

Understanding Smallholders' Ecological Intensification Behavior in the Global South: The Applicability of Values, Beliefs, and Norms Theory

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Smallholders produce 50% of the global food supply. Particularly in the Global South, the ecological intensification of smallholder agriculture – producing higher yields on the same area using ecologically sustainable methods – is crucial to increasing food security and productive resiliency.

What drives the adoption behavior of smallholders concerning ecological intensification methods (EI)? Much research concerning the adoption of EI focuses on explanatory characteristics that are extrinsic to the farmer (e.g. farm characteristics and system elements like the biophysical, cultural, and political environments). However, the importance of intrinsic factors (e.g. farmers' knowledge, attitudes, and perceptions) is increasingly recognized, as farmers' perceptions of new methods influence their attitudes and connected to that, their adoption behavior. Values, Beliefs, and Norms theory (VBN) is a measurement standard widely used and validated in the Global North to understand individuals' pro-environmental behavior. The VBN causal chain postulates that biospheric, altruistic, and egoistic values inform individuals' beliefs, including their ecological worldview, awareness of adverse consequences, and ascription of responsibility (AR); beliefs inform personal norms (PN), which influence pro-environmental behavior. VBN has rarely been applied in the Global South, where little is known about smallholders' intrinsic motivations to adopt EI.

We implemented a VBN survey with 480 smallholders who are (non)adopters of EI in four tropical, lower-income countries: Nicaragua, Cambodia, Laos, and Vietnam (120 respondents each). Although results vary by country, the full VBN causal chain did not hold true in any country: e.g. in Nicaragua, AR correlated to PN, which impacted smallholders' adoption of EI, but the first half of VBN (values informing beliefs) did not correlate.

These results show that although VBN has strong explanatory power in the Global North, it may not be sufficient to explain the adoption of EI by smallholders in the Global South. Reasons for this may include contextual factors that constrain smallholders' choices regarding EI, and a lack of applicability of the VBN's statements to the different cultural and agricultural contexts farmers face in these countries. Hence, we call for the development of an assessment tool for pro-environmental behavior in the Global South, developed by stakeholders from the Global South.

