Knowledge Management in Agricultural Research in the CGIAR and CIAT: lessons learnt and Future Opportunities

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Knowledge Management and Capacity Strengthening

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Experiences with different aspects of:
1. Knowledge Management
2. Social Learning
A consortium of 15 research centers.

CGIAR research is dedicated to reducing rural poverty, increasing food security, improving human health and nutrition, and ensuring more sustainable management of natural resources.
• We believe eco-efficient agriculture—developing sustainable methods of food production—is the best way to eradicate hunger and improve livelihoods in the region.
• Headquarters in Cali, Colombia, regional offices in Africa and Asia.
• 650 staff worldwide.
New Technological Challenges – New Institutional Arrangements

• Today’s agricultural research systems are complex, multi-actor containing sub-systems. Linear approaches are obsolete.

• In today’s systems, research is not the only source of innovation.

• The green revolution was centered on the research offer. Today’s agricultural research systems are increasingly demand driven and grounded in the application of knowledge, hence innovation focused.
“Rather than assuming that knowledge is the property of management and the workers are the implementers of this knowledge [my approach to KM] assumes that knowledge is the property of the practitioners, and the role of management is to make it possible for practitioners to act as managers of their knowledge” Etienne Wenger
Aspects of Knowledge Management

- Face-to-Face interaction
- Monitoring and Evaluation
- ICTs
- Research Collaboration
- Open Access
- Data Management
Face-to-Face Interaction

• Face-to-face meetings are essential for enabling partner organizations and peers to plan and review their work.

• In fact, highly interactive meetings are important for establishing the trust base that is needed for virtual collaboration and communication.

• Special attention should be given to the design of meetings and the crucial role of group facilitation.
Research Collaboration

• Working in multi-disciplinary global partnerships allows tackling a research question from multiple perspectives and with the input from stakeholders working in many disciplines.

• To make this happen effectively it requires a change in individual work habits. Online collaborative practices and tools, such as Google applications and wikis, can be used to share work in progress, encourage regular feedback and improve the use and reuse of information as well as to create and facilitate online communities.

• The adoption of collaborative online tools requires patience and careful facilitation. A major obstacle is the reluctance of participants to give up control over content and to trust the capacity of colleagues to make a positive contribution to their work.

• Additional benefits of research collaboration include staff empowerment, increased transparency and stronger internal capacity, all of which contribute to organizational development and change.
Open Access

- Open access to research outputs is critical and requires supportive institutional policies and incentives to assure consistency.

- Collecting and preserving, under Creative Commons licensing when possible, research products, such as articles, presentations, discussion papers, 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);

- The effectiveness of the technical infrastructure and broadband Internet access.
Data Management

• CGIAR needs access to data but also has the institutional imperative of having to provide access to the data it collects. As it is, not enough attention is given to the creation and management of data.

• Among the issues to be resolved is the need for a clear data management policy that defines standards and provides guidance for access, storage, preservation, sharing (both internally and externally) and exchange of the data associated with research.

• 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 needed to curate, update and upload data as well as for delivering related publications.
Information Technologies

• Virtually limitless potential: Market information and financial services, land administration and risk management, advisory services. Other ICT tools: Laser/GPS based land leveling, satellite information to predict crop growth, cheap sensors from soil moisture to weather.

• The approach must be based on knowledge exchange rather than one-way information diffusion or collection. Strategies must be developed to include different users groups e.g. gender and generational issues must be addressed.

• Projects must focus more on the context and relevance of content than on IT infrastructure and access to hardware. This requires a shift in the orientation of IT personnel away from technology control and towards technology stewardship aimed at helping users choose the best solutions.
Monitoring and Evaluation

• Monitoring and evaluation help to improve decisions about policies, programs and organizations. They also provide crucial support for the learning that can enhance adaptive capacity.

• Participatory approaches to monitoring and evaluation allow stakeholders to share control over content, processes and results with the goal of identifying remedial actions. Such approaches measure the effectiveness of a project, build ownership and promote accountability at various levels.

• Monitoring and evaluation provide key tools and methods for knowledge management 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 or lost opportunities.
Recommendations

1. Clear organizational statements, policies and commitments to deliver results in terms of development;

2. An increased emphasis on organizational arrangements and incentives that support networking structures for effective multi-disciplinary collaboration;

3. Strengthening the feedback loop from the experience in the field to the researchers, through the expansion of monitoring and evaluation to encompass both accountability and learning;

4. A shift in the orientation of IT personnel towards helping users choose the best technologies, including those needed to foster knowledge sharing;

5. Build capacity so that the communications and research staff will have the necessary skills to incorporate knowledge sharing tools and methods described above into their work.
Aspects of Social Learning

Participation

Complex Adaptive Systems
Public Private Partnerships
Systemic Focus

Reaching End Users
Extension versus Learning
Participation: Participatory Plant Breeding

- Conservation of varieties
- Producers and breeders collaborate in genetic improvement. The farmer can change the undesired traits of the local varieties
- Increases productivity and facilitates adoption
- Includes gender focus
Reaching End Users: Seed Systems in African

- Regional bean research alliance with focus on seed delivery to small producers
- Action research
- Collaboration in planning, implementation, documentation, training

Example of a network map, not related to PABRA
Extension versus Learning: Learning Alliances in Central America

- Consortium of organizations
- Development of shared learning processes between development agents, researchers, public sector and cooperation agents
- Contribute to a sustainable and inclusive rural business
- Contribute to the design of appropriate development policies and to demand driven research and practice.
Systemic Focus: Site-Specific Agriculture

- Share successes and failures among fruit producers to increase productivity.
- Three principles: Data management cultures, collective knowledge, use of technologies.
Public-Private Partnerships: FLAR

- Association of rice producers, milling and seed companies and national public research programs.
- Technology solutions according to the needs of producers and industry to improve irrigated rice production in Latin America.
- Supported by the contribution of its member states according to their yearly rice production.
Experiential learner

Sense-making

Draw conclusions

Experience

Action

Experiential learner

Sense-making

Sense-making

Experience

Action

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Activities of a project carried out in a certain environment, with resources coming from outside

Complex Adaptive Systems: Participatory Impact Pathway Approach

Emergent properties:
- Changes in KAS
- Changes in practices
- Scaling out and up
- Impact

OTHER ACTORS

• Changes in KAS
• Changes in practices
• Scaling out and up
• Impact
CIAT: Ciencia para Impacto

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