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Nota di contenuto	Bioremediation and Sustainability Research and Applications; Contents; Preface; Acknowledgements; List of Contributors; 1. Elements of Sustainability and Bioremediation; The Sustainability, Remediation and Biotechnology Link; Features and Concepts in Sustainability; Sustainability and Scale of Environmental Pollution Clean-up; Biotechnology and Bioremediation; Environmental Pollution and Biotreatment Variants; Main Features of Bioremediation; Advantages of Bioremediation; Disadvantages of Bioremediation; General Approach to Bioremediation; In Situ Bioremediation Technologies; Bioventing Biotreatment Air-sparging; Natural Attenuation; Landfarming; Phytoremediation; Ex Situ Bioremediation; Composting; Controlled Solid Phase Biotreatment; Slurry Phase Bioremediation; Anaerobic Digestion Processes; Principles of Anaerobic Digestion Processes; Pollutant Remediation by Anaerobic Processes; Biosorption of Heavy Metals; Science of Biosorption; Biosorption and Heavy Metal Removal; Factors Influencing Bioremediation Rates; pH; Temperature; Metals; Toxic

Compounds; Water Content; Nutrient Availability; Bioavailability of Pollutants; Co-metabolism; Bioaugmentation
Trends in Bioremediation Research
Concluding Note;
Acknowledgements; References;
2. Natural Attenuation; The Natural Attenuation and Sustainability Link; Features and Concepts in Natural Attenuation; Site Assessment, Mass Assimilation and the Need for Active Remedies; Contaminant Transformation Under Natural Site Conditions; Monitoring for Natural Attenuation; Source Area Evaluation; Source Area and Plume Connection; Source Area Delineation and Source Mass Analysis; Source Area Mass Flux Analysis; Source Area Lifetime Estimates; Quantitative Analysis of Natural Attenuation Data
Plume Stability Determination
Thiessen Polygon Method; Contaminant Degradation Rate Estimates; Plume Response to Source Removal; Decision Making Regarding Source Area Treatment; Concluding Note; References;
3. Anaerobic Digestion Processes; Anaerobic Digestion Fundamentals; Microbial Populations; Operational Parameters; Nutrients; Inhibition; Applications; Renewable Energy; Waste Management; Nuisance Avoidance; Nutrient Management Plan; Frequency of Use; Project Development; Feedstock Characterization; Estimating Energy Potential; Biochemical Methane Potential; Pilot-Scale Testing; Design
Safety
Anaerobic Digestion Economics; Anaerobic Digestion Monitoring; Conclusions & Future Developments; References;
4. Biosurfactants: Synthesis, Properties and Applications in Environmental Bioremediation; Introduction; Enzymatic Syntheses of Surfactants; Enzymatic Synthesis of Monoglycerides; Enzymatic Synthesis of Sugar Esters; Enzymatic Synthesis of Fatty Amides; Enzymatic Synthesis of Alkyl Glycosides; Enzymatic Synthesis of Lysophospholipids; Microbial Synthesis of Biosurfactants; Surfactin; Sphingolipids; Rhamnolipids; Properties of Biosurfactants; Surface and Interface Activity
Temperature, pH and Ionic Strength Tolerance

Sommario/riassunto

Bioremediation and Sustainability is an up-to-date and comprehensive treatment of research and applications for some of the most important low-cost, "green," emerging technologies in chemical and environmental engineering.
