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Challenges and Policy Options for Sustainable Rural Development — Policy Measures

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Abstract

To sustain their livelihoods in the short run, rural households are often compelled to deplete their soil nutrients, overuse their water resources and degrade their forests. The result is a downward spiral of over-exploitation of natural resources and increasing poverty. Global environmental changes as well as human-induced local changes, e.g. population growth and migration, have accelerated this downward spiral and contributed to an increasing vulnerability of environmental and human systems.

Two types of complexities make it difficult to identify appropriate policy options and implement corrective policies: **(1)** complex environmental and economic interactions affecting the availability and quality of natural resources, and concomitantly, household decisions on resource use; **(2)** complex social interactions between different stakeholders who are socio-economically and culturally diverse and who often have competing interests and power relations. A major research approach to deal with environmental and economic complexities is integrated simulation modelling, which combines hydrology, soil, climate and crop models with economic models to explore how policy interventions may impact on natural resource use, and subsequently lead to changes in production, income and household and community welfare. A particularly promising new development is multi-agent modelling, which captures the interactions between resource users (the "agents") and resources used (the "environment"). Alternatively, approaches to deal with the social and institutional complexities of resource management and rural development have focused on researching the governance structures, the patterns of participation of different stakeholders, and how integrated resources management is applied in practice. Major methodologies used include action-oriented research, and the application of analytical concepts such as property rights analysis, collective action theory, game theory, and legal pluralism.

Integrating the lessons learned from these separate approaches remains a critical challenge. Though simulation models provide scientific information to identify policy options for sustainable rural development, the implementation of corrective policies involves value judgments that have to be politically negotiated within appropriate governance structures. Of critical importance to the success of sustainable policy measures is bridging the gap between scientific information and stakeholders' knowledge and perceptions.

Keywords: Integrated simulation, modelling, policy development, stakeholder interaction

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