

Works Received

CILCA 2009

III International Conference of LCA in Latin America



CILCA 2009

III Conferencia Internacional de
Análisis de Ciclo de Vida

Plenary Session:

Evolution of Life Cycle Thinking in Latin America

Dr. Guido Sonnemann

UNEP-SETAC LC Initiative. UNEP DTIE, Paris, France.

Life Cycle Inventory Data to Facilitate Environmental (and Social) LCA in Each Country

Dr. Gregory A. Norris

University of Harvard / Sylvatica / University of Arkansas

Presentation of the Code of Practice for a Social and Socio-Economical LCA (sLCA) for Product Assessment: the result of an international effort within the Life Cycle Initiative

Dr. Catherine Benoit ,

*CIRAIG-UQAM, Canada (Editor)

Title: To be defined (subject: **LCA & Mining Industry**)

Mr. Victor Perez

Market Development Unit, Corporación nacional del Cobre (CODELCO) Chile.

Title to be confirmed (Proposed subject on **LC Approach for Strategic
Regional Planning (Energy)**)

Dr. Harro Von Blottnitz

University of Cape Town, South Africa

Chairman of the 4th International Conference of Life Cycle Management, LCM 2009.

Works Received for the Oral and Poster Sessions:

Brazilian Ethanol and Biodiesel Opportunities and Challenges
Breno Barros Telles do Carmo; Marcos Ronaldo Albertin; Nadja Glheuca da Silva Dutra Federal University of Ceará, Brazil.
brenotelles@hotmail.com

Web-Based Tool for Streamlined Biofuels LCA
Faist Emmenegger, M., Reinhard, J., Gmünder, S., Zah, R. EMPA, Switzerland.
Simon.Gmuender@empa.ch

Environmental Performance of Energy Crops for Biodiesel in Chile
Alfredo Iriarte*, 1,2, Joan Rieradevall 1,3 and Xavier Gabarrell 1, 3 1 SosteniPrA (UAB-IRTA). Institute of Environmental Science and Technology (ICTA). Universitat Autònoma de Barcelona (UAB), Spain; 2 Department of Industrial Management and Modelling. Faculty of Engineering. Universidad de Talca;3 Chemical Engineering Department. Universitat Autònoma de Barcelona, Spain.
alfredo.iriarte@uab.cat

Bioethanol Versus Gasoline in Brazilian Context
Gil Anderi da Silva Grupo de Prevenção da Poluição, Escola Politecnica da Universidade de São Paulo, Brazil.
ganderis@usp.br

Life Cycle Assessment of Biofuels in Peru as a Management Tool for Decision Making
Isabel Quispe ^{1,4} , Jon Bickel ² , Marcel Gauch ³ , Azucena Fudrini ^{1,4} , Luis Chirinos ⁵ , Nadia Gamboa ⁶ , Cecilia Tejada ^{1,4} , Elizabeth Fuentes ⁷ , Daniel Cairo ⁷ , Sonia Valdivia ^{1,8}
1Industrial Engineering, Pontificia Universidad Católica del Perú; 2SWISSCONTACT Foundation; 3EMPA, Switzerland; 4Red Peruana de Ciclo de Vida; 5Mechanical Engineering, Pontificia Universidad Católica del Perú; 6Chemistry, Pontificia Universidad Católica del Perú; 7Laboratory of Biofuels, Universidad Nacional Agraria La Molina, Perú; 8UNEP DTIE, France.
iquispe@pucp.edu.pe

Life Cycle Assessment of BTL-Fuels and Conversion Concepts
Jungbluth, N., M. Frischknecht, R., Stucki, M. ESU-services Ltd., Switzerland.
jungbluth@esu-services.ch

Energy and Environmental Assessment of Palm Oil for the Production of Biodiesel in the Lower South of Bahia - Brazil
Tiago Barreto Rocha ¹ , José Adolfo de A. Neto ² , Ittana de O. L. Fernandes ³ , Sabine Robra ⁴
1,2,3, 4 Grupo Bioenergia e Meio Ambiente, Universidade Estadual de Santa Cruz, Brazil.
tiagoaeon@gmail.com

Supply Chain Planning of the Sugar/Bioethanol Industry with Economic and Environmental Concerns
Fernando D. Melea *, Gonzalo Guillén-Gosálbez ^b , M. Rosa Hernández ^a , Alberto Bandonic ^a - Argentina, Virgili i Rovira
Universidad Nacional de Tucumán, Process Eng. & Ind. Management. Dept., FACET, Argentina.
fmele@herrera.unt.edu.ar

Life Cycle Sustainability Modeling of Forest Resource Based Biofuel
Anthony Halog
Assistant Professor of Industrial Ecology and LCA, Forest Bio-products Research Initiative, School of Forest Resources. University of Maine, USA.
anthony.halog@maine.edu

Life Cycle Assessment Modeling for Bi-fuel Motors
M.A. dos Santos Bernardes
Centro Federal de Educação Tecnológica de Minas Gerais - CEFET – MG, Brazil.
marcobernardes@des.cefetmg.br

Prospective (2007-2030) CO₂ Emissions from Photovoltaic Systems and Grid Power in Spain
A. Dominguez-Ramos ^{a,b} ; M. Held ^b ; R. Aldaco ^a ; M. Fischer ^b ; A. Irabien ^a
A Department of Chemical Engineering and Organic Chemistry, University of Cantabria, Spain; b Abteilung Ganzheitliche Bilanzierung, LBP, University of Stuttgart, Germany.
aldacor@unican.es

LCA Analysis of Brazilian CDM Strategies Based on the Substitution of Diesel Oil for Natural Gas Aiming Carbon Credits Concession
<u>Luiz Kulay</u> ^{1,2} , Gil Anderi da Silva ² , Annette Köhler ³ , Stefanie Hellweg ³
1 Departamento de Engenharia Ambiental – Centro Universitario SENAC, Brasil; 2 Departamento de Engenharia Química – Escola Politecnica da Universidade de Sao Paulo, Brasil; 3 Institute of Environmental Engineering - Ecological Systems Design, Switzerland.
luiz.akulay@sp.senac.br

Impact on the Health of Pollutant Emissions Proceeding from the Ceramic Industry. Emissive and Dispersive Approaches
Gómez, M.(1), Irusta, R.(1,2) and Hidalgo, D.(1)
(1)CARTIF Foundation, Spain; (2)Dept.of Chemical Engineering and Environmental Technology, Valladolid University, Spain.
rubiru@cartif.es

Life Cycle Assessment of the Food Elaboration Process in the Kitchen of the Central University of Las Villas, Cuba
Msc. Ing. Teresa Cárdenas; Dra. Elena Rosa; Dr. Ronaldo Santos; Dra. Ana M. Contreras.
Faculty of Chemistry and Pharmacy, Central University of Las Villas, Cuba.
teresacf@uclv.edu.cu

Social Dimension of Bioenergy Development in India
Vinod Sharma* and Sangeeta Sharma**
* Professor, Indira Gandhi Institute of Development Research;** Director, National Ecology and Environment Foundation, India.
vks@igidr.ac.in

Social Life Cycle Assessment of the Automotive Product in a Small Company in Brazil
Silvia Rosa da Costa Corrêa ¹ , Cássia Maria Lie Ugaya ²
¹ Federal University of Technology of Parana, Post-Graduation Program in Society and Technology (PPGTE); ² Federal University of Technology of Parana, Post-Graduation Program in Mechanical and Material Engineering (PPGEM), Brazil.
cassiaugaya@utfpr.edu.br

Social Cost Assessment of Electric Energy Options in Brazil
Martha Barata a); Philipp Preiss b).; Emilio Lèbre La Rovere c); Amaro Olimpio Pereira Júnior d); Sandra de Castro Villar d); Silvia Helena Pires d.
^{a)} Fiocruz Researcher D.Sc. and Centro Clima collaborator researcher; ^{b)} Institute of Energy Economics and the Rational Use of Energy, Department of Technology Assessment and Environment, University of Stuttgart, Researcher; ^{c)} Head of Centro Clima/COPPE/Federal University of Rio de Janeiro; ^{d)} Centro Clima /COPPE/Federal University of Rio de Janeiro collaborator researcher. Brazil.
barata@lima.coppe.ufrj.br

Presentation of the Guide YouthXChange (YXC)
Verónica Rodríguez, Abogada Especialista en Derecho Ambiental
IADS - Instituto Argentino para el Desarrollo Sustentable, Argentina.
veronica@iadsargentina.org

Life Cycle Assessment (LCA) and Ecodesign of Toys containing Electric and Electronic Components
Rubén Aldaco a; Alba Bala b; Cristina Gazulla b; Ivan Muñoz b; Ángel Irabien a; Rita Puig c; Pere Fullana b.
a Departamento de Ingeniería Química y Química Inorgánica, Universidad de Cantabria ; b Escola Superior de Comerç Internacional (ESCi-UPF); c Escuela Universitaria de Ingeniería Técnica Industrial de Igualada (EUITII-UPF), Spain.
e-mail: aldacor@unican.es

Environmental Evaluation of Best Available Techniques in the Context of the IPPC. An application to the ceramic manufacturing industry
Bovea M.D., Díaz-Albo, E., Ibáñez, Ujaume
Universitat Jaume I, Castellón, Spain.
bovea@emc.uji.es

Development of a New Road Safety Barrier Coverage Manufactured from Used Tyres. A Technical, Economical and Environmental Assessment
Moral, A.(1) and Irusta, R.
(1) CARTIF Foundation, Valladolid; (2)Dept. of Chemical Engineering and Environmental Technology, Valladolid University, Spain.
rubiru@cartif.es

Comparative Assessment of Conventional Soybean Oil based Polyol and Recycled Frying Oils based Polyol for Polyurethane Foam Production
Júlio Souza
Fiat Automóveis S.A. Engenharia do Produto - Engenharia de Materiais, Brazil.
julio.souza@fiat.com.br

Life Cycle Assessment of PP - Sugarcane Bagasse Composites in Automotive Industry
Sandra M. Luz 1, Armando Caldeira-Pires 2, Paulo M. C. Ferrão 1
1Center for Innovation, Technology and Policy Research-Instituto Superior Técnico; Portugal; 2 Department of Mechanical Engineering, University of Brasília, Brazil.
sandraluz@dem.ist.utl.pt

Use or Consumption of Lithic Resources and Water: a Brazilian Approach
Maria da Graça de Vasconcelos Xavier Ferreira
Universidade Católica de Pernambuco, Recife (City), Pernambuco (State), Brazil.
mariadagracaxferreira@yahoo.com.br

Minimization of Life Cycle Environmental Impact and Cost in the Operation of Steam and Power Plants
Pablo E. Martínez and Ana M. Eliceche*
Chemical Engineering Department, Universidad Nacional del Sur, PLAPIQUI-CONICE, Argentina.
meliceche@plapiqui.edu.ar

A Risk Analysis Approach for Life Cycle Analysis for Planning Mining Developments
Terence P. Boyle
TP Boyle & Associates, USA.
tpboyle@wildblue.net

Environmental Sustainability Assessment in the Process Industry
Rubén Aldaco*, María Margallo, Ángel Irabien -U. Cantabria
Dpto. Ingeniería Química y Química Inorgánica, Universidad de Cantabria, Spain.
aldacor@unican.es

Managing Steel Life Cycle: Towards a Sustainable Production in Brazil
*Heloisa V. de Medina, Filipe Salvio
1CETEM -Centro de Tecnologia Mineral, Brazil.
hmedina@cetem.gov.br

Economic and Environmental Benefits Quantification by the Use of Subproducts at the Acrylonitrile Production in Mexico through the Life Cycle Analysis.
Morales Mora M.A.1*, Herrera Navarro, G.1, Guzmán Lezama F.1, Candelario Rodríguez M. M.1, Gallardo Betancourt M.1 and Suppen Reynaga N.2
1 PEMEX-Petroquímica, Subgerencia de Protección Ambiental; 2 Centro de Análisis de Ciclo de Vida y Diseño Sustentable, Mexico.
mamoralesm@ptq.pemex.com

Life Cycle Assessment on Producing a Heavy Metals Biosorbent from Sugar Cane Bagasse
Inés de la Caridad Alomá; Iván L. Rodríguez1*; Mónica Calero de Hoces2; Mariano F. Cortés1; María Á. Martín-Lara2; Elena Rosa1.
1Central University Marta Abreu of Las Villas, 2Departamento de Ingeniería Química, Universidad de Granada, Cuba.
ivanl@uclv.edu.cu

Analysis of the Electricity Generation Process with Bagasse Using Different Technologies, by Means of LCA
M. Pérez *, A.M Contreras.*, E. Rosa *, Espinosa R.*
Central University Marta Abreu of Las Villas. Cuba.
maylier@uclv.edu.cu

Environmental Assessment of Five Spanish Road Pavement Asphalt Plants
Moral, A.(1); Sánchez, N.(1) and Irusta, R.(1,2)
(1) CARTIF Foundation; (2)Dept. Of Chemical Engineering and Environmental Technology. Valladolid University, Spain.
rubiru@eis.uva.es; rubiru@cartif.es

Use of an Agricultural By-Product in the Manufacturing of a Biodegradable Plastic
Rangel Vivian 1*, Fuquene Carlos 2*, Cabrales Ana Maria 3 and Lopez Diana 4
Ingeniera Industrial. Pontificia Universidad Javeriana, Bogotá, Colombia.
rangel.vivian@gmail.com

Ecolabel Methodology for Household Appliances: One-Door Refrigerators
Herculano Xavier da Silva Junior1*, Guilherme de Castilho Queiroz2
Mechanical Engineering School, State University of Campinas NIPE/UNICAMP, Brazil.
herculano.xsjr@gmail.com

Definition, Development and Implantation of a Unified Protocol for Ecolabelling in Machine–Tool Sector
Lorena Pereda, Eva Martínez, Yolanda Nuñez, Javier Sabadell
Fundación Centro Tecnológico de Miranda de Ebro, CTME, Spain.
lpereda@ctme.org

Sustainability Considerations in Biofuels Production: Certification as an Environmental Policy Instrument.
Ina Salas*, Iván Islas*, Laura Genis**, Rodolfo Quintero** and Alejandra Elizondo***-Mexico
* Instituto Nacional de Ecología, ** División de Ciencias Naturales e Ingeniería, UAM-Cuajimalpa, ***COIZE Consultores. Mexico.
isalas@ine.gob.mx

Labeling of Green Energy with the Help of LCA Key Parameter Models
Jungbluth, N., Büsler, S., Stucki, M., Frischknecht, R.
ESU-services Ltd., Switzerland.
jungbluth@esu-services.ch

Methodology to Products Environmental Labeling based on Streamlined Life Cycle Assessment
Sebastião Roberto Soares , Andreas Petroll , Paola Karina Sánchez Ramírez , Rodrigo Alvarenga , Vamilson Prudêncio da Silva
Universidade Federal de Santa Catarina (UFSC) Centro Tecnológico (CTC) - Campus Universitário Departamento de Engenharia Sanitária e Ambiental. Brazil.
paola_sr@yahoo.com.br

LCA for Green Purchases in Mexico
Amalia Sojo Benítez*, Nydia Suppen Reynaga
Centro de Análisis de Ciclo de Vida y Diseño Sustentable. Mexico.
asojo@centroacv.com.mx

The Life Cycle Analysis of the House of Social Interest in Coastal Cities – Case Study: State of Quintana ROO, Mexico
1José Antonio Dominguez Lepe, 2Arnaldo Cardim de Carvalho Filho
1Instituto Tecnológico de Chetumal, Quintana Roo, México; 2Escola Politécnica de Pernambuco/Universidade de Pernambuco, Brazil.
jadlepe@hotmail.com

Environmental Optimization of Urban Public Space Through LCA
Joan Rieradevall1,2, Xavier Gabarrell1,2, Ramon Farreny1 , Jordi Oliver-Solà1
1SosteniPrA (UAB-IRTA). Institute of Environmental Science and Technology (ICTA). Universitat Autònoma de Barcelona (UAB); 2Department of Chemical Engineering. Universitat Autònoma de Barcelona (UAB). Spain.
Joan.Rieradevall@uab.cat

Life Cycle Assessment of Products Derived from Cement for Social Housing
Licia Trajano1*; Jaqueline Mata de Oliveira2; Arnaldo Cardim de Carvalho Filho
Universidade de Pernambuco – UPE, Brazil.
li.trajano@hotmail.com

Life Cycle Assessment: a Case Study for a Typical Spanish Mediterranean Home
Oscar Ortiz- 1,2,*, Cecilia Makishi 3, Matthias Fischer 3, Francesc Castells 1, and Guido Sonnemann 4
1 University of Rovira i Virgili, Environmental and Analysis Management Group (AGA), Department of Chemical Engineering, Spain; 2 University of Pamplona, Faculty of Engineering and Architecture, Colombia; 3 Fraunhofer IBP, Dept. Life Cycle Engineering (GaBi), Germany; 4 University of Rovira i Virgili, Environmental and Analysis Management Group (AGA), Spain.
oscar.ortiz@urv.cat

Energetic Management of Acclimatized Building by Using Life Cycle Assessment
Olga Pérez*, Lourdes Ruiz**, Elena Rosa***
*Ministerio de la Construcción de Cuba; **Instituto Nacional de Ciencia y Tecnología de Cuba; ***Facultad de Química Farmacia. UCLV, Cuba.
erosa@uclv.edu.cu

Comparative LCA between Traditional and New Constructive Elements
Irusta, R.(1,2); García, N.(1); Moral, A.(1) and Sánchez, N.
(1) CARTIF Foundation; (2)Dept. of Chemical Engineering and Environmental Technology. Valladolid University, Spain.
rubiru@eis.uva.es; rubiru@cartif.es

Sustainability in the Architecture of Pernambuco State- NorthEast Brazil
Eugênio H. Leicht Neto, Maria da Graça de Vasconcelos Xavier Ferreira
Universidade Católica de Pernambuco, Brazil.
mariadagracafferreira@yahoo.com.br

Allocation in Life Cycle Assessment: A way to select methods
Paola Karina Sánchez Ramírez 1, Sebastião Roberto Soares 2
Universidade Federal de Santa Catarina (UFSC)
Centro Tecnológico (CTC) - Campus Universitário
Departamento de Engenharia Sanitária e Ambiental. Brazil.
paola_sr@yahoo.com.br

Methodology for the Life Cycle Inventory of Road Freight Transport to Brazil
Cássia Maria Lie Ugaya*, Leandro Andrade Pegoraro, Liliane Sessi da Rocha, Juliana de Moraes Ferreira
UTFPR – University Technological Federal of Parana, Brazil.
leandropegoraro@hotmail.com

Integration of the Input-Output Model into Life Cycle Assessment Tool: Perspective of the State of the Art
Silvia Palma Rojas* Jorge Nogueira Madeira, Armando Caldeira-Pires
Universidade de Brasília, Campus Universitário, Brazil.
spalmarojas@gmail.com

Manufacturing Tire Life Cycle Assessment
Cecilia Tejada Matos
Member of Peruvian Network of LCA, Peru.
cecilia.tejada@gmail.com

LCA Allocation Procedures in Recycling Systems of Open and Closed Loops
Irusta, R.(1,2) and García, N.(1)
(1) CARTIF Foundation, Spain; (2)Dept. of Chemical Engineering and Environmental Technology. Valladolid University, Spain.
rubiru@eis.uva.es

Methodological Challenges in LCI Development for Copper Mining Systems, and the Industry Motivations for Doing Them
Marcelo Velasco1, Juan C. Torres 2 and Priscilla Leufuman 2
1 Sustainable Development Design Practice, E&CI - Hatch Chile; 2 Instituto de Innovación en Minería y Metalurgia. Chile.
mvelasco@hatch.cl

Life Cycle Inventory of the European Crude Oil Consumption Mix 2020 (2030)
Oliver Schuller*, Matthias Fischer, Michael Faltenbacher
Dept. Life Cycle Engineering, LBP Universität Stuttgart. Germany.
oliver.schuller@LBP.uni-stuttgart.de

Life Cycle Inventories in the Artisanal and Small Scale Mining in South America – Peruvian Case Studies
*Sonia Valdivia1,2, Isabel Quispe2,3, Azucena Fundrini2,3
1 Programa de Naciones Unidas para el Medio Ambiente (PNUMA), División de Tecnología, Industria y Economía, Francia ; 2 Sección de Ingeniería Industrial, Pontificia Universidad Católica del Perú (PUCP); 3 Red Peruana de Ciclo de Vida. Peru.
iquispe@pucp.edu.pe

Life Cycle Inventory for the Cuban Sugar Industry
Dulce M. Pérez *; Ana M. Contreras **; Dr. Elena Rosa **; Dr. Julio Pedraza **; Dr. Ronaldo Santos**
* Cuban Sugar Ministry. GEA Villa Clara, Cuba; ** Faculty of Chemistry and Pharmacy, Central University of Las Villas; Cuba.
erosa@uclv.edu.cu

A Strategy Towards National LCI Databases Based on a Common International, Technology LCI Database
Hischier Roland, Weidema Bo
Ecoinvent Centre c/o Empa. Switzerland.
hischier@ecoinvent.org

Challenges for Building the LCI of the Chilean Electrical Matrix
Claudio Zaror ¹ , José Jara ² , Claudia Ulloa ³ , Patricia González ⁴
¹ Departamento de Ingeniería Química, Universidad de Concepción; ² Unidad de Desarrollo Tecnológico, Universidad de Concepción; ³ Centro de Ciencias Ambientales, EULA-Chile; ⁴ Departamento de Salud Pública, Facultad de Medicina, Universidad de Concepción. Chile.
czaror@udec.cl

LCI of Construction Materials for Homes of Social Interest in Mexico
Amalia Sojo Benitez a,b,* , Nydia Suppen Reynaga a, Rene Reyes Mazocco b, Luís Ángel Rosas Millán b, Diego Rodolfo Téllez Muradás b, Juan Pablo Chargoy Amador b, Sergio Alvarez Romero c, José Antonio Domínguez Lepe
Centro de Análisis de Ciclo de Vida y Diseño Sustentable. Mexico.
asojo@centroacv.com.mx

Use of Life Cycle Inventory Data to Evaluate Operational Projects in a Copper Mining Company
Victor Pérez, Marcelo Velasco ² and Juan C. Torres ³
¹ Market Development Unit, Codelco Chile; ² Sustainable Development Design Practice, E&CI - Hatch Chile; ³ Instituto de Innovación en Minería y Metalurgia, IM2. Chile.
vperez@codelco.cl

Land Use Impact Assessment of Arid Lands: Case Study in the Mid-West Arid Region of Argentina
Civit, B1* and Arena, A.P2
^{1,2} Universidad Tecnológica Nacional – Facultad Regional Mendoza, Argentina.
bcivit@frm.utn.edu.ar

Environmental Impact Assessment Method – Colombian Ecoscarcity
Carlos A Naranjo
Investigaciones Ambientales - GIA - Universidad Pontificia Bolivariana, Colombia.
carlos.naranjo@upb.edu.co

Exergy Analysis and Life Cycle Assessment
Ana Contreras ^{*1} , Elena Rosa ¹ , Jo Dewulf ² , Herman Van Langenhove ² , Maylier Pérez ¹ , Ronaldo Santos ¹
¹ Faculty of Chemistry and Pharmacy, Central University of Las Villas, Cuba; ² Research Group ENVOG, Faculty of Bioscience Engineering, Ghent University, Belgium.
anama@uclv.edu.cu

Life Cycle Human Toxicity Assessment of Pesticides
Ronnie Juraske, Christopher L. Mutel, Franziska Stoessel, Stefanie Hellweg
ETH Zurich, Institute of Environmental Engineering, Ecological Systems Design, Switzerland.
juraske@ifu.baug.ethz.ch

Application of a Methodological Proposal to Study the Impact that Wind Turbine Noise has on Human Health
A. Rivarola1*, A.P.Arena2, H. F. Mattio3
1,2 Grupo CLIOPE “Energía, ambiente y desarrollo sustentable”, Universidad Tecnológica Nacional, Facultad Regional Mendoza (UTN-FRM), 3Centro Regional de Energía Eólica (CREE), Chubut. Argentina.
andreamari@frm.utn.edu.ar;

Comparison of Life Cycle Impact Assessment Methodologies
Melo, Gisselle.S
Universida de Minas Gerais, Brazil.
gisamelo@yahoo.com.br

Methodological Choices and LCIA Uncertainties
Gil Anderi da Silva
Grupo de Prevenção da Poluição, Escola Politécnica – Universidade de São Paulo, Brazil.
gil.anderi@gmail.com; ganderis@usp.br

How to Conduct Normalization in Life Cycle Assessment when References Factors are not Available
Sousa, Sabrina Rodriguesa,b; Soares, Sebastião Roberto,a
a Universidade Federal de Santa Catarina (UFSC), Departamento de Engenharia Sanitária e Ambiental, Campus Trindade, Florianópolis, SC Brazil; b Universidade de São Paulo (USP), Escola de Engenharia de São Carlos, Centro de Recursos Hídricos e Ecologia Aplicada, São Carlos, SP. Brazil.
sabrina.sousa@gmail.com

Weighting Across Environmental Impacts
Carmen Alvarado* and Mark Goedkoop
PRé Consultants B.V. The Netherlands.
alvarado@pre.nl

Development of Regional Normalization References in Brazil: the Impact Category “Eutrophication”
André Luiz Tachard*; Aldo Roberto Ometto
University of São Paulo- School of Engineering of São Carlos. Brazil.
andretachard@hotmail.com

A Framework for Assessing Desertification Environmental Impact in LCA
M. Nuñez1*, B. Civit2, P. Muñoz1, A.P. Arena2, J. Rieradevall3,4 and A. Antón1
1 IRTA. Centre de Cabrils, Spain; 2 Universidad Tecnológica Nacional – Facultad Regional Mendoza/CONICET, Argentina; 3 ICTA-UAB. Edifici Ciències, Universitat Autònoma de Barcelona (UAB), Spain; 4 Chemical Engineering Department, Universitat Autònoma de Barcelona (UAB). Spain.
* Corresponding author: Montserrat.nunez@irta.cat

Regionalised Water Inventory and Impact Assessment For LCA
Stephan Pfister*, Peter Bayer, Annette Koehler, Stefanie Hellweg, Ronnie Juraske.
Institute of Environmental Engineering, ETH Zurich. Switzerland.
pfister@ifu.baug.ethz.ch

Adjusting the ReCiPe Impact Assessment Framework for Land Use to Latin American Conditions
Mark Goedkoop1, Hans Blonk2, An De Schyver1
1PRé Consultants, The Netherlands ;2Blonk Milieu Advies, The Netherlands.
goedkoop@pre.nl

Resource Efficiency Indicators – Linear Regressions & Correlations
Markus Berger* & Matthias Finkbeiner
Technische Universität Berlin - Berlin Institute of Technology, Dept. of Environmental Technology, Germany.
*markus.berger@tu-berlin.de

Analysis of PCBs Management in Chile from a Life Cycle Perspective
A Bezama, R Barra, M Correa, P Bahamonde, G Mendoza & N Rivas
Centro de Ciencias Ambientales EULA-Chile. Universidad de Concepción, Chile.
abezama@udec.cl

The Use of Alternative Materials in the Furniture Industry: the Inclusion of Social and Environmental Aspects of Sustainability in LCM
Aguinaldo dos Santos, Cláudia Zacar, Jucelia S. Giacomini Silva
Universidade Federal do Paraná, Brazil.
jucelia.giacomini@gmail.com

Environmental Tool Initiative Website for the Life Cycle Management of “Castilla y León’s” Spanish Companies: Herrambiental
Irusta, R.(1,2); García, N.(1); Moral, A.(1) and Sánchez, N.(1)
(1) CARTIF Foundation; (2)Dept. of Chemical Engineering and Environmental Technology. Valladolid University, Spain.
rubiru@eis.uva.es

Sustainable Value Chain: Its Importance in Advancing Sustainability
Fava J1, Jensen A A2, Rebitzer G3, Valdivia S4, Anderson P5, Sonnemann G6, Gerber J7, Mozur M8, Swarr T9, Monsou B10
Five Winds International, USA; 2FORCE Technology, Denmark; 3Alcan Technology & Management, Switzerland; 5WBCSD, Switzerland;4, 6 UNEP DTIE, France; 7Rio Tinto Alcan, Switzerland;8 SETAC, USA; 9 USA; Hartford Connecticut;10 France; ADDE.
j.fava@fivewinds.com

Life Cycle Assessment and its Implications on the Corporate Social Responsibility of the Cut Roses Supply Chain in Colombia
C. A. Parrado and C. R. Bojacá
Programa de Investigación Participativa Centro de Investigaciones y Asesorías Agroindustriales Universidad de Bogotá Jorge Tadeo Lozano, Colombia.
carmen.parrado@utadeo.edu.co

Production Technologies, the Key Part of the LCA of a Magnesium Piece
Eva Martínez, Lorena Pereda, Yolanda Nuñez, Javier Sabadell
Área de Innovación del Centro Tecnológico de Miranda de Ebro. Spain.
evamtz@ctme.org

Evaluation of the Production of Ceramics Bricks in Pernambuco: Waste of Raw Material and Energy
1 Arnaldo Cardim de Carvalho Filho, Dr.; 1Maria da Graça de Vasconcelos Xavier Ferreira, Ph.D; 2Monica Maria Pereira da Silva, M.Sc
1 Escola Politécnica de Pernambuco/Universidade de Pernambuco; 2Centro Federal de Educação Tecnológica de Pernambuco/CEFETPE. Brazil.
cardim@upe.poli.br

Life Cycle Assessment of Concentrate Milk Production in Santa Clara Dairy
Msc. Jose M. Lopez**; Dra. Elena Rosa*
** Centro Nacional de Calidad de los Alimentos de Cuba;* Facultad de Química Farmacia. Universidad Central de Las Villas, Cuba.
erosa@uclv.edu.cu

Food Procurement by a City Government and the Role of LCA
Jungbluth, N.*, Büsser, S., Stucki, M., Frischknecht, R.
ESU-services Ltd. Switzerland.
jungbluth@esu-services.ch

Evaluation of Environmental Impact of the Electricity Production by using Emergency Electricity Generators by Means of the Life Cycle Assessment
Elena Rosa(1), Pastora Martínez(1), Jorge Leiva(2), Mercedes Monteagudo(1), Mayra Morales(2), Daniellys Alejo (2), Idalberto Herrera. (3), Reinaldo Martínez(3) Ana Contreras(2)
(1). Centro de Estudio de Química Aplicada (CEQA), Universidad Central Marta Abreu de Las Villas; (2). Departamento de Ingeniería Química, Universidad Central Marta Abreu de Las Villas. (3) Centro de Termoenergética azucarera, Universidad Central de Las Villas. Cuba
erosa@uclv.edu.cu

Green Coconut Water Consumption in Salvador, Bahia: an approach to Life Cycle
Almeida-Silva, M. Lourdes1; Kiperstok Asher2-Brasil
1Clean Technologies Net – TECLIM/UFBA; 2Polytechnic School of the University of Bahia – UFBA. Brazil.
lourdesalm5@hotmail.com

Modelling of Transport Processes for the United States
Nuno da Silva -PE Americas
PE Americas. USA.
n.daSilva@pe-international.com

LCA Activities in Portugal
Susana Xará
Portuguese Catholic University – College of Biotechnology, Portugal.
sxara@esb.ucp.pt

Regional Findings for LCIA and LCI in the Mining Sector in South America
Valdivia S1, Peña C2, Caldeiras A3, Kiperstok A4, Palma S5, Daval A6, Ferreira Lima A7, Hirohumi A8
1UNEP DTIE, France; 2,6Research Center of Mining and Metalurgy (CIMM), Chile; 3,5University of Brasilia, Brazil; 4,7 Federal University of Bahia, Clean Technology Network (UFBA/TECLIM);8 Federal Center for Technological Education of Bahia (CEFET-BA), Brazil.
cpena@cimm.cl

Using LCA to Define a Public Policy for Introducing Biofuels in Chile
Fernando Farías
Department of Studies, Chilean Environmental Commission (CONAMA), Chile.
ffarias@conama.cl

Teaching LCA in Portugal: Challenges and Difficulties
Susana Xará
Portuguese Catholic University – College of Biotechnology, Portugal.
sxara@esb.ucp.pt

Progress of LCA/LCM Concepts and Activities in India
Vinod Sharma* and Sangeeta Sharma**
* Indira Gandhi Institute of Development Research, India;** National Ecology and Environment Foundation, India.
vks@igidr.ac.in

Risk Analysis in the Rice Industry by Means of HACCP and Life Cycle Anal Combination
1Yulexis Meneses; 2Elena Rosa.
1Centro Nacional de Calidad de los Alimentos de Cuba; 2 Universidad Central de Las Villas. Cuba.
erosa@uclv.edu.cu

Usefulness of Life Cycle Thinking in Horticulture Production. Case Study
A. Antón1, M. Torrellas1, W.E. De León1, J.I. Montero1 M. Parra2, V. Raya2, M.C. Cid2, M. Núñez1, P. Muñoz1
1IRTA Centre de Cabriels, Barcelona, Spain; 2 ICIA Departamento de ornamentales y horticultura, Las Palmas de Gran Canaria, Spain.
assumpcio.anton@irta.cat

LCA Projection in the Chilean Food Industry
Beatriz Cancino1, Stephany González1, Ulf Sonesson2
1School of Food Engineering, Pontificia Universidad Católica de Valparaíso, Chile; 2The Swedish Institute for Food and Biotechnology, Sweden.
beatriz.cancino@ucv.cl

Life Cycle Assessment of Balsa Wood Material from Ecuador
1Monica Merino; 2Paola Kistler
1Alcan Baltek, Ecuador; 2 Alcan Engineered Products, Switzerland.
Paola.Kistler@Alcan.com

LCI of Cellulose Production in Chile
Patricia González ¹ , Claudio Zaror ² , Christian Bidart ³
¹ Departamento de Salud Pública; ² Departamento de ingeniería Química; ³ Unidad de Desarrollo Tecnológico, Universidad de Concepción. Concepción, Chile.
patrigon@udec.cl

Global Warming in Arauco's Corporate Policy of Sustainable Development
Cristian Patrickson, Andrés Camaño
Celulosa Arauco y Constitución S.A. Chile.
Andres.Camano@arauco.cl

Evaluation of inpEV impacts in Brazilian agribusiness through BASF's Ecoefficiency Analysis
Eduardo Britos Bravo ¹ , Mariana Miyuki Arakaki ²
¹ Gerente de Proyectos, Instituto Nacional de Embalagens Vazias (inpEV); ² Fundação Espaço ECO (BASF S/A). Brazil.

Analysis of the Solid Waste Management and Treatment by Using Life Cycle Assessment in Santa Clara, Cuba.
Teresa Cárdenas ; Elena Rosa, Ronaldo Santos, Ana Margarita Contreras; Yamilet Martinez, Jorge Dominguez
Faculty of Chemistry and Pharmacy, Central University of Las Villas, Cuba.
teresacf@uclv.edu.cu

Environmental Impact Analysis of Alternatives for Brine Final Disposal from a Desalination Plant
Jorgelina C. Pasqualino, Montse Meneses, and Francesc Castells*
AGA, Chemical Engineering Department, Rovira i Virgili University. Spain.
francesc.castells@urv.cat

LCT-FORUM
Paola Gamarra* ¹ and Stefan Salhofer ²
¹ Golder Associates Ltd. Canada; ² BOKU University Vienna, Institute of Waste Management, Austria.
Paola_Gamarra@golder.com , pysgam@yahoo.com

Using LCA-Tool WAMPS in Waste Management Planning
Åsa Stenmarck ¹ , Martine Oddou ² , and Jan-Olov Sundqvist ¹
¹ IVL Swedish Environmental Research Institute, Sweden; ² KDM S.A., Santiago, Chile.
asa.stenmarck@ivl.se , moddou@guk.cl

Life Cycle Assessment as a Decision Support Tool for Waste Valorization
Edmundo Muñoz ¹ & Rodrigo Navia ²
¹ Programa de Magíster en Ciencias de Recursos Naturales and ² Departamento de Ingeniería Química of Universidad de La Frontera, Chile.
rnavia@ufro.cl

Sustainable Model for Prevention and Management of Construction and Demolition Waste
Jose Antonio Domínguez Lepe
Instituto Tecnológico de Chetumal, Mexico.
jadlepe@hotmail.com

LCA of Construction and Demolition Waste in Mendoza Metropolitan Urban Area
Mercante, I. T ¹ , Arena, A.P ² , Bovea, M.D ³ .
¹ Universidad Nacional de Cuyo, Argentina; ² Universidad Tecnológica Nacional – Facultad Regional Mendoza, Argentina; ³ Universitat Jaume I. Departamento de Ingeniería Mecánica y Construcción, Spain.
imercante@fing.uncu.edu.ar

Environmental Assessment of Waelz Slag Valorisation in Brick Manufacturing Process
N. Quijorna, A. Coz, J.R. Viguri, A. Andrés*
Dpto. Ingeniería Química y Química Inorgánica E.T.S.I.I. y T. Universidad de Cantabria. Spain.
quijornan@unican.es

Mining Waste Management: a LCA Perspective
Jacques V. Wiertz
Departamento de Ingeniería de Minas - Universidad de Chile.
jwiertz@ing.uchile.cl

Life Cycle Analysis of Construction and Demolition Waste Treatment in Brazil: a Study Case of the Rio de Janeiro Municipality
K.R.A. Nunes ¹ , D.Sc.; L. Schebek ²
Darmstadt University of Technology, Institut WAR - Section Industrial Material Cycles, Germany.
k.nunes@iwar.tu-darmstadt.de

Opportunities for the Use of LCA in Waste Management in Portugal
Susana Xará (1)*, Manuel Fonseca Almeida (2), Carlos Costa (2)
(1) Portuguese Catholic University – College of Biotechnology; (2) Laboratory of Processes, Environment and Energy Engineering, Engineering Faculty of Porto University. Portugal.
sxara@esb.ucp.pt

LCA Supported Analysis of Car Recycling Scenarios
Zbigniew Klos, Robert Lewicki
Poznan University of Technology, Faculty of Machines and Transportation. Poland.
zbigniew.klos@put.poznan.pl

Best Available Techniques in Foundry Industry: Valorisation of Moulding Sands in Ceramic Bricks
R. Alonso-Santurde, A.Coiz, J.R. Viguri, A. Andrés*
Departamento de Ingeniería Química y Química Inorgánica. Escuela Técnica Superior de Ingenieros Industriales y de Telecomunicación. Universidad de Cantabria, Spain.
alonsor@unican.es

Integrated Impact Assessment of Copper Smelter Atmospheric Emissions
Carlos Castillo, Jacques Wiertz
Departamento de Ingeniería de Minas - Universidad de Chile.
carcasti@ing.uchile.cl

Implementation Pilot project of the Spanish Eco-Design Standard UNE 150301:2003
Irusta, R.(1,2) and García, N (1).
(1) CARTIF Foundation, Valladolid), Spain; (2)Dept. of Chemical Engineering and Environmental Technology. Valladolid University. Spain.
rubiru@eis.uva.es; rubiru@cartif.es

Charting the Environmental Performance of the Production of Malaysian Crude Palm Oil Using the LCA Approach
*1Vijaya S. 1Ma A.N, 1Choo Y. M and 2Nik Meriam N. S
1Engineering & Processing Division, Malaysian Palm Oil Board, No.6 Persiaran Institusi Bandar Baru Bangi; 2Department of Chemical Engineering, University of Malaya, Kuala Lumpur Malaysia.
vijaya@mpob.gov.my

Analysis of Structural Materials Impact on Environment as Base for Sustainable Production
Zbigniew KLOS, Robert LEWICKI
Poznan University of Technology, Faculty of Machines and Transportation. Poland.
zbigniew.klos@put.poznan.pl

A Framework for Assessing Freshwater Use within LCA: Results from the UNEP/SETAC Life Cycle Initiative Project on Water Use in LCA
Koehler, Annette ¹ , Pablo Arena ² , Emmanuelle Aoustin ³ , Jean-Baptiste Bayart ⁴ , Cécile Bulle ⁵ , Manuele Margni ⁶ , Ronnie Juraske ⁷ , Stephan Pfister ⁸ , Markus Berger ⁹
1,6ETH Zürich, Institute for Environmental Engineering;2University of Mendoza;3VEOLIA Environnement;4,5,6 CIRAIG Montreal;7,8ETH Zürich, Institute for Environmental Engineering;TU Berlin, Department of Environmental Technology, Germany.
markus.berger@tu-berlin.de

The Acidification on the Life-Cycle Impact Assessment: a preliminary study among two places of different countries of South America
Márcio Lazzari ^{1,2} Cássia Ugaya ¹ ,Alejandro Pablo Arena ³ ,Barbara Civit ³
1Federal University of Technology of Paraná State(UTFPR), Paraná, Brazil; 2 Technological Development Advanced Programme (PDTA) ITAIPU Technological Park Foundation (FPTI), Brazil; 3Facultad Regional de Mendoza (FRM), Universidad Tecnológica Nacional (UTN), Argentina.
marciolazzari@yahoo.com.br

Proposal of a methodology to support the environmental management of Brazilian Micro and Small enterprises
1Celina Lamb,2Silvia Palma Rojas
1Brazilian Institute of Information in Science and Technology – IBICT; 2University of Brasilia – UnB. Brazil.
spalmarojas@gmail.com

Assessing the Sustainability of Packaging Systems for Fruit and Vegetable Transport in Europe based on Life-Cycle-Analysis
Tabea Beck ¹ , Stefan Albrecht ¹ , Leif-Patrik Barthel ¹ , Matthias Fischer ² , Jan Paul Lindner ² , Oliver Schuller ¹
1Department Life Cycle Engineering (GaBi), Chair of Building Physics, University of Stuttgart;2Department Life Cycle Engineering (GaBi), Fraunhofer Institute for Building Physics (IBP). Germany.
albrecht@lbp.uni-stuttgart.de

Sustainable Distribution of Fresh Fruits from Chile
Felipe Illanes et.al
Wenco S.A (USA) –Basfs Chile.
fillanes@wencousa.com

Electrical Consumption for Climatization in High, Medium and Low Urban Densities Housing Zones in Colima (Mexico)
Ezzio Sanchez Suarez, Gabriel Gomez-Azpeitia
Facultad de Arquitectura y Diseño, Universidad de Colima, Colima, México.

CO2 Emission for Different Constructive Alternatives for Rooftops in Social Housing in Colima, Mexico
Ixchel Flores, Gabriel Gómez-Azpeitia, Julio Mendoza
Facultad de Arquitectura y Diseño, Universidad de Colima, Colima, México.

CO2 Emissions Released During the Life Cycle of a Wall Made of Traditional Burned Clay Bricks
Victor Arvizu, Gabriel Gómez-Azpeitia, Julio Mendoza
Facultad de Arquitectura y Diseño, Universidad de Colima, Colima, México.

Environmental Impact Assessment of Trout and Corn Production in Mexico
aSilvia Narváez Contreras, aCarina Gutiérrez Díaz and aLeonor Patricia Güereca
a Environmental Quality Research Center (CICA), bInstituto Tecnológico y de Estudios Superiores de Monterrey (ITESM-CEM). Mexico.
lguereca@itesm.mx

Life Cycle Assessment of Tissue Paper Production in Mexico
aGames Alejandra, aFarell Carolea, aGüereca Leonor Patricia,* and bFarell Michell
a Environmental Quality Research Center (CICA), Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM-CEM).b Esvenska Cellulosa Aktiebolaget's (SCA de Mexico). Mexico.
lguereca@itesm.mx

Life Cycle Assessment (LCA) of a Cabernet Sauvignon Wine Produced in Chile
Marcia Montedonico G.
Inter-American Institute for Cooperation on Agriculture. IICA-Chile.
mmontedonico@iica.cl

Environmental Assessment (LCA) of Alternative Municipal Solid Waste Management Systems. A Spanish Case Study
Bovea M.D., Ibáñez V., Gallardo A., Colomer F.J.
Departamento de Ingeniería Mecánica y Construcción, Universitat Jaume, Spain.
bovea@emc.uji.es

Evaluating the Environmental Impact of Agricultural Systems through LCA: a Comparison Between Conventional and Organic Tiger Nut Production
Neus Sanjuán Pellicer++; M. Loreto Fenollosa Ribera +; Javier Ribal Sanchis+; Gabriela Clemente Polo++; Antonio Lidón+++; Inmaculada Bautista+++
Departamento de Economía y Ciencias Sociales. Universidad Politécnica de Valencia+; Departamento de Tecnología de Alimentos. Universidad Politécnica de Valencia++; Departamento de Química. Universidad Politécnica de Valencia+++.
Spain.
nsanjuan@tal.upv.es

The Analysis of the Life Cycle of Plaster
1Jaqueline Mata de Oliveira, 2Lícia Trajano, 3Prof.Dr. Arnaldo Cardim de Carvalho Filho
Universidade de Pernambuco – UPE, Brazil.
cardim@upe.poli.br

Life Cycle Analysis of Housing Construction Materials in Mexico
Sergio Omar Alvarez Romero*, José Inés Medina Lugo, José Humberto Loría Arcila
Engineering Faculty of Autonomous University of Yucatan, Mexico.
aromero@uady.mx

Methodological Approach to Evaluate Copper Flow in Brazil
1*Armando H. Tanimoto, 2Xavier Gabarrell Durany and 3Gara Villalba Mendez, 4Armando Caldeira Pires
1Instituto Federal da Bahia / Brasil; 2,3Universitat Autònoma de Barcelona; 4Universidade de Brasília. . Brazil.
*armando@cefetba.br

Looking for Sustainable Production through Eco-Efficiency. Application to Cheese Production
Neus Sanjuán Pellicer++, Javier Ribal Sanchis+, Gabriela Clemente Polo++, M. Loreto Fenollosa Ribera+
Departamento de Economía y Ciencias Sociales. Universidad Politécnica de Valencia+; Departamento de Tecnología de Alimentos. Universidad Politécnica de Valencia++; Departamento de Tecnología de Alimentos, Universidad Politécnica de Valencia.
Spain.
nsanjuan@tal.upv.es

Creating Value by Applying LCA Case of study: Environmental Impact Assessment of Biofuels in Chile
Javier Obach1*; Fernando Farías2
1Consultant, Sustainable Business Solutions – PricewaterhouseCoopers, CHILE; 2Department of Studies, Chilean Environmental Commission (CONAMA), Santiago, Chile.
javier.obach@cl.pwc.com

Settling the Most Suitable Places to Bioenergy Crop Grown in Spain in Relation to Soil Erosion
M. Nuñez1*, P. Muñoz1, J. Rieradevall3,4 A. Antón1 and J. Carrasco5
1 IRTA. Centre de Cabrils. Ctra. Cabrils Km2 E-08348 Cabrils (Barcelona, Spain);3 ICTA-UAB. Edifici Ciències, Universitat Autònoma de Barcelona (UAB), 4 Chemical Engineering Department. Universitat Autònoma de Barcelona (UAB), 5 Research Centre for Energy, Environment and Technology (CIEMAT). Spain.
Montserrat.nunez@irta.cat

LCA of the Home Composting of Two Different Composition Domestic Wastes
Julia Martínez-Blanco1*, Joan Colón 2,3, Xavier Gabarrell 1,3, Xavier Font 2,3, Adriana Artola 2,3, Joan Rieradevall 1,3 and Antoni Sánchez 2,3
1 Institute of Environmental Science and Technology (ICTA). SosteniPrA. Universitat Autònoma de Barcelona (UAB); 2 Composting Research Group (GICOM), Department of Chemical Engineering. Universitat Autònoma de Barcelona (UAB); 3 Department of Chemical Engineering. Universitat Autònoma de Barcelona (UAB). Spain.
julia.martinez@uab.cat

Ecuador Plans the Future for the Eco-efficient Mining
Edgar Pillajo G.
Fungeomine. Ecuador.
fungeomine@andinanet.net