

LORRAINE AMPONSAH

+44 (0)7791133912 | Lorraine_Amponsah@live.co.uk | www.linkedin.com/in/lorraine-amponsah

A supply chain sustainability specialist, with an interest in emerging technologies.

Research themes and sector specialities: Chemicals, automotive manufacturing, battery materials, marine bioprocessing, bio-packaging materials, sustainable food, mining & commodities (metals and minerals) and carbon sequestration.

Education

PhD in Chemical Engineering | [University of Bath](#) | Institute for Sustainability Jan 2020 – Jul 2024

↳ **Project title:** “Evaluating the Sustainability and Environmental Performance of Commercially Applicable Marine Biorefineries”

Supervisors: Dr Sophie Parsons (Ball Beverage Packaging Europe) & Professor Chris Chuck (Department of Chemical Engineering).
Themes: Life Cycle Assessment (LCA), the ‘blue’ economy, carbon dioxide removal, carbon capture and storage, emerging technologies, biochar and biopolymers.

Masters (MRes) in Chemistry & Engineering (Catalysis) | [Imperial College London](#) Sept 2017 – Sept 2018

Themes: Reaction Engineering, Industrial Chemistry, Sustainability, Materials Chemistry and Renewable Energy.

Bachelors (BSc) in Chemistry | [University of Brighton](#) | First Class honours Sept 2013 – Jul 2017

↳ Featured a 1 year Industrial Placement with The BMW Group (The Technical Laboratory)

Themes: Chemistry, Mathematics, Statistics, Geochemistry, Polymers and Nuclear Chemistry.

Skills

Software: Microsoft Office (Excel, PowerPoint and Word) (expert), OpenLCA (expert) and Brightway (intermediate);

Languages: Python (intermediate). **Sustainability standards:** Familiarity with ISO 14040/14044/14067/14071 standards, PAS 2050, PEF, Greenhouse Gas (GHG) Protocol and IPCC guidelines. **Other:** Scientific publication writing [**1-3**], project management, auditing and critical reviewing.

Work Experience

Senior Sustainability Consultant | [Minviro](#) Sept 2023 – PRESENT

Supply-chain sustainability, mining (metals & minerals), battery materials and recycling

- Responsible for managing a full range of assessments for clients, evaluating the environmental performance of their products across a multitude of impact categories, including [but not limited to] climate change (scopes 1-3), land-use (via LANCA methodology) and water scarcity (via AWARE methodology).
- Project managing and leading end-to-end project processes. This includes formulating proposals, conducting bi-weekly update meetings, and overseeing project closure. Deliverables typically include detailed reports, spreadsheet models, and presentation slide decks summarising project findings for clients.
- Conducting **critical reviews** of both internally and externally produced reports, according to the ISO standards.
- Attending and representing the company at industry-leading international conferences and events.
- Liaising between the consultancy and marketing team, facilitating knowledge transfer and co-ordinating the generation of content such as consultancy-offering marketing materials, case studies, white papers and other lead-generating assets.

Sustainability (LCA) Consultant | [Contract](#) | [The Clean Food Group](#) Aug 2022 – Feb 2023

Sustainable food ingredients sector

- Devising, modelling and evaluating the environmental performance of novel systems producing sustainable alternatives to commercially produced palm oil (using feedstock such as seaweed, food waste, glucose syrup and molasses), via life cycle assessment (LCA).
- Creating and delivering presentations, communicating otherwise complex findings in a format intelligible to both commercial and technical leadership – content which was also used to secure venture capital
- Managed the relationship with an external environmental agency (ClimatePartner) through the third-party LCA validation process – earning the necessary credentials sought after by food retailers.
- The results and material generated from this LCA work have been featured in the company’s pitch deck during funding rounds and utilised in marketing communications, as well as in the guidance of the engineering design phase of the proposed commercial biorefinery.

Chemical Engineering, Marine Bioprocessing and Sustainability

- Supervision of Masters students and an intern working on engineering process design and LCA projects.
- Graduate teaching assistant for the modules: 'Energy and the Environment' and 'Business Processes'.
- Successfully managed a series of sustainability/LCA projects in collaboration with various Green Technology start-ups deriving a portfolio of products (e.g. biopolymers, nutraceuticals and protein) from marine biomass (seaweed).
- Authored peer-reviewed publications
 - ↳ **LCA** of a seaweed biorefinery producing a biopolymer, fucoidan, laminarin and protein.[1]
 - ↳ **LCA** and **techno-economic analysis** of a seaweed biorefinery producing a biodegradable polymer, integrated with biochar **carbon capture and storage**. [2]
 - ↳ Review of **seaweed cultivation and harvesting methods** carried out in Europe and the US, from the perspective of **LCA**. [3]

Gasoline Development Chemist | Johnson Matthey

Sept 2018 – Dec 2019

Emissions Control & Manufacturing

- Part of a multidisciplinary team tasked with ensuring the production-readiness of catalytic coatings for Gasoline Particulate Filters, leading/contributing to projects facilitating process validation and scale-up.
- Planning and conducting experiments in industrial-grade laboratories using a range of analytical instrumentation.
- Interpretation of emissions data (conversion of NO_x, CO and hydrocarbons) generated from vehicle/engine testing, ensuring the compliance of products with global customer requirements and emissions legislation.

Product Specialist Chemist | Internship | The BMW Group (Technical Laboratory)

Jun 2015 – Jul 2016

Automotive Manufacturing

- Support of manufacturing processes via routine analysis of engine and machining fluids (petrol/diesel, coolants, wash-fluids, quench fluids etc), along with problem resolution (ADHOC).
- Creation, review and optimisation of current/new analytical processes (e.g. analysis of mineral oil content), and the maintaining of laboratory process sheets.
- Developed and implemented a new method quantifying oil content in emulsion wash-fluids and coolants, reducing process throughput time from 16 to 4.5hrs and annual energy and material costs by 92.5% and 73.5% respectively.

Relevant Training

Social Value Chain Assessment Pré Sustainability	Sept 2022 - Nov 2022
Input-Output (IO) and Hybrid LCA International Life Cycle Academy, Spain, Barcelona	Sept 2022
Consequential and IO-based Life Cycle Assessment Aalborg University, Denmark	May 2021 - Jun 2021
Prospective Life Cycle Assessment – PhD Autumn School Leiden University, The Netherlands	Oct 2020

Memberships

Audit Committee Member | Institute of Materials, Minerals and Mining (IOM³) May 2021 - Present

- Identifying potential compliance gaps and providing recommendations to address them effectively.
- Monitoring and evaluating compliance with regulatory requirements, industry standards, and internal policies.
- Conducting interviews and leveraging insights to generate reports, detailing recommendations for improvements.

Professional Membership - MIMMM | Institute of Materials, Minerals and Mining (IOM³) Nov 2020 - Present

Publications

[1] Amponsah, L., Chuck, C. & Parsons, S. Life cycle assessment of a marine biorefinery producing protein, bioactives and polymeric packaging material. International Journal of Life Cycle Assess (2023). <https://doi.org/10.1007/s11367-023-02239-w>

[2] Amponsah, L., Jones, E., Davies, J., Chuck, C. & Parsons, S. Life cycle assessment and techno-economic analysis of a macroalgal derived biopolymer film coupled with carbon capture. Cleaner and Circular Bioeconomy (2024). **Submitted manuscript.**

[3] Amponsah, L., Chuck, C. & Parsons, S. Life Cycle Assessment of Seaweed Cultivation and Harvesting In Europe and the United States. Sustainability Science and Technology (2024). **Submitted manuscript.**