Principles of effective collaboration in agricultural development and research for impact

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Introduction

Over the last 20 years the authors have been involved in collaborative research projects in Africa, where we have gained valuable experience and knowledge in effective collaboration in agricultural development and research for impact. We have effectively collaborated with more than 100 institutions globally, regionally, and nationally on different research projects. Effective collaboration has been the key to our success, and we have followed the principals below to maximize impact for smallholder farmers, an analogy of different birds flying to a common goal in a 'V' formation is a good example (Figure 1). Figure 1 is a visual representation of teamwork and collaboration. These different bird species fly together to a certain destination with a common goal such as looking for food or settlement. They fly in a v-formation and are using powerful instincts. In the front there is a bird who has a vision and can see the final destination- representing a visionary leader. The other birds are arranged in such a way to that when they flap their wings, they are pushing the team forward. At the end of the day they reach their final destination or the goal, with less energy than flying alone. These birds are not of the same species- diversity is key. Each species in the group brings different skills, strengths to the team. For example, the tiny humming bird has little flapping power, but they can negotiate quick divergences. The big birds have bigger wings and play a different role. In a research team there are members that are good in data collection and not at writing and they should not be excluded. A research team needs a diverse set of skills, like the bird's species in this photo, to move forward for maximum impact. Each person plays a key role to success and should feel valued.

We would like to share the experiences we have gained in the course of designing and implementing global partnerships, that have been key to building effective collaboration for impact in smallholder agriculture in sub-Saharan Africa. We describe here what we term as 'principals of effective collaboration' and list guidelines to capturing agricultural research project impacts.

Principles of effective collaboration

1. ***If you can do it alone there is no need to collaborate.*** Collaboration allows people and institutions to achieve benefits that could have not been achieved alone. For example, one institution has glasshouses and sequencing and others have bioinformatics facility. Define each institutions and team members role.
2. ***Mutual benefit***. Collaboration should benefit equally all parties involved. Collaboration that is aimed at benefitting only one partner are unhealthy.
3. ***Allow for dialogue***. In collaboration, people must be open to diverse views and listen to all the partners. This allows one to address concerns and work through them effectively. Dialogue allows one partner to understand the other more effectively. Questions to ask your partners before engaging into collaboration may include: What is your existing institutional capacity? What are the institution arrangements? What are your institutional needs? Do you have internet? Do you have accountants? Do you need additional training? What are the policies? What is the procurement process? All of this information can be obtained through effective dialogue.
4. ***A two-way process***. How do we communicate? You should not only give instructions – you must listen to your partners. Shifting perceptions builds trust amongst the team.

5. ***Transparency*.** All partners need to have access to budgets, drafts of proposals, communication with funders, manuscript drafts, all information. Nobody in the project is more important than the other. All partners have something to bring and transparency prevents undermining and distrust. High transparency increases commitment to achieving project goals.
6. ***Effective communication***. People need to know how to communicate in the team. When partners have something to share, they must be allowed to air their opinion with no judgements. Challenges need to be communicated. If you don't communicate, how will people know you are facing challenges? How people prefer to communicate should also be agreed upon at the start of the project.
7. ***Understanding diversity among partners***. Respect the expertise and background of partners. For example, someone may be good at writing and not data collection. Cultural diversity is appreciated and creates a very comprehensive team.
8. ***Shared vision and project goals*** should be made available and clear to all the partners and key stakeholders at the very beginning of the project.

If these things are followed: mutual respect, mutual benefit for maximum impact for all.

Guidelines to capturing agricultural research project impacts

Often agricultural research scientists tend to equate project impact to completion of planned project activities. However, project impact is beyond that and should always have farmers such as Pamela from Tanzania (Figure 2) as the primary measure of impact. It is looking at direct and indirect changes/outcomes resulting from the project interventions. Below are some key guideline questions to help in obtaining project impact that are often ignored.

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No	Question	Explanations
1	How many farmers have benefited directly or indirect from the project?	Need to capture all the benefits to farmers in terms of access to technologies and materials such as improved materials etc
2	What benefits have resulted from infrastructural capacity brought by the project?	Here if the project brought infrastructure to the research institutes such as laboratories, greenhouses etc such that students and other researchers are using them to conduct their research instead of going abroad to do so, you must capture this.
3	How many students and other people have been trained by the project?	Projects often come with capacity building and strengthening activities in terms of short and long-term trainings such that the project contribute to human capacity building and must be captured.
4	How about institutional visibility?	Projects bring about visibility to institutions hosting them. They must be documented.
5	Are there new collaborative projects that have resulted from the initial project?	Many times, a single successful project at a research institute may bring about new collaborative project and must be captured.
6	Has the project brought about increase in crop yield, income and food security to farmers?	Capture all changes in terms of crop yield, income and food security as a result of project intervention by comparing the situation before the project (baseline data) and after.
7	Are other projects/NGOs/people using information generated by your projects?	The project generates information that can be used by other projects, NGOs and other people. Such information could include disease prevalent maps that can be used by decision makers and must be captured.
8	How has your government benefited from your project?	How has your project benefitted your government? Eg government extension officers benefited etc
9	What publications have come out of the project results?	Here we would like to capture and document all publications (scientific papers, communication and training materials, leaflets, posters) resulting from the project.
10	How many conferences/workshops and meetings have the project staff attended during the project implementation?	Here you need to document all the meetings, conferences and workshops which the project staff attended to disseminate project results as well as to learn from others.
11	How many new stakeholders have been engaged because of your project implementation?	Capture all the list of new key stakeholders you have interacted with during the project and outcomes of the interactions.

12	How many people have been inspired by the project?	Often projects may lead to inspiration of other people to undertake a similar project to solve a similar or another problem in another areas or object or to write new grant winning proposals.
13	Has the project played an advocacy role during its implementation?	Implementing the research project may play an advocacy role to policy makers. Examples could be change in government regulations, more funding from the government, change in government perception and the way it conducts its business etc
14	How have vulnerable groups benefited from your project?	Capture all benefits resulting from the project to vulnerable groups such as youth, women, orphans etc
15	Has your project resulted into initiation of new businesses among your key stakeholders?	From incomes generated by your key project stakeholders has it led to establishment of new businesses and which are they? Need to capture this.
16	How has the project supported other projects?	A project built around one discipline could have supported other projects in other disciplines and should be captured. For example, plant pathology project supporting plant breeders project.
17	Has there been a change in farmers perception and mind set because of your project implementation?	By farmers participating in your project this may have led to a change in their perception and mind set such as perceiving cultivating a certain crop as a cash crop instead of perceiving it only a food crop.
18	How have other institutions apart from the one hosting the project benefitted from the project?	Capture all the research institutes such as universities, and other research instructions that have benefitted from the project and state how they have benefitted.
19	Has your project contributed to minimizing brain drains?	Projects motivate scientists to stay in the continent and make impact. This needs to be captured.
20	How many new research tools, methods, and protocols have been generated from your project?	Document all new research tools, methods and protocols that have resulted from the project.

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Figure 1. Visual representation of teamwork and collaboration. Photo credit: https://www.pinterest.com/pin/336433034646183278

Figure 2. Pamela (closest to the cassava tubers), a cassava grower in Mara region of Tanzania who used to obtain less than 5 tonnes/hectare cassava yield because of cassava diseases (cassava mosaic and cassava brown streak diseases). Due to effective collaboration, she is now getting over 30 tonnes/hectare from improved cassava material from researchers. Through regional cassava disease diagnostic project jointly funded by the Bill & Melinda Gates Foundation (BMGF) and Department of International Development- UK (DFID).