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Is *Jatropha* Oil Attractive for Smallholder Farmers in the Philippines? - A Case Study

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Abstract

As the consumption of fossil fuel is in strong contrast to their limited resources and the effects of greenhouse gases become obvious, the worldwide demand for alternatives increases. Numerous research activities are under way, to make biofuels, such as oil from the *Jatropha* plant (*Jatropha curcas* L.), a substitute for diesel fuel.

This article aims at verifying whether *Jatropha* cultivation can be profitable and compete against existing cash crops such as coconut in the Philippines.

As a first step of the economical analysis, the production cost of *Jatropha* oil is determined, based on primary data collected in the vicinity of the Visayas State University, Philippines. As in this region the major competing cash crop is copra, the Net Present Value (NPV), the Internal Rate of Return (IRR), and the Benefit-Cost-Ratio (BCR) for *Jatropha* and copra is calculated in a second step.

The findings are, that the base scenario's production cost for *Jatropha* oil is 35.62 PHP per kg, which is lower than the current price for diesel fuel of 39.40 PHP per l. The *Jatropha* plantation's NPV is positive, however, its difference to the NPV of copra is so minor, that already small changes in the parameters make *Jatropha* cultivation economically less attractive than the copra production already established. Therefore the non monetary benefits smallholder farmers can expect from *Jatropha*, are important to consider. In contrast to the copra market, which is monopolised by big oil mills and focuses on the international market, *Jatropha* oil production lends itself to decentralised processing and local markets. The oil produced by farmers could fuel their numerous diesel engines, thereby creating a local market and positive multiplier effects for employment and local economic growth.

The article concludes that *Jatropha* cultivation, the expelling and the marketing of the oil is very suitable for benefiting the local economy and smallholder farmers. In principle, they can control the entire value chain of this product as it can be marketed in rural areas without the need of middlemen. With raising fossil fuel prices this product offers an increasing income opportunity for smallholder farmers in the Philippines.

Keywords: Copra, decentralised processing, income opportunity, *Jatropha curcas* oil price, Philippines, smallholder farmers