C01- Smallholder productivity, market access, and international linkages in
rubber and palm oil production in Jambi Province

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Results

Farmers – Environmental Efficiency

•The economic productivity and technical efficiency of the production systems for oil palm and rubber underlie different factors such as political influences, various management and marketing possibilities and not least the individual settings.

•Our estimation indicates a **positive influence of insitutional settingen** such as fix contractual arrangements in oil palm prodcution and longer distances to the trader in both systems

•Further participants in **the trasnmigrant support program (TSP)** reach on average **higher efficiencies** than non participants.

•Prductivity estimation confirm a **labour-intensive rubber** production and a **capital-intensive oil palm** production.

Traders – Market Efficiency

•Stakeholders in rubber- and Palmoil trade are heterogeneous along several dimensions.

•While especially rubber traders form complex networks, palm oil traders are constrained by the highly perishable nature of the fresh fruit bunches (limiting the channels, see figures 2 and 3))
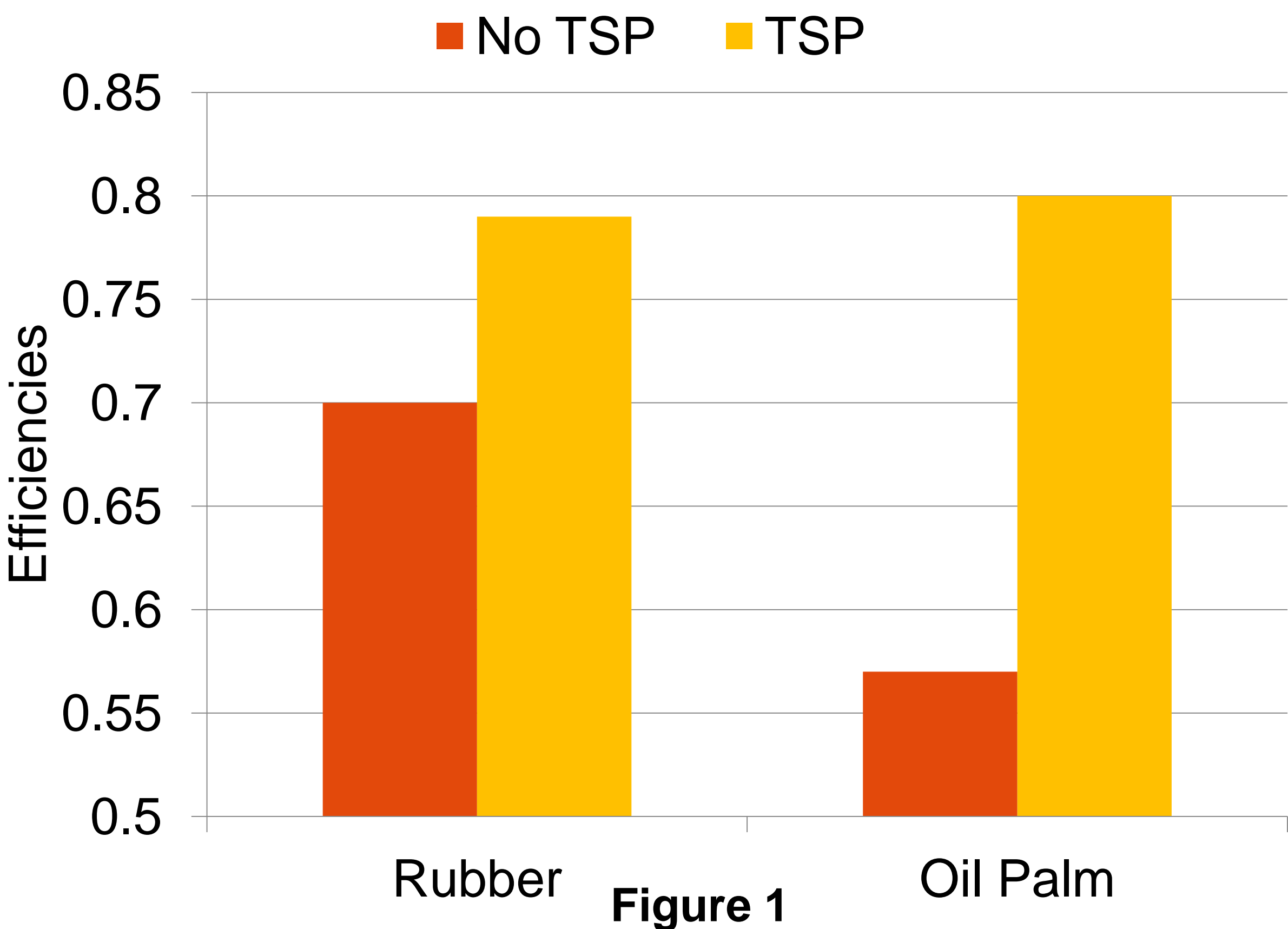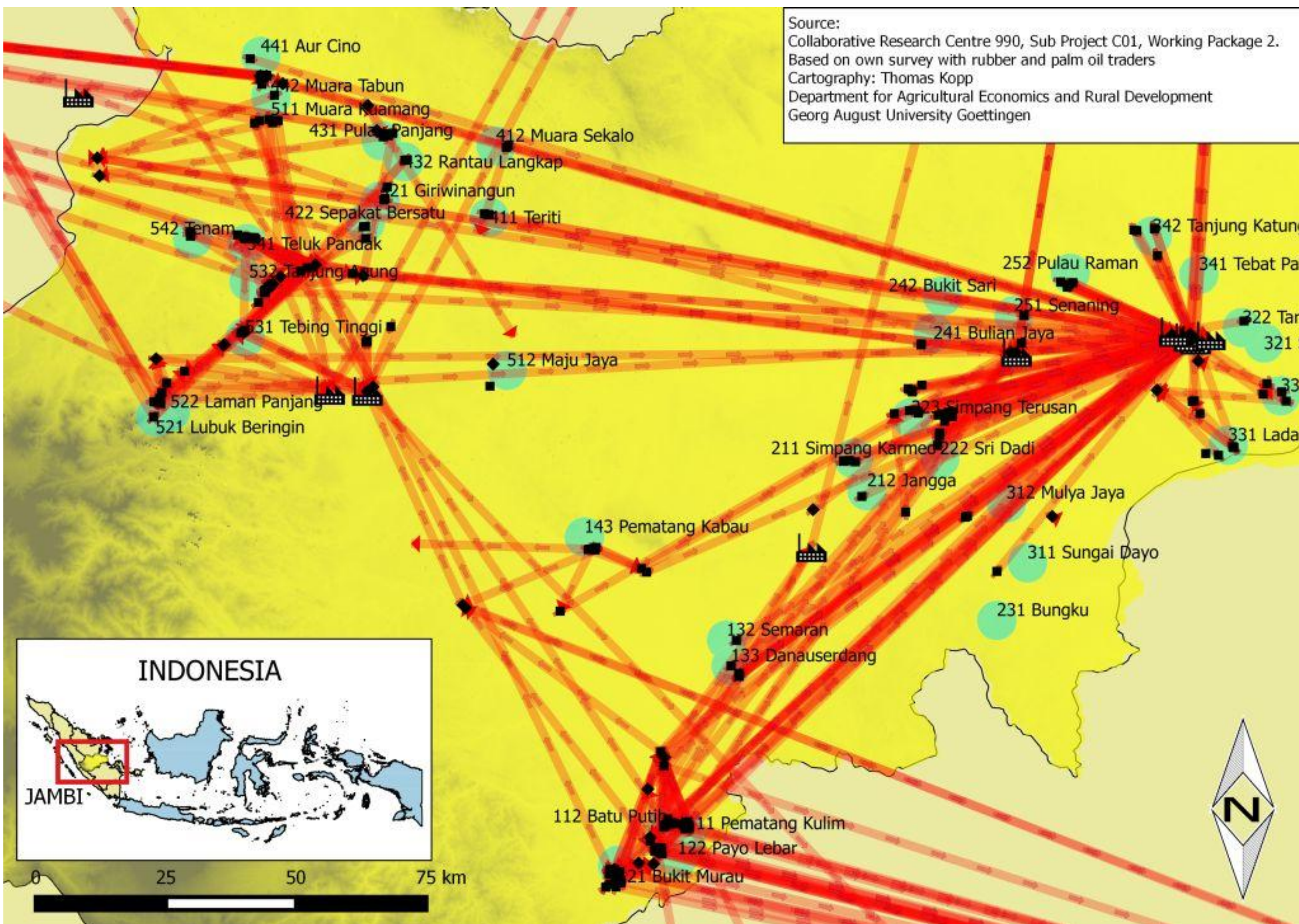

Figure 1

Figure 2: Rubber value chains

•Traders can either be independent entrepreneurs or agents working for a larger trader

•The traders in our sample buy their rubber input far below its marginal value product which is an indicator of market power
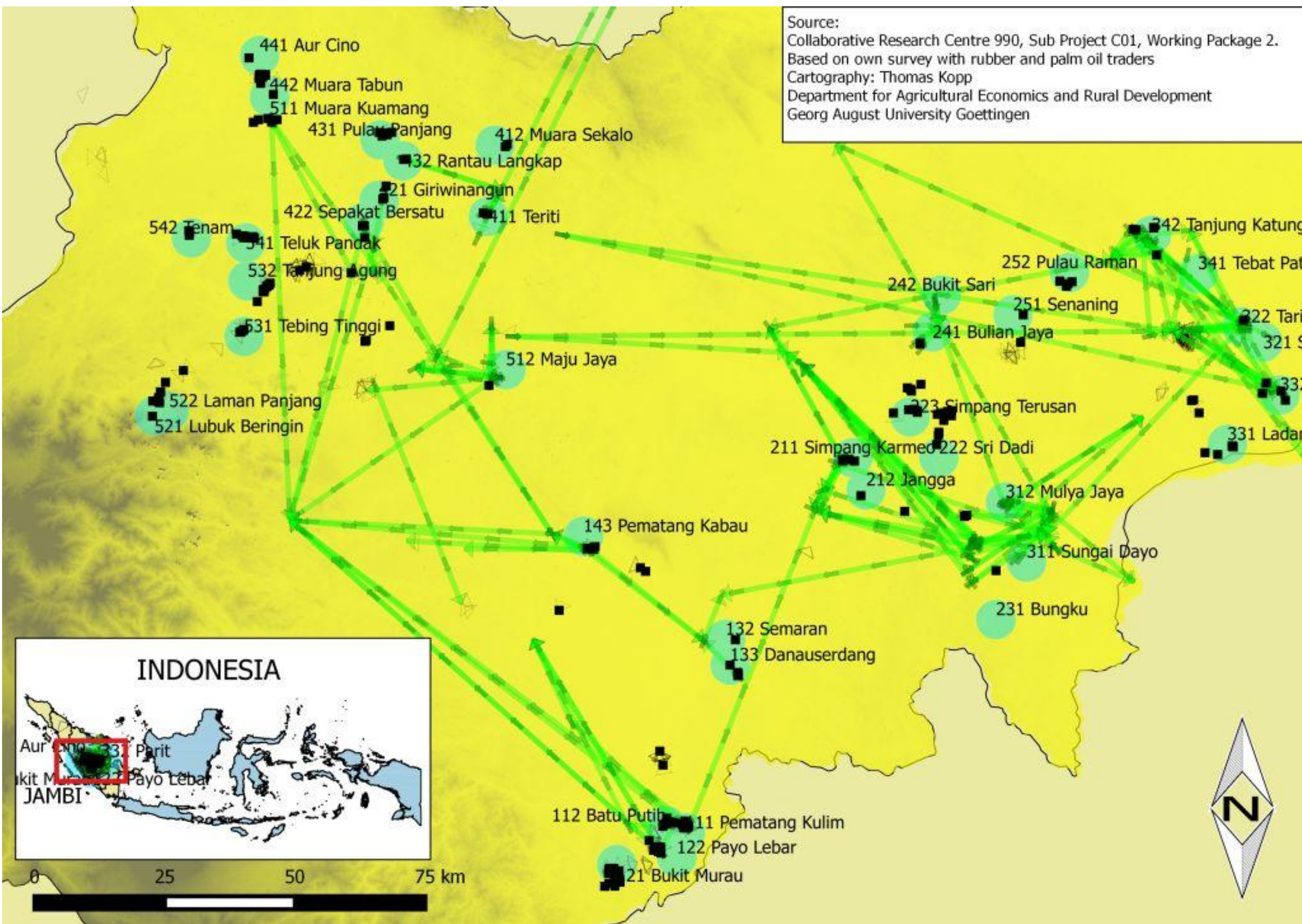

Figure 3: Palm oil value chains

Outlook

Network Analysis

•Importance of traders: facilitate smallholders' access to centralised processing industry.

•Their absence could well result in a collapse of the market.

• Possible kinds of networks: 'Scale-Free': network of big traders who collect rubber in remote areas via a sub-network of other, smaller traders and cover the large distances to the factories themselves. 'Small World': similar to lattice-structured networks, but include shortcuts between otherwise distant nodes. (Figures 4 and 5, from Manitz, 2014)

•Small-world networks are the best solution for the trade-off between efficiency of markets and search time of stakeholders (Wilhite, 2001)
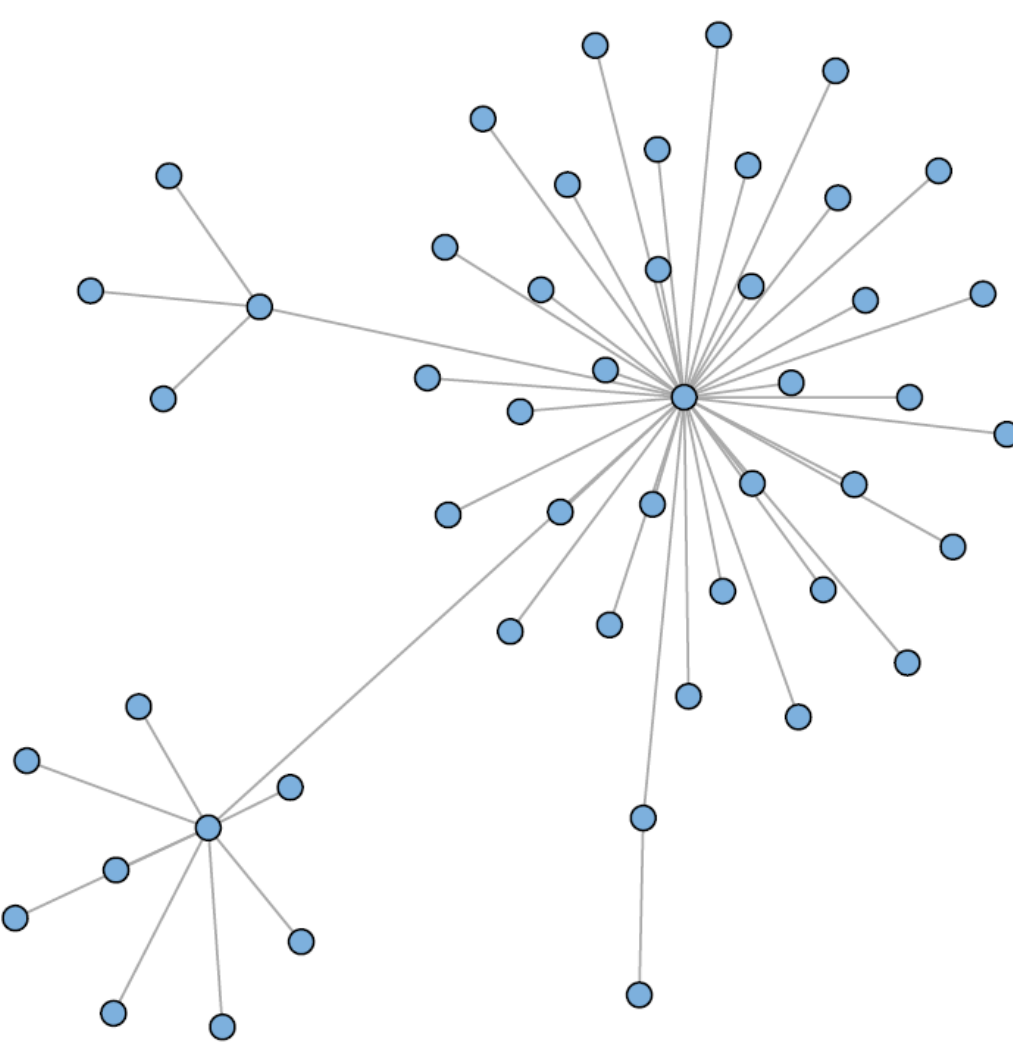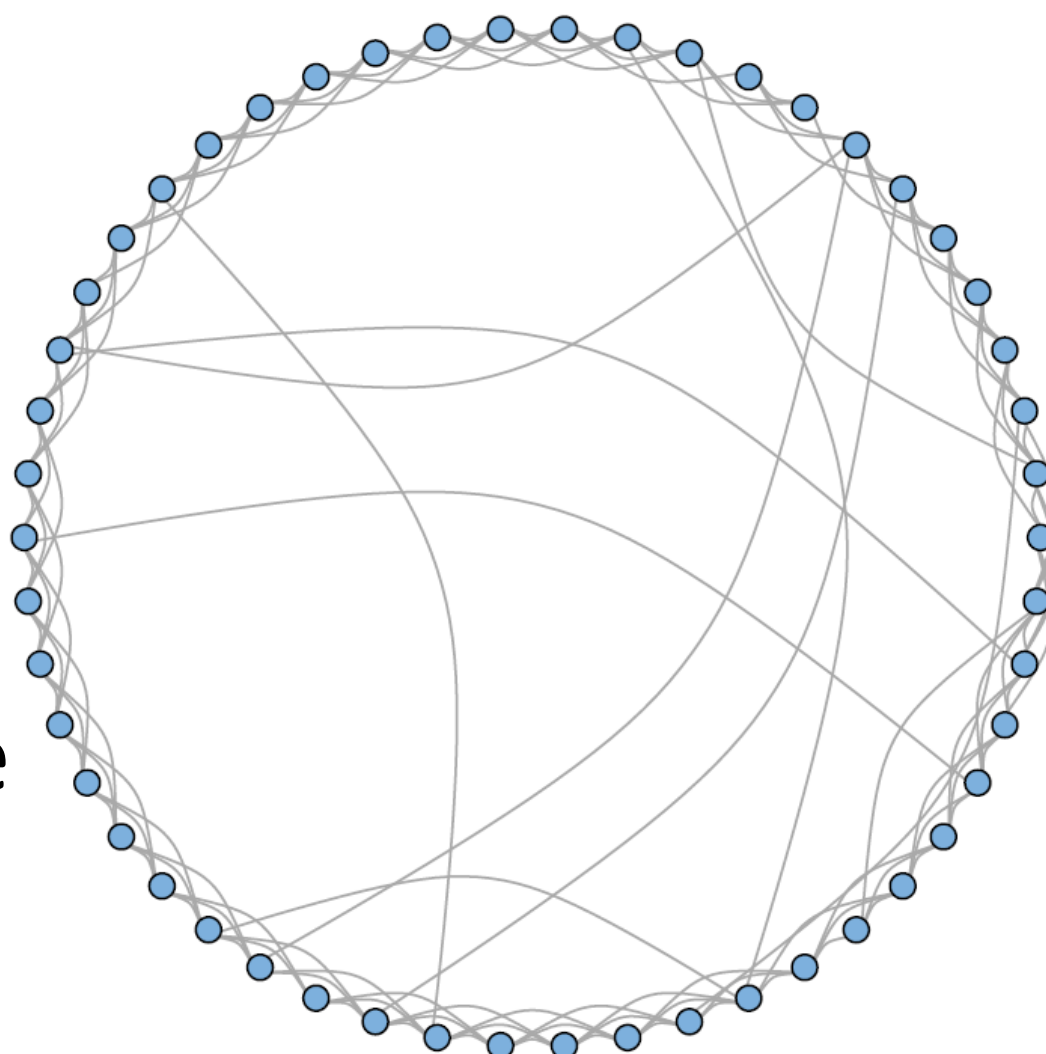
•**What is present in Jambi ?**

Figure 4: Scale-Free

Figure 5: Small World

Manitz, J. (2014). Statistical Inference for Propagation Processes on Complex Networks. SUB Göttingen, Göttingen
Wilhite, A. (2001). Bilateral trade and 'small-world'networks. *Computational Economics*,18(1):49-64.

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