Tropentag, September 20-22, 2017, Bonn

"Future Agriculture:
Socio-ecological transitions and bio-cultural shifts"

The Use of Pau-Brasil (*Paubrasilia echinata* Lam.) for Making Violin Bows: A Social-Ecological System's Analysis Linking Environment and Art

Silke Lichtenberg[1], Elisabeth Huber-Sannwald[2], Juan Antonio Reyes-Agüero[3], Udo Nehren[1]

[1] *Cologne University of Applied Sciences (CUAS), Institute for Technology and Resources Management in the Tropics and Subtropics (ITT), Germany*
[2] *Institute for Scientific and Technological Research of San Luis Potosi (IPICYT), Brazil*
[3] *Autonomous University of San Luis Potosí (UASLP), Brazil*

Abstract

The wood of pau-brasil, *Paubrasilia echinata* Lam., is the worldwide used raw material to build high quality violin bows. Today there is no alternative wood accepted for being as good as pau-brasil for the construction of modern violin bows for professional musicians. Due to the historical and current overexploitation of pau-brasil in the Atlantic Forest of Brazil, this species is highly endangered. The dependence of traditional manufacturing of bows for stringed instruments on pau-brasil on one side and the fact of using a threatened species on the other side as well as an increasing mass production of bows have resulted in a conflict characterised by a raw material scarcity, unequal access to the raw material and different legislative regulations on the local, regional and global scales. This situation has led to cross-arching challenges in the biophysical (decline of natural populations of *C. echinata* and socioeconomic dimensions (conservation, management, socio-political organisation associated with an increasing market of pau-brasil wood) and thus represents a complex problem on local, regional and global scales. Therefore, the analysis of this problem requires a comprehensive framework of a complex system, in a social-ecological system's (SES) context.

In the case of a continuous use of pau-brasil in the production of bows for stringed instruments, it is pertinent to identify and analyse the role of key actors and factors that contribute to the dynamics of this particular SES, to identify both possible system states and their resilience and scenarios that put pau-brasil and its use in bow making potentially at risk on the long-term. Hence, the current study will include an analysis of the socioeconomic, political and legislative backgrounds and drivers as well as an analysis of the ecological distribution, and the biophysical conditions of species plantations, which together will allow me to understand the complexity of the problem more precisely.

Keywords: Pau-brasil, *Paubrasilia echinata*, social-ecological system, violin bows

Contact Address: Silke Lichtenberg, Cologne University of Applied Sciences (CUAS), Institute for Technology and Resources Management in the Tropics and Subtropics (ITT), Betzdorfer Straße 2, 50679 Köln, Germany, e-mail: silke.lichtenberg@gmail.com