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

## Agricultural Cooperatives as Innovation Brokers: The Case of Climate Smart Agriculture in Uganda

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## Abstract

Climate Smart Agriculture (CSA) is thought to simultaneously tackle food insecurity and climate change. CSA is particularly important in the context of Sub-Saharan Africa. Here climate change and food insecurity poses more serious threats than anywhere else, affecting a myriad of rural smallholders. The dissemination and adoption of CSA in sub-Saharan African is however hindered by the limited accessibility of farm-households, who remain scattered over large and underdeveloped areas. The accessibility problem is well known to development experts, which have been trying to overcome it for more than a century, in order to scale up technological innovations for agriculture across the region.

Over time, agricultural cooperatives (agri-coops) and farmer organizations (FOs) have been largely used to aggregate and coordinate rural smallholders, and up-scale the adoption of agricultural innovations across Africa. Through agricultural advisory services and collaboration with government, civil society and research organizations, agri-coops and FOs can function as knowledge and innovation intermediaries, promoting and facilitating the adoption of improved farming practices, like CSA, among large numbers of smallholders. However, the sub-optimal performance of African agri-coops and FOs is attributed to: i) internal or organizational flaws, which leads to problems of side-selling and elite-capture, which in turn prevent them to sustain the costs related to input and extension service provision; as well as ii) external constraints resulting in imperfect information and bounded knowledge networks, which reduces the amount and quality of stakeholders, technologies and practices that are de-facto accessible.

This paper contributes to the literature by further investigating the potential role as innovation intermediaries that agri-coops can play in the up-scaling of CSA. It combines theory on innovation systems and knowledge networks with theory on cooperative organizational design, to find out which factors explain whether agri-coops and FOs provide climate-smart services to their members. Quantitative data from 99 agri-coops and FOs from Uganda are collected to perform organizational diagnostics. The main independent variable in this paper are access to information sources, relationships with other stakeholders, and knowledge inputs in the form of education and training, to analyze the influence of these variables on the provision of climate smart services to the cooperatives members as the main dependent variable. Additional case studies provide further evidence on how cooperatives channel climate smart information and knowledge between their members and other stakeholders, and how this can be either facilitated or hampered by the internal design characteristics of cooperatives.

Keywords: Agricultural cooperatives, farmer organisations, innovation network