Applying the Best-Fit Framework to Assess and Strengthen National Extension and Advisory Services

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Abstract

Agricultural extension and advisory services are critical to supporting technological and institutional changes that can improve the livelihoods of small-scale farmers in developing countries. However, many extension services are under-resourced, out of date, and need of structural and content changes. However, efforts to systematically strengthen local extension systems often fall into the trap of promoting blueprints that are insufficiently adapted to local context. To that end, researchers developed the best-fit framework in the 2000s to provide impetus for pursuit of more locally-tailored extension solutions. Today, almost a decade later, researchers test the framework under real-world conditions in a cross-country application. This paper examines the application of this framework across six dimensions and seven countries to formulate a set of best-fit recommendations that are also broadly appreciable. The findings show that it is possible to apply the framework to the analysis of EAS across countries while also maintaining a very localized perspective on recommendations. Across the seven countries, certain obvious commonalities exist: The growth in pluralism in extension providers, the persistence of weak incentives for extension agents, and the lack of enabling policies. At the same time, innovative solutions to many of the challenges held in common—ICT-enabled extension, performance incentives, and value-chain oriented extension—are heterogeneous. The framework allows users to pursue change processes in EAS in response to their own local realities.

Keywords: Extension, best-fit framework, assessments, methods

Introduction

Agricultural extension and advisory services (EAS) can be a powerful tool to help smallholders break the cycle of low productivity, vulnerability, and poverty (Anderson, 2008). By providing farmers with knowledge and tools about improved agricultural technologies and practices, linking them to new technologies, and providing greater access to finance and market solutions, EAS can contribute to both technological and institutional change. However, EAS in many countries are weak, out-of-date, and under-resourced (Davis et al., 2010). Attempts to address just one component of EAS—for example, changing the methods employed by extension agents to train farmers, or decentralizing the administration of extension organizations, or introducing demand-driven financing mechanisms—generally flounder without more holistic reforms that include comprehensive investments in knowledge and information systems and are based on comprehensive (technical, managerial, and institutional) innovation systems (Rivera et al., 2006; Birner et al., 2009).

Birner et al. (2009) proposed a best-fit approach to designing and analyzing EAS in recognition of this challenge. A fundamental component of this approach—detailed in subsequent studies such as GFRAS (2014) and Davis et al. (2010)—was to bring user communities together to analyze the critical elements that make up an extension system, and to engage these user communities in co-design processes aimed at strengthening local extension capacity across multiple dimensions.

In this paper, we test the best-fit approach in a cross-country application conducted under real-world conditions. This paper examines the application of this approach across six EAS dimensions adapted from the best-fit model and seven developing countries to formulate a set of best-fit recommendations that are both tailored to local realities and broadly appreciable.

Conceptual Framework

The conceptual framework underlying this paper adapts the best-fit framework from Birner et al. (2009). The framework was designed to analyze and design extension systems in a comprehensive manner (Figure 1). The framework provides an impact chain to comprehensively analyze extension by examining the overall environment (frame conditions), the characteristics of the extension services that are affected by the frame conditions, the services' performance, the primary outcomes in terms of farmer behavior, and finally, ultimate impact.

The main adaptation is to define and subdivide elements of the framework into dimensions that are either *within* or *beyond* the manageable interests of actors seeking to directly strengthen an EAS. This helps separate out the frame conditions that are likely beyond the scope or sphere of influence of public-sector EAS agencies, private, non-governmental, and civil society organizations engaged in similar EAS activities, development partners, donors, and most other actors immediately engaged in extension. These actors have limited influence on the political economy factors, market and civil society environments, and agroecological conditions that affect the innovative capacities, performance, and impact of an extension system.

But beyond these exogenous forces, the framework provides an impact chain that allows users to identify intervention points or levers to enhance the capacities, performance, and impact of EAS. For example, the governance structures and policy environment variables in Box F refer to institutions or rules of the game that influence an extension system. This includes

policies, strategies, and regulations that guide and influence EAS—institutional characteristics that are by no means immutable.

The organizational and management capacities and cultures variables (Box G) refer to capacity for provision of advisory services, and ways in which the services are managed within the respective governance structures. The organizational and management capacities and cultures include the different players of the game, their abilities, and the way that they play. Public, private, and civil society EAS providers may all have different types of capacities and cultures. The variables also include the organizational mandate and mission as well as staffing and other resources. They also include capacity of the organization itself and its staff, as well as their performance management systems.

Advisory methods (Box H) are used by EAS field staff in interactions with farmers. Advisory methods can be classified according to various aspects, such as the number of clientele involved (individuals, groups); the types of decisions on which advice is provided (specific to the production of certain crops or livestock; managerial decisions; group activities, etc.); and media used (print; radio; internet, etc.).

Market engagement (Box I) refers to the market elements that EAS can use to better serve farmers, such as aggregation, finance, price discovery, and input and output markets. Livelihoods strategies (Box J) refers to how EAS develops content to meet the unique needs of clientele and how gender roles impact farming strategies. Community engagement (Box K) refers to EAS services based on local social institutions, mechanisms to articulate demand, and community psychosocial characteristics.

Framework users can then view the analysis through a lens of manageable interests, that is, what conditions, characteristics, or outcomes and be directly influenced or changed by the user and partners. The frame conditions (Boxes A-E) are outside the manageable interests of most users and indeed of EAS planners and implementers in general. This means that they are an external factor to which extension services must be adapted. While EAS could attempt to influence the frame conditions, they are not within their day-to-day sphere of influence.

The manageable outcomes of the framework include the characteristics or dimensions of EAS already discussed in Boxes F-K, as well as system-level performance areas (Box L). How EAS performs is based on the EAS characteristics, and can be measured by access, quality, sustainability, effectiveness, and efficiency of the EAS services. The outcomes at the farm household level such as changes in behavior or adoption, and the ultimate impact (changes in productivity, empowerment, income, etc.) (Boxes M and N) are outside most users' manageable interests as well.

The framework helps to outline EAS system parameters and identify levers of change with which to strengthen EAS. In each country, the levers of change differ. The best-fit framework allows users to analyze a country's EAS system, provides areas for dialogue with local stakeholders to explain the state of the EAS system and where the critical levers for change might be, and finally, to recommend systems change. The framework also enables cross-country comparison on the different characteristics of EAS.
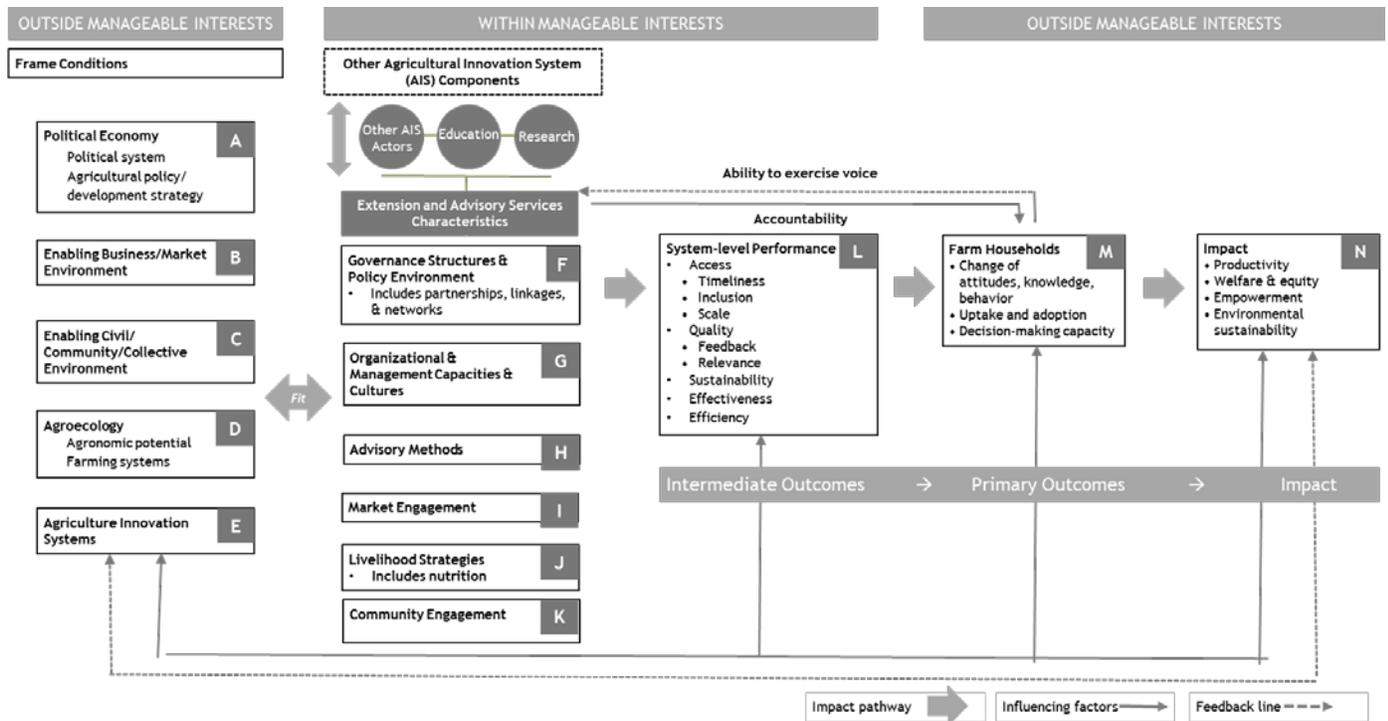
Figure 1. Modified framework to analyze and design pluralistic extension systems. Adapted from "From best practice to best fit: A framework for analyzing agricultural advisory services worldwide," by Birner et. al., 2009, *Journal of Agricultural Extension and Education 15*(4): p. 344.

Purpose and Objectives

The purpose of this paper is to present a real-world application of the adapted best-fit framework as an analytical tool to strengthen extension systems in a cross-country comparison. Researchers used the framework to examine six EAS dimensions (governance structures and policy environment, organizational and management capacities and cultures, advisory methods, market engagement, and livelihood strategies, and community engagement) in seven developing countries (Bangladesh, Guinea, Ethiopia, Honduras, Liberia, Malawi, and Nigeria).

Methods

A range of methods were employed during this study. First, a comprehensive literature review was used initially to adapt the framework described above and to help frame key research questions related to EAS capacities, performance, and impact. Second, international EAS experts were purposively selected to expert input to refine the framework further and, in particular, align it in a manner that would provide a tool to ensure coherence when applied to a cross-country comparison approach. Third, the framework was then used to guide subsequent engagement with EAS stakeholders in each country.

Researchers conducted country-level analyses through peer-reviewed literature as well as local documents and materials that were not typically available in the public domain (e.g., extension field reports, government statistics, policy reform proposals, and donor project documents). Researchers employed in-depth interviews,

using open-ended questionnaires, with key informants who were purposively selected. Key informants were contacted via email or telephone and were interviewed face-to-face or by Skype. The qualitative data were written up and coded. Also, the authors used participant observation to gain additional data, information, and insights on the EAS in subject countries.

Researchers used member checks and debriefing with peers (Ary, Jacobs & Razavieh, 1996) to ensure validity through stakeholder workshops where data and conclusions were reported back to participants. Researchers further used triangulation to ensure validity, using multiple researchers and sources of data (Ary, Jacobs & Razavieh, 1996).

Necessarily, the methods employed here shape the nature of the analysis findings. In particular, the types of documents and the interests of individuals selected may have a strong influence on how the EAS narrative in a subject country is described, how the issues are framed, and constraints and their solutions are identified. To a great extent, however, the explicit use of the framework described earlier in the conduct of document analysis, key informant interviews, stakeholder workshops, and pilot activities aimed to mediate the influence of these biases on the analysis and findings.

Findings

Findings from the cross-country analysis can be classified and represented in several ways. The most straight-forward approach is to consider a matrix of findings by characteristic and country (Table 1), which is consistent with the adapted framework described above.

Cross-country findings in a best-fit framework

Several notable findings emerge from this analysis. In relation to governance structures and policy environment, we focus on two findings. First, all seven countries revealed a strong presence of pluralism. All the countries had multiple providers (from 18 (MacNairn, in press) to 84 (Cai, 2017)) of extension services from different sectors, suggesting that private sector, non-governmental, and civil society actors play a larger role in EAS than might be commonly recognized. Second, all seven countries gave considerable attention to the discourse around EAS sustainability and scale, with emphasis on the role of the private sector, particularly in countries such as Honduras and Nigeria where private investment in the agricultural sector is relatively strong (Valenzuela, Saavedra, & Davis, 2017; Huber, Davis, & Lion, 2017).

Table 1: *Findings Across Countries by Framework Characteristic*

Characteristic	Findings
Governance structures and policy environment	• Pluralism is prevalent in countries; however, coordination can be improved • Knowledge management and linkages between research, extension, education, and other actors in the innovation system remains weak • Despite renewed government focus on EAS, budgeting and planning for financial and organizational sustainability are limited • While the private sector is seen as key for sustainability and scaling, policies and incentives are needed to stimulate and guide their involvement
Organizational and management capacities and cultures	• Extension staff have few performance incentives in any sector • Foundational training is technical and textbook-based with limited practical experience and instilling of functional skills • Private-sector services often focus on specific products rather than on holistic livelihood needs of farmers • There are limited operational funds in government programs
Advisory methods	• Many traditional approaches are still used, such as demonstrations, group approaches, radio, farm visits • Information and communication technologies (ICT) initiatives are scattered and pilot-level, focused mainly on information delivery rather than other uses such as capacity strengthening or performance monitoring
Market engagement	• Donor-funded projects often focus on value chains and EAS is often a secondary underfunded component • Lack of access (especially by female farmers) to finance and inputs constrains innovation at farm level • Agro-dealers present an opportunity for greater reach, however, certification and capacity strengthening are needed
Livelihood strategies	• Gender sensitization, climate-smart agriculture, and nutrition topics are found mainly in special projects and not often included in mainstream curricula
Community engagement	• Female farmers have low access to information and technologies • Many groups (landless, women, youth, pastoralists) remain marginalized by EAS

Source: Authors

In relation to organizational and management capacities and cultures, findings were less insightful. Observations and analysis tended to highlight well-established constraints related to foundational training, performance incentives, disciplinary specialization, and budgetary limitations. Findings such as lack of training and limited public operational funds have been EAS problems for decades. Examples range from Honduras, where the public extension system has been effectively dismantled in the recent decade (Valenzuela, Saavedra, & Davis, 2017), to Nigeria, where

limited budget support for extension exists without a plan for longer-term sustainability (Huber, Davis, & Lion, 2017), to Ethiopia, where the massive investments in human resources (personnel recruitment and training) central to the country's economic development strategy are still challenged by capacity and performance issues. Despite the heterogeneity in experiences, there was still little innovative thinking around these issues at any level.

In relation to advisory methods, there was across-the-board interest and enthusiasm for innovation beyond the traditional approaches of extension demonstration plots, farm visits, and group-based extension models. A particular focus on novel and innovative applications of information and communication technologies (ICT) was clearly present in all contexts. However, most initiatives in this area remain at the level of small, fragmented pilots that are focused mainly on information delivery rather than other uses such as capacity strengthening, performance monitoring, or assessment of localized demand for services.

On the market engagement front, findings present a somewhat unclear picture. Despite articulated public policy initiatives and donor strategies focused on value chain development, there is very little evidence that EAS play more than a secondary, underfunded role in linking farmers to markets and vice versa. And what role EAS do play tends to be donor funded, extremely time- and resource-limited, and poorly integrated with national policies and programs. Furthermore, there is some evidence suggesting that market engagement programs may be crowding out extension: Malawi's input subsidy program for providing farmers with greater access to fertilizers is so costly that it likely imposes a hard limit on the availability of funding for extension and advisory services that are a necessary complement to increased use in fertilizer (Ragasa, 2016). Despite this, there is a rich body of innovation in this area, for example, projects designed to provide farmers (especially female farmers) with access to inputs and finance, or agro-dealers with advisory capabilities and certifications. Many projects provide capacity strengthening for groups to link better to the market.

With respect to both livelihood strategies and community engagement, key informants recognized the important discourse around resilience, gender, agriculture, and nutrition, particularly for marginalized groups such as women farmers, landless agrarian laborers, rural youth, and pastoralists. The awareness of this nexus is an acknowledgement of myriad efforts to diversify the conversation on EAS beyond simply closing yield gaps for food staple crops, particularly in light of concerns around climate change. However, the linkages between resilience, gender, agriculture, and nutrition remains, for the most part, a topic for special projects and not a mainstreamed priority for EAS. As exceptions, Ethiopia has incorporated climate change topics into the main government extension program, while Malawi has instituted gender-sensitive approaches throughout their public system alongside a significant focus on nutrition.

Collecting feedback from clientele is another important component of livelihood strategies and community engagement. Community feedback from various providers in Malawi was obtained through project monitoring and evaluation or village agricultural committees, and in Nigeria, through farmer organizations.

Cross-country findings from an innovation perspective

Another way to classify and represent the findings from the cross-country analysis may be to focus on the

conventional versus the innovative. While many of the conventional EAS issues identified in the analysis require urgent attention, it may be that novel opportunities provide the entry points for systemic change. Arguably, novel opportunities represent the hot spots where change processes are emerging either from purposive policy direction or through more organic innovation. For these reasons alone, closer examination of these novel opportunities and innovation processes is useful.

A clear finding from the cross-country analysis is that EAS pluralism has been growing. In several of the surveyed countries, the pluralism closely followed reduction of public spending due to structural adjustment programs introduced in the 1980s and the related donor disaffection with agricultural sector development. The result—public extension systems that funded salaries but little else—opened the door to nongovernmental organizations and the private sector. Unfortunately, the enabling environments and organizational capabilities of these non-state actors were slow to develop, and only in the most recent decades have they started to fill the gaps left by defunded public extension systems. This leads to inadequate coverage by EAS and further marginalization of certain communities and clientele groups.

Among the many actors in this non-state space, agro-dealers have become an object of much attention from donor-funded projects and, to a lesser extent, public development programs. In countries as diverse as Bangladesh, Honduras, and Nigeria, these agro-dealers are often viewed as an important means of improving the scale, reach, and financial sustainability of EAS. However, because their services often focus on specific commodities only and work mainly with farmers who have the resources to produce for market, their

capacity to influence livelihoods among marginalized groups remains a concern. This reignites the debate about the role for public sector extension in reaching marginalized groups and providing services that are non-remunerative to agro-dealers and other private sector actors, but nonetheless important to rural livelihoods among marginalized groups. This includes the provision of guidance to, and the regulation of, various entities advising farmers (Terblanché & Davis, 2016).

ICTs have also become an object of considerable attention (Huber and Davis, 2017; Huber, Davis, & Lion 2017; Cai 2017). But while such ICTs are promising in terms of ability to scale outreach and reduce costs, it was clear from the cross-country analysis that several concerns are rapidly emerging among observers and practitioners alike. First, there are concerns about the limited evidence on ICT effectiveness compared to traditional methods, suggesting the need for greater monitoring and evaluation. Second, there are concerns about marginalizing clientele who are illiterate or have no access to these ICTs. Third, there is concern that while ICTs are the focus of efforts to pushing information out to farmers, less emphasis is being placed on their potential role in monitoring extension performance and building their capacity. In fact, no countries were found to use ICTs for these monitoring and capacity building purposes.

Findings on more conventional constraints provide insight into just how far EAS must travel to meet the needs of agriculture in a changing world. In most of the countries analyzed, the number of extension agents and the ratio of extension agents to farmers were extremely low—too low to constitute a functional system. The Bangladesh public system had 14,092 field-level extension agents, each responsible for 900-2,000 farm families (Huber & Davis,

2017). Ethiopia, perhaps the best-resourced in terms of human resources, has some 67,938 frontline workers in the public system, or a ratio of roughly 1:476 (Zerfu, 2017; Davis, et al., 2010). The Guinean public extension system has just 800 agents, which leads to a ratio of about 1:10,000 (MacNairn, in press). Honduras has no extension agents per se, having dismantled its public system in the 1990s (Williams, 2016), and managed with a few staff scattered across government and nongovernment programs (Valenzuela, Saavedra, & Davis, 2017). Liberia's ratio is estimated at on extension agent per 1,000 to 5,000 farmers (Moore, 2014). In Malawi, the ratio is between 1,800 and 2,500 (Cai and Davis, 2017). Nigeria's ratio is much lower, between 5,000 and 10,000 (Huber, Davis, & Lion, 2017).

Beyond these numbers and ratios, the analysis of conventional constraints points to acute skills deficiencies in extension competency areas, especially functional skills. These functional skills include, for instance, farmer group development, linking farmers to market, communication, and adult education. Continuing education is rare; in Nigeria, some extension staff had not received any additional training for the past 30 years (Huber, Davis, & Lion, 2017). Add to this the challenges of poorly paid and weakly incentivized staff with limited operational funds, and it is not surprising that poor motivation was observed across countries.

There are, however, several exceptions that suggest scope for greater experimentation in improving extension agent performance and performance incentives. Ethiopia, for example, does give out awards to top-performing extension agents. Certain nongovernmental organizations in Malawi provided incentives in terms of cash prizes and salary increments in response to performance appraisals by supervisors. In both Ethiopia and Nigeria, the Sasakawa Africa Fund for Extension Education enables mid-career extension professionals to upgrade their education level to obtain university degrees. Other such opportunities may exist in other countries, but are likely limited in size and scope.

Cross-country findings from a real-world experience

While data, information, and insights from our study's diagnostics are helpful in a cross-country analysis of EAS using the best-fit framework, there is nothing like on-the-ground pilot activities to put the framework to a robust and demanding test. Here, we describe the ongoing testing of this framework in three pilot countries: Bangladesh, Ethiopia, and Malawi. Based on the best-fit framework analysis of the countries, researchers selected key areas of the framework to test in a pilot situation.

In Bangladesh, the market engagement component of the best-fit framework is being put to the test in Jessore District with several partners active in the ICT and agriculture space. The 10-month pilot aims to test the effectiveness of a business model in which private agro-dealers provide extension services to farmer producer groups on both input and output marketing, linking output marketing to digital finance, and providing advisory services to individual farmers.

In Ethiopia, the pilot is working in three framework areas: Advisory methods, community engagement, and governance structures/policy environment. In relation to advisory methods and community engagement, the pilot is documenting the comparative impact and effectiveness of video-enabled and traditional advisory channels and community engagement strategies (inclusion of women and use of cost/benefit data) within a public EAS system. For governance structures and the

policy environment, the pilot is providing evidence and perspectives to design, refine, or scale up programs to strengthen EAS in Ethiopia and other countries, and sharing learning on how to institutionalize EAS system improvements.

In Malawi, the pilot also covers three EAS characteristics: Advisory methods, community engagement, and livelihood strategies. Here the pilot aims to amplify the impact of the farmer field and business school EAS model by testing the effectiveness of digital versus analog advisory methods in reaching women farmers along four content areas: Agricultural production practices, gender equity, market engagement, and nutrition practices.

Across all three of these pilots, effective monitoring and evaluation systems are key to harnessing data, generating meaningful analysis, and learning about what works and what does not work. In Bangladesh, the pilot is being implemented with a rich back-end data collection system to furnish the necessary data and analytics needed to refine the program. In Ethiopia, the pilot is being rolled out as a randomized controlled trial with several experimental treatments to generate new insights into the power of ICT-enabled, community-mediated extension. And in Malawi, a more action-research oriented approach is being taken to similarly produce data and information that can be used to inform decision-making.

Conclusion, Recommendations, and Implications

The adapted best-fit framework described in this paper is a potentially useful guide for decision makers such as project designers, development partners, and public policymakers aiming to strengthen agricultural extension and advisory services. It provides a well-researched framework that can direct users to the specific extension components and characteristics that can be improved, strengthened, or otherwise changed. It also provides a common ground for cross-country comparisons and cross-country learning. Most importantly, it can help identify specific leverage points— whether public policies and investments or innovative projects and interventions—to strengthen extension.

The findings have shown that it is possible to apply the best-fit framework to the analysis of EAS across countries while also maintaining a very localized perspective on recommendations. The analysis clearly demonstrated that across the seven countries, certain obvious commonalities exist: The growth in pluralism in extension providers, the persistence of weak incentives for extension agents, and the lack of enabling policies are a few ongoing EAS issues. At the same time, the analysis demonstrated that innovative solutions to many of the challenges held in common—ICT-enabled extension, performance incentives, and value-chain oriented extension—are heterogeneous.

This illustrates the very purpose of the best-fit framework: To equip decision-makers with the tools to pursue change processes in EAS in a manner that is particular to their own geographic, political, and economic realities.

References

Anderson, J. R. (2008). *Agricultural advisory services. Background paper for the World Development Report 2008*. Washington, DC: The World Bank.

Ary, D., L. C. Jacobs & A. Razavieh. (1996). *Introduction to research in education* (5th ed). Orlando, FL: Harcourt Brace & Company.

Birner, R. K. Davis, J. Pender, E. Nkonya, P. Anandajayasekeram, J. Ekboir, A., . . . S. Benin. (2009). From best practice to best fit: A framework for

analyzing agricultural advisory services worldwide. *Journal of Agricultural Extension and Education 15*(4): 341-¬355.

Cai, T. & K. Davis. (2017). *Malawi: Desk study of extension and advisory services.* Manuscript in preparation. Washington, DC: Developing Local Extension Capacity.

Davis, K, B. Swanson, D. Amudavi, D. A. Mekonnen, A. Flohrs, J. Riese, . . . E. Zerfu. (2010). *In-depth assessment of the public agricultural extension system of Ethiopia and recommendations for improvement*. IFPRI Discussion Paper 1041. Washington, DC: IFPRI.

Global Forum for Rural Advisory Services (GFRAS). 2014. *Concept and terms of reference for assessment of rural advisory service (RAS) systems in Central Asia and South Caucasus (CAC) region*. Unpublished document, GFRAS, Lindau, Switzerland.

Huber, S. & K. Davis. (2017). *Bangladesh: Desk study of extension and advisory services.* Washington, DC: Developing Local Extension Capacity.

Huber, S., K. Davis, & K. Lion. (2017). *Nigeria: In-depth assessment of extension and advisory services.* Washington, DC: Developing Local Extension Capacity.

MacNairn, I. (in press). *Guinea: Desk study of extension and advisory services.* Washington, DC: Developing Local Extension Capacity. Manuscript in preparation.

Moore. A. (2014). *Challenges and opportunities for improving the delivery of agricultural extension services to small-scale farmers in post-conflict Liberia* (Unpublished doctoral dissertation). University of Florida: Gainesville, Florida.

Ragasa, C., J. Mazunda & M. Kadzamira. (2016). *The impact of agricultural extension services in the context of a heavily subsidized input system: The case of Malawi*. IFPRI Discussion Paper 01498. Washington, DC: IFPRI.

Terblanché, S. & K. Davis. (2016). *Scoping study on professionalization issues in extension and advisory services.* Paper presented at the African Higher Education Week and Regional Universities Forum Fifth Biennial Conference 2016, Cape Town, South Africa, 17-21 October 2016.

Valenzuela, M. A. B., D. Saavedra, & K. Davis. (2017). *Honduras: In-depth assessment of extension and advisory services*. Washington, DC: Developing Local Extension Capacity.

Williams, R. J. (2016). *Honduras: Landscape analysis.* Integrating Gender and Nutrition within Extension and Advisory Services" (INGENAES). University of Florida: INGENAES.

Zerfu, E. (2017). *Ethiopia extension and advisory services stakeholder mapping matrix.* Manuscript in preparation. Washington, DC: Developing Local Extension Capacity.