

Life Cycle Assessment Thinkstep

How Do I Do a Life Cycle Assessment? What Is Life Cycle Assessment? How Long Does It Take to Make a Life Cycle Assessment? What Are the Phases of a Life Cycle Assessment? What Is an Example of a Life Cycle Assessment? LCA Software GaBi in 5 minutes - the No. 1 Product Sustainability Software What Is the Goal of Life Cycle Assessment? Why Is Life Cycle Assessment Important? Life cycle assessment (LCA) of book LCA hands-on workshop using Ecolizer look-up table The LCA Beginners Course for Sustainable Businesses - Ecochain LCA Life Cycle Assessment Template Walkthrough - AssessCCUS Module 3: Case study: whole-building LCA LCA hands-on workshop with IDEMAT spreadsheet Bookshark: Pros and Cons curriculum review Life Cycle Talks | How to assess the environmental performance of emerging technologies? Let's Review: MBTP Economics Cycle - What We Loved \u0026 What I Would Change - Homeschool Unit Study CalTPA Deep Dive: Cycle 2 ISO 14040 / 14044 Goal and Scope Definition Phase Jim Fava the 'father of modern-day Life Cycle Assessment talks with thinkstep-anz - Webinar trailer Webinar and Product demo - GaBi Packaging calculator Jim Fava the 'father of modern-day Life Cycle Assessment (LCA) talks to thinkstep-anz - Webinar Life Cycle Assessment (LCA) For Beginners LCA lecture What Is the Most Critical Phase in Product Life Cycle Assessment? Life Cycle Assessment. Optimising raw materials for renewables Life Cycle Assessment For Beginners (or The Importance of Life Cycle Thinking) Life cycle assessment (LCA) of a table What on Earth is a Life Cycle Assessment (LCA)?

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REFERENCE BUILDING STRUCTURE AND STRATEGIES

MDPI

An increasing number of agencies, academic institutes, and governmental and industrial bodies are embracing the principles of sustainability in managing their activities and conducting business. Pavement Life-Cycle Assessment contains contributions to the Pavement Life-Cycle Assessment Symposium 2017 (Champaign, IL, USA, 12-13 April 2017) and discusses the current status of as well as future developments for LCA implementation in project- and network-level applications. The papers cover a wide variety of topics: - Recent developments for the regional inventory databases for materials, construction, and maintenance and rehabilitation life-cycle stages and critical challenges - Review of methodological choices and impact on LCA results - Use of LCA in decision making for project selection - Implementation of case studies and lessons learned: agency perspectives - Integration of LCA into pavement management systems (PMS) - Project-level LCA implementation case studies - Network-level LCA applications and critical challenges - Use-phase rolling resistance models and field validation - Uncertainty assessment in all life-cycle stages - Role of PCR and EPDs in the implementation of LCA Pavement Life-Cycle Assessment will be of interest to academics, professionals, and policymakers involved or interested in Highway and Airport Pavements.

Theory and Practice CRC Press

Comprehensively covers the definition, methodology, and current applications of the principles of sustainability and resiliency in every engineering discipline This book contains detailed information about sustainability and resiliency principles and applications in engineering practice, and provides information on how to use scientific tools for sustainability assessment that help engineers select the best alternative for each project or activity. Logically organized around the three pillars of sustainability—environment, economy, and society—it is a primary resource for students and professionals alike. Sustainable Engineering: Drivers, Metrics, Tools, and Applications offers numerous ways to help engineers contribute towards global sustainable development while solving some of the grand challenges the world is facing today. The first part of the book covers the environmental, economic, and social impacts associated with project/product development as well as society as a whole. This is followed by a section devoted to sustainability metrics and assessment tools, which includes material flow analysis and material budget, carbon footprint analysis, life cycle assessment, environmental health risk assessment, and more. Next comes an in-depth examination of sustainable engineering practices, including sustainable energy engineering, sustainable waste management, and green and sustainable buildings. The book concludes with a look at how sustainable engineering may be applied to different engineering (i.e. environmental, chemical, civil, materials, infrastructure) projects. Some of the key features of this book include the following: Provides a complete and sensible understanding of the important concepts of sustainability, resiliency, and sustainable engineering Offers detailed explanations of sustainable engineering practices in waste management and remediation of contaminated sites, civil construction and infrastructure, and climate geoengineering Presents a set of case studies across different engineering disciplines such as bio/chemical, environmental, materials, construction, and infrastructure engineering that demonstrate the practical applicability of sustainability assessment tools to diverse projects Includes questions at the end of each chapter as well as a solutions manual for academic adopters The depth of coverage found in Sustainable Engineering: Drivers, Metrics, Tools, and Applications makes it an ideal textbook for graduate students across all engineering disciplines and a handy resource for active professionals.

Life Cycle Assessment Student Handbook John Wiley & Sons

The Material Basis of Energy Transitions explores the intersection between critical raw material provision and the energy system. Chapters draw on examples and case studies involving energy technologies (e.g., electric power, transport) and raw material provision (e.g., mining, recycling), and consider these in their regional and global contexts. The book critically discusses issues such as the

notion of criticality in the context of a circular economy, approaches for estimating the need for raw materials, certification schemes for raw materials, the role of consumers, and the impact of renewable energy development on resource conflicts. Each chapter deals with a specific issue that characterizes the interdependency between critical raw materials and renewable energies by examining case studies from a particular conceptual perspective. The book is a resource for students and researchers from the social sciences, natural sciences, and engineering, as well as interdisciplinary scholars interested in the field of renewable energies, the circular economy, recycling, transport, and mining. The book is also of interest to policymakers in the fields of renewable energy, recycling, and mining, professionals from the energy and resource industries, as well as energy experts and consultants looking for an interdisciplinary assessment of critical materials. Provides a comprehensive overview of key issues related to the nexus between renewable energy and critical raw materials Explores interdisciplinary perspectives from the natural sciences, engineering, and social sciences Discusses critical strategies to address the nexus from a practitioner's perspective

PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON PAVEMENT, ROADWAY, AND BRIDGE LIFE CYCLE ASSESSMENT 2020 (LCA 2020, SACRAMENTO, CA, 3-6 JUNE 2020)

Springer

Life Cycle Assessment (LCA) A Guide to Approaches, Experiences and Information Sources European Communities

PROGRESS IN LIFE CYCLE ASSESSMENT

Frontiers Media SA

This book is a uniquely pedagogical while still comprehensive state-of-the-art description of LCA-methodology and its broad range of applications. The five parts of the book conveniently provide: I) the history and context of Life Cycle Assessment (LCA) with its central role as quantitative and scientifically-based tool supporting society's transitioning towards a sustainable economy; II) all there is to know about LCA methodology illustrated by a red-thread example which evolves as the reader advances; III) a wealth of information on a broad range of LCA applications with dedicated chapters on policy development, prospective LCA, life cycle management, waste, energy, construction and building, nanotechnology, agrifood, transport, and LCA-related concepts such as footprinting, ecolabelling, design for environment, and cradle to cradle. IV) A cookbook giving the reader recipes for all the concrete actions needed to perform an LCA. V) An appendix with an LCA report template, a full example LCA report serving as inspiration for students who write their first LCA report, and a more detailed overview of existing LCIA methods and their similarities and differences.

CONCRETE Innovations in Materials, Design and Structures Elsevier

Sustainable Construction Technologies: Life-Cycle Assessment provides practitioners with a tool to help them select technologies that are financially advantageous even though they have a higher initial cost. Chapters provide an overview of LCA and how it can be used in conjunction with other indicators to manage construction. Topics covered include indoor environment quality, energy efficiency, transport, water reuse, materials, land use and ecology, and more. The book presents a valuable tool for construction professionals and researchers that want to apply sustainable construction techniques to their projects. Practitioners will find the international case studies and discussions of worldwide regulation and standards particularly useful. Provides a framework for analyzing sustainable construction technologies and economic viability Introduces key credit criteria for different sustainable construction technologies Covers the most relevant construction areas Includes technologies that can be employed during the process of construction, or to the product of the construction process, i.e. buildings Analyzes international rating systems and provides supporting case studies

Designing Sustainable Technologies, Products and Policies Springer

Encyclopedia of Renewable and Sustainable Materials provides a comprehensive overview, covering research and development on all aspects of renewable, recyclable and sustainable materials. The

use of renewable and sustainable materials in building construction, the automotive sector, energy, textiles and others can create markets for agricultural products and additional revenue streams for farmers, as well as significantly reduce carbon dioxide (CO₂) emissions, manufacturing energy requirements, manufacturing costs and waste. This book provides researchers, students and professionals in materials science and engineering with tactics and information as they face increasingly complex challenges around the development, selection and use of construction and manufacturing materials. Covers a broad range of topics not available elsewhere in one resource Arranged thematically for ease of navigation Discusses key features on processing, use, application and the environmental benefits of renewable and sustainable materials Contains a special focus on sustainability that will lead to the reduction of carbon emissions and enhance protection of the natural environment with regard to sustainable materials

Summary of Travel Trends FIB - Féd. Int. du Béton

The book contains the latest developments in the field of life cycle assessment (LCA) and its application. It contains numerous research articles from leading German research institutes working towards the further development of the methodology. The book provides important insights for professionals working in the field of sustainability assessment, for researchers interested in the current state of the research of the methodology and its application as well as for advanced university students in different science and engineering fields.

Sustainable Engineering John Wiley & Sons

The conference addresses general topics on how products and materials can be recycled and looks for application examples. The focus is on the areas: · Material and Energy Flow Assessment · Sustainable Mobility · Industrial Ecology with a focus on renewable energy sources or WEEE · (Re-) Manufacturing · Cascade Use and Waste Management 4.0

FROM SCIENCE TO INNOVATION

John Wiley & Sons

Plastics & Sustainability clearly lays out the thorny and contentious issues that we encounter at the nexus of plastics and sustainability. The book serves as a practical guide for making sustainability decisions about how plastics are made and used, including current developments in the newest bio-based plastics. Designers, marketers, academics, and engineers will all find something of value in this balanced and thoughtful second edition. Increased public scrutiny of plastics materials and the plastics industry has led, paradoxically, to both a deeper understanding and growing confusion about polymers, their origins, their uses, their risks, and ultimately their disposal. The author makes objective comparisons among major polymer grades and bioplastics including their life cycle assessments and practical performance in commercial applications.

Internationale Konferenz zur Kaskadennutzung und Kreislaufwirtschaft - Oldenburg 2018 Springer Providing readers with an accessible, in-depth look at how to synthesize research literature, *Conducting Research Literature Reviews: From the Internet to Paper* is perfect for students, researchers, marketers, planners, and policymakers who design and manage public and private agencies, conduct research studies, and prepare strategic plans and grant proposals. Bestselling author Arlene Fink shows readers how to explain the need for and significance of research, as well as how to explain a study's findings. Offering a step-by-step approach to conducting literature reviews, the Fifth Edition features new research, examples, and references from the social, behavioral, and health sciences, expanded coverage of qualitative research, updated and revised meta-analysis procedures, a brand new glossary of key terms, double the number of exercises, and additional examples of how to write reviews.

Life Cycle Management MDPI

Workflows are being rethought and remodelled across the architecture, engineering and construction (AEC) spectrum. The synthesis of building information modelling (BIM) platforms with digital simulation techniques and increasing access to data, charting building performance, is allowing architects to engage in the generation of new workflows across multidisciplinary teams. By merging digital design operations with construction activities, project delivery and post-occupation scenarios, architects are becoming instrumental in the shaping of buildings as well as the design process. Workflows expand the territory of architectural practice by extending designers' remit beyond the confines of the design stage. The implications for the AEC industry and architecture as a profession could not be greater. These new collaborative models are becoming as important as the novel buildings they allow us to produce. Contributors include: Shajay Bhooshan, John Cays, Randy Deutsch, Sean Gallagher, Ian Keough, Peter Kis, Jonathan Mallie, Adam Modesitt, Rhett Russo, Dale Sinclair, and Stacie Wong. Featured architects: Arup, Diller Scofidio + Renfro, GLUCK+, GRO Architects, PLANT, Populous, Young & Ayata, and Zaha Hadid Architects.

PROCEEDINGS OF THE SYMPOSIUM ON LIFE-CYCLE ASSESSMENT OF PAVEMENTS (PAVEMENT LCA 2017), APRIL 12-13, 2017, CHAMPAIGN, ILLINOIS, USA

Life Cycle Assessment (LCA) A Guide to Approaches, Experiences and Information Sources Construction is one of the main sectors that generates greenhouse gases. This industry consumes large amounts of raw materials, such as stone, timber, water, etc. Additionally, infrastructure should provide service over many years without safety problems. Therefore, their correct design, construction, maintenance, and dismantling are essential to reducing economic, environmental, and societal consequences. That is why promoting sustainable construction has recently become extremely important. To help address and resolve these types of questions, this book explores new ways of reducing the environmental impacts caused by the construction sector, as well promotes social progress and economic growth. The chapters collect the papers included in the "Sustainable Construction" Special Issue of the Sustainability journal. The papers cover a wide spectrum of issues related to the use of sustainable materials in construction, the optimization of designs based on

sustainable indicators, the life-cycle assessment, the decision-making processes that integrate economic, social, and environmental aspects, and the promotion of durable materials that reduce future maintenance.

MDPI

This book focuses on the food safety challenges in the vegetable industry from primary production to consumption. It describes existing and innovative quantitative methods that could be applied to the vegetable industry for food safety and quality, and suggests ways in which such methods can be applied for risk assessment. Examples of application of food safety objectives and other risk metrics for microbial risk management in the vegetable industry are presented. The work also introduces readers to new preservation and packaging methods, advanced oxidative processes (AOPs) for disinfection, product shelf-life determination methods, and rapid analytic methods for quality assessment based on chemometrics applications, thus providing a quantitative basis for the most important aspects concerning safety and quality in the vegetable sector.

A Guide to Approaches, Experiences and Information Sources John Wiley & Sons

This book outlines the methodologies, approaches and tools for modelling chemicals in a Life Cycle Assessment (LCA) perspective, and also covers the main advantages and drawbacks of applying LCA to chemical processes. In the first part of this book, authors pay close attention to the limitations of modelling the environmental and social impacts of chemical processes, providing valuable insights to the problems of the Life Cycle Inventory (LCI) analysis for chemical processes. In the second part of this book, readers will learn about the LCA application to chemical processes in the laboratory and industrial scale. In each chapter of this book, readers will also find specific case studies on the modelling and application of LCA in the chemical industry.

Encyclopedia of Renewable and Sustainable Materials MDPI

An increasing number of agencies, academic institutes, and governmental and industrial bodies are embracing the principles of sustainability in managing their activities. Life Cycle Assessment (LCA) is an approach developed to provide decision support regarding the environmental impact of industrial processes and products. LCA is a field with ongoing research, development and improvement and is being implemented world-wide, particularly in the areas of pavement, roadways and bridges.

Pavement, Roadway, and Bridge Life Cycle Assessment 2020 contains the contributions to the International Symposium on Pavement, Roadway, and Bridge Life Cycle Assessment 2020 (Davis, CA, USA, June 3-6, 2020) covering research and practical issues related to pavement, roadway and bridge LCA, including data and tools, asset management, environmental product declarations, procurement, planning, vehicle interaction, and impact of materials, structure, and construction. *Pavement, Roadway, and Bridge Life Cycle Assessment 2020* will be of interest to researchers, professionals, and policymakers in academia, industry, and government who are interested in the sustainability of pavements, roadways and bridges.

Life Cycle Assessment CRC Press

Computing the Environment presents practical workflows and guidance for designers to get feedback on their design using digital design tools on environmental performance. Starting with an extensive state-of-the-art survey of what top international offices are currently using in their design projects, this book presents detailed descriptions of the tools, algorithms, and workflows used and discusses the theories that underlie these methods. Project examples from Transsolar Klimaengineering, Buro Happold's SMART Group, Behnisch Behnisch Architects, Thomas Herzog, Autodesk Research are contextualized with quotes and references to key thinkers in this field such as Eric Winsberg, Andrew Marsh, Michelle Addington and Ali Malkawi.

Computing the Environment Springer

This open access book provides insight into the implementation of Life Cycle approaches along the entire business value chain, supporting environmental, social and economic sustainability related to the development of industrial technologies, products, services and policies; and the development and management of smart agricultural systems, smart mobility systems, urban infrastructures and energy for the built environment. The book is based on papers presented at the 8th International Life Cycle Management Conference that took place from September 3-6, 2017 in Luxembourg, and which was organized by the Luxembourg Institute of Science and Technology (LIST) and the University of Luxembourg in the framework of the LCM Conference Series.

Drivers, Metrics, Tools, and Applications MDPI

This Special Issue on "LCA of Energy Systems" contains inspiring contributions on assessing the sustainability of novel technologies destined to shape the future of our energy sector. These include battery-based and plug-in hybrid electric vehicles, geothermal energy, hydropower, biomass gasification, national electricity systems, and waste incineration. The analysis of trends and singularities will be invaluable to product designers, engineers, and policy makers. Furthermore, these exercises also contribute to refining the life cycle framework and harmonizing methodological decisions. Our hope is that this should be a step toward promoting the use of science and knowledge to shape a better world for everyone.

Biosurfactants: New Insights in their Biosynthesis, Production and Applications CRC Press

This book describes the importance of the goal and scope phase for the entire LCA study. In this first phase of the LCA framework (ISO standardized), the purpose of the assessment is defined and decisions are made about the details of the industrial system being studied and how the study will be conducted. Selecting impact categories, category indicators, characterization models, and peer review is decided during goal and scope definition. The book provides practical guidance and an overview of LCIA methods available in LCA software. Although not specified in the ISO standards, Attributional LCA and Consequential LCA are presented in order to appropriately determine the goal and scope of an assessment. The book closes with the interconnection between goal and scope definition and the interpretation phase. Example goal and scope documents for attributional and consequential LCAs are provided in the annexes.

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