

THE ROLE OF EXTENSION AND ADVISORY SERVICES IN BUILDING RESILIENCE OF SMALLHOLDER FARMERS

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Smallholder farmers and rural producers are among the populations most vulnerable to climatic shocks and weather-related disasters, and their vulnerability is compounded by market fluctuations, poor governance, conflict, and disease. Extension and advisory services¹ may provide an opportunity for strengthening the resilience of rural and farming households by increasing their access to tangible and intangible resources, such as inputs and knowledge. More generally, extension and advisory services may be able to play a critical role in promoting agricultural and rural development and improving the resilience of the sector as a whole.

The assumption underlying this hypothesis is that farmers lack the knowledge, resources, or both to adequately prevent, anticipate, prepare for, cope with, and recover from shocks. Extension and advisory services may be able to rectify this information asymmetry, or knowledge inequality, by providing or facilitating access to a variety of assets. These services could also promote resilient agricultural systems by relaying farm-level challenges and potential solutions to policymakers in a timely manner to enable them to make better-informed policy decisions.

Although there is an increasing base of literature on extension and advisory services, their role in building resilience in particular has not yet been explored empirically. The literature on resilience in general is itself only in the nascent stage. However, past intervention efforts that attempt to move from emergency responses to long-term development indicate that without well-capacitated systems for implementing interventions, such a transition could be difficult.²

This brief explores the sustainable-livelihoods framework to conceptualize the capacity needs of resilience-focused extension and advisory services. It indicates where to move the policy and research agenda forward with regard to the role of extension and advisory services in building resilience.

BACKGROUND

Extension and advisory services in rural areas are challenging even under normal circumstances: They must be provided consistently throughout a country, even in remote areas and despite limited incentives for providing them efficiently. Monitoring and evaluating the quality of the services provided requires substantial resources. Extension and advisory services are subject to the “triple challenge” of market, state, and community failure.³ Already underresourced, the services often face difficulties in adding new responsibilities for their staff without the requisite training, incentives, and resources.

Extension and advisory services today are viewed from a broad systems perspective, which focuses on the roles and

capacities needed at individual, organizational, and system levels to address current challenges.⁴ In addition to the traditional role of promoting agricultural innovation and technology adoption, these services now must deal with myriad issues, including human nutrition, risk and disasters, climate change adaptation, and rebuilding after emergencies. These issues present additional challenges not only to the extension workers but especially to the farmers themselves. We hypothesize that the capacity of extension and advisory services to provide preventive measures or coping mechanisms to address these issues is a critical component of resilience.

If these challenges can be overcome, extension and advisory services may be able to aid in enhancing the resilience of farmers in several ways. One way is by acting as a coordinating body for multiple support organizations as well as by providing more relevant services. A strong extension and advisory system is well positioned to coordinate multiple groups at various stages of a shock because of its linkages at local, subnational, and national levels. Due to its potential access to timely information, the system can identify relevant actors with whom to work to ensure that intervention strategies are harmonized, relevant, effective, and timely. In this way, short-term emergency responses can be harmonized with long-term resilience-building strategies. From the service angle, another possible way extension and advisory services could enhance farmers’ resilience is by providing information and knowledge regarding weather and climate change, market prices, regulatory structures, quality standards, and consumer demands so that farmers can make informed decisions.⁵ The services could also help identify the households most vulnerable to shocks and develop a database of those who need external assistance so that they can be cost-effectively targeted. However, such roles of extension and advisory services critically depend on how effectively the extension system is funded, organized, and implemented.

POSSIBLE ROLES AND MODALITIES FOR EXTENSION AND ADVISORY SERVICES SUPPORT

The thinking on the use of extension and advisory services to build resilience is fairly recent. There is thus no empirical evidence looking at the role of these services in strengthening resilience. However, some cases in the gray literature provide pointers as to what this role can be. After examining the literature from the sustainable-livelihoods framework, we will discuss cases that show how extension and advisory services can strengthen resilience under this framework.

The sustainable-livelihoods framework helps show how extension and advisory services can build resilience. The framework describes five types of assets or capital: human (for example, education or health), natural (land), economic/financial (access to credit), physical (infrastructure), and social (community networks).⁶ The values of these assets depend on the existing institutions and systems as well as the vulnerability context. Extension and advisory services can contribute to enhancing each of these assets, especially human capital. We hypothesize that extension and advisory services can be particularly valuable in building resilience when lack of information is the binding constraint on farmers' resilience.

Strengthening Human Capital through Extension and Advisory Services

Specific examples from the literature suggest that human capital development in the form of education and training for smallholder farmers could be critical for resilience. This assumption underlies existing curricula to teach farmers how to deal with risk. For instance, the Forum for Agricultural Risk Management in Development (FARMD) group of the World Bank recently developed a series of learning materials for coping with risk and uncertainties regularly faced by farming communities.⁷ Such curricula can be adapted by advisors who are working with farmers on issues of production, price, financial, legal, and other risk factors.

In studying water management and farming systems in Australia, Nettle and Paine found that extension/advisory professionals can help strengthen resilience by improving their own human capital and utilizing the social capital of their farmer networks. They found that advisors can learn from farmers about developing resilient farms; further, they suggested that advisors need stronger capacity (human capital) to represent farmers' adaptability systems to policymakers and industry stakeholders and to "broker" decisions that meet all stakeholders' needs.⁸ Spielman and colleagues argued that traditional agricultural education and training systems need to expand their repertoire to contribute to stimulating agricultural innovation. They also suggested that systems should build capacity to facilitate the efficient transfer of these innovations across the system—a crucial component of resilience.⁹

In 2002, following Sierra Leone's civil war, the government and development partners developed a farmer field school initiative to support agricultural production and improve the country's food security. The initiative was intended to simultaneously train farmers and strengthen rural institutions—both governmental and nongovernmental. It was administered by the Ministry of Agriculture, Forestry, and Food Security as well as by nongovernmental organizations (NGOs). As part of strengthening the human and social capital of farmers as well as rural institutions, the schools trained more than 75,000 Sierra Leoneans, who have likely contributed to rebuilding farmer-based organizations.¹⁰

Several development agencies have developed pilot programs to determine farmers' binding constraints in becoming resilient. One such program is the Agro-pastoral Field Schools program in Uganda. It assumes that resilience can be built through a two-tiered approach, whereby groups of farmers participate in the traditional "cyclical" learning programs with extension agents to enhance household-level resilience, and communities are offered opportunities to engage in broader efforts, such as early warning systems, watershed management, and community animal health. It aims

to support human capital through group learning, natural capital by promoting biodiversity efforts, and financial capital by teaching saving skills.¹¹ Although there has not yet been a rigorous evaluation of the performance and cost-benefit merits of this approach, it provides some idea of how extension and advisory services can build resilience through promoting different types of capital.

Potential Roles of Extension and Advisory Services in Specific Areas

In addition to looking at extension and advisory services from the perspective of the five types of capital, we also examined literature focused on potential roles that the services can play in specific areas.

Seed and input provision are often a part of humanitarian responses in postdisaster and postconflict situations. If they have acquired such knowledge through prior presence on the ground, extension/advisory agents can play a role in informing providers of what inputs are appropriate in the affected areas and which ones could be locally sourced. Extensionists can also help farmers learn how to use new varieties. As an intermediary institution, with knowledge of markets and natural resource management regimes, extension and advisory services can in theory help to ensure that agricultural rehabilitation programs are relevant and sustainable. These services may often be the only agencies operating in rural areas that are able to assist after a disaster.¹² For example, Malawi's Starter Pack Scheme distributed packages of high-yielding seeds and fertilizer to farmers to help them overcome the country's drought-prone conditions. The program relied on extension agents to register farmers and distributed the packs via NGO-run distribution centers.¹³

Regarding *climate change*, a core challenge for extension and advisory services in the future is shifting from providing "packages" of technological and management advice to supporting farmers with the skills and information they need to make informed decisions. Climate change increases not only year-to-year but even day-to-day variability. Farmers thus need high-frequency access to weather data as well as training in how to interpret the data and adapt their farming practices as necessary.¹⁴ Some will also need access to new technologies and management options in areas where climate change or other shocks or stresses render their existing farming systems unviable.¹⁵

Information-sharing tools such as information and communication technologies (ICTs) are another area at the nexus of these services and resilience. Farmers' exposure to risk and uncertainty is often aggravated by lack of information about weather, inputs, farm management practices, or market prices; this lack of information can have an adverse impact on crop production and income. Hence, a farmer who receives quality, up-to-date information and has the ability to use it may be able to lessen the effects of these risks.¹⁶ Mobile-based information services can influence the behavior pattern of farmers, which can in turn facilitate the dissemination of information and the adoption of improved techniques, leading to better yields. Information about weather and prices could potentially help farmers reduce their production and market risks.¹⁷

While information sharing and the use of tools such as ICTs can potentially reduce risks, *mechanisms such as weather insurance* can compensate for risks that have occurred.¹⁸ Extension and advisory services can possibly play a brokering

and facilitation role in new insurance options.¹⁹ For mitigating risk, extension services can link up different stakeholders, including smallholders, researchers, insurance providers, input dealers, and other market players.

TENTATIVE POLICY DIRECTIONS TO STRENGTHEN EXTENSION AND ADVISORY SERVICES FOR IMPROVED RESILIENCE

The literature reviewed above provides insights into several potential policy and program options for building resilience through extension:

1. *Build individual, organizational, and system capacity to deal with risk and change.* Too often capacity has been focused at the individual level, not considering the need for organizational and system-level capacity. There is a critical need for assessing capacity requirements at all levels in order to develop a comprehensive strategy for capacity-development investments.
2. *Consider long-term sustainability.* Extension services are often pulled in different directions by political pressure and donor preferences. Building capacity for resilience-oriented systems requires shifting from the project approach to building sustainable institutions that anticipate shocks and contextualize interventions to meet the specific needs of the communities affected by them. What is needed is long-term political commitment to extension and advisory services.
3. *Use ICTs to communicate information to reduce and prevent risk.* ICTs are not a silver bullet and are not very useful without institutions and reputable information sources. However, they have the potential to quickly and cheaply share information that can strengthen resilience.
4. *Use intervention plans and programs* such as weather insurance, once it is proven viable, to compensate for shocks that have occurred. Extensionists must play an honest brokering role to link smallholders to such options. This process will require building institutional capacity of extension and advisory services to anticipate shocks and adapt existing programs that enable farmers to respond to and bounce back from a shock.
5. *Develop policies* that define the role of extension and advisory services in assisting smallholders to become more resilient. Governments should devise holistic policy frameworks for enhancing resilience that entail various complementary services, investments, and safety nets. Developing such a policy framework will require continued learning from communities that face frequent shocks, including how they deal with them and what adjustments are needed to reduce their impact. This framework can place communities on a dynamic long-term development path.

KNOWLEDGE GAPS: WHAT RESEARCH IS NEEDED GOING FORWARD?

There are major empirical gaps with regard to the role of extension and advisory services in building the resilience of rural and farming communities. Thus this brief focuses on potential roles suggested through the gray literature. Research is needed to validate these ideas in order to generate more specific policy recommendations on the role of extension and advisory services in strengthening resilience, especially in postconflict and natural disaster-prone areas. As identified in the conceptual framework, research is needed on the role of different types of capital and how extension and advisory services can strengthen resilience through each type. This understanding is important because often different systems support or promote human, financial, physical, social, and natural capital. How can these systems be better coordinated to provide all of the different assets required by smallholders for increased resilience? What is the role of extension in this coordination, if any? Other research questions include these:

- What are the core competencies needed by extension agents to support smallholder resilience?
- How can one identify capacity gaps at the country level?
- How can the capacity of extension and advisory services be efficiently built to simultaneously address key resilience challenges in the agriculture sector?
- What delivery models have been effective at building the resilience of smallholders?
- How can we ensure that extension and advisory services are flexible and adaptive in the face of many different types of shocks?
- Are more holistic programs more effective at building resilience?
- How can extension and advisory services coordinate disaster relief efforts with long-term resilience-building programs?

CONCLUDING REMARKS

There is a critical need for understanding the potential role of extension before, during, and after a shock. Furthermore, there is a need to undertake empirical analyses to provide specific insights for designing policies and programs that will enable extension and advisory services to be more effective, efficient, and impactful, especially in terms of building the resilience of farming households. The importance of assessing individual, organizational, and system-level needs of extension and advisory services in the context of resilience can hardly be overemphasized.

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NOTES

¹ For the purposes of this brief, extension and advisory services are defined as “all the different activities that provide the information and services needed and demanded by farmers and other actors in rural settings to assist them in developing their own technical, organizational, and management skills and

practices so as to improve their livelihoods and well-being.” Extension services can be provided by the public, private, or civil society sectors. From R. V. Sulaiman and K. Davis. 2012. *The “New” Extensionist: Roles, Strategies, and Capacities to Strengthen Extension and Advisory Services*. Lindau, Switzerland: Global Forum for Rural Advisory Services (GFRAS), 2.

² S. W. Omamo. 2004. *Bridging Research, Policy, and Practice in African Agriculture*. Development Strategy and Governance Division Discussion Paper 10. Washington, DC: International Food Policy Research Institute (IFPRI).

³ World Bank and IFPRI. 2010. *Gender and Governance in Rural Services: Insights from India, Ghana, and Ethiopia*. Washington, DC: World Bank, xvii, xxv.

⁴ Sulaiman and Davis 2012.

⁵ I. Christoplos. 2010. *Mobilizing the Potential of Agricultural Advisory Services*. Rome: FAO; Lindau, Switzerland: GFRAS, 21.

⁶ D. Carney, ed. 1998. *Sustainable Rural Livelihoods: What Contribution Can We Make?* London: UK Department of International Development.

⁷ FARMD. 2014. “Training Courses on Agricultural Risk Management.” Accessed January 20.

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⁸ R. Nettle and M. Paine. 2009. “Water Security and Farming Systems: Implications for Advisory Practice and Policy-Making. *Journal of Agricultural Education and Extension* 15 (2): 147–160.

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¹¹ J. R. Okoth, W. Nalyongo, M. Petri, and T. Ameny. 2013. *Supporting Communities in Building Resilience through Agro Pastoral Field Schools*. Rome: FAO.

¹² Christoplos 2010, 26.

¹³ C. Longley, J. Culter, and R. Thompson. 1999. *Malawi Rural Livelihoods Starter Pack Scheme, 1998–9: Evaluation Report*. London: Overseas Development Institute.

¹⁴ P. J. M. Cooper, J. Dimes, K. P. C. Rao, B. Shapiro, B. Shiferaw, and S. Twomlow. 2008. “Coping Better with Current Climatic Variability in the Rain-Fed Farming Systems of Sub-Saharan Africa: An Essential First Step in Adapting to Future Climate Change?” *Agriculture, Ecosystems, and Environment* 126:24–35.

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¹⁶ S. N. Meera, V. Balaji, P. Muthuraman, B. Sailaja, and S. Dixit. 2012. “Changing Roles of Agricultural Extension: Harnessing Information and Communication Technology (ICT) for Adapting to Stresses Envisaged under Climate Change.” In *Crop Stress and Its Management: Perspectives and Strategies*, edited by B. Venkateswarlu, A. K. Shanker, C. Shanker, and M. Maheswari, 585–605. Amsterdam: Springer.

¹⁷ J. C. Aker. “Dial ‘A’ for Agriculture: A Review of Information and Communication Technologies for Agricultural Extension in Developing Countries.” *Agricultural Economics* 42:631–647.

¹⁸ K. Davis and R. V. Sulaiman. 2013. *Extension Services for Effective Agricultural Risk Management*. Washington, DC: FARMD.

¹⁹ Sulaiman and Davis 2012.

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