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Nota di contenuto	Section 1 Source and distribution of arsenic in soil and water ecosystem -- 1 Analytical tools for Arsenic speciation in soil, water, and plant -- 2 Source and distribution of Arsenic in soil and water ecosystem -- 3 The dichotomy of the journey of arsenic from the soil uptake in plants and down into water -- 4 Source generation of arsenic species and spatial distribution in benthic ecosystem -- Section 2 Health risks linked to arsenic exposure in food and the environment -- 5 Arsenic exposure through dietary intake and associated health hazards -- 6 Arsenic contamination of soil and water and related bio-hazards in Bangladesh -- 7 Arsenic contamination in drinking water and health -- Section 3 Sustainable mitigation strategies -- 8 Towards sustainable arsenic mitigation in Bangladesh and Nepal -- 9 Biotechnological approaches in remediation of arsenic from soil and water -- 10 Microbial removal of arsenic -- 11 Treatment and operational efficiencies of several natural and synthetic sands on treating arsenic through adsorption -- 12 Arsenic mitigation from contaminated ground water through chemical and biological processes -- 13 Soil reclamation and crop production in arsenic contaminated area using biochar and mycorrhiza -- 14 Techniques of arsenic remediation on household and commercial

scale.

Sommario/riassunto

Arsenic contamination in drinking water and crops is a major health issue in many countries worldwide, threatening the health of millions of people due to arsenic’s toxicity and carcinogenicity. This edited volume brings together a diverse group of environmental science, sustainability and health researchers to address the challenges posed by arsenic contamination. The book sheds light on this global environmental issue and proposes solutions to aquatic contamination through multi-disciplinary sustainable approaches and case studies from different parts of the world. The chapters contained here present the status quo in different parts of the world and provide essential information on arsenic exposure risks for humans as well as possible measures for tackling arsenic poisoning. The mechanisms of arsenic uptake, translocation and distribution in plants and grains are also explained. In closing, the book reviews a variety of prospective sustainable solutions to the problem of arsenic accumulation in soil and water. The book is comprised of three sections. The first section describes the routes of exposure to environmental arsenic and its transport in soil and aquatic ecosystems. The second section explains the health risks linked to arsenic exposure in food and the environment. The third section addresses sustainable arsenic contamination mitigation strategies using the potential applications of recent biological technology such as biotechnology, bioremediation, phytoremediation, biochar, absorbent, genetic engineering, and nanotechnology approaches. The book is intended for a broad audience including researchers, scientists, and readers with diverse backgrounds.