

Pico Talk Delivered by Dr Nicki Lisa Cole
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Is it possible to quantify and model the social risks and challenges embedded within and surrounding global agrifood supply chains? Using sugarcane as a case study, can we create a proof of concept that demonstrates that this can be done for the UK's producer-to-consumer supply chains?

We, an interdisciplinary team representing sociology, mathematics, environmental economics and conservation science, set out in August to answer these questions. Our immediate goal is to develop a few key data-driven social indicators of risk associated with sugarcane supply chains, and then, to link the data behind them to IOTA, a trade model developed at SEI York.

IOTA, standing for Input-Output and Trade Analysis, combines state-of-the-art economic modelling techniques with data on raw material production to assess associated land use, water and other ecosystem-service impacts associated with consumption. Our challenge with this project is to demonstrate that social impacts can be modeled in the same way -- to present an integrated and holistic understanding of supply chain sustainability, which incorporates both social and environmental concerns.

We began with a literature review of reports related to social risks and indicators for sugarcane. Through this process, we identified an array of social risks and challenges that could be operationalised as social indicators. We presented these, spanning issues like poverty and wages to education and gender inequality, at a workshop in November. Our collaborators from other N8 universities and external partners from WWF-UK and Bonsucro helped us to narrow our focus on three key indicators that we collectively felt were ripe for development, considering the likelihood of available data.

Now, we are in the process of developing social indicators for economic poverty, as measured by the difference between a living wage and actual earnings; multidimensional poverty, using data from the Oxford Poverty and Human Development Index; child labour and forced labour, using reports from the US Department of Labor and the ILO; occupational heat stress, using geographic temperature mapping; and certification coverage, considering Fairtrade, Bonsucro, Organic and Rainforest Alliance.

Simultaneously, we are drafting a paper to present our literature review and proof of concept, and working with our collaborators to develop a next-stage research proposal and funding bid. Thank you.