Stewart Charles McDowall

Curriculum Vitae

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PROFESSIONAL EXPERIENCE

2022-Present
Doctoral researcher
Institute for Environmental Science, University of Leiden, The Netherlands

PhD candidate conducting research into developing and applying computational life cycle assessment (LCA) methods with a focus on waste impacts, treatment and material recovery

External consulting as 'work package' leader in the EU project *FutuRaM (link)*, which is developing a knowledge base on the availability and recoverability of secondary raw materials

2015-2022
Scientific Editor and Proofreader
Freelance

Editing and proofreading of texts including theses for MSc and PhD candidates, journal articles and grant applications

2019-2020
Research Associate
German Biomass Research Centre (DBFZ) in Leipzig, Germany

Research and development in biotechnology and process engineering with a specialisation in the separation and purification of products from biomass

2013-2014
Chemist
Geocycle Chemical Waste Recycling in Melbourne, Australia

Sampling, testing, and certification of waste streams and products.
Tank farm management, material blending, and safety control

2010-2013
Analytical Chemist
ExxonMobil Oil Refinery in Melbourne, Australia

Testing and certification of feedstocks, refinery intermediates, petrochemicals and fuels in a NATA certified laboratory

2008-2010
R&D and Production Chemist
Dyesol Solar Technologies in Canberra, Australia

Research, development, and production of organometallic dyes for dye-sensitised solar cells. Process development for synthesis and purification according to ISO 9001 standards

TERTIARY EDUCATION

2021 **Graduate Certificate in Project Management**
Queensland University of Technology, Australia (distinction average)

2021 **Graduate Certificate in Sustainability**
University of Sydney, Australia (high distinction average)
Specialisation in developing and analysing sustainable processes

2017-2020 **Master of Science (Environmental Chemistry)**
University of Leipzig, Germany (distinction average)
Thesis at the German Biomass Research Centre (DBFZ) (high distinction)
Development of a membrane filtration cascade for the valorisation of biomass

2018-2019 **Master of Science (Environmental Chemistry)**
University of Bologna, Italy
Erasmus Research Exchange Program as part of the MSc (Leipzig)

2011-2013 **Master of Chemical and Biomolecular Engineering**
University of Melbourne, Australia
(discontinued due to a motorcycle accident)

2008-2010 **Bachelor of Science (Chemistry)**
Australian National University, Australia (distinction average)
Majors in Chemistry and Environmental Science

PEER-REVIEWED SCIENTIFIC PUBLICATIONS

202x (in review) McDowall, S.C., Blanco, C.F., Cucurachi, S.,
Waste and Material Footprints in prospective LCA: a study of 1600+ activities from 2020-2050
International Journal of Life Cycle Assessment

202x (in review) McDowall, S.C., Körf, N., Blanco, C.F., Cucurachi, S.,
From Rubbish to Resource: Waste-Stream-Specific Scenario Narratives for the Future of Secondary Raw Material Recovery in the EU
The Journal of Circular Economy

2025 McDowall, S.C., Lanphear, E., Cucurachi, S., Blanco, C.F.,
T-reX: Quantifying waste and material footprints in current and future Life Cycle Assessment (LCA) databases
Resources Conservation and Recycling (link)

2022 McDowall, S.C., Braune, M., Nitzsche, R.,
Recovery of bio-based MCFAs from fermentation broth with membrane filtration
Separation and Purification Technology (link)

2021 Braune, M., Yuan, B., Sträuber, H., McDowall S.C., Nitzsche, R., Gröngröft A.,
A downstream processing cascade for separation of caproic and caprylic acid from maize silage-based fermentation broth
Frontiers in Bioengineering and Biotechnology (link)

2020	McDowall, S.C.,
	Development of a membrane filtration cascade for the recovery of biomass-derived medium-chain fatty acids
	Master Thesis
	Deutsches Biomasseforschungszentrum (DBFZ) and Universität Leipzig

ADDITIONAL SCIENTIFIC CONTRIBUTIONS

2025	**The United Nations World Drug Report 2025**
	United Nations Office on Drugs and Crime, Vienna, Austria
	Contribution to the chapter ""The impact of drugs on the environment: the case of Europe" with a life cycle assessment of MDMA production (link)

2025	**Brightcon Conference and Hackathon**
	CEA, Grenoble, France
	Presentation: "Chemical Connections in LCA: Linking Databases, Molecules and Open Chemical Data" (link)

2023	**11th International Conference on Industrial Ecology**
	University of Leiden, The Netherlands
	Presentation: "Waste flows and environmental impacts in Life Cycle Assessment: A macro-scale application of the WasteFootprint Python tool" (link)

SCIENTIFIC COMMUNICATION

2023	**Creative Abstract Competition**
	ISIE 2023 Conference, Leiden, The Netherlands
	Founder and coordinator of a committee that organised a contest to challenge conference participants to express their scientific research in a creative way (link)

2023	**Potato Tata (comic book translation)**
	Publications Office of the European Union
	Translation into German of Potato Tata, a book aimed at sharing the basic concepts of Life Cycle Assessment (LCA) with the youth (link)
	Coordination of a translation project covering five additional languages

VOLUNTARY WORK

2023-Present	**Software developer**
	Brightway LCA, Activity Browser, premise and others, global/remote
	Contribution to open-source sustainability software related to LCA

2021-Present	**Associate**
	Time for Planet, global/remote
	Assessing applications for funding and proofreading communications

2014-2019	**Director of Operations**
	Gundaway Kalinga in The Philippines
	Management of a small, grassroots NGO working to promote education equality in isolated communities in the Philippines

2011-2014	**Academic Tutor**
	Gilmore College in Melbourne, Australia
	Tutoring high school students from disadvantaged backgrounds

LANGUAGE PROFICIENCY

English - Native
German - Advanced (C1)
Italian - Intermediate (B1)
Spanish - Basic (A1)

SOFTWARE & PROGRAMMING

Python – Advanced
MS and Libre Office – Advanced
QGIS – Intermediate
Data-dashboards – Intermediate
SAP - Intermediate
Matlab – Intermediate
HTML – Intermediate
R – Intermediate