

Zero emission vehicles: Global Value Chain sustainability

Dr Nana O'Bonsu

Air pollution causes 40,000 deaths in the UK every single year.

Pollution from traffic is the biggest problem.

The automotive sector in Britain drives economic activity and contributes to human welfare, but accounts for 27% of Britain's Green House Gas (GHG) emissions, as well as having significant negative impacts on the environment and human health (remaining the biggest contributors to poor air quality in UK towns and cities).

Two goals to challenge this sector have been set in the UK: zero emissions by 2040 and the Ultra-Low Emission Vehicle (ULEV) standard to be achieved by 2050. To achieve these goals, the electric vehicles (EV) revolution is one solution towards a low carbon economy and improved air quality.

Transforming this sector throws up a new set of challenges. The electric vehicle Global Value Chain (GVC) sources raw material from developing countries, which comes with a set of ethical and sustainability issues. Nana's research explores how these GVCs can be made more responsible and sustainable.

Nana is using a range of different methods to understand how electric vehicle Global Value Chains can become responsible and contribute to Sustainable Transportation in the global low-carbon economy. This project will provide evidence and analysis to inform policy development in relation to:

- the challenges and policy impacts for EV/ULEV transformation by 2050;

- the challenges & conflicts in the production of cobalt or other minerals for EV components;
- Effective protocol/ best practices for EV battery second or end-of-life use and
- Identifying key themes and issues for a 'future-oriented policy-relevant research'.

Please get in touch with Nana at the Centre for more information about his research.

About the author

Dr Nana O.Bonsu is a Research Fellow in Sustainability at the Lloyds Banking Group Centre for Responsible Business. He has an interest in policy and governance and a mixed academic and industrial background, with experience, engaging high-level and diverse stakeholder groups, including local politicians, on sustainability related issues.



Child labour and modern slavery concerns

Although the transformation of the automotive sector in order to decrease emissions is important, the sourcing of raw materials from developing countries comes with many ethical problems.

Some cases have included issues of modern slavery, child labour/human rights violation and environmental pollution during cobalt mining - which is an important aspect of the EV or Ultra-Low Emission Vehicles (ULEV) lithium-ion battery chemistry.

In addition, the production of EV/ULEV and its components involve highly energy-intensive processes, which also generates significant GHG and other emissions. As a result, the study will inquire into the EV GVCs to understand how it could be made more 'responsible' and 'sustainable'. Overall, the findings aim to influence the Global Value Chain of EVs, and harness responsible business practices following government policy frameworks to ensure a low-carbon economy and improved air quality. The added value of this study, will be useful for identifying common solutions, synergies, opportunities and roadmaps needed for achieving the UN Agenda 2030 Sustainable Development Goals (SDGs).

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