Abstract

The massive number of NPL sites in the United States of America, contaminated by hazardous waste practices from over a century ago, delivered convincing evidence for the importance of concentrating research on this topic and planning key strategies for improvement of the cleanup procedure to accelerate the environmental recovery locally. Three of the current Superfund sites in New York City were surveyed to examine poisonous real-time conditions, roughly estimate the extent of the environmental pollution, and understand the negative impacts on human health in dense urban areas. Forty-three soil samples were collected from Meeker Avenue Plume, Newtown Creek, and Gowanus Canal for polychlorinated biphenyls (PCBs) contaminated solvent testing. An alarmingly high PCB contamination range of over 50 ppm was detected with the Drexsil Clor-N-Soil PCB Test Kit in eight locations. Together with the literature review, analyzed data allowed a comprehensive study of the opportunities with the primary goal of revealing the hidden potential of the areas on or close to the selected Superfund sites and highlighting general environmental co-benefits. Embracing on-water living at Newtown Creek and Gowanus Canal and introducing elevated, responsive building structures around Meeker Avenue Plume is considered to offer the two most significant methods of returning hazardous waste sites to beneficial use and unwinding their mega-potential.

Keywords: industrial, hazardous waste sites, Superfund sites, CERCLA, RCRA, soil pollution, water contamination, polychlorinated biphenyls (PCBs), cleanup, recovery, site potential, investment, environmental health research, opportunities, quality of life, environmental co-benefits, on-water living, development, elevated high-rise buildings, absorptive features, removable sponges