

Carolien Kraan

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Professional experience

- 2019-present **PhD program in Environmental Science and Policy, University of Miami, Florida**
Dissertation: Making way for the water – climate adaptation through retreat
- 2017-2019 **Stanford Woods Institute for the Environment, Stanford University, California**
Research analyst in the assessment of climate change impacts and adaptation.
- 2013-2017 **Energy research Centre of the Netherlands (ECN), Amsterdam**
Researcher/policy advisor European and Dutch (renewable) energy policy.

Education

- 2012-2013 **MSc in Integrated Resource Management, University of Edinburgh, Scotland**
Dissertation: Drivers and barriers to deep geothermal energy in the Netherlands: what are the implications of government policy?
- 2009-2012 **BSc in Liberal Arts and Sciences, University College Roosevelt, Netherlands**
Major in mathematics and physics, minor in microeconomics.
Undergraduate research project: Automated 3D reconstruction in Mathematica.
- Sep-Dec 2011 **Hong Kong University of Science and Technology, Hong Kong SAR**
Undergraduate exchange semester with courses in environmental sciences and C++ programming.

Academic publications

- Kraan, C.M., M. Hino, J. Niemann, A.R. Siders, and K.J. Mach (2021).** *Promoting equity in retreat through voluntary property buyout programs.* Journal of Environmental Studies and Sciences. doi:[10.1007/s13412-021-00688-z](https://doi.org/10.1007/s13412-021-00688-z)
- Mach, K.J., and C.M. **Kraan** (2020). *Science-policy dimensions of research on climate change and conflict.* Journal of Peace Research 58(1). doi:[10.1177/0022343320966774](https://doi.org/10.1177/0022343320966774)
- Mach, K.J., W.N. Adger, H. Buhaug, M. Burke, J. Fearon, C.B. Field, C. Hendrix, C.M. **Kraan**, J.-F. Maystadt, J. O’Loughlin, P. Roessler, J. Scheffran, K. Schultz, and N. von Uexkull (2020). *Directions for research on climate and conflict.* Earth’s Future 8. doi:[10.1029/2020EF001532](https://doi.org/10.1029/2020EF001532)
- Mach, K.J., C.M. **Kraan**, M. Hino, A.R. Siders, E.M. Johnston, and C.B. Field (2019). *Managed retreat through voluntary buyouts of flood-prone properties.* Science Advances 5(10). doi:[10.1126/sciadv.aax8995](https://doi.org/10.1126/sciadv.aax8995)
- Mach, K.J., C.M. **Kraan**, W.N. Adger, H. Buhaug, M. Burke, J. Fearon, C.B. Field, C. Hendrix, J.-F. Maystadt, J. O’Loughlin, P. Roessler, J. Scheffran, K. Schultz, and N. von Uexkull (2019). *Climate as a risk factor for armed conflict.* Nature, 571 pp 193-197. doi:[10.1038/s41586-019-1300-6](https://doi.org/10.1038/s41586-019-1300-6)
- Londo, M., J. van Stralen, A. Uslu, H. Mozaffarian, and C. **Kraan** (2018). *Lignocellulosic biomass for chemicals and energy: an integrated assessment of future EU market sizes, feedstock availability impacts, synergy and competition effects, and path dependencies.* Biofuels, Bioproducts and Biorefining, 12(6). doi:[10.1002/bbb.1926](https://doi.org/10.1002/bbb.1926)
- Londo, M., J. van Stralen, C. **Kraan**, H. Mozaffarian, and A. Uslu (2017). Chapter 5 – Modeling demand for bio-based sectors. In: *Modeling and Optimization of Biomass Supply Chains*, ed. by Panoutsou, C. Elsevier, London. doi:[10.1016/B978-0-12-812303-4.00005-7](https://doi.org/10.1016/B978-0-12-812303-4.00005-7)
- Kessels, K., C. **Kraan**, L. Karg, S. Maggiore, P. Valkering, and E. Laes, E. (2016). *Fostering residential demand response through dynamic pricing schemes: a behavioural review of smart grid pilots in Europe.* Sustainability, 8(9). doi:[10.3390/su8090929](https://doi.org/10.3390/su8090929)

Manuscripts under review and in preparation

- Kraan, C.M., E.M. Johnston, M. Hino, A.R. Siders, and K.J. Mach.** Relocation outcomes for participants of FEMA property buyouts: a nationwide analysis. Manuscript under revision.
- Mach, K.J., M. Hino, C.M. Kraan, J. Niemann, A.R. Siders** Goals and Outcomes of US Voluntary Buyouts: A Systematic Review. Manuscript under revision.

Public science writing

Nature Behavioural & Social Sciences – Behind the Paper series

Kraan, C.M., and K.J. Mach (2019). What's the relationship between climate and conflict?

Presentations

UM Graduate and Postdoctoral Research Symposium

2021 C.M. Kraan. Relocation Outcomes for Participants in U.S. Property Buyouts: A Systematic, Nationwide Analysis. University of Miami, Florida (virtual).

UM Marine Ecosystems and Society Department Seminar

2020 C.M. Kraan. Relocation Outcomes for Participants in U.S. Property Buyouts: A Systematic, Nationwide Analysis. University of Miami, Florida (virtual).

UCLA Climate Adaptation Symposium

2020 Lessons for managed retreat from FEMA property buyouts and post-buyout relocations. University of California Los Angeles, California (virtual).

UM Rosenstiel School Climate Café

2020 C.M. Kraan. Moving out of harm's way. University of Miami, Florida (virtual).

Tulane Engineering Forum

2020 C.M. Kraan. Adapting to a changing climate through managed retreat. Tulane University, Louisiana (virtual).

UM Graduate and Postdoctoral Research Symposium

2020 C.M. Kraan. Managed retreat and FEMA buyouts. University of Miami, Florida.

Building Better Buyouts Workshop

2019 C.M. Kraan. The landscape of FEMA buyouts. University of North Carolina at Chapel Hill, North Carolina.

Undergraduate Series in Contemporary Environmental Issues

2019 C.M. Kraan. The landscape of FEMA buyouts. University of Miami, Florida.

The Forum at Rancho San Antonio

2019 C.M. Kraan. Climate as a risk factor for armed conflict. Making Sense of our Ever-Changing World Series. Cupertino, CA.

At What Point Managed Retreat? Resilience Building in the Coastal Zone

2019 C.M. Kraan. The landscape of FEMA buyouts. Columbia University, New York.

National Adaptation Forum

2019 C.M. Kraan. Flood risk mitigation through FEMA property buyouts. Madison, Wisconsin.

Stanford University Young Environmental Scholars (YES) Annual Conference

2018 C.M. Kraan. Flood risk mitigation through FEMA property buyouts. Stanford, California.

BETTER-project Final Stakeholder Consultation West Balkans

2015 C.M. Kraan and A. Türk. Western Balkan-EU action plan for renewable energy cooperation. UN House, Brussels, Belgium.

Fellowships & grants

- 2019-2021 University of Miami Fellowship
- 2019 University of Miami Graduate Activity Fee Allocation Committee (GAFAC) funding
- 2008 Japan-Europe Mutual Understanding Scholarship Programme for High School Students

Reports and other publications

SDE+ (NL renewable energy subsidy)

Kraan, C.M., en S.M. Lensink (2016) *Basisprijzen SDE+ 2017 (English: Base Energy Prices SDE+ 2016)*. ECN-N--16-018. ECN, Amsterdam.

Lensink, S.M., J.W. Cleijne, L.W.M. Beurskens, C.M. **Kraan**, H.M. Londo, H. Mozaffarian, A.J. Plomp, K. Stutvoet-Mulder, A. Uslu, C.L. Van Zuijlen, M. Cremers, B. In 't Groen, G. Jans, R. Meijer, A.-M. Taris, en H. Mijnlief (2016). *Eindadvies basisbedragen SDE+ 2017 (English: Final advice base rates SDE+ 2017)*. ECN-E--16-040. ECN, Amsterdam.

Lensink, S.M., C.L. van Zuijlen, L.W.M. Beurskens, C.M. **Kraan**, H.M. Londo, M., Mozaffarian, A.J. Plomp, M.F.G. Cremers, B. in 't Groen, G. Jans, G., A.-M. Taris, J. Lemmens, R. Meijer, en H. Mijnlief, H. (2016). *Conceptadvies basisbedragen SDE+ 2017 voor marktconsultatie (English: Draft advice base rates SDE+ 2016 for market consultation)*. ECN-E--16-014. ECN, Amsterdam.

Kraan, C.M., en S.M. Lensink (2015). *Basisprijzen SDE+ 2016 (English: Base Energy Prices SDE+ 2016)*. ECN-N—15-023. ECN, Amsterdam.

Van Zuijlen, C.L., S.M. Lensink, L.W.M. Beurskens, M. Hekkenberg, C.M. **Kraan**, H.M. Londo, M. Mozaffarian, A.J. Plomp, A. Uslu, M.F.G. Cremers, B. in 't Groen, G. Jans, A.-M. Taris, J. Lemmens, R. Meijer, C. Savy, en H. Mijnlief (2015). *Eindadvies basisbedragen SDE+ 2016 (English: Final advice base rates SDE+ 2016)*. ECN-E—15-052. ECN, Amsterdam.

Kraan, C.M., B. in 't Groen, en H. Mijnlief (2015). *Uitbreiding van geothermieprojecten naar triplet (English: Expansion of geothermal projects to triplets)*. ECN-N—15-029. ECN, Amsterdam.

Van Zuijlen, C.L., S.M. Lensink, L.W.M. Beurskens, M. Hekkenberg, C.M. **Kraan**, H.M. Londo, M. Mozaffarian, A.J. Plomp, A. Uslu, M.F.G. Cremers, B. in 't Groen, G. Jans, A.-M. Taris, J. Lemmens, R. Meijer, C. Savy, en H. Mijnlief (2015). *Conceptadvies basisbedragen SDE+ 2016 voor marktconsultatie (English: Draft advice base rates SDE+ 2016 for market consultation)*. ECN-E--15-010. ECN, Amsterdam.

Kraan, C.M., en S.M. Lensink (2014). *Basisprijzen SDE+ 2015 (English: Base Energy Prices SDE+ 2015)*. ECN-N--14-023. ECN, Amsterdam.

Kraan, C.M., en C.L. van Zuijlen (2014). *Basisprijzen en basisprijspremies voor hernieuwbare elektriciteitsopwekking SDE+ 2015 (English: Base Energy Prices for renewable electricity SDE+ 2015)*. ECN, Amsterdam.

S3C (smart grid end-user engagement)

Uyterlinde, J.C.M., K. Straver, C.M. **Kraan**, et al. (2015). *S3C Smart Grid Engagement Toolkit*. <http://www.smartgrid-engagement-toolkit.eu/>

Kraan, C., K. Straver, M. Uyterlinde, E. Laes, K. Kessels, P. Valkering, K. Kleine-Hegermann, P. Reiss, J. Schneiker, G. Cerne, R. Lacko, M. Thomtén, and D. Ramalho (2015). *Report on case analyses, success factors and best practices*. S3C Deliverable 3.4. ECN, Amsterdam.

Boork, M., M. Thomtén, M. Brolin, M. Uyterlinde, K. Straver, C. **Kraan**, K. Kleine-Hegermann, E. Laes, P. Valkering, and S. Maggiore (2014). *Key success factors and barriers to end user engagement in smart grid projects*. Presented by M. Boork at BEHAVE2014 Behaviour and Energy Efficiency Conference, London, UK.

Uyterlinde, J.C.M., C.M. **Kraan**, and K. Straver (2014). *Key success factors and barriers to end user engagement in smart grid projects*. ECN-O--14-062. ECN, Amsterdam.

Valkering, P., J.C.M. Uyterlinde, K. Straver, C.M. **Kraan**, and E.A. Mastop (2013). *Report on state-of-the-art and theoretical framework for end-user behaviour and market roles*. S3C Deliverable 1.1. ECN-O--14-060. ECN, Amsterdam.

S2Biom (EU lignocellulosic biomass supply chain)

Mozaffarian, H., M. Londo, M. Pantaleo, and C. **Kraan** (2016). *Policy brief: Market analysis for biobased products*. S2Biom Deliverable D10.17d. ECN, Amsterdam.

Kraan, C., 2015. *Market Analysis of Heat, Electricity and Biofuels*. D7.2a of S2Biom Deliverable D7.2a. ECN, Amsterdam

Mozaffarian, H., M. Londo, M. Pantaleo, and C. **Kraan** (2016). *Market Analysis for Lignocellulosic Biomass as Feedstock for Bioenergy, Biobased Chemicals & Materials in Europe, A Quantitative Estimate of Biomass Demand in 2020 and 2030*. S2Biom Deliverable 7.2. ECN, Amsterdam.

Van Stralen, J., C. **Kraan**, A. Uslu, M. Londo, and H. Mozaffarian (2016). *Integrated Assessment of Biomass Supply Chains and Conversion Routes Under Different Scenarios*. S2Biom Deliverable 7.3. ECN, Amsterdam.

Other projects

- Londo, M., K. Veum, C. Kraan, W. Vanhoudt, F. Barth, J. Castro, and M. Altmann (2016). *Roadmap for the establishment of a well-functioning EU hydrogen GO system*. CertifHy Deliverable 5.1. ECN, Amsterdam.
- Schoots, K., P. Hammingh, et al. (2016). *Nationale Energieverkenning 2016 (English: National Energy Outlook 2016)*. [inhoudelijke bijdrage C.M. Kraan]. ECN, Amsterdam.
- Falzon, J.P.J., C.M. Kraan, M. Barasa, and C. Okudu (2015). *Kenya's geothermal prospectus 2015*. ECN, Amsterdam.
- Uslu, A., K.C. Veum, and C.M. Kraan (2015). *BETTER Roadmap for enhanced cooperation between EU and third countries – Policy Recommendations*. ECN-L—15-014. ECN, Amsterdam.
- Kraan, C.M., A. Türk, R. Pasicko, and Z. Kordic (2015). *Western Balkan – EU action plan for renewable energy cooperation*.
- Jansen, J., A. van der Welle, A., C. Kraan, F. Nieuwenhout, and K. Veum (2015). *Sharing benefits and costs of integrated offshore grid structures*. NorthSeaGrid Policy Brief. ECN, Amsterdam.
- Schoots, K., M. Hekkenberg, P. Hammingh, et al. (2015). *Nationale Energieverkenning 2015 (English: National Energy Outlook 2015)*. [inhoudelijke bijdrage C.M. Kraan]. ECN, Amsterdam.
- Hekkenberg, M., M. Verdonk, et al. (2014). *Nationale Energieverkenning 2014 (English: National Energy Outlook 2014)*. [inhoudelijke bijdrage C.M. Kraan]. ECN, Amsterdam.
- Lensink, S.M., M. Mozaffarian, L.W.M. Beurskens, C.M. Kraan, and J.A. Slobbe (2014). *Verkenning van biomassamarkten en hernieuwbare-energiebeleid (English: Exploratory Analysis into biomass markets and renewable-energy policy)*. ECN-E--14-019. ECN, Amsterdam.

Certifications

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| 2019-2023 | CITI Social and Behavioral Responsible Conduct of Research |
| 2017-2021 | CITI Nonmedical Human Subjects Research |
| 2019-2021 | Health & Safety Insitute (HIS) CPR, AED, and First Aid |
| 2018-2020 | National Outdoor Leadership School (NOLS) Wilderness First Aid |

Additional training

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| 2019 | The Art of Effective Storytelling: Secrets and Techniques, Stanford Continuing Studies |
| 2018 | Sports Nutrition, Stanford Continuing Studies |
| 2018 | Compelling Communications: Presentations and Meetings that Engage and Connect, Stanford Continuing Studies |
| 2018 | Enhancing Interpersonal Communication through Storytelling Techniques, Stanford Continuing Studies |
| 2018 | Community Police Academy, Stanford University Department of Public Safety |
| 2017 | An Introduction to Data Science, Stanford Continuing Studies |
| 2016 | Public Speaking, Stanford Continuing Studies |
| 2015 | Intensive 12-week French language course resulting in level C1 (advanced) at International House Nice, France |
| 2015 | AIMMS workshop at AIMMS HQ, NL |
| 2015 | PRINCE2 Foundation certificate from APMG International |

Miscellaneous

Advanced computer skills

- Statistical analysis and data visualization in R/RStudio
- Supply chain modelling in AIMMS
- Use of macros, pivot tables, etc. in MS Excel
- Presentation design in MS Powerpoint

Intermediate computer skills

- Visual design in Adobe Illustrator
- Geospatial analysis in ArcGIS