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Collaborating, learning, and adapting (CLA) have long been a part of USAID's work. USAID staff and implementing partners have always sought ways to better understand the development process and USAID's contribution to it, to collaborate in order to speed and deepen results, to share the successes and lessons of USAID's initiatives, and to institute improvements to programs and operations. Through this case competition, USAID and its LEARN mechanism seek to capture and share the stories of those efforts. To learn more about the CLA Case Competition,

# Towards a Productive Collaboration in Research and Implementation of Climate-Smart Conservation Agriculture in Sierra Leone

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### Summary

The case study examines the research support by Cornell University to CARE Sierra Leone's work as an implementing partner to the USAID-funded, United States Forest Service (USFS)-managed STEWARD project in Guinea and Sierra Leone. The project is primarily a forest conservation and natural resource management project with associated villager livelihood components. The proposal called for Cornell University to support and technically backstop CARE's work on conservation agriculture as part of the improved livelihood and climate change adaptation component. Neither the CARE – Cornell University partnership nor the STEWARD project explicitly intended or was required by USAID to utilize a CLA approach. Despite the quickly emergent efforts to feed research into the development agenda, both the partnership and the project would have benefitted from a formal integration of the CLA approach into the project.

The case study examines how shortcomings to understand and to accommodate the differing work of Cornell, CARE, and the donor led to missed opportunities. Had a CLA approach been utilized more formally, it would have suppressed the linear mandates of the project document and requirements placed upon implementers and potentially incorporated the research more fully into iterative and adaptive project management.

The case study discusses the different elements that agricultural research brings to a project as well as its challenges to meet milestones set out at the beginning of a project. CLA, in our opinion, is not a project management tool, which placed upon conventional implementation timelines and budgets, automatically produces success. Rather, in order to integrate agricultural research into a development project USAID must stipulate utilization of CLA in combination with expanded time frames, spatial relevance, and budgets.

**What is the general context in which the story takes place?**



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The STEWARD project is implemented by the United States Forest Service (USFS) and funded by USAID in West Africa. CARE Sierra Leone (CARE SL) is one of the implementing partners of STEWARD operating on the border of Guinea and Sierra Leone in an area designated PZ1. Cornell University obtained a subcontract to work with CARE to technically back-stop the project on conservation agriculture (CA) as a methodology to enhance resilience of the farming system in the face of climate change and to increase carbon sequestration. Neither CARE USA nor Cornell used the term collaborating, learning, and adapting (CLA), but the basic framework has elements of a CLA approach.

Susu people, exclusively swidden farmers, and Fula people, predominantly semi-nomadic pastoralists, make up the population of the project area. Both peoples utilize and affect the forest types in different ways. The Susu use a swidden system with a maximum of 2-year cropping cycles. For Susu, the forest biomass supplies key nutrients for their crops from ash after burning. The Susu know that without adequate fallow periods they could not produce sufficient yields. For the Fula, the forest is a resource to be cut and burnt to allow a grass cover to be maintained so that their cattle have adequate forage through the year. These dueling priorities affect natural resource management and potential agriculture improvements.

### **What was the main challenge/opportunity you were addressing with this CLA approach or activity?**

The main development challenge was to examine the oft-mentioned and researched problem of how to maintain soil fertility for sufficient crop yields (and enhance carbon sequestration) in a swidden system while potentially reducing forest loss in either space or time. The goal of sequestering carbon was one of the main indicators mandated by USAID and is one of Cornell's major lines of research work.

At the proposal stage of the process, the main motivation for involving Cornell University was that the CARE USA's then Director of Agriculture and Natural Resources suggested that Cornell's input would insure that any CA effects were quantifiably validated and strengthened by ongoing involvement and feedback. When fieldwork commenced, it was readily apparent that despite the expectations in the proposal, the farming systems between previous projects and the current one were too different to just apply knowledge from other areas of Sierra Leone. Completely new knowledge had to be generated and tested, and then adapted to the particular agroecological environment. The tested version of CA in Koinadugu was built on three principles: (1) no burning of biomass to maintain soil cover, (2) rotation or intercropping relays in time or space of grain crops with legumes, and (3) no tillage. The Susu system of relying on long fallows with the resulting significant amounts of biomass generated meant that a "no-burning" proviso was not feasible or desirable from a villager's viewpoint. Furthermore, the Susu livelihood system relies on upland rice, unlike the previous area of CARE Sierra Leone's CA work, where corn predominated. The much tighter spacing of the smaller rice plant does not allow for intercropping relays.

The program structure did not allow for the need to first assess the situation beyond a brief survey. Expectations of technical experts, the implementation agency, and the donor initially diverged widely on how to achieve project success and what a metric for such a success may be. After an in-depth assessment, the Cornell experts felt that information about the situation and about possible solutions had to be gathered well before any implementation and dissemination. Given the need to develop information over several crop growth cycles, the planned dissemination efforts were out of sync. Effort prioritization was also different between the different agencies. The research group prioritized the gain of transferrable knowledge, the implementation agency whether the knowledge was working or not, and the donor agency whether it was implemented to the target audience at the projected scale.

### **Describe the CLA approach or activity employed.**

The project did not commence with a stated CLA approach, let alone familiarity with the term. The expectations to meet the projected milestones at given times stated in the proposal did not accommodate a CLA approach that would fully capitalize on learning needed to adapt to the particular situation in the project area. The need for learning and adaptation only became clear after a considerable effort in mapping the agricultural systems and



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analyzing biophysical conditions. The lessons learned from a project in an adjacent region was not a sufficient enough basis to adapt to the new region.

Therefore, it quickly became clear that an approach similar to CLA was required, through use of the quantitative capabilities that the Cornell partners brought and combining these with the network of farmers that CARE had access to. The approach tried to bring the different actors together to use high-quality evidence to improve development outcomes, rather than spending most of the effort dealing with the tension over different priorities. This approach incorporated 5 major components:

- Having research run concurrently with project activities: We therefore adapted the work plan to have the Cornell graduate student carry out two aspects of his applied research incorporating the original CA in both researcher-managed fields and within farmer field schools.
- Involving researchers, implementing staff, and beneficiaries in the research process: By the project's midpoint, Cornell and CARE had reached an implicit collaborative approach wherein several of the CARE staff and villagers worked with the Cornell researcher in implementing two large field experiments.
- Sharing results with all stakeholders in the project: The Cornell researcher presented the results to his coworkers and gave two practical trainings for CARE project staff and later for villagers. CARE assisted with small trials of the basic elements of the research on soil fertility improvement. This was possible at the project field-level because of good relations between the Cornell researcher and project staff leaders. These efforts have been ongoing throughout the last two-and-a-half years of the project.
- Spread research results to other projects: It should be noted that there were significant and important opportunities for CLA and project impact beyond the Cornell/CARE partnership. Bioclimate, an implementing partner with expertise in GIS and Payment for Ecosystem Services (PES), collected important information on forest type and above ground carbon storage to provide documentation for the PES model. Combining the Cornell data with the Bioclimate data and villager information could have documented a model of enhanced carbon sequestration and land management across the landscape, including forested and agricultural land use. This could be a model for other such projects, particularly those that address how people sustain livelihoods while safeguarding or enhancing natural resource management.

### **Were there any special considerations during implementation (e.g., necessary resources or enabling factors)?**

There was a veritable panoply of “special considerations” during implementation. These considerations involved implementation challenges, skills, resources (financial and non-financial), and divergent expectations of project success in the light of shifting circumstances across the partnership-donor sectors.

First, the project location (particularly in Sierra Leone) presented challenges to implementation. Sierra Leone's relatively recent history of brutal civil war and dysfunctional government are the antithesis of an enabling environment. The project site was based in one of the poorest areas in Sierra Leone with the lowest population density (attributed to, prior to the civil war, severe endemic diseases). The project site was remote and access became more troublesome over the course of the project.

Second, the Ebola epidemic profoundly affected both Sierra Leone and Guinea, causing the USFS to suspend all fieldwork for six months. Project work was affected at all levels as a result. The USFS cut Cornell's budget by 20 percent in response to the Ebola crisis. For an already extremely small budget, this was devastating and not supportive of the project and the population that it set out to serve. An increase in budget and performance period would have been more in tune with CLA.

Third, the project lacked staff skilled in Participatory Rural Assessment (PRA) and Participatory Research that would have informed implementation.

Fourth, the project was poorly connected to other projects in the STEWARD program. The STEWARD program had six implementing partners with responsibilities related to one or both of the two priority zones. This project structure meant that in the first two years, there were as many as five PRA-type activities going on by different



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partners in one zone, some of them well after project implementation. The lack of survey development skills and duplication of efforts meant that there was not an information base for the project workers or subcontractors to draw upon. Arguably, had this existed, it would have been neglected in favor of the dictates of the project proposal and log frame.

Fifth, the research partner, Cornell, required more time to generate quantitative data and recommendations than was expected by the implementation partners. This led to frustration on all sides and parallel efforts that did not build on each other.

Sixth, high turnover in implementing staff and leadership made it hard to achieve consistency and buy-in to change the project approach in the spirit of CLA. Disagreements about the rigor and applicability of M&E systems, and how to use evidence for adapting project activities, led to less interaction between project partners and parallel efforts. The milestones did not allow any formalized CLA type framework.

### **What have been the outcomes, results, or impacts of the activity or approach to date?**

The project staff was able to prioritize running research and learning in sync with other project activities to produce data, and to incorporate new data into trainings and dissemination for farmers in the area, as well as beyond the project. Sharing information and developing joint action plans helped solve some of the problems. This did require coming to an understanding about using implementing staff to support research priorities.

The outcome to date, with the 2015 field season yet to be completed, is that we established two field experiments which have produced interesting results over two cropping seasons (2014 and 2015). In one trial, we obtained yield increases in peanuts of 30 to 50 percent over farmer practice. These research results motivated project leadership to prioritize these activities to allow their completion as much as possible within the confines of the project. These results cannot be fed into implementation within the same project due to a restricted time frame.

At the same time, the research results have spilled over to adoption at a local scale. This year, several of the villagers who worked closely with the researcher started their own small trials using biochar as a soil amendment in peanut. Moreover, there is interest and knowledge by staff members of the project who will surely go on to work in other projects. One of the senior field staff intends to incorporate biochar into his field experiments for his Master's degree. In addition, the Cornell graduate student researcher is advising the senior field coordinator and staff based in Guinea in areas of focus for their officially registered and approved NGO. We hope to continue the field experiment with peanut established in Guinea and scale up with an increased number of simplified experiments in a number of areas in the region.

### **What were the most important lessons learned?**

First, research agencies (in this case Cornell) must plan their activities so that they can be completed within the time frame of the project and deliver usable information for implementation. Research needs to be both timely and actionable in order to advance the development agenda, especially in the scope of one project. This may require clearly laying out correct expectations of what can be achieved (time and scope).

Second, development funding agencies (and NGOs) must understand how the research process works, the time frame involved, and the expenses incurred. Research needs **time** (at least two cropping seasons of high-quality data) and, given the rigor involved, focuses on relatively small **spaces**, but works in great **depth/intensity** in fewer locations to understand why a certain intervention works or fails. This profound focus allows research to have potentially regional or international reach, despite its spatial limitation, because the knowledge allows adapting interventions to accommodate local situations (biophysical as well as socioeconomic). Proper documentation that allows CLA takes a lot more time and resources than are typically perceived as necessary.

Third, project implementation requirements from both donors and implementers prioritize high impacts for **large numbers of beneficiaries** in relatively **short timeframes**. This is fundamentally out of sync with research



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demands for high amounts of time, resources, and intensity to get to credible evidence that can deliver the benefits. It is difficult to measure the return on investment for these competing needs without prior agreement from all parties on what gets measured, how, and to what depth.

Fourth, more emphasis should be placed on the extent and credibility of knowledge that can be transferred to other locations (**space**) and to succeeding projects (**time**). This includes a strong focus on making research both timely and actionable for implementers and farmers on the ground. CLA can help in the discovery process and the interaction between development and research efforts.

### **Is there any other critical information you would like to share?**

There are important lessons to be learned from this project if theoretical presentations of how scientific research can fit into a CLA scenario to support development projects are to move beyond theory and achieve impact.

Delivery of a development project is often seen as linear, wherein conducting all activities stipulated in the proposal would produce a series of successes that occur at a prescribed pace and with foresight. For some aspects of development, the various actors may be successful. However, in the field of natural resource management and agricultural development in situations such as in Sierra Leone or Guinea, this is only rarely possible. There is not only a high degree of coordination needed to iteratively adapt the approaches, but also to accommodate the vastly different time scales and levels of information in science and development approaches that are constantly shifting and require real-time interaction and willingness to learn.