



Call for a master's thesis

OPERATIONALIZING RESILIENCE TO ASSESS FOREST-BASED VALUE CHAINS

Background. Climate change is increasingly showing negative impacts on forests and forest-based value chains. For example, disturbances such as bark beetle, windthrow events and droughts are growing in frequency and intensity. The Horizon2020 project RESONATE investigates how forestry and forest-based value chains can be made more resilient through learning and adaptation. This requires operational concepts of resilience, which is a current research problem in forest sciences (Nikinmaa et al., 2020).

Objectives. The thesis work contributes to the development of an operational framework that allows assessing the resilience of forest-based value chains and its key drivers and barriers.

(1) This comprises, first, a literature review of three types of variables, namely, *climate change-induced disturbances*, variables indicating the degree of “*functionality*” of value chains (e.g., *production output*), as well as moderator variables. Moderators may include, for example, the *existence of wood storage capacities* to balance fluctuating over- and under-supply caused by the disturbances mentioned.

(2) Second, using an appropriate empirical method, secondary data sources will be identified that allow the measurement of the variables described in (1) at the country level. This is intended to provide guidance to users of the framework for empirical assessments. If interested, own empirical analyses may be part of the thesis.

Requirements

- Enrolled in one of the following master level study programs:
 - Environmental Systems Sciences
 - DDP Sustainable Development
 - International Master's Programme on Circular Economy
- Ability to compare, classify, and synthesize heterogeneous information from literature
- Knowledge in forestry and forest-based value chains is an advantage
- Basic knowledge in econometric analysis/regression analysis is an advantage

Further Information. The thesis is part of the RESONATE project (Horizon2020) and will be supervised by Prof. Tobias Stern (SIS) and co-supervised by Raphael Asada (SIS). The thesis can be authored in English or German. If you are interested in the topic, please contact tobias.stern@uni-graz.at or raphael.asada@uni-graz.at until 31 May 2021.

References

Nikinmaa, L., Lindner, M., Cantarello, E., Jump, A.S., Seidl, R., Winkel, G., Muys, B., 2020. Reviewing the Use of Resilience Concepts in Forest Sciences. *Curr Forestry Rep* 6 (2), 61–80. 10.1007/s40725-020-00110-x.