

# Dr Edgar Rodríguez Huerta

May 2024 | [edgar.rodriquezhuerta@nottingham.ac.uk](mailto:edgar.rodriquezhuerta@nottingham.ac.uk)

Rights Lab, Faculty of Social Sciences, University of Nottingham

*Data science researcher: social sustainability and supply chain mapping*

## PROFESSIONAL EXPERIENCE (POSTDOCTORAL)

- Apr 2021 to date Rights Lab Research Fellow and Lead in Social-Ecological Systems Modelling, University of Nottingham. Awarded Global Talent Visa by UK Government with British Academy endorsement. *Sample research:*
- Integration of LCA and Social-LCA into supply chains to determine multiple indicators of forced labour risk
  - Quantitative research focused on understanding environmental change and modern slavery interactions
  - Generation of climate change models to explore effect on labour conditions
  - Food supply chain analysis in partnership with major UK company
  - Solar supply chain analysis using new method for estimating risk
- Supervised 1 PhD, 2 MSc, 1 BA students

## PROFESSIONAL EXPERIENCE (NON-ACADEMIC)

- Jan 2010 to Jul 2013 Senior Project Developer and Business Intelligence Specialist, JLC Corporation (consulting and business solutions based on ERP and BI tools), Yucatán, México
- Managed software (BI and ERP), including stakeholder training
  - Designed dashboards and reports for different sectors (retail, financial and academic)
- Jul 2006 to May 2007 Junior Advisor, UNIFICA (quality certification and processes), Yucatán, México
- Generated flowcharts for processes standardization
  - Produced documentation for ISO-9000 certification

## EDUCATION

- Sep 2015 to Mar 2020 Universitat Politècnica de Catalunya, Institute for Sustainability Science, Barcelona, Spain, Ph.D. in Sustainability Science
- Dissertation: Water Societal Metabolism in Yucatan Peninsula, Mexico. Application of Multi-Scale Integrated Analysis of Societal and Ecosystem Metabolism (MuSIASEM)
  - Three peer-reviewed publications as first author
  - Built exploratory tool to analyse effect of climate change (R, QGIS, Tableau)
  - Supervised 3 MSc students at Instituto Tecnológico de Mérida
- Sep 2013 to Jun 2015 Universitat Politècnica de Catalunya, Institute for Sustainability Science, Barcelona, Spain, Master's degree in Sustainability Science and Technology
- 120 ECTS. Grade: 8.9/10 Rank 2/12.
  - MSc thesis: Societal Metabolism in the Energy Sector in Catalunya, applying spatial analysis with QGIS
  - Collaborated with multi-cultural and interdisciplinary team
- Aug 2008 to Oct 2008 SAP Madrid, Spain. Certification SAP All in One Logistics, SAP ID: PT0005779190-00206876-00001468
- Sep 2007 to Jul 2008 Universidad de Zaragoza, Zaragoza Logistics Center, Zaragoza, Spain, Master's degree in Logistics
- 105 ECTS. Grade: 9.1/10
  - MSc thesis: Methodologies for a Sustainability Balanced Scorecard in the Logistics Sector
- Sep 2002 to Feb 2007 Instituto Tecnológico de Mérida, Yucatán, México, undergraduate degree in Industrial Engineering. Grade: 9.4 / 10.

## PUBLICATIONS, PEER REVIEWED

Lumley-Sapanski A., Rodríguez-Huerta, E., Young, M., Nicholson A., Schwarz K. (anticipated 2024). Criminalizing survivors of modern slavery: the United Kingdom's National Referral Mechanism as a border-making process (*accepted in Journal of Social Policy April 2024*)

- Blackstone, N.T., Rodríguez-Huerta, E., Battaglia K., Jackson B., Jackson E., Benoît Norris C., Decker Sparks, J.L. (2023). Forced labour risk is pervasive in the US land-based food supply. *Nature Food*. <https://doi.org/10.1038/s43016-023-00794-x>
- Rodríguez-Huerta, E., Rosas-Casals, M., & Hernández-Terrones, L. M. (2019). A water balance model to estimate climate change impact on groundwater recharge in Yucatan Peninsula, Mexico. *Hydrological Sciences Journal*, <https://doi.org/10.1080/02626667.2019.1702989>
- Rodríguez-Huerta, E., Rosas-Casals, M., & Hernández-Terrones, L. M. (2019). Water societal metabolism in the Yucatan Peninsula. The impact of climate change on the recharge of groundwater by 2030. *Journal of Cleaner Production*, 235, 272–287. <https://doi.org/10.1016/j.jclepro.2019.06.310>
- Rodríguez-Huerta, E., Rosas-Casals, M., & Sorman, A. H. (2017). A societal metabolism approach to job creation and renewable energy transitions in Catalonia. *Energy Policy*, 108. <https://doi.org/10.1016/j.enpol.2017.06.024>

## **PUBLICATIONS, NON-PEER REVIEWED**

- Cockayne, J., Rodríguez-Huerta E., Burcu, O. (2022). The Energy of Freedom? Solar Energy, Modern Slavery and the Just Transition. Research report, 70,000 words, funded by the British Academy: <https://www.thebritishacademy.ac.uk/publications/the-energy-of-freedom-solar-energy-modern-slavery-and-the-just-transition/>
- Boyd, D., Rodríguez-Huerta, E., Jackson B., Decker Sparks, J.L. (2021). The Social and Ecological Impacts of Supply Chains. Research report, 16,000 words, funded by the WWF for Nature.
- Rodríguez-Huerta, E., (2016). CO<sub>2</sub> Footprint Analysis using the LCA Approach. Case study: Wind power plant ‘Chacabal and Chacabal II’ in Yucatan, funded by *Planeta Limpio Mexico*.

## **PUBLICATIONS UNDER REVIEW/DEVELOPMENT**

- Blackstone, N.T., Battagli, K., Rodríguez-Huerta, E., Bell, B., Decker Sparks, J.L., Cash, S., Conrad, Z., Nikkhah, A., Jackson, B., Matteson, J., Gao, S., Fuller, K, Zhang, F., Webb P. (anticipated 2024). The social dimension of food system transformation will be key to success (*under review in Nature Food*)
- Boyd, D., Rodríguez-Huerta, E., et al. (anticipated 2024) Heat stress and the implications for working conditions in brick kilns in India. (*under review Sustainable Development*).
- Rodríguez-Huerta, E., Bell, B., Jackson, B., Blackstone, N.T., Battaglia, K., Benoît Norris, C., Decker Sparks, J.L., Matteson, J. (anticipated 2024). Risk of Forced Labour Embedded in Diets (*in preparation for Nature Food*).
- Rodríguez-Huerta, E., Jackson, B., Blackstone, N.T., Decker Sparks, J.L., (anticipated 2025). Modern slavery’s carbon cost in supply chains: the case of Brazilian soy and sugarcane Book chapter for Supply Chains and the SDGs (Elgar Companion).
- Rodríguez-Huerta, E., Costa-Leão L.H., Landman, T. (anticipated 2024). Occupational health and decent work under climate change (*in preparation for Brazilian Journal of Occupational Health*).
- Jackson, B., Rodríguez-Huerta, E., Marshall, H., Pereira, A.C., Chandler, C., Light, M., Iqbal, S., Boyd, D., Decker Sparks, J.L. (anticipated 2024). Measuring the co-occurrence of tree loss and modern slavery in Brazil between 2001-2021 (*in preparation TBD*)
- Rodríguez-Huerta, E., Cockayne, J., (anticipated 2025). Forced labour embedded in global solar photovoltaic supply chain. (*in preparation for Int J Life Cycle Assess*)
- Jackson, B., Rodríguez-Huerta, E., Valman, S., Blair, B., Boyd, D., Decker Sparks, J.L. (anticipated 2024). Aquaculture, labour, and emissions in Southwest Bangladesh and the Sundarbans Reserve Forest (*in preparation for TBD*).

## **GRANTS AND FELLOWSHIPS AWARDED**

- |         |   |
|---------|---|
| 2024    | U. Nottingham Knowledge Exchange and Impact Awards 2024. “Slavery from Space: Using Satellites for Human Rights and Sustainable Development” Team leader: Prof Doreen Boyd and colleagues: Jackson, B., Nyarko, A., Girindran, R. Vrinceanu, C. |
| 2023-26 | Co-Investigator: Salient and Evolving Human Rights Risks. PI: T. Landman.   |
| 2023-25 | Co-Investigator: Using Data Science to Transform India’s Brick Kilns. Funder: UK Home Office. PI: D. Boyd.  |
| 2021-22 | Co-Investigator: Solar Energy, Modern Slavery, and the Just Transition. Funder: British Academy. PI: J. Cockayne.   |
| 2021-21 | Co-Investigator: The Social and Ecological Impacts of Supply Chains. WWF U.S. PI: Decker Sparks, J.L.   |
| 2014-20 | PhD and MSc Scholarship: CONACYT-Mexico,  |

- 2014-15 AGAUR Fellowship for Directed Academic Activities, Agència de Gestió d'Ajuts Universitaris i de Recerca, Generalitat de Catalunya, Spain
- 2007-08 Professional fellowship program in logistics (Spain). Training program in multiple companies. Award: 'Memoria Pilot', winner of Logistics Excellence 2008 for large enterprises organized by Chamber of Commerce of Aragon, Spain.

### GRANTS IN REVIEW / IN PROCESS

- "Climate Change, Occupational Health, and Decent Work: Worker Vulnerabilities and Response in Brazilian Agriculture" submitted (April 2024) for British Academy ISPF ODA Challenge-Oriented Research Grants (PI).
- "Health at Sea: Visibilizing fishers' experiences with climate change to inform policy and practice" submitted (April 2024) for Wellcome Climate Action (Co-I, PI J. Sparks).
- "ESRC Centre in Earth Observation and Social Sustainability," invited (May 2024) for final round (Co-I, PI D. Boyd).

### TEACHING EXPERIENCE

- Nov 2021 Course: "Data management and visualization for academic research" for MSc students (Instituto Tecnológico de Mérida).
- Apr 2016 Seminar: "Societal Metabolism: Introduction to the MuSIASEM methodology" for MSc students (Instituto Tecnológico de Mérida).

### CONFERENCES, INTERNATIONAL COLLABORATIONS, AND SERVICE TO PROFESSION

- Apr 2024 Support for MSc students from the Technical University of Denmark (DTU) for the project "Sociotechnical dimension of renewable energies".
- 2022 to date Collaboration with the Friedman School of Nutrition Science and Policy at Tufts University (Boston, MA, USA). Leading A Sustainability Transition in Nutrition Globally (LASTING) Project.
- May 2023 Workshop Presentation, Stanford University, the King Center and Center for Ocean Solutions: "Decent Fisheries Work in a Changing Climate".
- 2020 to date Journal reviewer: Journal of Cleaner Production, Energy Policy, Hydrogeology Journal, Joule.
- Mar 2022 Invited Presentation, U.S. Department of Labor and Tufts University: "How Social Life Cycle Assessment (S-LCA) can help address forced labour".
- Feb 2022 U21 Early Career Researcher Workshop: "Planetary Health."
- Feb 2021 Workshop Participation to design the Regional Water Program 2020-2024 of the Yucatan Peninsula.
- May 2019 Earth Day Presentation, Instituto Tecnológico de Mérida: "Prospects for Sustainability in the Yucatan Peninsula aquifer".

### EXTRA TRAINING

- Feb 2024 Stepping into Leadership 2023/24. LMA Development Programmes
- Oct 2023 MOOC: Analysing/Presenting Data/Information by Edward Tufte (8h).
- Jan 2021 MOOC: Data Science: Statistics and Machine Learning Specialization. Johns Hopkins University (Coursera) (133h).
- Oct 2020 MOOC: Specialization in Data Science (R Programming). Johns Hopkins University (Coursera) (290h).
- Sep 2020 MOOC: Spatial Data Science and Applications. Yonsei University (Coursera) (24h).
- Aug 2020 MOOC: Systems Thinking in Public Health. Johns Hopkins (Coursera) (20h).
- Jul 2020 MOOC: Ecosystem Services: A Method for Sustainable Development. University of Geneva (Coursera) (24h).
- Jul 2020 MOOC: Sustainability of Social-Ecological Systems: The Nexus between Water, Energy, and Food. Universitat Autònoma de Barcelona (Coursera) (48h)
- May 2020 MOOC: Sustainable Development Goals for Latin America and Caribbean. Universidad de los Andes, Colombia (Coursera) (18h).
- Mar 2018 MOOC: Writing in science. Stanford University (Coursera) (40h).

### SKILLS AND LANGUAGES

- Proficient: R, Tableau (Desktop and Prep), OpenLCA, Zotero.
- Intermedium: SQL, MySQL, PowerBI, QGIS, Blogdown (web-designer in R), Netlogo, Gephi, VosViewer, Markdown.
- Learning: Python, Mermaid diagramming tool, Observable
- Spanish: Native language.
- English: Fluent.