

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

Conference on International Research on Food Security, Natural Resource Management and Rural Development organised by the University of Natural Resources and Life Sciences (BOKU Vienna), Austria

Towards resilient and profitable farming systems in Central Mozambique using an open innovation platform approach

Sabine Homann-Kee Tui^a, Michael Hauser^b, Carlos Quembo^c, Claudio Gule^d, Fernando Assane^d, Feliciano Mazuze^e, Julio Rainde^{a,c}, Claudio Sixpence^a

a International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Bulawayo
contact: s.homann@cgiar.org

b BOKU - University of Natural Resources and Life Sciences, Vienna

c Agricultural Research Institute of Mozambique (IIAM), Chimoio

d Provincial Agriculture (DPSA), Tete

e Agricultural Research Institute of Mozambique (IIAM), Maputo

The current challenge: Barriers that restrict smallholder farming systems

Farmers in Central Mozambique do not benefit adequately from growing markets for crops and livestock. Ecological, economic and social barriers are intertwined:

- Absence of functional markets restricting farmers from investing in agriculture;
- Lack of incentives to improve agricultural practices resulting in unavailability of biomass limiting surplus;
- Lack of motivation to engage in social organization;

As a consequence, farmers lose the ability to respond to market opportunities and to adapt to different forms of shocks that threaten their livelihoods. Innovation platforms (IPs) help to address some of the barriers and underlying dynamics, but do not tackle the root causes impeding transition from subsistence to sustainable, market-oriented farming.

The interventions: Open innovation platforms as catalysts for change

In this study we develop a methodology facilitating open innovation platforms as niches for change in dryland ecosystems. We describe lessons from the MOREP project (Towards resilient and profitable farming systems in Central Mozambique), engaging multiple actors in reconfiguration of their socio-ecological systems. We selected two different environments with contrasting agro-ecological conditions to illustrate diversity in Central Mozambique (Figure 1), and where IPs provided space and momentum for breakthrough, multiple development outcomes:

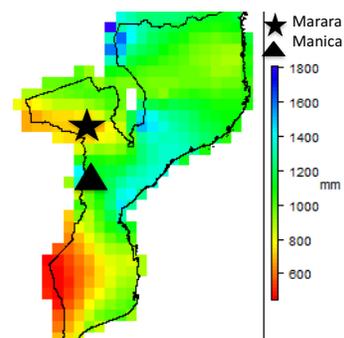


Figure 1. Study sites.

- In semi-arid Marara, <650 mm rain per year, high potential to supply livestock to local and regional meat markets
- In humid Manica, >1000 mm rain per year, good soils, high potential for crop production and marketing.

While ‘closed’ IPs promote technologies with a limited number of actors and for a limited time frame (incremental change), ‘open’ IP’s encourage an infinite number of actors to engage in the reconfiguration of entire social-ecological systems, value chains and context in which they operate (transformative change). In a decentralised way, actors find solutions to technical, economic, social and environmental challenges. Open IPs foster learning, they encourage self-organized, vertical collaborations between actors at local and regional level. As such open IPs nurture, integrate and expand ongoing initiatives, rather than creating new structures. The open IP approach used in this study has five supplementary thrusts (Figure 2).

1. Understanding farm types
2. Strengthening resilience as long term capacity to adapt
3. Developing Inclusive markets for short term benefits
4. Engaging multiple actors in learning based change
5. Scaling open IPs as drivers for change

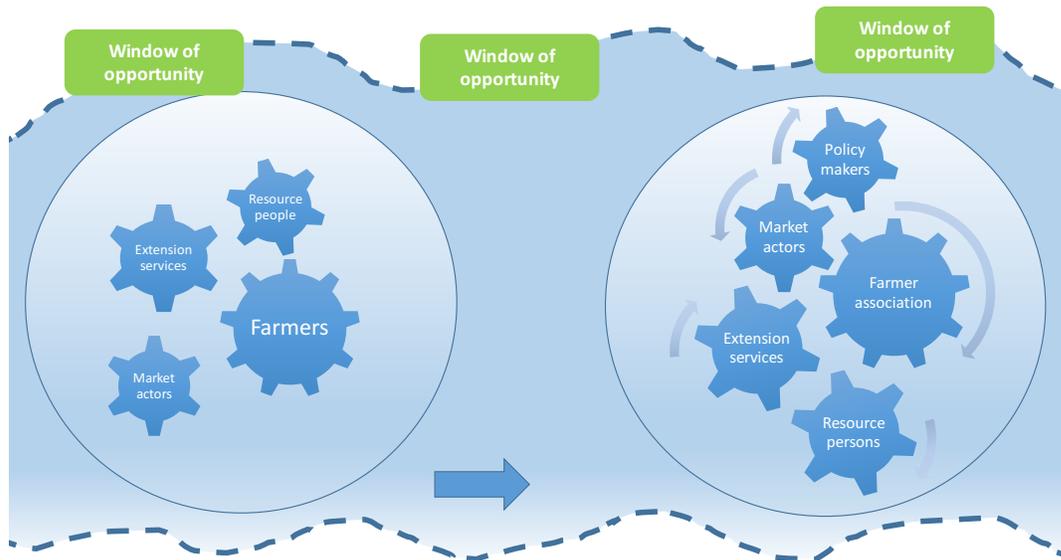


Figure 2. Research thrusts support IPs to emerge from loose networks towards more effective constellations of actors and organizations.

Results and discussion

Short-term profits from improved marketing of goats and beans

IPs were tested in response to underdeveloped access to markets and market actors. Interactions at IPs show how improved relations amongst actors benefit farmers in Marara and Manica Districts.

- In Marara the IP facilitates goat sales. Farmer associations now interact with large buyers on quality requirements and prices. Farmers start selling more goats to buyers who demonstrate market requirements. Government and development organizations that invest in goat sale, infrastructure and market organization, directly contribute to welfare, food security and education in drylands.
- In Manica, farmers attracted new organizations to build storage facilities for common beans and started storing the grain collectively. Empowered in production and market processes, farmers now decide collectively on sales; some more than doubled their revenues within two years. Farmers use the income from common bean sales for infrastructure development at the farm.

Biomass enhancing technologies, tailored to farm types

Supporting IPs one needs to discern farmers' different capacity to participate in markets, reinvest in agriculture and reduce risk. At the study sites, we found three farm types:

- Female farmers struggle with market access because they have little natural, social and economic assets, and low negotiation power, limiting their re-investments.
- Young male farmers with off-farm income, who actively invest in biomass production and better market access, as they are building their families and farms.
- Elder male farmers with relatively large farm assets and established market relations, diversify and intensify biomass production and illustrates where the system can go.

Mechanism for strengthening longer-term resilience:

IP's leaping transformation must cover issues beyond research to create conditions for engagement and uptake. The IPs built farmers capacity to represent their interests.

- In Marara, associations were created and land was legalized to provide farmers with land tenure security and collateral to apply for investments. Importantly, the associations provide farmers with a structure for self-organization, partnering in development processes.
- In Manica, government officials supported farmers in their request for road infrastructure development, as necessary precondition for buyers to attend to the emerging markets. Reducing transaction costs would provide additional benefits for farmers as buyers would share parts of their savings.

Facilitating learning based value, beliefs and behavioral change

The purpose of facilitating open IPs is not necessarily to support individual actors participating in the IP, but to develop the systems inherent capacity to learn, self-organise and innovate. As such, facilitators who engage with and support IPs operate with the entire system of actors. Exploring technical and market demonstrations, better informed, organizations generated new linkages and forms of engagement.

Inclusive and effective drivers for rural change

IPs have the potential for nudging change beyond the IP. They built new networks, learning alliances and generated interest for and confidence in market-oriented farming in both districts. With the help of its own internal dynamic, logic and components they can produce a new order.

Conclusions and outlook

Open IPs set a new narrative, towards collaborative arrangements and behaviors, supporting value chain development and self-organization as key driver for change, and motivating investments, partnerships and knowledge sharing for technology uptake.

Vision: In open IPs, members unify under a common vision, create ownership and connectedness, which in turn helps matching technology requirements with market linkages and capacity development.

Boundaries: Open IPs support integration of actors at large scale and long term, matching interests, collaboration and knowledge sharing across traditional boundaries. Support services enhance farmers' capacity to participate in related processes.

Governance: Open IPs encourage people to find new ways to collaborate, build social structures, adapt rules and procedures to reach their full potential. They gain capacity as actors and as IP. Actors track their own progress. Presenting advances and challenges to policy makers and support organizations strengthens their ability to claim and negotiate.

Learning: Nurturing communication and information sharing, links to instructional and policy changes is required. Actors must change values, attitudes and self-perception. This is part of an ongoing learning process, building agency for actors themselves to influence the conditions for farming and for marketing their produce.

Further reading

CGIAR (2013). Innovation Platforms Practice Briefs. Nairobi, Kenya: ILRI. <https://cgspace.cgiar.org/handle/10568/33667>

Nederlof, S., Wongtschowski, M., & Lee, F. van der. (2011). Putting heads together. Agricultural innovation platforms in practice. (Bulletin 3). KIT Publishers.

Schut, M., Klerkx, L., Sartas, M., Lamers, D., Mc Campbell, M., Ogbonna, I., Kaushik, P., Atta-krah, K., Leeuwis, C. (2015). Innovation platforms: experiences with their institutional embedding in agricultural research for development. *Explagric*, 1-25. Doi:10.1017/s001447971500023x