# Program

**EcoBalance 2018**  
The 13th Biennial International Conference on EcoBalance  
October 9-12, 2018, Tokyo, Japan

## Session overview

### October 9, Tuesday

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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</table>
| 9:00am - 10:00am | International School 1: Resource scenarios to support circular economy policies  
Lecturer: Ester van der Voet | KFC Hall 2nd |
| 10:10am - 11:30am | International School 2: How to use LCA software?  
1:30pm MILCA  
2:30pm GaBi  
3:30pm SimPro | Room 106 |
| 9:30am - 10:00am | Welcome reception | KFC Hall Foyer |

### October 10, Wednesday

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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</table>
| 9:30am - 10:30am | Keynote 1: Yuji Ueda  
Opening & Plenary | KFC Hall |
| 10:30am - 11:50am | Lunch | KFC Hall Foyer |
| 1:30pm - 2:50pm | Policy-making & LCA (1)  
Room 101/102 | KFC Hall 2nd |
| 2:50pm - 4:10pm | Supply chain risks & Life cycle thinking | Room 103 |
| 4:10pm - 5:30pm | Break | KFC Hall |
| 3:00pm - 4:20pm | Policy-making & LCA (2)  
Room 101/102 | KFC Hall 2nd |
| 4:20pm - 5:40pm | Business opportunities & Life cycle thinking | Room 103 |
| 5:40pm - 7:00pm | Break | KFC Hall |
| 4:30pm - 5:30pm | Technology as enabler of collective wisdom for LCA  
Room 101/102 | KFC Hall 2nd |
| 5:30pm - 6:50pm | Supply chain risks & Resource efficiency | Room 103 |
| 6:50pm - 8:10pm | Break | KFC Hall |
| 6:30pm - 8:00pm | Young Researchers Meeting  
KFC Hall 2nd | KFC Hall Foyer |

### October 11, Thursday

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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<tbody>
<tr>
<td>10:00am - 11:20am</td>
<td>Environmental Footprint – comprehensiveness of analysis vs. simplicity of communication (1)</td>
<td>KFC Hall 2nd</td>
</tr>
<tr>
<td>11:20am - 12:40am</td>
<td>Environmental Footprint – comprehensiveness of analysis vs. simplicity of communication (2)</td>
<td>KFC Hall 2nd</td>
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<tr>
<td>12:40pm - 2:00pm</td>
<td>Lunch</td>
<td>KFC Hall</td>
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<tr>
<td>11:30am - 12:50pm</td>
<td>Sustainability assessment methods</td>
<td>KFC Hall 2nd</td>
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<tr>
<td>2:00pm - 3:20pm</td>
<td>Green technologies &amp; Life cycle thinking</td>
<td>Room 101/102</td>
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<tr>
<td>3:20pm - 4:40pm</td>
<td>Waste management &amp; Recycling</td>
<td>Room 103</td>
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<tr>
<td>4:40pm - 6:00pm</td>
<td>Break</td>
<td>KFC Hall Annex</td>
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<tr>
<td>3:30pm - 4:50pm</td>
<td>Green technologies &amp; Life cycle thinking</td>
<td>Room 101/102</td>
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<tr>
<td>4:50pm - 6:10pm</td>
<td>Food-energy-water nexus (3)</td>
<td>Room 107</td>
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| 6:10pm - 8:30pm | Poster session  
4:30pm - 5:30pm Core time 1  
5:30pm - 6:30pm Core time 2 | KFC Hall Annex |
| 7:00pm - 9:00pm | Banquet | Dai-ichi Hotel Ryogoku SF Kiyosumi |

### October 12, Friday

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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<tr>
<td>10:20am - 11:40am</td>
<td>Innovations &amp; Life cycle thinking</td>
<td>KFC Hall 2nd</td>
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<tr>
<td>11:40am - 1:00pm</td>
<td>Lunch</td>
<td>KFC Hall 2nd</td>
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<tr>
<td>11:50am - 1:10pm</td>
<td>Innovative policy design &amp; Sustainability analysis: A dual relation</td>
<td>KFC Hall 2nd</td>
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<tr>
<td>1:10pm - 2:30pm</td>
<td>Sustainable society by integration of adaptation &amp; Mitigation (1)</td>
<td>Room 101/102</td>
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<tr>
<td>2:30pm - 4:50pm</td>
<td>Sustainable issues for plastics</td>
<td>Room 103</td>
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<tr>
<td>4:50pm - 6:10pm</td>
<td>Closing &amp; Networking drinks</td>
<td>KFC Hall 2nd</td>
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<tr>
<td>12:10pm - 2:30pm</td>
<td>Metal production &amp; Sustainability assessment</td>
<td>Room 103</td>
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<tr>
<td>2:30pm - 4:50pm</td>
<td>Organic waste &amp; Life cycle thinking</td>
<td>Room 103</td>
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<tr>
<td>4:50pm - 6:10pm</td>
<td>Energy systems &amp; Scenario analysis</td>
<td>Room 103</td>
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<tr>
<td>1:30pm - 2:50pm</td>
<td>Sustainable society by integration of adaptation &amp; Mitigation (2)</td>
<td>Room 101/102</td>
</tr>
<tr>
<td>2:50pm - 5:10pm</td>
<td>Emerging issues for plastics</td>
<td>Room 103</td>
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## Program

### 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**, Philippe Loubet, Guido Sonnemann  
1. University of Bordeaux, ISM, UMR 5255, France;  
2. CNRS, ISM, UMR 5255, France;  
3. ENSCBP, 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,** Annekatrin Lehmann  
Technische Universität Berlin, Chair of Sustainable Engineering, Germany

### 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 Nakatani,** Hideaki Kurishima, Kiyotaka Tahara, Yuki Kudoh, Ichiro Daigo  
1. The University of Tokyo, Japan;  
2. Shibaura Institute of Technology;  
3. National 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 Cimprich,** Vanessa Bach, Christoph Helbig, Andrea Thorenz, Dieuwertje Schrijvers, Guido Sonnemann, Steven B. Young, Thomas Sonderegger  
1. University of Waterloo, Canada;  
2. Technische Universität Berlin;  
3. Universität Augsburg;  
4. Université de Bordeaux;  
5. ETH Zürich

**1-1B-3 (2:10pm - 2:30pm)**  
Construction without sand or bitumen? Accounting for supply risks of construction resources  
**Dimitra Ioannidou**, Steven B. Young, Sangwon Suh, Guido Sonnemann  
1. Univ. Bordeaux, ISM, UMR 5255, F-33400 Talence, France;  
2. CNRS, ISM, UMR 5255, F-33400 Talence, France;  
3. Bren School of Environmental Science & Management, University of California, Santa Barbara, CA 93106-5131, USA;  
4. School 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 Tseng1,2, 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-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 Bowonthumrongchai1, Kittit Limskul3, Shabbir H. Gheewala4
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 Silalertruksa1,2, Shabbir Gheewala1,2, Pariyapat Nilsalab1,2, Naruetej Lecksiwilal1,2, Kunnika Changwichan1,2, Napapat Permpool2,3, Nattaya Huailuek1,2
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-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-Climatic Nexus approach
Isabel Garcia Herrera1, Maria Margallo2, Jara Laso3, Alba Bala1, Pere Fullana2, Ian Vazquez Rowe1, Maria Jose Duru1, Carmen Sarabias1, Rebeca Abajos3, Francisco Jose Amo-Setien1, Ainhoa Quiñones3, Angel-Iribain1, Ruben Aldaco1
1Universidad de Cantabria, Spain; 2Catedra UNESCO de Ciclo de Vida y Cambio Climático, Universidad Pompeu Fabra, Spain; 3Pontificia 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 Tuma³
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 Cravioto³, Shoki Kosoï¹, Duc-Quang Nguyen¹, Duc-Huy Tran¹, Yusuke Kishita², Yasushi Umeda²
¹Ritsumeikan University, Japan; ²The University of Tokyo; ³Hanoi University of Science and Technology

1-1F-1 (1:30pm - 1:50pm)
A dynamic and spatially explicit analysis of household appliances' stocks and flows in Beijing’s dwellings
Yupeng Liu¹,², Wei-Qiang Chen¹,²,³, Haiya Li¹,²,³
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, 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

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

1-1A: 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

1-2A: 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

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<th>Session</th>
<th>Time</th>
<th>Title</th>
<th>Presenters</th>
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<tbody>
<tr>
<td>1-2A-2</td>
<td>(3:30pm - 3:50pm)</td>
<td>Assessing the impacts of reprocessing Used Nuclear Fuels: a UK case study</td>
<td>Andrea Paulillo(^1), Roland Clift(^2), Jonathan Dodds(^3), Andrew Milliken(^4), Stephen J. Palethorpe(^4), Paola Lettieri(^5)</td>
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<tr>
<td></td>
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<td>(^1)University College London, United Kingdom; (^2)University of Surrey, United Kingdom; (^3)National Nuclear Laboratory, United Kingdom; (^4)Sellafield Ltd.</td>
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<tr>
<td>1-2A-3</td>
<td>(3:50pm - 4:10pm)</td>
<td>Lima LCA database roadmap training</td>
<td>Ian Vázquez-Rowe(^1), Bruce W. Vigon(^2), Camilo I. Bastias(^3), Ricardo E. Estrada(^4), Reynaldo Félix(^2), Benjamin J. Lagos(^5), Tiago Braga(^6)</td>
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<td>(^1)Peruvian LCA Network, Department of Engineering, Pontificia Universidad Católica del Perú, Av. Universitaria 1801, San Miguel 1801, Lima, Perú.; (^2)Breveja Environmental Consulting LLC Pensacola, FL USA 32503.; (^3)Regenerativa, La Concepción 191, Of. 1201, Providencia, Santiago, Chile.; (^4)Dirección de Calidad Ambiental y Ecoeficiencia, Ministerio del Ambiente (MINAM), San Isidro, Lima, Perú.; (^5)Centro de Análisis de Ciclo de Vida y Diseño Sustentable, Bohemia 2-9, Bosques del Lago, Cuautitlán Izcalli, Estado de México, México.; (^6)Brazilian Institute for Information in Science and Technology and Universidade de Brasilia, SAUS 5, Bloco H, Sala 604, Brasilia, Brasil, 70070-912.</td>
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<tr>
<td>1-2A-4</td>
<td>(4:10pm - 4:30pm)</td>
<td>Identifying Regulatory Risks for NdFeB Permanent Magnet Production</td>
<td>Gwendolyn Bailey(^1), Robert Pell(^2), James Goddin(^3), Kimberly Marshall(^4), Paul Ylioja(^5), Wim Dewulf(^6), Karel Van Acker(^7)</td>
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<td>(^1)KU Leuven; (^2)University of Exeter (Camborne School of Mines); (^3)Granta Design</td>
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<tr>
<td>1-2B-2</td>
<td>(3:30pm - 3:50pm)</td>
<td>LCA in companies: driving business, leading innovation, mitigating risk, fostering compliance</td>
<td>Martin Baitz, Harald Florin, Sebastian Schulz thinkstep AG, Germany</td>
</tr>
<tr>
<td>1-2B-3</td>
<td>(3:50pm - 4:10pm)</td>
<td>Always business with Eco-Economics</td>
<td>Heidi Beers, Mark Breed, Shuichi Osaki, Nobuyuki Takakura Teijin Ltd.</td>
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<tr>
<td>1-2B-4</td>
<td>(4:10pm - 4:30pm)</td>
<td>The analysis of material cycles in companies by using the MFCA method</td>
<td>Mario Schmidt Pforzheim University, Germany</td>
</tr>
<tr>
<td>1-2C-1</td>
<td>(3:10pm - 3:30pm)</td>
<td>Environmental and economic sustainability of off-grid solar photovoltaic systems integrated with storage: the effect of scale and type of battery</td>
<td>Jhud Mikhail Aberilla(^1)(^2), Alejandro Gallego-Schmidt(^1), Laurence Stamford(^1), Adisa Azapagic(^2)</td>
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<td>(^1)Sustainable Industrial Systems, University of Manchester, Manchester, United Kingdom; (^2)University of the Philippines Diliman, Quezon City, Philippines</td>
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<tr>
<td>1-2C-2</td>
<td>(3:30pm - 3:50pm)</td>
<td>Application of life cycle thinking for regional transformation considering local resource circulation with energy technology options</td>
<td>Yasunori Fukushima(^1), Yuko Oshita(^2), Yasuhiro Fukushim(^2)</td>
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<td>(^1)The University of Tokyo, Japan; (^2)Kobe University, Japan; (^3)Tohoku University, Japan</td>
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**1-2B: Business opportunities & Life cycle thinking**

*Time: October 10, Wednesday*

*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
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: Erwinskyah, 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 Chiu3
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 Tsuji3, Shunta Furihata4, Koji Amano5
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 Kuroyama2, Mitsutaka Matsumoto2, Michikazu Kojima3, Yasushi Umeda4
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 Matsumoto2, 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 Huy3, Eiji Yamase1
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 Thorenz1, Axel Tuma1
1University of Augsburg, Faculty of Business and Economics, Germany; 2University of Augsburg, Institute of Materials Resource Management, Germany
## 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 Sorakon**1, **Anurat Lamai**2  
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**, Kazuyo 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 - 4:58pm**  
**Location:** Room 109

1-3A-1 (4:50pm - 4:58pm)  
How a cloud platform can maximize the impact of LCA Expertise  
**Eric Miera**s  
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 Schiffeleiter**1, **Mieke Klein**2, **Jan Hedemann**2, **Martina Prox**2  
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 Goddin**1, **Luca Petruccelli**2, **Andrew Clifton**2  
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-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 Verones¹**  
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. Gheewala²,³**  
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 Olivieri⁴, Piero Bareschino⁴, Antonio Marzocchella⁴, 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-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 Saito²**  
¹National Agriculture and Food Research Organization, Japan; ²TCO2 Co. Ltd.; ³Tohoku University

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

### 1-3C: 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

### 1-3D: 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
### 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 Lelyana, Kiyotada Hayashi, Erwinsyah, Erwinsyah, Mugiayanto Mugiayanto, Agus Haryanto

1. Indonesian Oil Palm Research Institute, Indonesia; 2. National Agriculture and Food Research Organization; 3. PP London Sumatera Indonesia Tbk; 4. University 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 Bautista, Masanori Saito, Kiyotada Hayashi

1. Philippine Rice Research Institute, Philippines; 2. Tohoku University; 3. National 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 Satya, Yandra Arkeman, Kiyotada Hayashi

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

#### 1-3E-2 (5:10pm - 5:30pm)
Analysis of GHG emission reduction effect by remanufacturing of industrial pump

Sejik Kim, Gibeeom 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, Eric 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 Chun, Kun-Mo Lee, Jong Seok Lee, Min Hyeok Lee, Nozomu Mishima, Kiyotaka Tahara

1. AIST, Japan; 2. Ajou University, Korea; 3. Akita 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 Ohno, Yosuke Shigetomi, Yasuhiro Fukushima

1. Tohoku University, Japan; 2. Nagasaki University, Japan

#### 1-3F-3 (5:30pm - 5:50pm)
Residential energy consumption and its associated emission based on input-output model

Yin Long, Habura Borjigin, Yoshida Yoshihiku

1. University of Tokyo, Japan; 2. National 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 Fukushima³

¹Nagasaki University, Japan; ²Tohoku University, Japan

### 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-lynne 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 Partl¹, Andreas Busa², Marta Bonell¹, Juliane Franze¹, Kirana Chomkhamsri Wolf²

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

### 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

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### 2-1B: Emerging technologies & Supply chains

**Time:** October 11, Thursday

10:00am - 11:40am

**Location:** Room 101/102

**Session Chair:** Witold-Roger Poganietz, Karlruhe 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 Poncette², Marlen de Weser²

¹Karlruhe 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 Glogic¹,², Alberto Adan Mas²,³, Steven B. Young³, Guido Sonnemann³

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
**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 Levasseur², Karel Van Acker³  
¹KU Leuven, Belgium; ²École de technologie supérieure, Montréal, Québec, Canada

### 2-1D: Plantation crops & Sustainability assessment
**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 Neugebauer², Heinz Zeller³, Michela Gioacchini²  
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  
Patcharapolng Ponnpat, 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 Ioannidou¹,², Régis Pommier³, Guillaume Habert³, Guido Sonnemann²,³  
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

### 2-1E: Circular economy & Behavioral science (1)
**2-1E-1 (11:00am - 11:20am)**  
Model-based investigation of co-creation in local green transitions  
Erik O Ahlgren, Sujeetha Selvakumarman  
Chalmers University of Technology, Sweden

### Overall discussion (11:20am - 11:40am)
## 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-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 Tsurtu¹, 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 Kobayashi¹, Kenichi Nakajima³, Eiji Yamase³, Kazuyo Matsubae⁵

¹The University of Tokyo, Japan; ²National Institute of Advanced Industrial Science and Technology; ³Tokyo Institute of Technology; ⁵National Institute for Environmental Studies, Japan; ⁶Ritsumeikan University; ⁷Tohoku University

### 2-1F-4 (11:00am - 11:20am)
Life Cycle Thinking of GHGs Emission Between Production-Based and Consumption-Based in Thailand

Viganda Varabuntoontiv, Kultida Kunanuntakij

Kasetsart University, Thailand

### 2-1F-5 (11:00am - 11:20am)
Considering of import products in IDEA

Kiyotaka Tahara¹, Kenichiro Tsukahara¹, Koichi Shobatake¹, Kensuke Kobayashi³

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

### 2-2A: 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 Olarnrithinhu, 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, Annekatrin 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

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 Nansai1,2, 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 Ren1,2, Wei-Qiang Chen1,2,3
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)
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 Lee2, Chia-Hung Hou3, Pei-Te Chiueh1
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 Nakamura2
1Chinese Academy of Sciences, China; 2Waseda University, Japan

2-2D-2 (1:20pm - 1:40pm)
Evaluation of ecological footprint of rice production in Thailand
Konkanok Jaibumrung1, Shabbir Gheewala2,3, Charongpun Muskavong1
1Environmental Assessment and Technology for Hazardous Waste Management Research Center, Department of Civil Engineering, Faculty of Engineering, Prince of Songkla University, Hatyai, Songkla, 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 Thoma1, Al Rotz2
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 Tachikawa2, Naoki Yoshikawa3, Steven R. McGreevy3, Atsushi Inaba4
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 Mungkung1,2, Shabbir H. Gheewala1,4, Thapat Silalertruksa1,2, Saroche Dangsiri1
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; 4Centre of Excellence on Energy Technology and Environment, PERDO, Bangkok, Thailand

2-2D: Sustainable food consumption & Production
Time: October 11, Thursday
1:00pm - 2:40pm
Location: Room 107
Session Chair: Charongpun Muskavong, 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 Lenzen2, Futu Faturay3, Arne Geschke4, Arunima Malik5, Jacob Fry6, Keisuke Nansai2
1University of Sydney / IGES; 2University of Sydney; 3NIES / University of Sydney
## 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 Moon**, Yurie Suzuki, Eri Amasawa, Jun Nakatani, Kiyotaka Tahara, Masahiko Hirao  
1 The University of Tokyo, Japan; 2 National 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 Piromrat**, Chanathip Pharino, Yuichi Moriguchi, Jun Nakatani  
1 Chulalongkorn University, Thailand; 2 The 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 Valdivia**, Mathias Finkbeiner, Catherine Benoit-Norris, Sara Russo, Elisabeth Ekener, Marzia Traverso  
1 Leuphana University Luneburg, Germany; 2 TU Berlin, Germany; 3 Social Hotspots Database, USA; 4 CIRAIQ, UQAM, École des Sciences de la gestion, Canada; 5 KTH Royal Institute of Technology, Sweden; 6 RWTH 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 Chapman**, Yosuke Shigetomi  
1 International Institute for Carbon Neutral Research, Kyushu University, Japan; 2 Graduate 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**, Frédéric Feder, Richard Hodomihou  
1 CIRAD, UPR Recyclage et risque, F-34398 Montpellier, France; 2 CIRAD, UPR Recyclage et risque, Dakar, Senegal; 3 Recyclage et risque, Univ Montpellier, CIRAD, Montpellier, France; 4 Université 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 Ishito**, Toshiharu Ikaga, Shun Kawakubo  
1 Keio University, Japan; 2 Hosei University, Japan
EcoBalance 2018
The 13th Biennial International Conference on EcoBalance
October 9-12, 2018, Tokyo, 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 Cl circulation system at its early stage of development
Jiaqi Lu1, Shogo Kumagai1, Hajime Ohno2, Tomohito Kameda1, Yuko Saito1, Toshiaki Yoshioka3, Yasuhiro Fukushima7
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 Fukaki\textsuperscript{1}, Taiki Senga\textsuperscript{1}, Tatsuya Kato\textsuperscript{1}, Yuki Tsunazawa\textsuperscript{3}, Giuseppe Granata\textsuperscript{2}, Chiharu Tokoro\textsuperscript{3}, Shuji Owada\textsuperscript{1}
\textsuperscript{1}Graduate School of Creative Science and Engineering, Waseda University, Japan; \textsuperscript{2}Faculty of Science and Engineering, Waseda University, Japan; \textsuperscript{3}National 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 Ziegler\textsuperscript{1}, Maria Margallo\textsuperscript{2}, Ramzy Kahhat\textsuperscript{3}, Ruben Aldaco\textsuperscript{4}, Ian Vazquez Rowe\textsuperscript{5}
\textsuperscript{1}Departamento de Ingeniería Química y Biomolecular, Universidad de Cantabria, Spain; \textsuperscript{2}Peruvian 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\textsuperscript{1,2}, Bertrand Laratte\textsuperscript{1,3}, Nicolas Perry\textsuperscript{2}
\textsuperscript{1}MTB Recycling, France; \textsuperscript{2}Arts & Métiers ParisTech, CNRS, 1ZM Bordeaux, France; \textsuperscript{3}APESA-Innovation, France

2-3D-2 (3:20pm - 3:40pm)
Lifecycle Assessment of Packaged Tofu
Akihiro Izumi\textsuperscript{1}, Nobutaka Nakamura\textsuperscript{2}, Kiyotada Hayashi\textsuperscript{2}, Ken Ishii\textsuperscript{2}, Toshio Yokoyama\textsuperscript{4}, Hiroshi Kameda\textsuperscript{4}, Michihiro Takeda\textsuperscript{4}, Masashi Hamba\textsuperscript{4}, Koichi Shobatake\textsuperscript{4}, Naoki Makino\textsuperscript{4}, Takeo Shiina\textsuperscript{5}
\textsuperscript{1}Plastic Waste Management Institute, Japan; \textsuperscript{2}National Agriculture and Food Research Organization; \textsuperscript{3}Japan Plastic Food Container Association; \textsuperscript{4}The Japan Plastics Industry Federation; \textsuperscript{5}Vinyl Environmental Council; \textsuperscript{6}Japan Expanded Polystyrene Association; \textsuperscript{7}TCO2 Co. Ltd; \textsuperscript{8}Graduate School of Horticulture, Chiba University

2-3E-1 (3:00pm - 3:20pm)
Metal dynamics of a circular economy: identifying barriers to sustainable recycling
Shinichiro Nakamura\textsuperscript{1}, Yasushi Kondo\textsuperscript{2}, Kenichi Nakajima\textsuperscript{3}, Hajime Ohno\textsuperscript{4}
\textsuperscript{1}Waseda University, Japan; \textsuperscript{2}National Institute for Environmental Studies, Japan; \textsuperscript{3}Tohoku University, Japan

2-3E-2 (3:20pm - 3:40pm)
Withdrewn
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-1 (3:00pm - 3:20pm)
The characterisation of site-dependent environmental impacts in LCA under global supply chains
Trakarn Prapaspongsa1, Shabbir H. Gheewala2,3
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 Belyanovskaya1,2, Bertrand Laratte1, Natalia Baranovskaya3, 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 Prapaspongsa5
1Department of Civil and Environmental Engineering, Faculty of Engineering, Mahidol University, Nakhon Pathom, Thailand; 2National 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 Gavrillidis, 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 Uwasu2, Keishiro Hara2
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 Tsuda2, Kenichi Nakajima1, Keisuke Nansai1,2,3
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 Nansai1,2,3, Seiji Hashimoto1, Takahiro Sasaki1, Stephan Pfister1, Matthias Finkbeiner1
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 Vilaysouk1,2, Kamrul Islam1, James West1, Heinz Schandl2,3, Shinsuke Murakami1
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 Yamase1, Shoki Kosai1, Ichiro Daigo2, Kenichi Nakajima1, Benjamin McLellan4, Kazuyo Matsubae5, Shisuke Murakami1
1Ritsumeikan University, Japan; 2The University of Tokyo; 3National Institute for Environmental Studies; 4Kyoto University; 5Tohoku University
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 Nakamoto², Shigemi Kagawa², Masahiro Oguchi¹, Keisuke Nansai¹  
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 Takeyama¹, Hajime Ohno¹, Kazuyo Matsubae¹, Kenichi Nakajima³, Tetsuya Nagasaka¹  
¹Tohoku University, Japan; ³National Institute for Environmental Studies, Japan

3-1E-4 (11:20am - 11:40am)  
RAUPE - Recycling of Automotive Units and Parts Evaluator  
Alexandra Pehlken, Bjorn Koch, Matthias Kalverkamp  
Carl von Ossietzky University Oldenburg, Germany

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 Huppes  
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:** KFC Hall 2nd  
**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 Khair1,2, Indriyani Rachman1, Toru Matsumoto3
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 Nakano1, Chien-fei Chen3, Hideo Ishii3, Yasuhiro Hayashi3
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 Negishi1,2, Ligia Barna3, Yoann Pigné3, Nicoleta Schiopu3, Alexandra Lebert1, Thomas Gibon1, Emil Popovici3, 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 Koundouri1, Ralf Ludwig2, Vicenc Acuna3, Ebin Akinsete2, Verena Huber-Garcia5, Stella Tsani5
1Wageningen Environmental Research, Netherlands; 2Athens University of Economic and Business, Athens, Greece; 3Ludwig-Maximilians-Universitaet Muenchen, Luisenstr. 37, 80333 Munich, Germany; 5Catalan 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)
Sebastien Michael Rene Dente1, Chika Aoki-suzuki1, Chihiro Kayo1, Daisuke Tanaka1, Shinsuke Murakami1, 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 Glogic¹,², Steffi Weyand³, Michael Tsang², Steven B. Young¹, Guido Sonnemann¹, Liselotte Schebek¹  
¹University of Waterloo, France; ²University of Bordeaux, France; ³University of Darmstadt, Germany

**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 Yamase³, 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 Itsubo³, Kazuki Yamaguchi⁴, Kazuki Okada⁵, Yukihiro Kikegawa⁴, Manabu Kanda⁶, Alvin Christopher Galang Varquez⁵, Nisrina Setyo Darmanto⁵, Prihadi Setyo Darmanto⁵, Tomohiko Ihara⁴  
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 Darmanto5, 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 Hiroa, 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 Hur3
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 Schebek2
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

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**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

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**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

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**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 Poganetz2, Nils Brown3, Elisabeth Ekener2

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

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**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

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**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. Gemechu1, Andrea Thorenz3, Axel Tuma2, Karim S. Karim2, Guido Sonnemann1
1University of Waterloo, Canada; 2University 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 Inaba3
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 Huppertz2, Olivier Jollivet3, Masaharu Motoshita8, Stephen Northey9, Benedetto Rugani10, Diewertje Schrijvers11, Rita Schulze6, Alicia Valero12
1TU Berlin; 2ETH Zurich; 3Ghent University; 4University of Waterloo; 5Leiden University; 6University of Augsburg; 7University of Michigan; 8AIST; 9Monash University; 10AIST; 11LIST; 12University of Bordeaux; 13Fundación 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
Aotsufumi Hirahata1, Teodor Huminic2
1Tohoku University, Japan; 2National Institute for Environmental Studies

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 Matsubae2, Kenichi Nakajima3, Tetsuya Nagasaka4
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
Kentarou 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, Snjolaug Tinna Hansdottir2
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 DENOx 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, Kiyoko 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 Hayashi1, 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, Kiyoko 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, Kiyoko Kurisu
The University of Tokyo, Japan

P-20: Core time 2
Investigation of obsolete and hibernated personal computers in Japan
Jun Miura, Jun Nakatani, Kiyoko 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 Adhikari1, Trakarn Prapaspong1
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 Cis), 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 Gazulla3, Pedro Cerdán1, Pere Fullana2, Ruben Aldaco4
1Departamento de Ingeniería Química y Biomolecular, Universidad de Cantabria, Spain; 2Catedra UNESCO de Cycles de Vida y Cambio Climático, 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 Nakanishi¹
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 MATSUMOTO³
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 Kurishima², 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 Yasui³, Takehisa Kabeya³, Kazuhioko Ogimoto³, Jun Nakatani², Eiji Ôhno⁴, 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
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 Uswhah, 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 Amgalan1,2, 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, Norihiro 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
Sripathul Devayalage Nuwan Ariyawansha, 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 Kaneko\textsuperscript{1,2}, Shogo Eguchi\textsuperscript{2}, Shigemi Kagawa\textsuperscript{1}
\textsuperscript{1}Kyushu University, Japan; \textsuperscript{2}Fukuoka 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\textsuperscript{1,2}, Trakarn Prapaspongsa\textsuperscript{3}, Sate Sampattagul\textsuperscript{1,2}
\textsuperscript{2}Faculty of Engineering, Chiang Mai University, Chiang Mai, Thailand; \textsuperscript{3}Center of Excellence on Energy, Economic, and Ecological Management, Science and Technology Research Institute, Chiang Mai University, Chiang Mai 50200, Thailand;

P-56: Core time 2
Decomposition of the CO2 emissions associated with international flights of the Japanese airline industry
Minami Kito\textsuperscript{1}, Daisuke Nishijima\textsuperscript{2}, Shigemi Kagawa\textsuperscript{1}
\textsuperscript{1}Kyushu University, Japan; \textsuperscript{2}National 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 Margallo\textsuperscript{1}, Alba Bala\textsuperscript{2}, Susana Leao\textsuperscript{2}, Carlos Cerdán\textsuperscript{2}, Marco Raugei\textsuperscript{2}, Peru Fullana\textsuperscript{2}, Ruben Aldaco\textsuperscript{2}
\textsuperscript{1}Departamento de Ingeniería Química y Biomolecular, Universidad de Cantabria, Spain; \textsuperscript{2}Catedra UNESCO de Ciclo de Vida y Cambio Climatico, 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  
_Hirotaka Takayabu, Shigemi Kagawa_  
Kyushu University, Japan

**P-71: Core time 1**  
Analyzing the input-output network of the Free Trade Agreement  
_Shoei 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 Chatani³, Shigemi Kagawa⁴_  
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 Nakajima¹,², Shoichiro Noda³, Keisuke Nansai⁴, Kazuyo Matsubae³, Makoto Tomita⁴, Wataru Takayanagi²_  
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 Koide¹,², Michael Lettenmeier³,⁴, Viivi Toivio⁵, Aryanie Amellina¹, Miho Kamei¹, Lewis Akenji⁶,⁷_  
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
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
Hyoungseok Kim, Donghyeon Kim, Woo-jin Choi, Tak Hur
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
Yoosung 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 Tabata, Peii Tsai
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 Sasaki, Ryosuke Bamba, Masaharu Motoshita, Keisuke Nansai, Sebastien Dente
1Ritsumeikan University, Japan; 2National Institute of Advanced Industrial Science and Technology, 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
Yuma Sasaki, Takahiro Orikasa, Takashi Watanabe
1Waseda 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, Kiyotaka 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, Kenshiro Nakai, Yuya Kimura, Chiharu Fujii, Maki Yokota, Kiyotaka Tahara
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
Kazuhito 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 Watanabe, I-Chun Chen, Hwong-wen Ma
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