Tropentag, September 18-21, 2016, Vienna, Austria

"Solidarity in a competing world — fair use of resources"

Decision-Oriented Research for Development – Making Best Use of Existing Information and Closing Critical Knowledge Gaps

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Abstract

Agricultural development is a complex challenge. The resilience of landscapes and livelihoods and the success of innovations depend on many factors, spanning the social, economic and ecological domains. Decision-makers in agricultural development, e.g. policy-makers or development professionals, have to – or should – consider all these factors. Ignoring the target group's cultural preferences can hamper the impact prospects of technologies; and ignoring off-site environmental impacts can threaten sustainability. Impact-oriented research should support decision-makers, because decisions are critical junctures in most pathways through which research can effect change. However, information on many critical aspects is often limited, and where data are available, they have often not been collected from the location of interest. Impact-oriented researchers needs smart ways of combining the best local expert knowledge and broader global knowledge on all important factors to make the best possible recommendations to decision-makers. Structured decision analysis can assist in combining disparate sources of knowledge and data and help set priorities for research. Decision analysis aims to support risky decisions on complex systems under uncertainty, which is quite precisely the challenge that development decision-makers face. It produces models that fully represent specific decisions, considering all factors of relevance. Models consider all available evidence, and they draw heavily on the knowledge of experts, stakeholders and the decision-makers themselves. Analysts quantify the current state of knowledge about all uncertain factors in the model, which they express as probability distributions. Once a model has been generated through participatory interactions between experts, stakeholders and decision analysts, probabilistic simulations produce projections of the plausible range of decision outcomes. This range is typically wide, providing limited immediate guidance to decision makers, but Value of Information analysis can highlight those knowledge gaps that most limit the decision-maker's ability to make a well-informed choice. After further information collection on high-value variables, a preferable choice emerges. Decision analysis can help development researchers realise the ambition to study agricultural decisions in a holistic manner that does justice to the complexity and multidimensionality that characterises most development contexts. It can provide a transdisciplinary umbrella for systems research that allows identification of pressing research needs.

Keywords: Complexity, transdisciplinary, uncertainty, value of information

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