"Evaluation of the PEARL Project- Partnership for Enhancing Agriculture in Rwanda through Linkages (PEARL); A Collaboration of Michigan State University, The National University of Rwanda and Texas A&M University to Improve Agriculture and Rural Life in Rwanda"

Dr. John M. O'Sullivan
Farm Management & Marketing Specialist
Cooperative Extension Program
North Carolina A&T State University
P.O. Box 21928
Greensboro, NC 27420
johno@ncat.edu
Tel (336) 334-7957
Fax (336) 334-7432

Abstract

The PEARL Project was established through funding from USAID in 2000 to assist the Government of Rwanda to rebuild the Agriculture School in the National University (UNR) and to bring about changes in the curriculum and work of the school faculty so that they become more relevant to the needs of the rural citizens of Rwanda. MSU and TAMU are the lead American institutions of higher learning in this USAID project. They have provided technical assistance to the National University of Rwanda to revise the curriculum, partner with in-country institutions and develop demonstration sites and market outlets for agricultural products. They also provided masters level training for sixteen faculty members who are completing studies in the US. Four years into the project and facing the need to write a new project plan, they asked for assistance with an evaluation of the project up to that point. This paper describes the development of that evaluation and lessons learned in evaluating a complex international agricultural development project.

Introduction

Rwanda is the most densely populated country in Africa. It has 7.8 million people in a less than 27,000 square kilometers (roughly the size of the state of Maryland, USA). The population is spread across the entire country so that almost every hill and valley is covered with farm homesteads spread in a dispersed pattern of rural living. The country is very hilly, with major lakes along the western boundary. In spite of the fact that it is nearly on the equator, the climate over much of the country is quite temperate because, except for the east, nearly all of it is over 1500 meters above sea level.

The place now known as Rwanda was made a German colony in 1884 at the Berlin Conference. During World War I, it was occupied by the Belgians and became a League of Nations Mandate administered by Belgium at the end of the War. In 1960 it became an independent country. Since 1959 it has been torn by ethnic and political unrest as two groups, the Hutu and Tutsi vied for power. While there are cultural roots for these terms, in fact they are not ethnic or tribal in meaning, as the people share common language, religion, place of dwelling and have intermarried over multiple generations. The terms themselves were codified and given political, cultural, religious and economic meaning in colonial times by the European government and the church.

In 1994, Rwanda experienced an onslaught of genocide as part of the population attempted to exterminate the other part of the population. Estimates of men, women and children killed ranged from 800,000 to one million. The massacres lasted for approximately one hundred days before the military of the RFP under Paul Kagame were able to chase the Interahamwe and millions of their supporters into eastern Zaire (Congo). The human devastation was staggering. The National University, located in Butare, Rwanda was one of the many institutions which experienced the crisis of massacre. Students killed fellow students and faculty. Faculty killed fellow faculty and students. There is a large tomb right in the middle of the campus. Departments and Schools within the University were devoid of faculty and students lost in the killing or having fled with the killers as the RFP army overran the country.

In spite of such horrors, life does go on and people find some way to rebuild their lives .Institutions must be rebuilt to address the issues faced by the living. The National University under a new Rector needed to re-establish itself and, indeed, to reinvent itself to address the needs of rural Rwanda. As part of that effort a proposal was written and then funded by USAID. The project was funded under the name the PEARL Project. The project, the Partnership for Enhancing Agriculture in Rwanda through Linkages (PEARL) was a collaboration of Michigan State University, The National University of Rwanda and Texas A&M University to improve agriculture and rural life in Rwanda. It began in 2000 as a first phase of that effort.

Purpose and Objectives

The purpose of this paper is to describe the steps involved in an evaluation of the PEARL project. Evaluation of any project is a very important component of that project. This project however was just the start-up of a major effort to refocus the work at the national university. For that to succeed, human capital needed to be developed, institutional reform in course work and academic-discipline, focus needed to be designed. Most importantly, the citizens and government of Rwanda needed to see results n the

short term that showed that the commitment of time and resources was worth the while. The evaluation was conducted over a nine-month period, beginning in September 2002. Evaluation is an essential component of all educational efforts. This paper describes the key steps for an evaluation process so that information can be gathered and used in a timely manner.

Theoretical Base

Evaluation is a critical component of any project. There are multiple models of evaluation and multiple schools of thought on how to proceed with evaluation. These range from a view of evaluation which sees it as monitoring the use of inputs or tend to focus on the accounting for use of inputs to approaches that emphasize the voices of ordinarily underserved and ignored program participants as judgment of the worth of programs. Thus there is a range of evaluation from input-accountability to participatory, collaborative and empowerment evaluation.

Evaluation is not the same as social science research in the sense of ordinary research or hypothesis testing. Evaluation is a systematic attempt to understand the value of something. Because the concept of evaluation hinges around the meaning of "value", an evaluation must be conducted carefully and deliberately according to agreed-on standards. An example of these are known as the Guiding Principles for Evaluation. They are available on the website of the American Evaluation Association referred to in the reference list.

Within the field of evaluation there are many different approaches that can be taken to get at the value of a program or product. Some of the approaches are very quantitative and rely on large samples and use surveys to gather data. Others are qualitative and rely on observation, interviews and focus groups to gather data. Data collection and selection of appropriate evaluation models is a function of topic being considered, its size, scope, as well as the desired result in terms of an evaluation use. Some evaluations are used to modify programs or to get feedback about programs as they continue. These are called "formative" evaluations. Others occur at the end of a program to see what was accomplished. These are called "summative" evaluations. Both these terms were coined by Michael Scriven in the mid 1970's. See Fitzpatrick et al. in the references for a complete discussion of the various approaches, models and guidelines.

Given the diversity of approaches to evaluation and indeed, to the sorts of questions that can be asked as evaluation questions, it is entirely logical that there are a variety of evaluation models that have been proposed. For example, Dan Stufflebeam developed a program process evaluation model, known as the CIPP model of evaluation in the early 1970's. It looks at decision points in the planned program process. CIPP stands for "Context, Inputs, Process and Product".

While it was very popular, it came to be criticized because of its exclusive focus on the process at the expense of impacts or results for program participants. Robert Stake, wanting to bring in the participants in a program (both program staff and recipients of the program) developed what came to be known as the "Responsive Evaluation" in which the participants as stakeholders were listened to for results. This approach has since evolved into a Case Study approach. This approach attempted to understand and document the context as a dynamic in which change occurs.

More recently Michael Patton has emphasized the use of the evaluation and hence his approach is called "utilization focused evaluation". David Fetterman (2001) has advocated an empowerment evaluation approach and we, (O'Sullivan & O'Sullivan, 2003) have developed a collaborative evaluation model. Certainly it is frequently a struggle, but a very worthwhile one, to make evaluations be documents that are useful. The collaboration model works toward that end by including key stakeholders in each step of the design, implementation and review of the evaluation so that they see the value of the evaluation as the document is developed.

The point of all this is to emphasize that evaluation is a legitimate field of endeavor with a complete theoretical base. Over time, multiple approaches for evaluation have been developed with proponents and detractors. Evaluation approaches need to fit into the context of the planned use of the evaluation, the expected outcomes of the project and the resources available to conduct the evaluation. In that process it happens, as in this project, that more than one evaluation method is used. In the process, for example one keeps checking to insure that the evaluation is utilization focused, that it maximizes stakeholder involvement and learning, that the context and human dynamics are emphasized, that inputs are identified and monitored, that objectives are met and that a logical model is adhered to.

Methods/ Data Sources
The PEARL Project was a complex project with multiple objectives in terms of human capital development (both in Rwanda and in the US), institutional change (primarily at the UNR), partnerships (involving several specified and non-specified non government groups in Rwanda) and desired impacts in terms of quality of life changes in villages connected with UNR outreach. There were a variety of inputs used (money, training, outside "experts", field demonstrations, curriculum plans, internet access, me etc.) The original project design (the Project Paper), was very clear in the logical model it specified to connect inputs to outputs to expected results. The document also was very clear on the time line that these items would be used or would occur. Thus the evaluation had an excellent starting point with a clear planning document which could be used to develop an evaluation plan and to select the appropriate models and tools for the project evaluation. A clear project plan in terms of inputs, outputs and expected results is a very great benefit. It makes project implementation and project evaluation much easier and more successful.

The project team at Michigan State University decided to proceed by selecting an outside evaluator to conduct the evaluation. I was selected as that evaluator, because I was very knowledgeable in the uses of outreach and extension as a part of a university effort as well as the issues facing the project. and brought many years experience in Extension, in international work and in socially relevant interventions to the process.

The evaluation used project documents, interviews, email surveys and focus groups to reach and gather information from stakeholders in Rwanda, Michigan and Texas. The evaluation design was a multiple model approach. It began with an Evaluation Plan and Evaluation Crosswalk based on the Project Paper. The development of the evaluation crosswalk is discussed at length in our paper used as a professional development program document at the annual American Evaluation Association meeting.

Example of an Evaluation Crosswalk (based on project paper objectives)

Evaluation Questions	1	2	3	4	5
Planning and Evaluation					
• To what extend was consensus reached among partners regarding PEARL strategy, objectives and activities?	X	X			X
• To what extent did the Board of Directors meetings set priorities direction and policy?	X				X
Outreach Center					
• Does the Center function- with staff personnel (programmatic, administrative and support in place? Is there a place, equipment and infrastructure? Is there a functioning Advisory Board?		X	X		X
1. Have meetings been held?	X				X
2. Have connections with local enterprises for market	X				
driven opportunities, production quality, income generation…	X	X			X

Proposed sources of data
1= project documents
2=Observations (village, market, field demonstration and office) in Rwanda
3=Faculty and Administration interviews and focus group discussions in Rwanda
4=Surveys and follow-up interviews with faculty/students in US
5=Interviews with Project Staff

As can be seen from the example, an Evaluation Plan uses an Evaluation Crosswalk to identify the sources of data for the questions that have been selected for study. It is impossible to study everything so focus has to be created based on the needs of the people who will use the evaluation. What do they need to know is the question. Note too that it is desirable to have more than one source of data to answer a question. Note that the column without an "X" in it was still used in the much longer project Evaluation Crosswalk when we investigated the "human capital" part of the project.

The questions, and indeed the design of the evaluation are built from a project model such as an Input-Output Model or Logical Model of Program Evaluation. An Evaluation Plan/ Crosswalk can include multiple approaches such as a Case Study approach so as to understand or describe the dynamic and interactive context of the project. This evaluation built upon Collaborative Evaluation approaches in terms of selecting the questions to be evaluated in partnership with stakeholders, getting the voice of stakeholders, checking with them on what was being reported, making sure that there were more than one source of data. The evaluation report was shared with project leaders in Rwanda and at MSU as the evaluation proceeded so as to maximize use of the evaluation. This proved crucial as the MSU was preparing a Phase II proposal and needed to know what direction to take with that phase of the project given the results of the first phase. .

As would be expected there were significant design constraints due to the costs of travel. There were sixteen UNR faculty members who were studying in the US. Eleven of them were in East Lansing and the other five were at two different locations in Texas. Nonetheless, all stakeholders who were interviewed or who filled out a questionnaire were provided with the evaluation report for their review and acceptance.

An important strength of the evaluation as it developed was the opportunity to connect with program end users (farmers and marketers). This occurred because there was another technical assistance visit going on at the same time from CIRAD in France as the evaluation visit and the evaluator was able to profit from this focused effort study production and marketing of manioc/ cassava to observe the project process in action.

Results, findings

The evaluation of the PEARL Project showed it to be a success in many ways. The PEARL (Partnership for Enhancing Agriculture in Rwanda through Linkages) Project began in October 2000 with the first activities begun in January 2001. The In-Country Project Director arrived from Texas A&M University in Rwanda on January 30, 2001. He is supported in the US by Dr Dan Clay, the PEARL Project Director, and Mr. David Weight, PEARL Project Coordinator.

The project office in the US is based at the lead institution, Michigan State University. The project is being implemented with the collaboration of Texas A&M University. These institutions are working on behest of ALO (the Association Liaison Office) for University Cooperative in Development.

The project is aimed to rebuild the National University of Rwanda (UNR) after its decimation during the civil war/genocide era by: 1) engaging in faculty education; 2) participating in the redesign of the curriculum of the school of agriculture so as to make it relevant for the needs of rural Rwanda; and 3) by establishing an outreach center based at the UNR which would collaborate with other educational centers and various other government and non government agencies- all to improve the income and well being of rural citizens of Rwanda.

The project, funded by USAID in Kigali, fit into the strategic plan of the USAID mission in Kigali and had to report to USAID under their strategic plan category aimed at increasing the ability of rural families in targeted communities to improve household food security. In addition, the project had to address a specific indicator proposed by the funder of expanded agribusiness. The project has made significant contributions to the funding stakeholder, USAID, both in terms of success on the ground and in being able to report and publicize those results to their interested stakeholders.

In many ways, the evaluation showed that the project has achieved significant successes. This is particularly true since it faced all the challenges of being a start-up effort begun only six years after the genocide. It has worked within the National University to undertake a reform of the curriculum of the School of Agriculture. It has established functioning linkages and partnerships within Rwanda with ISAR (the agricultural research institute, OCIR (the coffee marketing organization) and ACDI/VOCA (a non-government organization). It has led the finding of a market niche for specialty coffee that has attracted the attention of the highest levels of government in Rwanda. It is supporting graduate degree study for sixteen Rwandans from UNR, ISAR and KIST (a technology school in Kigali) at Michigan State University and Texas A&M University.

Given that the project was looking toward a second phase, it was an excellent time to consider how to maintain the momentum and to continue to achieve successes in the future.

The following were the recommendation areas that were the focus of the project evaluation. The evaluation took this direction because these were the areas that the project management needed input and information about.

Management (Planning and Evaluation)

The area of establishment of a clear management process was of major concern to the project team. They were concerned to see a structure in place that could collect information for management and decision making and then use it as needed. Phase I of the project was essentially an effort to get the various components of the project off the ground and running. In phase II of the project, there would need to be established a management system for the project. Through this system, outcomes can be identified and monitored. Feedback will bring information about results achieved. This process would be of use for further planning and implementation. This management system would need to identify expected outcomes in the outreach and rural entrepreneurial development efforts; in the curriculum reform process at the university; and in human capital development (faculty development, engagement of the faculty returning from study abroad, partnering and collaborations across institutions). In the present first stage of the project such management detail was not possible, given that the project itself was an exploratory pilot effort. Review of the quarterly reports to the university office, and to USAID showed the initial stages of a reporting system. Discussions with staff at the Outreach center showed the focus on implementation and the comparative lack of expertise by the Rwandan staff in management.

A way to handle at least part of the process of data use might be to develop a local evaluation connection with the Rwanda Evaluation Society and expand local facilitation and evaluation skills so as to build local feedback and results-oriented planned processes (with funding support for travel to American Evaluation Association or other professional development). This suggestion came out of discussions at the American Evaluation Association Annual Meeting. There are various Topical Interest Groups (TIGS) in which people with common evaluation interests, gather. One such group is the International TIG. Since evaluation is so important to planned social change efforts such as projects, it is entirely logical to try to build up the expertise in local contexts to assist projects.

Outreach Center

The project paper contained a clear vision of how the Outreach Center should work. It was derived from the American Land Grant University model. It was thought of as the bridge between the university campus (teaching), the local agricultural research station so as to provide the connection with the local rural Rwandan farmers andn marketers. Indeed, the Rector of the University even used the terminology "engaged institution" in an interview.

A focus group meeting with the faculty in the School of Agriculture showed that not everyone understood the model. It was very different form the traditional UNR model which had been derived from the colonial system. From that perspective, Extension was the purview of the ministry of agriculture and there was no connection with the university.

Finally the project staff discussed their outreach work in terms of bringing income to the farmers. They had become involved in providing leadership for the export of specialty coffee and were being successful at it- as farmers and contacts in the non government organizations and coffee exporting business told us. Interviews with them

showed that they were very busy with the business aspects of establishing a new washing station system to improve the quality and getting the coffee into the specialty coffee market.

As a result, training for the Outreach Center staff needs to be planned for Phase II of the project so as to enhance management skills in Extension Program planning and implementation steps. Creation of the University Outreach Center would need to be implemented in a step- by- step progression over a reasonable length of time. This would include engagement at village level, with demonstrations, practical research (integrated agronomic and socio-economic) village level monitoring, implementation and reporting outcomes. It would provide the feedback loops for the UNR to be a grounded learning organization- such as discussed in the seminal work on learning organizations, by Senge et al., *The Fifth Discipline Field Book* and fundamental to a successful engaged university.

Curriculum Reform

The plan for curriculum reform at the UNR was being carried out in a careful way. Outside experts (one of whom was interviewed), faculty, administrators, project team leaders all reported that a coherent and complete plan was being designed to modify the program. Curricula were being redesigned; laboratories, library and communications (internet) were being updated. Practical demonstration areas were being planned.

Now comes the hard part of implementation which will be done in Phase II. Evidence from elsewhere shows that curriculum reform will not be an accomplished fact because a good plan is developed in the first phase of the project. Even a template and pilot curriculum as an example which might be developed and shared with the faculty members is only a first step. None of this will be enough to actually change the curriculum and remake the university into an effectively engaged institution. A plan with expected outcomes and roles for people to actually bring about the changes over the next phase of the project is in order. Each step of this process can have engagement from US universities as appropriate.

It is here that a new role might develop for MSU as the lead institution, since the main role of the first phase of this project is coming to an end (student support in the U.S.). That role would be to provide close support for curriculum reform- specific course level, faculty development, use of internet, support for exploration of alternatives; engagement in technical support in specific areas such as food technology for value adding (drying, storing, development of specific products for specific markets, food safety, market description and understanding, data and report management for shared use). This role could occur using the internet and other distance education methods as well as traditional contacts.

Faculty Development/ Training Component

A major challenge for Phase II of the project could be the successful re-integration of the sixteen students/ faculty members who received training in the US. The students/ faculty here in the U.S. were surveyed via e-mail as well as interviewed in focus groups. The professors working with them at MSU were also interviewed.

The Rwandan student faculty generally were very hard workers, very committed to their studies and interested in continuing on for PhD. When they arrive back in Rwanda, their energy and new ideas will need to be supported without alienating their colleagues who did not receive the opportunity for U.S. training. The U.S. educated

faculty members will be arriving back in Rwanda at various times which may not fit with the academic calendar. They may face problems connecting their training in the US academic environment to their jobs of working with students and with villagers in Rwanda. Continued connection with their U.S. professors in a mentoring relationship through the internet should be encouraged as could a mentoring relationship between faculty in Rwanda. They may be more willing to collaborate across institutions (UNR/ ISAR, for example) than faculty who did not travel.

From the interviews it seemed appropriate that continued use of short courses, internet connections and professional development opportunities should be offered to Rwandan faculty to promote curriculum reform objectives, outreach efforts, collaboration, practical research and other specific project objectives.

Implications and conclusions

The evaluation was successful because the information gathered and analysis provided was used. This occurred because the evaluation was focused and addressed pertinent questions. To a considerable extent, this was because of the high quality of the original project paper. Evaluations which are anticipated and planned for have a much greater chance for success than one that is planned late in the project.

The evaluation was successful because it had quite specific objectives. The project management team was anxious to learn what was going right and what was going wrong because they were in the process of drafting a plan for a second phase of the project. They wanted to learn from what they were doing. They needed the evaluation and were looking forward to using the information and analysis of the project.

Educational importance, implications

An evaluation of a complex project must handle complexity. For the PEARL Project this meant identifying and examining the following complex topics; changes in the university curriculum in Africa, partnering of government and non-government agencies to improve the quality of life for rural citizens, education of students here in the United States (at two separate institutions and three campuses) must use a variety of methods to collect data. The process was comparatively easy because it was possible to establish an evaluation plan based on a clear project proposal. In the Evaluation Plan, evaluation questions could be built upon a clear foundation of expected project impacts. This is the first educational point. A clear starting point of a project plan makes it easy to develop a sound evaluation plan. A sound evaluation plan is critical to a successful evaluation.

In a complex project such as this, it is to be expected that multiple evaluation approaches should be used. Nonetheless, it is very important to understand why each is selected and how the pieces fit together. For this the Collaborative Evaluation approach offers itself as a mechanism by which key stakeholders are informed of the choices in terms of approaches, evaluation questions and expected results so that there is buy-in and participation in the evaluation. An evaluation such as this is both formative and summative. It is worth considering the trade offs of having an evaluation conducted by an outside evaluator. The outsider can be above the fray and certainly has no stake in any particular outcome. The insider may understand all the contextual aspects in all their ramifications before beginning the evaluation. It is for that reason that an evaluation

might want to have both an inside and outside evaluation (as proposed above for the Phase II of the project). In addition, evaluation expertise is a skill worth developing in terms of organizational development.

Modern technologies of e-mail, the web and cell phones facilitate communication. As a result the fact that interviews and surveys were conducted thousands of miles apart was less of an obstacle than has been the case previously. At the same time face-to-face contact is essential so that evaluation participants can understand the process and provide input and direction to it. Then email could be used for data checking with people who had participated in discussions or interviews. New technologies need to be exploited where useful but should not be relied on exclusively.

Evaluation processes matter in terms of reporting outcomes and impacts. Stakeholders are very concerned about the use of their resources and all partners in agricultural development collaborations need to show results. By the same token, the complex interventions of agricultural development projects almost necessitate partnerships. Thus a major effort of agricultural development effort should be focused in sound evaluation design and implementation. That will build the feedback loops essential for learning organizations. Fortunately, there are resources such as the American Evaluation Association, with partnerships of evaluation societies across the globe.

References

American Evaluation Association." Guiding Principles for Evaluation". http://www.eval.org/EvaluationDocuments/aeaprin6.html.

Chelimsky, Eleanor and W.R. Shadish (1997). *Evaluation for the 21st Century; a Handbook*. Sage Publishing. Thousand Oaks, CA.

Dufour, Dominique, D.G. Dumas, C. Marouze, J. Brouat. (2003). *Implantation d'une unite de production de farine et d'amidon de manioc dans la region de Butare (Rwanda)*. CIRAD-Amis, Montpellier, France.

Fetterman, David M.(2001). *Foundations of Empowerment Evaluation*. Sage Publishing. Thousand Oaks, CA.

Fitzpatrick, Jody L., J.R. Sanders and B.R. Worthen (2003). *Program Evaluation: Alternative Approaches and Practical Guidelines* (3rd Edition). Addison, Wesley Longman. White Plains, NY.

Gourevitch, Philip. (1998). *We wish to inform you that tomorrow we will be killed with our families*. Picador Books, Farrar, Straus and Giroux. New York, NY.

O'Sullivan, Rita G. and J.M. O'Sullivan (2003). Collaborative Evaluation: a pre-conference professional development workshop offered at the American Evaluation Association Annual Meeting, November 2003, Reno NV.

Ouazani, Cherif and others. "Rwanda agriculture", *Jeune Afrique, #2176,* septembre 29, 2002 (pages 61-74).

PEARL Project- Compilation of quarterly reports (Jan- August 2001)

PEARL Project- Compilation of quarterly reports (September 2001- February 2002)

PEARL Project- Compilation of quarterly reports (Mar- August 2002)

Pearl Project- Newsletter The Reachout, 1, 2

PEARL Project-Project Paper.

Power, Samantha (2001). "Bystanders to Genocide. Why the United States let the Rwandan Tragedy happen". *The Atlantic Monthly*. September 2001.

Senge, Peter, A. Kleiner, C. Roberts, B. Smith & R. Ross (1994). *The Fifth Discipline Fieldbook; Strategies and Tools for Building a Learning Organization*. Currency Books (Doubleday). New York. NY.

The University of Rwanda (abbreviation: UR, Kinyarwanda: Kaminuza y'u Rwanda, French: Université du Rwanda) is Rwanda's largest higher education institution. UR was formed in 2013 through the merger of previously independent public institutions of higher education, the largest of which was the National University of Rwanda. The university's head office is in Kigali. The university is composed of six independent, self-governing colleges.