Dr. Davide Natalini Bio

Senior Research Fellow

Anglia Ruskin University

Faculty: [Faculty of Science and Engineering](https://aru.ac.uk/science-and-engineering)

Location: [Cambridge](https://aru.ac.uk/student-life/life-on-campus/cambridge-campus)

Areas of Expertise: [Global Risk and Resilience](https://aru.ac.uk/about-us/find-an-expert?expertisearea=Global%20Risk%20and%20Resilience)

Davide is an interdisciplinary environmental social scientist. He studies complex social-ecological systems, systemic risk, and sustainable development, with specific focus on environmental security and conflict. He implements both quantitative (e.g., computer simulation) and qualitative (e.g., multi-stakeholder engagement) methods in his projects.

**Background**

Davide joined the [**Global Risk and Resilience**](https://aru.ac.uk/global-sustainability-institute-gsi/research/global-risk-and-resilience) theme of the Global Sustainability Institute as PhD researcher in 2013 working on the Global Resource Observatory Project, where he developed an agent-based model to simulate how scarcity of natural resources, prices and political fragility can trigger conflict around the world. The model is used to test the possible consequences of future food and fuel production shocks in terms of food and fuel riots. Meanwhile, Davide was Research Assistant on the UK-US Taskforce on the Impact of Extreme Weather on US/UK Food Security which was sponsored by the Foreign and Commonwealth Office.

Davide is a permanent member of academic staff and co-leads the Global Risk and Resilience theme with Dr. Zareen Bharucha.

Davide has also been involved in science communication activities and collaborations between arts and science as part of the Pint of Science festival in Cambridge and in collaborations with [**Cambridge School of Art**](https://aru.ac.uk/arts-humanities-and-social-sciences/cambridge-school-of-art) and a group of artists from the Cambridge e:collective.

**Research interests**

Davide is currently leading one of the work packages of the EU H2020 MEDEAS project, which is aimed at simulating policies for the transition to a decarbonised energy system in EU by 2050. His role on the project involves the development of a 2050 decarbonisation scenario (quantitatively and qualitatively); models’ cross-comparison; qualitative and quantitative analysis of the outputs and validation of the models; support colleagues in undertaking semi-structured interviews with energy experts, academics and policy-makers and implementing knowledge in the models’ runs.

Davide is also co-leading the ‘Chaos Map’ project, which will highlight global pressure points for ‘chaos’, measured by a wealth of data points on conflict events attributed to scarcity of natural resources and environmental causes. Davide co-leads the project with [**Prof Aled Jones**](https://aru.ac.uk/people/aled-jones) and brings his expertise in environmental security and conflict.

More broadly, Davide’s research interests revolve around three main research streams:

* environmental security, in particular how scarcity or abundance of natural resources can drive conflict and the dynamics involved. This stream also involves the study of synchronous failures, ie the emergence of synchronised crises in different social-ecological systems that can lead to conflict and fragility
* complex social-ecological systems. i.e. the complex relationships between humans and nature and the systemic risk that is involved
* energy transitions, in particular the development of models and policies that can achieve

Davide approaches these topics with two methods, sometimes in combination:

* computer simulation and econometric modelling
* participatory methods to engage with different stakeholders. He has developed, run and facilitated several workshops involving a wide range of stakeholders (eg policy and decision makers, academics and practitioners). The methodologies he uses are innovative and include co-production, role-playing and serious gaming.

**Areas of research supervision**

Davide is happy to supervise students who would like to write their dissertation on the following topics, using either quantitative or qualitative approaches.

* Environmental/climate security - how scarcity of natural resources impacts global security.
* Food/fuel riots - either causes or consequence.
* Global/national political fragility - further investigation on what makes country politically fragile and how to measure it.
* Systemic failure - interconnections between different crises.
* Any dissertation that implements computer modelling, in particular agent-based modelling.

**Teaching**

Davide lectures on our [**MSc Sustainability**](http://www.mscsustainability.org/) and has led the System Pressures module since 2018. He lectures on Synchronous Failures, resilience of complex social-ecological systems and computer modelling using an ‘active learning’ approach. Davide regularly provides guest lectures on short courses such as the biannual INDO-UK Management Development Program on “CSR, Sustainability & Sustainable Development – National & Global Perspectives” Co-organised with the Indian Institute of Corporate Affairs and he teaches on the European Social Simulation Association summer school.

**Qualifications**

* PhD in Sustainability - Global Sustainability Institute, Anglia Ruskin University, UK
* MA in Political Science – Environmental Economics and Environmental Policies, University of Torino, Italy
* BA in Political Science – International Relations, University of Bologna, Italy

**Memberships, editorial boards**

* Member, GSI Departmental Research Ethics Panel

**Research grants, consultancy, knowledge exchange**

September 2020, Awarded £10k from Anglia Ruskin University GCRF QR fund as Co-I to undertake project ‘Investigating heritage-led resilience to conflict, scarcity and climate change with Syrian refugees in Jordan’ in collaboration with University of Petra.

December 2019, Awarded ~€28k from Lorentz centre to organise workshop (June 2020) on ‘Participatory modelling of Social-Ecological Systems across scales’. These workshops are very prestigious and productive (funding applications, papers).

December 2019, Awarded ~£116k for 2 fully-funded PhD studentships. Projects are titled:  
- New approaches to participatory development for social-ecological resilience: A case study from Garhwal, North-West India (Second supervisor)

- Investigating the resilience potential of heritage in response to climate change-led conflict in UK-based refugees from developing contexts (Third supervisor)

July 2019, Granted £14k from University of Sussex International Development Studies to collaborate on ‘Demanding power: struggles over energy access in fragile settings’, part of a DFID-funded programme.

May 2019, Granted £10k from philanthropist to lead ‘Tax/dividend and trading scheme comparison project’.

February 2018, ~£25k internal ARU funding to set up and run ‘Global Chaos Map’ project to collect global database of environmental conflict, commentaries on case studies and interactive website.

June 2018, ~£7k at ARU sandpit on resilience to set up and run project ‘Community Resilience in the Fens: Exploring multigenerational and multicultural perspectives’.

**Selected recent publications**

**Full papers**

* Natalini, D., Bravo, G. and Newman, E., 2020. [Fuel riots: definition, evidence and policy implications for a new type of energy-related conflict](https://doi.org/10.1016/j.enpol.2020.111885). *Energy policy*, 147(111885).
* Lippe, M., Bithell, M., Gotts, N., Natalini, D. et al. 2019. [Using agent-based modelling to simulate social-ecological systems across scales](https://doi.org/10.1007/s10707-018-00337-8). *Geoinformatica*, 23(2), pp 269–298.
* Natalini, D., Bravo, G. and Jones, A.W., 2019. [Global food security and food riots–an agent-based modelling approach](http://rdcu.be/t5oR). *Food Security*, 11(5), pp 1153-1173.
* Perissi, I., Falsini, S., Bardi, U., Natalini, D., Green, M., Jones, A. and Solé, J., 2018. [Potential european emissions trajectories within the global carbon budget](https://www.mdpi.com/2071-1050/10/11/4225). *Sustainability*, 10(11), p.4225.
* Natalini, D., Jones, A.W. and Bravo, G., 2015. [Quantitative Assessment of Political Fragility Indices and Food Prices as Indicators of Food Riots in Countries.](http://www.mdpi.com/2071-1050/7/4/4360)*Sustainability*, 7, 4360-4385.
* Natalini, D. and Bravo, G., 2014. [Encouraging Sustainable Transport Choices in American Households: Results from an Empirically Grounded Agent-Based Model.](http://www.mdpi.com/2071-1050/6/1/50)*Sustainability*, 6(1), 50-69.

**Doctoral thesis**

* Natalini, Davide (2016) [*Estimating the role of scarcity, prices and political fragility in food and fuel riots: a quantitative and agent-based modelling approach*](http://arro.anglia.ac.uk/id/eprint/701893). Doctoral thesis, Anglia Ruskin University.