

Comparative Study Of Wastewater Lagoon With And Without

This volume discusses contemporary techniques, technologies, and solutions for industrial wastewater remediation and treatment. It covers biological, chemical, and physical aspects of wastewater treatment, with a background on the generation of wastewater associated with different industries, as well as a comparison of traditional treatment technologies with new advancements. The authors also describe the reuse and recovery of nutrients and precious metals from wastewater, and how such sustainable strategies can be incorporated into industrial wastewater planning and legislation. The book also contains practical and theoretical aspects of various industries and their wastewater management practices in a changing climate, with an emphasis on recent research examining the environmental impact of wastewater. The work will be of interest to students, teachers, and researchers studying wastewater pollution and remediation, wastewater management-based NGOs, and people involved in the planning and legislation of industrial operations.

Sustainability Matters is a compilation of some of the best research papers by students from the National University of Singapore's inter-disciplinary graduate programme in environmental studies, the MSc in Environmental Management [MEM]. This collection is for the period 2009/10 to 2011/12. As the period covers 3 academic years, the papers have been split into two volumes: Sustainability Matters: Asia's Green Challenges, and Sustainability Matters: Asia's Energy Concerns, Green Policies and Environmental Advocacy. These two volumes are the third and fourth compilation by the programme, and respectively comprise sixteen and fourteen of the best research papers completed during this period. The papers have been edited for brevity. These papers analyze the many challenges to effective environmental management in the context of different countries including India, Sri Lanka, Bangladesh, China, Hong Kong, Nepal, Singapore, and Thailand, and propose insightful solutions. The first compilation, Sustainability Matters: Environmental Management in Asia, was published in 2010 (World Scientific) and comprised the best papers from 2001/2 to 2006/7. The second, Sustainability Matters: Challenges and Opportunities in Environmental Management in Asia was published in 2011 (Pearson), and comprised the best papers from 2007/8 to 2008/09. Contents: Volume 1: Air Pollution: Development of Urban Traffic Pollution Control Strategies in Asian Cities: A Case Study from Chennai, India (Ashwinkumar Dakshinamurthi and Rajasekhar Balasubramanian) Assessment and Abatement Measures for Vehicular Air Pollution in Colombo, Sri Lanka (Chamila Weerathunge and Rajasekhar Balasubramanian) Waste Management: Recycling in Singapore the Singapore Model: Strategies and Ways to Improve (Tan Puay Cheow and Lye Lin Heng) Municipal Solid Waste Management in Southeast Asian Cities: The Next Steps (Boey Yinyin Edris and Rick Reidinger) Lessons for Integrated District-Level Food Waste Recycling Programs: A Review of Eight International Cases (Amireeta Rawlani and Kua Harn Wei) Singapore's Municipal Solid Waste Management: A Sustainable Model (Wendy Wong Shih Ling and Rick Reidinger) Utilization of Landfill Gas as a Renewable Source of Energy in India (Subhashini Kashinath and Zhou Zhi George) The Potential Role of Water Hyacinth in Wastewater Treatment in Nepal (Ram Bahadur Singh Maharjan and Chou Loke Ming) Improving Leachate Water Quality using a Wetland Treatment System in Lorong Halus — A Pilot Study (Christian Budiman and Ting Yen-Ping) Life Cycle Assessment of an Urban Waste Refinery (Celia Chua Bee Hong and Kua Harn-Wei) A Study of the 3Rs (Reduce, Reuse, Recycle) Programs in Primary Schools, Singapore (Kelly Yong Kim-Lian and Victor R Savage) Urban Studies: Assessing Skywalk Systems as a Response to High Density Living in Hong Kong (Patricia Woo and Malone-Lee Lai Choo) The Management of Visitor Pressure on Coastal Parks of Singapore (Karen Lim Hui Khian and Chou Loke Ming) Sustainability in Singapore: An Ecological Footprint Perspective (Xin Jing Jing and Victor R Savage) Seagrasses in Singapore: Current Status and Long-Term Management Plans (Michelle Chng Wei Ping and Chou Loke Ming) The Singapore's Bus System: An Analysis of Commuters' Satisfaction and Potential Improvements (Jan Martin Hecker and Lee Der Horng) An Assessment of Sustainable Cities (May Yadana Aung and Chou Loke-Ming) Urban Greenery as a Mitigation Strategy for Urban Heat Island Effect in High Density Commercial Districts of Dhaka (Nabanita Islam and Wong Nyuk-Hien) The Potential for Residential Water Conservation in Dhaka, Bangladesh (Sonia F Hoque, Asanga Gunawansa and Md. Mafizur Rahman) Planned Housing Environments and Children's Outdoor Play: Is Child-Friendliness Possible? (Md Rashed Bhuyan and Tracey Skelton) Green Business: Empowering the Bottom of the Pyramid: Government, Business, and Solar Power in India (Carrie Wallace Candeto and Audrey Chia) Charting a Greener Course in Shipping: Incorporating Environmental Performance Indicators in a Tanker Pool System (Jean Chia E Ming and Audrey Chia) Environmental Practices of Indian Business Process Outsourcing: A Study of Two Companies (Sweta Sorab and Mark Goh) Green Business Strategies in the Precision Engineering Industry in Singapore (Gan Chin-Yean and Audrey Chua) The Second Green Revolution: A Review of the Challenges and Prospects (Leong Li-Sun and Victor R Savage) Towards Broader Implementation of Corporate Sustainability and Sustainability Reporting in the Construction Industry in Singapore (Kaia Margit Davis Tan and Audrey Chia) Volume 2: Biodiversity: The Impact of Community Forestry on Biodiversity Conservation in Nepal (Ishwari Prasad Poudel and Chou Loke-Ming) Waste Management: Improving Leachate Water Quality Using a Wetland Treatment System in Lorong Halus — A Pilot Study (Christian Budiman and Ting Yen-Ping) Life Cycle Assessment of an Urban Waste Refinery (Celia Chua Bee-Hong and Kua Harn-Wei) A Study of the 3Rs (Reduce, Reuse, Recycle) Programs in Primary Schools, Singapore (Kelly Yong Kim-Lian and Victor R Savage) Urban Studies: An Assessment of Sustainable Cities (May Yadana Aung and Chou Loke-Ming) Urban Greenery as a Mitigation Strategy for Urban Heat Island Effect in High Density Commercial Districts of Dhaka, Bangladesh (Nabanita Islam and Wong Nyuk-Hien) The Potential for Residential Water Conservation in Dhaka, Bangladesh (Sonia F Hoque, Asanga Gunawansa and Md Mafizur Rahman) Planned Housing Environments and Children's Outdoor Play: Is Child-Friendliness Possible? (Md Rashed Bhuyan and Tracey Skelton) Energy and Climate Change: Wind: The Alternative Source of Power for Singapore After Solar Energy? (Chew Keng-Hui and Lanry Yung) The

Economics of Wind Energy (Alan Yau Wai-Hoo and Benjamin K Sovacool) Print Media and Climate Change: A Comparison of the 1992 Rio Summit and the 2009 Copenhagen Conference (Davina Loh and Victor R Savage) Green Business: Green Business Strategies in the Precision Engineering Industry in Singapore (Gan Chin-Yean and Audrey Chia) The Second Green Revolution: A Review of the Challenges and Prospects (Leong Li-Sun and Victor R Savage) Towards Broader Implementation of Corporate Sustainability and Sustainability Reporting in the Construction Industry in Singapore (Kaia Margit Davis-Tan and Audrey Chia) Readership: Graduate students, academics and researchers in environmental management/science. Keywords: Environment; Management; Sustainability; Asia; Corporate Environmental Management; Biodiversity and Planning; Marine Environment; Environment and Economic Development; Energy Sustainability; Renewable Energy; Urban Pollution and Waste Management; Sustainable Infrastructure; Transportation; Recycling; Urban Studies; Green Business

Bibliography of Agriculture

Attitudes of Federal Water Planners

January 1988 - June 1992

(In 2 Volumes) Volume 1: Asia's Green Challenges Volume 2: Asia's Energy Concerns, Green Policies and Environmental Advocacy

Recent Trends in Wastewater Treatment

Septic Systems and Discharge Area, Nevada Test Site, Nevada, Rev. No

A review of published literature and field evaluations revealed the presence of over 3500 waste treatment lagoons currently in operation in the United States. The three types of lagoons in use include: Oxidation lagoons; Aerated lagoons; and Anaerobic lagoons. Oxidation lagoons depend upon algae to supply oxygen by photosynthesis and degrade the waste products.

Effluent quality is determined by the quantity of algae in the effluent and several methods of algae removal are currently under investigation. Aerated lagoons may be merely oxidation ponds with supplemental aeration, partially mixed activated sludge (facultative aerated) or complete mix activated sludge (CMAS) systems. Anaerobic lagoons can provide up to 80% BOD removals, but must be followed by some type of aerobic treatment to produce a high quality effluent. The review has demonstrated that lagoons do have applicability to the total waste treatment problem.

Environmental biotechnology is an emerging field of scientific and technological investigations that is truly global. Popular recognition is high for the environmental problems being faced and solved by biotechnology methods. This book presents selected papers from the 3rd International Symposium of the International Society for Environmental Biotechnology, held in Boston in July 1996. The following topics are covered: metals, mine drainage, removal and toxicity; waste treatment/monitoring; bioremediation; water quality; biodegradation; and local, national and international issues in biotechnology.

Performance and Upgrading of Wastewater Stabilization Ponds : Proceedings of a Conference Held August 23-25, at Utah State University, Logan, Utah,

Edible and Useful Plants of Texas and the Southwest

Toward a Philosophy of Planning

Environmental Protection Research Catalog: Indexes

Solar Energy Update

The Ecological Impacts of Wastewater on Wetlands

This book explains how with careful planning and design, the functions and performance of constructed wetlands can provide a huge range of benefits to humans and the environment. It documents the current designs and specifications for free water surface wetlands, horizontal and vertical subsurface flow wetlands, hybrid wetlands and bio retention basins; and explores how to plan, engineer, design and monitor these natural systems. Sections address resource management (landscape planning), technical issues (environmental engineering and botany), recreation and physical design (landscape architecture), and biological systems (ecology). Site and municipal scale strategies for flood management, storm-water treatment and green infrastructure are illustrated with case studies from the USA, Europe and China, which show how these principles have been put into practice. Written for upper level students and practitioners, this highly illustrated book provides designers with the tools they need to ensure constructed wetlands are sustainably created and well manage

This book examines a wide range of emerging sources of water pollution. It consists of thirteen chapters dedicated to the topic, giving readers comprehensive information about the types of contaminants involved and the solutions for their removal. The first five chapters present an analysis of the emerging water pollutants, their toxicities, and the legislations available to monitor and regulate their emissions. This introduction is followed by 3 chapters that cover risk assessment of emerging pollutants, their fate and life cycle assessment. The last section of the book goes through the details of remediation technologies for wastewater treatment. This reference is equally suitable for academia, industry professionals and students, presenting state-of-the-art learnings on emerging water pollutants and their remediation methods.

Case Histories and Comparative Cost Analysis of Land Treatment of Wastewater by Small Municipalities in Michigan

A Comparative Study of Greenhouse Gases Produced by Membrane Bioreactors, Submerged Membrane Electro Bioreactors and Lagoons During Wastewater Treatment Process

Quick Bibliography Series

Water Research

Ecology Abstracts

Simulation Models, GIS and Nonpoint-source Pollution

This Corrective Action Decision Document has been prepared for Corrective Action Unit (CAU) 151, Septic Systems and Discharge Area, at the Nevada Test Site, Nevada, according to the "Federal Facility Agreement and Consent Order" (FFACO) (1996). Corrective Action Unit 151 is comprised of eight corrective action sites (CASs): (1) CAS 02-05-01, UE-2ce Pond; (2) CAS 12-03-01, Sewage Lagoons (6); (3) CAS 12-04-01, Septic Tanks; (4) CAS

12-04-02, Septic Tanks; (5) CAS 12-04-03, Septic Tank; (6) CAS 12-47-01, Wastewater Pond; (7) CAS 18-03-01, Sewage Lagoon; and (8) CAS 18-99-09, Sewer Line (Exposed). The purpose of this Corrective Action Decision Document is to identify and provide the rationale for the recommendation of corrective action alternatives (CAAs) for each of the eight CASs within CAU 151. Corrective action investigation (CAI) activities were performed from September 12 through November 18, 2005, as set forth in the CAU 151 Corrective Action Investigation Plan and Record of Technical Change No. 1. Additional confirmation sampling was performed on December 9, 2005; January 10, 2006; and February 13, 2006. Analytes detected during the CAI were evaluated against appropriate final action levels (FALs) to identify the contaminants of concern for each CAS. The results of the CAI identified contaminants of concern at two of the eight CASs in CAU 151 and required the evaluation of CAAs. Assessment of the data generated from investigation activities conducted at CAU 151 revealed the following: (1) Soils at CASs 02-05-01, 12-04-01, 12-04-02, 12-04-03, 12-47-01, 18-03-01, 18-99-09, and Lagoons B through G of CAS 12-03-01 do not contain contamination at concentrations exceeding the FALs. (2) Lagoon A of CAS 12-03-01 has arsenic above FALs in shallow subsurface soils. (3) One of the two tanks of CAS 12-04-01, System No. 1, has polychlorinated biphenyls (aroclor-1254), trichloroethane, and cesium-137 above FALs in the sludge. Both CAS 12-04-01, System No. 1 tanks contain trichloroethane and 1,4-dichlorobenzene above "Resource Conservation and Recovery Act" toxicity characteristic limits. Based on the evaluation of analytical data from the CAI, review of future and current operations at the eight CASs, and the detailed and comparative analysis of the potential CAAs, the following corrective actions are recommended for CAU 151. No Further Action is the recommended corrective action for soils at CASs 02-05-01, 12-04-01, 12-04-02, 12-04-03, 18-03-01, and 18-99-09; and Lagoons C, D, F, and G of CAS 12-03-01. No Further Action with implementation of a best management practice (BMP) is recommended for soils at CAS 12-47-01 and Lagoons B and E of CAS 12-03-01. To be protective of future workers should the present scenario used to calculate FALs change, an administrative use restriction will be recorded per the FFAO agreement as a BMP. Close in Place with Administrative Controls is the recommended corrective action for Lagoon A of CAS 12-03-01. Based on the evaluation of analytical data from the CAI; review of future and current operations at CASs 12-04-01, 12-04-02, and 12-04-03; and the detailed and comparative analysis of the potential CAAs, the following corrective actions are recommended for the septic tanks at these CASs. No Further Action with implementation of BMPs is the recommended corrective action for septic tanks that do not contain potential source material from CAS 12-04-01, System No. 4 (four tanks); CAS 12-04-02, System No. 5 (six tanks); and CAS 12-04-03, System No. 3 (four tanks). Clean Closure with implementation of BMPs is the recommended corrective action for the septic tanks from CAS 12-04-01, System No. 1 (two tanks). The preferred CAAs were evaluated on technical merit focusing on performance, reliability, feasibility, safety, and cost. The alternatives were judged to meet all requirements for the technical components evaluated. The alternatives meet all applicable federal and state regulations for closure of the site and will reduce potential exposure pathways to the contaminated media to an acceptable level at CAU 151.

All around us there are wild plants good for food, medicine, clothing, and shelter, but most of us don't know how to identify or use them. Delena Tull amply supplies that knowledge in this book, one of the first focused specifically on plants that grow in Texas and surrounding regions of the South and Southwest. Extensively illustrated with black-and-white drawings and color photos, this book includes the following special features: Recipes for foods made from edible wild plants. Wild teas and spices. Wild plant dyes, with instructions for preparing the plants and dyeing wool, cotton, and other materials. Instructions for preparing fibers for use in making baskets, textiles, and paper. Information on wild plants used for making rubber, wax, oil, and soap. Information on medicinal uses of plants. An identification guide to hay fever plants and plants that cause rashes. Instructions for distinguishing edible from poisonous berries. Detailed information on poisonous plants, including poison ivy, oak, and sumac, as well as herbal treatments for their rashes.

2nd International Symposium for Waste Treatment Lagoons

An Engineering Assessment

An Annotated Bibliography

Aquaculture Systems for Wastewater Treatment

Sustainability Matters

Resources in Education

The four volumes of the book series "Engineering Tools for Environmental Risk Management" deal with environmental management, assessment & monitoring tools, environmental toxicology and risk reduction technologies. This last volume focuses on engineering solutions usually needed for industrial contaminated sites, where nature's self-remediation is inefficient or too slow. The success of remediation depends on the selection of an increasing number of conventional and innovative methods. This volume classifies the remedial technologies and describes the reactor approach to understand and manage in situ technologies similarly to reactor-based technologies. Technology types include physicochemical, biological or ecological solutions, where near-natural, sustainable remediation has priority. A special chapter is devoted to natural attenuation, where natural changes can help achieve clean-up objectives. Natural attenuation and biological and ecological remediation establish a serial range of technologies from monitoring only to fully controlled interventions, using 'just' the natural ecosystem or sophisticated artificial living systems. Passive artificial ecosystems and biodegradation-based remediation – in addition to natural attenuation – demonstrate the use of these 'green' technologies and how engineering intervention should be kept at a minimum to limit damage to the environment and create a harmonious ecosystem. Remediation of sites contaminated with organic substances is analyzed in detail including biological and physicochemical methods. Comprehensive management of pollution by inorganic contaminants from the mining industry, leaching and bioleaching and acid mine drainage is studied in general and specifically in the case of an abandoned mine in Hungary where the innovative technology of combined chemical and phytostabilization has been applied. The series of technologies is completed by electrochemical remediation and nanotechnologies. Monitoring, verification and sustainability analysis of remediation provide a comprehensive overview of the management aspect of environmental risk reduction by remediation. This book series focuses on the state of knowledge about the environment and its conscious and structured application in environmental engineering, management and decision making.

This book presents the dynamic role of algae in a sustainable environment. Two major aspects, namely bioenergy and bioremediation, have been elaborated in various chapter contributed by scientists and teachers from different geographical areas throughout the world. Algal biofuels is an emerging area of equal interest to researchers, industries, and policy makers working or focusing on alternative (i.e. renewable) fuels. Algae have been an area of interest due to their wide range of applications. Over the last 5 decades, eukaryotic algae have been used in the aquaculture industry as feed for invertebrates, providing a rich source of antioxidants, dietary fiber, minerals and protein. More recently, there has been a focus on the use of algal biomass in the development of alternative fuels. The extraction of oil from algae has been widely explored as a much more viable feedstock than plant-based oils in large-scale fuel production. using algae as feedstock has the advantages that it doesn't require arable land and that wastewater can be used as a source of nutrients in their culture. The multifunctional approach of algae includes pollution remediation, carbon sequestration, biofuels production,

and delivery of value-added products. However, there are still some obstacles that need to be overcome to make their use as potential feedstock for biofuels techno-economically feasible. In order to maintain the sustainability aspect of algal biofuels, various aspects have to be studied and critically analyzed to assess the long-term sustainability of algal derived biofuels. This book discusses the role of algae as a promising future feedstock for biofuels. They are known to sequester carbon in much larger amounts than plants and as such the book also describes their phycoremediation potential for conventional as well as emerging contaminants. It describes the role of anaerobic digestion in algal biorefineries; bioreactions and process parameters; biogas recovery and reuse. The role of algal biofilm based technology in wastewater treatment and transforming waste into bio-products is discussed, and remediation of sewage water through algae is assessed. The book also describes the production of biohydrogen, bio-oil, biodiesel; and the major bottlenecks in their usage. The emerging characterization techniques of these biofuels (bio-oil and biodiesel) are described, as are the decolorizing potential of algae and the genetic engineering techniques that could enhance the production of lipids in algae. Other aspects of the book include the role of remote sensing technology in the monitoring of algae and a life cycle assessment of algal biofuels.

Energy Abstracts for Policy Analysis

4. Risk Reduction Technologies and Case Studies

EPA-R5

Engineering Tools for Environmental Risk Management

Algae and Environmental Sustainability

Phytochemical Effects of Environmental Compounds

Originally published: Practical guide to edible and useful plants. Austin, Tex.: Texas Monthly Press, c1987.

Indexes journal articles in ecology and environmental science. Nearly 700 journals are indexed in full or in part, and the database indexes literature published from 1982 to the present.

Coverage includes habitats, food chains, erosion, land reclamation, resource and ecosystems management, modeling, climate, water resources, soil, and pollution.

Edible and Useful Plants of the Southwest

Constructed Wetlands and Sustainable Development

Global Environmental Biotechnology

Socioeconomic Environmental Studies Series

Cost Analysis of Water Pollution Control

Emerging Water Pollutants: Concerns and Remediation Technologies

A Comparative Study of Greenhouse Gases Produced by Membrane Bioreactors, Submerged Membrane Electro Bioreactors and Lagoons During Wastewater Treatment Process

Climate change is without a doubt the most important environmental issues of our age. Numerous studies have indicated the climate change and its effects are attributed to anthropogenic activities emitting CO₂, CH₄, N₂O and other greenhouse gases. Wastewater treatment plants and their discharge account for 7.6% of the total emissions. The main objective of this study was to investigate greenhouse gases generated by two advanced wastewater treatment methods: conventional membrane bioreactor (MBR) and novel submerged membrane electro bioreactor (SMEBR). Subsequently, outcomes from both systems in lab scale were compared to the most popular wastewater treatment method, the lagoon systems, which account for 80% in Canada. This study comprises four phases. In phase 1, the 7 L MBR system was set up and run based on synthetic wastewater, simulating discharge to lagoons in a municipality in Quebec. Subsequently, gas emissions were collected and analyzed. In phase 2, a submerged membrane electro-bioreactor, with identical technological parameters as MBR in phase 1, was submitted to investigations, where its emitted gases were also analyzed. In phase 3, a larger MBR was exposed to biogas measurements. Then, it was transformed to SMEBR while gas measurements continued. In phase 4, gas emissions from lagoons were estimated and compared to the outcomes from phases 1, 2 and 3. Results showed that the MBR produced around 22 g of CO₂ equivalent per litre of wastewater per day, while the SMEBR generated around 12 g CO₂ eq/L per day. In phase 3, the MBR transformation to SMEBR permitted to decrease the gas production while improving the ammonia removal efficiency. Phase 4 showed that the SMEBR reactor generated less N₂O when compared to other investigated systems. It was concluded that the SMEBR system produced the lowest amounts of N₂O per litre of wastewater, while showing superiority in nutrient removal. It is an important information from the point of view of sustainability and climate change prevention.

Selected Water Resources Abstracts

Corrective Action Decision Document for Corrective Action Unit 151

Crickets and Grasshoppers

Texas, New Mexico, and Arizona

Evaluation and Comparison of Overland Flow and Slow Rate Systems to Upgrade Secondary Wastewater Lagoon Effluent

The influence of compounds in the environment on the chemistry of plants is a topic which has economic and scientific implications of global importance. Selected presentations in this symposium covered several topics within this immense field, inclusive of air, soil, and aquatic sources of the compounds. As demonstrated in Chapter 4 by O'Keeffe et al. we have not restricted the discussion solely to

negative aspects of anthropogenic compounds. Nor could we begin to cover comprehensively all major classes of environmental compounds in the air, soil or water that may have an effect on the phytochemistry of plants. Our intent was to focus on some of the timely and well publicized environmental constituents such as ozone, sulfur dioxide, acid rain, and others, to provide an authoritative publication specifically related to environmental modifications of plant chemistry. The concept of this symposium originated with the Executive Committee of the Phytochemical Society of North America in 1983. It was brought to fruition during July 13-17, 1986 on the campus of the University of Maryland at the annual meeting of the PSNA through the efforts of the Symposium Committee composed of James A. Saunders and Lynn Kosak-Channing. Financial support for this meeting was provided by the Phytochemical Society of North America, as well as by generous contributions from E. I. du Pont de Nemours & Company and the U. S. Department of Agriculture. The Organizing Committee, consisting of J. A. Saunders (Chair), J. M. Gillespie, L. Kosak-Channing, E. H. Lee, J. P.

Waste Treatment Lagoons--state of the Art

National Park Service IPM Information Package: Crickets and grasshoppers

Rio de Janeiro : 1986 : Proceedings of the Thirteenth Biennial Conference of the International Association on Water Pollution Research and Control, Held in Rio de Janeiro, Brazil, 17-22 August, 1986

Seminar Proceedings and Engineering Assessment

Research and Technology Annual Report

Final Report