

Towards resilient and profitable family farming systems in Central Mozambique

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Abstract

This research improves our understanding of diversity across Mozambique's family farming systems in terms of local agro-ecological potentials, existing market opportunities and production objectives as well as the household level resource endowments and farming skills. We compare two sites in Central Mozambique: Manica District with higher agroecological potential with semi-arid farms in Marara District. Using Innovation Platforms we initiated a change process. Local actors defined site-specific development pathways for promoting resilience and profitability: Collective marketing of common beans in Manica and market-oriented livestock production in Marara. Farm typologies were used to direct future investments according to farmers' capacity within those overall pathways.

Key words: Diversity, innovation platforms, mixed farming systems, socio-ecological resilience

Résumé

Cette recherche améliore notre compréhension de la diversité dans tous les systèmes d'exploitation de la famille du Mozambique en termes de potentialités agro-écologiques locales, aux opportunités actuelles du marché et aux objectifs de production ainsi qu'aux dotations en ressources au niveau des ménages et des compétences agricoles. Nous comparons les deux sites dans le centre du Mozambique: le district de Manica à fort potentiel agro-écologique plus élevée avec les exploitations de semi-arides de District de Marara. En utilisant de plateformes d'innovation, nous avons lancé un processus de changement. Les acteurs locaux ont définis les voies de développement propres à chaque site en faisant la promotion de la résilience et de la rentabilité: la commercialisation collective des haricots dans la province de Manica et de l'élevage axé sur le marché dans Marara. Les typologies d'exploitations ont été utilisées pour orienter les investissements futurs en fonction de la capacité des agriculteurs dans les voies générales.

Mots clés: la diversité, les plates-formes d'innovation, les systèmes agricoles mixtes, la résilience socio-écologique

Background

In Mozambique family farms are important as they produce food for the majority of the population. Even though these systems are vital and represent an opportunity to lift people out of poverty, most family farmers are poor and vulnerable to all kinds of shocks. Two aspects are critical: (i) Diversification and integration of the crop and livestock sub-systems for more efficient resource use; (ii) Looking beyond the farm scale at the context; off-farm income supplements limited on-farm income; functional value chains determine how much income farmers can make from their farm produce and how much they can reinvest into their farm. This means that multiple actors and decision makers need to be engaged towards improving the context in which family farms operate. Our basic hypothesis is that research and training programs will be more effective in supporting transformative change through the use of approaches that (i) promote pathways towards greater profitability and resilience within a particular farming context, (ii) better understand the common types of farm households, their aspirations and resource limitations, (iii) engage multiple actors in belief, value and behavioral change using forums like Innovation Platforms (IPs).

Literature summary

We look at family farms within a local context through the lens of complex socio-ecological systems; they are dynamic and adaptive, with interdependent dimensions (Ostrom, 2009). Aiming to support family farms we combine two concepts towards a win-win situation and to promote sustainable development: (i) Resilience as a systems' long term capacity to adapt, transform and make use of opportunities while maintaining its identity (Folke *et al.*, 2010); (ii) Profitability as surplus over costs, for short-term livelihood benefits, with markets as drivers for economic and social change (Orr and Mausch, 2013). We use the cup and ball model to illustrate development pathways as regime shifts from states of low profitability (flat cup, vulnerable), towards desirable states of higher profitability, with long term mechanisms that keep systems moving forward (deeper cup, higher resilience levels, Fig. 1). The capacity of family farms to participate in a development pathway depends on the diversity of opportunities in their context and household's specific resource endowments (Dorward *et al.*, 2009).

Study description

We compared two districts in central Mozambique. Manica has high agro-ecological potential for crop production, with >1000 mm rain per year and good soils. Marara is semi-arid, <650 mm rain per year and has great potential to supply livestock to national meat markets. Participatory focus discussion groups were held in March 2013 per site with farmers, extension, government, NGOs and agro-businesses during 2-day IP workshops. Participants visualized current and future desirable states of the agricultural systems in which they operate, and barriers and solutions to overcome those. Quantitative household surveys were conducted in six villages at different distances from a central market place, with 30 randomly selected households per village. Farm types were analyzed using factor and cluster analyses (R

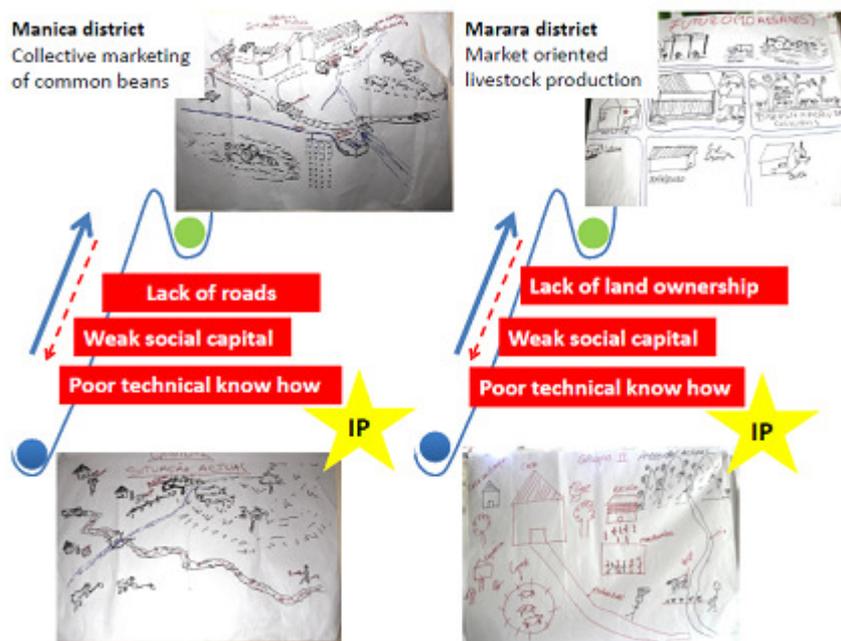


Figure 1. Community visions on current and desirable future agricultural states.

Development Core Team, 2011). Technical options were generated for each farm type to participate in the overall pathways.

Research application

What are pathways towards resilience and profitability? Through the IP we visualize how better structured agricultural systems should look like in future. We then work on the most important long-term mechanisms to support these pathways. Placing on-farm solutions within a broader context will sustain agricultural produce sold in large quantities and improved quality.

In Manica, to unlock the potential in collective marketing of common beans, the IP prioritized (i) facilitating government investment in road infrastructure; (ii) initiatives that counteract weak collective action, incl. government services to ensure seed quality, farmer exposure to input suppliers, NGOs as brokers for large scale bean sales; (iii) training packages on bean production to market, draft animal management.

In Marara market-oriented livestock production involves (i) land ownership to establish long term security and commitment; the IP itself was legalized as association with title to land; (ii) interactions at the IP created trust among actors, brought new linkages and knowledge and a change of mindset from dependency to proactive planning; (iii) training packages on biomass enhancing technologies, forage banks and income generated from forage seed multiplication.

How can farm households participate in the local pathways? Different types of farms were identified for both sites (Table 1). These can help redefine interventions tailored to farmers' particular circumstances and capacities, and harness the opportunities along the defined pathways. Along the sites, most farmers face cash constraints and find it difficult to reinvest in agriculture. In particular, female-headed households in Marara require safety net support to build up their assets. Stepping up households are often younger. In Manica they have double the land than the resource poor and some more livestock. They sell a lot of beans already; business with beans is an opportunity for them to build up their livelihoods. In Marara these young households are often absent for off-farm work. To sustain their family needs they sell quite a number of livestock. Improving livestock marketing conditions contributes directly to their livelihoods.

Table 1. Farm type characteristics in Manica and Marara districts.

	Farm types in Manica (n=193)				Farm types in Marara (n=193)		
	Resource poor	Stepping up I	Stepping up II	Intensif. CL	Resource poor	Stepping up	Intensifying CL
							
Share population (%)	35	30	25	10	12	41	47
Female HHH (%)	16	4	12	5	88	8	12
Age of HHH (yrs)	38	44	54	51	54	35	56
Information index	9	13	27	39	10	14	17
Off-farm income (%)	37	17	22	8	35	66	44
Income (US\$/yr)	288	487	477	1279	94	338	475
Herd size (TLU) +	0.3	1.7	3.3	7.0	1.9	1.2	8.2
Cultivated land (ha)	2.2	4.0	4.0	6.4	1.4	2.3	3.3
Herd offtake (ct. go %)	0	2	2	17	1	10/12	9/16
Sales of beans (%)	17	80	31	73	n.a.	n.a.	n.a.
Diversified prod.	+	++	++	+++	+	+	++
CL integration	+	++	++	+++	+	+	++

At both sites the most successful farms are those that are capable of diversification, in this case investing in and integrating both crops and livestock. They show that crops and livestock are pathways to enhancing profitability and earning more income, and reveal the potential of the system. These farmers play an important role to engage with the private sector for improved market arrangements, test and promote alternative technologies. Engaging farmers with government and private sector towards a common goal is a way to build trust and change behavior, and empower women and men farmers in the process.

Acknowledgements

We thank the Austrian Development Agency (ADA) for funding this project, communities and partners in Manica and Tete for their support, Swathi Sridharan, ICRISAT, for editing.

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