Post-conflict reconstruction for resilience and sustainability

Summary

The purpose of this research is to investigate the opportunities and challenges for improving the resilience and sustainability of the built environment through post-conflict reconstruction and to develop theory as well as corresponding practical processes, decision tools and policy guidance. The research will address the following research questions: What is the state of the art in relation to post-conflict reconstruction and its resilience and sustainability aspects? To what extent do current reconstruction practices take resilience and sustainability into account? How can concepts such as Circular Economy and Build Back Better be effectively incorporated into post-conflict reconstruction? What are the process and policy implications for resilient and sustainable reconstruction in post-conflict contexts?

Research field:	Building and civil engineering and architecture
Supervisors:	Prof. Dr. Emlyn David Qivitoq Witt Prof. Dr. Irene Lill
Availability:	This position is available.
Offered by:	School of Engineering Department of Civil Engineering and Architecture
Application deadline:	Applications are accepted between January 02, 2023 00:00 and January 22, 2023 23:59 (Europe/Zurich)

Description

Armed conflicts wreak havoc on the built environment. For example, the Institute for Economics and Peace estimates that, in Syria, conflict has destroyed 17.5% of the nation's housing and caused nearly US$120 billion in damage to its infrastructure. In Ukraine, a joint assessment by the World Bank, EU and the Government of Ukraine, estimated the cost of reconstruction and recovery to be US$349 billion in August 2022 and these continue to rise.

The post-conflict reconstruction process is not only essential for the rehabilitation of communities ensuring the availability of adequate housing and infrastructure, it also has significant impacts on current and future energy use, emissions and vulnerability - it is therefore critical to long-term sustainability and resilience. The purpose of this research is to investigate the opportunities and challenges for improving the resilience and sustainability of the built environment through post-conflict reconstruction and to develop corresponding theory, practical processes, decision tools and policy guidance. The research will address the following research questions: What is the state of the art in relation to post-conflict reconstruction and its resilience and sustainability aspects? To what extent do current reconstruction practices take resilience and sustainability into account? How can the Circular Economy and Build Back Better concepts be incorporated into post-conflict reconstruction? What are the policy implications for resilient and sustainable reconstruction in post-conflict contexts?

Responsibilities and (foreseen) tasks

- Conduct a systematic review of the extant literature on post-conflict reconstruction.
- Develop a conceptual framework for resilient and sustainable reconstruction.
- Identify potentially relevant and accessible case studies.
- Collect data and conduct case studies.
- Refine theoretical framework for resilient and sustainable reconstruction.
- Develop practice and policy guidance.
- Contribute to the organization of research and practitioner events where the research findings are presented.

Applicants should fulfil the following requirements:

- A master’s degree - preferably in (but not limited to) a built environment-related discipline (civil engineering, architecture, urban planning, etc.)
- A clear interest in the topic.

- Related research (including publication) experience.
- Excellent proficiency in English.
- Strong and demonstrable writing and analytical skills.
- Capacity to work both as an independent researcher and as part of an international team
- Capacity and willingness to assist in research organization tasks relevant to the research and the dissemination and exploitation of its results.

The candidate should submit a research plan for the topic, including an overall research and data collection strategy. The candidate may expand on the listed research questions and tasks and suggest additional, specific focuses for the research.

We offer:

- A 4-year PhD position in Estonia's leading technical university.
- The chance to pursue high-level research in a dynamic, technologically advanced context.
- Opportunities to participate in conferences, study visits and networking internationally with researchers from leading universities and research institutions in the fields of resilience, sustainability and the built environment.

About the department

The **Building Lifecycle Research Group** approaches the building lifecycle as a whole, integrating the construction process and its outcomes with management strategies, technologies, building materials, economics and facilities management. Recent research has included:

- Multiple criteria analysis of BIM-based Building Permits;
- BIM-enabled construction education;
- Developing and providing BIM-related know-how;
- Energy saving and the renovation of buildings;
- Disaster resilience of the built environment;
- Regulation of construction activities and the creation of standards for the Estonian construction industry;
- Surveys on the building life cycle and technical conditions of housing;
- Utilization of oil shale waste materials in the production of building materials.

Additional information

For further information, please contact Prof Emlyn Witt emlyn.witt@taltech.ee

To get more information or to apply online, visit https://taltech.glowbase.com/positions/606 or scan the the code on the left with your smartphone.