Adoption of Clonal Rubber Agroforestry by Rubber Smallholder Farmers in Indonesia

World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

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Introduction

- Indonesia has the world's largest area of rubber (*Hevea brasiliensis*) plantations (3.5 million ha) and is the world's second largest natural rubber producing country (2.7 million tons in 2007); 83% rubber area managed by smallholder farmers (<5 ha fields)
- 64% rubber area still under traditional mixed system using unselected rubber seedlings (often called jungle rubber), with low latex productivity but provide multiple products and services.
- Intensive monoculture rubber with high yielding rubber clones offers higher latex productivity but requires high capital and labour input.
- Improved Rubber Agroforestry System or RAS developed and promoted by the World Agroforestry Centre (ICRAF) incorporates clonal rubber in traditional agroforestry setting improves latex productivity while maintaining benefits of traditional system.
- RAS technology is becoming popular among smallholder rubber farmers, but its adoption is still slow and uneven; farmers cite multiple reasons for this.

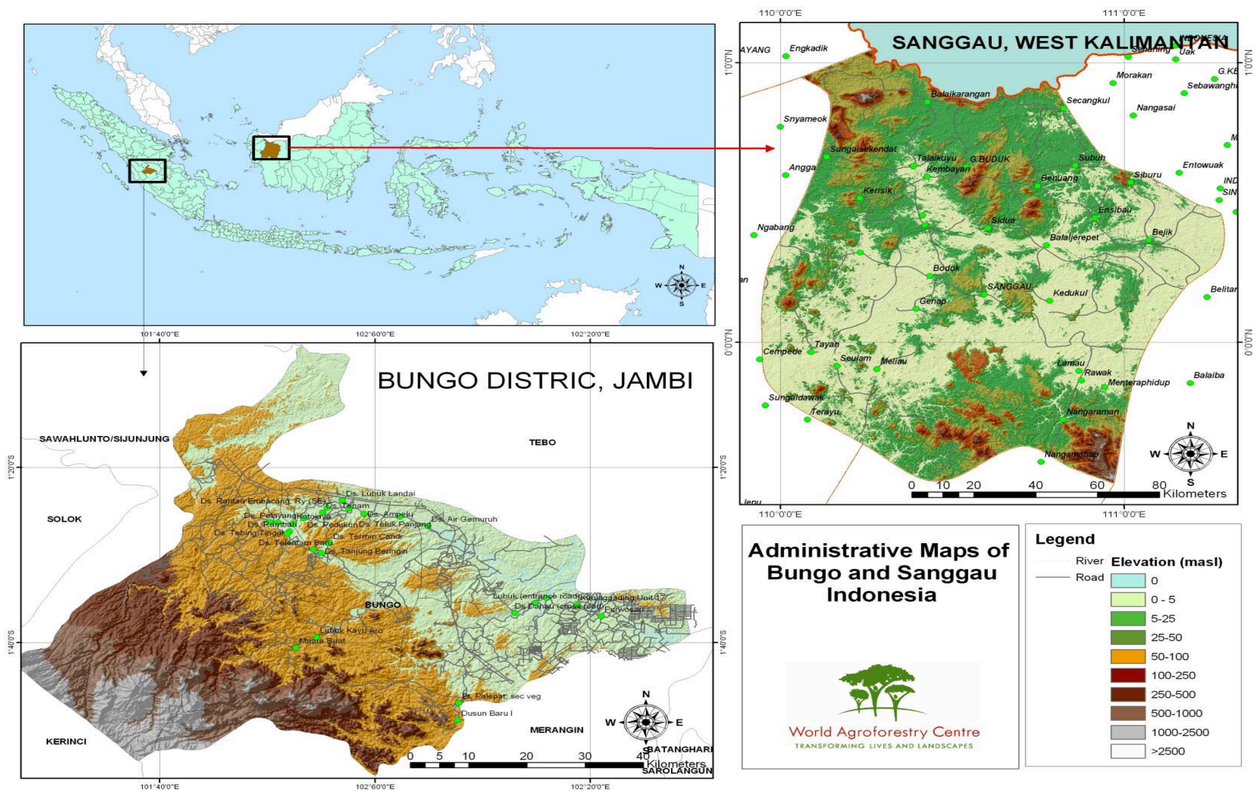


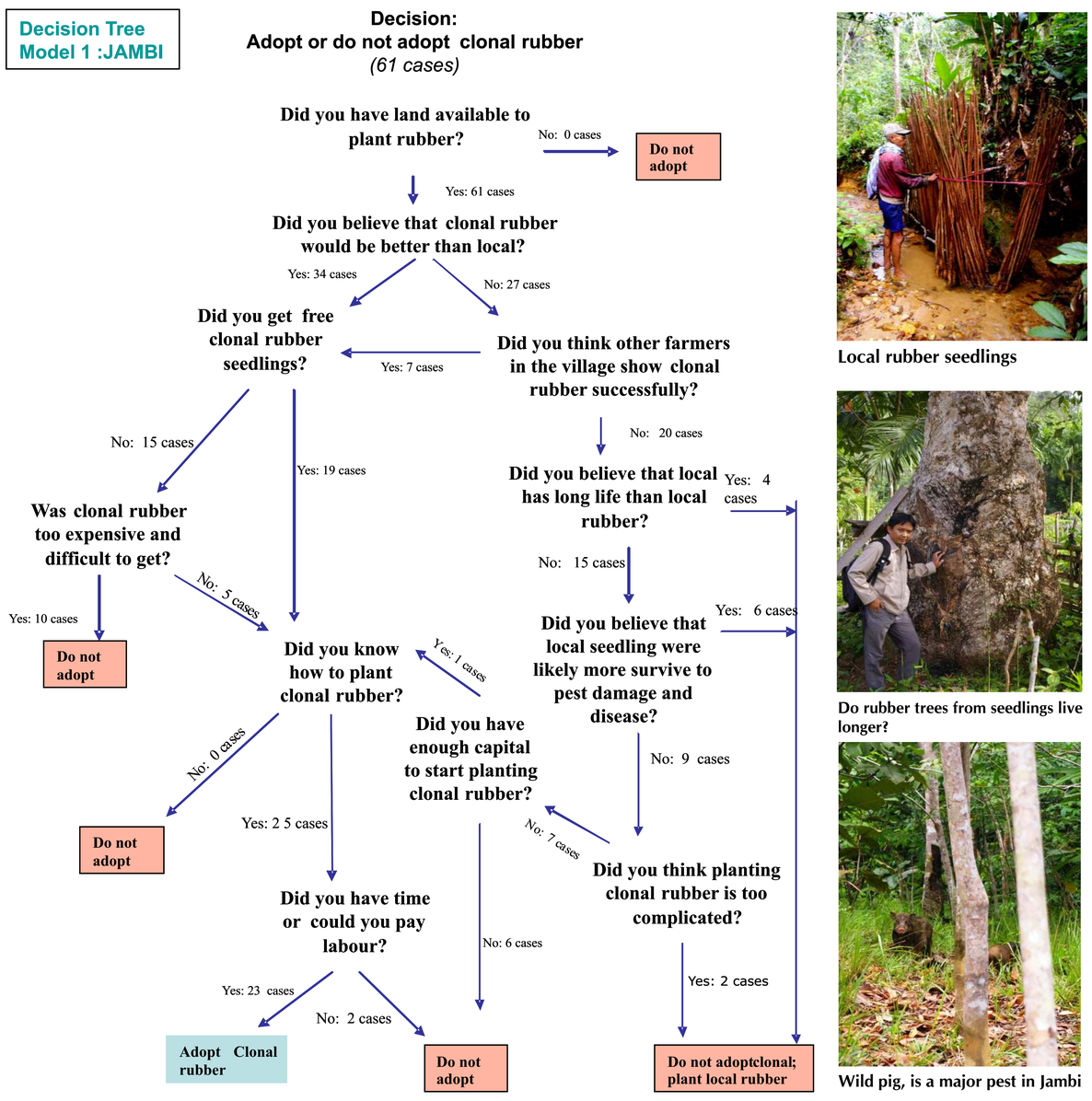
Figure 1. Study location

Figure 2. Interview in the field and in coffee shop

Limiting factors to adoption of RAS technology

- Lack of capital
- Insufficient labour and time
- Local belief that local seedlings/wildlings are "stronger" and live longer (resistant to pests and intensive tapping)
- Pests and disease
- Lack of technical knowledge
- Lack of guaranteed quality (certified) planting materials of rubber clones

Decision Tree Model 1 :JAMBI

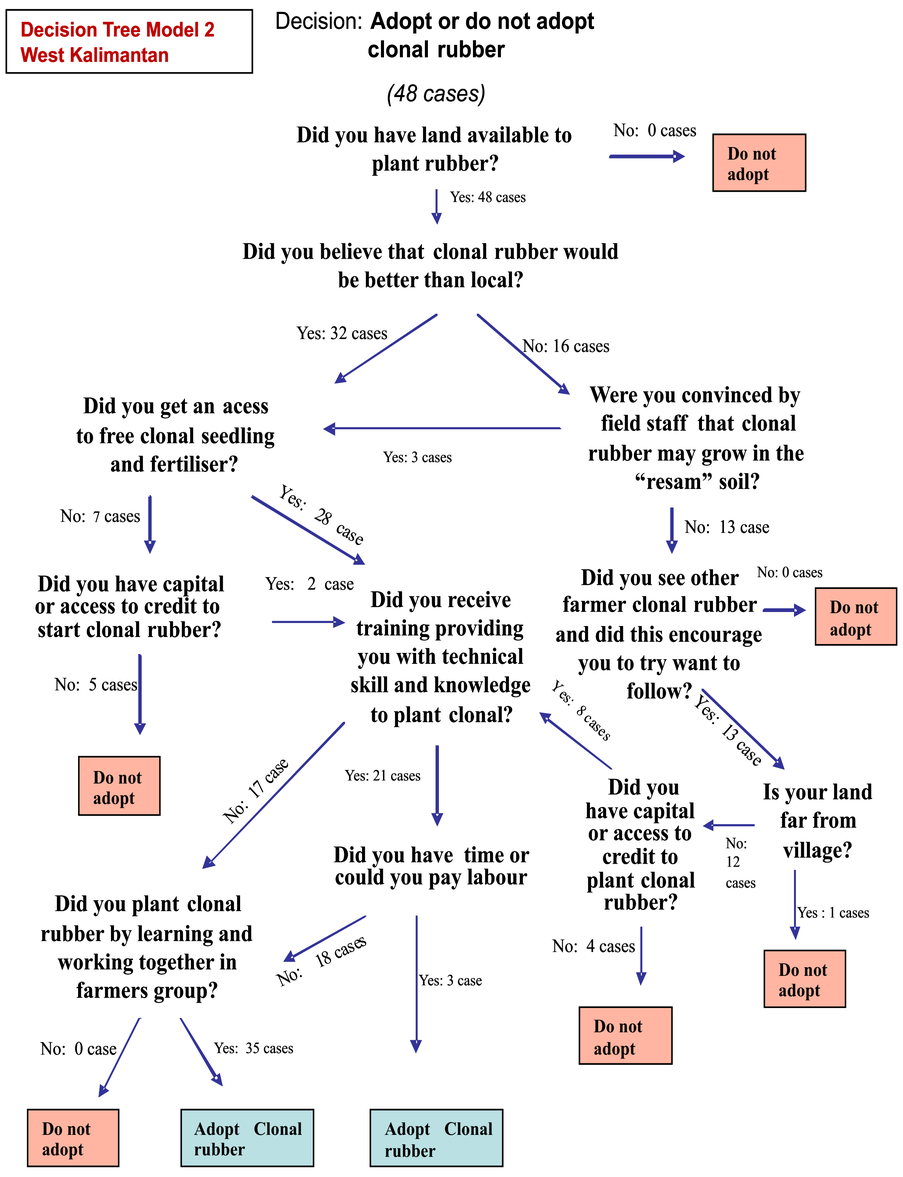


Local rubber seedlings

Do rubber trees from seedlings live longer?

Wild pig, is a major pest in Jambi

Decision Tree Model 2 West Kalimantan



A rubber nursery for preparing quality clonal propagules

Clonal rubber trees are more intensively managed

Rubber clones yield much more latex than unselected local trees

Figure 3. Decision tree model for adoption of clonal rubber in Jambi.

Figure 4. Decision tree model for adoption of clonal rubber in West Kalimantan

Discussion and conclusion

- Both in Jambi and West Kalimantan, farmers' expectation for high latex yield and increased income are the main reasons for their adopting clonal rubber system; the lack of capital to do so is a major constraint for other farmers.
- The context in West Kalimantan, compared to Jambi, seems to be more conducive to farmers adopting RAS technology – better availability and access to planting materials, better access to incentives and credit, support from and trust in field staff and farmer network; and less wild pig (Sus scrofa) problem.
- EDTM (Ethnographic Decision Tree Model) shows decision path followed by farmers and show that farmers differ in their ways of thinking, learning and deciding. Characterising farmer typology and providing support (knowledge, confidence and other input) based on requirement will increase adoption of clonal technology.
- The decision tree models developed need to be tested to other sets of samples in other locations to check their representativeness and improve their accuracy.

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