

International Research Training Group

Competition for land: tackling the climate and biodiversity crises through the food, energy and materials nexus (C4LaNd)

Ph.D. position

“From Conflict to Complementarity: Governing Land-Use Transitions through Values and Technological Innovation in Physical and Digital Infrastructure”

at KIT

Description

Do you have knowledge of economics and interest in land ecosystems, climate change and land use change? Do you have good quantitative and coding skills? Are you keen to apply these to address societal and ecological research challenges? If so, we can offer you an interesting PhD position as part of a multidisciplinary, international research training group with partners at the Karlsruhe Institute of Technology, the University of Melbourne and the University of Hohenheim.

Background:

C4LaNd is a new research training group that brings together doctoral researchers from the natural, social, economic and engineering sciences to address the challenges of sustainably using land for the benefit of both people and nature. You will receive a dual PhD degree from KIT and University of Melbourne, including a one-year research stay in Melbourne. Further information on C4LaNd, and the Ph.D. positions advertised can be found [here](#) (the [C4LaNd](#)).

The PhD position “*From Conflict to Complementarity: Governing Land-Use Transitions through Values and Technological Innovation in Physical and Digital Infrastructure and Security*” is based at the ECON Institute at KIT’s main campus in Karlsruhe.

The PhD project examines how land-use and infrastructure decisions generate coordination challenges related to global public goods such as biodiversity, climate stability, and (cyber)security. It focuses on how technological change—particularly in energy, transport, and digital infrastructures—reshapes these challenges by increasing interdependencies and spatial spillovers.

The overarching research questions are:

- How do infrastructure developments alter incentives and conflicts in land-use systems?
- Under what conditions can technological and institutional innovations transform land-use conflicts into complementarities?
- How do societal values and governance frameworks influence coordination across actors and governance levels?

The project adopts a political economy perspective and conceptualizes land-use transitions as strategic interactions shaped by coordination problems, incentive structures, and institutional arrangements.

The overarching aim of the doctoral research is to develop a theoretically grounded framework that explains how micro-level behavior translates into macro-level outcomes. This includes deriving model assumptions from theory, implementing simulation-based approaches to analyze system dynamics, and empirically testing these mechanisms using experimental methods. The objective is to generate causal insights into the design of policy instruments and their effects on individual incentives.

Tasks include:

- Design and conduct experimental studies (e.g. survey and field experiments) to analyze cooperation in land-use contexts
- Apply quasi-experimental approaches to evaluate governance and infrastructure settings
- Develop and implement dynamic economic models (e.g. agent-based models; ABM) to simulate system-level dynamics
- Analyze how behavioral mechanisms interact with regulatory and technological conditions
- Contribute to academic publications and interdisciplinary collaboration within the research training group

Requirements:

- A M.Sc. degree in economics, political economy, environmental economics, or a related field
- Strong analytical and quantitative skills
- Experience or interest in experimental and/or computational methods
- Fluency in English
- Proficiency in Python and/or R
- Delight in engaging within the environment of a multi-disciplinary international training programme
- Willingness to spend a one-year research stay at University of Melbourne
- Readiness to engage within the ECON institute and other C4LaNd PhDs located at KIT main campus
- Willingness to travel between KIT's Campus Alpin and KIT's main campus for C4LaNd courses
- Interest in interdisciplinary research on global political economy, coordination processes between countries and/or governments, the private sector, and society, all related to the topic of land use, (digital) infrastructure, and sustainability

Salary

Salary and benefits will be based on the Collective Agreement for the German Public Service Sector (TV-L, 75%). Funding is available for 3.5 years.

Application deadline, selection and expected start date

Interviews will be conducted mid to end of May 2026. We expect the position to start in November 2026

Contact person

For further information, please see [C4LaNd](#)

Application

Applications should include a letter of motivation, CV, contact details of two references.