Tropentag, September 17-19, 2013, Stuttgart-Hohenheim

"Agricultural development within the rural-urban continuum"

Rubber Agro-Forestry Systems – A Review

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Abstract

Natural rubber production shifted from an exploratory approach based on the tapping of wild trees in the Amazon basin towards the establishment of uniform monocultures in South and South-East Asia. Due to the thriving economy of the emerging markets, especially China, rubber currently experiences a boom resulting in the transformation of large tracts of forests but also traditional crop lands into rubber plantations. Together with the growth and extension of urban settlements into their hinterland – resulting in the sealing of remarkable areas of valuable crop land – this will affect crop production for rural but also urban population.

Nevertheless, there are also initiatives to diversify rubber production systems, partly to increase income during the initial, unproductive years of the plantations, but also to mitigate the negative impacts of mono-cropping on ecosystem functions and services. Intercropping of corn or pine apple is a common practice to enhance the plantations' economy during the first years when trees cannot yet be tapped and there is still enough light in between the trees for annual crops. The intercropping of leguminous creepers as Pueraria has been suggested to maintain soil fertility but also to cover the soil and to reduce the prevalent erosion especially in hilly areas. But there are also many other intercropping options from perennial herbs to shrubs and trees, from food crops to medicinal plants, and even timber trees.

In this study we review the available data on rubber agro-forestry systems, try to evaluate their potential contribution to ecosystem services and benefits, and suggest a classification.

Keywords: Agro-forestry, ecosystem functions, ecosystem services, food plants, intercropping, medicinal plants

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