

Go read!

- Presentation of the 2019 Awards of the International Life Cycle Academy at the LCM2019 in Berlin

by Bo Weidema

The Awards of the International Life Cycle Academy are given to honour contributions of outstanding quality, within the last two years, within the field of quantitative sustainability assessment. Equal weight is given to scientific content and application/communication.

This year, 22 papers were nominated in three categories:

- Best contribution to policy application of LCA
- Best contribution to sustainable consumption
- Best contribution to sustainable production

The full references to the nominated papers can be found below.

Besides the honour, the winners of this year's Academy Awards receive the offer to publish their next article as free open access in a special issue of the MDPI journal "Resources".

I would like to also acknowledge the Academy Award Committee, which has had the difficult task to select the three Award winners:

- Prof. Harro Von Blottnitz, University of Cape Town
- Prof. Greg Thoma, University of Arkansas
- Prof. Shabbir Gheewala, King Mongkut's University of Technology Thonburi
- Prof. Bo Weidema, Aalborg University

----- O -----

In the category **Best contribution to policy application of LCA**, we have 12 nominations, on topics ranging from technology choice modelling, measuring and communicating canteen meals, and the same for waste prevention, over LCAs of emerging technologies, shale gas, and integration of batteries into electricity supply systems, to topics within impact assessment, testing methods for the assessment of noise, improved characterisation factors for biodiversity, and an article on sub-national normalisation factors.

One paper that stands out from the others, is a study by Brad Ridoutt and colleagues on water footprinting involving the use of very detailed IO tables and applying a novel LCIA procedure, where the impact assessment is performed at the level of each unit process, which is then added up over the life cycle.

Another paper that has a very clear policy focus investigates how LCA can be used to adjust the biases in the current policies on impacts from automobiles that focus exclusively on use phase of cars. Because of its very detailed treatment and clear policy focus the Award Committee unanimously decided

that the award must go to the first author of this paper: **Annekatrin Lehmann** from the Technical University of Berlin.

----- O -----

In the category **Best contribution to sustainable consumption** we have 9 nominations, including one with a consumption-perspective of cities in China, and also the above-mentioned article by Ridoutt and colleagues, which is also nominated in this category (a paper was allowed to be nominated in up to two categories). All other nominations have food and food waste as topic. And within this group, five nominated articles have an overall diet perspective, and two consider the integration of health impacts from malnutrition – a very important aspect of sustainable consumption.

Among these nominations, the contribution unanimously chosen by the Award Committee describes a practically applicable method for linking individual food items to changes in dietary health risk, measured in Disability-Adjusted Life-Years. The Award winner is **Katerina S. Stylianou** from the University of Michigan.

----- O -----

In the category **Best contribution to sustainable production**, we have 8 nominations, three of which are already mentioned, since they were also nominated for the category on policy applications. New in this category are an LCA on carbon capture in the chemical industry, a study that seeks to link land use to undernutrition, and an article that asserts that hybrid LCA yields more accurate results than process-LCA.

In this category, the Award Committee ended up with two papers that received the same number of votes: One, a paper by Maartje Sevenster and co-authors on soil organic carbon changes, with important findings on the uncertainty when applied to LCA of agricultural products; the other, a meta-study on the environmental impact of foods, published in *Science* last year. Its evidence for the importance of dietary change has already resounded widely. The final argument that allowed us to reach a decision was the exceptional importance that this article has for the recognition of LCA as a technique with important practical applications and perspectives. The award goes to **Joseph Poore** from University of Oxford.

----- O -----

The full list of papers nominated for the 2019 Awards

The papers are listed alphabetically with the nominated author in bold. Some papers have been nominated for more than one category.

Category: Best contribution to policy application of LCA

Arvidsson R, Tillman A, Sandén B A, Janssen M, Nordelöf A, Kushnir D, Molander S.: Environmental Assessment of Emerging Technologies: Recommendations for Prospective LCA. *Journal of Industrial Ecology* 22:1286-1294.

Chaudhary A, Brooks T M.: Land Use Intensity-Specific Global Characterization Factors to Assess Product Biodiversity Footprints. *Environmental Science & Technology* 52(9):5094-5104.

Cooper J, Stamford L, Azapagic A.: Sustainability of UK shale gas in comparison with other electricity options: Current situation and future scenarios. *Science of the Total Environment* 619-620:804–814.

Cucurachi S, Schiess S, Froemelt A, Hellweg S. Noise footprint from personal land-based mobility. *Journal of Industrial Ecology* 2019:1-11.

Roibás L, Loiseau E, **Hospido A.**: On the feasibility and interest of applying territorial Life Cycle Assessment to determine subnational normalisation factors. *Science of the Total Environment* 626:1086–1099.

Hutner P, Helbig C, Stindt D, Thorenz A, Tuma A.: Transdisciplinary Development of a Life Cycle-Based Approach to Measure and Communicate Waste Prevention Effects in Local Authorities. *Journal of Industrial Ecology* 22(5):1050-1065.

Larrea-Gallegos G, Vázquez-Rowe I, Wiener H, Kahhat R.: Applying the Technology Choice Model in Consequential Life Cycle Assessment: A Case Study in the Peruvian Agricultural Sector. *Journal of Industrial Ecology* 23:601-614.

Lehmann A, Berger M, Finkbeiner M.: Life Cycle Based CO₂ Emission Credits: Options for Improving the Efficiency and Effectiveness of Current Tailpipe Emissions Regulation in the Automotive Industry. *Journal of Industrial Ecology* 22:1066-1079.

Ridoutt B G, Hadjikakou M, Nolan M, Bryan B A.: From water-use to water-scarcity footprinting in environmentally extended input–output analysis. *Environmental Science & Technology* 52:6761-6770.

Schaubroeck T, Ceuppens S, Luong AD, Benetto E, De Meester S, Lachat C, Uyttendaele M.: A pragmatic framework to score and inform about the environmental sustainability and nutritional profile of canteen meals, a case study on a university canteen. *Journal of Cleaner Production* 187: 672-686.

Vandepaer L, Cloutier J, Bauer C, Amor B.: Integrating Batteries in the Future Swiss Electricity Supply System. A Consequential Environmental Assessment. *Journal of Industrial Ecology* 23(3):709-725.

Zheng J, Suh S.: Strategies to reduce the global carbon footprint of plastics. *Nature Climate Change* 9:374–378.

Category: Best contribution to sustainable consumption

Beretta C, Hellweg S.: Potential environmental benefits from food waste prevention in the food service sector. *Resources, Conservation and Recycling* 147:169-178.

Blackstone N T, El-Abbadi N H, McCabe M S, Griffin T S, Nelson M E.: Linking sustainability to the healthy eating patterns of the Dietary Guidelines for Americans: a modelling study. *The Lancet Planetary Health* 2(8):PE344-E352.

Chaudhary A, Krishna V.: Country-Specific Sustainable Diets Using Optimization Algorithm. *Environmental Science & Technology* 53(13):7694-7703.

Mi Z, Zheng J, Meng J, Zheng H, Li X, Coffman D, Woltjer J, Wang S, Guan D.: Carbon emissions of cities from a consumption-based perspective. *Applied Energy* 235:509-518.

Poore J, Nemecek T.: Reducing food's environmental impacts through producers and consumers. *Science* 01 Jun 2018:987-992.

Ridoutt B G, Hadjikakou M, Nolan M, Bryan B A.: From water-use to water-scarcity footprinting in environmentally extended input–output analysis. *Environmental Science & Technology* 52:6761-6770.

Saxe H, Jensen J D, Bølling Laugesen S M, Bredie W L P.: Environmental impact of meal service catering for dependent senior citizens in Danish municipalities. *The International Journal of Life Cycle Assessment* 24(4):654-666.

Stylianou K, Fulgoni V L, Jolliet O: HHealth Nutritional Index (HENI): A Health Burden Based Tool for Food and Diet Nutritional Evaluation. Presentation at LCAFood 2018. Also published as Chapter 3 in Ph.D. Thesis of Katerina Stylianou (Nutritional and Environmental Impacts of Foods on Human Health) at <https://deepblue.lib.umich.edu/handle/2027.42/147641>

Schaubroeck T, Ceuppens S, Luong AD, Benetto E, De Meester S, Lachat C, Uyttendaele M.: A pragmatic framework to score and inform about the environmental sustainability and nutritional profile of canteen meals, a case study on a university canteen. *Journal of Cleaner Production* 187: 672-686.

Category: Best contribution to sustainable production

Arvidsson R, Tillman A, Sandén B A, Janssen M, Nordelöf A, Kushnir D, Molander S.: Environmental Assessment of Emerging Technologies: Recommendations for Prospective LCA. *Journal of Industrial Ecology* 22:1286-1294.

Larrea-Gallegos G, Vázquez-Rowe I, Wiener H, Kahhat R.: Applying the Technology Choice Model in Consequential Life Cycle Assessment: A Case Study in the Peruvian Agricultural Sector. *Journal of Industrial Ecology* 23:601-614.

Pomponi F, Lenzen M.: Hybrid life cycle assessment (LCA) will likely yield more accurate results than process-based LCA. *Journal of Cleaner Production* 176:210-215.

Poore J, Nemecek T.: Reducing food's environmental impacts through producers and consumers. *Science* 01 Jun 2018:987-992.

Ridoutt B, Motoshita M, Pfister S.: An LCA impact assessment model linking land occupation and malnutrition-related DALYs. *International Journal Life Cycle Assessment*. First Online 13 Feb 2019. <https://doi.org/10.1007/s11367-019-01590-1>

Sevenster M, Luo Z, Eady S, Grant T.: Including long-term soil organic carbon changes in life cycle assessment of agricultural products. *The International Journal of Life Cycle Assessment*. First Online 17 July 2019. <https://doi.org/10.1007/s11367-019-01660-4>

Thonemann N, Pizzol M.: Consequential life cycle assessment of carbon capture and utilization technologies within the chemical industry. *Energy & Environmental Science* 12:2253-2263.

Vandepaer L, Cloutier J, Bauer C, Amor B.: Integrating Batteries in the Future Swiss Electricity Supply System. A Consequential Environmental Assessment. *Journal of Industrial Ecology* 23(3):709-725.