

A method for Agricultural Innovation Systems analysis of crop protection in Tanzania

The case of parasitic weeds in smallholder rainfed rice production

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Background

Agricultural Innovation Systems (AIS) approaches have been advocated for integrated and holistic analyses of complex agricultural problems (e.g. crop protection). However, there is a lack of coherent methodological building blocks that can facilitate AIS analyses.

Objective

This poster summarizes experiences with developing and testing an AIS methodological framework to analyse the institutional and political dimensions of crop protection systems in Tanzania. Parasitic weed problems in rainfed rice provides a relevant case study.

The AIS methodological framework

The AIS is operationalised as a combination of overlapping innovation systems (Figure 1) within which drivers that enable or constrain innovation are analysed. Mixed methods are used to gather data. Multi-stakeholder workshops in which stakeholders jointly identify and analyse AIS constraints and opportunities are at the core of the methodological framework. The workshops are complemented with in-depth interviews, surveys and secondary data analysis (e.g. policies).

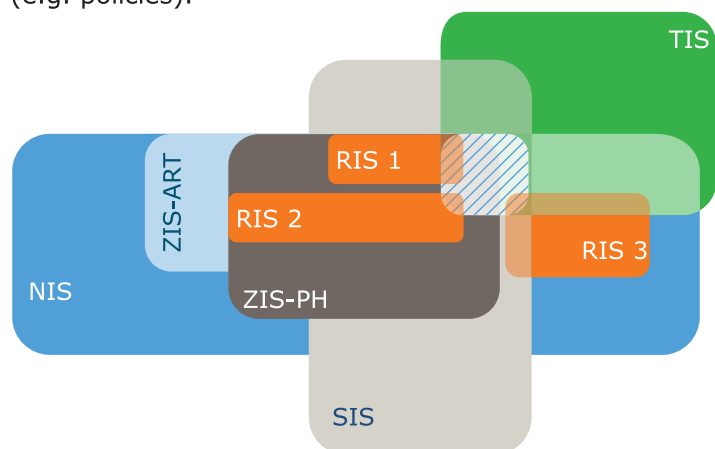


Figure 1. Overlapping National Innovation System (NIS – Tanzania), Zonal Innovation System for Agricultural Research and Training (ZIS-ART), Zonal Innovation System of Plant Health (ZIS-PH), three Regional Innovation Systems (RIS 1, 2 and 3 – Tanzanian regions where parasitic weeds in rainfed rice are eminent), Sectoral Innovation System (SIS – rice sector) and the Technical Innovation System (TIS – parasitic weeds). The shaded square indicates where different innovation systems intersect.

Testing the methodological framework

The methodological framework was tested in three regions in Tanzania (RIS 1-2-3) where parasitic weeds in rainfed rice are eminent. Government officials, farmers and representatives of private sector, civil society, and research and training institutes analysed AIS constraints and opportunities (Photo 1 and 2).



Photo 1. Stakeholder group categorises their Top 5 constraints along agricultural subsystems (research, policy, market, politics, education, extension)



Photo 2. Stakeholder groups categorise their Top 5 constraints along different system failures (infrastructure, institutions, collaboration, resources and capacities)

Conclusions

The methodological framework:

- Supports the analysis of key-characteristics of complex agricultural problems: high uncertainty, multiple problem dimensions (e.g. technical, sectoral, institutional), multi-level interactions (e.g. NIS, ZIS, RIS) and multi-stakeholder dynamics;
- Actively involves stakeholders in defining the AIS's boundaries and analysing AIS constraints;
- Stimulates multi-stakeholder debate and awareness of interrelated stakeholder challenges;
- Can support action-oriented AIS approaches in identifying opportunities for agricultural innovation, e.g. multi-level innovation platforms

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