated. For comparison purposes and whenever possible,samples were taken before and after historic industrial areas, at four depths (0-20 cm; 20-40 cm; 40-60 cm; 60-80 cm). Characterization of the sediments involved measurements of pH, organic matter and metal content: iron, copper, zinc, manganese, chromium, lead, cadmium, nickel and mercury. Preliminary results (on-going work) show that levels of Cadmium and Lead largely exceed the lowest effect levels for the protection and management of aquatic sediment quality (Ontario Guidelines). Additionally, metal content is not consistently higher in the deeper layers of the sediment, as would be expected if it was the case of historic contamination.