University of Natural Resources and Life Sciences Vienna – responsibility for Humans and Nature. We work for the sustainable use and protection of natural resources.

The Department of Economics and Social Sciences, Institute of Social Ecology (SEC) is currently offering a

PhD position: Analyzing the stock-flow-service nexus at the national scale (Project employment)

Reference code: 77

Extent of employment: 30 Hours per Week
Duration of employment: 01st of September 2018, limited to 31st of August 2021

Workplace: Schottenfeldgasse 29, 1070 Vienna

Gross monthly salary and pay grade in terms of collective agreement for university staff (payable 14 times per year): B1, € 2.096,00

Institute

The Institute of Social Ecology Vienna (SEC) is part of the Department of Economic and Social Sciences of the University of Natural Resources and Life Sciences, Vienna (BOKU). Research and teaching at the Institute of Social Ecology deals with the interrelationship of social and natural systems in the context of sustainable development. Researchers come from interdisciplinary backgrounds such as biology, ecology, sociology, anthropology, political and technical sciences. SECs methodological spectrum includes material and energy flow analysis (MEFA), geographic information systems (GIS) and remote sensing methods, systemic actor-oriented and organizational analyses, and the use of historical sources. SEC researchers make increasing use of modelling techniques for data simulation, a synthetic presentation of results and as a basis for scenarios. SEC offers a doctoral program on Social Ecology and a master program on Social and Human Ecology.

Topic

Social metabolism studies have traditionally focused on tracing energy or material flows through socioeconomic systems (e.g., national economies) and analysing their socioeconomic drivers as well as environmental implications. The stock-flow service nexus approach broadens the scope of social metabolism studies by adding two key components:

1. information on material stocks (often called “in-use stocks”), for example buildings, infrastructure, machinery, etc. and
2. the services derived from specific stock-flow combinations, e.g. mobility, housing, workspace, nutrition and many more.

For information on the stock-flow-service nexus see:

- Haberl H. *et al.* 2017. *Sustainability*, **9**, 1049; doi:10.3390/su9071049
- Krausmann F. *et al.* 2017. *PNAS* **114**, 1880-1885, doi/10.1073/pnas.1613773114
- Pauliuk S. & D.B. Müller, 2014. *Global Environmental Change* **24**, 132-142

PhD Project

This PhD project will apply the stock-flow-service nexus approach to one or several national case studies. Within the context of the MATSTOCKS ERC AdG project, the doctoral research conducted by the successful applicant is expected to contribute in one or several of the following areas:

1. develop and advance methods to quantify stocks, not only in terms of tons of different materials, but also in terms of their socioeconomic functions
2. quantify services resulting from stock-flow constellations and analyse linkages between stocks, flows and services over longer (several decades to 1-2 centuries)
3. interpret historical changes in the stock-flow-service nexus in the context of environmental and socioeconomic respectively political framework conditions

The successful candidate will collaborate with the MATSTOCKS project team and will be given full access to existing databases and models. It is expected that the work of the candidate will help improving these databases and models and apply them to the specific country respectively countries (up to three) studied.

Supervisors
Univ.Prof. Dr. Fridolin Krausmann, Ao.Univ.Prof. Mag. Dr. Helmut Haberl (both at SEC)

Required skills and qualifications

- Excellent MSc (or equivalent degree) in interdisciplinary environmental sciences such as Ecological Economics, Social Ecology, Industrial Ecology, Human Ecology, Geography or related fields
- Knowledge of Material Flow Analysis (MFA) and/or other methods from Social and Industrial Ecology
- Experience in quantitative methods, handling of large databases
- Proficiency in database management software, programming ability and strong analytic skills
- Excellent communication skills in English (orally and in writing)

Desirable skills and qualifications

- Working experience with Material Flow Analysis (MFA) and/or other methods from Social and Industrial Ecology
- Experience in research projects and academic publishing are beneficial
- Knowledge in German is beneficial but not compulsory

Applications can be submitted until: 05th of June 2018

Please send you job application including

- Motivation letter (max. 1-2 page/s)
- Research proposal, including refs. (max. 2-3 pages)
- Full CV with publications (if available)
- Proof of eligibility, in particular details on education and Master's degree

to Doris Fröhlich, doris.froehlich@boku.ac.at.

University of Natural Resources and Life Sciences Vienna seeks to increase the number of its female faculty and staff members. Therefore qualified women are strongly encouraged to apply. In case of equal qualification, female candidates will be given preference unless reasons specific to an individual male candidate tilt the balance in his favour.

We regret that we cannot reimburse applicants travel and lodging expenses incurred as part of the selection and hiring process.

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