

## Mainstreaming Knowledge Management and Sharing to Support Organizational Learning and Increase the Impact of Agricultural Research for Development

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Making agriculture more competitive, resilient, and sustainable in developing countries requires continuous sharing of research processes and outcomes between farmers, development experts, scientists, and policymakers, among others. In recent years, new opportunities have emerged for research organizations to adopt innovative practices that foster knowledge management and sharing (referred to subsequently as KM) both internally and within their networks. This policy brief summarizes 10 years of experience with KM in CIAT and CGIAR, with particular emphasis on options for mainstreaming KM in research for development. The document is intended for professionals and management teams interested in a comprehensive KM approach for their organizations and networks.

### Key Messages

- The experience of CGIAR – and of CIAT in particular – shows that there is much to be gained by incorporating KM into agricultural research for development, both in terms of organizational learning and increased impact.
- Mainstreaming KM practices in the work of agricultural research organizations is consistent with other necessary changes in organizational culture, such as an increasing commitment to horizontal forms of management and multi-sector partnerships, the creation of incentives that foster teamwork and a culture of learning and innovation, and institutional policies designed to heighten the development impact of research.
- Participatory monitoring and evaluation methods and tools should be used, because they set indicators for measuring the evolution of knowledge, attitudes, and skills among the users of research results.
- As research organizations become more involved in multi-stakeholder platforms that facilitate interaction and promote learning for change, they must broaden staff skills in areas such as facilitation, mentoring, networking, and social media.

### The parallel evolution of research for development and KM

As research for development has evolved over the past 3 decades, scientists and administrators have searched for new and better ways to reach end-users, including researchers, extension workers, and farmers.

Much standard practice follows a “pipeline” approach, in which ready-made technologies are delivered to extension agents for adoption by presumably grateful farmers. In reality, however, farmers are reluctant to blindly take up new technologies that do not necessarily apply to their real-life conditions. When they do adopt new technologies, they tend to make adjustments to suit their circumstances, a process which is, unfortunately, rarely documented.

Starting in the 1970s, social scientists began to experiment with an alternative – participatory research that emphasizes farmers’ needs as the entry point for a joint research process. Over

the years, many more approaches aimed at bridging the gaps between research and development were designed and tested to address an increasingly complex and ambitious research-for-development agenda. The idea was, and still is, that learning cycles, which continuously confront primary information from the field with user experience and collective reflection on lessons learned, will lead to appropriate decisions and actions by a wide range of stakeholders, from policymakers to farmers.

In a similar manner, KM has shifted from being a managerial and technology-driven discipline limited by organizational boundaries to one that centers on learning by doing in networks and gives importance to tacit and experimental knowledge. The management of knowledge is ideally no longer a top-down process but rather a participatory activity, in which the organization’s role is to empower staff, learn together, and enable leaders

to make well-informed decisions that give rise to social progress.

The challenge now is to put into place the institutional arrangements and strengthen the internal capacities needed to ensure that agricultural research organizations can take full advantage of KM practices and tools as a fundamental contribution to development. Particularly for the CGIAR Consortium, such changes are urgent and important as member centers and their partners come to grips with the institutional challenges of working effectively together to achieve development impact through 16 major new research programs.<sup>1</sup>

### The opportunities

KM principles, methods, and tools are available to support collective action and learning. Applying them to research for development will not only create a more positive research environment but also enhance impact, resulting in tangible benefits for the rural poor.

### Organizational web strategy

The Internet is an incredibly powerful tool for promoting interaction and learning about research processes and products. Once audiences and high-priority information products have been defined, an effective organizational web strategy should be developed that includes the elements described below.

**Online scientific discussion and content creation.** CGIAR has experimented with blogs for more than 8 years. They complement corporate information on the web, reaching out specifically to stakeholders involved or interested in particular research activities. Crowdsourcing – a model for distributed problem solving, which involves gathering dispersed knowledge – could reinvent peer

review, opening up previously unimagined possibilities for agricultural research and innovation.

**Dissemination of information through diverse media.** Using a mix of media channels (e.g., photos on Flickr, PowerPoint presentations on Slideshare, etc.) enhances access to information and increases the possibilities for users to find it through search engines.

**Sharing ongoing research.** A wide variety of materials (such as photos, testimonials, documentation of research processes, trip reports, and live reporting on events) can be used to support multi-stakeholder research for development. These provide highly engaging electronic windows onto ongoing research.

### Open access

Open access to research outputs is critical and requires supportive

institutional policies and incentives to assure consistency in:

- Creative Commons licensing. This offers simple alternatives to traditional copyright, which enable users to adapt and re-use information, thus creating the basic conditions needed for knowledge to travel from one user to another.
- Collecting, preserving, and making available research products, such as articles, presentations, discussion papers, and manuals (e.g., through digitization of older outputs and the use of digital repositories).
- Ensuring accessibility on the Internet (e.g., through “self-archiving,” which allows for publishing a preprint or postprint of scientific papers submitted for publication in peer-reviewed journals or conference and workshop proceedings).
- Providing adequate technical infrastructure and broadband Internet access.

## The power of social media: Improving organizational impact and reach

Over the past 5 years, new KM tools and methods have vastly broadened the horizons of research communications. Today, social media provide endless possibilities for stakeholder engagement.

Among the most popular channels are Wikipedia (24 million articles), YouTube (60 hours of video uploaded per minute), Twitter (250 million tweets posted per day), Facebook (1 billion active users), and WordPress (over 1 million blog posts daily). These figures indicate the potential of such tools for engaging users on almost any issue or activity as well as for extending the reach of research. To exploit the power of social media, organizations must continuously cultivate relationships and networks. This will involve:

- Giving staff broad access to social media channels and fostering their use for professional purposes.
- Actively posting and replying to comments.
- Using information technologies, such as search engine optimization tools.
- Combining social media with traditional approaches, such as radio, newspapers, and conferences.
- Initiating high-level discussions with user communities, with the aim of opening dialogue instead of trying to sell an organization or product.

1. More information on CGIAR Research Programs at: [www.cgiar.org/our-research/cgiar-research-programs/](http://www.cgiar.org/our-research/cgiar-research-programs/)

## Data management

CIAT and CGIAR recognize that research organizations must be able to access and share high-quality data that can be used in different ways (e.g., to inform future research). Even so, the creation and management of data do not receive enough attention.

Clear data management policies are needed that define standards and provide guidance for access, storage, preservation, sharing (both internally and externally), and exchange of research-related data. The policy needs to distinguish between different types of data, such as phenotypic, socio-economic, and spatial data. Organizations should encourage an information-sharing culture, providing incentives and recognizing the time and expertise needed to curate, update, and upload data as well as to develop related publications.

## Research collaboration

When researchers work in multi-disciplinary global partnerships, they can tackle research questions from multiple perspectives with input from diverse stakeholders. To make this happen requires a change in individual work habits.

Online collaborative practices and tools, such as Google applications and wikis, can be used to share ongoing work, encourage regular feedback, and improve the use and re-use of information as well as to create and facilitate online communities. The adoption of collaborative online tools requires patience and careful facilitation.

One major constraint is participants' reluctance to give up control over content and to trust that colleagues will make a positive contribution to their work. Additional benefits of applying those online collaborative practices and tools include staff empowerment and increased transparency, all of which contribute to organizational development and change.

## Information technologies for development

The potential uses of new information technologies (IT) in agriculture are virtually limitless, including, for example, the use of laser/GPS for land leveling or satellite information to predict crop growth.

Mobile phones can provide smallholder farmers with inexpensive access to



Neil Palmer

critical information, including market intelligence and financial, land use, risk management, and advisory services, all of which can help make agriculture more productive and competitive. The approach must be based on knowledge exchange rather than one-way information diffusion or collection. Strategies must be developed to include different user groups (e.g., based on gender), and generational issues must be addressed.

In order for projects involving information technologies to be successful, they must focus on the context, audiences, and relevance of content, and then identify the best IT solutions. This requires a shift in the orientation of IT personnel away from

## Policy Recommendations

As agricultural research organizations begin to mainstream KM in their work, they must first examine how it can support the organization's strategy and value proposition. Then, they should consider organizational arrangements that may be necessary regarding internal capacities, policies, administrative processes, and incentive structures, among others. Separate and isolated interventions in KM often need to be combined in a comprehensive strategy. The following steps are particularly necessary:

- Making clear organizational statements, policies, and commitments to deliver results in terms of development.
- Increasing emphasis on organizational arrangements and incentives to support networking structures for effective multi-disciplinary collaboration.
- Strengthening the feedback loop from the next and end users to researchers by expanding M&E to encompass both accountability and learning.
- Shifting the orientation of IT personnel towards helping users choose the best technologies to foster knowledge sharing.
- Building capacity to provide communications and research staff with the skills they need to incorporate KM tools and methods into their work.

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technology control towards technology stewardship aimed at helping users choose the most suitable arrangements, including those needed to foster KM.

### The importance of face-to-face interaction

Face-to-face meetings are essential for enabling partner organizations and peers to plan and review their work. Nevertheless, the high cost of conventional meetings, in terms of travel expense and staff time, could outweigh their benefits.

One alternative is to move from traditional presentations and plenary discussions to a more dynamic and participatory approach. Highly interactive meetings are important for establishing the trust that is needed for virtual collaboration and communication. Special attention should be given to the design of meetings and workshops and to the crucial role of group facilitation.

### Reaching users through participatory monitoring and evaluation

Participatory approaches to monitoring and evaluation (M&E) focus on outcomes and learning parameters that allow stakeholders to share control over content, processes, and results. Such approaches measure the effectiveness

of a project, build ownership, and promote accountability at various levels.

M&E tools and methods are essential for KM, because they set indicators for measuring the evolution of knowledge, attitudes, and skills among the users of research. The emphasis on evaluation for learning can be accomplished by encouraging people to share best practices and lessons learned, by showing appreciation for attempts at reflection, by drawing from multiple sources and perspectives, and by constructively assessing past mistakes and missed opportunities.

### Further reading

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