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## From Deforestation to Reforestation: Systematic Assessment of Smallholder Tree Planting Initiatives in Paraguay

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### Abstract

The forest area in Paraguay has declined at concerning rates. The country holds one of the highest deforestation figures in South America. However, the development of adoptable forestry management systems to address deforestation meets country's agenda not long ago. Therefore, research on tree planting by small farmers are crucial, especially to gauge their role in reducing the pressure on native forest and support livelihood. Several case studies were carried out to assess the success of tree planting initiatives; to identify the factors which influence its adoptability; and to determine the contribution of timber products to household income. Different stakeholder levels and tree planting schemes were selected to better depict smallholders participation in establishing and managing productive plantations. Results from logistic regression show that the pressure on existing forest resources can be diminished at a certain degree by tree planting initiatives. Most of established tree plots were readily adopted by farmers because they were compatible with farm production system (agroforestry) and they were easy to try on a limited scale and therefore it minimises risk. An influential determinant for tree planting seems to be the social organisation level, and technical and managerial support. It is also shown that farmers are willing to use farm production factors to guarantee the management of tree plots in the future, if they can count on market incentives. Plantation timber has notable potential for contributing to income generation. Managing planted trees at small scale farms requires little financial support and shows low labour input when comparing with traditional farm cash crops. Finally it is suggested that trees inherent advantages such as malleability to be combined as agroforestry system plus their potential for income generation are key factors to promote tree planting at small scale farms.

**Keywords:** Deforestation, income generation, smallholders, social organisation, tree planting