Beneficial Use of Contaminated Sediments: The Promise and the Challenge

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Remediation and Management of Contaminated Sediments

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Contaminated sediments hold both promise and challenge for practitioners trying to find innovative beneficial use opportunities and make beneficial use of contaminated sediments the norm, not the exception. The current state of the practice for most contaminated sediment is to remediate by removal (dredging), containment (capping, possibly with reactive amendments), or leaving in place (monitored natural recovery) to reduce risks. Conventional dredged material management approaches typically involve transport and transfer of sediment to an upland staging area, preprocessing to prepare sediment for dewatering, sediment dewatering and water treatment, followed by off-site transport for landfill disposal. These labor- and energy-intensive processes are likely to become increasingly unsustainable. Furthermore, these sediments are typically managed on a project-by-project basis, without the benefit of a more comprehensible, sustainable strategy to gain potential efficiencies (e.g., reduced costs and improved environmental benefits). Using contaminated sediment as a resource, while reducing the risks posed by exposure to in situ sediment contaminants, offers environmental and economic advantages over managing contaminated sediment as a waste.

Considerable barriers exist to finding uses for contaminated sediment. While some of those barriers are technical, the most challenging barriers to integrating circular economy goals into managing contaminated sediments are financial (e.g., treatment and reuse technologies can be very costly), social (e.g., public resistance to contaminated sediment reuse), environmental (e.g., ensuring long-term sequestration and stability of contaminants), and regulatory (e.g., globally, regulatory agencies have yet to embrace the reuse of contaminated media). The panel discussion will discuss practical ideas, creative possibilities, and examples. In particular, members of the panel will present a recently completed literature review on beneficial use of sediments in North America and Europe, specifically regarding uses of contaminated sediments.

The possibility of and the need for success draws much attention from multiple stakeholders, including technological and corporate investors, to find solutions for better and more sustainable sediment management. This panel will explore the possibilities for beneficial use of contaminated sediments and the possible application of circular economy principles to the field of contaminated sediment remediation and management. The focus will be on finding ex situ and in situ, environmentally protective, beneficial use alternatives for sustainable contaminated sediment management.