Tropentag, September 18-20, 2019, Kassel

"Filling gaps and removing traps
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Costs and Benefits of Sustainable Management of the Kyrgyz Walnut-Fruit Forests: Is the 2007-Logging Ban a Suitable Policy Instrument?

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Abstract

The walnut-fruit forests in Central Asia and in particular in Kyrgyzstan are a unique socio-ecological system and an important source of livelihood for the rural communities. Walnut-fruit forests have also been described as an important genetic resource and biodiversity hotspot, as well as providing essential environmental services. However, due to the political and socio-economic transformation after the collapse of the Soviet Union, the utilisation of these forests has increasingly become unsustainable, inducing significant degradation of these forests and a decline of their area. To protect these unique natural ecosystems a logging ban has been enforced as a National Law since 2007 which restricts the felling of trees in the walnut-fruit forests in Kyrgyzstan. However, this measure has been criticised as it is said to lead to the over-aging of walnut forests, which limits their natural regeneration potential; and deprive local communities of much-needed income opportunities from sustainable timber utilisation, which potentially aggravates rural poverty. Starting off a literature review on the effectiveness of logging bans in terms of their environmental and socio-economic outcomes, this study investigated the costs and benefits that would potentially be associated with sustainable forest management and timber harvesting operations in the walnut forests. It used a stand-based dynamic forest growth model developed from primary data from 19 forest plots, national forest thinning guidelines and inventory data. Data collected from a socio-economic survey (n=100), financial and Monte-Carlo analyses were used to determine the financial and economic profitability of sustainable forest management and timber harvesting operations for a period of 25 years. The results showed that 37 % of the surveyed forest plots were presented in an over-aged and stagnating condition. The dynamic forest growth model showed that the generated thinning plan allowed for the sustainable removal of 10,4 m^3 ha^{-1} timber in average every ten years depending on the on sanitary condition, age and density of a stand while ensuring the renewal of the over-aged forest plots. The economic evaluation indicated that only the forest plots with no additional planting activities had a positive NPV. Policy scenarios offering viable solutions were described, and relevant recommendations were provided.

Keywords: Central Asia, forest thinning, Kyrgyzstan, logging ban, sustainable forest use

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