



Tropentag, September 9-11, 2020, virtual conference

“Food and nutrition security and its resilience
to global crises”

EFForTS-Education – Knowledge Transfer Regarding Research on Tropical Lowland Rainforest Transformation Systems into Indonesian Teacher Education

FINN KRISTEN MATTHIESEN, SUSANNE BÖGEHOLZ

Georg-August-University Goettingen, Didactics of Biology, Germany

Abstract

Land-Use Change (LUC) from tropical rainforest towards domination of crops, e.g. oil palm and rubber, has environmental and socioeconomic effects. The Collaborative Research Centre *EFForTS* (*Ecological and Socioeconomic Functions of Tropical Lowland Rainforest Transformation Systems – Sumatra, Indonesia*) investigates such LUC issues in Jambi Province.

Science-based knowledge as generated by *EFForTS* on land-use transition is crucial for informed decision-making concerning more sustainable land-use. LUC is a factually and ethically complex, controversially discussed socioscientific issue (SSI). Up to now, teachers are not sufficiently prepared to teach such SSIs and there is a demand for educational material on SSIs in Indonesian classrooms. For bringing knowledge on highly relevant SSIs into society, teacher education is a motor, since educators act as multipliers and change agents.

Our research questions are: How can *EFForTS*-related SSIs be reconstructed for SSI teaching and learning in Indonesian teacher education? And, how effective is the resulting training with educational course concepts and the corresponding materials?

We build our research on the SSI teaching and learning model according to Sadler, Foulk and Friedrichsen (2017). Doing so, we aim at fostering competencies regarding decision-making, socioscientific reasoning, including scientific inquiry, perspective-taking and dealing with complexity.

To answer our research questions, we collaboratively design educational resources on predominant LUC issues in Professional Learning Communities (*EFForTS* scientific researchers, educational researchers, teacher educators) and we qualify (Indonesian) teacher educators to teach such LUC issues. We test, formatively evaluate and refine the educational course concepts and materials for different Indonesian universities on four islands. Furthermore, we summatively evaluate the effects to gain information on the impact of the training. We use triangulation of classroom observations, analyses of documents and artefacts, focus group discussions as well as questionnaires on self-efficacy beliefs to teach LUC issues and competence assessment for decision-making and perspective-taking.

We shed light on our approach on how to transfer *EFForTS* knowledge on LUC issues into teacher education by presenting an example of an educational course concept and corresponding materials for the University of Jambi (prestudy). Furthermore, we inform about the following steps in the public relation project of *EFForTS* on teacher education and its evaluation.

Keywords: Education for sustainable development, Indonesia, science education, socioscientific issue, sustainable land-use, teacher education