



Moana S. Simas

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OVERVIEW

PhD candidate in Industrial Ecology since April 2014. My research field is on sustainable production and consumption through multi-regional (MRIO) analysis, with focus on socioeconomic and environmental impacts linked to global value chains.

EDUCATION

PhD Industrial Ecology

2014-ongoing

*Industrial Ecology Programme,
Department of Energy and Process Engineering, NTNU*

"Tracking environmental and socioeconomic footprints associated to international sourcing in global value chains"

Estimated to finish doctoral degree by September 2018.

Thesis supervisor: Richard Wood (NTNU) / Co-Supervisor: Edgar Hertwich (Yale)

Research Assistant

2012-2014

*Industrial Ecology Programme,
Department of Energy and Process Engineering, NTNU*

Research area: Sustainable Production and Consumption

Supervisors: Edgar Hertwich and Richard Wood

MSc Energy

2010-2012

*Energy and Environment Institute,
University of Sao Paulo - USP, Brazil*

Research area: Energy, Environment and Society

Awarded with a merit-based scholarship from the Brazilian Research Council to dedicate full-time to the research and to contribute to the Laboratory of Life Cycle Assessment

Thesis: "Wind energy and sustainable development in Brazil: Estimating job creation through an extended input-output model"

Thesis supervisor: Sergio A. Pacca

BSc Environmental Management

2006-2009

University of Sao Paulo - USP, Brazil

Multidisciplinary degree with strong focus on environmental sciences and modelling of environmental flows

PARTICIPATION IN RESEARCH PROJECTS

ELIOD - Environmental and Labour Input-Output Database 2017
Funded by the European Commission through the Joint Research Centre (JRC)

- Development and implementation of a fully automatized algorithm for harmonizing and allocating labour accounts into the OECD Inter-Country Input-Output Database (ICIO)

CarbonCAP - Carbon emission mitigation by Consumption-based Accounting and Policy 2016
Funded by the European Commission through the FP7

- Analysis of drivers for the growth of greenhouse gas emissions between 1995 and 2011 through Structural Decomposition Analysis

DESIRE - Development of a System of Indicators for a Resource Efficient Europe 2014-2015
Funded by the European Commission through the FP7

- Development of semi-automatized procedures for harmonizing and allocating labour accounts into the MRIO database EXIOBASE3

PROSUITE - Prospective Sustainability Assessment of Technologies 2013
Funded by the European Commission through the FP7

- Expansion of social indicators for the MRIO database EXIOBASE2

CREEA - Compiling and Refining Environmental and Economic Accounts 2012-2013
Funded by the European Commission through the FP6

- Development of labour extensions for the MRIO database EXIOBASE2

LabACV - Laboratory of Life Cycle Assessment of the University of Sao Paulo 2011-2012
Funded by the Brazilian Research Council - CNPq

- Development of a environmentally-extended input-output model for the Brazilian Economy with extensions for labour, gross energy use, net energy use, greenhouse gas emissions and ecological footprints

OTHER PROFESSIONAL EXPERIENCES

ABEEolica - Brazilian Wind Energy Association 2011-2012
Environmental and policy researcher

- Research on policy, economic, financial and environmental aspects of wind energy production and industry in Brazil
- Represent the Brazilian Wind Energy Association in the Environmental Forum of the Electric Sector, a policy think-tank to review and suggest changes to legislation to advance the deployment of renewable energy sources in Brazil
- Organization of the Conference Program for the Brazil Windpower 2011 Conference & Exhibition

Internship

- Development of a database for LCA-based greenhouse gas emission factors for construction materials to be used for LEED green building certification
- Participate in the quantification of emission reductions for Clean Development Mechanism projects for waste management and biogas

TOOLS AND SOFTWARES

Industrial Ecology Tools

Extensive knowledge in MRIO databases and modelling. Advanced knowledge in LCA theory and moderate experience in LCA application. Basic knowledge in MFA.

Softwares

Extensive knowledge in MATLAB. Basic knowledge in LaTeX and in version control (Git, Overleaf). Currently learning about sharing softwares and codes through platforms such as GitHub and GitLab and interested in learning language for open softwares (R or Python).

PEER-REVIEWED JOURNAL PAPERS

11. R. Wood, K. Stadler, M. Simas, T. Bulavskaya, S. Giljum, S. Lutter and A. Tukker, “[Growth in Environmental Footprints and Environmental Impacts Embodied in Trade: Resource Efficiency Indicators from EXIOBASE3](#)”, *J. Ind. Ecol.* **Early View**, 10.1111/jiec.12735 (2018).
10. K. Stadler, R. Wood, T. Bulavskaya, C.J. Södersten, M. Simas, S. Schmidt, ..., A. Tukker, “[EXIOBASE 3: Developing a Time Series of Detailed Environmentally Extended Multi-Regional Input-Output Tables](#)”, *J. Ind. Ecol.* **Early View**, 10.1111/jiec.12715 (2018).
9. M. Simas, S. Pauliuk, R. Wood, E. Hertwich and K. Stadler, “[Correlation between production and consumption-based environmental indicators: The link to affluence and the effect on ranking environmental performance of countries](#)”, *Ecol. Indic.* **76**, 10.1016/j.ecolind.2017.01.026 (2017).
8. A. Tukker, T. Bulavskaya, S. Giljum, A. de Koning, S. Lutter, M. Simas, K. Stadler and R. Wood, “[Environmental and resource footprints in a global context: Europe’s structural deficit in resource endowments](#)”, *Global Environ. Chang.* **40**, 10.1016/j.gloenvcha.2016.07.002 (2016).
7. M. Simas, R. Wood and E. Hertwich, “[Labor embodied in trade: The Role of Labor and Energy Productivity and Implications for Greenhouse Gas Emissions](#)”, *J. Ind. Ecol.* **19**, 10.1111/jiec.12187 (2015).
6. R. Wood, K. Stadler, T. Bulavskaya, S. Lutter, S. Giljum, A. de Koning, J. Kuenen, H. Schütz, J. Acosta-Fernández, A. Usubiaga, M. Simas, ..., A. Tukker, “[Global sustainability accounting-developing EXIOBASE for multi-regional footprint analysis](#)”, *Sustainability* **7**, 10.3390/su7010138 (2015).

5. G. Salvo, M. Simas, S. Pacca, J. Guilhoto, A. Tomas and R. Abramovay, “[Estimating the human appropriation of land in Brazil by means of an Input–Output Economic Model and Ecological Footprint analysis](#)”, *Ecol. Indic.* **76**, 10.1016/j.ecolind.2015.01.027 (2015).
4. M. Simas, L. Golsteijn, M. Huijbregts, R. Wood and E. Hertwich, “[The “Bad Labor” Footprint: Quantifying the Social Impacts of Globalization](#)”, *Sustainability* **6**, 10.3390/su6117514 (2014).
3. M. Simas and S. Pacca, “[Assessing employment in renewable energy technologies: A case study for wind power in Brazil](#)”, *Renew. Sust. Energ. Rev.* **31**, 10.1016/j.rser.2013.11.046 (2014).
2. M. Simas and S. Pacca, “[Socio-economic Benefits of Wind Power in Brazil](#)”, *Journal of Sustainable Development of Energy, Water and Environment Systems* **1**, 10.13044/j.sdewes.2013.01.0003 (2013).
1. M. Simas and S. Pacca, “[Energia eólica, geração de empregos e desenvolvimento sustentável](#)”, *Estudos Avançados* **27**, 10.1590/S0103-40142013000100008 (2013).

BOOK CHAPTERS AND PUBLICATIONS

- M. Simas, R. Wood, “The distribution of labour and wages embodied in European consumption”, *The Social Effects of Global Trade* (Pan Stanford Publishing, 2018), J. Murray, A. Malik & Arne Geschke, eds.
- M. Simas, R. Wood, “The Bad Labour Footprints: Linking Local Labour Conditions to Global Supply Chains”, *The Sustainability Practitioner’s Guide to Social Analysis and Assessment* (Common Ground Publishing, 2015), J. Murray, D. McBain & T Wiedmann, eds.
- A. Tukker, T. Bulavskaya, S. Giljum, A. de Koning, S. Lutter, M. Simas, K. Stadler, R. Wood, “The Global Resource Footprint of Nations: Carbon, water, land and materials embodied in trade and final consumption calculated with EXIOBASE 2.1”, (The Netherlands Organisation for Applied Scientific Research; Leiden University; Vienna University of Economics and Business; Norwegian University of Science and Technology, 2014) .

TEACHING EXPERIENCE

Supervision for Masters theses and projects

2017-ongoing

Norwegian University of Science and Technology

Co-supervision of student Ana Maria Arbelaez Velez on her Masters project titled ”Social consequences of international trade” (2017) and ongoing co-supervision on her thesis titled ”Assessment of gender inequality in global supply chains” (2018)

TEP4222 - Input-Output Analysis, Trade and Environment

2015,2018

Norwegian University of Science and Technology

Responsible for the organization and coordination of the online teaching platform, teaching tutorials and grading exercises, communication with students and grading exams

TEP4300 - Climate Change Mitigation

2014-2017

Norwegian University of Science and Technology

Lecturer on the section of Carbon Footprints (2017) and Socio-Economic Metabolism (2016). Responsible for the developing the course material together with the responsible professor (2014,2015). From 2014 to

2016: organization and coordination of the online teaching platform; developing, teaching and grading exercises; student supervision for the writing of individual course essay; manage all communication with students; and grading of essays and exams

ACH1034 - Atmospheric Environment

2011

University of Sao Paulo

Responsible for the organization and coordination of the online teaching platform, manage all communication with students, grading of exams

ACH1047 - Energy Sources and the Environment

2011

University of Sao Paulo

Responsible for the organization and coordination of the online teaching platform, manage all communication with students, lecturer on the section of Wind Energy, grading of exams

PARTICIPATION IN INTERNATIONAL CONFERENCES AND EVENTS

- 2017 joint IELab-ALCAS conference, North Stradbroke Island, Australia; 26-28 November 2017.
- 2017 Joint Conference ISIE and ISSST: Science in support of Sustainable and Resilient Communities, Chicago, USA; 25-29 June 2017 (Oral presentation).
- 25th Conference of the International Input-Output Association, Atlantic City, USA; 19-23 June 2017 (Oral presentation).
- Gordon Research Seminars in Industrial Ecology, Stowe, USA; 18 June 2016 (Invited speaker).
- Gordon Research Conference in Industrial Ecology, Stowe, USA; 19-24 June 2016 (Poster presentation).
- 8th International Society for Industrial Ecology Biennial Conference, Surrey, England; 07-10 July 2015 (Oral presentation).
- International Conference on Life Cycle Management - LCM, Bordeaux, France; 30 August-02 September 2015 (Poster presentation).
- 22nd International Input-Output Conference, Lisbon, Portugal; 14-18 July 2014 (Oral presentation).
- Gordon Research Conference in Industrial Ecology, Lucca, Italy; 30 August-02 September 2015 (Poster presentation).
- 7th International Society for Industrial Ecology Biennial Conference, Ulsan, Korea; 25-28 June 2013 (Oral presentation).
- 7th Conference on Sustainable Development of Energy, Water and Environment Systems, Ohrid, Macedonia (FYROM); 01-07 July 2012 (Oral presentation).
- 6th International Society for Industrial Ecology Biennial Conference, Berkeley, USA; 07-10 June 2011 (Oral presentation).

ORGANIZATION OF EVENTS

- Student event at the 2017 Joint Conference ISIE and ISSST, Chicago, USA, 24-25 June 2017.
- Student event at the 8th International Society for Industrial Ecology Biennial Conference, Surrey, England, 08 July 2015.
- Thecnical and policy sessions of the Brazil Windpower 2011 Conference & Exhibition, Rio de Janeiro, Brazil, 31 August-02 September 2011.

PEER-REVIEWING AND ASSOCIATIONS

I have acted as reviewer of academic papers for the following journals:

Ecological Economics, Ecological Indicators, Economic Systems Research, Environment, Development and Sustainability, Environmental Modeling and Assessment, Environmental Science & Technology, International Journal of Life Cycle Assessment, Journal of Cleaner Production, Journal of Industrial Ecology, Nature Geoscience, Publications, Sustainability, Sustainable Development.

Memberships

International Society for Industrial Ecology (ISIE) and International Input-Output Association (IIOA).

OTHER ACTIVITIES AND AWARDS

- Visiting researcher at the University of New South Wales (UNSW), Australia, between November 2017 and February 2018 under supervision of Professor Tommy Wiedmann
- Prize for best Flash Session presentation at the 25th International Input-Output Association (IIOA) Conference, Atlantic City (USA), 19-23 June 2017
- Elected President (2015-2016) and Board Member (2014-2015) of the Student Chapter Board of Representatives of the International Society for Industrial Ecology (ISIE)
- Co-founder of the discussion group CarbonUSP at the Institute of Environment and Energy of the University of Sao Paulo for climate change science and mitigation (2009-2010).
- Participation in the Postgraduate School of Industrial Ecology on advanced environmental life cycle assessment and hybrid input-output modeling held by NTNU and Radboud University in 13-23 August 2013, in Trondheim.
- Participation in the Advanced Life Cycle Assessment Modeling Summer School held by Aalborg University and 2.0 LCA in 29 May-02 June 2017, in Aalborg, Denmark.
- Participation in the Winter School for Energy Policy for Sustainable Development and Use of the LEAP (Lone-range Energy Alternatives Planning) Software held by Bariloche Foundation and the Stockholm Environmentl Institute - SEI-US in 04-15 June 2012, in San Carlos de Bariloche, Argentina.
- Participation in the Code Refinery Workshop held between 27 February-01 March 2018 in Trondheim.