



Session overview

October 9, Tuesday						
9:00am - 12:00pm				Side event 1: Second International Round Table on Materials Criticality		Side event 2: Latest global trends in visualization of sustainability –Measuring ESG and CE–
1:30pm - 4:30pm	International School 1: Resource scenarios to support circular economy policies Lecturer: Ester van der Voet KFC Hall 2nd	International School 2: How to use LCA software? 1:30pm MiLCA 2:30pm GaBI 3:30pm SimaPro Room 106		9:00am - 4:45pm Room 112		10:00am - 3:00pm Room 109
5:00pm - 7:00pm	Welcome reception					KFC Hall Foyer

October 10, Wednesday						
9:30am - 12:30pm	Opening & Plenary 10:10am Keynote 1: Yuji Ueda 10:55am Keynote 2: Ester van der Voet					KFC Hall
Lunch						
1:30pm - 2:50pm	1-1A: Policy-making & LCA (1) KFC Hall 2nd	1-1B: Supply chain risks & Life cycle thinking Room 101/102	1-1C: Local sustainability & Renewable energy (1) Room 103	1-1D: Food–energy–water nexus (1) Room 107	1-1E: Circular economy & Sustainable design (1) Room 108	1-1F: Material stock & Sustainability assessment Room 109
Break						
3:10pm - 4:30pm	1-2A: Policy-making & LCA (2) KFC Hall 2nd	1-2B: Business opportunities & Life cycle thinking Room 101/102	1-2C: Local sustainability & Renewable energy (2) Room 103	1-2D: Food–energy–water nexus (2) Room 107	1-2E: Circular economy & Sustainable design (2) Room 108	1-2F: Carbon & Nitrogen flows in urban-industrial symbiosis Room 109
Break						
4:50pm - 6:10pm	1-3A: Technology as enabler of collective wisdom for LCA KFC Hall 2nd	1-3B: Supply chain risks & Resource efficiency Room 101/102	1-3C: Local sustainability & Renewable energy (3) Room 103	1-3D: Food–energy–water nexus (3) Room 107	1-3E: Circular economy & Sustainable design (3) Room 108	1-3F: Carbon & Nitrogen flows from households Room 109
Break						
6:30pm - 8:00pm	Young Researchers Meeting KFC Hall 2nd					

October 11, Thursday						
10:00am - 11:40am	2-1A: Environmental Footprint – comprehensiveness of analysis vs. simplicity of communication (1) KFC Hall 2nd	2-1B: Emerging technologies & Supply chains Room 101/102	2-1C: Circular economy & Assessment methods/indices Room 103	2-1D: Plantation crops & Sustainability assessment Room 107	2-1E: Circular economy & Behavioral science (1) Room 108	2-1F: Progress in inventory analysis methodologies Room 109
Lunch						
1:00pm - 2:40pm	2-2A: Environmental Footprint – comprehensiveness of analysis vs. simplicity of communication (2) KFC Hall 2nd	2-2B: Green technologies & Material criticality Room 101/102	2-2C: Wastewater & Life cycle thinking Room 103	2-2D: Sustainable food consumption & Production Room 107	2-2E: Circular economy & Behavioral science (2) Room 108	2-2F: Sustainability indices Room 109
Break						
3:00pm - 4:20pm	2-3A: Sustainability assessment methods KFC Hall 2nd	2-3B: Green technologies & Life cycle thinking Room 101/102	2-3C: Waste management & Recycling Room 103	2-3D: Food–energy–water nexus (4) Room 107	2-3E: Circular economy & Input– output analysis Room 108	2-3F: Progress in impact assessment methodologies Room 109
Break						
4:30pm - 6:30pm	Poster session 4:30pm - 5:30pm Core time 1 5:30pm - 6:30pm Core time 2					KFC Hall Annex
Break						
7:00pm - 9:00pm	Banquet					Dai-ichi Hotel Ryogoku 5F Kiyosumi

October 12, Friday						
10:20am - 11:40am	3-1A: Innovations & Life cycle thinking KFC Hall 2nd	3-1B: National hotspot analysis & Global supply chains Room 101/102	3-1C: Metal production & Sustainability assessment Room 103		3-1E: Automobile life cycles Room 108	
Lunch						
1:00pm - 2:20pm	3-2A: Innovative policy design & Sustainability analysis: A dual relation KFC Hall 2nd	3-2B: Sustainable society by integration of adaptation & Mitigation (1) Room 101/102	3-2C: Organic waste & Life cycle thinking Room 103	3-2D: Electrical/electronic equipment & Resources Room 107	3-2E: Advanced vehicles & Sustainability assessment Room 108	
2:40pm - 4:00pm		3-3B: Sustainable society by integration of adaptation & Mitigation (2) Room 101/102	3-3C: Emerging issues for plastics Room 103	3-3D: Innovation of power supply for sustainability Room 107	3-3E: Energy systems & Scenario analysis Room 108	
Break						
4:30pm - 6:00pm	Closing & Networking drinks					KFC Hall 2nd



Presentation lists: Oral sessions

Opening & Plenary

Time: October 10, Wednesday
9:30am - 12:30pm
Location: KFC Hall

Keynote 1

Japan's Sharing Economy: Present and Future
Yuji Ueda
Sharing Economy Association, Japan

Keynote 2

The role of the Circular Economy in Reconciling Sustainable Development Goals
Ester van der Voet
Leiden University, Netherlands

1-1A: Policy-making & LCA (1)

Time: October 10, Wednesday
1:30pm - 2:50pm
Location: KFC Hall 2nd
Session Chair: **Matthias Finkbeiner**, TU Berlin, Germany

1-1A-1 (1:30pm - 1:50pm)

Enhancing the effectiveness of organisational environmental policies: insights from Australia
Bishal Baniya, **Damien Guirco**, **Scott Kelly**
Institute for Sustainable Futures, University of Technology Sydney, Australia

1-1A-2 (1:50pm - 2:10pm)

The complementary use of attributional and consequential LCA for policy support
Dieuwertje Louise Schrijvers^{1,2}, **Philippe Loubet**^{2,3}, **Guido Sonnemann**^{1,2}
¹University of Bordeaux, ISM, UMR 5255, France;
²CNRS, ISM, UMR 5255, France; ³ENSCBP, Bordeaux INP, UMR 5255, France

1-1A-3 (2:10pm - 2:30pm)

Closing the hole in the automotive tailpipe legislation by life cycle based policies
Matthias Finkbeiner, **Annekatriin Lehmann**
Technische Universität Berlin, Chair of Sustainable Engineering, Germany

1-1A-4 (2:30pm - 2:50pm)

Full LCA of Palm Biodiesel with Policy-based LCIA method
Naruetep Lecksiwilai, **Shabbir Gheewala**
The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Thailand

1-1B: Supply chain risks & Life cycle thinking

Time: October 10, Wednesday
1:30pm - 2:50pm
Location: Room 101/102
Session Chair: **Yuh-Ming Lee**, National Taipei University, Taiwan
Session Chair: **Hiroki Hatayama**, National Institute of Advanced Industrial Science and Technology, Japan

1-1B-1 (1:30pm - 1:50pm)

Mapping the supply chain disruption risks posed by earthquakes in Japan
Jun Nakatani¹, **Hideaki Kurishima**², **Kiyotaka Tahara**³, **Yuki Kudoh**³, **Ichiro Daigo**¹
¹The University of Tokyo, Japan; ²Shibaura Institute of Technology; ³National Institute of Advanced Industrial Science and Technology

1-1B-2 (1:50pm - 2:10pm)

From the outside in: integrating product-level commodity supply risk within life cycle sustainability assessment
Alexander Cimprich¹, **Vanessa Bach**², **Christoph Helbig**³, **Andrea Thorenz**³, **Dieuwertje Schrijvers**⁴, **Guido Sonnemann**⁴, **Steven B. Young**¹, **Thomas Sonderegger**⁵
¹University of Waterloo, Canada; ²Technische Universität Berlin; ³Universität Augsburg; ⁴Université de Bordeaux; ⁵ETH Zürich

1-1B-3 (2:10pm - 2:30pm)

Construction without sand or bitumen? Accounting for supply risks of construction resources
Dimitra Ioannidou^{1,2,3}, **Steven B. Young**⁴, **Sangwon Suh**³, **Guido Sonnemann**^{1,2}
¹Univ. Bordeaux, ISM, UMR 5255, F-33400 Talence, France; ²CNRS, ISM, UMR 5255, F-33400 Talence, France; ³Bren School of Environmental Science & Management, University of California, Santa Barbara, CA 93106-5131, USA; ⁴School of Environment, Enterprise and Development (SEED), University of Waterloo, Waterloo, Canada



Presentation lists: Oral sessions

1-1B-4 (2:30pm - 2:50pm)

Climate-related Financial Risk Assessment
Framework – Application to Power Generation
Industry

Yu-Che Tseng^{1,2}, Yuh-Ming Lee¹

¹Institute of Natural Resource Management,
National Taipei University, New Taipei City 23741,
Taiwan; ²Partner and Taiwan CPA, Climate Change
and Sustainability Service, Ernst and Young 11012,
Taiwan

1-1C: Local sustainability & Renewable energy (1)

Time: October 10, Wednesday

1:30pm - 2:50pm

Location: Room 103

Session Chair: Shabbir H. Gheewala, King Mongkut's
University of Technology Thonburi, Thailand
Session Chair: Yuki Kudoh, National Institute of
Advanced Industrial Science and Technology, Japan

1-1C-1 (1:30pm - 1:50pm)

Boundary problem of woody biomass usage: A
temporal eco-socio-system approach

Makoto Ooba, Takuya Togawa, Shogo Nakamura,
Kazuyoshi Nemoto, Minoru Fujii

National Institute for Environmental Studies, Japan

1-1C-2 (1:50pm - 2:10pm)

Socio-economic and environmental impacts of
palm biodiesel development in Thailand

Piyanon Kaenchan¹, Nattapong Puttanapong²,
Thongchart Bowonthumrongchai³, Kitti Limskul³,
Shabbir H. Gheewala¹

¹King Mongkut's University of Technology Thonburi,
Thailand; ²Thammasat University, Thailand; ³Saitama
University, Japan

1-1C-3 (2:10pm - 2:30pm)

Eco-efficiency of Palm Biorefinery Systems for Food,
Fuel and Oleochemical in Thailand

Thapat Silalertruksa^{1,2}, Shabbir Gheewala^{1,2},
Pariyapat Nilsalab^{1,2}, Naruetep Lecksiwilai^{1,2},
Kunnika Changwichan^{1,2}, Napapat Permpool^{1,2},
Nattaya Huailuek^{1,2}

¹The Joint Graduate School of Energy and
Environment, King Mongkut's University of
Technology Thonburi, Thailand; ²Center of
Excellence on Energy Technology and Environment,
PERDO

1-1C-4 (2:30pm - 2:50pm)

Environmental Optimization and Economic
Feasibility Study of Electricity Production of Palm Oil
Mill Effluent (POME) Anaerobic Digestion
Zainura Zainon Noor, Sharvini Siva Raman, Chun
Siong Chong

Universiti Teknologi Malaysia, Malaysia

1-1D: Food–energy–water nexus (1)

Time: October 10, Wednesday

1:30pm - 2:50pm

Location: Room 107

Session Chair: Yandra Arkeman, Bogor Agricultural
University, Indonesia

Session Chair: Naoki Yoshikawa, Ritsumeikan
University, Japan

1-1D-1 (1:30pm - 1:50pm)

Water energy and food nexus in rice production in
Thailand

Napat Jakrawatana, Shabbir Gheewala

University of Phayao, Thailand

1-1D-2 (1:50pm - 2:10pm)

Biomass and bioenergy potential from an
interdisciplinary perspective, another side of the
food-energy nexus

Marisabel Cuberos Balda, Kotaro Kawajiri

Research Institute of Science for Safety and
Sustainability, AIST, Japan

1-1D-3 (2:10pm - 2:30pm)

Evaluation of current green and blue water
requirements based on global food trade balance

Yohei Yamaguchi, Naoki Yoshikawa, Koji Amano,
Seiji Hashimoto

Ritsumeikan University, Japan

~~1-1D-4 (2:30pm - 2:50pm)~~

~~More food, less waste: strategies, policies and plans
under a Water-Energy-Food-Climate Nexus approach
Isabel Garcia Herrero[‡], Maria Margallo[‡], Jara Laso[‡],
Alba Bala[‡], Pere Fullana[‡], Ian Vazquez Rowe[‡], Maria
Jose Dura[‡], Carmen Sarabias[‡], Rebeca Abajas[‡],
Francisco Jose Amo-Setien[‡], Ainhoa Quiñones[‡],
Angel Irabien[‡], Ruben Aldaco[‡]~~

~~[‡]Universidad de Cantabria, Spain; [‡]Catedra UNESCO
de Ciclo de Vida y Cambio Climatico, Universidad
Pompeu Fabra, Spain; [‡]Pontificia Universidad
Católica del Perú, Departamento de Ingeniería, Red
Peruana Ciclo de Vida~~



Presentation lists: Oral sessions

1-1E: Circular economy & Sustainable design (1)

Time: October 10, Wednesday

1:30pm - 2:50pm

Location: Room 108

Session Chair: **Jordi Cravioto**, Ritsumeikan University, Japan

Session Chair: **Yusuke Kishita**, The University of Tokyo, Japan

1-1E-1 (1:30pm - 1:50pm)

Global Multi-Value Circulation for "Mottainai" society with higher resource efficiency

Kohmei Halada¹, Yasushi Umeda², Ichiro Daigo², Michikazu Kojima³, Eiji Yamasue⁴

¹Sustainability Design Institute, Japan; ²University of Tokyo, Japan; ³Japan External Trade Organization;

⁴Ritsumeikan University, Japan

1-1E-2 (1:50pm - 2:10pm)

WEEE valorization in Belgium: how to improve its contribution in a circular economy context with support of LCA and MFA

Jo Dewulf, Pieter Nachtergaele, Peter Vos, Steven De Meester

Ghent University, Belgium

1-1E-3 (2:10pm - 2:30pm)

Assessing the environmental savings potential of Preparing for Reuse for WEEE

Sandra Boldoczki¹, Lukas Messmann¹, Andrea Thorenz², Axel Tuma¹

¹University of Augsburg, Faculty of Business and Economics, Germany; ²University of Augsburg, Institute of Materials Resource Management, Germany

1-1E-4 (2:30pm - 2:50pm)

Estimation of generated E-wastes in Vietnam considering Lifetime Transition

Eiji Yamasue¹, Ichiro Daigo², Jordi Cravioto¹, Shoki Kosai¹, Duc-Quang Nguyen³, Duc-Huy Tran³, Yusuke Kishita², Yasushi Umeda²

¹Ritsumeikan University, Japan; ²The University of Tokyo; ³Hanoi University of Science and Technology

1-1F: Material stock & Sustainability assessment

Time: October 10, Wednesday

1:30pm - 2:50pm

Location: Room 109

Session Chair: **Seiji Hashimoto**, Ritsumeikan University, Japan

Session Chair: **Kenichi Nakajima**, National Institute for Environmental Studies, Japan

1-1F-1 (1:30pm - 1:50pm)

A dynamic and spatially explicit analysis of household appliances' stocks and flows in Beijing's dwellings

Yupeng Liu^{1,2}, Wei-Qiang Chen^{1,2,3}, Jiajia Li^{1,2,3}

¹Key Lab of Urban Environment and Health, Institute of Urban Environment, Chinese Academy of Sciences, China; ²Xiamen Key Lab of Urban Metabolism, China; ³University of Chinese Academy of Sciences, China

1-1F-2 (1:50pm - 2:10pm)

Exbounding the Long-term Dynamics of In-use Stock in Beijing

Chenling Fu, Yanxian Li, Yaoguang Li, Xiaolin Zhang, Yan Zhang

Beijing Normal University, China

1-1F-3 (2:10pm - 2:30pm)

The Weight of China-Spatio-temporal dynamics of In-use steel stocks in China

Lulu Song, Wei-Qiang Chen

Institute of Urban Environment, Chinese Academy of Sciences, China

1-1F-4 (2:30pm - 2:50pm)

Energy Consumption of Primary Gold Mining and Gold Recycling

Carin Aichele, Mario Schmidt

Pforzheim University, Germany

1-2A: Policy-making & LCA (2)

Time: October 10, Wednesday

3:10pm - 4:30pm

Location: KFC Hall 2nd

Session Chair: **Vanessa Bach**, Technische Universität Berlin, Germany

Session Chair: **Guido Sonnemann**, University of Bordeaux, France

1-2A-1 (3:10pm - 3:30pm)

Role of Vehicle Inspection Policy in Climate Mitigation: The Case of Japan

Yuya Nakamoto, Shigemi Kagawa

Kyushu university, Japan



Presentation lists: Oral sessions

1-2A-2 (3:30pm - 3:50pm)

Assessing the impacts of reprocessing Used Nuclear Fuels: a UK case study

Andrea Paulillo¹, **Roland Clift²**, **Jonathan Dodds³**, **Andrew Milliken⁴**, **Stephen J. Palethorpe³**, **Paola Lettieri¹**

¹University College London, United Kingdom;

²University of Surrey, United Kingdom; ³National Nuclear Laboratory, United Kingdom; ⁴Sellafield Ltd.

1-2A-3 (3:50pm - 4:10pm)

Lima LCA database roadmap training

Ian Vázquez-Rowe¹, **Bruce W. Vigon²**, **Camilo I. Bastías³**, **Ricardo E. Estrada⁴**, **Reynaldo Félix⁵**, **Benjamín J. Lagos³**, **Tiago Braga⁶**

¹Peruvian LCA Network, Department of Engineering, Pontificia Universidad Católica del Perú, Av.

Universitaria 1801, San Miguel 1801, Lima, Perú.;

²Breveja Environmental Consulting LLC Pensacola, FL USA 32503.; ³Regenerativa, La Concepción 191, Of. 1201, Providencia, Santiago, Chile.; ⁴Dirección de Calidad Ambiental y Ecoeficiencia, Ministerio del Ambiente (MINAM), San Isidro, Lima, Perú.; ⁵Centro de Análisis de Ciclo de Vida y Diseño Sustentable, Bohemia 2-9, Bosques del Lago, Cuautitlán Izcalli, Estado de México, México.; ⁶Brazilian Institute for Information in Science and Technology and Universidade de Brasília, SAUS 5, Bloco H, Sala 604, Brasília, Brasil, 70070-912.

1-2A-4 (4:10pm - 4:30pm)

Identifying Regulatory Risks for NdFeB Permanent Magnet Production

Gwendolyn Bailey¹, **Robert Pell²**, **James Goddin³**, **Kimberly Marshall³**, **Paul Ylioja³**, **Wim Dewulf¹**, **Karel Van Acker¹**

¹KU Leuven; ²University of Exeter (Camborne School of Mines); ³Granta Design

1-2B: Business opportunities & Life cycle thinking

Time: October 10, Wednesday

3:10pm - 4:30pm

Location: Room 101/102

Session Chair: **Steven Bruce Young**, University of Waterloo, Canada

Session Chair: **Atsushi Inaba**, Kogakuin University, Japan

1-2B-1 (3:10pm - 3:30pm)

Monetization: taking LCA beyond the environmental dimension

Max Sonnen

Ecomatters B.V., Netherlands

1-2B-2 (3:30pm - 3:50pm)

LCA in companies: driving business, leading innovation, mitigating risk, fostering compliance

Martin Baitz, **Harald Florin**, **Sebastian Schulz**
thinkstep AG, Germany

1-2B-3 (3:50pm - 4:10pm)

Always business with Eco-Economics

Heidi Beers, **Mark Breed**, **Shuichi Osaki**, **Nobuyuki Takakura**
Teijin Ltd.

1-2B-4 (4:10pm - 4:30pm)

The analysis of material cycles in companies by using the MFCA method

Mario Schmidt

Pforzheim University, Germany

1-2C: Local sustainability & Renewable energy (2)

Time: October 10, Wednesday

3:10pm - 4:30pm

Location: Room 103

Session Chair: **Thapat Silalertruksa**, King Mongkut's University of Technology Thonburi, Thailand

Session Chair: **Yasuhiro Fukushima**, Tohoku University, Japan

1-2C-1 (3:10pm - 3:30pm)

Environmental and economic sustainability of off-grid solar photovoltaic systems integrated with storage: the effect of scale and type of battery

Jhud Mikhail Aberilla^{1,2}, **Alejandro Gallego-Schmid¹**, **Laurence Stamford¹**, **Adisa Azapagic¹**

¹Sustainable Industrial Systems, University of Manchester, Manchester, United Kingdom;

²University of the Philippines Diliman, Quezon City, Philippines

1-2C-2 (3:30pm - 3:50pm)

Application of life cycle thinking for regional transformation considering local resource circulation with energy technology options

Yasunori Kikuchi¹, **Yuko Oshita²**, **Yasuhiro Fukushima³**

¹The University of Tokyo, Japan; ²Kobe University, Japan; ³Tohoku University, Japan



Presentation lists: Oral sessions

1-2C-3 (3:50pm - 4:10pm)

Analysis of socio-economic effects on local area induced by renewable energy utilization: A case of Tanegashima, Japan

Yuko Oshita¹, Yasuhiro Fukushima², Yasunori Kikuchi³

¹Kobe University, Japan; ²Tohoku University, Japan; ³The University of Tokyo, Japan

1-2C-4 (4:10pm - 4:30pm)

Building life cycle capacity on the regional level
Philip Strothmann, Guido Sonnemann, Fritz Balkau
FSLCI e.V., Germany

1-2D: Food–energy–water nexus (2)

Time: October 10, Wednesday
3:10pm - 4:30pm

Location: Room 107

Session Chair: Erwinsyah, Indonesian Oil Palm Research Institute, Indonesia

Session Chair: Kiyotada Hayashi, National Agriculture and Food Research Organization, Japan

1-2D-1 (3:10pm - 3:30pm)

Life Cycle Assessment of the Water-Energy Nexus (WEN) in the urban building stock: The case of Heidelberg, Germany

Jasmin Friedrich, Witold-Roger Poganietz, Helmut Lehn

KIT, Germany

1-2D-2 (3:30pm - 3:50pm)

A user-friendly comprehensive assessment platform: GIS-based Regional Environmental Assessment Tool for Food-Energy-Water nexus (GREAT for FEW)

Chia-Chun Lin¹, Ying-Chen Lin², Kuang-Yu Yuan¹, Pei-Te Chiueh¹

¹National Taiwan University, Taiwan; ²Feng Chia University, Taiwan

1-2D-3 (3:50pm - 4:10pm)

Life cycle assessment of natural farming: Case study of green tea production in Nara prefecture, Japan

Naoki Yoshikawa¹, Ken'ichi Ikawa², Kouki Tsuji¹, Shunta Furihata¹, Koji Amano¹

¹Ritsumeikan University; ²Kenichi Sizen Nouen

1-2E: Circular economy & Sustainable design (2)

Time: October 10, Wednesday

3:10pm - 4:30pm

Location: Room 108

Session Chair: Jo Dewulf, Ghent University, Belgium
Session Chair: Eri Amasawa, The University of Tokyo, Japan

1-2E-1 (3:10pm - 3:30pm)

How Do We Extract the Essence of Sustainable Consumption and Production? - A Case Study of Southeast Asia

Yusuke Kishita¹, Shogo Kuroyama¹, Mitsutaka Matsumoto², Michikazu Kojima³, Yasushi Umeda¹

¹The University of Tokyo; ²National Institute of Advanced Industrial Science and Technology;

³Institute of Developing Economies, Japan External Trade Organization

1-2E-2 (3:30pm - 3:50pm)

Developing a model to simulate the markets of remanufactured products

Mitsutaka Matsumoto¹, Nuwan Lasantha Senevirathne¹, Yasushi Umeda²

¹National Institute of Advanced Industrial Science and Technology (AIST), Japan; ²The University of Tokyo

1-2E-3 (3:50pm - 4:10pm)

Modelling benefits of co-processing in Vietnamese steel and cement production: a South East Asian integration?

Jordi Cravioto¹, Duc-Quang Nguyen², Tran-Duc Huy², Eiji Yamasue¹

¹Ritsumeikan University, Japan; ²Hanoi University of Science and Technology, Vietnam

1-2E-4 (4:10pm - 4:30pm)

Economic and environmental opportunity costs of regional development in WEEE reverse networks

Lukas Messmann¹, Christoph Helbig¹, Andrea Thorenz², Axel Tuma¹

¹University of Augsburg, Faculty of Business and Economics, Germany; ²University of Augsburg, Institute of Materials Resource Management, Germany

Overall discussion (4:10pm - 4:30pm)



Presentation lists: Oral sessions

1-2F: Carbon & Nitrogen flows in urban-industrial symbiosis

Time: October 10, Wednesday

3:10pm - 4:30pm

Location: Room 109

Session Chair: **Abhishek Abhishek**, ETH Zurich, Switzerland

Session Chair: **Yosuke Shigetomi**, Nagasaki, University, Japan

1-2F-1 (3:10pm - 3:30pm)

Green Innovation for Mitigating Climate Change towards Carbon-Neutral Circular Economy

Rattanawan Mungkung^{1,2}, **Kannika Sorakon¹**, **Anyarat Lamai¹**

¹Centre of Excellence on environmental strategy for GREEN business (VGREEN), Thailand; ²Department of Environmental Technology and Management, Faculty of Environment, Kasetsart University, Bangkok, Thailand

1-2F-2 (3:30pm - 3:50pm)

Nitrogen flow analysis focusing on industrial applications in Japan

Kiwamu Katagiri, **Kazuho Matsubae**, **Tetsuya Nagasaka**

Tohoku university, Japan

1-2F-3 (3:50pm - 4:10pm)

Decomposition analysis of activated nitrogen consumption factors in Beijing

Xiaolin Zhang, **Yanxian Li**, **Yaoguang Li**, **Chenling Fu**, **Yan Zhang**

Beijing Normal University, China

1-2F-4 (4:10pm - 4:30pm)

Assessment of energy saving and environmental benefit effect with urban-industrial symbiosis system

Lu Sun^{1,2}

¹The University of Tokyo; ²National Institute for Environmental Studies

1-3A: Technology as enabler of collective wisdom for LCA

Time: October 10, Wednesday

4:50pm - 6:10pm

Location: KFC Hall 2nd

Session Chair: **Mark Goedkoop**, PRé Sustainability, Netherlands

1-3A-1 (4:50pm - 4:58pm)

How a cloud platform can maximize the impact of LCA Expertise

Eric Mieras

PRé Sustainability, Netherlands

1-3A-2 (4:58pm - 5:06pm)

The use of Life Cycle Information in a Digital Circular Economy

Martina Prox

ifu Institute for Environmental IT Hamburg, Germany

1-3A-3 (5:06pm - 5:14pm)

Stakeholder Perspectives on Business Requirements for an Automated Life Cycle Assessment using available internal data

Andreas Schiffleitner¹, **Mieke Klein²**, **Jan Hedemann²**, **Martina Prox²**

¹iPoint-Austria GmbH, Austria; ²IFU Hamburg GmbH, Germany

1-3A-4 (5:14pm - 5:22pm)

Applications of Machine Learning Techniques to Life Cycle Assessment: A Review

Runsheng Song, **Mengya Tao**, **Yuwei Qin**, **Sangwon Suh**

University of California, Santa Barbara, United States

1-3A-5 (5:22pm - 5:30pm)

Project to Lead Eco-design Integration with Aerospace Development and Engineering Systems

James Robert Jarrett Goddin¹, **Luca Petrucci¹**, **Andrew Clifton²**

¹Granta Design, United Kingdom; ²Rolls-Royce PLC, United Kingdom

Panel discussion (5:30pm - 6:10pm)

1-3B: Supply chain risks & Resource efficiency

Time: October 10, Wednesday

4:50pm - 6:10pm

Location: Room 101/102

Session Chair: **Benjamin Sprecher**, Leiden University, Netherlands

Session Chair: **Ichiro Daigo**, The University of Tokyo, Japan



Presentation lists: Oral sessions

1-3B-1 (4:50pm - 5:10pm)

Methods identifying conflict affected and high-risk areas in supply-chains of minerals

Steven B. Young

University of Waterloo, Canada

1-3B-2 (5:10pm - 5:30pm)

Where the Supply Chain Begins: Stakeholder Response to Mining Pressure in Rural Peru

David Daugherty Sussman

The Tokyo Foundation for Policy Research, Japan

1-3B-3 (5:30pm - 5:50pm)

Comprehensive assessment of abiotic and biotic resource use

Vanessa Bach, Markus Berger, Matthias Finkbeiner

Technische Universität Berlin, Germany

1-3B-4 (5:50pm - 6:10pm)

100 Pioneers in Efficient Resource Management - Best practice cases

Marlene Preiss, Mario Schmidt, Christian Haubach

Pforzheim University, Germany

1-3C: Local sustainability & Renewable energy (3)

Time: October 10, Wednesday

4:50pm - 6:10pm

Location: Room 103

Session Chair: **Erik O Ahlgren**, Chalmers University of Technology, Sweden

Session Chair: **Shunichi Hienuki**, Yokohama National University, Japan

1-3C-1 (4:50pm - 5:10pm)

Using life cycle impact assessment to predict site-specific ecological impacts of remaining global hydropower potentials

Martin Dorber¹, Anders Arvesen¹, Odd Terje Sandlund², Roel May², Francesca Veronesi¹

¹Norwegian University of Science and Technology (NTNU); ²Norwegian Institute for Nature Research (NINA)

1-3C-2 (5:10pm - 5:30pm)

Environmental and socio-economic performances of local uses of rice husk ash from rice husk based power plants

Jittima Prasara-A¹, Shabbir H. Gheewala^{2,3}

¹Climate Change and Adaptation Research Unit (CCARE), Faculty of Environment and Resource Studies, Mahasarakham University, Mahasarakham 44150, Thailand; ²Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Bangkok 10140, Thailand; ³Centre of Excellence on Energy Technology and Environment, Science and Technology Postgraduate Education and Research Development Office (PERDO), Bangkok 10400, Thailand

1-3C-3 (5:30pm - 5:50pm)

Environmental impacts assessment of bio-butanol production from agrofood wastes

Roberto Chirone¹, Giuseppe Olivieri², Piero Bareschino³, Antonio Marzocchella², Paola Lettieri¹

¹University College London, United Kingdom;

²Università degli Studi di Napoli Federico II, Italia;

³Università Degli Studi del Sannio, Italia

1-3C-4 (5:50pm - 6:10pm)

Comparative Greenhouse Gas Emission and Energy Assessment of Municipal Solid Waste Management Scenarios for the City of Brasilia, Brazil

Francisco Javier Contreras¹, Sora Yi²

¹Graduate Program on Environmental Technology and Water Resources, University of Brasilia, Brazil.;

²Korea Environmental Institute, Sejong, South Korea.

1-3D: Food–energy–water nexus (3)

Time: October 10, Wednesday

4:50pm - 6:10pm

Location: Room 107

Session Chair: **Angel Daniel Avadi**, CIRAD, France

Session Chair: **Masanori Saito**, Tohoku University, Japan

1-3D-1 (4:50pm - 5:10pm)

Developing life cycle inventories for agricultural production systems in Asian countries: Lessons from LCA Food Supply Chains Asia Project

Kiyotada Hayashi¹, Koichi Shobatake², Naoki Makino², Masanori Saito³

¹National Agriculture and Food Research Organization, Japan; ²TCO2 Co. Ltd.; ³Tohoku University



Presentation lists: Oral sessions

1-3D-2 (5:10pm - 5:30pm)

Differentiating Life Cycle GHG Emissions from Palm Oil Production by Locations and Management Practices

Vita Dhian Lelyana¹, Kiyotada Hayashi², Erwinsyah Erwinsyah¹, Mugiyanto Mugiyanto³, Agus Haryanto⁴

¹Indonesian Oil Palm Research Institute, Indonesia;

²National Agriculture and Food Research

Organization; ³PP London Sumatera Indonesia Tbk;

⁴University of Lampung

1-3D-3 (5:30pm - 5:50pm)

Improving energy-efficiency of farming practices: A case study of rice production in Central Luzon, Philippines

Elmer Granadozo Bautista¹, Masanori Saito², Kiyotada Hayashi³

¹Philippine Rice Research Institute, Philippines;

²Tohoku University; ³National National Agriculture

and Food Research Organization

1-3D-4 (5:50pm - 6:10pm)

Measuring Carbon Footprint of Potato Chips Agroindustry Supply Chains

Ririn Regiana Dwi Satya¹, Yandra Arkeman¹, Kiyotada Hayashi²

¹Bogor Agricultural University, Indonesia; ²National Agricultural Research Organization (NARO), Tsukuba, Japan

1-3E: Circular economy & Sustainable design (3)

Time: October 10, Wednesday

4:50pm - 6:10pm

Location: Room 108

Session Chair: **Mélanie Despeisse**, Chalmers University of Technology, Sweden

Session Chair: **Mitsutaka Matsumoto**, National Institute of Advanced Industrial Science and Technology, Japan

1-3E-1 (4:50pm - 5:10pm)

Technological challenges to promote remanufacturing **Mitsutaka Matsumoto¹, Yasunari Matsuno², Kenichi Nakajima³, Masao Hayakawa⁴, Hideyuki Murakami⁴**

¹National Institute of Advanced Industrial Science and Technology (AIST), Japan; ²Chiba University,

Japan; ³National Institute for Environmental Studies

(NIES), Japan; ⁴National Institute for Materials Science (NIMS), Japan

1-3E-2 (5:10pm - 5:30pm)

Analysis of GHG emission reduction effect by remanufacturing of industrial pump

Sejik Kim, Gibeom Hong, Dongkyu Kim, Ik Kim
Smart eco, South Korea

1-3E-3 (5:30pm - 5:50pm)

Integration of design consequences into life cycle design of packaging for sustainability

Naoki Yokokawa, Yutaro Masuda, Eri Amasawa, Hirokazu Sugiyama, Masahiko Hirao

The University of Tokyo, Japan

1-3E-4 (5:50pm - 6:10pm)

Proposal of design indices from the producer and consumer perspectives for sustainable products

Yoon-Young Chun¹, Kun-Mo Lee², Jong Seok Lee², Joo Young Lee², Min Hyeok Lee², Nozomu Mishima³, Kiyotaka Tahara¹

¹AIST, Japan; ²Ajou University, Korea; ³Akita

University, Japan

1-3F: Carbon & Nitrogen flows from households

Time: October 10, Wednesday

4:50pm - 6:10pm

Location: Room 109

Session Chair: **Yan Zhang**, Beijing Normal University, China

Session Chair: **Hajime Ohno**, Tohoku University, Japan

1-3F-1 (4:50pm - 5:10pm)

Food nitrogen and phosphorus footprints trends and prospects associated with food consumption patterns

Azusa Oita, Kiwamu Katagiri, Yuko Mano, Elizabeth Webeck, Kazuyo Matsubae

Tohoku University, Japan

1-3F-2 (5:10pm - 5:30pm)

Evaluation of carbon intensity of goods consumed by households by integrating footprint and flow of carbon: the case of Japan

Hajime Ohno¹, Yosuke Shigetomi², Yasuhiro Fukushima¹

¹Tohoku University, Japan; ²Nagasaki University, Japan

1-3F-3 (5:30pm - 5:50pm)

Residential energy consumption and its associated emission based on input-output model

Yin Long¹, Habura Borjigin², Yoshida Yoshikuni¹

¹University of Tokyo, Japan; ²National Institute for Environmental studies, Japan



Presentation lists: Oral sessions

1-3F-4 (5:50pm - 6:10pm)

The role of households in avoiding carbon release in end-of-life products: the case of Japan

Yosuke Shigetomi¹, Hajime Ohno², Yasuhiro Fukushima²

¹Nagasaki University, Japan; ²Tohoku University, Japan

Young Researchers Meeting (6:30pm - 8:00pm)

KFC Hall 2nd

2-1A: Environmental Footprint – comprehensiveness of analysis vs. simplicity of communication (1)

Time: October 11, Thursday

10:00am - 11:40am

Location: KFC Hall 2nd

Session Chair: Marc-Andree Wolf, maki Consulting GmbH, Germany

Session Chair: Masayuki Kanzaki, Japan Environmental Management Association for Industry, Japan

Video message from European Commission, DG Environment (10:00am - 10:20am)

2-1A-1 (10:20am - 10:40am)

IT equipment pilot test in the European Environmental Footprint

Osamu Namikawa

Hitachi, Ltd., Japan

2-1A-2 (10:40am - 11:00am)

Rechargeable Batteries - Product Environmental Footprint (PEF) pilot project

Carol-lyne Pettit¹, Claude Chanson², Clemence Siret³, Mark Mistry⁴

¹Cobalt Institute, United Kingdom; ²Recharge, Belgium; ³Saft, France; ⁴Nickel Institute, Germany

2-1A-3 (11:00am - 11:20am)

PEF for Decorative Paints case study: Experiences, best practices and next steps

Max Sonnen

Ecomatters B.V., Netherlands

2-1A-4 (11:20am - 11:40am)

Available support to stakeholders worldwide during the EU Environmental Footprint transition phase until early 2021

Marc-Andree Wolf¹, Hannes Partl², Andreas Busa², Marta Bonelli², Juliane Franze³, Kirana Chomkhamsri Wolf¹

¹maki Consulting GmbH, Germany; ²thinkstep AG, Germany; ³SGS Germany GmbH, Germany

2-1B: Emerging technologies & Supply chains

Time: October 11, Thursday

10:00am - 11:40am

Location: Room 101/102

Session Chair: Witold-Roger Poganietz, Karlsruhe Institute of Technology (KIT), Germany

Session Chair: Kotaro Kawajiri, National Institute of Advanced Industrial Science and Technology, Japan

2-1B-1 (10:00am - 10:20am)

Technology forecasting to meet future societies by constructing context scenarios

Witold-Roger Poganietz¹, Annika Weiss¹, Dominik Poncette¹, Marlen de Weser²

¹Karlsruhe Institute of Technology (KIT), Germany; ²Toyota Motor Europe, Belgium

2-1B-2 (10:20am - 10:40am)

Environmental screening of electrode materials for a novel Al-ion battery

Linda Ager-Wick Ellingsen

Norwegian University of Science and Technology (NTNU), Norway

2-1B-3 (10:40am - 11:00am)

Methodological Development of Life Cycle Assessment of Future Technologies Considering Scaling Effect

Kotaro Kawajiri

National Institute of Advanced Industrial Science and Technology, Japan

2-1B-4 (11:00am - 11:20am)

Eco-efficiency of Ni-Co hydroxide and reduced graphene oxide for energy storage

Edis Glogic^{1,2}, Alberto Adan Mas^{2,3}, Steven B. Young¹, Guido Sonnemann²

¹University of Waterloo, France; ²University of Bordeaux, France; ³University of Lisbon, Portugal



Presentation lists: Oral sessions

2-1B-5 (11:20am - 11:40am)

Environmental Impact Assessment Methodology of Emerging Technologies: Case of Car Materials
Mikiaki Hasegawa, Eri Amasawa, Miyuki Ota, Hirokazu Sugiyama, Masahiko Hirao
The University of Tokyo, Japan

2-1C: Circular economy & Assessment methods/indices

Time: October 11, Thursday

10:00am - 11:40am

Location: Room 103

Session Chair: **Christian Haubach**, Pforzheim University, Germany

Session Chair: **Yasushi Kondo**, Waseda University, Japan

2-1C-1 (10:00am - 10:20am)

Understanding the value of various circular economy indicators: a framework for a better positioning in function of policy support
Gustavo Longaray, **Sophie Huysveld**, **Steven De Meester**, **Jo Dewulf**

Ghent University, Belgium

2-1C-2 (10:20am - 10:40am)

Applying Urban Metabolism to the Assessment of Resource Productivity of Municipal Water Reclamation and Waste Treatment
Chia-Yun Yeh, **Yuh-Ming Lee**

National Taipei University, Taiwan

2-1C-3 (10:40am - 11:00am)

Urban Energy and Material Flow Analysis in the Perspective of Circular Economy

Pei-Hsuan Huang, **Yuh-Ming Lee**

Institute of Natural Resource Management, National Taipei University

2-1C-4 (11:00am - 11:20am)

Dynamic vs static approaches in LCA to assess the long term global warming effects of novel waste-based construction materials

Andrea Di Maria¹, **Annie Levasseur**², **Karel Van Acker**¹

¹KU Leuven, Belgium; ²École de technologie supérieure, Montréal, Québec, Canada

2-1C-5 (11:20am - 11:40am)

Model-based investigation of co-creation in local green transitions

Erik O Ahlgren, **Sujeetha Selvakkumaran**

Chalmers University of Technology, Sweden

2-1D: Plantation crops & Sustainability assessment

Time: October 11, Thursday

10:00am - 11:40am

Location: Room 107

Session Chair: **Dimitra Ioannidou**, University of Bordeaux, France

Session Chair: **Azusa Oita**, Tohoku University, Japan

2-1D-1 (10:00am - 10:20am)

Malaysian Palm Oil: Sustainability Opportunities, Challenges and the Role of Life Cycle Management
Foo Yuen Ng

Malaysian Palm Oil Council, Malaysia

2-1D-2 (10:20am - 10:40am)

Life cycle sustainability assessment of cotton - towards a standard assessment framework.

Marzia Traverso¹, **Sabrina Neugebauer**¹, **Heinz Zeller**², **Michela Gioacchini**²

¹RWTH Aachen University, Germany; ²Hugo Boss

2-1D-3 (10:40am - 11:00am)

Eco-Efficiency Assessment of Sugarcane Harvesting:

A case study in the central region of Thailand
Patcharaporn Pongpat, **Shabbir H. Gheewala**

The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Thailand

2-1D-4 (11:00am - 11:20am)

Tropical okoumé or local pine? Criticality assessment of different wood species used in construction

Dimitra Ioannidou^{1,2,3}, **Régis Pommier**⁴, **Guillaume Habert**¹, **Guido Sonnemann**^{2,3}

¹Chair of Sustainable Construction, ETH Zurich, Switzerland; ²Univ. Bordeaux, ISM, UMR 5255, F-33400 Talence, France; ³CNRS, ISM, UMR 5255, F-33400 Talence, France; ⁴I2M, Univ. Bordeaux, UMR 5295, F-33405 Talence, France

Overall discussion (11:20am - 11:40am)

2-1E: Circular economy & Behavioral science (1)

Time: October 11, Thursday

10:00am - 11:40am

Location: Room 108

Session Chair: **Li-hsing Shih**, National Cheng Kung University, Taiwan

Session Chair: **Ryu Koide**, Institute for Global Environmental Strategies, Japan



Presentation lists: Oral sessions

2-1E-1 (10:00am - 10:20am)

People's preferences on sharing services in Japan and Switzerland

Kiyo Kurisu¹, Riho Ikeuchi¹, Jun Nakatani¹, Bernadette Sütterlin², Michael Siegrist², Yuichi Moriguchi¹

¹Department of Urban Engineering, School of Engineering, The University of Tokyo, Japan;

²Consumer Behavior, Institute for Environmental Decisions (IED), ETH Zürich, Switzerland

2-1E-2 (10:20am - 10:40am)

Systematic classification and scenario analysis of product provision styles for environmental sustainability

Tsubasa Shibata, Eri Amasawa, Hirokazu Sugiyama, Masahiko Hirao

The University of Tokyo, Japan

2-1E-3 (10:40am - 11:00am)

Evaluation of sharing services from the viewpoints of environmental impacts and consumer behaviors: A case study in major cities of China

Akinari Son, Kiyo Kurisu, Jun Nakatani, Yuichi Moriguchi

The University of Tokyo, Japan

2-1E-4 (11:00am - 11:20am)

Explicit and implicit attitudes towards recycling: implications to promoting sustainable consumption

Akiyuki Masuda, Shinsuke Murakami

The University of Tokyo, Japan

2-1E-5 (11:20am - 11:40am)

The sustainability assessment of environmental activities for Japanese local governments : A study for recycling activities by citizen groups in Kyoto

Renzhuo Wang, Makoto Nohtomi

Waseda University, Graduate School of Environment and Energy Engineering, Japan

2-1F: Progress in inventory analysis methodologies

Time: October 11, Thursday

10:00am - 11:40am

Location: Room 109

Session Chair: **Martin Eberhard Baitz**, thinkstep AG, Germany

Session Chair: **Kiyotaka Tahara**, National Institute of Advanced Industrial Science and Technology, Japan

2-1F-1 (10:00am - 10:20am)

Does the Use of Pre-calculated Uncertainty Values Change the Conclusions of Comparative LCAs? – An Empirical Analysis

Yuwei Qin, **Sangwon Suh**

University of California, Santa Barbara, United States

2-1F-2 (10:20am - 10:40am)

Analysis on the survey results on contribution of products to avoided greenhouse gas emissions

Shoichiro Tsuruta¹, Masayuki Kanzaki¹, Ichiro Daigo², Masaharu Motoshita³, Atsushi Inaba⁴

¹Japan Environmental Management Association for Industry, Japan; ²The University of Tokyo; ³National Institute of Advanced Industrial Science and Technology; ⁴Kogakuin University

2-1F-3 (10:40am - 11:00am)

LCI methodologies considering recyclability of materials

Ichiro Daigo¹, Hiroki Hatayama², Yoshinao Kobayashi³, Kenichi Nakajima⁴, Eiji Yamasue⁵, Kazuyo Matsubae⁶

¹The University of Tokyo, Japan; ²National Institute of Advanced Industrial Science and Technology; ³Tokyo Institute of Technology; ⁴National Institute for Environmental Studies, Japan; ⁵Ritsumeikan University; ⁶Tohoku University

2-1F-4 (11:00am - 11:20am)

Life Cycle Thinking of GHGs Emission Between Production-Based and Consumption-Based in Thailand

Viganda Varabuntoonvit, Kultida Kunanuntakij

Kasetsart University, Thailand

2-1F-5 (11:00am - 11:20am)

Considering of import products in IDEA

Kiyotaka Tahara¹, Kenichiro Tsukahara¹, Koichi Shobatake², Kensuke Kobayashi³

¹AIST, Japan; ²TCO2, Japan; ³Prefectural University of Hiroshima, Japan

2-2A: Environmental Footprint – comprehensiveness of analysis vs. simplicity of communication (2)

Time: October 11, Thursday

1:00pm - 2:40pm

Location: KFC Hall 2nd

Session Chair: **Marc-Andree Wolf**, maki Consulting GmbH, Germany

Session Chair: **Masayuki Kanzaki**, Japan Environmental Management Association for Industry, Japan



Presentation lists: Oral sessions

2-2A-1 (1:00pm - 1:20pm)

Thailand's Experience on the Environmental Footprint Shadow Project
Nongnuch Poolsawad, Jitti Mungkalasiri, Saowalak Olarnrithinun, Thumrongrut Mungcharoen
National Science and Technology Development Agency, Thailand

2-2A-2 (1:20pm - 1:40pm)

PEF Pilot phase – remaining challenges and outlook
Vanessa Bach, Annetkatrin Lehmann, Matthias Finkbeiner
Technische Universität Berlin, Germany

2-2A-3 (1:40pm - 2:00pm)

PEF - the progress of Environmental Footprinting in the EU - Lessons learned in a multi-stakeholder cooperation
Martin Baitz, Lionel Thellier, Steffen Schöll, Daniel Coen, Thilo Kupfer, Constantin Herrmann, Stefan Horlacher, Andreas Busa, Marta Bonell, Diep Russ, Viviana Carrillo
thinkstep AG, Germany

2-2A-4 (2:00pm - 2:20pm)

A proposal of multiple indexes regarding the environmental and safety aspects for an apple cultivation
Daichi Mizutani, Yuna Seo, Kiyoshi Dowaki
Tokyo University of Science, Japan

Summary of the Environmental Footprint sessions (2:20pm - 2:40pm)

2-2B: Green technologies & Material criticality

**Time: October 11, Thursday
1:00pm - 2:40pm
Location: Room 101/102**
Session Chair: **Rod Eggert**, Colorado School of Mines, United States
Session Chair: **Keisuke Nansai**, The University of Sydney, Australia

2-2B-1 (1:00pm - 1:20pm)

Material Criticality and Carbon Abatement, 2018-2040
Rod Eggert
Colorado School of Mines, United States

2-2B-2 (1:20pm - 1:40pm)

Material requirements of low carbon energy technologies
René Kleijn
Leiden University, Netherlands

2-2B-3 (1:40pm - 2:00pm)

Global supply risk of critical metals in regional economy in Japan
Keisuke Nansai^{1,2}, Takako Wakiyama¹, Manfred Lenzen¹
¹The University of Sydney, Australia; ²National Institute for Environmental Studies, Japan

2-2B-4 (2:00pm - 2:20pm)

Material criticality in supply chains: national and technology perspectives
Benjamin Craig McLellan
Kyoto University, Japan

2-2B-5 (2:20pm - 2:40pm)

Global Trade of Critical Metals: A Case Study of Neodymium in China
Yan Ren^{1,2}, Wei-Qiang Chen^{1,2,3}
¹Key Lab of Urban Environment and Health, Institute of Urban Environment, Chinese Academy of Sciences, Xiamen 361021, P. R. China; ²Xiamen Key Lab of Urban Metabolism, Xiamen 361021, P. R. China; ³University of Chinese Academy of Sciences, Beijing 100049, P. R. China

2-2C: Wastewater & Life cycle thinking

**Time: October 11, Thursday
1:00pm - 2:40pm
Location: Room 103**
Session Chair: **Mengshan Lee**, National Kaohsiung University of Science and Technology, Taiwan
Session Chair: **Toyohiko Nakakubo**, Ochanomizu University, Japan

2-2C-1 (1:00pm - 1:20pm)

Integration of regional life cycle assessment and spatial analysis for decision making: a case study on concentrate management in Taiwan
Mengshan Lee
National Kaohsiung University of Science and Technology, Taiwan



Presentation lists: Oral sessions

2-2C-2 (1:20pm - 1:40pm)

Understanding the Role of Advanced Wastewater Treatment Plants in Shaping Circular Economy Compliant Sustainable Cities from a Life Cycle Perspective: A Case Study of Umea Wastewater Treatment Plant, Umea, Sweden.

Kavitha Shanmugam, **Majid Mustafa**, **Mats Tysklind**, **Venkata Krishna Kumar Upadhyayula**
Umea University, Sweden, Sweden

2-2C-3 (1:40pm - 2:00pm)

Life cycle assessment of low-energy-demand technology for reclaiming domestic wastewater

Huan-Yu Shiu¹, **Mengshan Lee**², **Chia-Hung Hou**¹, **Pei-Te Chiueh**¹

¹National Taiwan University, Taiwan; ²National Kaohsiung First University of Science and Technology

2-2C-4 (2:00pm - 2:20pm)

Life Cycle Analysis of Water Recovery from Coffee Manufacturing Wastewater

Mariano Javier Savelski, **C. Stewart Slater**, **Christian M. Wisniewski**

Rowan University, United States

2-2C-5 (2:20pm - 2:40pm)

Urban wastewater footprint and environmental loads

Lishan Xiao¹, **Shinichiro Nakamura**²

¹Chinese Academy of Sciences, China; ²Waseda University, Japan

2-2D: Sustainable food consumption & Production

Time: October 11, Thursday

1:00pm - 2:40pm

Location: Room 107

Session Chair: **Charongpun Musikavong**, Prince of Songkla University, Thailand

Session Chair: **Yuichi Moriguchi**, The University of Tokyo, Japan

2-2D-1 (1:00pm - 1:20pm)

Food Loss Footprint Analysis of Agricultural Commodities -Application of newly developed Japanese multi-regional input-output model (MRIO)

Takako Wakiyama¹, **Manfred Lenzen**², **Futu Faturay**², **Arne Geschke**², **Arunima Malik**², **Jacob Fry**², **Keisuke Nansai**³

¹University of Sydney / IGES; ²University of Sydney; ³NIES / University of Sydney

2-2D-2 (1:20pm - 1:40pm)

Evaluation of ecological footprint of rice production in Thailand

Konkanok Jaibumrung¹, **Shabbir Gheewala**^{2,3}, **Charongpun Musikavong**¹

¹Environmental Assessment and Technology for Hazardous Waste Management Research Center, Department of Civil Engineering, Faculty of Engineering, Prince of Songkla University, Hatyai, Songkhla, Thailand; ²The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Thailand; ³Centre of Excellence on Energy Technology and Environment, PERDO, Bangkok, Thailand

2-2D-3 (1:40pm - 2:00pm)

A methodological evaluation of environmental assessments: A case study of the U.S. beef industry

William Benjamin Putman¹, **Greg Thoma**¹, **Al Rotz**²

¹Ralph E. Martin Department of Chemical Engineering, University of Arkansas, Fayetteville, AR 72701, USA; ²United States Department of Agriculture - Agricultural Research Service, University Park, PA, 16802, USA

2-2D-4 (2:00pm - 2:20pm)

Sustainable food consumption: environmental, social, and public health issues

Natsumi Fujiwara¹, **Masashi Tachikawa**², **Naoki Yoshikawa**¹, **Steven R. McGreevy**³, **Atsushi Inaba**⁴

¹Ritsumeikan University, Japan; ²Nagoya University, Japan; ³Research Institute for Humanity and Nature, Japan; ⁴Kogakuin University, Japan

2-2D-5 (2:20pm - 2:40pm)

Water Footprint Inventory Database of Rice Farming in Thailand

Rattanawan Mungkung^{1,2}, **Shabbir H. Gheewala**^{3,4}, **Thapat Silalertruksa**^{3,4}, **Sarocha Dangsi**¹

¹Centre of Excellence on environmental strategy for GREEN business (VGREEN), Thailand; ²Department of Environmental Technology and Management, Faculty of Environment, Kasetsart University, Bangkok, Thailand; ³The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Bangkok, Thailand; ⁴Center of Excellence on Energy Technology and Environment, PERDO, Bangkok, Thailand



Presentation lists: Oral sessions

2-2E: Circular economy & Behavioral science (2)

Time: October 11, Thursday

1:00pm - 2:40pm

Location: Room 108

Session Chair: **Dami Moon**, The University of Tokyo, Japan

Session Chair: **Tomohiro Tabata**, Kobe University, Japan

2-2E-1 (1:00pm - 1:20pm)

Consumer perceptions of home appliances: the shift from possession-oriented to function-oriented
Dami Moon¹, Yurie Suzuki¹, Eri Amasawa¹, Jun Nakatani¹, Kiyotaka Tahara², Masahiko Hirao¹

¹The University of Tokyo, Japan; ²National Institute of Advanced Industrial Science and Technology

2-2E-2 (1:20pm - 1:40pm)

Mapping of impacts on sustainability of bioeconomy products and services, including consumer behaviour

Galyna Medyna, Sirpa Kurppa

Natural Resources Institute Finland (Luke), Finland

2-2E-3 (1:40pm - 2:00pm)

Impact of knowledge on purchase decision making of fair trade products

Tomohiko Ihara, Ko Yoshida, Yoshikuni Yoshida

The University of Tokyo, Japan

2-2E-4 (2:00pm - 2:20pm)

Environmental potential of renting, leasing, and sharing of products

Eri Amasawa, Tsubasa Shibata, Dami Moon, Masahiko Hirao

The University of Tokyo, Japan

2-2E-5 (2:20pm - 2:40pm)

Information Provision and Economic Approach for Promotion of Plastic Shopping Bag Reduction in Thailand

Nattapat Piromrat¹, Chanathip Pharino¹, Yuichi Moriguchi², Jun Nakatani²

¹Chulalongkorn University, Thailand; ²The University of Tokyo, Japan

2-2F: Sustainability indices

Time: October 11, Thursday

1:00pm - 2:40pm

Location: Room 109

Session Chair: **Marzia Traverso**, RWTH Aachen University, Germany

Session Chair: **Hideaki Kurishima**, Shibaura Institute of Technology, Japan

2-2F-1 (1:00pm - 1:20pm)

A global effort towards the 2019 SLCA Guidelines
Sonia Valdivia¹, Mathias Finkbeiner², Catherine Benoit-Norris³, Sara Russo⁴, Elisabeth Ekener⁵, **Marzia Traverso⁶**

¹Leuphana University Luneburg, Germany; ²TU Berlin, Germany; ³Social Hotspots Database, USA; ⁴CIRAIG, UQAM, École des Sciences de la gestion, Canada; ⁵KTH Royal Institute of Technology, Sweden; ⁶RWH Aachen University, Germany

2-2F-2 (1:20pm - 1:40pm)

A Generational Household Level Analysis of Public Bads and Environmental Injustice in an Aging, Shrinking Population

Andrew John Chapman¹, Yosuke Shigetomi²

¹International Institute for Carbon Neutral Research, Kyushu University, Japan; ²Graduate School of Fisheries and Environmental Sciences, Nagasaki University

2-2F-3 (1:40pm - 2:00pm)

Multi-criteria analysis of Benin vegetable value chains: facilitating communication of complex results

Angel Avadi^{1,3}, Frédéric Feder^{2,3}, Richard Hodomihou⁴

¹CIRAD, UPR Recyclage et risque, F-34398 Montpellier, France; ²CIRAD, UPR Recyclage et risque, Dakar, Senegal; ³Recyclage et risque, Univ Montpellier, CIRAD, Montpellier, France; ⁴Université d'Abomey-Calavi, Benin

2-2F-4 (2:00pm - 2:20pm)

Analysis of the Relationship between Social Deprivation and Excess Winter Mortality Based on Statistical Information in Japan

Takuro Ishito¹, Toshiharu Ikaga¹, Shun Kawakubo²

¹Keio University, Japan; ²Hosei University, Japan



Presentation lists: Oral sessions

2-2F-5 (2:20pm - 2:40pm)

Closing the carbon cycle – Assessing the sustainability of currently discussed concepts
Witold-Roger Poganietz, Maryegli Fuss
Karlsruhe Institute of Technology (KIT), Germany

2-3A: Sustainability assessment methods

Time: October 11, Thursday
3:00pm - 4:20pm
Location: KFC Hall 2nd
Session Chair: **Thumrongrut Mungcharoen**, National Science and Technology Development Agency, Thailand
Session Chair: **Yuko Oshita**, Kobe University, Japan

2-3A-1 (3:00pm - 3:20pm)

Is there a Hidden Cost on Disaster-prone Land Asset? : Evidence from floodwater accidents in Japan
Masashi Yamamoto¹, Daisuke Ichinose²
¹University of Toyama, Japan; ²Rikkyo University, Japan

2-3A-2 (3:20pm - 3:40pm)

Applying the UN-SDG11 to the Analysis of City Sustainability in Taiwan's Six Municipalities
Ching-Yun Haiso, Yuh-Ming Lee
Institute of Natural Resource Management, National Taipei University

2-3A-3 (3:40pm - 4:00pm)

Sustainable Development Goals (SDGs) Call for New Indicator of Resource Efficiency for Japan
Qian Zhang, Yuichi Moriguchi
The University of Tokyo, Japan

2-3A-4 (4:00pm - 4:20pm)

Sustainability Management integrated with SDGs, based on MFCA Information
Michiyasu Nakajima
Kansai University, Japan

2-3B: Green technologies & Life cycle thinking

Time: October 11, Thursday
3:00pm - 4:20pm
Location: Room 101/102
Session Chair: **Linda Ager-Wick Ellingsen**, Norwegian University of Science and Technology (NTNU), Norway
Session Chair: **Minako Hara**, Nippon Telegraph and Telephone West Corporation, Japan

2-3B-1 (3:00pm - 3:20pm)

Life cycle assessment of power plants using hydrogen energy carriers
Yuki Kudoh
National Institute of Advanced Industrial Science and Technology, Japan

2-3B-2 (3:20pm - 3:40pm)

LCA of the CO₂-based methanol production and potential methodological pitfalls within cross-sectoral symbioses
Nils Thonemann, Daniel Maga
Fraunhofer UMSICHT, Germany

2-3B-3 (3:40pm - 4:00pm)

Life cycle assessment of advanced production process of carbon fibers using aromatic polymer
Kaito Sakamoto, Kotaro Kawajiri, Hiroaki Hatori, Kiyotaka Tahara
National Institute of Advanced Industrial Science and Technology, Japan

2-3B-4 (4:00pm - 4:20pm)

Sophistication of energy recovery systems in a MSW incineration plant by linking up with a neighboring sewage treatment plant
Toyohiko Nakakubo
Ochanomizu University, Japan

2-3C: Waste management & Recycling

Time: October 11, Thursday
3:00pm - 4:20pm
Location: Room 103
Session Chair: **Helmut Yabar**, University of Tsukuba, Japan
Session Chair: **Ryouta Ii**, Pacific Consultants Co., Ltd., Japan

2-3C-1 (3:00pm - 3:20pm)

Deducing the sustainability criteria of advanced PVC wastes recycling technology for CI circulation system at its early stage of development
Jiaqi Lu¹, Shogo Kumagai¹, Hajime Ohno², Tomohito Kameda¹, Yuko Saito¹, Toshiaki Yoshioka¹, Yasuhiro Fukushima²
¹Graduate School of Environmental Studies, Tohoku University, Japan; ²Graduate School of Engineering, Tohoku University, Japan



Presentation lists: Oral sessions

2-3C-2 (3:20pm - 3:40pm)

Novel Electric-pulse Disintegration with Flexible Electrode Positioning System for Reuse/High-Grade Recycling

Kenichiro Fukaki¹, Taiki Senga¹, Tatsuya Kato¹, Yuki Tsunazawa³, Giuseppe Granata², Chiharu Tokoro², Shuji Owada²

¹Graduate School of Creative Science and Engineering, Waseda University, Japan; ²Faculty of Science and Engineering, Waseda University, Japan; ³National Institute of Advanced Industrial Science and Technology, Japan

2-3C-3 (3:40pm - 4:00pm)

Life Cycle Assessment as a policy support methodology for landfilling in different geo-climatic regions in Peru

Kurt Ziegler², Maria Margallo¹, Ramzy Kahhat², Ruben Aldaco¹, Ian Vazquez Rowe²

¹Departamento de Ingeniería Química y Biomolecular, Universidad de Cantabria, Spain; ²Peruvian LCA Network, Department of Engineering, Pontificia Universidad Católica del Perú

2-3C-4 (4:00pm - 4:20pm)

Evaluation Tool for Engineering Sustainable Recycling Pathways: a Case Study

Guilhem Grimaud^{1,2}, Bertrand Laratte^{2,3}, Nicolas Perry²

¹MTB Recycling, France; ²Arts & Métiers ParisTech, CNRS, I2M Bordeaux, France; ³APESA-Innovation, France

2-3D: Food–energy–water nexus (4)

Time: October 11, Thursday

3:00pm - 4:20pm

Location: Room 107

Session Chair: Rattanawan Mungkung, Centre of Excellence on environmental strategy for GREEN business (VGREEN), Thailand

Session Chair: Tatsuo Hishinuma, Utsunomiya University, Japan

2-3D-1 (3:00pm - 3:20pm)

Improving the consideration of contaminants in environmental assessment of agricultural recycling of organic waste

Angel Avadi^{1,2}, Tom Wassenaar^{1,2}, Emmanuel Doelsch^{1,2}

¹CIRAD, UPR Recyclage et risque, F-34398 Montpellier, France; ²Recyclage et risque, Univ Montpellier, CIRAD, Montpellier, France

2-3D-2 (3:20pm - 3:40pm)

Lifecycle Assessment of Packaged Tofu

Akihiro Izumi¹, Nobutaka Nakamura², Kiyotada Hayashi², Ken Ishii³, Toshio Yokoyama⁴, Hiroshi Kameda⁵, Michihiro Takeda⁶, Masashi Hamba¹, Koichi Shobatake⁷, Naoki Makino⁷, Takeo Shiina⁸

¹Plastic Waste Management Institute, Japan; ²National Agriculture and Food Research Organization; ³Japan Plastic Food Container Association; ⁴The Japan Plastics Industry Federation; ⁵Vinyl Environmental Council; ⁶Japan Expanded Polystyrene Association; ⁷TCO2 Co. Ltd; ⁸Graduate School of Horticulture, Chiba University

2-3D-3 (3:40pm - 4:00pm)

Water, Food and Energy Nexus: Experiences in Malaysia and Water Footprint Assessment of Rice Production

Nurfarhain Mohamed Rusli, Zainura Zainon Noor, Shazwin Mat Taib

Universiti Teknologi Malaysia, Malaysia

Overall discussion (4:00pm - 4:20pm)

2-3E: Circular economy & Input–output analysis

Time: October 11, Thursday

3:00pm - 4:20pm

Location: Room 108

Session Chair: Wei-Qiang Chen, Chinese Academy of Sciences, China

Session Chair: Keiichiro Kanemoto, Shinshu University, Japan

2-3E-1 (3:00pm - 3:20pm)

Metal dynamics of a circular economy: identifying barriers to sustainable recycling

Shinichiro Nakamura¹, Yasushi Kondo¹, Kenichi Nakajima², Hajime Ohno³

¹Waseda University, Japan; ²National Institute for Environmental Studies, Japan; ³Tohoku University, Japan

2-3E-2 (3:20pm - 3:40pm)

Withdrawn



Presentation lists: Oral sessions

2-3E-3 (3:40pm - 4:00pm)

Promoting Circular Economy Strategies of Regions through Waste Input-Output Analysis

Yasushi Kondo

Waseda University, Japan

2-3E-4 (4:00pm - 4:20pm)

Material stock analysis considering accumulation pathways and recovery potential: a case study for copper in Japan

Ryosuke Yokoi, Jun Nakatani, Yuichi Moriguchi

The University of Tokyo, Japan

2-3F: Progress in impact assessment methodologies

Time: October 11, Thursday

3:00pm - 4:20pm

Location: Room 109

Session Chair: **Trakarn Prapasongsa**, Mahidol University, Thailand

Session Chair: **Masaharu Motoshita**, National Institute of Advanced Industrial Science and Technology, Japan

2-3F-1 (3:00pm - 3:20pm)

The characterisation of site-dependent environmental impacts in LCA under global supply chains

Trakarn Prapasongsa¹, Shabbir H. Gheewala^{2,3}

¹Department of Civil and Environmental Engineering, Faculty of Engineering, Mahidol University, Nakhon Pathom, Thailand; ²The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Bangkok, Thailand;

³Centre of Excellence on Energy Technology and Environment, PERDO, Bangkok, Thailand

2-3F-2 (3:20pm - 3:40pm)

The innovation of the human exposure factor estimation for LCA

Alexandra Belyanovskaya^{1,2}, Bertrand Laratte¹, Natalia Baranovskaya², Nicolas Perry¹

¹École nationale supérieure d'arts et métiers, France; ²Tomsk Polytechnic University, Russia

2-3F-3 (3:40pm - 4:00pm)

Human toxicity assessment of rice cultivation in Thailand: the variability from using different life cycle impact assessment methods

Pattaramart Makmoon¹, Jitti Mungkalasiri², Tanapon Phenrat³, Shabbir H. Gheewala⁴, Trakarn Prapasongsa¹

¹Department of Civil and Environmental Engineering, Faculty of Engineering, Mahidol University, Nakhon Pathom, Thailand; ²National Metal and Materials Technology Center (MTEC), National Science and Technology Development Agency (NSTDA), Pathumthani, Thailand; ³Faculty of Engineering, Naresuan University, Phitsanulok 65000, Thailand; ⁴The Joint Graduate School of Energy and Environment (JGSEE), King Mongkut's University of Technology Thonburi, Bangkok, Thailand

2-3F-4 (4:00pm - 4:20pm)

Water stress index with reference to environmental water requirement under climate change for the case of Thailand

Pariyapat Nilsalab, Shabbir H. Gheewala

The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, Thailand

Poster session (4:30pm - 6:30pm)

KFC Hall Annex

Banquet (7:00pm - 9:00pm)

Dai-ichi Hotel Ryogoku 5F Kiyosumi

3-1A: Innovations & Life cycle thinking

Time: October 12, Friday

10:20am - 11:40am

Location: KFC Hall 2nd

Session Chair: **Martina Prox**, ifu Institute for Environmental IT Hamburg, Germany

Session Chair: **Koichi Shobatake**, TCO2 Co. Ltd., Japan

3-1A-1 (10:20am - 10:40am)

Understanding Sustainable Innovation with a Life Cycle Perspective

Jim Fava, Martina Prox, Guido Sonnemann, Philip Strothmann

FSLCI e.V., Germany



Presentation lists: Oral sessions

3-1A-2 (10:40am - 11:00am)

The case study of gold engineered nanoparticles synthesis: Life Cycle Assessment and cost analysis
Martina Pucciarelli, **Fabio Grimaldi**, **Asterios Gavriilidis**, **Paola Lettieri**
University College London, United Kingdom

3-1A-3 (11:00am - 11:20am)

Sustainability in the age of Digitization and Personalization
Daniel Wehner
University of Stuttgart, Germany

3-1A-4 (11:20am - 11:40am)

Exploring the Dissemination Mechanisms of Environmental Innovations across Developing Nations: The Role of Innovative Performance and Absorptive Capacity
Helmut Yabar¹, **Michinori Uwasu**², **Keishiro Hara**²
¹University of Tsukuba, Japan; ²Osaka University, Japan

3-1B: National hotspot analysis & Global supply chains

Time: October 12, Friday
10:20am - 11:40am
Location: Room 101/102
Session Chair: **Sangwon Suh**, University of California, Santa Barbara, United States
Session Chair: **Yasushi Furushima**, Mizuho Information & Research Institute, Inc., Japan

3-1B-1 (10:20am - 10:40am)

Constructing a Hybrid Energy Multi-Regional Input-output Table of China
Yawen Han, **Shigemi Kagawa**
Kyushu University, Japan

3-1B-2 (10:40am - 11:00am)

Mining and trade of metals until 2100 associated with greenhouse gas concentration scenarios
Ryoko Morioka¹, **Koji Tsuda**², **Kenichi Nakajima**¹, **Keisuke Nansai**^{1,3}
¹National Institute for Environmental Studies, Japan; ²The University of Tokyo; ³The University of Sydney

3-1B-3 (11:00am - 11:20am)

Nutritional combined Environmental Life Cycle Assessment of National Diets
Abhishek Abhishek, **Alexander Mathys**
ETH Zurich, Switzerland

3-1B-4 (11:20am - 11:40am)

Environmental hotspots in global supply chains attributed to Japanese national activities
Masaharu Motoshita¹, **Keisuke Nansai**^{2,3}, **Seiji Hashimoto**⁴, **Takahiro Sasaki**⁴, **Stephan Pfister**⁵, **Matthias Finkbeiner**⁶
¹National Institute of Advanced Industrial Science and Technology; ²National Institute of Environmental Studies; ³Sydney University; ⁴Ritsumeikan University; ⁵ETH Zurich; ⁶Technische Universitaet Berlin

3-1C: Metal production & Sustainability assessment

Time: October 12, Friday
10:20am - 11:40am
Location: Room 103
Session Chair: **Mario Schmidt**, Pforzheim University, Germany
Session Chair: **Yasunari Matsuno**, Chiba University, Japan

3-1C-1 (10:20am - 10:40am)

Environmental impacts of Open-pit Copper mining in Lao PDR: A Life Cycle Assessment
Xaysackda Vilaysouk^{1,2}, **Kamrul Islam**¹, **James West**², **Heinz Schandl**^{2,3}, **Shinsuke Murakami**¹
¹The University of Tokyo, Japan; ²CSIRO, Australia; ³Australian National University, Fenner School for Environment and Society, Australia

3-1C-2 (10:40am - 11:00am)

Physical parameter-based allocation for the energy consumption of pyro-metallurgical system—a case study on nickel production in China
Boxue Sun, **Zuoren Nie**, **Yu Liu**, **Feng Gao**
Beijing University of Technology, China

3-1C-3 (11:00am - 11:20am)

Optimization of Primary and Secondary Metal Production
Philipp Schaefer, **Nadine Roetzer**, **Mario Schmidt**
Pforzheim University, Germany

3-1C-4 (11:20am - 11:40am)

Revisiting Total Material Requirement Estimation and Evaluation
Eiji Yamasue¹, **Shoki Kosai**¹, **Ichiro Daigo**², **Kenichi Nakajima**³, **Benjamin McLellan**⁴, **Kazuyo Matsubae**⁵, **Shisuke Murakami**²
¹Ritsumeikan University, Japan; ²The University of Tokyo; ³National Institute for Environmental Studies; ⁴Kyoto University; ⁵Tohoku University



Presentation lists: Oral sessions

3-1E: Automobile life cycles

Time: October 12, Friday

10:20am - 11:40am

Location: Room 108

Session Chair: **Hyung Chul Kim**, Ford Motor Company, United States

Session Chair: **Kazuyo Matsubae**, Tohoku University, Japan

3-1E-1 (10:20am - 10:40am)

Application of LCA in evaluation of dependencies on natural capital: a case study of electric vehicle
Yoriko Saeki, **Katsuyuki Nakano**

Japan Environmental Management Association for Industry, Japan

3-1E-2 (10:40am - 11:00am)

Global Environmental Impacts of Product Lifetime Change of Automobiles

Daisuke Nishijima¹, **Yuya Nakamoto**², **Shigemi Kagawa**², **Masahiro Oguchi**¹, **Keisuke Nansai**¹

¹National Institute for Environmental Studies (NIES), Japan; ²Kyushu University, Japan

3-1E-3 (11:00am - 11:20am)

Potential of Dissipated Alloy Elements in Special Steel and Economic Benefits from Automobile Recycling Processes

Zhengyang Zhang¹, **Kentaro Takeyama**¹, **Hajime Ohno**¹, **Kazuyo Matsubae**¹, **Kenichi Nakajima**², **Tetsuya Nagasaka**¹

¹Tohoku University, Japan; ²National Institute for Environmental Studies, Japan

3-1E-4 (11:20am - 11:40am)

RAUPE - Recycling of Automotive Units and Parts Evaluator

Alexandra Pehlken, **Bjoern Koch**, **Matthias Kalverkamp**

Carl von Ossietzky University Oldenburg, Germany

3-2A: Innovative policy design & Sustainability analysis: A dual relation

Time: October 12, Friday

1:00pm - 3:20pm

Location: KFC Hall 2nd

Session Chair: **Gjalt Huppkes**, CML Leiden University, Netherlands

Session Chair: **René Kleijn**, Leiden University, Netherlands

Introduction to innovative policy design & Sustainability analysis (1:00pm - 1:10pm)

3-2A-1 (1:10pm - 1:30pm)

Climate Policy required to make available the metals needed for the energy transition

René Kleijn

Leiden University, Netherlands

3-2A-2 (1:30pm - 1:50pm)

Grid response to electricity demand increase: a causal inference analysis for consequential LCA

Joseph William Palazzo, **Stefano Cucurachi**,

Sangwon Suh

University of California, Santa Barbara, United States

3-2A-3 (1:50pm - 2:10pm)

Policy innovation and corporate social responsibility in mineral supply-chains

Steven B. Young

University of Waterloo, Canada

3-2A-4 (2:10pm - 2:30pm)

In-Use Product Stocks Indicate the Impacts of Technology Diffusion and Innovation

Wei-Qiang Chen, **Min Dai**

Chinese Academy of Sciences, China

3-2A-5 (2:30pm - 2:50pm)

Industrial Ecology and Policy, a Dual Relation

Gjalt Huppkes

CML Leiden University, Netherlands

Overall discussion (2:50pm - 3:20pm)

3-2B: Sustainable society by integration of adaptation & Mitigation (1)

Time: October 12, Friday

1:00pm - 2:20pm

Location: Room 101/102

Session Chair: **Lisa Ann Peterson**, Drexel University, United States

Session Chair: **Kazuki Yamaguchi**, Tokyo Electric Power Company Holdings, Inc., Japan



Presentation lists: Oral sessions

3-2B-1 (1:00pm - 1:20pm)

Reduction potential of CO₂ emission by integrating waste bank system into municipal solid waste management in Indonesia: a case study in Medan City

Hafizhul Khair^{1,2}, Indriyani Rachman¹, Toru Matsumoto¹

¹Graduate School of Environmental Engineering, The University of Kitakyushu; ²Faculty of Engineering, Universitas Sumatera Utara

3-2B-2 (1:20pm - 1:40pm)

Measurement of demand function for HEMS: comparison between Japan and the United States
Ayu Washizu¹, Satoshi Nakano², Chien-fei Chen³, Hideo Ishii¹, Yasuhiro Hayashi¹

¹Waseda University, Japan; ²The Japan Institute for Labour Policy and Training; ³The University of Tennessee, Knoxville

3-2B-3 (1:40pm - 2:00pm)

Assessing impact on climate change using dynamic LCA method on French buildings

Koji Negishi^{1,2}, Ligia Barna², Yoann Pigné³, Nicoleta Schiopu¹, Alexandra Lebert¹, Thomas Gibon⁴, Emil Popovici⁴, Enrico Benetto⁴

¹Centre Scientifique et Technique du Bâtiment, Grenoble, France; ²LISBP, Université de Toulouse, CNRS, INRA, INSA, Toulouse, France; ³LITIS, Normandy University, Le Havre, France; ⁴Luxembourg Institute of Science and Technology, Department of Environmental Research & Innovation, Belvaux, Luxembourg

3-2B-4 (2:00pm - 2:20pm)

Down scaling of Climate Change scenario to river catchment level: a transdisciplinary methodology and application in ecosystem services and land-use change at European catchments

Philippe Ange Ker Rault¹, Phoebe Koundouri², Ralf Ludwig³, Vicenc Acuna⁴, Ebun Akinsete², Verena Huber-Garcia³, Stella Tsani²

¹Wageningen Environmental Research, Netherlands; ²Athens University of Economic and Business, Athens, Greece; ³Ludwig-Maximilians-Universitaet Muenchen, Luisenstr. 37, 80333 Munich, Germany; ⁴Catalan Institute for Water Research, Carrer Emili Grahit 101, 17003 Girona, Spain

3-2C: Organic waste & Life cycle thinking

Time: October 12, Friday

1:00pm - 2:20pm

Location: Room 103

Session Chair: **Francisco Contreras**, University of Brasilia, Brazil

Session Chair: **Makoto Notomi**, Waseda University, Japan

3-2C-1 (1:00pm - 1:20pm)

Analysis of the environmental impact of industrial food waste management by Life-Cycle Assessment: A case study

Guillermo Garcia-Garcia, Shahin Rahimifard
Loughborough University, United Kingdom

3-2C-2 (1:20pm - 1:40pm)

Life cycle environmental Impact Assessment of biomass materials in Japan: A 1990 – 2010 perspective

Sebastien Michael Rene Dente¹, Chika Aoki-suzuki², Chihiro Kayo³, Daisuke Tanaka⁵, Shinsuke Murakami⁴, Seiji Hashimoto¹

¹Ritsumeikan University, Japan; ²Institute of Global Environmental Strategies; ³Tokyo University of Agriculture and Technology; ⁴Tokyo university; ⁵Daiwa institute of research

3-2C-3 (1:40pm - 2:00pm)

Environmental Evaluation of Two Biogas Technologies Applying Life Cycle Assessment – A Brazilian Case Study

Evelin Ribeiro Rodrigues¹, Ana Paula Bortoleto¹, Francisco Javier Contreras²

¹University of Campinas, Brazil; ²University of Brasilia, Brazil

~~3-2C-4 (2:00pm - 2:20pm)~~

~~Comparison of Environmental Consequences of Different Methane Feedstock in Bacterial Protein-Meal Production~~

~~**Wanigasuriyage Lakshmarine Christine Dasanayake**
University of Southern Denmark, Denmark~~

3-2D: Electrical/electronic equipment & Resources

Time: October 12, Friday

1:00pm - 2:20pm

Location: Room 107

Session Chair: **Bertrand Laratte**, École Nationale Supérieure d'Arts et Métiers, France

Session Chair: **Osamu Namikawa**, Hitachi, Ltd., Japan



Presentation lists: Oral sessions

3-2D-1 (1:00pm - 1:20pm)

Environmental impacts of material use: Feasibility study for zero emission target in ICT sector
Tomoko Konishi-Nagano¹, Katsuji Ebisu¹, Yoshiko Shinomura², Takuya Nagamiya²
¹Fujitsu Laboratories Ltd., Japan; ²Fujitsu Limited, Japan

3-2D-2 (1:20pm - 1:40pm)

A combined index of safety and energy efficiency on the mixed refrigerant of C3H8 and C4H10 (GF-08).
Ryu Yamamoto, Seo Yuna, Kiyoshi Dowaki
Tokyo University of Science, Japan

3-2D-3 (1:40pm - 2:00pm)

Life cycle assessment of emerging material for organic light emitting diode: 100 % luminous efficacy with Indium-free molecules
Eri Amasawa¹, Kotaro Kawajiri²
¹The University of Tokyo, Japan; ²National Institute of Advanced Industrial Science and Technology

3-2D-4 (2:00pm - 2:20pm)

Organic photovoltaic solar charger – environment-friendly product or just another gadget for a European consumer?
Edis Glogic^{1,2}, Steffi Weyand³, Michael Tsang², Steven B. Young¹, Guido Sonnemann², Liselotte Schebek³
¹University of Waterloo, France; ²University of Bordeaux, France; ³University of Darmstadt, Germany

3-2E: Advanced vehicles & Sustainability assessment

Time: October 12, Friday

1:00pm - 2:20pm

Location: Room 108

Session Chair: **Komal Habib**, University of Waterloo, Canada

Session Chair: **Eiji Yamasue**, Ritsumeikan University, Japan

3-2E-1 (1:00pm - 1:20pm)

Life Cycle Energy Benefits of Autonomous Vehicles (AVs) Estimated from a Physics-based Model
Hyung Chul Kim, Timothy J. Wallington
Ford Motor Company, United States

3-2E-2 (1:20pm - 1:40pm)

Lifecycle climate change tradeoffs with range in battery electric vehicle and fuel cell electric vehicles
Christine Roxanne Hung, Linda Ager-Wick Ellingsen, Anders Hammer Strømman
Norwegian University of Science and Technology (NTNU), Norway

3-2E-3 (1:40pm - 2:00pm)

Greenhouse gas emissions of battery electric and conventional passenger vehicles
Linda Ager-Wick Ellingsen, Christine Roxanne Hung, Anders Hammer Strømman
Norwegian University of Science and Technology (NTNU), Norway

3-2E-4 (2:00pm - 2:20pm)

Analysis of Total Material Requirement for advanced automotive technology
Kenyu Matsui¹, Kazuyo Matsubae¹, Shoki Kosai², Eiji Yamasue², Tetsuya Nagasaka¹
¹Tohoku University, Japan; ²Ritsumeikan University, Japan

3-3B: Sustainable society by integration of adaptation & Mitigation (2)

Time: October 12, Friday

2:40pm - 4:00pm

Location: Room 101/102

Session Chair: **Philippe Ange Ker Rault**, Deltares, Netherlands

Session Chair: **Tomohiko Ihara**, The University of Tokyo, Japan

3-3B-1 (2:40pm - 3:00pm)

Integrated Assessment of the health damage reduction effect and the environmental impact of air conditioner usage
Tadahiro Kuwayama¹, Shun Omune², Norihiro Itsubo², Kazuki Yamaguchi³, Kazuki Okada⁴, Yukihiro Kikegawa⁴, Manabu Kanda⁵, Alvin Christopher Galangc Varquez⁵, Nisrina Setyo Darmanto⁵, Prihadi Setyo Darmanto⁶, Tomohiko Ihara¹
¹The University of Tokyo, Japan; ²Tokyo City University; ³Tokyo Electric Power Company; ⁴Meisei University; ⁵Tokyo Institute of Technology; ⁶Institut Teknologi Bandung



Presentation lists: Oral sessions

3-3B-2 (3:00pm - 3:20pm)

Evaluation for Heat Island Mitigating Potential of Improving Energy Efficiency in Jakarta
Kazuki Yamaguchi¹, Tadahiro Kuwayama², Tomohiko Ihara², Yukihiro Kikegawa³, Kazuki Okada³, Kanda Manabu⁴, Alvin Christopher Galangc Varquez⁴, Nisrina Setyo Darmanto⁴, Prihadi Setyo Darmanto⁵
¹Tokyo Electric Power Company Holdings, Inc., Japan; ²Graduate School of Frontier Sciences, The University of Tokyo, Japan; ³School of Science and Engineering, Meisei University, Japan; ⁴School of Environment and Society, Tokyo Institute of Technology, Japan; ⁵Faculty of Mechanical and Aerospace Engineering, Institut Teknologi Bandung, Indonesia

3-3B-3 (3:20pm - 3:40pm)

Applying LCA to Social Ecological Systems Framework for Stormwater Management
Lisa Ann Peterson, Sabrina Spatari, Patricia M. Awerbuch
Drexel University, United States

Summary of the adaptation & mitigation sessions (3:40pm - 4:00pm)

3-3C: Emerging issues for plastics

Time: October 12, Friday
2:40pm - 4:00pm
Location: Room 103
Session Chair: **Guilhem Grimaud**, MTB Recycling, France
Session Chair: **Masahiko Hirao**, The University of Tokyo, Japan

3-3C-1 (2:40pm - 3:00pm)

Addressing Marine Litter within Life Cycle Assessment
Guido Sonnemann¹, Philip Strothmann¹, Sonia Valdivia²
¹FSLCI e.V., Germany; ²World Resources Forum, Switzerland

3-3C-2 (3:00pm - 3:20pm)

Life cycle assessment of bio-based adipic acid from seaweed
Dong-hyeon Kim¹, Hyoung-seok Kim², Tak Hur¹
¹Konkuk University, South Korea; ²Ecoplus enc Corp., South Korea

3-3C-3 (3:20pm - 3:40pm)

Material flow modeling of plastics for tracking containers and packaging flows and accumulation in intermediate sectors
Tamon Maruyama, Jun Nakatani, Yuichi Moriguchi
University of Tokyo, Japan

Overall discussion (3:40pm - 4:00pm)

3-3D: Innovation of power supply for sustainability

Time: October 12, Friday
2:40pm - 4:00pm
Location: Room 107
Session Chair: **Benjamin Craig McLellan**, Kyoto University, Japan
Session Chair: **Katsuyuki Nakano**, Ritsumeikan University, Japan

3-3D-1 (2:40pm - 3:00pm)

Considering upscaling of LCA studies on emerging photovoltaics: The case of perovskite solar cells
Steffi Weyand¹, Kotaro Kawajiri², Liselotte Schebek¹
¹Technische Universität Darmstadt, Germany; ²National Institute of Advanced Industrial Science and Technology (AIST), Japan

3-3D-2 (3:00pm - 3:20pm)

Associating regionalised Life Cycle Assessment (LCA) and economic values of ecosystem goods and services: Impacts of upstream land transformations on ecosystem quality
Atta Ajayebi
University of Exeter, United Kingdom

3-3D-3 (3:20pm - 3:40pm)

Effects of Demand-Side Management in a Renewable Energy based Grid System
Heng Yi Teah
Waseda University, Japan

3-3D-4 (3:40pm - 4:00pm)

Consumers' Attitude to Eco-Innovation: Investigating the Behavior of Consumers towards Adoption of Solar PV-Systems in Saudi Arabia
Khalid Abdulrahman Alrashoud
Tokyo Institute of Technology, Japan



Presentation lists: Oral sessions

3-3E: Energy systems & Scenario analysis

Time: October 12, Friday

2:40pm - 4:00pm

Location: Room 108

Session Chair: **Harald Ernst Otto**, Polytechnic
University of Marche, Italy

Session Chair: **Yasunori Kikuchi**, the University of
Tokyo, Japan

3-3E-1 (2:40pm - 3:00pm)

Scenarios for resource use: future global demand
of critical materials based on the TIMER/IMAGE
Integrated Assessment model

**Ester van der Voet¹, Sebastiaan Deetman¹, Sylvia
Marinova¹, Detlef van Vuuren²**

¹Leiden University, CML; ²PBL Netherlands
Environmental Assessment Agency

3-3E-2 (3:00pm - 3:20pm)

Maturity model of holistic assessment and
improvement for smart communities- ISO 37153
and its application

**Isamu Yamada, Wei Wen, Michinori Kutami, Taro
Fujimoto, Yicheng Zhou, Tomiyasu Ichimura**

Fujitsu Ltd, Japan

3-3E-3 (3:20pm - 3:40pm)

Combining environmental lifecycle assessment
and energy system models: first insights for the
European future decarbonized energy system

**Lei Xu¹, Maryegli Fuss¹, Witold-Roger Pogonietz¹,
Nils Brown², Elisabeth Ekener²**

¹Karlsruhe Institute of Technology, Germany; ²KTH
Royal Institute of Technology, Stockholm, Sweden

3-3E-4 (3:40pm - 4:00pm)

Knowledge Fit within the Asian Bid for Energy
Efficiency: Technological and Economic
Perspectives

Harald Ernst Otto

Polytechnic University of Marche, Italy

Closing & Networking drinks (4:30pm - 6:00pm)

KFC Hall 2nd



Presentation lists: Poster session

Poster session

Time: October 11, Thursday

4:30pm - 6:30pm

Location: KFC Hall Annex

4:30pm - Core time 1: odd-numbered presentations

5:30pm - Core time 2: even-numbered presentations

P-1: Core time 1

Small things can “pack a punch”: geopolitical supply risk and environmental life cycle assessment of dental X-ray equipment

Alexander Cimprich¹, Steven B. Young¹, Christoph Helbig², Eskinder D. Gemechu³, Andrea Thorenz², Axel Tuma², Karim S. Karim¹, Guido Sonnemann⁴

¹University of Waterloo, Canada; ²Universität Augsburg; ³University of Alberta; ⁴Universite de Bordeaux

P-2: Core time 2

Development of Evaluation Method for Social Aspect of ICT

Asuka Takeda¹, Osamu Namikawa², Atsushi Inaba¹

¹Kogakuin University, Japan; ²Hitachi, Ltd.

P-3: Core time 1

Harmonizing LCIA of mineral resource use – guidance from the UN Environment Life Cycle Initiative task force

Markus Berger¹, Thomas Sonderegger², Rodrigo Alvarenga³, Vanessa Bach¹, Alex Cimprich⁴, Rolf Frischknecht⁵, Jeroen Guinee⁶, Christoph Helbig⁷, Tom Huppertz⁸, Olivier Jolliet⁹, Masaharu Motoshita¹⁰, Stephen Northey¹¹, Benedetto Rugani¹², Dieuwertje Schrijvers¹³, Rita Schulze⁶, Alicia Valero¹⁴

¹TU Berlin; ²ETH Zurich; ³Ghent University; ⁴University of Waterloo; ⁵treeze Ltd.; ⁶Leiden University; ⁷University of Augsburg; ⁸RDC Environment; ⁹University of Michigan; ¹⁰AIST; ¹¹Monash University; ¹²LIST; ¹³University of Bordeaux; ¹⁴Fundación CIRCE

P-4: Core time 2

Comparison analysis of service-oriented business models based on user's choice considering utility value, life cycle environmental impacts, and costs

Yoon-Young Chun, Kiyotaka Tahara

AIST, Japan

P-5: Core time 1

The poisoning effect of K⁺ ions doped on MnOX/TiO₂ catalysts for low-temperature selective catalytic reduction

Xiaoyu Ma

Beijing University of Technology, China

P-6: Core time 2

Heusler Alloys Replacement for Iridium

~~Atsufumi Hirohata¹, Teodor Huminiuc¹, Haokai Feng Wu¹, John Sinclair¹, Marjan Samiepour¹, Jun-Young Kim¹, Gonzalo Vallejo-Fernandez¹, Kevin O'Grady¹, Kenta Yoshida²~~
¹University of York, United Kingdom; ²Tohoku University, Japan

P-7: Core time 1

Life Cycle Assessment of Solar Thermal Adsorption Refrigerator

~~Jun-Ki Choi~~

~~University of Dayton, United States~~

P-8: Core time 2

Analyzing international supply chain risk in copper mining: focus on water resources

Aoi Oashi¹, Yuki Yamazaki¹, Kazuyo Matsubae¹, Kenichi Nakajima², Tetsuya Nagasaka¹

¹Tohoku University, Japan; ²National Institute for Environmental Studies

P-9: Core time 1

Estimation of inflow and outflow of domestic accumulation using dynamic MFA model

Kentaro Takeyama¹, Hajime Ohno¹, Kazuyo Matsubae¹, Kenichi Nakajima², Yasushi Kondo³, Tetsuya Nagasaka¹

¹Tohoku University, Japan; ²National Institute for Environmental Studies, Japan; ³Waseda University, Japan

P-10: Core time 2

Creating database of waste electrical and electronic equipment recycling technologies for designing better recycling systems

Mei Nagase, Shinsuke Murakami

The University of Tokyo, Japan

P-11: Core time 1

Critical resources for electricity based transportation

Komal Habib¹, Snjólaug Tinna Hansdóttir²

¹University of Waterloo, Canada; ²University of Southern Denmark

P-12: Core time 2

Green ICT solution of NTT West

Minako Hara

Nippon Telegraph and Telephone West Corporation, Japan



Presentation lists : Poster session

P-13: Core time 1

Influence of synthesis temperature on MnOx/
TiO₂ SCR DENO_x catalyst prepared with acidolysis
residue

Suping Cui, Yeqiang Wan

Beijing University of Technology, China

P-14: Core time 2

Influence of characteristics of calcium carbide slag
on the clinker formation and equipments in the
cement production

Yali Wang, Suping Cui

College of Materials Science and Engineering,
Beijing University of Technology

P-15: Core time 1

Optimization of plastic containers and packaging
recycling in terms of facility location

**Tomofumi Yasuda, Jun Nakatani, Kiyo Kurisu, Yuichi
Moriguchi**

The University of Tokyo, Japan

P-16: Core time 2

Effect of Fluosilicate Sodium from Industrial
Pollutants on Cement

Qianjin Mao, Hai Wang, Ziming Wang, Suping Cui

Beijing University of Technology, China

P-17: Core time 1

How tramp elements in carbon steel are increased
by repeated recycling.

**Shota Koketsu¹, Ichiro Daigo¹, Hideo Hayashi²,
Manabu Enoki¹**

¹The University of Tokyo, Japan; ²Tokyo Metropolitan
Industrial Technology Research Institute

P-18: Core time 2

Estimation of left vacant detached house generation
in Japan based on life cycle modeling of households

**Yusuke Umeda, Jun Nakatani, Kiyo Kurisu, Yuichi
Moriguchi**

The University of Tokyo, Japan

P-19: Core time 1

External and Internal Influential Factors on Waste
Disposal Behavior in Public Open Space in Phnom
Penh, Cambodia

Pagnarith Srun, Kiyo Kurisu

The University of Tokyo, Japan

P-20: Core time 2

Investigation of obsolete and hibernated personal
computers in Japan

**Jun Miura, Jun Nakatani, Kiyo Kurisu, Yuichi
Moriguchi**

Graduate School of Engineering, The University of
Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656,
Japan

P-21: Core time 1

Life Cycle Assessment of Food Consumption in Asia
towards Sustainable Consumption and Production
Biraj Adhikari^{1,2}, Trakarn Prapaspongsa¹

¹Department of Civil and Environmental Engineering,
Faculty of Engineering, Mahidol University, Nakhon
Pathom, Thailand; ²The Erasmus Mundus Joint
European Master in Environmental Studies - Cities
& Sustainability (JEMES CiSu), Aalborg University,
Technische Universität Hamburg, Universitat
Autònoma de Barcelona, and Universidade de
Aveiro

P-22: Core time 2

The effect of on-site practice on generic skill
improvement in PBL - Case-study in Shibaura
Institute of Technology -

Takahiro Nakaguchi

Shibaura Institute of Technology, Japan

P-23: Core time 1

A study on differences in the intellectual activity of
nurses by ward plan type in large hospitals

**Yusuke Neo¹, Mine Sudo¹, Kahori Kamegai¹, Junichi
Yokoyama¹, Sari Hoshina²**

¹Nagoya Institute of Technology, Japan; ²Tokyo
Women's Medical University, Japan

P-24: Core time 2

Knowledge Fit within the Asian Bid for Energy
Efficiency: Social and Cultural Perspectives

Harald Ernst Otto

Polytechnic University of Marche, Italy

P-25: Core time 1

~~Driving the circular economy through ecodesign: a
successful application in the toy industry~~

~~**Maria Margallo¹, Alba Bala², Cristina Gazulla²,
Pedro Cerdán², Pere Fullana², Ruben Aldaco¹**~~

~~¹Departamento de Ingeniería Química y
Biomolecular, Universidad de Cantabria, Spain;~~

~~²Catedra UNESCO de Ciclo de Vida y Cambio
Climatico, Universidad Pompeu Fabra, Spain~~



Presentation lists : Poster session

P-26: Core time 2

Needs-based workshops in Vietnam and Japan for Sustainable Consumption and Production
Yoshinori Sumimura¹, Shota Arai¹, Hung Do Phan², Hideki Kobayashi¹, Hidenori Murata¹, Shinichi Fukushige¹

¹Osaka University, Japan; ²Institute of Environmental Technology / Vietnam Academy of Science and Technology, Vietnam

P-27: Core time 1

Cradle-to-Gate LCA of Plastic Underground Stormwater Infiltration Basins
Lisa Ann Peterson, Sabrina Spatari

Drexel University, United States

P-28: Core time 2

Value of Materials within the Sustainable Development Goals
Hiroki Hatayama¹, Kiyotaka Tahara¹, Ichiro Daigo², Shigesada Takagi³, Shotaro Nakanishi³

¹National Institute of Advanced Industrial Science and Technology, Japan; ²The University of Tokyo; ³Mizuho Information & Research Institute, Inc.

P-29: Core time 1

How is the Acceptability Related to Knowledge or Experience in the Case of Hydrogen Fueling Stations?

Shunichi Hienuki¹, Yoshie Hirayama²

¹Yokohama National University; ²YLCA.Lab (Yokohama LCA Environmental Education Laboratory)

P-30: Core time 2

Policy design based on consumer behavior analysis and life cycle assessment: case of washer sharing
Yurie Suzuki, Eri Amasawa, Dami Moon, Jun Nakatani, Hirokazu Sugiyama, Masahiko Hirao
The University of Tokyo, Japan

P-31: Core time 1

Empirical Study of the Application of Photovoltaic Power Generation in paddy rice of Japan

Ruth Anne Tanlioco Gonocruz

University of Tokyo, Japan

P-32: Core time 2

The Influence of Environmental Education Based on Life-cycle Thinking on Pro-Environmental Awareness and Behavior of Young Adult Segment
Hatsuna TADAKA¹, Tateki MIZUNO², Yasuo MATSUMOTO³, Shinya MATSUMOTO¹

¹Yokohama National University, Japan; ²Yokohama LCA Laboratory, Japan; ³Kanagawa University, Japan

P-33: Core time 1

Greenhouse gas emissions from decommissioning nuclear power plants

Shu-Mei Chien, Yuh-Ming Lee

National Taipei University, Taiwan

P-34: Core time 2

Product lifespan and purchase decision: A literature review

Haruhisa Yamamoto, Shinsuke Murakami

The University of Tokyo, Japan

P-35: Core time 1

A new triff price for small- and mid- scale biomass power in Japan - the Cost of Electricity model with learning effect and variable capacity

Hiroto Takaki, Koji Tokimatsu

Tokyo Institute of Technology, Japan

P-36: Core time 2

Exergy evaluation and Life Cycle Inventory analysis of Ground Source Heat Pump in Bangkok, Thailand

Yutaro Shimada¹, Hideaki Kurishima¹, Youhei Uchida²

¹Shibaura Institute of Technology, Japan; ²Geological Survey of Japan, AIST, Japan

P-37: Core time 1

Introduction of renewable energy as emergency power in preparation for disaster: Verification and evaluation of the nation-wide project in Japan

Naoki Shibahara¹, Eiko Nanbu², Motoaki Yasui², Takehisa Kabeya², Kazuhiko Ogimoto³, Jun Nakatani³, Eiji Ohno⁴, Eiko Saito⁵, Junichi Fujino⁶

¹Chubu University, Japan; ²Japan Environmental Management Association for Industry, Japan; ³The University of Tokyo, Japan; ⁴Meijo University, Japan; ⁵Mitsubishi UFJ Research and Consulting Co., Ltd., Japan; ⁶Institute for Global Environmental Strategies, Japan / National Institute for Environmental Studies, Japan



Presentation lists : Poster session

P-38: Core time 2

Sustainability Assessment of a Green Campus Initiative: based on Solar PV System Introduction
Qinyu Yang, Heng Yi Teah, Ruth Anne Gonocruz, Pawara Muhammad Uswah, Nikolaos Iliopoulos, Motoharu Onuki
The University of Tokyo, Japan

P-39: Core time 1

~~Economically and Environmentally Feasible Treatment for Giant Squid (*Dosidicus gigas*) Waste in Chile: Energy and Material Recovery Potential~~
Ailyn Edith Rojas Cabrera, Helmut Yabar, Takashi Mizunoya
University of Tsukuba, Japan

P-40: Core time 2

Simulating the zero emission tomato greenhouse in Japan
Ai Leon, Hooman Farzaneh, Keiichi Ishihara
Kyoto University, Japan

P-41: Core time 1

Using system dynamics model to support policy makers in integrated management of greenhouse gas emissions from the waste sector: case study in Hanoi
Khue Minh Dao, Helmut Yabar, Takeshi Mizunoya, Yoshiro Higano
Graduate School of Life and Environmental Sciences, University of Tsukuba

P-42: Core time 2

Material consumption and material stocks in small island communities
Hsin-Tien Lin, Keiichi N. Ishihara
Kyoto University, Japan

P-43: Core time 1

Assessment of climate change impact on surface water quality and quantity and its mitigation management: Orkhon Valley, Mongolia
Magsar Amgalan^{1,2}, Toru Matsumoto¹, Tarzad Ulaanbaatar²
¹The University of Kitakyushu, Japan; ²The Mongolian University of Science and Technology

P-44: Core time 2

Product service system design considering the negative effects on a society: an example of dockless bike sharing
Li-hsing Shih, Tsung-kai Chou
National Cheng Kung University, Taiwan

P-45: Core time 1

Estimation of greenhouse gas emissions from a chicken meat production system in Japan through a life cycle assessment
Tatsuo Hishinuma¹, Yuji Sakai², Thoru Sakuraoka², Atsushi Inaba²
¹Utsunomiya University, Japan; ²Kogakuin University, Japan

P-46: Core time 2

Structural similarity analysis using the world input-output tables
Kayoko Shironitta¹, Shigemi Kagawa¹, Yasushi Kondo²
¹Kyushu University, Japan; ²Waseda University

P-47: Core time 1

Environmental impact assessment of rice caused by light pollution
Yoko Kurahara, Norihiro Itsubo
Tokyo City University, Japan

P-48: Core time 2

Measuring paddy soil quality using long-term fertilizer application experiments
Longlong Tang, Kiyotada Hayashi, Kazunori Kohyama, Motoko Shimura
National Agriculture and Food Research Organization, Japan

P-49: Core time 1

Carbon Footprint Projections for Japan Using Computable General Equilibrium
Yuki Ichisugi¹, Toshihiko Masui², Norihito Itsubo¹
¹Tokyo City University, Japan; ²National Institute for Environmental Studies

P-50: Core time 2

Withdrawn

P-51: Core time 1

Sustainability analysis of roof covering materials after banning the asbestos in Sri Lanka 2018
Siripatul Devayalage Nuwan Ariyawansa, Helmut Yabar, Takeshi Mizunoya, Yoshiro Higano
University of Tsukuba, Japan



Presentation lists : Poster session

P-52: Core time 2

Life-cycle CO₂ reduction potentials of the Japanese auto firms under the CAFE standard

Mitsuki Kaneko¹, Shogo Eguchi², Shigemi Kagawa¹

¹Kyushu University, Japan; ²Fukuoka University, Japan

P-53: Core time 1

Status of life cycle assessment (LCA) in Africa

Selim Karkour, Norihiro Itsubo

Tokyo City University, Japan

P-54: Core time 2

Development and Application of Basis Database for Materials Life Cycle Assessment in China

Xiaoqing Li, Xianzheng Gong, Yu Liu, Zhihong

Wang, Zuoren Nie

Beijing university of Technology, China

P-55: Core time 1

Attributional and Consequential Life Cycle Assessment for Biomass Energy Production from Maize cob in Chiang Dao district

Titaporn Supasri^{1,2}, Trakarn Prapasongsa³, Sate Sampattagul^{1,2}

¹Faculty of Engineering, Chiang Mai University, Chiang Mai, Thailand; ²Center of Excellence on Energy, Economic, and Ecological Management, Science and Technology Research Institute, Chiang Mai University, Chiang Mai 50200, Thailand;

³Department of Civil and Environmental Engineering, Faculty of Engineering, Mahidol University, Salaya, Putthamonthon, Nakhonpathom, 73170, Thailand

P-56: Core time 2

Decomposition of the CO₂ emissions associated with international flights of the Japanese airline industry

Minami Kito¹, Daisuke Nishijima², Shigemi Kagawa¹

¹Kyushu University, Japan; ²National Institute for Environmental Studies of Japan, Japan

P-57: Core time 1

Material Flow Analysis of Phosphorus in Shiga Prefecture

Yuko Mano, Kazuyo Matsubae

Tohoku University, Japan

P-58: Core time 2

Life cycle assessment of waste plastic containers and packaging management with consideration of the independent recycling of single resin food tray material

Trang Thi Doan Nguyen, Toyohiko Nakakubo

Ochanomizu University, Japan

P-59: Core time 1

Eco-efficiency in Street Lighting Services

Oswaldo Sanchez Junior

IPT – Institute for Technological Research, Brazil

P-60: Core time 2

PlasticBudget – Project on the environmental assessment of microplastic emissions

Nils Thonemann, Daniel Maga

Fraunhofer UMSICHT, Germany

P-61: Core time 1

Evaluation of Municipal Solid Waste Management in Ha Long Bay Area: Scenario Analysis based on Life Cycle Assessment Approach

Duong Hoang, Helmut Yabar, Takeshi Mizunoya,

Yoshiro Higano

University of Tsukuba, Japan

P-62: Core time 2

~~Building smart cities under a life cycle thinking approach: an opportunity for pneumatic waste collection static systems~~

~~**Maria Margallo¹, Alba Bala², Susana Leao², Carlos Cerdán², Marco Rauger², Pere Fullana², Ruben Aldaco¹**~~

~~¹Departamento de Ingeniería Química y Biomolecular, Universidad de Cantabria, Spain; ²Catedra UNESCO de Ciclo de Vida y Cambio Climático, Universidad Pompeu Fabra, Spain~~

P-63: Core time 1

Exploring the Potential of Bioremediation Techniques to Treat Contaminated Soil from Waste Oil in Developing Countries: Case of Kinshasa, DR. Congo

Yllah Kang Okin, Helmut Yabar, Takeshi Mizunoya,

Yoshiro Higano

University of Tsukuba, Japan

P-64: Core time 2

A Stormwater Management Case Study using LCA and LCC

Lisa Ann Peterson, Sabrina Spatari

Drexel University, United States

P-65: Core time 1

Reverse Innovation and Sustainable Product Development: A Knowledge-Oriented Viewpoint

Harald Ernst Otto

Polytechnic University of Marche, Italy



Presentation lists : Poster session

P-66: Core time 2

Strategies to Improve Sanitation Services in Sudan:
Environmental and Socio-economic Implications
Ola M. A. Mohamed, Helmut Yabar, Takeshi
Mizunoya, Yoshiro Higano
University of Tsukuba, Japan

P-67: Core time 1

Applying the Principle of Quintuple Bottom Lines
to the Assessment of City Sustainability
Yu-Ting Huang, Yuh-Ming Lee
Institute of Natural Resource Management, National
Taipei University, Taiwan

P-68: Core time 2

Risk Mapping of Road Network for Climate Change
effects along with Response Mechanism analysis
for Resilient Disaster Management
Shamima Yasmin, Helmut Yabar, Takeshi Mizunoya,
Yoshiro Higano
University of Tsukuba, Japan

P-69: Core time 1

Development of Integrated Approach for Poultry
Waste Management in Bangladesh
Zinat Mahal, Helmut Yabar, Takeshi Mizunoya,
Yoshiro Higano
University of Tsukuba, Japan

P-70: Core time 2

A Global Analysis of CO2 Reduction Potentials in
the Metal Industry
Hiroataka Takayabu, Shigemi Kagawa
Kyushu University, Japan

P-71: Core time 1

Analyzing the input-output network of the Free
Trade Agreement
Shohei Tokito
Kyushu University, Japan

P-72: Core time 2

Estimation of Exported Mixed Metal Scrap for
Evaluation of End-of-Life Recycling Rates
Masato Nakada, Ichiro Daigo, Manabu Enoki
The University of Tokyo, Japan

P-73: Core time 1

Analyzing consumption-based health impacts
associated with ambient air pollution in Asia
Fumiya Nagashima¹, Keisuke Nansai², Satoru
Chatani², Shigemi Kagawa¹
¹Kyushu University, Japan; ²National Institute for
Environmental Studies, Japan

P-74: Core time 2

Global Distribution of Hidden Flows Induced by
Consumption of Metals: Iron, Copper, and Nickel
Kenichi Nakajima^{1,2}, Shoichiro Noda², Keisuke
Nansai¹, Kazuyo Matsubae³, Makoto Tomita⁴,
Wataru Takayanagi¹
¹National Institute for Environmental Studies, Japan;
²The University of Tokyo; ³Tohoku University; ⁴Tokai
University

P-75: Core time 1

~~Uncertainty Assessment in Hybrid LCA: Precision-
vs. Accuracy~~
~~Jessica Lee Perkins~~, ~~Sangwon Suh~~
~~University of California, Santa Barbara, United States~~

P-76: Core time 2

Determinants of Population Flows between
Southeast and East Asian Countries and Their
Environmental and Economic Impacts
Tomoaki Yoshizawa, Shigemi Kagawa, Fumiya
Nagashima
Kyushu University, Japan

P-77: Core time 1

Carbon Footprint from Household Consumption
and Exploration of Reduction Potentials for the
Paris Agreement Target: A Preliminary Study on
Japan and Finland
Ryu Koide^{1,2}, Michael Lettenmeier^{3,4,5}, Viivi Toivio⁵,
Aryanie Amellina¹, Miho Kamei¹, Lewis Akenji^{1,6}
¹Institute for Global Environmental Strategies,
Japan; ²Johns Hopkins University, United States;
³Aalto University, Finland; ⁴Wuppertal Institute,
Germany; ⁵D-mat, Finland; ⁶University of Helsinki,
Finland

P-78: Core time 2

Calculation Experiences of Mining Risk Footprint
and Mining Risk Index for Indium Metal of Two
Taiwan TFT-LCD Companies
Jahau Lewis Chen, Jong-Han Lu
National Cheng Kung University, Taiwan

Presentation lists : Poster session

P-79: Core time 1

Mining Waste induced in China by its trading partners: a multi-regional input-output approach

Makiko Tsukui

Tokyo International University, Japan

P-80: Core time 2

Environmental Performance and Energy Efficiency of Fuel Cell based Energy Storage System from a Life Cycle Perspective

Hyoungeok Kim¹, Donghyeon Kim², Woo-jin Choi³, Tak Hur²

¹Ecoplus enc Corp., South Korea; ²Konkuk University, South Korea; ³University of Suwon, South Korea

P-81: Core time 1

Comparative study for Product Category Rule(PCR) of livestock products

Yoonsung Park, Geun-Young Lee, Sung-Mo Yeon

HIP, South Korea

P-82: Core time 2

Introduction of Korean Water Footprint

Minji Park, Joonjea Lee, Joohee La, Hyewon Bang

KEITI(Korea Environmental Industry & Technology Institute), South Korea

P-83: Core time 1

How many fuel poverty households exist in Japan? – An empirical analysis using household income and expenditure survey microdata

Tomohiro Tabata¹, Peii Tsai²

¹Kobe University, Japan; ²Yokohama City University

P-84: Core time 2

Household consumption in Japan and planetary boundaries: a case study of climate change, ocean acidification, nitrogen circulation, land-system change, and fresh water use

Takahiro Sasaki¹, Ryosuke Bamba¹, Masaharu Motoshita², Keisuke Nansai³, Sebastien Dente¹, Seiji Hashimoto¹

¹Ritsumeikan University, Japan; ²National Institute of Advanced Industrial Science and Technology, Japan; ³National Institute for Environmental Studies, Japan

P-85: Core time 1

The effect of railway abolishment on the traffic of the surrounding roads and the CO2 emissions

Akihiro Yoshimura, Yasunari Matsuno

Chiba University, Japan

P-86: Core time 2

Quantitative Evaluation of Environmental Burden Reduction for Blanching Pretreatment during Dried Cabbage Production Process.

Yuma Sasaki¹, Takahiro Orikasa¹, Takashi Watanabe², Shoji Koide¹

¹Iwate University, Japan; ²National Agriculture and Food Research Organization, Japan

P-87: Core time 1

How to model biological control practices in life cycle assessment of agricultural production systems

Motoko Shimura, Kiyotada Hayashi, longlong Tang

Japan, Western Region Agricultural Research Center, NARO

P-88: Core time 2

A Method for Estimating Inventory Data of Foreign Products: Utilizing IDEA for Seven Asian Countries

Kensuke Kobayashi^{1,2}, Kenshiro Nakai¹, Yuya Kimura¹, Chiharu Fujii², Maki Yokota², Kiyotaka Tahara²

¹Prefectural University of Hiroshima, Japan;

²National Institute of Advanced Industrial Science and Technology, Japan

P-89: Core time 1

Estimation of Carbon Footprint Associated with Bonito Consumption

Kazuhiro Watanabe

Miyagi Prefectural Government, Japan

P-90: Core time 2

Stock and waste flow analysis of household appliances in developing countries: A case study of Vietnam

Thao Quoc Tran, Jun Nakatani, Yuichi Moriguchi

The University of Tokyo, Japan

P-91: Core time 1

Genuine recycling rates of municipal solid waste: comparing Japan and Taiwan

Azusa Watanabe¹, I-Chun Chen², Hwong-wen Ma², Seiji Hashimoto¹

¹Ritsumeikan university, Japan; ²National Taiwan university, Taiwan



P-92: Core time 2

**Describing Diffusion Scenarios of Thermoelectric
Generators: An Exploratory Study**

**Yusuke Kishita¹, Kotaro Kawajiri², Yoshikazu
Shinohara³**

¹The University of Tokyo; ²National Institute of
Advanced Industrial Science and Technology;

³National Institute for Materials Science

P-93: Core time 1

~~Urban planning and air quality improvement in
Ulaanbaatar city, Mongolia~~

~~**Davaanyam Enkhbaatar, Helmut Yabar, Takeshi
Mizunoya, Yoshiro Higano**~~

~~The University of Tsukuba, Japan~~

P-94: Core time 2

Withdrawn