P U B L I K A T I O N E N

Prof. Dr. David Laner

(Stand: 04.12.2023)

Publications in scientific journals (peer reviewed, SCI)

1. V. Bisinella, S. Schmidt, A.S. Varling, **D. Laner**, T.H. Christensen (2023): Waste LCA and the future, Waste Management, Volume 174, Pages 53-75, 2024, https://doi.org/10.1016/j.wasman.2023.11.021.
2. S. Schmidt und **D. Laner** (2023): The Environmental Performance of Plastic Packaging Waste Management in Germany: Current and Future Key Factors, Journal of Industrial Ecology, http://dx.doi.org/10.1111/jiec.13411.
3. S. Schmidt und **D. Laner** (2023): Environmental Waste Utilization score to monitor the performance of waste management systems: A novel indicator applied to case studies in Germany. Resources, Conservation & Recycling Advances, Volume 18, https://doi.org/10.1016/j.rcradv.2023.200160.
4. G. Sauve, J. L. Esguerra, **D. Laner**, J. Johansson, N. Svensson, S. Van Passel, K. Van Acker (2022): Integrated early-stage environmental and economic assessment of emerging technologies and its applicability to the case of plasma gasification. Journal of Cleaner Production, 134684, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2022.134684.
5. K.S. Mulya, J. Zhou, Z. X. Phuang, **D. Laner**, K.S. Woon (2022): A systematic review of life cycle assessments of solid waste management: Methodological trends and prospects. Science of the total environment, DOI: 10.1016/j.scitotenv.2022.154903
6. S. Schmidt und **D. Laner** (2021): „The multidimensional effects of single-use and packaging plastic strategies on German household waste management“, Waste Management, Bd. 131, S. 187–200. DOI: 10.1016/j.wasman.2021.06.003
7. J.L. Esguerra, **D. Laner**, N. Svensson, D. Krook (2021): Landfill mining in Europe: Assessing the economic potential of value creation from generated combustibles and fines residue. Waste Management 126, 221–230.

8. I. Vateva, **D. Laner** (2020): Grain-size specific characterisation and resource potentials of municipal solid waste incineration (MSWI) bottom ash. Resources 2020, 9 (6), 66.
9. S. Schmidt, **D. Laner**, E. Van Eygen, N. Stanisavljević (2020): Material efficiency to measure the environmental performance of waste management systems: a case study on PET bottle recycling in Austria, Germany and Serbia. Waste Management 110: 74-86.
10. **D. Laner**, J. L. Esguerra, J. Krook, M. Horttanainen, M. Kriipsalu, R. M. Rosendal and N. Stanisavljević (2019): Systematic assessment of critical factors for the economic performance of landfill mining in Europe: What drives the economy of landfill mining? Waste Management 95: 674-686.
11. J. Grames, O. Zoboli, **D. Laner**, H. Rechberger, M. Zessner, M. Sanchez-Romero, A. Prskawetz (2019): Understanding feedbacks between economic decisions and the phosphorus re-source cycle: a general equilibrium model including material flows. Resources Policy 61: 311-347.
12. E. Van Eygen, **D. Laner**, J. Fellner (2018). Integrating High-Resolution Material Flow Data into the Environmental Assessment of Waste Management System Scenarios: The Case of Plastic Packaging in Austria. Environmental Science & Technology 52(19): 10934-10945.
13. K. Pivnenko, **D. Laner**, T. F. Astrup (2018). Dynamics of bisphenol A (BPA) and bisphenol S (BPS) in the European paper cycle: Need for concern? Resources, Conservation and Recycling 133: 278-287.
14. E. Van Eygen, **D. Laner**, J. Fellner (2018): Circular economy of plastic packaging: current practice and perspectives in Austria. Waste Management 72, 55-64.
15. H. Buchner, **D. Laner**, H. Rechberger, J. Fellner (2017): Potential recycling constraints due to future supply and demand of wrought and cast Al scrap—A closed system perspective on Austria. Resources, Conservation and Recycling, 122, 135-142.
16. N. Džubur, **D. Laner** (2017): Evaluation of Modeling Approaches to Determine End-of-Life Flows Associated with Buildings: A Viennese Case Study on Wood and Contaminants. Journal of Industrial Ecology.
17. N. Džubur, O. Sunanta, **D. Laner** (2017): A fuzzy set-based approach to data reconciliation in material flow modeling. Applied Mathematical Modelling, 43, 464-480.
18. J. Fellner, J. Lederer, C. Scharff, **D. Laner** (2017): Present Potentials and Limitations of a Circular Economy with Respect to Primary Raw Material Demand. Journal of Industrial Ecology.
19. F. Huber, **D. Laner**, J. Fellner (2017): Comparative life cycle assessment of MSWI fly ash treatment and disposal. Waste Management.
20. **D. Laner**, O. Zoboli, H. Rechberger (2017): Statistical entropy analysis to evaluate resource efficiency: Phosphorus use in Austria. Ecological Indicators 83, 232-242.

21. E. Van Eygen, J. Feketitisch, **D. Laner**, H. Rechberger, J. Fellner (2017): Comprehensive analysis and quantification of national plastic flows: The case of Austria. Resources, Conservation and Recycling, 117, 183-194.
22. N. Džubur, H. Buchner, **D. Laner** (2016): Evaluating the Use of Global Sensitivity Analysis in Dynamic MFA. Journal of Industrial Ecology.
23. M. Klinglmair, O. Zoboli, **D. Laner**, H. Rechberger, T. F. Astrup, C. Scheutz (2016): The effect of data structure and model choices on MFA results: A comparison of phosphorus balances for Denmark and Austria. Resources, Conservation and Recycling, 109, 166-175.
24. **D. Laner**, J. Feketitsch, H. Rechberger, J. Fellner (2016): A Novel Approach to Characterize Data Uncertainty in Material Flow Analysis and its Application to Plastics Flows in Austria. Journal of Industrial Ecology, 20, 5, 1050-1063.
25. **D. Laner**, O. Cencic, N. Svensson, J. Krook (2016): Quantitative Analysis of Critical Factors for the Climate Impact of Landfill Mining. Environmental Science and Technology 50, 13, 6882-6891.
26. K. Pivnenko, **D. Laner**, T. F. Astrup (2016): Material Cycles and Chemicals: Dynamic Material Flow Analysis of Contaminants in Paper Recycling. Environmental Science and Technology, 50, 22, 12302-12311.
27. O. Schwab, **D. Laner**, H. Rechberger (2016): Quantitative Evaluation of Data Quality in Regional Material Flow Analysis. Journal of Industrial Ecology.
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29. Winterstetter, **D. Laner**, H. Rechberger, J. Fellner (2016): Integrating anthropogenic material stocks and flows into a modern resource classification framework: Challenges and potentials. Journal of Cleaner Production, 133, 1352-1362.
30. Brandstätter, **D. Laner**, J. Fellner (2015): Nitrogen pools and flows during lab-scale degradation of old landfilled waste under different oxygen and water regimes. Biodegradation, 26, 5, 399-414.
31. Brandstätter, **D. Laner**, J. Fellner (2015): Carbon pools and flows during lab-scale degradation of old landfilled waste under different oxygen and water regimes. Waste Management, 40, (0), 100-111.
32. H. Buchner, **D. Laner**, H. Rechberger, J. Fellner (2015): Dynamic material flow modelling: an effort to calibrate and validate aluminium stocks and flows in Austria. Environmental Science and Technology, 49, 9, 5546–5554.
33. H. Buchner, **D. Laner**, H. Rechberger, J. Fellner (2015): Future raw material supply: opportunities and limits of aluminium recycling in Austria. The Journal of Sustainable Metallurgy, DOI: 10.1007/s40831-015-0027-3.
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39. H. Buchner, **D. Laner**, H. Rechberger, J. Fellner (2014): In-depth analysis of aluminum flows in Austria as a basis to increase resource efficiency. Resources, Conservation and Recycling, 93, (0), 112-123.
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41. C. Brandstätter, **D. Laner**, R. Prantl, J. Fellner (2014): Using multivariate regression modeling for sampling and predicting chemical characteristics of mixed waste in old landfills. Waste Management, 34, (12), 2537-2547.
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44. **D. Laner**, O. Cencic (2013): Comment on "Solid recovered fuel: Materials flow analysis and fuel property development during the mechanical processing of biodried waste". Environmental Science and Technology, 47, 14533 - 14534.
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46. **D. Laner**, J. Fellner, P.H. Brunner (2012): Site-specific criteria for the completion of landfill aftercare. Waste Management & Research, 30, (9), 88 - 99.
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48. **D. Laner**, J. Fellner, P.H. Brunner (2011): Environmental compatibility of closed landfills - assessing future pollution hazards. Waste Management & Research 29, (1), 89 - 98.
49. **D. Laner** (2009): The consideration of long-term emissions from landfills within life-cycle assessment. Waste Management & Research 27, (5), 463 - 470.

50. **D. Laner**, J. Fellner, P.H. Brunner (2009): Flooding of municipal solid waste landfills - An environmental hazard? Science of The Total Environment 407, (12), 3674 - 3680.
51. **D. Laner**, H. Rechberger (2009): Quantitative evaluation of waste prevention on the level of small and medium sized enterprises (SMEs). Waste Management 29, (2), 606 - 613.
52. **D. Laner**, H. Rechberger (2007): Treatment of cooling appliances: Interrelations between environmental protection, resource conservation, and recovery rates. Resources, Conservation and Recycling 52, (1), 136 - 155.

Book chapters, Books (edited), international reports and contributions to non-peer reviewerd journals

1. S. Schmidt and **D. Laner** (2020): Material flow analysis of recycling systems, Handbook of the Circular Economy, Miguel Brandão, David Lazarevic, Göran Finnveden, DOI: https://doi.org/10.4337/9781788972727
2. D. Blasenbauer, A. Bogush, T. Carvalho, P. Cleall, C. Cormio, D. Guglietta, J. Fellner, M. Fernández-Alonso, S. Heuss-Aßbichler, F. Huber, U. Kral, M. Kriipsalu, J. Krook, **D. Laner**, J. Lederer, B. Lemière, G. Liu, R. Mao, S. Mueller, M. Quina, D. Sinnett, J. Stegemann, M. Syc, K. Szabó, T.T. Werner, E. Wille, A. Winterstetter, and G. žibret (2020): Knowledge base to facilitate anthropogenic resource assessment. Deliverable of COST Action Mining the European Anthroposphere. DOI: http://dx.doi.org/10.5281/zenodo.3739164
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4. J. Fellner, **D. Laner**, J. Lederer (2018): Konferenzband (editiert): International Symposium `Science to Support Circular Economy, TU Wien, Christian Doppler Laboratory "Anthropogenic Resources". urn: nbn:at:at-ubtuw:3-3831; 132 S.
5. U. Kral, J. Fellner, S. Heuss-Aßbichler, **D. Laner**, F. Müller, M. Simoni, H. Rechberger, L. Weber, F.-W. Wellmer, A. Winterstetter (2018): Vorratsklassifikation von anthropogenen Ressourcen: Historischer Kontext, Kurzvorstellung und Ausblick, Online-Ressource: https://permalink.obvsg.at/AC15104047, Wien- München-Dessau-Trondheim-Hannover-Mol-Antwerpen, 13 S.
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9. E. van Eygen, **D. Laner** (2017): Carbon-based materials. CEC4Europe publication project, url: http://www.cec4europe.eu/fileadmin/user_upload/_Chapter_3.4_VanEygen_and_Laner_Carbon-Based_Materials.pdf

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11. **D. Laner**, H. Rechberger (2016): Material Flow Analysis. Book chapter in the LCA Compendium – Special Types of Life Cycle Assessment, Ed. M. Finkbeiner, Series Eds. W. Klöpffer, M.A. Curran, Springer.
12. H. Buchner, **D. Laner** (2015): Die Österreichische Aluminiumbilanz (2010) aus abfallwirtschaftlicher Perspektive. Österreichische Wasser- und Abfallwirtschaft, 67, (1-2), 28-34.
13. J. Feketitsch, **D. Laner** (2015): Der österreichische Kunststoffhaushalt. Österreichische Wasser- und Abfallwirtschaft, 67, (1-2), 35-42.
14. J. Lederer, **D. Laner**, H. Rechberger, J. Fellner (Hrg, 2015): Mining the Technosphere - Drivers and Barriers, Challenges and Opportunities, TU Wien, ISBN: 978-3-85234-132-3.
15. Winterstetter, **D. Laner** (2015): Wirtschaftliche Rückgewinnung von Wertstoffen aus Deponien – Untersuchung eines Landfill Mining Projektes in Belgien. Österreichische Wasser- und Abfallwirtschaft, 67, (1-2), 54-63.
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17. M. Dos Santos, M. Spitzbart, M.Weinlich, T. Leitner, **D. Laner**, O. Cencic, H. Rechberger (2012): MoveRec: On-line tool for estimating the material composition of WEEE input streams. Electronics Goes Green 2012+, Fraunhofer IZM, Berlin, 2012, 1-5.
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Conference contributions (last three years, >70 contributions in total)

1. **D. Laner**, I. Vateva, M. Laabs und B. Middendorf (2023): „Ökologische Optimierung von Betonprodukten durch Nutzung mineralischer Fraktionen von Hausmüllverbrennungs-Rostasche“. Eingeladener Vortrag im Rahmen der IGAM/ITAD/vgbe-Tagung „Aktuelle Entwicklungen bei der Aufbereitung und Verwendung von Hausmüllverbrennungsschlacken“ am 16. Mai 2023 in Düsseldorf.
2. Laabs I. Vateva und **D. Laner** (2022): „Optimierung der mineralischen Fraktion von Hausmüllverbrennungsaschen zur Nutzung in Betonprodukten“, in Vorträge-Konferenzband zur 16. Recy & DepoTech-Konferenz, 9. - 11. November 2022, Montanuniversität Leoben, Österreich
3. V. Scheff, G. Dürl und **D. Laner** (2022): „Aufbereitung von Siebüberlauf aus der Bioabfallbehandlung zu biogenem Restbrennstoff“, in Poster-Konferenzband zur 16. Recy & DepoTech-Konferenz, 9. - 11. November 2022, Montanuniversität Leoben, Österreich
4. **D. Laner** und T. Gibon (2022): „Plastic cycles in buildings and infrastructure: a stylized model on PVC use in Germany”, Presentation at ISIE-SEM Conference 2022, September 19 – 21, 2022, Vienna, Austria.
5. **D. Laner** (2022): „Critical choices in Waste LCA – A case study on the treatment of PAHrich road debris”, Presentation and poster at the conference Life Cycle Assessment for Waste Management and Resource Optimization. June 5 -10, 2022, Cetraro, Italy.
6. I. Vateva und **D. Laner** (2022): „Optimierung der mineralischen Fraktion von Hausmüllverbrennungsaschen zur Nutzung in Betonprodukten durch geeignete Aufbereitungsschritte“, in *11. Wissenschaftskongress Abfall- und Ressourcenwirtschaft*, 1. Aufl., A. Bockreis, M. Faulstich, S. Flamme, M. Kranert, M. Mocker, M. Nelles, P. Quicker, G. Rettenberger, und V. S. Rotter, Hrsg. Innsbruck: Innsbruck university press, 2022, S. 49–52.
7. S. Schmidt und **D. Laner** (2022): „Welchen Effekt haben Einwegkunststoffmaßnahmen auf die deutsche Kreislaufwirtschaft?“, *in 11. Wissenschaftskongress Abfall- und Ressourcenwirtschaft*, A. Bockreis, M. Faulstich, S. Flamme, M. Kranert, M. Mocker, M. Nelles, P. Quicker, G. Rettenberger, und V. S. Rotter, Hrsg. Innsbruck: innsbruck university press, 2022, S. 17–21.
8. S. Schmidt und **D. Laner** (2022): „Ökobilanzielle Bewertung verschiedener Behandlungspfade von Kunststoffverpackungsabfällen“, *in Bioabfall- und stoffspezifische Verwertung IV.* Eingeladener Vortrag. Tagungsband zum 33. Kasseler Abfall- und Ressourcenforum, K. Wiemer, M. Kern und T. Raussen, Hrsg. Witzenhausen: Witzenhausen Institut.
9. **D. Laner** (2021): „Recyclingquoten 2.0 – Was uns Quoten in der Kreislaufwirtschaft sagen“. Eingeladener Vortrag. Bioabfall- und stoffspezifische

Verwertung III *IV.* Tagungsband zum 32. Kasseler Abfall- und Ressourcenforum, K. Wiemer, M. Kern und T. Raussen, Hrsg. Witzenhausen: Witzenhausen Institut.

10. **D. Laner** and J. Fellner (2020): Ökonomische und ökologische Bewertung des Deponierückbaus: Fallbeispiele aus Brandenburg D., Tagungsbeitrag zum Konferenzband der 15. Recy & DepoTech-Konferenz sowie virtuelle Konferenzwelt auf meetyoo, Montanuniversität Leoben, 18. - 20. November, Österreich
11. **D. Laner** (2020): Systematic assessment of critical factors for the economic performance of landfill mining, contribution to the MINEA Final Conference 20. – 21.02.2020, Bologna.
12. **D. Laner** (2020): Two case studies on the evaluation and classification of landfills as resources in Brandenburg using ONTOL, contribution to the MINEA Final Conference 20. – 21.02.2020, Bologna.
13. **D. Laner** and I. Vateva (2019): MSWI Bottom Ash as Construction Material: Applications and Impacts on Substance Flows, 5th International Conference on Final Sinks, Wien.
14. **D. Laner** and J. Fellner (2019): Abschätzung der Nachsorgedauer von Deponien anhand standortspezifischer Kriterien, Tagungsband zur 15. Leipziger Deponiefachtagung, Leipzig.
15. **D. Laner** and J. Krook (2019): Critical factors for landfill mining, Invited keynote talk at the LANDSS landfill aftercare forum, Birmingham.
16. **D. Laner** and R. Warrings (2018): Current and future recycling potentials for Aluminium in Austria. International Symposium "Science to support Circular Economy", Wien.
17. H. Rechberger and **D. Laner** (2018): Statistical entropy - an indicator for resource systems. International Symposium "Science to support Circular Economy", Wien.
18. **D. Laner** and H. Rechberger (2018): Statistical entropy to evaluate the resource efficiency of recycling systems: Phosphorus use in Austria. 2nd Conference on Life Cycle Assessment of Waste, Comwell Borupgaard, Denmark.
19. E. van Eygen and **D. Laner** (2018): The value of high resolution MFA data for LCA of waste management systems: considering waste compositions and material efficiencies. 2nd Conference on Life Cycle Assessment of Waste, Comwell Borupgaard, Denmark.
20. **D. Laner** (2017): Data quality assessment and uncertainty characterization. 9th biennial conference of the International Society for Industrial Ecology (ISIE), Chicago.
21. **D. Laner**, O. Zoboli, H. Rechberger (2017): Resource efficiency from a statistical entropy perspective: Case study on phosphorus use in Austria. 9th biennial conference of the International Society for Industrial Ecology (ISIE), Chicago.
22. **D. Laner** (2017): Herausforderungen sauberer und ressourceneffizienter Holzkreisläufe (Challenges of clean and resource efficient wood cycles). ÖWAV Seminar: Der Umgang mit Holzabfällen in Österreich, Wien.

Academic theses

1. **D. Laner** (2019): Analysis, Evaluation and Design of Material Cycles. Habilitation thesis, Faculty of Civil Engineering, Vienna University of Technology.
2. **D. Laner** (2011): Understanding and evaluating long-term environmental risks from landfills. PhD thesis, Institute für Water Quality, Resource and Waste Management, Faculty of Civil Engineering, Vienna University of Technology.
3. **D. Laner** (2005): Räumliche Variabilität von Bodenkennwerten in einem Einzugsgebiet (Spatial variability of soil paraemters in a small catchment). Master thesis, Department for Water-Environment-Atmosphere, University of Natural Resources and Life Sciences, Vienna.