CURRICULUM VITAE

Massimo Pizzol

RESEARCH ACHIEVEMENTS

- Focus area: Industrial Ecology and Sustainability Science, specialized in Life Cycle Assessment. Focus on uncertainty analysis and assessment of emerging green technologies (digital technologies and biobased products). Experienced in quantitative, quantitative, mixed research methods and interdisciplinary inquiries. Skilled in Python, R for data science and statistics
- Research coordinator for Life Cycle Sustainability group, 25 people (formally starting Jan 2025).
- Contributed to secure >15M Euro in research grants, of which >3M Euro to Aalborg University.
- More than 50 Peer reviewed sci. articles published with >70 co-authors of >25 affiliations and from >20 countries. H-index: 29 (Google Scholar)
- 7 PhD students supervised (3 co-supervised), 3 ongoing, >10 hosted (3-12 months)

EDUCATION

2011 ***Ph.D. in Planning and Development***, Aalborg University (DK). Thesis title: *Health related impacts from metals and assessment of external costs for waste management in a life cycle perspective*.

2007 ***M.Sc. in Environmental Sciences and Technologies*** for the Environment and the Resources, University of Parma (IT). Thesis title: *Comparison of urban solid waste management systems via LCA (Life Cycle Assessment)*. Grade: 110/110 Magna cum Laude and Academic mention.

2004 ***B.Sc. in Environmental Sciences and Technologies*** for the Territory and the Production System, University of Parma (IT). Thesis title: *Development of electro-analytical methods for the determination of trace metals in atmospheric particulate PM 2.5*. Grade: 110/110 Magna cum Laude and Academic mention

POSITIONS

2025 – **Head** of Life Cycle Sustainability (LCS) group, Aalborg University, Dep. Planning (DK). Group has currently 25 members. Coordinator for group strategy, economy, and day-to-day group activities (meetings, seminars, communication).

2022 – **Professor**, Aalborg University, Dep. Planning (DK)
Teaching 20-30% time, rest of time dedicated to funding acquisition and research project management, PhD supervision, and carrying out research activities in externally funded research projects related to LCA of emerging technologies.

2015-21 ***Associate Professor*****,** Aalborg University, Dep. Planning (DK)
Teaching 20-40% time, rest of time dedicated to funding acquisition and research project management, PhD supervision, and carrying out research activities in externally funded research projects related to LCA of emerging technologies.

2013-15 ***Assistant Professor***, Aalborg University, Dep. Planning (DK)
Teaching 50% time, rest of time dedicated to teaching training (Adjunktpædagogikum), funding acquisition, and carrying out research activities in externally funded research projects related to LCA.

2011-12 ***Post Doc Research Fellow***, Aarhus University, Dep. Environmental Science (DK)
Carrying out research activities in externally funded research projects in industrial ecology.

2007-10 ***PhD Student***, Aalborg University, Dep. Development and Planning (DK)
Doing research of modelling health impacts of waste management systems within a project jointly funded by Aalborg University, Dep. of Planning, Aarhus University, Dep. of Env. Science (originally DMU), and Danish Technical University, Department of Environmental Engineering ("3R - Residual Resources and Research" Research school).

2007-08 ***Consultant*****,** IDECOM s.r.l. Environmental Consultancy (IT). Designing and implementing waste collection and management systems for municipalities in Northern Italy.

CAREER BREAKS

I took father and parental leave in conjunction with the birth of my two children.
Father leave 24/06 – 08/07 2014 (2 weeks)
Parental leave 18/02 – 15/05 2015 (12 weeks)
Father leave 13/02 – 26/02 2017 (2 weeks)
Parental leave 1/05 – 31/06 2018 (9 weeks)

RESEARCH GRANTS AND PROJECTS

My research project portfolio includes a variety of externally funded projects in terms of size, role, and network involved, both national and international. A full list of projects and their outputs is available at the AAU website: https://vbn.aau.dk/en/persons/117459/projects/

2025-29 WP leader in *MULTIPLY* - *Multiplying feasible microalgae-derived products at scale.* Task: LCA of innovative microalgae production technologies at EU scale. Funding: HORIZON-JU-CBE-2024-IA-02. IA action. Project number: 101214894. AAU budget 500K€

2024-27 WP leader in *ASCCENT* - *Active storage of captured CO2 in net zero construction products.* Task: Building LCA capacity in assessment of net zero buildings and technologies. Funding: HORIZON-WIDERA-2023-ACCESS-02-02. CSA action. Project number: 101159895. AAU budget 200K€

2024-27 WP leader in *FunSea* - *Functional processing of cultivated seaweeds for novel food products*. Collaborative project with European partners lead by SINTEF (NO). Task: sustainability assessment of novel algae-to-food technologies using LCA and mixed-methods approaches to upscaling and seaweed market forecasting. Funding: BlueBio Partnership (H2020 and Innovation Fund Denmark). AAU budget 300K€

2024-27 WP leader in *LCA4BIO - Harmonised Life Cycle Assessment methods for sustainable and circular BIO based systems*. Collaborative project (10 partners, of which 6 industrial). Task: developing harmonized methods for life cycle and circularity assessment of biobased systems. Funding: HORIZON-CL6-2023-ZEROPOLLUTION-01-4. HORIZON-RIA action. Project nr 101135371. Total budget 3.5M€, AAU budget 0.5M€.

2023-25 Supervisor in *DARETOTIP - Dynamic system strategies for climate social tipping points* Marie Skłodowska-Curie International Postdoc Fellowship grant. Project host and supervisor for the award recipient Thomas Elliot. Funding: *HORIZON-TMA-MSCA-PF-EF.* Budget *214* K€.

2023-24 PI in *Circular Practices.* Small-size project on assessment of different guidelines for the carbon footprinting of industrial symbiosis networks of Danish SMEs. Funding: Clean Cluster (innovation fund Denmark). Budget 400K kr.

2022-25 PI in *Constraints and Trade-offs in the climate impact of fisheries*. Individual grant (DFF – Research Project 1, Grant no. 2035-00033). Task: consequential LCA of fisheries and their climate impact. Funding: The Danish Council for Independent Research – Technology and Production Sciences. Budget 2.852.324 kr. (380K€)

2022-25 PI in *ALIGNED - Aligning Life Cycle Assessment methods and bio-based sectors for improved environmental performance.* Collaborative project (13 partners, of which 8 industrial). Task: developing a harmonized framework for life cycle assessment of biobased sectors. Funding: HORIZON-CL6-2021-ZEROPOLLUTION-01-06. HORIZON-RIA action. Project nr 101059430. Total budget 3.4M€, AAU budget 0.8M€.

2020-23 WP leader in *PlastiSea*. Collaborative project with European partners such as SINTEF (NO) and KTH (SE). Task: sustainability assessment of novel algae-to-polymer technologies using LCA and mixed-methods approaches to upscaling and seaweed market forecasting. Funding: ERA-NET (H2020 and Innovation Fund Denmark). AAU budget 2.096.820 kr. (280K€) Expected output: one PhD Thesis, four scientific articles on LCA of seaweed and circular blue bioeconomy.

2020-23 WP leader in *AquaHealth*. Collaborative project with European partners such as SINTEF (NO), TU Hamburg (DE), TU berlin (DE). Task: sustainability assessment of novel

aquaculture technologies using parametrized and stochastic LCA models combined with scenario analysis. Funding: ERA-NET (H2020 and Innovation Fund Denmark). AAU budget 1.692.750 kr. (225K€) Expected output: one PhD Thesis, four scientific articles on LCA of microalgae production, aquaculture technologies, and circular blue bioeconomy.

2020-23 WP leader in *Connect4Greentech* Collaborative project with Nordic partners. Task: identify innovation barriers for novel lignin processing technologies using mixed methods approach that combines quantitative patent analysis with qualitative interviews. Funding: NordForsk. AAU budget 140.000 kr. (20K€) Expected output: one scientific article in collaboration with DTU and AU.

2020-21 PI in *Fisheries Footprint*. In collaboration with AAU Center for Blue Governance and AAU Department of Chemistry and Bioscience. Task: capacity building for the assessment of Danish fisheries footprint via mapping available data, involving stakeholders, and performing pilot footprints. Funding: Fiskeafgiftsfonden. AAU budget 500.000 kr. (66K€) Expected output: establish our group as leading research environment in Denmark for fisheries footprint, one stakeholder workshop (scheduled June '21), one scientific article.

2020 Researcher in *Circular Plastic Blockchain-Readiness*. Subcontractor for Centre for Logistics and Cooperation (DK). Task: I designed and facilitated a scenario workshop with danish stakeholders including the plastic industry and blockchain academics on improving circularity of plastic products and waste via blockchain technology. Funding: IndustriensFond. AAU budget: 300.000 kr. (40K€) Output: one workshop held in Denmark, one workshop report, one whitepaper (in progress).

2018-21 PI in *Sustainable Blockchain Technologies*. Individual grant (DFF – Research Project 1, Grant no. 7015-00006B). Task: sustainability assessment of cryptocurrencies and Blockchain applications. Funding: The Danish Council for Independent Research – Social Sciences. Budget 2.578.877 kr. (344K€) Output: one PhD Thesis, four scientific articles on the sustainability of Blockchain (two already published and one under review), several interviews and podcasts with danish and international media, including the New York Times, mentioned in one Wikipedia page.

2017-19 Researcher in *NOWAGG - New Nordic Ways to Green Growth*, Collaborative project with Nordic partners. Subcontractor for AU. Task: I performed >40 interviews with inventors of emerging green technologies in four Nordic countries, to identify funding and technical barriers and opportunities, and performed a data analysis of Nordic patents. Funding: NordForsk. AAU budget 240.000 kr. (32K€) Expected output: one scientific article (in prep.).

2018 PI in *Environmental assessment of transport corridors*. Task: LCA of road and sea routes for transport of goods in the Nordic area using stochastic LCA. Funding: Port of Hirtshals. Budget: 80.000 kr. (10K€) Output: one scientific article published.

2014 Researcher in *C3BO, Centre for biooil*. Collaborative project with Danish and International partners. Task: LCA of biofuel refinery systems using lignocellulose feedstock. I investigated the trade of wood products worldwide using network analysis and contributed to developing a parametrized model to account for forest carbon. Funded by Danish Strategic Research Council. AAU budget approx. 2.000.000 kr. (266K€), total budget approx. 30 M kr. (4M€) Output: three scientific articles published.

2014 Researcher in Life Cycle assessment of alternatives for treatment of wastewater from allotment gardens in the Aalborg municipality. Task: life cycle assessment of wastewater treatment systems. Funded by Aalborg Municipality. Total budget: 60.000 kr. (8K€) Output: one report in Danish.

2013-14 Researcher in *Plastic 0*. Collaborative EU project. Task: LCA of take back and reuse systems for plastic packaging and modelling of future plastic waste generation in the five

project member countries, at national and urban scale. Funded by European Commission Life Programme. Total budget 1.200.000 €. (160K€) Output: project report.

2013-14 Researcher in *Nordic plastic value chains Case WEEE* *(Waste Electric and Electronic equipment)***.** Collaborative project with Nordic partners. Task: identify potential improvements in the existing collection and recycling systems for plastic and electronic waste, via interviews and system analysis. Funded by Nordic Council of Ministers. AAU budget 55.000 kr. (7K€), total budget 850.000 kr. (113K€) Output: project report.

2013 WP leader in *Monetarisation in LCA*. Collaborative project with 2.0 LCA consultants. Task: analysis on the use of monetary valuation in Life Cycle Assessment, critical review and survey among practitioners, part of WP3-4. Funded by SCORELCA Foundation (FR). AAU budget 10.000 €, total budget 40.000 €. Output: one scientific paper published.

2012 WP leader in *EPI-Water*. Collaborative EU project with international partners. Task: leader of Work Package 4.4.B Macroeconomic perspective on water quality issues of relevance to the System of Environmental-Economic Accounting for Water (SEEAW) - Water quality aspects. Ex-ante assessment of Economic Policy Instruments (EPI). Funded by European Commissions 7th Framework Programme. Aarhus University Total budget 430.000 €, total budget 2.5 M €. Output: one scientific paper published.

2012 Researcher in *Green Business Calculator*. Task: system modelling for the sustainability assessment of a Danish municipal water management system via material flow analysis and network analysis (NA). Funded by Aarhus University. Output: one scientific paper published.

2011 Researcher in *Greening Electronics*. Task: material flow analysis for Danish Waste from Electric and Electronic Equipment (WEEE) fractions. Funded by Danish Environmental Protection Agency. Total budget 300.000 kr. (40K€) Output: one report for the Danish EPA published.

MEMBERSHIP OF RESEARCH NETWORKS

I have collaborated with several foreign university on research activities leading to the publication of scientific articles, as well as joined international research networks on LCA topics and beyond.

2022- Member of Prospective LCA network. Founding member and contributor in international network focusing on recent developments in prospective LCA. Bimonthly meetings and organisation of 4 free online seminars yearly with newest research in the area.

2021- Member of TECH4CE. I have been recently appointed as one of the two representatives of the Dep. of Planning in a new cross-departmental centre for circular economy at the TECH faculty. The Dep. of Planning will also lead the centre. The centre will promote and advertise research activities related to circular economy within the faculty, including fundraising for joint projects across departments.

2019- Member and contributor to BONSAI – Big Open Network for Sustainability Assessment Information (https://bonsai.uno/). Participated in the 2019 Hackathon gathering computer scientists and industrial ecologists to draft an ontology for industrial ecology. The objective of this group is to develop open source and semantic web-based tools for industrial ecology. I have also been active in fundraising for the group.

2015- Contributor to UNEP-SETAC LCA working groups of the United Nations Environment Programme and Society for Environmental Toxicology and Chemistry. In 2015-16 Leader of the working group on normalization and weighting for LCA, UNEP-SETAC task force on cross-cutting issues. Together with Alexis Laurent (DTU) I lead a group of ten international

LCA experts and produced a scientific article. Since 2015 active in the same cross-cutting issues, working groups on normalisation and weighting and on uncertainty in LCA.

2017 **Fellow at RELY – Renewable Energy and Landscape Quality**. Cost Action Training School. Questions of Power and Participation: Renewable Energy and Landscape in Policy and Planning. University of Iceland.

2013 **Fellow at Global Sustainability Summer School** of the Potsdam Institute for Climate Impact Research (DE) and Institute for Advanced Sustainability Studies (DE), 35 fellows selected over 400 applicants.

2013 **Visiting Lecturer**: UTM Summer Course 2013, Universiti Teknologi Malaysia (UTM) Summer Course on Sustainable Consumption and Production - Towards achieving sustainability in industry.

2010 **Visiting Scholar** within the Life-Cycle Impact Assessment team at the Interuniversity Research Centre for the Life Cycle of Products Processes and Services (CIRAIG), Montreal (CA). Subject: multimedia fate modelling of indirect "source to exposure" links through soil for metal emissions by accounting for the role of metal speciation.

TEACHING AND SUPERVISION (cf. teaching portfolio for plenty of details)

2013- Present Teaching at 20-50% in Life cycle assessment and sustainability.

Developer, coordinator, and lecturer of bachelor, master, and PhD and professional courses (10-70 stud). Supervised several group-projects and master thesis-projects using the Problem-Based learning pedagogy.

SUPERVISION OF PHD STUDENTS

2024- Kíra Lancz: *Life Cycle assessment of a circular bioeconomy*.

2024- Ravalnath Shikhare: *Assessment of circular and novel seaweed-based products through a life cycle approach.*

2022- Giovanni Codotto: *Constraints and Trade offs in the climate impacts of fisheries.*

2020-23 Pierre Jouannais: *Navigating indeterminacy in ex-ante LCA, Assessing undiscovered microalgal compounds for health management in aquaculture.*

2020-23 Maddalen Ayala Cerezo: *Novel Brown Seaweed-Based Bioplastic A Prospective Life Cycle Assessment.*

2020-21 (Co-supervisor) Juanita Gallego Dávila: *Carbon Capture Use and Storage in Aalborg Portland: towards a low carbon economy in the cement industry.*

2020-24 (Co-supervisor) Kikki Lambert Ibsen: *Future oriented Conceptual Model for the Eco-design of Buildings.* University of Sherbrooke (CA).

2018-2021 Susanne Köhler: *Sustainable Blockchain Technologies. an assessment of social and environmental impacts of blockchain-based technologies*

2015-2016 (Co-supervisor) Hao Yin: *A Chinese PM2.5 health economic loss evaluation model and prediction system.* Joint degree Aalborg University – Beijing University

2013-2015 (Co-supervisor) Morten Bidstrup: *Planning Sustainable Supply of Construction Aggregates.*

SUPERVISION OF VISITING PHD STUDENTS

2024 Uncertainty analysis of input-output databases compared to Process databases. Elisabetta Pigni. University of Bologna, Italy (6 months).

2024 LCA modelling of upcycling and industrial symbiosis systems. Anna Ruini. University of Siena, Italy (6 months).

2022 LCA of biorefineries, methodological improvements and uncertainty analysis. Ugo Javourez. Toulouse Biotechnology Institute, Bio & Chemical Engineering, Université de Toulouse (3 months).

2021 Meta-analysis based LCA of wastewater treatment systems. Supervision of Jorge Senán-Salinas, Visiting PhD student (expected stay of 3 months, currently started remotely due to Covid travel restriction) at the IMDEA-Water Institute, University of Alcalá, Spain.

2021 Consequential LCA of lignin-based technologies, identifying marginal suppliers of woody biomass. Supervision of Maxim Tschulkow, visiting PhD student, University of Antwerp, Belgium.

2019 LCA of Spanish Dairy farms. Supervision of Daniel Francisco Egas Galarza, Visiting PhD student (2 months), BETA Technological Center, University of Vic - Central University of Catalonia (UVic-UCC), Spain.

2018 LCA of carbon capture and utilization. Supervision of Nils Thonemann, Visiting PhD student (3 months), Fraunhofer Institute for Environmental, Safety, and Energy Technology, Germany.

2017 LCA of biomass to energy pathways. Supervision of Natalia R Matiz, Visiting PhD student (1 month), Institute of Energy Economics and Rational Energy Use, Univ. of Stuttgart, Germany.

2016 LCA of the Belgian construction sector. Supervision of Matthias Buyle, Visiting PhD student (3 months), EMIB-research group, Univ.of Antwerp, Belgium.

2016 LCA of building refurbishment. Supervision of Agneta Ghose, Visiting PhD student (1-year), Massey Univ., New Zealand.

2015 LCA of Himalayan buildings. Supervision of Bhochhibhoya Silu, Visiting PhD student (2 months), Dep. of Land, Environment, Agriculture and Forestry, Univ.of Padova, Italy.

2015 LCA of brick production in Thailand. Supervision of Prateep Na Talang Rutjaya, Visiting PhD student (1 year), Dep. of Environmental Engineering, Kasetsart Univ., Bangkok, Thailand.

SUPERVISION OF POSTDOCS

2024-25 Fabio Sporchia, LCA for the bioeconomy: biomass constraints analysis (LCA4BIO project).

2023-25 Thomas Elliot, System Dynamics Modelling for social tipping potins (DARETOTIP project).

SUPERVISION OF RESEARCH ASSISTANTS

2024-25 Ning An, python programming for LCA.

2024-25 Ewa Katarzyna Lagodzka, Net zero construction, biobased materials.

2024-25 Mathias Gustavsen, LCA of biorefineries.

2023-24 Kíra Lancz, Data collection for forestry modelling.

2022-22 Karen Bollensen, data collection for forestry modelling.

2021-22 Giovanni Codotto, Data and LCA modelling in chemicals and fisheries.

INVITED TALKS AND AWARDS

Full list here: https://vbn.aau.dk/en/persons/massimo/activities/

2024 **Invited speaker** ALIGNED Project presentation to ECIU network. ECIU Collaborative Research Projects dissemination & partner-search event

2024 **Invited speaker** LCA in PlastiSea and AquaHealth projects. A presentation to the BLUEBIO Horizon Europe projects network about the Life Cycle Assessment work performed in the projects PlastiSea and AquaHealth

2024 **Invited speaker** Biogenic Carbon Accounting in a LCA framework Presentation based on ALIGNED work, to an online audience of about 120 participants from industry and academia. The seminar was organised by the EU project NOVAFERT about biobased fertilisers.

2024 **Invited speaker** Life Cycle Assessment (LCA) to support design processes and improve environmental performance. Presentation at SoundCluster Denmark Digital product pass & LCA Sustainability network meeting

2023 **Invited speaker** LCA for the emerging blue and green bioeconomy -Application to seaweed products and beyond Presentation at the SeaMark project meeting. The presentation covered the topics of: LCA of seaweed-based bioplastic (PlastiSea project); Good practices in LCA of emerging technologies (blue-bioeconomy and beyond);LCA framework for bio-based products (ALIGNED project)

2023 **Invited speaker** Aligning Life Cycle Assessment methods and bio-based sectors for improved environmental performance Presentation at the Bioeconomy For Change seminar

2021 **Invited speaker** on *Nonlinearity in life cycle assessment*. Institute of Environmental Sciences (CML), Leiden University (NL).

2021 **Invited speaker** on *Burn the world down with Bitcoin…or maybe not? - Blockchain sustainability from Cryptocurrencies and beyond.* Speaker at Seminar of the Concordium Blockchain Research Center (COBRA) Aarhus University

2020- Guest Lecturer: Course in Life Cycle Assessment for Sustainable Engineering. Technical Univeristy of Braunscheiw (DE).

2017 Best contribution to LCA modelling awarded by the International Life Cycle Academy.

2015 **Invited speaker** on *Monetary valuation For Weighting in Life Cycle Assessment*. Environmental Footprint Weighting Workshop: Weighting workshop, Joint Research Centre of the European Commission (JRC), Brussels.

2015 **Invited speaker** on *The application of consequential LCA to study biomass-to-energy product systems*. Workshop: “Energy and renewable resources: Biomass and beyond”: Giorgio Levi Cases Center for Economics and Energy Technology Studies, Interdepartmental Research Center at University of Padua (IT)

EDITOR AND REVIEWER

2020-21 Editor of Special Issue: *Advanced life-cycle modeling of energy and agroecosystems*, Renewable & Sustainable Energy Reviews (Elsevier, IF 12.11). Together with Dr. Yi Yang, Dartmouth College (USA), Prof. Bhavik Bakshi, Ohio State Univ. (USA), Prof. Qingshi Tu, Univ.of British Columbia (CA), Prof. Yuan Yao, Yale Univ. (USA). Currently in progress.

2020 Editor of Special Issue: *Uncertainty in Prospective Sustainability Assessment*, Sustainability (MDPI, IF 2.576).

2011-21 Reviewer for the main international journals publishing LCA research. Active reviewer with >100 reviews of scientific articles performed for several (>15) high impact venues such as Journal of Cleaner Production (IF 7.2), Environmental Science and Technology (IF 7.8), Journal of Industrial Ecology (IF 6.5), Renewable & Sustainable Energy Reviews (IF 12.11) but also other high-impact journals like Joule (IF 15.04).

ORGANISATION OF SCIENTIFIC MEETINGS

2021 – present Organizer of PhD group meetings. Weekly meeting with all the PhD and postdocs, as well as research assistants and Master students doing a thesis, that work on LCA. Each meeting is a round of updates on the activities done in the last week to everybody is up to date, plus discussion of issues of general interest.

2022 Organizer of LCA workshop. I invited Swiss-American researcher Chris Mutel (PSI), developer of brightway2 python-based LCA software, to give a workshop and lecture at the Dep. of Planning. 15 attendees.

2021 Organizer of fisheries and LCA workshop. Workshop involving ten stakeholders representing the Danish fisheries industry, NGOs, ministry representatives, and supermarket to discuss methodological approaches to LCA of fisheries. Organizes within the Fisheries Footprint project.

2021 Organizer of scenario workshop on future healthy aquaculture. Workshop involving stakeholders representing the aquaculture and microalgae industry and academia to develop future scenarios on health issue in aquaculture and the synergy with the microalgae production, using participatory methods. Organized within the AquaHealth project.

2020 Organizer of circular plastic & blockchain workshop. Scenario workshop involving >15 stakeholders representing the Danish plastic industry, environmental protection agency, academics working in cryptography and blockchain application. Organizes within the Circular Plastic Readiness project.

2020 Organizer of workshop. Blockchain Technology to Address Social and Environmental Issues. Together with PhD stud Susanne Köhler, we invited early career researchers from KU, AAU, ITU to discuss working with blockchain from a social and env science perspective (instead of strictly cryptography or engineering).

2017-22 Organizer of Advanced LCA PhD course. I organize yearly this course that gathers LCA PhD students and professionals from all over the world, mainly EU and US universities. We accept 25 participants but have usually double the number of requests. The course is a strategic activity as has led to secondments, research collaborations, co-authored papers, and project applications.

COMMISSIONS OF TRUST

I have joined committees for the evaluation of research proposals, reports, PhD candidates and scientific positions of Assistant/Associate professor.

2024 ***Member of PhD assessment committee*** for PhD thesis of Lauri Leppäkoski. Lappeenranta-Lahti University of Technology (LUT) School on Energy Systems. Thesis title: Comparing climate impacts of biological and technical pathways of carbon capture and utilisation

2022 ***Member of PhD assessment committee*** of Andriamahefasoa Rajaonison**.** Doctoral School ISMME - Ingénierie des Systèmes, Matériaux, Mécanique, Energétique, Mines Paris-PSL. Thesis title: Environmental Life Cycle Assessment of time dependent microalgal-based energy production systems.

2022 ***Member of PhD assessment committee*** of Kikki Lambrecht Ibsen**,** University of Sherbrooke (CA), Dep. Civil Engineering. Thesis title: Multi-Scale Evaluation Of The Environmental Consequences Of Eco-Design Strategies For The Built Environment.

2024 ***Expert reviewer*** for the *European Commission* Horizon Europe. I participated as quality check expert for the reports of a panel of reviewers evaluating Innovation Actions (RIA) collaborative EU projects proposals with budgets up to 10 M euro.

2023 ***Expert reviewer*** for the *European Commission* Horizon Europe. I participated in a panel of reviewers evaluating several Research and Innovation Actions (RIA) collaborative EU projects proposals with budgets up to 5 M euro. This included a remote phase and consensus phase.

2024 ***Member of assessment committee*** for the position of Associate Professor in in Sustainable Food Process Design, University of Copenhagen, Department of Food Science.

2024 ***Member of assessment committee*** for the position of Tenure-track Assistant Professor in Sustainable Food Process Design, University of Copenhagen, Department of Food Science.

2023 ***Member of assessment committee*** for the position of Assistant Professor in Life Cycle Engineering, University of Southern Denmark, Center for Life Cycle Engineering.

2022 ***Member of assessment committee*** for the position of Associate Professor in Environmental Science, Aarhus University, Department of Environmental Science.

2022 ***Chair of assessment committee*** for the position of one or more postdoc in Life Cycle Assessment, Aalborg University, Department of Planning.

2022 ***Member of PhD assessment committee*** of MaximTschulkow**.** University of Antwerp, degree of doctor in Applied Economics. Thesis title: A techno-environmental economic assessment of a lignin-first biorefinery: a dynamic and prospective framework for emerging technologies.

2022 ***Member of PhD assessment committee*** of Guðrún Svana Hilmarsdóttir. University of Iceland. Thesis title: Identification of quality and environmental hotspots during pelagic fishmeal and fish oil production.

2021 ***Member of PhD assessment committee*** of Joshua Sohn**.** Technical University of Denmark (DTU), together with Reinout Hejiungs (Vrije Univ., NL) and Alessio Boldrin (DTU). Thesis title: Incorporation of Life Cycle Assessment for Territorial-Scale Decision

Support.

2020 ***Expert reviewer*** *for the Swedish Environmental Protection Agency* (NVV). I acted as external reviewer in a panel evaluating a large report: ”Linking circularity metrics at product and society level (LinCS)” where LCA is used to assess circular economy strategies.

2020 ***Member of assessment committee*** for the position of Associate/Assistant Professor in Quantitative Sustainability Assessment, DTU, Department of Management Engineering.

2020 ***Expert reviewer*** for the *Swedish Research Council*. I evaluated several individual fellowship grant applications, providing specific feedback as specialist in circular economy and LCA.

2020 ***Member of PhD assessment committee*** of Alexandra Leclerc, Technical University of Denmark (DTU), together with Linn Persson (SEI, SE) and Peter Fantke (DTU). Thesis title: Development of toxicity footprints at national level.

2019 ***Expert reviewer*** for the *European Commission* H2020 (2019). I participated in a panel of reviewers evaluating several Innovation Actions (IA) collaborative EU projects proposals with budgets up to 10 M euro. This included a remote phase and a week-long meeting in Brussels.

2019 ***Expert reviewer*** for the *Swiss National Science Foundation* - Social sciences (2019). I evaluated research proposals within the industrial ecology domain, budgets up to 2 M euro.

2016 ***Expert reviewer*** for the *National Research Foundation Flanders* - Biological sciences (FWO). I evaluated mobility fellowship grants (corresponding to the national version of Marie Curie individual fellowship grant).

2015 ***Member of assessment committee*** for the position of Associate Professor in Quantitative Assessment and Interpretation of Environmental Sustainability, DTU, Department of Management Engineering.

2015 ***Expert reviewer*** for the *Danish Environmental Protection Agency*. I evaluated the report on: “Life Cycle Assessment of different treatments for discarded textiles” carried out by Force Technology.

2013 ***Expert reviewer*** for the *Danish Environmental Protection Agency*. I reviewed the report on LCA of recycling options: ”Miljø- og samfundsøkonomisk vurdering af øget genanvendelse af husholdningsaffald LCA” carried out by DTU.

ADDITIONAL QUALIFICATIONS

I attend regularly professional development courses targeted to strengthen research and project management and funding skills and stay up to date with the latest developments in research.

2021 ***Coderefinery workshop***, organized by https://coderefinery.org/ and The Nordic e-Infrastructure Collaboration (NeIC). I put together a team of ten people (PhD students and senior staff) at the Dep. of Planning and with me as "exercise leader" we all attended a 6-days workshop covering coding-related topics such as version controlled and collaborative coding, reproducible research and FAIR data, code documentation, review, and quality assurance.

2020 ***Course in International Research Management***, Copenhagen Business School (CBS). Three modules over a period of 5,5 days: Research Leadership Basics, Strategic Research Leadership, Culture and Personal Leadership. The course participants include approx. 20 established international academics working in Nordic research institutions.

2020 ***Data Management workshop***. Organized by CLAUUDIA - Research Data Services unit, Aalborg Univ. 2-day workshop. Topics covered: Data Management Plans and tools, Semantic web - Linked Data, FAIR data.

2019 ***Course in Project Management for Researchers (Module B)***, The Alborg University Research Academy (AAURA), competence development programme. 3 days. Topics covered: planning and coordination of the project group, team management, people management, research goals and strategy.

2019 ***Course in writing DFF applications***. The Alborg University Research Academy (AAURA), competence development programme. 2 days course on writing applications for the Danish Independent Research Council with feedback from former council members.

2018 ***Course in Project Management for Researchers (Module A)***, The Alborg University Research Academy (AAURA), competence development programme. 3 days. Topics covered: fundamental of project management, planning, structuring and design of research projects, SMART projects.

LIST OF PUBLICATIONS
Massimo Pizzol

ORCID: **0000-0002-7462-2668** - Scopus Author ID: **9840108300** - ResearcherID: **A-2485-2011**
H-index = **23** (Scopus); **29** (Google Scholar)

Scientific articles (peer reviewed)

1. Ayala, M., Goosen, N., Michalak, L., Thomsen, M., & **Pizzol, M.** (**2024**). Prospective LCA of brown seaweed-based bioplastic: Upscaling from pilot to industrial scale. Sustainable Production and Consumption, 52, 416–426. https://doi.org/10.1016/j.spc.2024.11.020
2. Spreafico, C., Thonemann, N., **Pizzol, M**., Arvidsson, R., Steubing, B., Cucurachi, S., Cardellini, G., & Spreafico, M. (**2024**). Using patents to support prospective life cycle assessment: Opportunities and limitations. The International Journal of Life Cycle Assessment. https://doi.org/10.1007/s11367-024-02404-9
3. Challenges and opportunities toward a sustainable bio-based chemical sector in Europe. Nariê Rinke Dias de Souza, Marisa Groenestege, Jurjen Spekreijse, Cláudia Ribeiro, Cristina T Matos, **Massimo Pizzol,** Francesco Cherubini. **2024**. Wiley Interdisciplinary Reviews: Energy and Environment 13 (4), e534
4. Who are the value transformers, value co-operators and value gatekeepers? New routes to value preservation in a sufficiency-based circular economy. Louise Møller Haase, Ruth Mugge, Mette Alberg Mosgaard, Nancy Bocken, Melanie Jaeger-Erben, **Massimo Pizzol**, Michael Søgaard Jørgensen. **2024**. Resources, Conservation and Recycling 204, 107502
5. The environmental impacts of the lignin-first biorefineries: A consequential life cycle assessment approach Maxim Tschulkow, **Massimo Pizzol**, Tine Compernolle, Sander Van den Bosch, Bert Sels, Steven Van Passel. **2024**. Resources, Conservation and Recycling 204, 107466
6. Environmental performance of eco-design strategies applied to the building sector. Kikki Lambrecht Ipsen, **Massimo Pizzol**, Morten Birkved, Ben Amor. **2024**. Journal of Industrial Ecology
7. ENvironmental Success under Uncertainty and Risk (ENSURe): a procedure for probability evaluation in ex-ante LCA. P Jouannais, CF Blanco, **M Pizzol**. **2024**. Technological Forecasting and Social Change 201, 123265
8. A supply-chain perspective on producing and upscaling bioplastic from cultivated brown seaweed. Maddalen Ayala, Øystein Arlov, Katharina Nøkling-Eide, Maren Sœther, Camilla Dore, Julio Vidal, Qi Zhou, Shennan Wang, Leszek Michalak, Adriana Kyvik, Bettany Jolain, Lilas Aubel, Synnøve Strand Jacobsen, **Massimo Pizzol**. **2024**. Journal of Cleaner Production 444, 141248

9. Same product, different score: how methodological differences affect EPD results. F Konradsen; K S Holse Hansen; A Ghose; **M Pizzol**. **2023**. International Journal of Life Cycle Assessment (in press)
10. Model uncertainty versus variability in the life cycle assessment of commercial fisheries. G Codotto, **M Pizzol**, TJ Hegland, N Madsen **2023**. Journal of Industrial Ecology.
11. Preconditions for CCUS to deliver climate neutrality in cement production. JG Dávila, R Sacchi, **M Pizzol**. **2023**. Journal of Cleaner Production 425, 138935.
12. Prospective consequential Life Cycle Assessment: Identifying the future marginal suppliers using Integrated Assessment Models B Maes, R Sacchi, B Steubing, **M Pizzol**, A Audenaert, B Craeye, M Buyle **2023**. Renewable and Sustainable Energy Reviews 188, 113830.
13. LCA to evaluate the environmental opportunity cost of biological performances in finfish farming P Jouannais, PP Gibertoni, M Bartoli, **M Pizzol**. **2023**. The International Journal of Life Cycle Assessment, 28 (10), 1286-1301.
14. Using quantitative story telling to identify constraints in resource supply: The case of brown seaweed. MC Ayala, M Thomsen, **M Pizzol**. **2023** Journal of industrial ecology. https://doi.org/10.1111/jiec.13440
15. Ayala M, Thomsen M, **Pizzol M**. **2023**, Life Cycle Assessment of pilot scale production of seaweed-based bioplastic. Algal Research 71:103036. https://doi.org/10.1016/j.algal.2023.103036
16. Jouannais P, **Pizzol M**. Stochastic Ex-Ante LCA under Multidimensional Uncertainty: Anticipating the Production of Undiscovered Microalgal Compounds in Europe. Environmental Science and Technology, **2022**, 56(22), pp. 16382–16393
17. Jouannais P, Hindersin S, Löhn S, **Pizzol M**. Stochastic LCA Model of Upscaling the Production of Microalgal Compounds. Environmental Science and Technology, **2022**, 56(14), pp. 10454–10464
18. Nguyen LD, Bröring A, **Pizzol M**, Popovski P. Analysis of distributed ledger technologies for industrial manufacturing. Scientific Reports, **2022**, 12(1), 18055
19. Krohn I, Menanteau-Ledouble S Hageskal G, Astafyeva Y, Jouannais P, Nielsen JL, **Pizzol M**, Wentzel, A, Streit WR. Health benefits of microalgae and their microbiomes. Microbial Biotechnology, **2022**, 15(7), pp. 1966–1983
20. Köhler S, Bager S, **Pizzol M**. Sustainability standards and blockchain in agro-food supply chains: Synergies and conflicts. Technological Forecasting and Social Change, **2022**, 185, 122094
21. Andersen MS, Christensen LD, Donner-Amnell J, Eikeland PO, Hedeler B, Hildingsson R, Johansson B, Khan J, Kronsell A, Inderberg THJ, Nielsen H, **Pizzol M**, Sairinen R, Skjærseth JB,

Söderholm P, Teräväinen T & Thomsen M **2022**, To facilitate a fair bioeconomy transition, stronger regional-level linkages are needed', Biofuels, Bioproducts and Biorefining.

22. Köhler S, **Pizzol M** & Sarkis J **2021**, 'Unfinished Paths—From Blockchain to Sustainability in Supply Chains', Frontiers in blockchain, vol. 4, 720347. Open access.
23. Adrianto LR, van der Hulst MK, Tokaya JP, Arvidsson R, Blanco CF, Caldeira C, Guillén-Gonsálbez G, Sala S, Steubing B, Buyle M, Kaddoura M, Navarre NH, Pedneault J, **Pizzol M**, Salieri B, van Harmelen T, Hauck M, **2021**. How can LCA include prospective elements to assess emerging technologies and system transitions? The 76th LCA Discussion Forum on Life Cycle Assessment, 19 November 2020. Int J Life Cycle Assess 26, 1541–1544.
24. Lucia A Reisch, Lucas Joppa, Peter Howson, Artur Gil, Panayiota Alevizou, Nina Michaelidou, Ruby Appiah-Campbell, Tilman Santarius, Susanne Köhler, **Massimo Pizzol**, Pia-Johanna Schweizer, Dipti Srinivasan, Lynn H Kaack, Priya L Donti, David Rolnick. **2021**. Digitizing a sustainable future. One Earth 4 (6), 768-771.
25. Aramendia, Emmanuel; Brockway, Paul E.; **Pizzol, Massimo**; Heun, Matthew H., **2021**. Moving from final to useful stage in energy-economy analysis: A critical assessment. Applied Energy 283, 116194.
26. **Pizzol, Massimo**; Köhler, Susanne; Sacchi, Romain; Erjavec, Annika A. **2021**. Non-linearity in the Life Cycle Assessment of Scalable and Emerging Technologies. Frontiers in Sustainability, 1 (16 pages). Open access.
27. Ipsen, Kikki L; **Pizzol, Massimo**; Birkved, Morten; Amor, Ben M. **2021**. How Lack of Knowledge and Tools Hinders the Eco-Design of Buildings—A Systematic Review. Urban Science 5 (1), 20 (23 pages). Open access.
28. Köhler, Susanne; **Pizzol, Massimo**, **2020**. Technology assessment of blockchain-based technologies in the food supply chain. Journal of Cleaner Production. 269, 122193 (10 pages)
29. Laurent, Alexis; Weidema, Bo P.; Bare, Jane; Liao, Xun; Maia de Souza, Danielle; **Pizzol, Massimo;** Sala, Serenella; Schreiber, Hanna; Thonemann, Nils; Verones, Francesca **2020**. Methodological review and detailed guidance for the life cycle interpretation phase. Journal of Industrial ecology 24 (5), 986-1003, 3.
30. Bhochhibhoya, Silu; **Pizzol, Massimo**; Marinello, Francesco; Cavalli, Roberto, **2020**. Sustainability performance of hotel buildings in the Himalayan region. Journal of Cleaner Production 250, 119538 (10 pages)
31. Köhler, Susanne; **Pizzol, Massimo**, **2019**. Life Cycle Assessment of Bitcoin Mining. Environmental Science & Technology 53, 13598–13606.

32. Ghose, Agneta; **Pizzol, Massimo**; McLaren, Sarah J; Dowell, David, **2019**. Refurbishment of office buildings in New Zealand: identifying priorities for reducing environmental impacts. International Journal of Life Cycle Assessment 24 (8),1480-1495.
33. Thonemann, Nils; **Pizzol, Massimo**, **2019**. Consequential life cycle assessment of carbon capture and utilization technologies within the chemical industry. Energy & Environmental Science 12 (7), 2253-2263. Open access.
34. **Pizzol, Massimo**, **2019**. Deterministic and stochastic carbon footprint of intermodal ferry and truck freight transport across Scandinavian routes. Journal of Cleaner Production 224, 626-636.
35. Weidema, Bo Pedersen; **Pizzol, Massimo**; Schmidt, Jannick Højrup; Thoma, Greg, **2019**. Social responsibility is always consequential-Rebuttal to Brander, Burritt and Christ (2019): Coupling attributional and consequential life cycle assessment: a matter of social responsibility Journal of Cleaner Production 223, 12-13.
36. Weidema, Bo Pedersen; Simas, Moana; Schmidt, Jannick Højrup; **Pizzol, Massimo**; Løkke, Søren; Brancoli, Pedro, **2019**. Relevance of attributional and consequential information for environmental product labelling International Journal of Life Cycle Assessment (in press, 5 pages) https://doi.org/10.1007/s11367-019-01628-4.
37. Buyle, Matthias; **Pizzol, Massimo**; Audenaert, Amaryllis, **2018**. Identifying marginal suppliers of construction materials: consistent modeling and sensitivity analysis on a Belgian case. International Journal of Life Cycle Assessment 23(8), 1624-1640.
38. Yin, Hao; **Pizzol, Massimo**; Jacobsen, Jette Bredahl; Xu, Linyu, **2018**. Contingent valuation of health and mood impacts of PM2.5 in Beijing, China. Science of the Total Environment 630, 1269-1282.
39. Weidema, Bo Pedersen; **Pizzol, Massimo**; Schmidt, Jannick Højrup; Thoma, Greg, **2018**. Attributional or consequential Life Cycle Assessment: A matter of social responsibility. Journal of Cleaner Production 174: 305-314.
40. **Pizzol, Massimo**; Vighi, Elena; Sacchi, Romain, **2018**. Challenges in coupling digital payments data and input-output data to change consumption patterns. Procedia CIRP 69, 633-637. Open access.
41. De Rosa, Michele**; Pizzol, Massimo**; Schmidt, Jannick Højrup, **2018**. How methodological choices affect LCA climate impact results: the case of structural timber, International Journal of Life Cycle Assessment 23(1): 147-158.
42. Hardadi, Gilang; **Pizzol, Massimo**, **2017**. Extending the Multi Regional Input-Output framework to labor related impacts: a proof of concept. Journal of Industrial Ecology 21 (6): 1536-1546.

43. Ghose, Agneta; **Pizzol, Massimo**; McLaren,Sarah J, **2017**. Consequential LCA modelling of building refurbishment in New Zealand-an evaluation of resource and waste management scenarios Journal of Cleaner Production 165, 119-133.
44. Bhochhibhoya, Silu; **Pizzol, Massimo**; Achten, Wouter; Maskey, Ramesh Kumar; Zanetti, Michela; Cavalli, Raffaele, **2017**. Comparative life cycle assessment and life cycle costing of lodging in the Himalaya. International Journal of Life Cycle Assessment 22(11): 1851-1863.
45. Talang, Rutjaya Prateep Na; **Pizzol, Massimo**; Sirivithayapakorn, Sanya, **2017**. Comparative Life Cycle Assessment of Fired Brick Production in Thailand. International Journal of Life Cycle Assessment 17 pages doi:10.1007/s11367-016-1197-3.
46. **Pizzol, Massimo**; Scotti, Marco, **2017**. Identifying marginal supplying countries of wood products via trade network analysis. International Journal of Life Cycle Assessment 22(7): 1146-1158.
47. **Pizzol, Massimo**; Laurent, Alexis; Sala, Serenella; Weidema, Bo Pedersen; Verones, Francesca; Koffler, Christoph, **2017**. Normalisation and weighting in life cycle assessment: Quo Vadis. International Journal of Life Cycle Assessment 22(6): 853-866.
48. De Rosa, Michele; Schmidt, Jannick Højrup; Brandão, Miguel; **Pizzol, Massimo**, **2017**. A flexible parametric model for a balanced account of forest carbon fluxes. International Journal of Life Cycle Assessment 22(2):172-184.
49. Valsasina, Lucia; **Pizzol, Massimo**; Smetana, Sergiy; Georget, Erika; Mathys, Alexander; Heinz, Volker, **2017**. Life cycle assessment of emerging technologies: The case of milk ultra-high pressure homogenization. Journal of Cleaner Production 142: 2209-2217.
50. Yin, Hao; **Pizzol, Massimo**; Xu, Linyu, **2017**. External costs of PM2.5 pollution in Beijing, China: uncertainty analysis of multiple health impacts and costs. Environmental Pollution 226: 356-369.
51. **Pizzol, Massimo**, **2015**. Life cycle assessment and the resilience of product systems. Journal of Industrial Ecology 19: 296-306.
52. Bidstrup, Morten; **Pizzol, Massimo**; Schmidt, Jannick Højrup, **2015**. Life Cycle Assessment in Spatial Planning: A Procedure for Addressing Systemic Impacts. Journal of Cleaner Production 91: 136-144.
53. **Pizzol, Massimo**; Weidema, Bo Pedersen; Brandão, Miguel; Osset, Philippe, **2015**. Monetary valuation in Life Cycle Assessment: A review. Journal of Cleaner Production 86: 170–179.
54. Niero, Monia; **Pizzol, Massimo**; Bruun Gundorph, Henrik; Thomsen, Marianne, **2014**. Comparative life cycle assessment of wastewater treatment in Denmark including sensitivity and uncertainty analysis. Journal of Cleaner Production 68: 25-35.

55. **Pizzol, Massimo**; Smart, James; Thomsen, Marianne, **2014**. External costs of cadmium emissions to soil: A drawback of phosphorus fertilizers. Journal of Cleaner Production 84: 475–483.
56. **Pizzol, Massimo**; Møller, Flemming; Thomsen, Marianne, **2013**. External costs of atmospheric lead emissions from a waste-to-energy plant: A follow-up assessment of indirect exposure via topsoil ingestion. Journal of Environmental Management 121: 170-178.
57. **Pizzol, Massimo**; Scotti, Marco; Thomsen, Marianne, **2013**. Network analysis as a tool for assessing environmental sustainability: applying the ecosystem perspective to a Danish water management system. Journal of Environmental Management 118: 21-31.
58. **Pizzol, Massimo**; Bulle, Cécile; Thomsen, Marianne, **2012**. Indirect human exposure assessment of airborne lead deposited on soil via a simplified fate and speciation modelling approach. Science of the Total Environment 421-422: 203-209.
59. **Pizzol, Massimo**; Christensen, Per; Schmidt, Jannick Højrup; Thomsen, Marianne, **2011**. Eco-toxicological impact of "metals" on the aquatic and terrestrial ecosystem: A comparison between eight different methodologies for Life Cycle Impact Assessment (LCIA). Journal of Cleaner Production 19: 687–698.
60. **Pizzol, Massimo**; Christensen, Per; Schmidt, Jannick Højrup; Thomsen, Marianne, **2011**. Impacts of "metals" on human health: a comparison between nine different methodologies for Life Cycle Impact Assessment (LCIA). Journal of Cleaner Production 19: 646-656.
61. **Pizzol, Massimo**; Thomsen, Marianne; Skou Andersen, Mikael, **2010**. Long-term human exposure to Pb from different media and intake pathways. Science of the Total Environment 408: 5478-5488.
62. **Pizzol, Massimo**; Thomsen, Marianne; Frohn, Lise Marie; Skou Andersen, Mikael, **2010**. External costs of atmospheric Pb emissions: valuation of neurotoxic impacts due to inhalation. Environmental Health 9: 1-9. Open access.
63. Giannetto, Marco; Alfieri, Enrica; Giugliano, Michele; Lonati, Giovanni; Mori, Giovanni; **Pizzol, Massimo**, **2005**. Analysis of voltammetric data for the evaluation of seasonal changes of the Ni, Cd, Pb and Cu content in atmospheric particulate PM2. 5. Annali di chimica 95: 857-865 (now ChemSusChem.

Scientific reports (not peer-reviewed)

1. ALIGNED D1.2 Description of scientific methods (Task 1.2 Framework for foreground life cycle inventory of bio-based sectors-Dynamic carbon accounting) K Lancz, KN Bollesen, **M Pizzol**. **2024.**https://vbn.aau.dk/en/publications/aligned-d12-description-of-scientific-methods-task-12-framework-f-3

2. ALIGNED D1.2 Description of scientific methods (Task 1.2 Framework for foreground life cycle inventory of bio-based sectors-Constraints to biomass availability). **M Pizzol**, A Ghose, KN Bollesen. **2024.** https://vbn.aau.dk/en/publications/aligned-d12-description-of-scientific-methods-task-12-framework-f-3
3. ALIGNED D1.2 Description of scientific methods (Task 1.4 Framework for interpreting uncertainty) **M Pizzol. 2024** https://vbn.aau.dk/en/publications/aligned-d12-description-of-scientific-methods-task-14-framework-f
4. **Pizzol, M.,** Codotto, G., Hegland, T. J. & Madsen, N. **2022** Fiskens Fodaftryk - opmærksomhedspunkter i forhold til beregning og forståelse af klimapåvirkningen fra dansk fiskeri. 9 May 2022, Aalborg Universitetsforlag. 14 p.
5. Kringelum, L. B., Gjerding, A. N., Løkke, S., **Pizzol, M.,** Tsiulin, S., Reinau, K. H., Thygesen, J. & Jøker, L., 10 Aug **2021**, Blockchain in Maritime Industries. Center for Logistik og Samarbejde: Center for Logistik og Samarbejde.
6. Digital support for an improved circular plastic economy: Outcome of the participatory scenario development workshop. **Pizzol, M.** & Løkke, S., **2020**, Department of Planning, Aalborg University. 17 p.
7. Kørnøv, Lone; **Pizzol, Massimo**; Vammen Larsen, Sanne, **2017**. SEA for a land use plan in Denmark. Report chapter, pages 4-7, in Environmental Assessment for Climate Smart Decision Making, Netherlands Commission for Environmental Assessment
8. Baxter, John; Castell-Rüdenhausen, Malin; Fråne, Anna; Gislason, Stefan; **Pizzol, Massimo**, **2015**. WEEE Plastics Recycling: A guide to enhancing the recovery of plastics from waste electrical and electronic equipment. Nordisk Ministerråd 19 pages, ANP Series 2015:713 DOI: 10.6027/ANP2015-713 (link)
9. **Pizzol, Massimo**; Kørnøv, Lone, **2015**. Screening livscyklusvurdering af Skive Greenlab Projekt. Aalborg University 30 pages (in Danish)
10. **Pizzol, Massimo**; Schmidt, Jannick; Løkke, Søren, **2014**. Livcyklusvurdering af spildevandssystemer til Aalborg kommunens kolonihaver. Aalborg University 27 pages (in Danish)
11. Baxter, John; Wahlstrom, Margareta; Zu Castell-Rüdenhausen, Malin; Fråne, Anna; Stare, Malin; Løkke, Søren; **Pizzol, Massimo**, **2014**. Plastic value chains: Case: WEEE (Waste Electric and electronic equipment) in the Nordic region. TemaNord Nr. 542 84 pages DOI: 10.6027/TN2014-542 (link)
12. **Pizzol, Massimo**, **2014.** Life Cycle Assessment of the EAT programme: Comparing disposal versus reuse of food packaging. Deliverable of Plastic 0 EU Project (Action 2.3) 25 pages (link)

13. Weidema, Bo; Brandão, Miguel; **Pizzol, Massimo**, **2013**. The Use of Monetary Valuation of Environmental Impacts in Life Cycle Assessment: State of the art, strengths and weaknesses. Final Report, SCORELCA Foundation 69 pages
14. Skov Andersen, Mikael; Ørsted Nielsen, Helle; Branth Pedersen, Anders; Thodsen, Hans; **Pizzol, Massimo**, **2013**. Macroeconomic perspective on water quality and quantity issues of relevance to the System of Environmental-Economic Accounting for Water (SEEAW): Part A: Water Quality (Odense River Basin Denmark). Deliverable 4.5 of EPI-WATER EU Project, Venice, Fondazione Eni Enrico Mattei (FEEM) 68 pages
15. **Pizzol, Massimo**; Søes Kokborg, Morten; Thomsen, Marianne, **2012**. Greening Electronics. The Danish Environmental Protection Agency 64 pages (link)

Book chapters

1. **Pizzol, M**. & Andersen, M. S., **2022**, Green tech for green growth? Insights from Nordic environmental innovation. Circular Economy Oriented Business Model Innovations: A European Perspective. Springer
2. Dos Santos, J. Azarijafari H., **Pizzol M**. Life Cycle Assessment of using recycled plastic waste in road pavements: theoretical modelling. Book chapter in: Plastic waste for sustainable asphalt roads Editors: Filippo Giustozzi and Andy Nizamuddin ISBN: 607228 Expected Publication date: 1st January **2022**
3. **Pizzol M**, Molinos-Senante M, Thodsen H, Andersen MS, **2020**. Implications of Denmark's water price reform for riverine and coastal surface water quality, in Economic Instruments for a Low-carbon Future, Edward Elgar Publishing

Conference contributions

1. Presentation Modelling Biological and Techno-operational Uncertainty in Ex Ante LCA of Microalgal Molecule Productions. Jouannais P., **Pizzol, M.** 2022. SETAC Europe 32nd annual meeting, Copenhagen (DK). 19 May 2021.
2. Presentation. Quantifying uncertainty elements in LCI modelling of chemical mixtures used for footwear production. Codotto, G., **Pizzol, M.** & Vandepaer, L., 2022.SETAC Europe 32nd annual meeting, Copenhagen (DK). 19 May 2021.
3. Presentation. Life cycle assessment of brown-seaweed-based plastic. Ayala, M., Pizzol, M. & Thomsen, M., 2022. SETAC Europe 32nd annual meeting, Copenhagen (DK). 16 May 2021.
4. Presentation Challenges aligning LCA results across bio-based industries. Løkke, S., **Pizzol, M**. & Ghose, A., 2022. SETAC Europe 32nd annual meeting, Copenhagen (DK). 16 May 2021.

5. Presentation. Ex-Ante LCA for Microalgae-Based Veterinary Molecules in Finfish Aquaculture: How to Assess the Environmental Performance of Unknown Molecules? Jouannais, P. & **Pizzol, M.** SETAC Europe 31st annual meeting, Sevilla (ES). Virtual conference. 6 May **2021**.
6. Presentation. Identifying unconstrained suppliers systematically for emerging technologies: The case of brown seaweed Ayala, M., **Pizzol, M.** & Jouannais, P., SETAC Europe 31st annual meeting, 6 May 2021. Sevilla (ES). Virtual conference. 3 May **2021**.
7. Presentation: LCA of emerging techs - from an uncertainty perspective **Pizzol, M.** (Speaker), Köhler, S. (Other), Ayala Cerezo, M. (Other), Jouannais, P. (Other), Annika Anderson Erjavec . 76th Discussion Forum on Life Cycle Assessment: The use of LCA as a development tool for emerging technologies/ how to deal with forecasts in LCA? Zurich, Switzerland 19 Nov **2020**.
8. Presentation. Teaching Brightway - right away. **Pizzol, M.** Brightcon 2020: Open Sustainability Conference - Switzerland (Online event). 20 Oct **2020**
9. Blockchain-based Technologies in the Food Supply Chain - A Comparative Assessment. Köhler, S. (Speaker), **Pizzol, M.** LCA Food 2020: 12th International Conference on Life Cycle Assessment of Food - Berlin, Germany (online Event) October **2020**.
10. Presentation. The Carbon Footprint of Bitcoin – Are we moving towards a sustainable blockchain future? Köhler, S. (Speaker), **Pizzol, M.** 9th International Conference on Life Cycle Management: Towards sustainable future current challenges and prospects in life cycle management. Poznan, Poland. 2 Sept **2019**.
11. Presentation. Challenges in coupling digital payments data and input-output data to change consumption patterns. **Pizzol M.**, Vighi E., Sacchi R. 25th CIRP Conference on Life Cycle Engineering, Copenhagen, **2018.**
12. Presentation. Blockchain-based technologies in the food supply chain: a comparative assessment. S Köhler, **M Pizzol** Transforming for sustainability. Copenhagen, Denmark. **2017**.
13. Presentation. Error propagation on consequential inventories: Yes We Can. **Pizzol M.**, Sacchi R. 23rd SETAC Europe LCA Case Studies Symposium: Consequential LCA for decision support. Barcelona, Spain. **2017**
14. Presentation. Working against intuition: 12 years of experience with unlearning at the Danish Advanced LCA course. **Pizzol M**., Weidema BP, Løkke S., Schmidt, JH. Abstract presented at the 23rd SETAC Europe LCA Case Studies Symposium, Barcelona, Spain. **2017**.
15. Presentation. Defining geographical market boundaries of construction materials: a sensitivity analysis of modelling assumptions. M Buyle, **M Pizzol**, A Audenaert. 23rd SETAC Europe LCA Case Studies Symposium: Consequential LCA for decision support. Barcelona, Spain. **2017**

16. Presentation. Consequential LCA modelling of office building refurbishment in New Zealand A Ghose, **Pizzol M.**, SJ McLaren Student Symposium on Life Cycle Management and Industrial Ecology, 11. **2017**
17. Presentation. Experiences from the use of web-based audience engagement systems in an LCA classroom. Weidema BP, **Pizzol M**., Schmidt J. Abstract presented at the 22nd SETAC-Europe LCA Case Studies Symposium, Montpellier, France. **2016**.
18. Presentation. Does resilient mean eco-inefficient? **M Pizzol** SETAC Europe 25th Annual Meeting: Environmental protection in a multi-stressed world: challenges for science, industry and regulators: Barcelona, Spain. **2015**
19. Presentation. Evaluating food waste prevention strategies by means of InputOutput LCA. **M Pizzol**, M Campos, P Silva, JH Schmidt Life Cycle Management COnference, Bordeaux, France. **2015**
20. Presentation. Environmental sustainability of ultra high pressure homogenization application for liquid foods (milk case study) S Smetana, L Valsasina, **M Pizzol**, E Georget, V Heinz, A Mathys 29th EFFoST International Conference Proceedings, 144-148. **2015**.
21. Presentation: Environmental assessment of ultra-high pressure homogenisation for milk and fresh cheese production Lucia Valsasina, **Pizzol M.**, S Smetana, E Georget, A Mathys, V Heinz EXPO 2015 conference, LCA for "Feeding the planet and energy for life", Stresa, Italy. **2015**
22. Presentation: The application of consequential LCA to study biomass-to-energy product systems. **Pizzol M** (invited speaker). Workshop: "Energy and renewable resources: Biomass… but not only". Giorgio Levi Cases Center for Economics and Energy Technology Studies, Interdepartmental Research Center at University of Padua (IT). 1 Dec **2015**.
23. Presentation. Problem Based Learning and sustainability: Experiences from teaching LCA at Aalborg University. **Pizzol M**., Løkke S, Schmidt JH. 2014. Abstract presented at the SETAC Europe 24th Annual Meeting, Basel, Switzerland, session on: Teaching and communicating sustainability – paving the way to a common understanding and meaningful actions. **2014**
24. Presentation: Application of monetary valuation in Life Cycle Assessment: Literature review and survey among practitioners. Weidema BP, **Pizzol M**, Brandão M, Garcia J, Osset P. SETAC Europe 24th Annual Meeting, Basel, Switzerland. **2014**.
25. Presentation: Problem Based Learning and sustainability: Experiences from teaching LCA at Aalborg University. **Pizzol M**, Løkke S, Schmidt JH. SETAC Europe 24th Annual Meeting, Basel, Switzerland. **2014**.
26. Presentation: A comparison of LCA approaches accounting for CO2 emission and sink of forestry products: The case of Timber as a construction material. / De Rosa M, **Pizzol M**, Schmidt M, Jannick HS. 19th SETAC LCA Case Study Symposium, Rome, Italy. **2014**.

27. Presentation: Impact-pathway approach and metals: monetisation of external costs of cadmium emissions to soil from agricultural fertilizer. **Pizzol M**, Smart JR, Thomsen M. 23rd Annual Meeting of the Society of Environmental Toxicology and Chemistry, Glasgow, United Kingdom. **2013**.
28. Presentation: Beyond eco-efficiency: measuring environmental sustainability by extending LCA with Network Analysis. **Pizzol M**, Scotti M, Vedres B, Thomsen M. 2012. 18th SETAC LCA Case Study Symposium, Copenhagen, Denmark. **2012**.
29. Poster: Monetization of indirect externalities of lead emissions from a waste-to-energy plant with focus on trade-offs related to the time horizon choice. **Pizzol M**, Møller F, Thomsen M. 6th SETAC World Congress / SETAC Europe 22nd Annual Meeting, Berlin (DE), 20-24 May **2012**
30. Poster: Danish WEEE management in the light of the WEEE and RoHS Directives: a quantitative analysis of critical issues. **Pizzol M**, Thomsen M. "Science for the environment, environment for society", international conference, Aarhus (DK), 05-06 October **2011**,
31. Presentation: The role of time scale in assessing external costs of metal emissions. **Pizzol M**, Thomsen M. "Science for the environment, environment for society", international conference, Aarhus (DK), 05-06 October **2011**,
32. Presentation: Combining speciation & fate models for the exposure assessment of Pb distributed and accumulated in soil. **Pizzol M**, Bulle C (presenter), Thomsen M. SETAC North America 31st Annual Meeting, Portland (USA), 7-11 November **2010**.
33. Poster: Impact of "metals" on Human Health: uncertainties in using different Life Cycle Impact Assessment (LCIA) methodologies. **Pizzol M**, Christensen P, Schmidt J, Thomsen M. 2010. SETAC Europe 20th Annual Meeting, Seville (ES), 23-27 May **2010**.
34. Presentation: Impact Pathway Approach on Lead (Pb) Emissions from a Municipal Waste Combustion Plant. **Pizzol M**, Thomsen M, Frohn L, Andersen MS. International conference on the Biogeochemistry of trace Elements: "Frontiers in Trace Elements research and Education", Chihuahua (MEX), 13-16 July **2009**.
35. Presentation: Preliminary External Costs of Lead Emissions from a Municipal Waste Combustion Plant. **Pizzol M**, Thomsen M, Andersen MS. International Conference of the European Society for Ecological Economics "Transformation, Innovation And Adaptation For Sustainability – Integrating Natural And Social Sciences ", Ljubljana (SL), 29 June – 2 July **2009**.
36. Poster: Impact pathway approach for Lead emissions. Pizzol, M, Thomsen, M, Frohn L, Andersen MS. 2009. SETAC Europe 19th Annual Meeting, Goteborg (SE), 31 May - 4 June **2009**.

Press and media

- Hvordan kan vi måle fiskeriets klimapåvirkning - og hvorfor er der så forskellige tal i

omløb? Hegland, T. J., Pizzol, M., Madsen, N. & Codotto, G., 7 May 2022, In: Fiskeri Tidende. 5, 2022, p. 14-15 2 p.

- Susanne Köhler & Massimo Pizzol, *All that mined is not green: Bitcoin's carbon footprint hard to estimate*. Cointelegraph (US) 10/04/2021
- Susanne Köhler & Massimo Pizzol, *Can cryptocurrency be climate conscious?* Global Landscapes Forum 22/03/2021
- Massimo Pizzol, *Kurshop på bitcoins sender valutaens strømforbrug mod nye højder* Ing.dk (Ingeniøren) 05/01/2021
- Massimo Pizzol & Henrik Lund, *Forskere vil regulere datafo*rbrug Ing.dk (Ingeniøren) 13/03/2020
- Massimo Pizzol, *Bitcoins bruger lige så meget el som Danmark* Ing.dk (Ingeniøren) 21/11/2019
- Massimo Pizzol *Sostenibilità ambientale: valutare l'impronta di prodotti e servizi* Oggiscienza 16/11/2015

Research blog

moutreach.science since 2016. Popular style description of my research and reflections on teaching and research in general