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## Differences in livelihood resilience between diversified and intensified smallholder farms in Java, Indonesia

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### Abstract

Smallholders in Central Java, Indonesia, have responded to dynamic markets and climate change by intensifying or diversifying agriculture and by engaging in off-farm work. Exploratory evidence from the Banjarnegara regency in Central Java, Indonesia, suggested that communities located close to each other and similar in socio-ecological dimensions (including land and household sizes and bio-physical factors) have either intensified horticulture or diversified into agroforestry-livestock systems. Our goal was to learn from this unique case how each adaptation pathway impacts livelihood resilience. We define resilience through its three dimensions buffer capacity, capacity for learning and adaptation, and capacity for self-organisation. All three can be considered livelihood outcomes. In the empirical study, we investigated whether smallholders in the two selected communities have indeed predominantly intensified or diversified, and if so, how these adaptation pathways affect resilience. In collaboration with local actors, we collected data from 78 households that were randomly sampled from all identifiable farm households in the two communities. We used the CHAID decision tree model and quantile regressions as the main strategies to analyse the data. We found that the livelihood strategies in the two communities differed significantly, corresponding to intensification and diversification pathways. Applying indices for the three dimensions of resilience, we found that households pursuing diversification scored significantly higher in all resilience dimensions and the overall resilience index. Our findings imply that diversified agroforestry may be a viable livelihood strategy in the region. The study also adds substance to the debate on agricultural adaptation and the conceptual discourse on resilience.

**Keywords:** Agroforestry, central Java, diversification, intensification, livelihood resilience, smallholder